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For Decades, The Department of Defense Knew Fire Fighting Foams With PFAS Chemicals Were Dangerous But Continued Their Use

As far back as 1970s, studies conducted by the Department of Defense showed that the firefighting foam used on military bases and ships known as Aqueous Film Forming Foam (AFFF) that contain fluorinated chemicals now known as PFAS were toxic. By the 1980s, animal studies conducted by the Air Force revealed that PFAS chemicals could pose environmental and health risks.

Here is a timeline of internal DoD studies and reports detailing just how much they knew about the dangers of using AFFF.

1963 - Navy scientists seek patent for AFFF.

1966 - Navy granted patent for AFFF.

1967 - Fire on the USS Forrestal kills 34 sailors.

1967 - The Navy and Marine Corps require the use of AFFF.

1973 - Air Force report, citing toxic effects of AFFF, calls for carbon filtration.

1974 - Air Force report cites toxic effects of AFFF on fish, suggests treatment of AFFF waste.

1976 - Navy scientists cite toxic effects of AFFF.

1978 - Navy study cites toxic effects of AFFF.

1983 - Air Force technical report finds PFDA has toxic effects in mouse studies.

1985 - Navy report again cites toxic effects of AFFF.

1989 - Citing toxic effects, Air Force calls for better management of AFFF waste.

1991 - Army urges Fort Carson to stop using "hazardous" AFFF.

2000 - DOD alerted that PFOS is "bioaccumulative" and "toxic."

2001 - DOD memo finds PFOS "persistent, bioaccumulating, and toxic."

2001 - DOD and EPA hold meeting on military use of PFAS in AFFF.

2011 - DOD releases a Chemical and Material Emerging Risk Alert for AFFF, citing "human health and environmental risks."

2016 - Assistant secretary of Defense directs branches of the military to prevent uncontrolled environmental releases of AFFF and to dispose properly of PFOS containing AFFF.

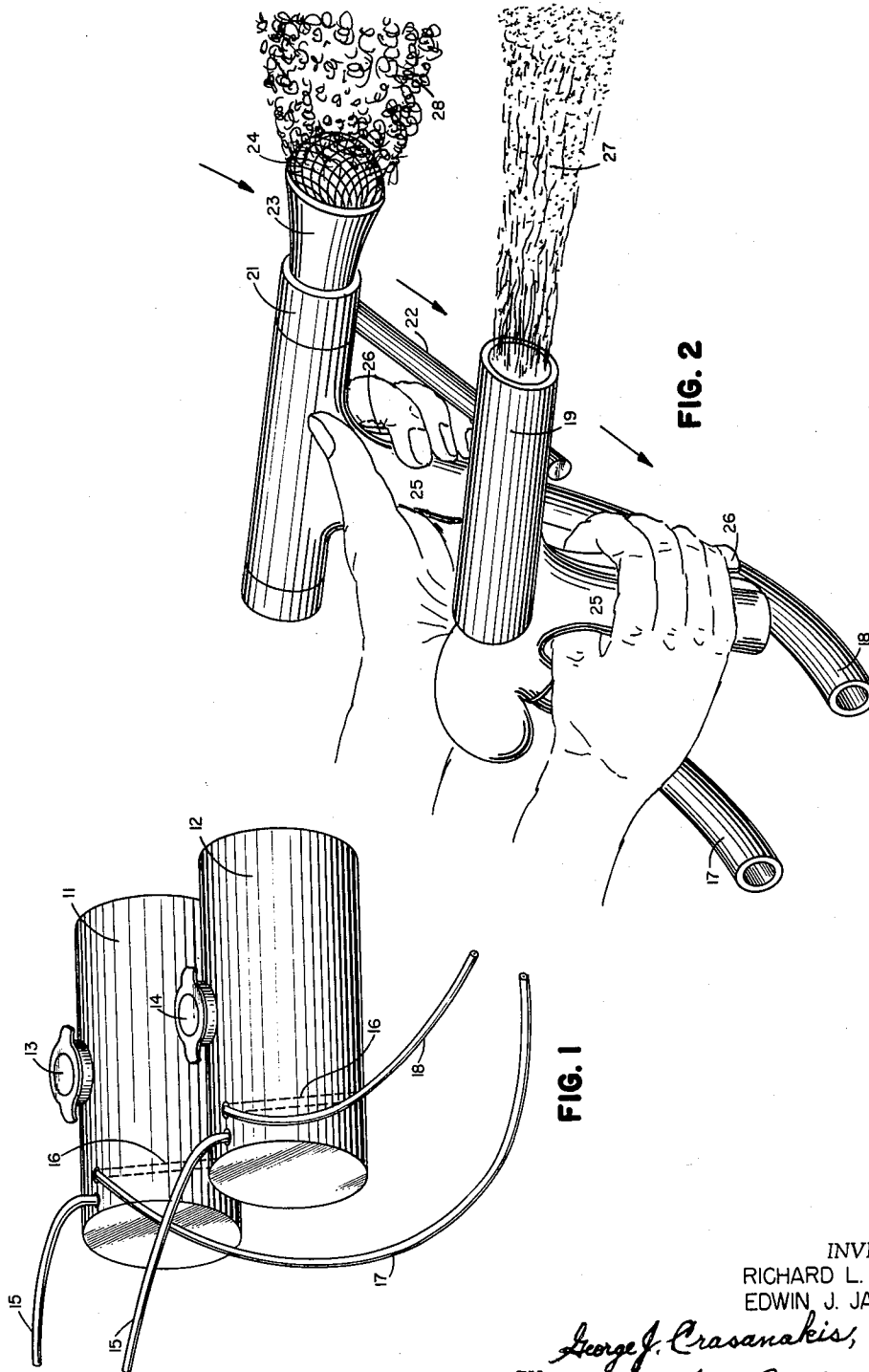
June 28, 1966

R. L. TUVE ET AL

3,258,423

METHOD OF EXTINGUISHING LIQUID HYDROCARBON FIRES

Filed Sept. 4, 1963



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3,258,423

**METHOD OF EXTINGUISHING LIQUID
HYDROCARBON FIRES**

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America as represented by the Secretary of the Navy
Filed Sept. 4, 1963, Ser. No. 306,665
9 Claims. (Cl. 252-3)

The invention described herein may be manufactured and used by or for the Government of the United States of America for governmental purposes without the payment of any royalties thereon or therefor.

This invention relates to novel compositions for covering a low flash point flammable liquid to prevent ignition or reignition of the same when exposed to a nearby flame or source of ignition. More particularly, it relates to a method for using prior art fire extinguishing agents in conjunction with novel foam compositions for blanketing newly extinguished fuel surfaces which are susceptible to fire flashback.

Heretofore, finely-divided dry chemicals, such as sodium and potassium bicarbonate have been used as fire extinguishing agents due to their fast and efficient flame-suppressing ability. The superiority of potassium bicarbonate as a fire extinguishing agent over the previously employed sodium bicarbonate has been demonstrated and reported in a Naval Research Laboratory Report 5183 on August 21, 1958, by R. R. Neill. The dispersion of a finely divided mass of powder directly within the combustion zone of a flaming fuel provides rapid extinguishment of the flames, but the occurrence of flashbacks over the extinguished area is certain unless the fire has been completely extinguished and no possible source of reignition remains.

Methods have also been devised for the application of fire-fighting foams by spraying or by injecting a coherent foam blanket on the surface of a burning fuel. Stable foams which were spread in sufficient thickness over the entire burning area have been capable of resisting the heat and flame attack to suppress and smother a conflagration. Prior art foams which have been used for fire-fighting purposes were formed of proteinaceous substances, such as, keratins, albumins, globulins, hemoglobins, seed meal, etc., which were modified by hydrolysis and stabilized with salts of polyvalent metals, e.g., ferrous sulfate.

Protein foams, however, are disadvantageous for fighting hydrocarbon fires because of the heavy blanket of foam which must be spread over the entire burning surface, while any disruption of the foam barrier results in a flare-up of burning fuel. Protein foams have also been found to be adversely affected by finely-divided dry chemicals which have been treated with a silicone film; the silicone acts as a defoamer and causes the protein foam to collapse at a high rate.

Dry chemical agents are treated with a silicone surface to provide free-flowing, moisture-resistant powders, to act in the nature of a fluid, said powders being readily discharged by pressure from a hose line or nozzle.

The present invention provides novel foam compositions which have proven to be effective in extinguishing fires when utilized singly or in combination with other fire extinguishing agents. The present foam compositions display a remarkable effect in their ability to protect newly extinguished flammable fuel surfaces from possible recurrence of fire. In this respect, the novel foams have been found to be especially useful in combating fires in gasoline, naphtha, ether, benzene and other combustibles of a highly flammable vapor; they are also useful in combating fires in other hydrocarbons, which are capable under the heat conditions of a fire to give

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off considerable vapor, for example, kerosene, jet fuels, diesel oils, etc.

The present foams serve the fire extinguishing process in two ways: they block the feedback of radiant energy to a fuel surface and they also prevent further release of flammable vapor after the flames have been suppressed.

The foams disclosed herein are suitably employed with dry chemical agents, in particular potassium bicarbonate powder, the foams displaying complete stability in the presence of silicone-coated powder. Moreover, foams by their very nature, enhance the extinguishing properties of KHCO_3 powder by eliminating the possibility of flashbacks. With rampart fuel fires such as those occurring at aircraft sites where a powder cloud of KHCO_3 is applied, the present foam is then sprayed on the surface of the fuel to secure the extinguishment of the fire. The foam spray will prevent flashbacks on the extinguished fuel surface while the remainder of the flames are extinguished. Thus, the chief limitation of KHCO_3 powder, because of its inability to cope with flashbacks, has now been successfully overcome as a result of the present powder-foam method of combating fires.

A further desirable effect noted in the use of the present foam compositions is based on their remarkable ability to extend their usefulness even after the air-liquid bubbles are disintegrating. The foams release a thin surface film which persists on the fuel surface and which has been found to be impervious to flammable fuel vapors. The thin film is capable of spreading over the fuel-foam interface and also over fuel areas which are not fully covered with foam. The film is quickly reformed whenever it becomes ruptured. Thus, the thin film is equally effective as the foam itself in preventing the release of fuel vapor. Previous foams cannot be utilized in this manner, for the foamy coating is somewhat transient and can be ruptured, and previous foams are therefore susceptible to reignition of fuel.

Thus, it is an object of the present invention to provide a more efficient foam composition for suppressing and extinguishing fires.

Another object of the invention is to provide a fire extinguishing technique which employs a foam to prevent flammable vapor release from a fuel surface after the flames have been suppressed.

A further object of the invention is to provide novel foam compositions that can be used effectively with any dry powder agents to effect rapid and complete extinguishment of hydrocarbon fires.

A further object of the invention resides in the formation of a water-containing film which prevents the release of flammable vapor from a hydrocarbon surface.

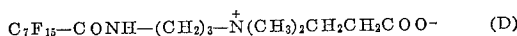
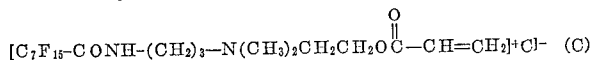
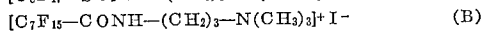
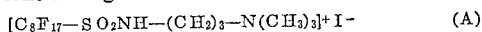
Other objects and advantages of the invention will become more fully apparent from the following detailed description and as illustrated in the accompanying sheet of drawings in which:

FIG. 1 schematically illustrates a system by which a dry powder and a foam composition are delivered to twin discharge nozzles for combating hydrocarbon fires in accordance with the teachings of the present invention; and

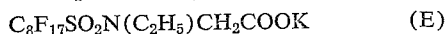
FIG. 2 is a view of the twin discharge nozzles under operating conditions.

In accordance with the present invention, novel foam compositions are formed from solutions containing therein as foaming agents one or more fluorocarbon compounds; said compositions are capable of forming a frothy mass when blown or mixed with air, Freon-12, nitrogen, or other suitable gaseous media. The fluorocarbon foam-formers of the present invention are de-

derivatives of the perfluorocarboxylic and perfluorosulfonic acids, represented by the general formula, R_fCO_2H and R_fSO_2H , respectively. In the carboxylic acid molecule, the R_f is a perfluoroalkyl chain of seven carbon atoms, C_7F_{15} —, and in the sulfonic acid molecule, the R_f is a perfluoroalkyl chain of eight carbon atoms, C_8F_{17} —. The perfluoroalkyl R_f may be a straight chain or a branched chain. Preferred fluorocarbons which are useful for the purposes of the present invention comprise the following quaternary nitrogen compounds which have in their molecular structure an intermediate amidopolymethylene linkage:



An additional fluorocarbon which is also suitable for the preparation of the present foam is the sulfonamido aliphatic acid salt represented by the formula:



The above fluorocarbon compounds provide long-chain, surface active cations and anions which have a terminal perfluoroalkyl chain that is both hydrophobic and oleophobic and therefore repellent to water and to hydrocarbons. The molecules are capable of concentrating on the surface of water or hydrocarbon fuel and form an oriented surface film with the perfluorocarbon end pointed upward.

The molecular structures (A), (B), (C) and (D) consist of an anion electrostatically united to a long chain cation, owing to the positive charge of the quaternary nitrogen atom. The molecule (D) is cationic, but it is also anionic due to the presence of the carboxylic group which is able to release hydrogen atoms in aqueous solutions. The ionized (D) molecule is amphoteric and ampholytic and thus presents both cationic and anionic properties, since both positive and negative ionization sites exist in the ion. The molecule (E) is a carboxylic acid salt, and the carboxylate group in this compound is anionic.

Other perfluoro compounds showing similar characteristics may be used as the foam formers in accordance with the invention.

When the present fluorocarbons are used in relatively small concentration in water, they are capable of forming frothy emulsions that are especially useful as fire extinguishing foams. The present fluorocarbons possess the necessary thermal and chemical stability which is essential for foam compositions. The fluorine-carbon bond provides improved stability to the molecule. The fluorine in the terminal portions renders the molecules more stable in the presence of heat. Moreover, the above molecular structures possess extraordinary activity in reducing the surface tension of solutions even when they are present in very small concentrations.

The fluorocarbon compounds are especially useful in foams which are designated as vapor-controlling or securing agents concomitant with the use of flame-suppressing dry powders. The present foams do not disintegrate nor react with a dry powder such as the Purple-K Powder (P-K-P). Purple-K Powder is a term used to designate potassium bicarbonate fire extinguishing agent which is free-flowing and easily sprayed as a powder cloud in flammable liquid and other fires.

Features of this invention relate to the water-containing film at the foam-fuel interface, and to the ability of the film to persist during and after the foam has disintegrated due to external effects. The fluorocarbon film, which retains a certain amount of water on its surface, is capable of preventing vapor release from the fuel surface. Additionally, the surface film exhibits a great

mobility and self-sealing ability and is thus capable of resealing the surface after it has been pierced. Previous fire-fighting foams provide an initial foam blanket, but once the foam layer is broken the surface is open to reflash.

The foams pertaining to this invention are prepared by forming a water solution containing the perfluoro compound in a sufficient amount when suitably acted upon to form a foamy mass. Foams of good water retention and adequate resistance to breakdown contain the perfluoro compounds in concentrations of about 0.10 to about 10% or more by weight, depending on the particular compound used for this purpose. At higher concentrations, the solutions have a tendency to gel and become stratified. Preferably, the foam compositions contain one or more of said fluorocarbon compounds in concentrations in the range of from about 0.25 to about 4% by weight of solution.

Solutions containing a perfluoro compound, for example the compound designated (A) in concentrations of 0.25% or more, will form a frothy mass by aerating with a gas, such as Freon-12 or with air to form relatively stable foams. The solutions may be readily expanded to volumes as high as 40-50, based on the ratio of air to liquid.

Freon-12 is a trade name for the low-boiling difluoro dichloro methane commonly known as a refrigerant gas.

The water content in foams determines their ability to withstand thermal shock and also their ability to spread and level off readily, consequently, volume expansion plays a very important role in providing good fire extinguishing properties. Therefore, it is preferred to employ the present foams at volume expansions of approximately 8 or 10, that provide thereby a water content of about 0.025 gal./ft.² of surface area. The lower volume expansion displays good action in flowing around and up against surfaces.

The compounds designated (A) and (D) have been found to be more effective in their ability to form resistant foams capable of protecting low flash point fuels from ignition or reignition for periods of from 5 to 10 minutes or more. Compounds (A) and (D) may be used in about 0.5% concentration to form foams of maximum stability.

Alternately, compounds (A) and (D) may be combined in a single solution in any relative amount up to 4%, but, preferably, they form foams of maximum usefulness by using equal amounts of compounds (A) and (D) in a total concentration of about 0.50%, consisting of 0.25% of (A) and 0.25% of (D) by weight of solution, based on a final foam volume expansion of 8 to 10.

Improved stability in the present foams, especially with the lower expansion foams, is obtained by means of an additive that improves the resistance of the foam to heat and its capacity to maintain its surface and liquid content. A foam improver in the form of a water-soluble polymeric material combined in solution before foaming will increase the stability of the foam. Foam improvers which may be advantageously combined in solution involve the high molecular weight polymers of ethylene oxide, polyvinyl resins, polyglycols, carboxy vinyl polymer, etc. A polymer containing between 2000-4000 units of ethylene oxide has been found to be a useful additive, imparting greater resistance to foam disintegration. A polyethylene polymer commercially available is the Polyox WSR-35 manufactured by the Union Carbide Chemical Co. Foam additives of this type are included in the foam composition in an amount in the range of from about 0.5 to 5% by weight of the final solution.

A preferred foaming composition in accordance with the invention has the following composition by weight:

| Component: | Percentage |
|---------------------|------------|
| (A) ----- | 0.25 |
| (D) ----- | 0.25 |
| Polyox WSR-35 ----- | 0.50 |
| Water ----- | 99.0 |

The above solution is blown or mixed with Freon-12 or any other gas (including air) to form a gas-liquid emulsion.

The following test procedures are illustrative of the fire extinguishing characteristics of the present foam compositions. The presence of the film barrier which forms on the fuel surface and its effective interference with the ignition and propagation of flame is hereby vividly demonstrated.

Test 1

The compound (A) is formed into a 1% aqueous solution and expanded with air to a volume of about 10. The foam is then applied as a thin layer of about ¼ inch to the surface of motor grade gasoline. The foam prevented ignition by an open flame and when ignition was finally effected only a small amount of vapor was present to permit a brief flash across the surface. Agitation with a probe disclosed that it was difficult to break open the barrier to get a sustained flame. When exposed surfaces of fuel was finally obtained, the exposed fuel would not take fire until repeated agitation in one area and then it was quickly extinguished. This test indicated the presence of a useful film that forms a surface barrier capable of suppressing fuel vaporization.

Test 2

The formation of a surface film was further demonstrated by means of a small amount of fluorescent material in the foam solution employed in Test 1. A small amount of foam containing the fluorescent material, sodium fluorescein, was placed on the surface of gasoline, and the area of foam and surrounding surface were observed under ultraviolet light. The green glow of the foam was soon observed spreading in all directions on the surface of the gasoline. As the foam began to disintegrate with time, the green glow on the surface grew larger. After the foam had completely disintegrated, the green coloration had spread out over an area many times larger than the area previously occupied by the foam.

Test 3

In a field scale test involving a 14-foot diameter gasoline fire, the presence of the film barrier along with its mobility and self-sealing ability was further demonstrated. A container lid 19 inches in diameter was placed in the gasoline fire prior to the application of foam. A foam containing about 0.5% of compound (D) was blown with air and applied to give a density of about 0.06 gallon of solution per square foot of fuel surface over the entire burning surface until the fire was extinguished. After a lapse of about one minute, a torch was brought over the opening left by the lid. The surface could not be ignited even with agitation. Gaps also occurred in the foam blanket, and the foam was subject to considerable movement by the wind. However, the open surfaces could not be ignited even with agitation proving that the surface film had formed and held together by resealing itself throughout the period in which the gasoline surface was being agitated.

The present fire extinguishing method is best disclosed by a certain illustrative embodiment which will now be described in detail.

Illustrated in FIG. 1 is a pressurized system for discharging a dry chemical and a perfluorocarbon foam of the type described herein from a dry chemical container 11 and a solution container 12; said containers may form a part of a mobile unit that can be readily dispatched to the scene of hydrocarbon fire. The dry chemical in container 11 may be potassium or sodium bicarbonate, ammonium dihydrogen phosphate or CO₂ gas under pressure. In container 12, the foam solution may consist of a mixture of the perfluoro compounds (A) and (D) in a concentration of about 0.25% of each compound and including therein a foam stabilizer, such as polyethylene polymer, and a pour point depressant, such as ethylene glycol. The dry chemical and solution are charged through

openings 13 and 14 in the respective containers. The containers are then suitably provided with means for pressuring said containers through pressure lines 15; the discharge pressure forces the contents through outlet lines 16 near the bottom of said containers.

The powder and foam are conveyed through discharge lines 17 and 18, respectively, and discharged as a spray through separate nozzles, as shown in FIG. 2. The solution is made into a foaming mass by mechanically mixing with air or other gas. More conveniently, the foam may be readily formed by adding a suitable amount of Freon liquid to discharge line 18. Upon leaving the nozzle 21, the Freon flashes into the vapor phase forming a foaming mixture 28.

Turning now to FIG. 2, the powder nozzle 19 and the foam nozzle 21 are mounted in a fixed position relative to each other on a rod holder 22. The foam nozzle 21 is equipped with a discharge tip 23, which may be the fog-foam tip SG-2559, manufactured by the Rockwood Sprinkler Corporation, said tip being rated at 50 gallons per minute at 100 p.s.i. The tip has a convex screen 24 mounted in the front to cause the foam to fan out in a wide arc upon discharge.

The dual nozzle arrangement is designed with pistol grips 25 that have trigger type shut-off valves 26 to permit an easy on-off operation with one hand on each pistol grip. The operator begins with the dry chemical discharge 27 initially and moves in a given direction. He then directs the foam discharge 28 over the area covered by the powder until the entire area is blanketed successively with dry chemical and with foam. The foam covers the area after the dry chemical has extinguished the flames.

150 square feet of gasoline fire may be extinguished with about 20 lbs. of KHCO₃ powder and 5 gallons of perfluorocarbon foam. The foam is preferably applied with a water density of 0.03 gal./ft.².

The present foams constitute essentially air-water emulsions that display a substantial capability to distribute a thin layer of water in an active film. The term "light water" has been coined to describe the present foamy mass with its active film. The oriented, surface-active film is capable of distributing a useful water content which does not drain rapidly from a hydrocarbon surface. This water-containing film with a specific gravity of nearly 1.0 is capable of floating on a hydrocarbon surface with a specific gravity of only 0.7 and to persist thereon for an extended period. A further distinction of "light water" is its ability to foam from very dilute solutions containing a small concentration of the perfluorocarbon foaming materials. The complete disintegration of these foams results essentially in water deposition containing a soluble compound.

Past experience has shown that the water content of foams is of great importance in determining their ability to withstand thermal shock. The breakdown of foam involves evaporation from the surface; it also involves drainage of liquid from the bubble wall and interstices. The retardation of foam decay is thus affected by the volume of water in the foam. A unique property of the fluorocarbon foams is that their heat resistance is not entirely related to their water content. The present foams lose their water liquid phase at a higher rate than protein foams, but they exhibit good heat resistance and vapor suppression qualities.

The present fluorocarbon composition may be formulated more conveniently as concentrates which may then be diluted with water to form the active foaming solution to generate the foam. The concentrate may also contain stabilizers and pour point depressants and other additives.

In a projected fire-fighting situation a hydrolyzed protein foam and the perfluoro, "light water" foam may be used simultaneously or successively in a single locale. The two foams may also be combined and applied as a mixed blanket of foam without adverse effects. When

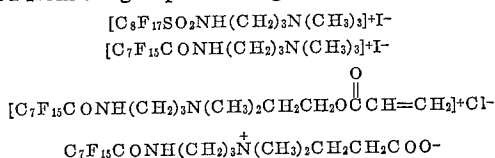
the mixed foam is employed on a fuel surface, the vapor-suppressing film of "light water" is clearly evident and equally effective in preventing reignition.

The invention therefore provides novel perfluorocarbon foams which have been found to be very advantageous in combating fuel fires, especially hydrocarbon fuel of high flammable vapor. In addition, the present invention provides an improved method for combating hydrocarbon fires by discharging a flame-suppressing dry powder and then blanketing the extinguished flames with a perfluorocarbon foam to prevent further flashbacks.

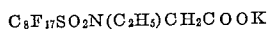
Obviously many modifications and variations of the present invention are possible in the light of the above teachings. It is therefore to be understood that within the scope of the appended claims the invention may be practiced otherwise than as specifically described.

What is claimed is:

1. A method of extinguishing a liquid hydrocarbon fire which comprises covering the burning area of the liquid hydrocarbon with an aqueous foam having a non-combustible gas phase and an aqueous liquid phase which contains in solution from about 0.1 to 10% by weight thereon of a surface active fluorocarbon compound selected from the group consisting of



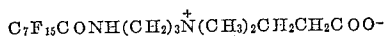
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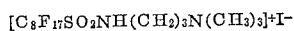
2. A method as defined in claim 1, wherein the concentration of surface active fluorocarbon compound in the aqueous liquid phase of the foam is from about 0.25 to 4% by weight thereon.

3. A method as defined in claim 2, wherein the aqueous foam has a gas to liquid volume ratio of from about 8 to 10.

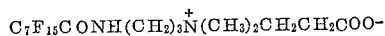
4. A method as defined in claim 3, wherein the surface active fluorocarbon compound in the aqueous liquid phase of the foam is



5. A method of extinguishing a liquid hydrocarbon fire which comprises covering the burning area of the liquid hydrocarbon with an aqueous foam having a non-combustible gas phase and an aqueous liquid phase which contains in solution about 0.25% by weight thereon of each of the surface active fluorocarbon compounds



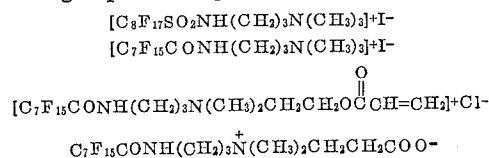
and



and the gas to liquid volume ratio thereof is about 8 to 10.

6. A method as defined in claim 5, wherein the gas phase of the aqueous foam is difluorodichloromethane.

7. A method of extinguishing a liquid hydrocarbon fire which comprises covering the burning area of the liquid hydrocarbon with a dry powder capable of extinguishing flames at the surface of the liquid hydrocarbon and in amount to extinguish said flames and immediately thereafter covering the dry powder covered area of the surface of the liquid hydrocarbon with an aqueous foam having a non-combustible gas phase and an aqueous liquid phase which contains in solution from about 0.25 to 4% by weight thereon of a surface active fluorocarbon selected from the group consisting of

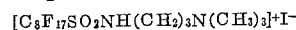


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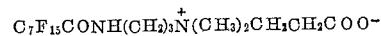


8. A method as defined in claim 7, wherein the aqueous foam contains in solution a foam stabilizer which is a water-soluble high molecular weight polymer and in a small amount sufficient to improve the thermal stability of the foam.

9. A method as defined in claim 7, wherein the dry powder is potassium bicarbonate powder and the aqueous liquid phase of the foam contains in solution about 0.25% by weight thereon of each of the surface active fluorocarbon compounds



and



and the gas to liquid volume ratio of the foam is about 8 to 10.

References Cited by the Examiner

UNITED STATES PATENTS

| | | | |
|-----------|---------|------------------|------------|
| 2,021,981 | 11/1935 | Bichowsky | 252—8 XR |
| 2,727,923 | 12/1955 | Husted | 252—357 XR |
| 2,759,019 | 8/1956 | Brown et al. | 252—355 XR |
| 2,764,602 | 9/1956 | Ahlbrecht | 252—357 XR |
| 2,803,656 | 8/1957 | Ahlbrecht et al. | 252—355 XR |
| 2,818,382 | 12/1957 | Rotival | 252—8 |
| 2,915,554 | 12/1959 | Ahlbrecht et al. | 252—355 XR |

OTHER REFERENCES

"Carbopol," C & EN, Sept. 29, 1956, page 64, S.S. Digest.

"Carbowax," Carbon and Carbide, New York, N.Y., 1952, page 19.

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THE IMPACT OF THE USS *FORRESTAL*'S 1967 FIRE ON UNITED STATES
NAVY SHIPBOARD DAMAGE CONTROL

A thesis presented to the Faculty of the U.S. Army
Command and General Staff College in partial
fulfillment of the requirements for the
degree

MASTER OF MILITARY ART AND SCIENCE
Military History

by

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Fort Leavenworth, Kansas
2004

Approved for public release; distribution is unlimited.

MASTER OF MILITARY ART AND SCIENCE

THESIS APPROVAL PAGE

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The opinions and conclusions expressed herein are those of the student author and do not necessarily represent the views of the U.S. Army Command and General Staff College or any other governmental agency. (References to this study should include the foregoing statement.)

ABSTRACT

THE IMPACT OF THE USS *FORRESTAL*'S 1967 FIRE ON UNITED STATES NAVY SHIPBOARD DAMAGE CONTROL, by LCDR Henry P. Stewart, United States Navy, 112 pages.

This thesis examines the impact of the 1967 flight deck fire on the aircraft carrier USS *Forrestal* (CVA 59) and the resulting two investigations, on the development of US Navy damage control doctrine and equipment. The first investigation focused solely on the *Forrestal* fire; the second assessed the safety of aircraft carrier operations throughout the US Navy. Both investigation reports included several proposals to improve shipboard damage control. The thesis found that most of these recommendations were successfully implemented, substantially enhancing shipboard damage control capability over the long term. Successful implementation of these proposals depended on the following: strong support by, long-term involvement of, and resourcing by the Chief of Naval Operations, as well as broad agreement by senior Navy leaders that the proposed changes were necessary based on lessons learned from the two investigations. Training and material deficiencies appeared to be noncontroversial and thus relatively easy to correct; proposals that did not mesh well with Navy culture and existing personnel practices appeared especially controversial and were not successfully implemented.

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ACRONYMS

| | |
|---------------|---|
| CASS | Carrier Aircraft Support Study |
| CCOL | Compartment Check-Off List |
| COMNAVAIRLANT | Commander, Naval Air Force, US Atlantic Fleet |
| COMNAVAIRPAC | Commander, Naval Air Force, US Pacific Fleet |
| CVA | Carrier Vessel Attack |
| JAGMAN | Manual of the Judge Advocate General |
| NSTM | Naval Ship's Technical Manual |
| OBA | Oxygen Breathing Apparatus |
| OPTAR | Operating Target |
| PKP | Potassium Bicarbonate |
| PLAT | Pilot Landing Aid Television |
| PRSACO | Panel to Review Safety in Aircraft Carrier Operations |
| SHIPALT | Ship Alteration |

CHAPTER 1

INTRODUCTION

One of the most serious disasters in modern naval history began just before 11:00 a.m. on 29 July 1967. On that morning, one of the United States Navy's most modern aircraft carriers, USS *Forrestal* (CVA 59) was operating in waters off the coast of Vietnam.

The Ship

Forrestal was the first of the "supercarriers" of the US Navy. Commissioned in 1955, she was the first US aircraft carrier specifically designed to operate jet aircraft, and was the first carrier the United States built following World War II. Her namesake was James V. Forrestal, a former naval aviator, and our nation's first Secretary of Defense. *Forrestal* was 1,076 feet long, 252 feet wide at her flight deck, and displaced over 79,000 tons. In comparison, the *Essex* class aircraft carriers built during World War Two only displaced 41,000 tons. *Forrestal*'s flight deck had approximately 250,000 square feet of area. Her engineering plant was able to produce 260,000 horsepower and consisted of oil-fired boilers and steam turbines. She had four propellers, and could achieve a top speed of greater than 30 knots (approximately 35 miles per hour). She had 19 separate levels (called "decks" in naval terminology), and over 2,000 separate compartments, or "spaces." A crew of 3,000 men operated the ship, and 2,500 more men operated and maintained the embarked aircraft. *Forrestal* had her own post office, laundry rooms, and ship's store (selling cigarettes, snacks, and personal items for crew members), staterooms for officers, and lounges for the crew. She produced her own electricity and distilled

approximately 200,000 gallons of fresh water daily for drinking, washing, and cooking. Many of her interior compartments were air-conditioned. She was a virtual “city at sea.”

The Incident

The *Forrestal* had recently arrived in the waters off Vietnam, and had been bombing targets in North Vietnam for the previous four days. *Forrestal* launched and recovered all aircraft from the first strike of the day without incident, and the crew prepared the second strike group’s aircraft for launch. Crewmen staged 27 aircraft on the flight deck. The fully armed planes were crowded together on deck as the crew conducted final preflight checks. Each aircraft carried a full load of bombs, rockets, and ammunition, and the fuel tanks of each plane were full. In addition, crew members staged several tons of bombs on the flight deck on wooden pallets.

The *Forrestal* accelerated to nearly 30 knots and turned into the wind as she prepared to launch the second strike of the day (she was generating high relative winds over her flight deck to provide sufficient lift to safely launch her aircraft.) Several of the jets started their engines in preparation for launching. Without warning, a rocket was accidentally fired from one of the F-4 Phantom fighter planes on the deck. The rocket struck a crewmember on deck before striking and ripping open an A-4 Skyhawk staged on the opposite side of the flight deck. The rocket passed through the aircraft without exploding and hit the ocean. However, several hundred gallons of jet fuel poured from the Skyhawk’s punctured fuel tank and quickly ignited by particles of burning rocket propellant left on the flight deck. The burning fuel from the stricken jet was pushed aft (back) by the heavy winds across the flight deck. The burning fuel quickly engulfed several other aircraft staged on the flight deck. Within seconds, these aircraft began

burning, and the fire continued to spread. The officer of the deck (the officer on watch responsible to the commanding officer for safe operation of the ship) immediately sounded General Quarters. This was a shipwide announcement that the ship was experiencing an emergency. He quickly followed this up with a verbal report over the 1MC (the shipwide general announcing system) notifying the crew of the fire on the flight deck. The *Forrestal's* crew moved toward their assigned "battle stations."

When General Quarters was set, *Forrestal's* crew members fully manned all positions in the ship's damage control organization. The crew also set Material Condition Zebra. This compartmentalized the ship by closing doors and hatches throughout the ship. Many of these hatches were normally open to facilitate crew movement throughout the ship. Closing them would help to limit the flow of smoke, fire, and firefighting water through the ship. The Commanding Officer ordered the ship to stop, to reduce the wind across the flight deck that was fanning the blaze. However, the fire continued to spread quickly.

The heat of the fire exploded a bomb on the flight deck approximately ninety seconds after the fire began, and a second bomb exploded a few seconds later. These explosions severely damaged the carrier and killed several sailors on the flight deck. The fuel tanks of several other planes ruptured, adding to the intensity of the blaze. The exploding bombs created several holes in the flight deck, allowing fire and smoke to spread into the interior of the ship.

Forrestal's crew feverishly battled and eventually extinguished the fire. It took over twenty-four hours to extinguish the fires that spread below the flight deck. The losses caused by this incident were high. One hundred thirty-four sailors were killed by

the fire, and 161 more were injured. Over twenty aircraft were lost. The damage forced *Forrestal* to suspend combat operations and conduct temporary repairs in the Philippines before returning to the US for permanent repair. Repairs to the ship cost approximately \$72 million, and took approximately two years to complete.

Purpose of This Research

Sailors have feared fires at sea since the days of the earliest ships. Even in modern times, ship's crews had to depend on each other to save their ship (and their own lives) when disaster struck. Every sailor had to be a firefighter as well. Proficiency was important, since fire could quickly spread in the hazardous shipboard environment. It remains vital for the Navy to accurately assess the cause of disasters and apply lessons learned to prevent similar situations from recurring. Failure to do so can result in many lives lost, millions of dollars in damages, and even the loss of a ship.

The purpose of this thesis is to examine how the Navy applied lessons learned from the USS *Forrestal* conflagration on 29 July 1967 to improve fleetwide damage control capability (training, doctrine, installed equipment, and warship design). The primary research question is: Did this fire have significant influence on the US Navy's damage control doctrine and training, shipboard firefighting equipment, and warship construction? Secondary research questions include: If so, what specific changes resulted from this disaster? Were these changes significant and permanent? Does historical evidence show that these changes were effective?

The thesis statement of this research is that the US Navy significantly improved damage control training, damage control equipment, and warship design as a direct result of lessons learned from the fire on USS *Forrestal*.

Methodology

Numerous historical documents were examined to prove the thesis and answer the research questions. The official investigation report of the incident was studied to learn about the damage control organization on *Forrestal* in 1967. This thesis reviewed what damage control equipment was available to *Forrestal's* crew, what survivability features were included in *Forrestal* by designers, and what damage control doctrine existed to guide her crew. The thesis also examined the issue of whether the Navy built damage control improvements into *Forrestal* because of lessons learned from previous disasters or battle damage.

Two official Navy investigation panels were convened as a direct result of the fire on *Forrestal*. This thesis reviewed the recommended changes to improve damage control on US Navy ships submitted by these panels. The following specific areas were examined: What specific changes did the panels recommend? Were they implemented? Were these changes effective? Did shipbuilders apply lessons learned from the *Forrestal* fire to incorporate design changes into future warships? If so, what changes did they make, and how did these changes improve a ship's damage control capability? Did the Navy only apply design changes to ships built after the *Forrestal* fire, or did they make some changes to improve the damage control capability of existing ships?

The thesis examined a similar fire that occurred on the US Navy aircraft carrier *Enterprise* in 1969 (approximately eighteen months after the *Forrestal* fire) to assist in assessing whether lessons learned from the *Forrestal* were significant and enduring.

This thesis answered the following questions. Did the damage control organizations of these ships benefit from lessons learned from *Forrestal's* fire? Did

shipbuilders incorporate improved damage control features into these ships? If so, did these changes serve to mitigate the effects of damage?

Limitations

There were numerous limitations to this research. The study focused on the specific lessons learned from the fire on USS *Forrestal* on 29 July 1967, and how these lessons were applied by the US Navy to improve damage control capabilities on its warships in later years. Major themes of interest included examining what damage control doctrinal, shipboard firefighting and damage control systems changed from analysis of this fire. This research also discussed design changes the Navy made to its warships after analyzing this disaster. This study briefly examined incidents that occurred on US Navy warships after the *Forrestal* incident to determine if the US Navy successfully applied these lessons. This research did not study damage control doctrine, equipment, or ship design in foreign navies. The study was limited to the impact that this incident had on damage control on US Navy surface warships. This study relied on official Navy accounts of the fire, reports of official Navy panels convened to review the fire, and Navy damage control doctrine and instructions.

CHAPTER 2

DAMAGE CONTROL DOCTRINE

Firefighting and damage control have been important to the US Navy since the age of sail. This concern remained vitally important in 1967, since naval ships contained large quantities of fuel, oils, weapons, ammunition, paint, and many other hazardous and flammable materials. Other factors also elevated the risk of fire and damage--ships launched and recovered helicopters and other aircraft, frequently maneuvered at high speeds in close proximity to other vessels, and steamed in widely variable weather and sea conditions. The danger to ships from accidental fires and flooding was high whether the ship was operating in home waters or was forward deployed to war zones. Fire or other damage usually struck suddenly, and had to be quickly controlled to prevent extensive damage to the vessel and minimize injuries to her crew. Perhaps the most important aspect of damage control was that any ship sustaining damage often had to rely completely on its own crew to take responsive action. Operational circumstances demanded that naval vessels often operated independently of other ships, and weather could prevent other ships from assisting.

Well-known naval authorities and retired US Navy Captains John V. Noel and Edward L. Beach provide one authoritative definition of damage control. Captain Noel revised *Knight's Modern Seamanship*, *The Division Officer's Guide*, *The Watch Officer's Guide*, *Ship Handling*, and coauthored *Naval Terms Dictionary* with Captain Beach. Captain Noel commanded a destroyer, supply vessel, and cruiser during his long career. Captain Beach served as a damage control assistant and chief engineer in submarines, and also commanded several submarines. He wrote several fictional and nonfiction works,

and was well known for his novel *Run Silent, Run Deep*. Captains Noel and Beach define damage control as “Measures necessary to preserve and reestablish shipboard watertight integrity, stability, maneuverability and offensive power; to control list and trim; to make rapid repairs of materiel, to limit the spread of and provide adequate protection from fire; to limit the spread of, remove the contamination by, and provide adequate protection from toxic agents; and to provide for care of wounded personnel.”¹ Although many of the procedures used to combat damage control changed substantially over time, the basic problems remained constant. The US Navy relied on training (damage control schools, shipboard drills) and doctrine (official publications promulgating techniques and procedures to be used in controlling damage). Doctrine evolved over the years to reflect advances in damage control equipment technology, changes in ship design, and to incorporate lessons learned from earlier incidents.

World War II Damage Control Doctrine

US Navy damage control doctrine in effect during the 1967 *Forrestal* fire evolved from the Navy’s World War Two era damage control doctrine. The American Navy’s primary shipboard firefighting doctrine during the Second World War was the *Fire-Fighting Manual (Naval Ships Publication 688)*. This 133-page manual was published in 1943 to provide a sound basis for naval firefighting and damage control to the many inexperienced personnel joining the rapidly expanding wartime navy. It described the nature and hazards of the shipboard environment, explained how to use the Navy’s shipboard damage control and personnel protective equipment, and detailed the techniques and procedures necessary to fight fires and control damage. Although the *Fire-Fighting Manual* was useful in familiarizing Navy officers and enlisted men with

the equipment, techniques, and procedures necessary to combat fires and damage on ships, the Navy also operated seven major shipboard Fire Fighter's Schools on the larger naval bases. The Navy's Bureau of Ships developed and prescribed the course of instruction taught at these schools to standardize the training. Course lengths of one to ten days were available. The full (ten-day) course included instruction on the various types of fires likely to be encountered on ships, training on all Navy damage control equipment (instructor would demonstrate how to use each item, and students would then practice using it), and extinguishment of actual fires and repair of simulated damage in simulated ship compartments. The shorter courses focused on familiarization and practice with shipboard damage control equipment. In 1943, approximately 600 students per month were attending each of the seven Navy Fire Fighter's Schools.²

Shortly before the war ended, the Bureau of Ships published a *Handbook of Damage Control* that detailed many of the damage control lessons that had been learned by the Navy during the war years. The first nine pages of this manual were exclusively composed of excerpts from US Navy war damage reports. These excerpts provided examples of a warship's inherent resistance to damage, the importance of maintaining watertight integrity, particularly effective fire prevention measures and firefighting actions taken by the crews of several warships, and the importance of damage control training and personnel protection.³

In addition to the *Handbook of Damage Control*, the Navy's Bureau of Ships compiled several reports in the mid-to-late 1940s analyzing the damage incurred on US Navy ships during the Second World War. These reports were based on accounts of shipboard personnel, reports of observers stationed on other ships, and assessments of

damage conducted by Bureau of Ships and shipyard personnel when damaged ships returned to port. Each volume in this series of damage reports was dedicated to a particular type of ship, such as destroyers, cruisers, battleships, or aircraft carriers. These reports described the types of damage sustained by each ship, what weapons caused the damage, what structural and hull damage was sustained, how buoyancy and stability were affected and what fires and flooding resulted and analyzed the performance of the crews in controlling the damage. These reports also detail some of the improvements in damage control procedures and equipment developed as a result of wartime experience.⁴

The report on destroyers is particularly illuminating because destroyers were the most numerous type of combatant vessel in the US Navy during the Second World War (377 were in commission in 1945). The *Destroyer War Damage Report* stated that the Navy suffered severe losses due to fires during the first year of the war. The report also stated that firefighting performance improved throughout the war as a result of several factors. First, avoidable fire hazards (excess flammable materials) were removed from Navy ships. Second, ships were given an increased allowance of firefighting equipment. This new equipment tended to be more effective than the old equipment, and was widely dispersed throughout the ship to increase rapid accessibility when needed. Third, damage control lessons learned were reinforced in the Navy's firefighting schools. Finally, the *Destroyer Report* concluded that:

In general, the firefighting performance of destroyer crews in the latter part of the war, utilizing their improved training and newly developed equipment, was very encouraging. Their record proved that speed in getting water to the fire is all-important and is the mark of effective drilling. One hose stream brought to the scene of the fire within a minute often proved more valuable than several a few minutes later. Drills in immediately running hose and rigging portable pumps

for use in the damage area and in promptly checking the intactness of the firemain repeatedly proved their value.⁵

Postwar Doctrine Revision

The next major revision of US Navy firefighting doctrine was issued in May 1951, when *Bureau of Ships Manual Chapter Ninety-Three: Fire Fighting – Ship* was published. This new manual replaced the old *Fire-Fighting Manual*, which was last revised in 1944. The new manual reflected more changes in equipment and procedures made as a result of lessons learned from the Second World War. *Chapter Ninety-Three* consisted of 113 pages, broken down into three sections. The first section discussed the firefighting and damage control equipment available to the shipboard firefighter. The second section described how to properly use shipboard personnel protective equipment, and the final section prescribed firefighting techniques and procedures.⁶

The next version of the Navy's firefighting manual, *Naval Ships Technical Manual Chapter 9930: Fire Fighting – Ship* (referred to hereafter as *NSTM 9930*) was issued approximately one month after the *Forrestal* fire, on 1 September 1967. Although it was not in effect during the *Forrestal* fire, it does illustrate the state of development of Navy Damage Control doctrine at the time of the incident (It didn't include any lessons learned from the *Forrestal's* fire, since that incident was still under active investigation). This initial version of *NSTM 9930* contained the same three sections as *Bureau of Ships Chapter 93*, but Section Two (Protective Equipment) was a placeholder, with no information included. The overall document was reduced to ninety-nine pages. The first seventy-three pages were dedicated to the nature of fire and firefighting equipment; the remainder dealt with firefighting techniques and procedures.⁷ Significantly, most of the material describing fire, firefighting agents and shipboard firefighting equipment

included in *NSTM 9930* was virtually identical to discussions in the older doctrine. Although warships had dramatically increased in size and complexity since World War Two, it seemed that the damage control tools available to sailors had not significantly changed.

It is important to note that the 1967 version of *NSTM 9930* was not designed as a stand-alone reference document for shipboard firefighting. For the first time, the 1967 edition of *NSTM 9930* directed ships to establish and maintain a reference library of damage control publications, and contained a list of forty-six separate publications to be included in this library. This list included a Ship's Damage Control Book (tailored to each type of Navy ship in service), a complete set of *Naval Ship's Technical Manuals* (each volume, or chapter, provided information on a particular aspect of Navy operations), instruction manuals on damage control and personnel protective equipment used aboard naval vessels, and naval regulations and instructions governing damage control.⁸ Of course, the usefulness of this reference library depended largely on how effectively each ship's senior damage control experts integrated the material into their damage control training program.

NSTM 9930 stressed the importance of reducing fire hazards to decrease the risk of shipboard fires and to minimize the damage sustained when a fire did occur. It prescribed four basic principles to reduce unnecessary fire hazards: first, proper stowage of combustible materials; second, regular and frequent inspections of shipboard spaces by shipboard leaders; third, training all personnel on the importance of reducing fire hazards; and finally, strict enforcement of fire prevention policies and practices.⁹

NSTM 9930 also placed heavy emphasis on the importance of frequent, realistic training drills to improve the efficiency of a ship's damage control organization:

Every man in the organization must know where to go, how to get there, what may be needed, and what to do upon arriving at the scene of a fire. It is only by constant drilling that fire-fighting parties can learn to function as teams. Men must be trained to act immediately and use the proper equipment and correct procedure. . . . Drills uncover weaknesses and failures of personnel and material which can be eliminated or recognized as a possible source of danger should an actual fire occur in the area. . . . An effective protection against fires in ships in the quantity and quality of training before a fire starts.¹⁰

The third section of the 1967 *NSTM 9930, Fire Fighting and Fire Hazards*, was significantly different than earlier doctrine. In the older doctrine, this section discussed the nature of shipboard fires and the effectiveness of extinguishing agents, such as solid-stream water, water fog, foam, carbon dioxide, and others. After this discussion, the doctrine stipulated appropriate techniques and procedures to combat several common types of shipboard fires (such as flight deck fires, engine room fires, and fires in electronic equipment rooms). The 1967 *NSTM 9930* contained this information as well, but it also included an entirely new subsection on the configuration of the ship's damage control organization. It directed each ship to implement tailored "Fire Bills." Fire Bills were published lists that assigned specific duties and responsibility to specific crew members in the event of a fire. Rudimentary fire bills had been in use since the Age of Sail, but the increased size and complexity of modern warships demanded a highly specialized list. Examples of positions on a typical fire bill include nozzle men (responsible for manning the nozzle end of the hose and attacking the fire), hose men (who maneuvered the hose to support the nozzle man), plug men (who opened valves charging the hoses), investigators (who rapidly surveyed the ship to determine the location and extent of damage), and scene leaders (who directed local damage control

efforts and reported status of those efforts up the chain of command). Crew members received training to qualify for positions on the fire bill. Sailors were required to qualify for these positions sequentially. For example, a newly reported sailor could quickly qualify as a plugman. As a plugman, this junior sailor would only be responsible for operating a valve feeding a single fire hose. With more experience, the plugman would qualify to serve as a hoseman, then as a nozzleman. A scene leader was required to be proficient in all of these junior positions. Separate Fire Bills were required for periods when the ship was at sea and when the ship was inport. The entire ship's company was available to participate in damage control efforts while the ship was underway, but a much smaller number of personnel were available inport. While the ship was inport, the majority of crew members departed the ship after normal working hours. The ship's company was split into several "duty sections." Each duty section would spend the night aboard to oversee the ship until relieved by the next duty section the following day. These duty sections were comprised of relatively small portions of the overall ship's company, and would only man a single repair locker to respond to emergencies (all repair lockers were manned if required during emergencies at sea). The duty section would frequently be augmented during fires inport (many sailors lived aboard ship), but the fire bill provided supervisory personnel with a formal list of qualified sailors charged with responding to damage occurring during their duty day. The engineer officer (officer in charge of the Engineering Department, and the individual who, by Navy Regulations, was also designated as the damage control officer) was responsible for supervising the Fire Bills and ensuring that assigned personnel were properly trained and qualified for their positions.¹¹ *NSTM 9930* also provided several examples of typical shipboard

damage control organizations, defining required positions and responsibilities of assigned personnel and delineating necessary types and quantities of damage control equipment.

The next chapter examines the survivability features that were included in US Navy warships in general and the *Forrestal* in particular as a result of experience and lessons learned from previous incidents and battle damage. The chapter also describes the damage control equipment and personnel protective gear used by shipboard firefighters in 1967.

¹John V. Noel and Edward L. Beach, *Naval Terms Dictionary* (Annapolis, MD: UNITED STATES Naval Institute, 1971), 83.

²Navy Department, *Fire-Fighting Manual: NAVSHIPS PUB 688* (Washington, D.C., Bureau of Ships, 1943), 132.

³Navy Department, *Handbook of Damage Control: NAVPERS PUB 16191* (Washington, D.C., Bureau of Ships, 1945), 1-9.

⁴Navy Department, *War Damage Report No. 51, Destroyer Report: Gunfire, Bomb, and Kamikaze Damage, Including Losses in Action, 17 October, 1941 to 15 August, 1945* (Washington, D.C., Bureau of Ships, 1947), 1.

⁵*War Damage Report No. 51*, 17-19.

⁶Navy Department, *Bureau of Ships Manual Chapter 93: Fire Fighting – Ship* (Washington, D.C., Bureau of Ships, 1951), 1.

⁷Naval Ship Systems Command, *Naval Ships Technical Manual Chapter 9930: Fire Fighting – Ship* (Washington, D.C., Naval Ship Systems Command, 1967), 1.

⁸*Ibid.*, 1-2.

⁹*Ibid.*, 1.

¹⁰*Ibid.*, 2-3.

¹¹*Ibid.*, 75.

CHAPTER 3

WARSHIP SURVIVABILITY FEATURES AND DAMAGE CONTROL GEAR

Survivability was one of the warship's primary design considerations. Warships were designed to survive and operate effectively in extremely inhospitable conditions at sea. Heavy seas exerted tremendous stress on a ship's structure, and were often encountered with little warning. In February 1933, the USS *Ramapo* survived an encounter with a 112 feet high wave in the Pacific Ocean (the highest ever reliably reported, according to Professor Jerome Williams, who published several works on oceanography and originated the oceanography course at the US Naval Academy).¹ Although this is an extreme example, it illustrates the harshness of the marine environment even in the absence of accidental fires or enemy action. All ships that are expected to perform well in these demanding conditions require a high degree of buoyancy and stability. However, naval vessels must be built stoutly enough to sustain damage and remain operational, so they require even greater protection than would normally be expected. The elements of survivability considered by naval architects that designed warships such as the *Forrestal* included compartmentalization, seagoing capability, and improvements based on experience gained during the Second World War.

Compartmentalization

Shipbuilders have always been concerned with the hazards of flooding and sinking. Even wooden ships would easily sink if their interior compartments were flooded. This concern intensified as ships were built with steel hulls, and their size increased dramatically. Disasters such as the loss of the *Titanic* emphasized the

importance of compartmentalization, or subdividing a ship's structure into numerous watertight compartments.

Warships required an inherent ability to resist damage caused by underwater attack (such as damage from naval mines or torpedoes). Transverse watertight bulkheads (connecting the port and starboard sides of the hull) are effective in containing flooding along the length of a ship's hull after underwater damage is sustained. By the time *Forrestal* was built, all warships contained a series of numerous transverse bulkheads extending from the keel (bottom) of the ship to the main deck (frequently termed the damage control deck). The forward most transverse bulkhead was generally placed several feet abaft (behind) the bow. It was specifically designed to reduce a ship's vulnerability to flooding as a result of collisions, and was termed the collision bulkhead.² The exact location of the collision bulkhead varied widely depending on the ship's length. Designers termed the imaginary vertical line extending through the point where the ship's bow met the sea the "forward perpendicular." Similarly, the vertical line extending through the point where the stern touched the water was termed the "after perpendicular." The length between these two imaginary lines was referred to as the "length between perpendiculars," and the collision bulkhead was located at least 5 percent of this length abaft the forward perpendicular. Longitudinal watertight bulkheads ran fore and aft between main transverse bulkheads. Longitudinal bulkheads were often used to protect vital spaces (containing equipment essential to operate the ship) from flooding. Longitudinal bulkheads had to be carefully designed to minimize unsymmetrical spaces in the ship's hull. Unsymmetrical spaces resulted when the compartmentalized spaces on one side of the ship's centerline were not identical in

volume to those on the other side. The ship's stability decreased if an unsymmetrical space flooded.

In addition to limiting progressive flooding (the spread of flooding throughout the ship), compartmentalization was useful in limiting the spread of fire and smoke through the ship's interior spaces. The Navy developed several procedures and requirements designed to maximize the effectiveness of compartmentalization. Many compartments had necessary fittings, such as doors, hatches, ventilation ducts, and electrical cables that passed through watertight bulkheads. Regular inspection and maintenance was required to ensure that these fittings did not reduce a ship's watertight integrity. Compartment Check-Off Lists (CCOLs) were developed, listing each of these fittings in every compartment. Regular inspections of items listed on the CCOLs were required, and periodic maintenance was required on items susceptible to wear, such as door gaskets.³

The US Navy also developed three major material conditions of readiness for all vessels. Each material condition provided a different degree of tightness and protection. Crew members labeled all fittings (sometimes referred to as closures) to facilitate rapid identification. Condition "X-Ray" allowed the most fittings, such as doors, hatches, and scuttles, to remain open. This increased the convenience and ease with which personnel could transit throughout the ship, but also provided the least degree of protection against the spread of fire, smoke, or flooding. Condition "X-Ray" was normally set in port during normal working hours when the ship was not believed to be at risk from attack. Condition "Yoke" required more fittings to be closed, and consequently provided more protection. Condition "Yoke" was typically set at all times while the ship was at sea and after normal working hours in port. Condition "Zebra" provided the most protection, and required

most fittings to be closed. Condition “Zebra” was normally set when the ship expected to enter combat soon (General Quarters was set), or in the event of fire and flooding in the vessel. Condition “Zebra” was not normally set for long periods at sea, since it significantly hampered the movement of crew and material throughout the ship, and reduced crew comfort since most ventilation was secured during Condition “Zebra.” Modifications of these three basic conditions, such as “Circle X-Ray, Yoke, and Zebra” permitted certain predesignated closures to be opened by crew members. This allowed crew members to transit through zones, and facilitated moving ammunition and other supplies throughout the ship. “William” fittings were essential to the ship’s mobility and fire protection. These fittings were marked with a black “W,” and were kept open during all material conditions. Fire pump and other vital pump cutout valves were classified as “William” fittings.⁴

Enhanced Seagoing Capabilities

When she was commissioned in 1955, *Forrestal* was the world’s largest aircraft carrier. Her large size greatly enhanced *Forrestal’s* seagoing capabilities, since a warship’s inherent survivability and seaworthiness tend to increase with the vessel’s size. For example, a larger ship generally has more watertight compartments than a smaller ship. Reserve buoyancy, the volume of the watertight portion of the ship above the waterline, is also usually greater for larger ships.⁵ As a result, larger ships are inherently able to sustain more damage and remain afloat. Larger ships also enjoy several other characteristics useful in naval vessels. A smaller fraction of the ship’s displacement is required for propulsion equipment and fuel storage on larger ships (or a greatly extended range is possible if the same percentage of fuel to ship’s displacement is maintained), and

larger ships generally are capable of higher speeds in rough seas.⁶ Larger ships are also capable of carrying more weapons, equipment, and stores. Naval vessels were limited in size by treaties for much of the interwar period, but began to increase in size in the late 1930s. This trend toward increasing warship size was still continuing when *Forrestal* was built in the early 1950s. The *Forrestal* displaced 79,000 tons and contained 1,240 watertight compartments; while the Essex Class carriers built during World War Two displaced less than 40,000 tons and contained 750 watertight compartments.⁷ The trend toward increasing warship size was not limited to aircraft carriers – many combatant ships in the US Navy were increasing with size during this period. For example, the *Porter* class destroyers of the 1930s displaced approximately 1,850 tons, the *Fletcher* class destroyers of the 1940s displaced over 2,500 tons, and the early 1960s *Charles F. Adams* class of destroyers displaced nearly 3,400 tons.⁸

Survivability Enhancements Based on World War II Experience

Several survivability features recommended by the Navy's World War Two damage reports were incorporated in *Forrestal*. *Forrestal* was built with an armored flight deck, constructed of thick, high-strength steel. World War Two experiences showed that this would decrease the amount of structural damage sustained in interior compartments from explosions or fires on the flight deck.⁹

Forrestal was also equipped with a firemain loop. The firemain loop was designed to correct a serious deficiency observed during the Second World War, when many crews were unable to combat shipboard fires because firemain pressure was lost as a result of damaged piping. In several instances fire pumps continued to run and the ship's stability was reduced by tons of seawater flowing into interior compartments from

damaged piping.¹⁰ A firemain loop was a line of saltwater piping that ran continuously around the vessel. The loop also incorporated several runs of piping running athwartships (connecting the firemain piping on the ship's port side with that on the starboard side). These transverse piping runs were placed near the bow, amidships (near the center of the vessel), and aft. The loop could be charged with several fire pumps, located in numerous compartments throughout the ship. Cutout valves were placed at regular intervals in the piping runs. This arrangement enabled the ship's crew to isolate damaged portions of the firemain, while still supplying firefighting water where needed. The dispersion of multiple firefighting pumps helped to ensure that adequate firemain pressure could be maintained even if some pumps were damaged or inoperable. If the ship expected to enter combat, several isolation valves would be closed near the transverse piping runs to create several smaller firemain loops. This would ensure firemain pressure to most of the ship in the event of firemain piping damage, and would limit the amount of flooding sustained from broken piping. A diagram of a typical firemain loop is included in Appendix A.

Flight deck and hangar deck sprinkler systems were also installed on *Forrestal* to cool ordnance during fires (to prevent cook-off) and to help prevent the spread of fires in these areas. Several high capacity foam-generating stations were also installed. These stations were capable of generating large amounts of firefighting foam to help smother fires in the hangar deck or on the flight deck. US Navy damage reports from the Second World War indicated that all of these features proved to be effective in limiting damage during actual fires.¹¹

Forrestal was also designed to carry aircraft using JP-5 for fuel. JP-5 was much less volatile than the aviation gasoline that had been carried aboard aircraft carriers in World War Two, and was considered to be less hazardous for shipboard use.

As the last several pages have shown, naval warships such as *Forrestal* were designed to sustain damage and survive. However, another significant component of damage control was found in the development of an extensive array of specialized equipment. This equipment ranged from items designed to be operated by individual crew members, to larger systems operated by a team. Some of this equipment was used to control and extinguish fires, combat flooding, and isolate damaged systems. Personnel protective equipment helped reduce the risk to crew members as they fought to control damage in hazardous environments. The next two sections of this chapter will examine the damage control and personnel protective equipment available to *Forrestal's* crew.

Damage Control Equipment

The equipment shipboard firefighters used to extinguish fires depended largely on the class, or type, of fire. Class Alpha fires involved combustible materials such as bedding, books, and clothing. Class Alpha fires left embers, which made these fires highly susceptible to rekindling. Water was the firefighting agent of choice for Class Alpha fires, since it lowered the temperature of the burning items and helped prevent reflash.

Class Bravo fires involved burning flammable liquids, such as fuel oils, paint, and lubricants. They did not leave embers, and could be effectively extinguished by using firefighting foam to create a barrier between the burning liquid and the air needed for continued combustion.

Class Charlie fires occurred in electrical equipment. Carbon dioxide was the agent of choice for Class Charlie fires for two primary reasons: it would not damage the equipment, and it reduced the hazard of electrical shock for firefighters.

Class Delta fires occurred when metals such as magnesium ignited. NSTM 9930 stated that no effective firefighting agents existed for Class Delta fires. Burning metals were generally jettisoned if possible.¹²

To combat this array of possible conflagrations, shipboard firefighters had an extensive amount of available equipment. The fire main delivered firefighting water to fireplugs and sprinkler systems throughout the ship. Most fireplugs on aircraft carriers had outlets 2 ½ inches in diameter. Some plugs had 1 ½ inch reducing connections installed. These reducing connections would either have a single outlet, or would use a double Y-gate connection with two 1 ½-inch outlets. The fireplugs on *Forrestal* were positioned so that any point on the ship could be reached with a one hundred-foot length of hose from at least two separate locations. One hundred feet of hose was always connected to each fireplug. Specialized wrenches, termed spanners, were placed near each fireplug to connect additional hose sections as needed.

A Navy all-purpose nozzle was attached to the end of each hose connected to the ship's firemain. All-purpose nozzles could deliver either solid streams of firefighting water, or fog. Four, ten, and twelve-foot long applicators could be inserted into the end of an all-purpose nozzle to provide low-velocity fog. Solid streams of firefighting water were effective against Class Alpha fires, while water fog was useful against both Class Alpha and Bravo fires. Water fog was also used to help shield personnel from the heat of shipboard fires, and to cool munitions to prevent cook-off.¹³

Firefighting foam was very useful in fighting Class Bravo fires. In 1967, two basic types of foam were available in the US Navy. One type was termed protein foam since it consisted of a hydrolyzed protein base; the other type was called “Light Water,” and was composed of a mixture of fluorinated surfactants. Both types came in concentrated liquid form, and six parts of concentrate were mixed with ninety-four parts of water to create firefighting foam. The two types of foam were fully compatible, but the Navy planned to gradually phase out the protein foam since it had a limited shelf life. The Light Water concentrate could be stored indefinitely before use.¹⁴

Naval vessels had several means of generating and delivering firefighting foam. The simplest piece of equipment used was a mechanical-foam nozzle with a pickup tube. A firefighting hose was connected to the nozzle, and the pickup tube was inserted into a five-gallon foam concentrate container. When the hose was charged, water flowing through the nozzle would create suction, drawing the concentrate up into a mixing chamber in the nozzle. The mixing chamber was sized to mix air, water, and foam concentrate together in the proper proportions to create firefighting foam. The mechanical-foam nozzle would empty a five-gallon foam container in about ninety seconds, producing approximately 660 gallons of foam in that time. Additional concentrate cans could be placed nearby if more foam was required.¹⁵

Larger pieces of equipment, known as proportioners, were used to protect machinery spaces, aircraft hangars, and flight decks. Proportioners used water motors and liquid foam pumps to generate foam. The size of the motors and pumps were designed to maintain the necessary proportion of foam concentrate to water. These proportioners consisted of dedicated firemain piping to supply water, fixed foam concentrate tanks, and

supplied foam to hose stations as well as sprinkler heads. Although the larger foam stations could be started remotely, a crew of three or four sailors was assigned to monitor and operate each station. This crew would establish communications with the hose station near the fire, and would replenish the foam tank with additional concentrate as needed. The size of the tank varied by station--smaller proportioners had fifty-gallon liquid concentrate tanks, while the larger stations had 300-gallon tanks. The high-capacity foam stations serving the hangar and flight decks could produce 5,700 gallons per minute of foam at maximum output. The 300-gallon foam concentrate tank would be emptied in just over five minutes at this rate. Sailors would have to continuously empty five-gallon cans of concentrate into the liquid foam tank (at the rate of fifty-seven gallons per minute) to keep each high-capacity foam station operating.¹⁶

Two common types of portable fire extinguishers were also carried aboard Navy ships. These extinguishers used carbon dioxide or dry chemicals as extinguishing agents, and were placed at frequent intervals along the bulkheads of passageways and in many compartments throughout naval vessels.

Standard navy portable carbon dioxide extinguishers contained fifteen pounds of pressurized agent. They were effective against small Class Alpha, Bravo, or Charlie fires, had an effective range of three to five feet, and lasted forty to forty-five seconds. The carbon dioxide provided very little cooling effect, so larger fires were very susceptible to reflash after being extinguished. However, their small size and ubiquity throughout naval vessels allowed crew members to rapidly deploy them against small fires before the ship's damage control organization could respond with more substantial equipment.¹⁷

Portable dry chemical extinguishers, known as PKP extinguishers, were also installed in large numbers throughout naval vessels. These extinguishers used a small carbon dioxide charge to expel eighteen pounds of potassium bicarbonate based agent. The dry chemical extinguishers had an effective range of eighteen to twenty feet, and would last from eighteen to twenty seconds. These extinguishers were primarily intended for use against small Class Bravo fires, but could also be used to extinguish Class Charlie fires. The dry chemical agent was approximately four times more effective than an equal weight of carbon dioxide against flammable liquid fires, but left a fouling residue on electrical equipment when used on Class Charlie fires. Like carbon dioxide extinguishers, the dry chemical agent provided very little protection against reflash. It was intended only to extinguish small fires, or to help extinguish larger fires in conjunction with firefighting foam.¹⁸

The *Forrestal* was also equipped with emergency pumping equipment, intended to augment or temporarily replace damaged portions of the ship's firemain system. The largest of these pumps was the gasoline powered P-250 portable pump. The P-250 weighed over 150 pounds with fuel, and was capable of supplying 250 gallons per minute of firefighting water to either three 1 ½-inch hoses or a single 2 ½ inch hose. The P-250 could also be used to remove 250 gallons per minute of water from compartments. A smaller gasoline powered pump, the "handybilly," was also carried aboard naval vessels. The handybilly weighed 106 pounds and could supply firefighting water to a single 1 ½-inch hose or remove water at the rate of sixty gallons per minute. The handybilly could also be connected to a mechanical-foam nozzle to produce firefighting foam.

Naval vessels were equipped with numerous items designed to remove water from compartments. Portable electric submersible pumps could be dropped into a flooded compartment. A 2 ½-inch hose was connected to the pump discharge and carried water to the nearest available overboard discharge fitting. Overboard discharge fittings were fitted into the hull at frequent intervals to facilitate removal of firefighting and floodwater from internal compartments. They were usually located just above the ship's waterline, and were covered with watertight caps except while in use. These overboard fittings enhanced the efficiency of dewatering pumps by reducing the head pressure on the discharge side. If the discharge line from a portable pump were simply run overboard from the main deck, the higher head pressure would significantly reduce the pumping rate. For example, standard submersible pumps discharged 140 gallons per minute with a discharge head of seventy feet. If the discharge head was reduced to fifty feet, the same pump discharged 200 gallons per minute.¹⁹

Naval vessels carried an extensive array of eductors to remove water from internal compartments. These eductors varied widely in size and capacity, but all functioned on the same principal firefighting water was supplied to nozzles, or jets in the eductor body. As the water flowed through these jets, a vacuum was created in the eductor body. Water in the flooded compartment would be drawn up a suction line connected to the eductor body by this vacuum, and would mix with the firefighting water. This water mixture would then be discharged overboard. Fixed eductors were permanently installed in compartments and were fitted with permanent firemain supply, suction, and overboard discharge piping. Portable eductors could be carried where needed. They used firefighting hoses to supply water and carry water to overboard discharge connections.

Smaller eductors removed less than one hundred gallons of water per minute; larger eductors had a capacity of well over 1,000 gallons per minute.²⁰

Other significant equipment carried aboard naval ships for controlling damage included tools to access locked or damaged compartments, such as bolt cutters, fire axes, and crowbars. Portable oxyacetylene cutting apparatus was used to cut holes in decks and bulkheads and to remove debris. Portable battery operated lanterns were invaluable, as were portable blowers and ducts to remove smoke and toxic gases from internal compartments.²¹

Personnel Protective Equipment

Protective gear was designed to reduce the hazards to crew members as they fought fires and damage aboard naval vessels. The protective gear available to *Forrestal's* crew was essentially identical to that used by US Navy sailors during the Second World War.

Uniforms worn aboard ship were designed to provide some protection against fire. Enlisted crew members wore cotton chambray shirts, dungaree pants, and steel-toed boots. Officers wore cotton khaki colored shirts and trousers and steel toed boots. During fires, crew members would button the top buttons on their shirts and tuck their trouser bottoms into their socks to minimize the amount of exposed flesh. However, the effectiveness of this procedure, which was already marginal, was reduced even more for the many crew members that frequently wore short sleeve shirts during warm weather. Personnel attacking the fire would also don asbestos gloves and helmets with a small attached battery operated lantern, known as a “miner’s lamp.”

Breathing apparatus was available to protect naval firefighters from hot, toxic gases. The most common type of breathing apparatus used for fighting fires on *Forrestal* was the “Oxygen Breathing Apparatus,” or OBA. The OBA was a self-contained unit for individual firefighters. It consisted of a canister holder, two neoprene breathing bags (one on each side of the canister holder), a facepiece with inhalation and exhalation tubes, a timer, and a breastplate with webbing to attach the unit to the wearer. The firefighter wore the OBA on the front of his body. A fresh canister was inserted into the OBA before use. When activated, chemicals in the canister reacted with moisture from the firefighter’s breath to produce oxygen and absorb carbon dioxide. The breathing bags held and cooled the oxygen. The firefighter manually set a timer to activate an audible alarm several minutes before the canister’s chemicals were exhausted. The firefighter had to return to a clean atmosphere to change canisters. Each canister supplied approximately thirty minutes of oxygen.²² Tending lines could be connected to the OBA to maintain lifeline signals with personnel remaining in safe atmospheres.

Aluminized asbestos “proximity suits” were carried aboard naval vessels. These protected personnel against high heat, but were not designed for direct contact with flames. Proximity suits were frequently used to rescue personnel, such as aircrew members involved in accidents on the flight deck.²³

The preceding chapters have described the survivability features incorporated in warships operated by the US Navy in the 1960s, the damage control doctrine developed over the years, and the specialized damage control and personnel protective gear available to sailors. Although the “supercarriers” of the 1960s had dramatically increased in size and complexity compared with aircraft carriers that operated during World War

Two, the damage control tools available to sailors had not significantly changed. The Navy's World War Two damage reports clearly described the massive fuel, ordnance, and aircraft fires that occurred on carriers as a result of mishaps and enemy attacks, and *Forrestal* carried more aircraft, ordnance, and fuel than any aircraft carrier built before her. Unfortunately, her crew members were equipped with virtually the same equipment that their fathers had used to fight shipboard fires over twenty years earlier. This damage control equipment was not faulty or poorly designed; it had simply been rendered obsolete, and was not capable of quickly and effectively extinguishing a massive conflagration on the flight deck. The protective gear available to *Forrestal's* crew was woefully inadequate. Although the OBAs effectively protected firefighter's lungs, the non-fire retardant cotton uniforms worn by sailors provided virtually no protection against burns.

After the 1967 fire on *Forrestal*, the Navy took a hard look at the adequacy of damage control tools available to shipboard firefighters. Two investigations were convened shortly after this fire. The first of these focused solely on the *Forrestal* fire, but the second investigation examined the safety of aircraft carrier operations throughout the US Navy. These investigations developed numerous recommendations to improve shipboard damage control readiness. The next chapter examines the most significant of these proposed improvements.

¹Jerome Williams, John J. Higginson, and John D. Rohrbough, *Sea and Air: The Marine Environment*, 2nd ed. (Annapolis, MD: UNITED STATES Naval Institute, 1975), 306-307.

²Thomas C. Gillmer, *Modern Ship Design*, 2nd ed. (Annapolis, MD: UNITED STATES Naval Institute, 1986), 88.

³G. C. Manning and T. L. Schumaker, *Principles of Warship Construction and Damage Control* (Annapolis, MD: UNITED STATES Naval Institute, 1935), 300-304.

⁴Bureau of Naval Personnel, *Principles of Naval Engineering* (Washington, D.C.: US Navy, 1970), 63-64.

⁵*Ibid.*, 36.

⁶*Ibid.*, 15-16.

⁷Kit Bonner and Carolyn Bonner, *Great Naval Disasters: U.S. Naval Accidents in the 20th Century* (Osceola, WI: MBI Publishing, 1998), 93.

⁸Norman Friedman, *U.S. Destroyers: An Illustrated Design History* (Annapolis, MD: UNITED STATES Naval Institute, 1982), 85, 118.

⁹Navy Department, *War Damage Report No. 56* (Washington, D.C.: US Navy, 1946), 22.

¹⁰Navy Department, *War Damage Report No. 51* (Washington, D.C.: US Navy, 1947), 18-19.

¹¹*War Damage Report No. 56*, 26-29.

¹²Naval Ship Systems Command, *Naval Ships Technical Manual Chapter 9930: Fire Fighting – Ship* (Washington, D.C., Naval Ship Systems Command, 1967), 77-78.

¹³*Ibid.*, 11-18.

¹⁴*Ibid.*, 7-9.

¹⁵*Ibid.*, 24-25.

¹⁶*Ibid.*, 25-35.

¹⁷*Ibid.*, 39-43.

¹⁸*Ibid.*, 53.

¹⁹*Ibid.*, 70.

²⁰*Ibid.*, 70-71.

²¹*Ibid.*, 72-75.

²²US Maritime Administration, *Marine Fire Prevention, Firefighting, and Fire Safety* (Washington, D.C., UNITED STATES Maritime Administration, 1987), 327-336.

²³Ibid., 366-367.

CHAPTER 4

RECOMMENDATIONS FROM INVESTIGATING PANELS

Soon after the fire aboard USS *Forrestal*, two separate investigation panels were formed. The first of these investigations was required by naval regulations, and was conducted in accordance with instructions contained in the *Manual of the Judge Advocate General*. The purpose of the Judge Advocate General Investigation was to determine what caused the fire, and who was responsible. Rear Admiral Forsyth Massey headed this investigation, and produced a 7,500-page report containing the evidence he reviewed, along with his findings of fact, opinions, and recommendations. Admiral Massey found that serious deficiencies existed in *Forrestal's* damage control related design features. He also stated that the damage control and firefighting equipment carried aboard *Forrestal* was inadequate, and many members of *Forrestal's* damage control organization were poorly trained. His report included thirty-one proposals to correct these deficiencies.

The senior officer in the US Navy ordered the second of these investigation panels to be convened, shortly after Rear Admiral Massey's team began their work. Admiral Thomas Moorer, Chief of Naval Operations, appointed recently retired four-star Admiral James S. Russell as director of this panel. Admiral Russell was a former naval aviator, and had served as the Vice Chief of Naval Operations prior to his retirement. Admiral Russell was directed to examine aircraft carrier operations throughout the Navy, with the goal of assessing safety hazards and proposing ways to improve shipboard damage control effectiveness. Admiral Russell generally concurred with Admiral Massey's recommendations, and included them as proposed improvements in his report as well. However, Admiral Russell's report also included several proposals to improve

personnel protective equipment available to shipboard personnel. Admiral Russell wrote that the Navy's available personnel protective gear was poor, and that more effective equipment was needed as soon as it could be developed.

This chapter will examine how these two panels conducted their investigations, the facts they discovered, the opinions they formed based on these facts, and the solutions they proposed to improve the deficiencies they perceived to exist.

The Judge Advocate General Investigation

Following the fire, the *Forrestal* steamed to Naval Air Station Cubi Point, Republic of the Philippines to conduct repairs. Although the scope of required repair work was too extensive to be accomplished at Cubi Point, inspections and basic repairs were made to ensure that *Forrestal* was able to safely return to the United States.

Vice Admiral Charles T. Booth, the US Atlantic Fleet Naval Air Force Commander, immediately ordered a *Manual of the Judge Advocate General* investigation into the *Forrestal* fire. Rear Admiral Forsyth Massey was appointed Senior Member of this Informal Board of Investigation on 30 July 1967. Rear Admiral Massey's primary assistants during the investigation were Captains A.K. Earnest and M.J. Stack. Commander Joseph H. Baum and Lieutenant Commander Edward T. Boywid provided legal counsel for the board. The members of the board arrived at NAS Cubi Point on 3 August 1967. The members began the investigation while temporary repairs were in progress, and remained aboard for the thirty-two-day transit back to *Forrestal's* homeport of Norfolk, VA.

Captain Beling's Immediate Superior in Command (ISIC), Rear Admiral Harvey P. Lanham, Commander of Carrier Division Two (COMCARDIVTWO), ordered his

staff to conduct a preliminary investigation on 30 July. *Forrestal* was serving as Rear Admiral Lanham's flagship, and he and his staff were aboard during the fire. Rear Admiral Lanham's investigating team, headed by Captain William Morton, presented Rear Admiral Massey and his board with a background brief on the fire upon their arrival. Three members of COMCARDIVTWO's preliminary investigation team assisted Rear Admiral Massey's board throughout their investigation. These three officers included Commander Roger Carlquist, Commander Roger Weeks, and Ensign David Jacobs.¹

The first significant task faced by Rear Admiral Massey's investigating board was the identification of "parties." The board members examined the duties and responsibilities inherent in billets of service members assigned to *Forrestal* during the fire. If the board determined that a service member's duties and responsibilities related to either the initiation of the fire or controlling the resulting damage, that serviceman was designated a party. Twenty personnel were designated as parties, and all were offered legal counsel. Rear Admiral Massey designated these parties shortly after his arrival to allow adequate time to embark desired legal counselors aboard *Forrestal* prior to the long transit back to Virginia.

After the parties were identified, the Investigating Board began taking statements from parties and witnesses. The board used formal hearing room procedures when taking statements, and all statements were taken under oath. During the investigation, the board read approximately 1,900 statements from 136 parties and witnesses.²

The investigating board also spent time touring the damaged areas of the ship and reviewed the Pilot Landing Aid Television (PLAT) camera film carefully. The PLAT

camera was used to film all planes as they launched from or landed on the *Forrestal's* flight deck. When the fire began, the PLAT camera was filming a KA-3B aircraft as it prepared to launch. The camera recorded the accidental launch of the Zuni rocket. The PLAT operator then turned the camera and recorded the burning A-4 shortly after the Zuni rocket struck it. The camera's position was not changed again for the duration of the fire. The camera recorded the spread of the fire, the exploding ordnance, and the crew's firefighting efforts. The PLAT camera also recorded the time of these events by filming an integrated clock face. This footage proved invaluable to the investigators.³

Rear Admiral Massey submitted his investigation report to the commander of the US Atlantic Fleet Naval Air Force on 19 September 1967. The report consisted of approximately 7,500 pages, divided into thirteen volumes. Volume One contained the board's preliminary statement, findings of fact, opinions, and recommendations. The remaining volumes contained testimony and statements presented by witnesses.

Findings of Fact

The Investigating Board determined that the fire began at 10:52 a.m. local time on 29 July when a Zuni rocket struck A-4 aircraft number 405, puncturing its external 400-gallon fuel tank. A fragment also punctured the external fuel tank of nearby A-4 number 310. The burning fuel quickly spread to the after portion of the flight deck, pushed by thirty-two knots of wind and the exhaust of several jets positioned ahead of the stricken aircraft. General Quarters was sounded at 10:53 a.m., and material condition Zebra was set throughout the ship at 10:59 a.m. However, the crew left some Zebra fittings open to facilitate rapid evacuation of injured personnel.⁴ The investigators found many of the high capacity foam and firefighting hoses on the port side of the flight deck were

engulfed in flames and unusable. A 1,000-pound bomb fell from A-4 number 405 when it was struck by the rocket, and rolled into a pool of burning jet fuel. The casing of the bomb, which was split by the fall, quickly began to heat up. Fifty-four seconds after the fire began, Chief Petty Officer G.W. Farrier attempted to extinguish the burning pool of fuel around the bomb with a portable PKP dry chemical extinguisher. Approximately one minute and twenty seconds after the fire began; crew members attacked the forward boundary of the fire with firefighting water. One minute and thirty-four seconds into the fire, the first bomb exploded. This explosion killed Chief Farrier and twenty-six other fire fighters in the vicinity, and spread the fire to a group of three A-4 aircraft stationed near the after end of the flight deck. Several other hose teams continued to advance on the fire immediately after this explosion, but a second bomb exploded nine seconds after the first. The second bomb's explosion spread the fire to ten additional aircraft. Seven additional major explosions occurred in the next five minutes, severely hampering firefighting efforts on the flight deck.

Several of these explosions penetrated the armored steel flight deck and spread the fire to the three decks below the flight deck in the aft portion of the ship. The board determined that the burning aircraft contained a total of approximately 40,000 gallons of JP-5 fuel, and that this burning fuel spread the fire to the ship's sides, stern, and through holes in the flight deck into the hangar bay below. These bombs killed fifty night crew personnel who were sleeping in berthing compartments below the after portion of the flight deck. Forty-one additional crew members were killed in internal compartments in the after portion of *Forrestal*. The investigation found that firefighting foam and sprinklers effectively prevented the spread of fire in the hangar bay.

The investigators assessed the crew's firefighting efforts as effective after the nine major explosions subsided. "That once fire boundaries were established there was no further spread of the fire. Thereafter, the fire was fought aft progressively, compartment by compartment, on each deck in textbook fashion until it was finally extinguished. The only secondary damage was that caused by fire fighting water."⁵ The flames on the flight deck were extinguished by 11:40 a.m., but fires in the internal compartments were not entirely extinguished until approximately 4:00 a.m. the morning of 30 July.⁶ One hundred thirty-four crew members perished, and the fire and explosions injured 161 more. The estimated damage to the ship (not including damage to aircraft) was \$72.1 million.⁷

Rear Admiral Massey's Board of Investigation dedicated a section of their findings to damage control and firefighting-related training, procedures, and material condition. First, the report stated that the normal damage control refresher-training period (REFTRA) was shortened from six weeks to four weeks for *Forrestal* prior to her deployment. Second, *Forrestal* received a grade of "unsatisfactory" in setting material condition Zebra during refresher training, but achieved a satisfactory grade during her predeployment Operational Readiness Inspection (ORI). Third, 37 percent of the ship's damage control personnel who attended refresher training transferred prior to *Forrestal's* deployment. At the time of the fire 1,610 crew members (57 percent of the ship's company) had attended firefighting school in the previous three years. Of course, this meant that 43 percent of the ship's company had not attended firefighting school in that time period. *Forrestal* conducted General Quarters drills fifty-seven times in the 106 days that she was at sea prior to the fire.⁸

The report also identified several fundamental training deficiencies that hindered firefighting efforts. The board found that numerous personnel on the flight deck were unfamiliar with firefighting procedures and equipment, and were unable to effectively contribute to firefighting efforts. For example, investigators discovered that at least one firefighting foam station was not initially charged because crew members were unsure how to activate the system. Rear Admiral Massey's team noted that the physical configuration and activation procedures varied considerably among *Forrestal's* different foam stations. This lack of standardization could easily prove confusing to sailors who were not thoroughly familiar with the foam generation stations. Another significant hindrance to effective firefighting efforts resulted because many crew members did not report to their assigned general quarters stations (some were unable to because of injuries, some were impeded by the ship's physical damage, some were already heavily involved in the firefighting efforts, and others simply made no attempt to reach their stations).⁹

The investigation report also noted several problems with Oxygen Breathing Apparatus (OBAs). "Significant numbers" of personnel assigned to *Forrestal's* air wing were not trained in using OBAs, some personnel experienced difficulty in activating the oxygen generating canisters in the OBAs, and some canisters did not last for the rated thirty-minute time period.¹⁰

Opinions and Recommendations

Rear Admiral Massey's report included 116 opinions based on the facts uncovered during the investigation. Many discussed the need to improve ordnance handling safety procedures, but a substantial number of opinions related to damage control. Although the report acknowledged several shortcomings in the crew's

firefighting performance, it was particularly critical of the damage control equipment available aboard *Forrestal*:

With existing installed fire fighting equipment, the fire could not have been extinguished prior to the explosion of major ordnance (ninety-four seconds after initiation of the fire) regardless of the aggressiveness, readiness, response and expertise of personnel and readiness of equipment...the design and operating procedures of fire fighting equipment currently available in attack carriers is totally inadequate to the needs generated by modern combat operations and the concentrations of very large quantities of ordnance and fuel on jet aircraft. ¹¹

The members of the board, based on their investigation into the fire, translated these opinions into sixty-two recommendations. Thirty-one of these recommendations were damage control related, and focused on improving training, damage control equipment, and warship design. To improve the performance of the shipboard damage control organization, the investigators recommended minimizing the transfer of trained personnel prior to a ship's deployment. This recommendation was especially pertinent since 37 percent of *Forrestal*'s trained firefighters transferred from the ship prior to deployment.

Rear Admiral Massey also recommended that aircraft carrier air wing personnel receive increased firefighting and damage control training. Air wing personnel comprised nearly 40 percent of the deployed aircraft carrier's crew. These sailors operated and maintained the aircraft, and did not move aboard the ship until after the ship had completed a great deal of predeployment training. The air wings were not permanently attached to particular ships, and frequently deployed on different classes of aircraft carriers. As a result, the air wing sailors tended to be somewhat unfamiliar with the location and operation of firefighting and damage control equipment peculiar to the ship they were serving on. However, since these sailors primarily worked on and near the flight deck, it was essential for them to have a thorough understanding of firefighting

techniques and equipment. The investigators specifically called for increasing instruction for air crew personnel in the following areas: shipboard damage control organization, principles of damage control, shipboard orientation (including traffic flow patterns during emergencies and escape routes, and how to activate and use damage control equipment such as OBAs, firefighting foam stations, the ship's firemain, and sprinkler systems.¹² The investigation report also recommended that all personnel assigned to aircraft carriers (including air wing personnel) achieve basic qualifications in damage control and firefighting prior to embarking their ships.

Rear Admiral Massey's team members also felt shipboard flight deck firefighting training drills were inadequate. They recommended that the Navy develop realistic training exercises based on fires of the magnitude experienced on *Forrestal*, simulating the hazards of live ordnance and the loss of key personnel and equipment.

As stated earlier, the investigating board believed that the fire on *Forrestal's* flight deck could not have been extinguished prior to the ordnance explosions with the equipment available onboard. To correct this unacceptable situation, the panel recommended that the Navy commission a study to examine improvements to increase the effectiveness of shipboard firefighting and damage control equipment. Specifically, the report recommended that this study focus on potential improvements to firefighting foam stations, firefighting nozzles, and fire hose storage.

Recommended improvements to foam stations included standardizing controls to reduce operator confusion. The investigation had discovered that the operating controls varied with the different foam stations located throughout the ship. This lack of standardization was especially confusing for members of the embarked air wing, who

were often unfamiliar with a particular ship's equipment idiosyncrasies. The report also recommended increasing the number of remote activation controls for each firefighting foam station to improve response time. Testing completed during the course of the investigation revealed significant delays between activation of the foam stations and delivery of firefighting foam to the flight deck hoses. Investigators tested the performance of ten foam stations without providing advance warning to the *Forrestal's* crew. One station produced foam after seventeen seconds had elapsed, another station failed to develop foam at all, and one station generated foam after four minutes. The remaining seven stations produced firefighting foam thirty to forty-five seconds after they were activated.¹³ Since the first bomb exploded on *Forrestal's* flight deck one minute and thirty-four seconds into the conflagration, investigators recommended that the Navy examine the feasibility of modifying the foam stations to reduce the time required to deliver foam to flight deck hoses.

As the *Forrestal's* crew battled fires that had spread into compartments below the flight deck, they were forced to cut small access holes into several bulkheads and decks to insert nozzles and hoses. This technique proved useful in cooling compartments to prevent the spread of fire, and fighting fires where the normal entry points were inaccessible because of damage or high intensity fires. The panel recommended that the Navy develop and issue small omni-directional nozzles, especially designed to spray all areas within a compartment when inserted through a small hole in a bulkhead or deck.

Rear Admiral Massey's investigators discovered that the heavy firefighting hoses used on the flight deck were very susceptible to getting tangled up as they were deployed. If a hose developed a significant kink while being used to fight fire, the flow of water or

foam would be interrupted. The sudden loss of agent would render the hose ineffective until the kink was removed, and could easily endanger firefighters if they were in close proximity to a large fire. The report recommended that the Navy study ways of improving hose storage to reduce tangling during hose deployment.

Rear Admiral Massey also proposed significantly increasing the allowance of firefighting foam, OBAs, and OBA canisters carried aboard *Forrestal*. The board opined that the existing allowance of foam and OBA canisters was insufficient for combating serious fires, and believed that *Forrestal's* crew would have been forced to simply contain the fires until they burned out if other ships in the vicinity had not replenished these items. *Forrestal's* existing allowance included 1,220 five-gallon containers of firefighting foam concentrate, 550 OBAs, and 3,300 OBA canisters. The board recommended increasing this allowance to 2,500 containers of foam, 620 OBAs, and 8,000 OBA canisters.¹⁴

Rear Admiral Massey also recommended that the Navy consider employing armored fire fighting vehicles on the flight decks of aircraft carriers. The report noted that such vehicles would provide carriers with several useful capabilities. They could be used to push burning wreckage (such as damaged planes) over the side, they could closely approach fires while protecting operators from the hazards of ordnance detonation and resulting shrapnel, and supervisors could direct their employment by radios.

Finally, the initial investigation report into the fire on *Forrestal* recommended several modifications to the Navy's carriers to improve survivability and enhance the damage control efforts of crew members. The report noted that approximately 40,000 gallons of fuel from burning aircraft contributed significantly to the intensity of the fire.

The burning fuel also entered interior compartments through bomb holes and other opening in the flight deck, spreading the fire and damage. Rear Admiral Massey recommended that the Navy add large sprinkler systems specifically designed to quickly wash large quantities of fuel off carrier flight decks. He noted that a large system of drains would have to be added as well to accommodate large volumes of fuel and water. These drains would have to be designed to divert fuel and water over the side while minimizing fuel intrusion into interior compartments. The board also recommended extending the length of flight decks over the stern of aircraft carriers to eliminate another potential route for burning fuel to enter the ship. Finally, the board recommended incorporating jettison ramps into the flight deck so that ordnance, flammable materials, and even aircraft could be quickly pushed over the side when necessary.

During the *Forrestal's* fire, ninety-one crew members died in compartments below the flight deck. Some crew members were trapped in compartments because the explosions damaged a single exit. Others died because they were unable to reach the nearest exit before toxic gases and heat overcame them. To reduce similar casualties in the future, the board recommended that the Navy construct alternate escape exits in compartments of all vessels, where possible.

Numerous crew members stated that the shipwide general announcing system, the "1MC," was nearly impossible to hear in the hangar bay during the fire. This announcing circuit was critical, since senior officers frequently used it to provide direction and status updates to the crew during emergencies. Testing by the investigators confirmed that the system was unintelligible throughout much of the hangar bay, so they recommended that this deficiency be corrected.

While Rear Admiral Massey's team was crossing the Atlantic and continuing their investigation, the Chief of Naval Operations, Admiral Thomas Moorer, decided to establish a panel to review the safety on aircraft carriers throughout the Navy. As discussed earlier, Admiral Moorer selected recently retired former Vice Chief of Naval Operations and naval aviator Admiral James S. Russell to head this panel.

The Russell Report

Admiral Russell's panel convened in Washington, D.C. on 15 August 1967, just over two weeks after the *Forrestal's* fire. In addition to Admiral Russell, who served as the Director, the Office of the Chief of Naval Personnel assigned eleven officers and civilians to this Panel to Review Safety in Aircraft Carrier Operations (PRSACO). These panel members were selected based on their professional expertise and experience with aircraft carrier operations and equipment design. The PRSACO members conducted a series of organizational meetings during their first five days together, then split into two groups. The first group was comprised of Admiral Russell, Rear Admiral Buie, Captain McCall, Commander Engel, Commander Charles, and Mr. Bee. This group visited the headquarters of the Pacific Fleet's Commander in Chief and spent a week assessing four aircraft carriers as they conducted combat operations in the Gulf of Tonkin, off Vietnam.

While Admiral Russell's group was conducting its tour, the remaining panel members conducted a review of available literature on the topic. When Admiral Russell returned from his tour, the entire panel reconvened in San Diego, California. The panel then conducted conferences with personnel serving on the staff of the Commander, Naval Air Forces Pacific (COMNAVAIRPAC) and the Pacific Training Command (COMTRAPAC). After these conferences, the panel members returned to the Pentagon

for a series of briefings and discussions. Top Navy leaders considered the briefings presented to Admiral Russell's panel important. The Naval Material Command, the Bureau of Naval Personnel, and the Office of the Chief of Naval Operations produced the majority of briefings. The Chief of Naval Operations wrote letters to the Chiefs of Naval Material and Personnel requesting briefings on subjects of interest to the panel. He also wrote internal memorandums directing his staff to provide desired briefings for Admiral Russell's panel. The members of the panel received seventy-six separate briefings. A short description of each of these briefings was included in the panel's report. During their review of carrier operations safety, PRSACO members studied a bibliography of eighty-one pertinent books, articles, and reports. Items in this bibliography discussed ordnance safety, personnel issues such as training, organization, and personal protective equipment; damage control doctrine, World War Two battle damage reports, reports of fires on aircraft carriers after the Second World War, and other ship systems. A brief synopsis of each item in the bibliography was included in Admiral Russell's report. The *Russell Report* (as Admiral Russell's *Report of the Panel to Review Safety in Carrier Operations* was frequently referred to in Navy memorandums) included a list of forty-six interviews that panel members conducted. This extensive series of interviews included discussion with the Navy's top leaders and carrier aviation experts, including the Secretary of the Navy and thirty-nine separate flag officers (admirals). Panel members interviewed several of these senior leaders on more than one occasion. Most of them had extensive experience with aircraft carrier operations, and several were former commanding officers of carriers. The positions of these senior leaders were diverse -- some were responsible for training, many supervised technical research and ship

construction programs, and others commanded operational units. The panel members interviewed Rear Admiral Massey to discuss insights he gained while investigating *Forrestal's* fire. They also interviewed the former Commanding Officer of *Forrestal*, Captain John Beling, and *Forrestal's* Chief Engineer, Commander Merv Roland. Finally, the panel visited *Forrestal* while it was docked in Norfolk, Virginia to examine the damage caused by the fire.

Admiral Russell's team completed their *Report of the Panel to Review Safety in Carrier Operations* on 16 October 1967. In the abstract, Admiral Russell stated that his review identified several serious deficiencies:

Deficiencies were identified, however, that, though largely beyond the ability of the ships to correct, do affect the ability of CVAs (aircraft carriers) to carry out their assigned combat missions with a reasonable degree of safety to themselves. The most serious of these deficiencies are inadequate fire protection for the flight deck and to a lesser extent the hangar deck. . .personal equipment for fighting fires and for individual survival, . . .inadequate individual and team training.¹⁵

Admiral Russell provided eighty-six recommendations to improve aircraft carrier safety in his report. Many of these recommendations, as in Rear Admiral Massey's report, were focused on improving damage control training, increasing the capability of shipboard firefighting and other damage control equipment, and modifying warship design to further enhance survivability. However, it is important to note that Admiral Russell's panel had a much broader point of view than Rear Admiral Massey's team. Rear Admiral Massey was appointed to determine what caused the fire on *Forrestal*. His recommendations were based on facts discovered during his investigation and opinions that he formed after closely studying that single incident. Rear Admiral Massey had at least some incentive to moderate his recommendations – any harsh criticism of the performance of *Forrestal's* crew members would be damaging to the careers of officers

serving on *Forrestal* (Rear Admiral Massey specifically stated in his report that he did not recommend placing blame on any *Forrestal* crew members for the conflagration). On the other hand, the highest ranking officer in the United States Navy, Admiral Moorer, appointed Admiral Russell to undertake a comprehensive study of how safely all American aircraft carriers were being operated. Although his project was important to the Navy, Admiral Russell was not as constrained by the need to quickly complete an investigation before eyewitness accounts of a single disaster deteriorated. Admiral Russell's panel visited five aircraft carriers to gain firsthand knowledge of how they were operated. The Navy's leading experts on firefighting and damage control, warship design and construction, and procurement briefed the PRSACO members. They were granted virtually unlimited access to interview Navy uniformed personnel and Department of the Navy civilians to capitalize on their tremendous experience and gain insight from their opinions. A final significant factor was that Admiral Russell's panel was well designed to assure a thorough, honest look at existing flaws in aircraft carrier operations safety. Admiral Moorer's decision to appoint a retired officer avoided the possible negative career implications an active-duty officer might face if he chose to advocate politically unpopular recommendations. Each panel member was allowed and encouraged to present possible recommendations to be considered for inclusion in the final report. However, only Admiral Russell had authority to approve what recommendations were included in his report. This enabled panel members to present honest and critical recommendations without concern for their own careers. Additionally, the presence of a retired four-star admiral on the panel (with obvious strong support from the Chief of Naval Operations)

helped ensure that the panel would receive a high degree of cooperation from the busy officials they chose to interview.

Each of the eighty-six recommendations proposed by Admiral Russell was accompanied by an explanation of why they were considered important by the panel. The panel used information gathered from the sources mentioned earlier to justify their recommendations. Admiral Russell included proposals to assign cognizance for each of his recommendations to a specific naval command. For example, he proposed that the Naval Material Command be assigned responsibility for improving fire hoses used aboard ships. Three days after Admiral Russell submitted his report, the Chief of Naval Operations forwarded the report to an extensive distribution list of naval commands.

Admiral Russell's panel grouped their recommendations into nine separate categories--ship's material, personal equipment, aircraft systems, weapons, training, documentation, personnel, organization, and operations. This thesis will not examine those recommendations related to aircraft systems, weapons, or documentation (since the recommendations in this category related to ordnance safety publications). The recommendations in the remaining six categories that pertain to damage control improvement will be examined.

Recommendations to Improve Warship Survivability Features

In his most significant recommendation for improving ship's material, Admiral Russell proposed developing advanced flight deck fire fighting systems for carriers. Many of the elements of this proposed system were initially included in Rear Admiral Massey's report, such as remote control, rapid response time, and massive firefighting agent delivery capability. This *Russell Report* recommendation also incorporated another

consequential proposal from Rear Admiral Massey's initial report--that it was important to incorporate means for quickly draining large quantities of spilled fuel from flight decks into this advanced fire fighting system.¹⁶ Admiral Russell provided strong supporting rationale for including this recommendation in his report:

Development of an advanced flight deck fire fighting system is of prime importance. Principal attention in aircraft carrier fire fighting has been focused in the past on the hangar deck. Adoption of the steel ballistic deck in *Midway* Class and later carriers, and the trend toward elimination of aviation gasoline, tended to support the belief that control of fire on the flight deck was not a serious problem. The *Forrestal* incident proved that it is. Modern carrier aircraft are capable of carrying large quantities of fuel and weapons. The strike group on *Forrestal* was estimated to be loaded with approximately 40,000 gallons of JP-5 (jet fuel) when the accident occurred. Modern aircraft and weapons complexities combine with environmental conditions on a flight deck to provide an ever-present possible source of ignition. Presently installed equipment is not capable of handling a conflagration of the magnitude of that which developed on *Forrestal*.¹⁷

Admiral Russell provided three pages of justification detailing why he considered it vitally important to develop an advanced firefighting system for carrier flight decks. He concurred with Rear Admiral Massey's assessment that existing flight deck fire fighting equipment was simply inadequate, and proposed that the Naval Material Command immediately begin research and development on an improved system.

The *Russell Report* recommended that the Naval Material Command develop a standardized system for marking and illuminating emergency escape routes from interior compartments. The report noted that personnel experienced difficulty in escaping from smoke-filled compartments in many previous shipboard fires, including the one on *Forrestal*. PRSACO members believed two critical factors increased the difficulty crew members experienced when attempting to evacuate dark, smoke filled compartments during emergencies: aircraft carriers were extremely large, and many crew members were not familiar with all sections of their ships. During their visit to four deployed carriers,

panel members observed various markings designed to help personnel evacuate compartments during emergencies; they also noted that some carriers had no markings at all. The panel recommended that the Naval Material Command investigate which colors and types of paint and lights were most effective in helping personnel evacuate shipboard compartments, and then develop an effective, standardized system to mark evacuation routes.¹⁸ The PRSACO members proposed implementing a closely related recommendation originally made by Rear Admiral Massey, increasing the number of exits from compartments. They noted that US Navy ship design specifications required two exits from all stations normally manned by ten or more crew members. However, this requirement did not apply to berthing compartments or workshops. Admiral Russell's team proposed extending this requirement to include all berthing compartments and working areas that were sometimes occupied by ten or more crew members. They recommended that all new ships be constructed to this standard, and that existing ships be altered to meet this new requirement where feasible.¹⁹

Admiral Russell also concurred with the assessment of *Forrestal* fire investigators that the general announcing system was difficult to hear and understand in some locations on aircraft carriers. The investigation into *Forrestal's* fire determined that personnel in the hangar deck directly below the flight deck had difficulty hearing and understanding the ship's general announcing system, or "1 MC." Admiral Russell's report noted that this problem was not confined to *Forrestal*:

The complaint concerning the inadequacy of the 1 MC General Announcing System is universally supported by Yankee Station CVAs visited by the Panel. There are many working and living areas where the 1 MC simply cannot be heard. . . . A space-by-space survey should be conducted on each ship in order to determine what must be done to provide a system that will be adequate

for passing important information or orders during an emergency. It is equally important to insure that the General and Chemical Alarms may be heard in every normally inhabited space throughout the ship and that the inhabitants of these spaces may also communicate the existence of a fire or other emergency in the space to the bridge. In short, command cannot function properly without adequate command and control communications.²⁰

Remembering that fifty crew members died while sleeping in their berthing compartments after the General Alarm had been sounded over *Forrestal's* 1 MC system, it is hard to overemphasize the importance of this recommendation. Admiral Russell proposed that the Naval Material Command should conduct surveys on all US Navy aircraft carriers to discover and correct instances where 1 MC speakers were inaudible or unintelligible in inhabited compartments.

Admiral Russell recommended that the Naval Material Command review all pending repair requests for the Navy's carriers. He proposed that all items affecting fire fighting or damage control should be considered critical to the safety of these ships, and should be given high priority during each ship's maintenance periods. His included rationale noted that there is always limitations on how many items can be repaired or upgraded during any given maintenance period, and there is heavy competition about which items are given priority. Damage control improvements and repairs competed with areas such as propulsion machinery and command and control equipment. Admiral Russell stated that damage control items often lost out in this competition for limited resources:

This fact, combined with Navy-wide apathy toward damage control over the past years, has resulted in the low state of material readiness in this important area.²¹

Admiral Russell cited excerpts from Inspector General assessments of five aircraft carriers conducted in May and June 1967 to support his harsh comment:

Fire fighting equipment in 3 of the 5 carriers inspected was in satisfactory or better condition. An examination of watertight inspection records and watertight boundaries revealed: watertight inspections were logged in 4 of 5 carriers; watertight boundaries were unsatisfactory in all 5 ships.²²

PRSACO members believed that placing damage control repair requests in the “safety to ship” category would highlight their importance to senior officials, and help ensure that they received a higher priority in future maintenance periods.

The final significant recommendation by Admiral Russell’s panel related to ship’s material proposed establishing an exploratory program to study means of improving survivability of ships. To bolster this recommendation, the report stated that the Navy had great need for such a program: “As an example of the need, present-day shipboard fire fighting and damage control are essentially based on means available in World War Two.”²³

The panel theorized that this program could incorporate computer simulations to model damage that could occur from both accidents and enemy action, and that computers could also be used to evaluate the effectiveness of proposals designed to increase warship survivability.

Recommendations to Improve Personal Protective and Damage Control Equipment

The need for improved personal protective equipment was the one area where Admiral Russell’s report made significant recommendations not originally proposed by Rear Admiral Massey’s team. The PRSACO members, based on their broader view, realized that shipboard emergency personal protective equipment was woefully inadequate. As Admiral Russell stated in the conclusion to his report:

Of great importance in the handling of emergencies resulting from fire and explosion on a carrier is the personal equipment available for use in combating

the situation and in individual survival in a smoke/fire environment. Not much improvement has been made in these equipments since World War II. Major improvements are required and, with the advanced technology now available, these improvements should not be too difficult.²⁴

Perhaps the most important personal protective equipment recommendation submitted by PRSACO members was the need for a more effective escape-breathing device. At the time of the *Forrestal's* fire, crew members often wore gas masks as they attempted to escape smoke-filled compartments during shipboard fires. These gas masks, primarily intended to protect crew members against attacks from chemical weapons, also provided some protection against hot smoky environments--they filtered solid particulate matter from the air, reduced the temperature of the air slightly, and served as a heat shield for the wearer's face. However, they provided no protection against toxic gases such as carbon monoxide, and were worthless to the wearer if a compartment's oxygen level was depleted by fire. The Navy's *World War II Damage Reports* found that the gas masks were often useful to personnel evacuating smoke-filled interior compartments: "On the basis of the service experience it is apparent that Navy Service Gas Masks are reasonably effective against smoke. Personnel must be thoroughly acquainted with their limitations, however."²⁵

Admiral Russell concurred with this assessment, and recommended that the Naval Material Command distribute information throughout the Navy explaining the capabilities and limitations of the gas mask when used as an escape breathing device. He also stated that gas masks had been issued to the crew of only one of the carriers he observed off the coast of Vietnam. The gas masks of the remaining three carriers were stowed in storerooms, inaccessible to their crews in the event of sudden emergencies.²⁶

Although he agreed with the twenty year old *World War II Damage Reports* that gas masks provided useful protection to personnel evacuating smoke-filled compartments, Admiral Russell felt that a more effective device was needed. He noted that personal emergency air masks were available to US Navy submarine sailors, and proposed that the Naval Material Command modify gas masks by adding small portable air cylinders. These cylinders would supply gas mask wearers with clean air for several minutes and increase their chances of escaping from compartments filled with toxic gases.

Admiral Russell also proposed that the Naval Material Command establish a program to improve the OBAs used by shipboard firefighters. His report stated that the OBAs were excellent tools, but noted that several deficiencies had been discovered during fires on naval vessels. Rear Admiral Massey's investigators discovered that many of the OBA canisters used to combat *Forrestal's* fire did not last the rated thirty minutes. *Forrestal* fire investigators also believed that many parts of the OBA were susceptible to deterioration over time, and were subject to breakage as a result of rough handling. The investigation team that studied a major fire on the carrier USS *Oriskany* had reached similar conclusions in 1966. PRSACO members suggested that research could result in OBA canisters with longer lives, and that design improvements could produce smaller, simpler, and more rugged OBAs.²⁷

Finally, Admiral Russell proposed improving the clothing worn by personnel responding to fires on flight decks. He recommended upgrading the proximity suit used by sailors to rescue personnel from burning aircraft by improving its resistance to wear and tear, making it more flexible, and increasing its ability to reflect heat. He noted that

several research reports confirmed that vastly improved aluminized fabrics were available and could be used to improve proximity suits.²⁸ He also noted that the jerseys worn by personnel working on the flight deck were not flame retardant, and their shoes were soft-toed and had poor treads on their soles. The *Russell Report* cited research demonstrating that it was feasible to treat clothing to make it flame retardant, and proposed that the Navy issue flame retardant clothing and improved footwear to shipboard sailors.

The *Forrestal* fire investigation team originally proposed many of the improvements to shipboard damage control equipment Admiral Russell recommended. For example, building on a recommendation made by Rear Admiral Massey, the *Russell Report* proposed improving shipboard fire hoses. The *Forrestal* investigators discovered that the cotton-jacketed hoses used throughout the ship were very susceptible to becoming tangled. PRSACO members confirmed this during their visits to four operational carriers, and also noted that the cotton-jacketed hoses were quickly worn out by being dragged across abrasive decks during training drills. The *Russell Report* described a project where improved hoses were being tested aboard another carrier, *USS America*. *America* had tested 235 lengths of neoprene-wrapped hose, and found that these new hoses did not tangle up and were significantly more wear-resistant than the cotton-jacketed hoses. Admiral Russell recommended that all aircraft carriers be equipped with neoprene-wrapped hoses in their hangar and flight decks. He also recommended that the Naval Material Command develop quick-disconnect couplings for these hoses to facilitate rapidly adding sections of hoses when needed.²⁹

In a similar vein to his recommendation that repairs to damage control equipment be given a high priority in the competition for limited resources, Admiral Russell

proposed that a portion of each ship's operating funds be allocated solely for the purchase of damage control and firefighting equipment. His supporting rationale clearly illustrated the many items that competed for funding priority and provided strong justification for why he considered this recommendation important:

Operating funds are allocated to individual ships in the form of and Operating Target (OPTAR) by the type commander. Normal practice is for the ships to further sub-allocate amounts to each department. Out of each OPTAR must be obligated funds for such things as spare parts, consumables such as paper and soap, maintenance items such as wire and sheet metal, habitability items such as paint and deck tile, and replacement of equipment such as worn out fire hose and lost battle lanterns. The amount of the OPTAR is never enough to cover all of a ship's operating needs. Normal practice is to establish a priority list and fund down the list to the point where money runs out. In this system, the completeness of the inventory and the good material condition of damage control equipment must compete with all other consumables, spares, and equipment replacement, for funds. The tendency has been in the recent past, to place damage control gear low on the priority list. This has meant that inventories and material condition of damage control equipment were generally poor.³⁰

In addition to establishing a separate pool of money for damage control equipment, the *Report of the Panel to Review Safety in Carrier Operations* recommended the Naval Material Command conduct further analysis of shipboard fires to determine a more appropriate allowance of OBAs and their canisters, fire fighting foam, fire extinguishers, and hoses. The report noted that both *World War II Damage Reports* and more recent investigations following major shipboard fires recommended significantly increasing the number of OBAs and OBA canisters.³¹

Recommendations to Increase Damage Control Awareness and Training

The remaining recommendations made by Admiral Russell's panel emphasized the urgent need to improve the level of damage control awareness and training throughout the fleet. The foremost recommendation Admiral Russell proposed to alleviate this situation was for the Chief of Naval Operations to ensure that air wing

personnel received damage control training prior to deploying with an aircraft carrier. His report noted that sailors in the air wing comprised approximately 40 percent of the personnel on deployed carriers, and that an even higher percentage of air wing sailors were involved in fire fighting efforts on the *Forrestal* because most of them worked in the vicinity of the flight deck. However, his report was highly critical of the effectiveness of these sailors during the conflagration:

Many of these air wing personnel, despite their courageous acts and strong desire to help, were ineffective and in some cases a hindrance to the fire fighting effort. These men had received no formal training in fire fighting or the principles of damage control. During a carrier's refresher training period, which is primarily devoted to ships damage control training, the air wing is not aboard, and no substitute damage control training is provided.³²

Admiral Russell observed that requirements did exist for these sailors to receive damage control training. However, he found that the requirements were not being met for a variety of reasons, such as insufficient school capacity, high personnel turnover rates, lack of realistic training aids, insufficient attention by commanding officers, and insufficient requirements for ships to conduct periodic drills. His report included several proposals designed to alleviate these shortfalls.

Based on briefings he received from the Commanders of the Atlantic and Pacific Naval Air Forces and the Commanders of the Atlantic and Pacific Training Commands, Admiral Russell recommended increasing the throughput capability of damage control training schools by adding more instructor billets. He also proposed sending damage control training teams to assist deployed ships. The briefings presented to Admiral Russell indicated that vastly increased student throughput was required to meet existing training requirements. Officials estimated that school capacity was only sufficient to meet approximately 60 percent of the training requirements for the Pacific Fleet, and

approximately 32 percent of the Atlantic Fleet's training requirements.³³ However, even this meager capability was severely underutilized, as the *Russell Report* clearly shows:

COMNAVIAIRPAC requires that the executive officer, and all repair party personnel attend a five-day fire-fighting course and all other personnel, including the Air Wing attend the two-day course...During FY '67 only 226 Air Wing personnel were trained. COMNAVIAIRLANT requires that all repair party and in-port firefighting party members attend the five-day fire-fighting course, all air department personnel attend a three-day course, and half the ship's company attend a two-day fire-fighting course. In FY '67, no air-group personnel attended basic or refresher fire-fighting courses.³⁴

The impact of these depressing macrolevel statistics were evident in the investigation reports of shipboard fires, which concurred that a dire need for increased damage control training existed:

About 25 percent of the *USS Oriskany* crew and apparently none of the Air Wing personnel had received fire-fighting training prior to the October 1966 fire. Only 150 personnel were trained in the use of the OBA. On *USS Forrestal* about 50 percent of the crew and none of the Air Wing personnel had fire-fighting training prior to the fire. Both reports of these incidents recommended full-crew training in fire-fighting.³⁵

To increase the awareness of the importance of damage control training on aircraft carriers, Admiral Russell's report recommended incorporating damage control training into the precommand training pipeline given to aircraft carrier commanding officers. His report noted that commanding officers of carriers were aviators with little or no prior damage control training or experience, and speculated that this could result in decreased command emphasis on the importance of damage control:

This lack of experience in damage control on the part of the commanding officer is most critically reflected in a generally low level of command interest in damage control matters, and a failure to appreciate the importance of damage control training. Regardless of the enthusiasm and ability of the DCA (Damage Control Assistant), ship-controlling drills in damage control are not going to be included in an already-too-full schedule, unless the commanding officer recognizes the importance of damage control and the necessity for continued damage control training.³⁶

Admiral Russell recommended that the training provided to future carrier commanding officers should include instruction on the principles of damage control, review of significant previous shipboard fires and battle damage, and participation in fire fighting and damage control training exercises. His report also proposed that newly enlisted personnel receive damage control training prior to reporting aboard, and recommended that officer-commissioning programs increase their emphasis on damage control training. His report stated that a decision had been recently made to eliminate the sole course on damage control principles included in the Naval Academy's curriculum, and he strongly advised reversing that decision.³⁷

Finally, the *Russell Report* recommended that the Naval Material Command create improved damage control training aids for shipboard personnel. He proposed incorporating the PLAT camera footage into a training film to give shipboard firefighters a sense of the magnitude of fires they could encounter. He also proposed developing reusable training canisters for OBAs, so that ships could conduct OBA familiarization training without decreasing the amount of canisters available during actual fires.

As the preceding chapter illustrated, Admiral Russell's *Report of the Panel to Review Safety in Carrier Operations* proposed a plethora of possible means to improve damage control and firefighting capability on US Navy ships. Many of his suggestions incorporated recommendations originally included in Rear Admiral Forsyth Massey's investigation into the *Forrestal's* fire. The next chapter examines how the Navy implemented these important recommendations.

¹Department of the Navy, *Manual of the Judge Advocate General Basic Final Investigative Report Concerning the Fire on Board the USS Forrestal (CVA-59) on July*

29, 1967. (Washington, D.C.: US Navy Office of the Judge Advocate General, 1968), 1-2.

²Ibid., 6.

³Ibid., 34.

⁴Ibid., 35.

⁵Ibid., 38.

⁶Ibid.

⁷Ibid., 33.

⁸Ibid., 77.

⁹Ibid., 81.

¹⁰Ibid., 83.

¹¹Ibid., 112.

¹²Ibid., 129.

¹³Ibid., 82.

¹⁴Ibid., 126.

¹⁵Admiral James S. Russell, *Report of the Panel to Review Safety in Carrier Operations* (Washington, D.C.: Office of the Chief of Naval Operations, 1967), I-1.

¹⁶Ibid., A-1.

¹⁷Ibid., A-1.

¹⁸Ibid., A-12.

¹⁹Ibid., A-36.

²⁰Ibid., A-15.

²¹Ibid., A-17.

²²Ibid., A-18.

²³Ibid., A-47.

²⁴Ibid., V-1-V-2.

²⁵Ibid., A-50.

²⁶Ibid.

²⁷Ibid., A-57.

²⁸Ibid., A-58.

²⁹Ibid., A-16.

³⁰Ibid., A-33.

³¹Ibid., A-32.

³²Ibid., A-73.

³³Ibid., A-74--A-75.

³⁴Ibid., A-74.

³⁵Ibid., A-75.

³⁶Ibid., A-76.

³⁷Ibid., A-80.

CHAPTER 5

IMPLEMENTATION OF REPORT RECOMMENDATIONS

As the previous chapter discussed, two significant investigation panels convened shortly after the July 1967 fire aboard USS *Forrestal*. Both of the reports produced by these panels included numerous proposals to improve the effectiveness of damage control efforts on US Navy ships. However, Admiral Russell's broader investigation into the safety of carrier operations throughout the Navy appears to have had greater impact on damage control improvements in the US Navy. This chapter examines how the Navy implemented these recommendations included in the *Basic Final Investigative Report Concerning the Fire on Board the USS Forrestal* and the *Report of the Panel to Review Safety in Carrier Operations*.

Implementation of *Forrestal Fire Investigative Report's* Recommendations

The first of these panels, headed by Rear Admiral Forsyth Massey, conducted an investigation into the fire following the Navy's *Manual of the Judge Advocate General*. This type of investigation was commonly referred to as a "JAGMAN" investigation within the Navy. The primary purpose of a JAGMAN investigation was to determine the causes of an accident, and who should be held responsible for the resulting damage. Rear Admiral Massey did this, but he also provided thirty-one recommendations aimed at improving damage control deficiencies he observed during his investigation. The preceding chapter discussed fourteen of the most significant recommendations proposed by this investigation. Rear Admiral Massey completed his investigative report on 19 September 1967, and submitted it to Vice Admiral Charles T. Booth, Commander of the US Atlantic Fleet Naval Air Force, for review. Vice Admiral Booth approved the vast

majority of recommendations proposed by Rear Admiral Massey, dissenting with only two of the damage control related proposals. The first of these two not approved recommendations had proposed minimizing the transfer of trained personnel prior to a ship's deployment. To justify their proposal, the investigation team noted that 37 percent of *Forrestal's* trained firefighters transferred prior to her deployment, and opined that these transfers had a significant negative impact on *Forrestal's* overall damage control readiness.¹ Vice Admiral Booth's endorsement letter on the investigation stated that high personnel turnover rates were common throughout the fleet because relatively few sailors assigned to aircraft carriers were re-enlisting after the expiration of their terms of required service. He further emphasized his point by stating that:

These (fleet manpower) resources are not adequate to the task of stabilizing ship and squadron personnel from commencement of refresher training to completion of deployment. Indeed, when two or three aircraft carriers are scheduled to deploy in a two or three month time frame, fleet manpower resources are hard put to provide even the minimum manpower requirements.²

In short, although he had no objection to the concept of stabilizing manning on aircraft carriers, Vice Admiral Booth did not believe the Navy had sufficient manpower available to make this idea feasible.

Vice Admiral Booth also decided against immediately increasing the allowance of OBAs, OBA canisters, and firefighting foam concentrate carried aboard aircraft carriers. Rear Admiral Massey's team had proposed increasing the allowance of foam concentrate from 1,220 five-gallon cans to 2,500; increasing the number of OBAs from 550 to 620; and increasing the number of OBA canisters from 3,300 to 8,000. His report noted that *Forrestal* received substantial quantities of these items from other US Navy ships in her vicinity during her fire, and stated that he believed it would have taken significantly more

time to extinguish the blaze without those supplements.³ Admiral Booth did not completely discount this proposal, but he decided that detailed analysis was required prior to increasing allowance of these items. His letter stated that this analysis would have to include the increased cost of constructing stowage facilities for these items. Admiral Booth recommended delaying implementation of this recommendation even if higher authority decided to increase the allowance of these items until additional dedicated funds could be budgeted for these items.⁴

In his two-page long endorsing letter, Vice Admiral Booth praised the thoroughness of the report and the worth of recommendations presented by the investigating board. He noted that since the report contained so much important information, he was forwarding complete copies to the Commander in Chief of the Pacific Fleet, the Commander of Naval Air Forces in the Pacific, and the Seventh Fleet commander (under whose control carriers operated while prosecuting the war in Vietnam). He also forwarded excerpts of the report containing the investigation board's findings of fact, opinions, and recommendations to all Carrier Division commanders in the Atlantic Fleet. Vice Admiral Booth completed his review of the report on 26 September 1967 and forwarded it to his boss, Admiral Ephraim P. Holmes, Commander in Chief of the US Atlantic Fleet.

In contrast to Vice Admiral Booth's quick review of the report, which only lasted one week, Admiral Holmes took approximately two months to analyze the contents of Rear Admiral Massey's report. Admiral Holmes did not complete his endorsing letter until 1 December 1967. Admiral Holmes's eight-page endorsing letter was much more critical of the investigative report than that of Vice Admiral Booth. Admiral Holmes

disagreed with the investigation board's assessment that the fire and resulting deaths and destruction were not the fault of any of Forrestal's crew members:

The Commander in Chief U.S. Atlantic Fleet, therefore, specifically does not concur in Opinion 115 of the *Report of Investigation* wherein it is stated "That the deaths and injuries resulting from the fire aboard the *Forrestal* on 29 July 1967 were not caused by the intent, fault, negligence or inefficiency of any person or persons embarked in the *Forrestal*." Further, the Commander in Chief U.S. Atlantic Fleet specifically does not concur in Opinion 4 of the *Report* which states "That no improper acts of commission or omission by personnel embarked in *Forrestal* directly contributed to the inadvertent firing of the Zuni rocket from F-4 Number 110."⁵

Admiral Holmes also questioned the accuracy of the Investigation Board's finding that the state of *Forrestal's* material readiness and firefighting and damage control training were acceptable at the time of the fire. He noted that the Inspector General of the US Atlantic Fleet conducted a short-notice evaluation of *Forrestal's* damage control readiness on 10 May 1967. The purpose of this visit was to assess the carrier's ability to maintain watertight integrity, fight fires, and repair damage. The Inspector General found *Forrestal's* damage control readiness to be unsatisfactory, and noted that the damage control parties were disorganized and were not knowledgeable. Admiral Holmes's endorsing letter stated that this information was not included in Rear Admiral Massey's *Investigation Report*, although his board was provided with a copy. The admiral's letter further criticized the investigators for not stating whether the unsatisfactory conditions found by the Inspector General were corrected prior to the conflagration in July.⁶

In his endorsing letter, Admiral Holmes stated that although he was concerned with the high turnover rate of enlisted personnel in operational units, he concurred with Admiral Booth that it would be difficult to stabilize manning. He wrote that the low reenlistment rates cited by Admiral Booth were exacerbated by the Navy's low overall

manning of enlisted supervisory personnel (enlisted pay grades E5 to E9 were only manned at 82 percent of allowance in August 1967).⁷ Other factors that Admiral Holmes assessed as negatively impacting manning stabilization on ships included high operational tempo to support the Navy's heavy commitment in Southeast Asia, and the need to man a larger fleet as the number of ships that were commissioned and reactivated increased.⁸

Admiral Holmes approved all other damage control related recommendations included in Rear Admiral Massey's *Investigation Report*, and forwarded the report to the Navy's Judge Advocate General. The Judge Advocate General reviewed the investigation report and endorsing letters, found that the investigation had been conducted in accordance with naval regulations, and forwarded the entire package to the Chief of Naval Operations. The Judge Advocate General also sent copies of the report and endorsing letters to the commanders of the Naval Air Systems Command, the Naval Ship Systems Command, the Naval Ordnance Systems Command, and the Chief of Naval Personnel for their information. After the Chief of Naval Operations reviewed the report, it was returned to the Judge Advocate General's office.

When the Chief of Naval Operations returned the original copy of Rear Admiral Massey's investigation into *Forrestal's* fire, the Judge Advocate General's office placed it in their long-term storage facility.⁹ It appears that the Navy never tracked the status of recommendations made in this report.¹⁰ Fortunately, all but one of the damage control related recommendations first proposed by Rear Admiral Massey were also included in Admiral Russell's report. The sole recommendation excluded by Admiral Russell was the proposal to stabilize manning on Navy ships from the period of Refresher Training

through deployment. Perhaps Admiral Russell omitted it since Vice Admiral Booth and Admiral Holmes had already rejected it as infeasible. In any event, Admiral Russell's recommendations were targeted at improving damage control training without the benefit of manning stabilization.

In contrast, the recommendations proposed by Admiral Russell were tracked very closely for several years, as the remainder of this chapter will show.

Implementation of the *Russell Report's* Recommendations

The scope of Admiral Russell's panel was much broader than the investigation into *Forrestal's* fire, as discussed earlier. The Chief of Naval Operations appointed Admiral Russell:

Examine actual and potential causes of fires and explosions in aircraft carriers with object of minimizing their occurrence, limiting injuries and damage that result when they occur, and greatly improving the effectiveness of firefighting capability and the control of explosive damage particularly on the flight deck and in the hangar bays.¹¹

Admiral Russell submitted his report to Admiral Moorer, the Chief of Naval Operations, on 16 October 1967. Three days later, Admiral Moorer forwarded the report to an extensive array of naval commanders, including the Atlantic and Pacific Fleet Naval Air Force Commanders, all fleet commanders, all aircraft carrier division commanders, all aircraft carrier commanding officers, the Chief of Naval Material, the Chief of Naval Personnel, Naval Ship Systems Command, Naval Ordnance Systems Command, and the Naval Air Systems Command. Admiral Moorer appointed one of the senior officers on his staff, Rear Admiral Edward C. Outlaw, to coordinate implementation of the recommendations submitted by Admiral Russell.¹² Each of the recommendations included in the Russell Report included a proposal for a designated naval command to

assume cognizance for further study and implementation if feasible. Admiral Moorer instructed these commands to provide him with their comments on each of these items by 25 November 1967.¹³

Only one of the seventeen significant damage control recommendations included in Admiral Russell's report and discussed in the previous chapter was quickly rejected as infeasible. The discarded recommendation proposed that the Navy allocate a portion of each ship's operating funds solely for the purchase of damage control items. The prioritization of operating funds was traditionally decided by each ship's commanding officer. The commanding officer was in a better position to understand his ship's requirements than higher headquarters staff officers, and was also responsible for everything aboard his ship--the condition of all equipment and the safety of the crew. Additionally, the operating funds were distributed to ships on a quarter-annual basis. It would be exceedingly difficult for outsiders to predict how much damage control equipment would have to be replaced in a given quarter, since wear and tear varied widely according to the ship's operational tempo, how often the gear was used, and how recently it had been replaced. The Navy's leaders decided to leave responsibility for allocation of damage control funding from operating funds with each ship's commanding officer.¹⁴

Feedback from the offices charged with studying the feasibility of implementing the recommendations put forth in the *Russell Report* indicated that substantial time would be required to perform the required analysis. As a result, in July 1968 the Chief of Naval Operations directed the Chief of Naval Material to provide quarterly reports updating the status of the proposed recommendations. These quarterly status reports were submitted to

the Chief of Naval Operations from 1968 until 1972 and detailed progress made in analyzing and implementing the recommendations.

In August 1972, the Chief of Naval operations relaxed the reporting requirement, directing that progress reports be submitted on a semi-annual basis. The Chief of Naval Operations rescinded the reporting requirement entirely in November 1974, since significant progress had been made in implementing the Russell Report recommendations:

In view of the considerable progress to date implementing Russell Panel/CASS recommendations, it is considered that the periodic status reports have served their intended function and are no longer necessary on a regularly scheduled basis. . . . Ongoing and open-ended recommendations will continue to be monitored and coordinated as normal NAVMAT management actions.¹⁵

Although the Navy had made enormous progress in implementing Admiral Russell's recommendations by late 1974, interim status updates to the Chief of Naval Operations showed that financial costs proved to be an enormous obstacle to analyzing and implementing the proposed improvements. To ensure that available funding was applied in the most critical areas, the Chief of Naval Operations assigned a relative priority to each recommendation. Three categories of priority were established. The highest category was termed "urgent"; the second, "priority"; and the lowest, "desirable."

Impact of the *Enterprise* Fire on Russell Panel Recommendations

Soon after the Navy began to seriously study the Russell Panel's recommendations, another serious shipboard fire dramatically underscored the need to improve shipboard damage control and firefighting capability. On 14 January 1969, in a tragic parallel to the *Forrestal* fire, a Zuni rocket accidentally ignited on an F-4 Phantom aircraft staged on the aircraft carrier USS *Enterprise*'s flight deck. Twenty-seven sailors

perished in the resulting blaze, and 344 others were injured (sixty-five seriously).

Damage to the ship was estimated to be just below eleven million dollars and the cost of replacing the fifteen destroyed aircraft and associated aviation equipment was estimated to be approximately 45.5 million dollars.¹⁶ The following day, the Pacific Fleet Naval Air Force Commander directed Rear Admiral Frederic A. Bardshar to investigate the fire. Rear Admiral Bardshar's panel also consisted of two Navy Captains, one Commander, and a Lieutenant. Lieutenant Commander Thomas E. Flynn was assigned to provide legal counsel for the investigating board.

Admiral Bardshar completed his report on 11 February 1969. A brief examination of his report is useful for three reasons – first, because the topic of investigation was a similar fire on an aircraft carrier similar to *Forrestal*. Secondly, since the *Enterprise* fire occurred approximately eighteen months after the conflagration on *Forrestal*, sufficient time had elapsed to determine if any suggested improvements had been implemented. Finally, a section of Admiral Bardshar's report commented directly on his opinions of specific *Russell Report* recommendations, based on his investigation of *Enterprise's* fire.

Admiral Bardshar's investigation revealed that although the majority of recommendations proposed to improve shipboard damage control equipment had not yet been implemented, many of the training deficiencies noted by Admirals Massey and Russell had been corrected. In fact, Admiral Bardshar's report vividly illustrates that *Enterprise's* crew exhibited high levels of damage control awareness and was well trained in damage control and firefighting. In the abstract to his report, Admiral Bardshar stated that although serious firefighting equipment deficiencies existed, "solid damage control organization, training, and execution" minimized casualties and limited the fire's spread

and resulting damage.¹⁷ Admiral Bardshar praised the performance of *Enterprise's* firefighters in his report:

The high state of training which existed aboard *Enterprise* produced the individual leadership at all levels which is necessary to an effective damage control organization. . . . After each major explosion hose teams regrouped and resumed their efforts. When men fell, trained backup men took their place. In any event, the aggressive but controlled efforts of these fire fighting crews prevented the explosions of more 500 pound bombs which almost certainly would have occurred had the fires been allowed to burn unopposed.¹⁸

This description presented a stark contrast to firefighting efforts on *Forrestal*, where men with little or no formal training took the place of fire fighters who were killed in the initial explosions on that vessel. On *Forrestal*, approximately 50 percent of the ship's crew and none of the air wing sailors had attended firefighting school. When *Enterprise's* fire erupted, 2,997 of the 3,123 sailors in her ship's company (96 percent) had attended firefighting school, and 1,753 of 2,039 air wing personnel (86 percent) had attended firefighting school. *Enterprise* had sent 1,091 officers and men to firefighting school during August and September 1968. The carrier also had developed a damage control training team to instruct and evaluate the performance of its damage control organization during drills. *Enterprise* had also established a competitive program between its repair parties to increase effectiveness, and conducted frequent training drills.¹⁹ Clearly, on *Enterprise* at least, the importance of an effective, highly trained damage control organization was well recognized.

In the portion of his report commenting on the Russell Panel's recommendations, Admiral Bardshar generally concurred with the proposed solutions. He concurred with the first recommendation included in Admiral Russell's report, the need to develop an advanced flight deck fire fighting system for carriers. Admiral Bardshar wrote that

although Enterprise's well-trained crew quickly employed all available firefighting equipment in accordance with sound, prescribed doctrine, the firefighting equipment was simply insufficient. As a result, the crew's efforts failed to prevent ordnance cook-off and the significant damage resulting from these explosions. These comments on the *Enterprise* fire were an almost identical echo to those made seventeen months earlier by Rear Admiral Massey. Admiral Bardshar wrote that an advanced flight deck fire system, originally proposed by Rear Admiral Massey, and further endorsed by Admiral Russell, was badly needed. He made this his foremost recommendation, and defended his rationale in the strongest terms:

A fresh concept of dealing with a massive flight deck fire (whether self or enemy inflicted) involving exploding fuel and ordnance should be developed. The system derived must include massive cooling as well as rapid extinguishment. It must provide flexibility, selectivity, and redundancy. The system must not compete with other systems for power, water, or extinguishing agents. Controls must provide for remote activation and response must be immediate. . . . The requirement for this system is documented by 161 lives, some 200 million dollars, and the loss of 8 CVA months of operating time since 29 July 1967. The system should be a military characteristic for all CVAs and rank in importance with the armament and aircraft launch and recovery systems...Anything less will not be satisfactory.²⁰

Admiral Bardshar also agreed that the Navy needed most of the improvements proposed in the *Russell Report*. He opined that a standardized marking and lighting system for escape routes would be desirable, as would the neoprene hoses described by Admiral Russell. At the time of *Enterprise's* fire, the improved neoprene hoses were approved for use on naval vessels. However, the *Enterprise* was not yet fitted with them. Admiral Bardshar also wrote that although improvements to OBAs would be desirable, he felt that improved training (and the resulting increased familiarity sailors had with the equipment's capabilities and limitations) had alleviated many of the perceived

shortcomings of OBAs. Admiral Bardshar's panel wrote that the *Enterprise's* crew members were aware of the limitations of using the gas masks as escape breathing devices, and effectively used the gas masks during the blaze. The *Enterprise* fire investigators did agree that improved personnel protective equipment was needed. They noted that two sailors wearing aluminized proximity suits were injured after the hoods were blown off their suits by the concussion from explosions on the flight deck. They also stated that more fire resistant clothing and use of gloves would have reduced the severity and number of burns suffered by *Enterprise's* firefighters. They recommended that the Navy issue and require all personnel working on flight decks to wear hard shell helmets and gloves.²¹

The only *Russell Report* recommendation Admiral Bardshar's investigators disagreed with was the need to increase the allowance of OBA canisters and containers of foam concentrate. *Forrestal* carried 3,300 OBA canisters and 1,220 five-gallon containers of foam concentrate at the time of her fire. *Enterprise's* allowance was virtually identical to this when her fire erupted. *Enterprise's* crew members expended 900 of their 3,300 OBA canisters and 811 of 1,080 foam concentrate containers while fighting the conflagration.²² In view of this, Admiral Bardshar wrote that the existing allowance for these items was adequate.

The *Enterprise* investigation indicated that the Navy had made substantial progress in improving personnel training. It also demonstrated that the existing firefighting doctrine was adequate, when used by a highly proficient damage control organization. However, the investigation report also reinforced the assertions contained in the *Forrestal Investigation Report* and the *Russell Report* that existing firefighting and

damage control equipment was inadequate. Training had improved human performance, but the Navy's technical experts still had to improve the tools available to shipboard firefighters.

In 1968, the Naval Air Systems Command, operating under authority of the Chief of Naval Material, established the Carrier Aircraft Support Study (CASS). The purpose of the study was to assess aircraft carrier operations, and to recommend improvements to increase effectiveness and safety. CASS was a mammoth study (comprising fourteen volumes; the volume on safety alone contained over 500 pages), and examined nearly every aspect of aircraft carrier operation. The Navy contracted Systems Associates, Incorporated (SAI) to perform the study. SAI subcontracted several major defense-related corporations to provide technical assistance and analysis. Some of the subcontractors who contributed to CASS were FMC Corporation, Grumman Aerospace, Hughes Aircraft, McDonnell Aircraft, and the Western Gear Corporation.²³

In February 1969 the Chief of Material, acting with the concurrence of the Chief of Naval Operations, directed that follow-up study of recommendations resulting from the *Enterprise* fire be assigned to CASS:

The recent *Enterprise* incident indicates lessons learned from *Forrestal* contributed to minimizing damage. CASS has been reoriented with OPNAV concurrence to give top priority to *Enterprise*. Coordinated follow-up of *Enterprise* for both short and long term necessary actions are now assigned to CASS. The CASS Steering Committee has been augmented by 2 Flag Officers from OPNAV (OP-03V and OP-50) and the working group is being expanded.²⁴

Since several damage control recommendations included in the *Enterprise Investigation Report* were originally included in the *Russell Report*, this action increased the attention accorded to important recommendations that had not yet been implemented. It also provided funding for those recommendations, such as the advanced flight deck

firefighting system, that needed significant research and analysis prior to development. The Chief of Naval Material also included the status of recommendations assigned to CASS for further study in the periodic update of *Russell Report* recommendations to the Chief of Naval Operations.²⁵

A review of these periodic updates on the status of analysis and implementation of *Russell Report* recommendations shows that steady progress was made. For instance, by January 1971, fifty separate SHIPALTS (alterations designed to improve Navy ships) based on improvements recommended by Admiral Russell had been approved.²⁶ Perhaps the most important of these new SHIPALTS was a newly designed Advanced Flight Deck Fire Fighting System for aircraft carriers. However, SHIPALTS had also been developed to improve shipboard “IMC” general announcing systems and increase the number of exits from carrier working and berthing spaces. Unfortunately, the cost of altering the Navy’s ships was high, and some SHIPALTS other than those developed from *Russell Report* recommendations were given higher priority.²⁷ The May 1971 status update to the Chief of Naval Operations stated that the two aircraft carriers that were being constructed (USS *Nimitz* and USS *Eisenhower*) would have the new damage control improvements built into them, at an estimated additional cost to the Navy of five million dollars per ship.²⁸ According to that document, approximately \$21.5 million were required to complete the fifty SHIPALTS generated by *Russell Report* recommendations on the Navy’s existing ships. The Navy had budgeted approximately \$13.2 million for this over the next five fiscal years, leaving an unfunded shortfall of approximately \$7.3 million.²⁹ The same report stated that a shortage of research and development funds had slowed implementation of several other important *Russell Report* recommendations. The

most significant of these affected recommendations were standardized marking of escape routes from shipboard compartments, development of an emergency escape breathing device, and OBA improvement. The report stated that the Chief of Naval material had requested \$4.25 million for research and development of these items in fiscal years 1970 through 1972, but was only granted \$2.8 million.³⁰

The following year, on 29 October 1972, a machinery space fire in the aircraft carrier USS *Saratoga* killed three sailors and injured twelve others. The deaths were caused by smoke inhalation, and the injuries consisted of burns and smoke inhalation. On 1 November 1972, the Chief of Naval Operations directed his staff to provide him with a status report on the development of *Russell Report* recommendations.³¹

The November 1972 update revealed substantial additional progress on many *Russell Report* recommendations, including the three that had been funded at lower levels than requested the previous year. The Chief of Naval Material had completed evaluation of a standardized marking and lighting system for shipboard escape routes, and was preparing the specifications needed to create a SHIPALT. Research, development, testing, and evaluation (RDT&E) had also been completed on an improved “Variable-fog” nozzle for Navy firefighting hoses. Specifications for the new nozzle were complete, and the Navy was preparing to purchase and equip its ships with them. An emergency escape breathing device had also been developed. This device provided shipboard personnel with eight minutes of clean breathing air to allow them to escape smoke-filled compartments. The Navy had awarded a contract for production of these devices, and was expecting them to be delivered to its ships by late 1973. The report also noted that a permanent flight deck personnel protective equipment program had been established by

the Naval Air Systems Command, and that testing of Nomex fire retardant clothing was in progress. Finally, the 1972 status report described an improved OBA that was being evaluated and refined.³²

The Chief of Naval Material published the final status report on Russell Report recommendations in March 1974. This update showed that, although many research and development efforts were still underway, the Navy had made enormous overall progress in implementing the *Russell Report* recommendations. An advanced flight deck fire fighting system had been installed in nine aircraft carriers, and installation was expected to be completed on the seven remaining carriers by late 1974. A SHIPALT was authorized to standardize shipboard escape route marking, and funding was allocated for ten carriers to receive the alteration in fiscal year 1974. A SHIPALT to improve the “1MC” general announcing system was funded for all Navy ships. SHIPALTS were funded to improve exits from carrier working and berthing spaces. Four carriers were equipped with newly developed emergency escape breathing devices, and funding was allocated for further refinement of these devices. Funding was allocated to replace all of the Navy’s OBAs with an improved model over a three-year period. Improved proximity suits were being provided to carriers, although development of improved, fire retardant clothing for sailors was still in progress. Finally, a training film incorporating footage of the *Forrestal* fire had been issued to all Navy fire fighting schools.³³

This chapter has shown that the vast majority of damage control improvements first proposed by Rear Admiral Massey were eventually implemented, particularly those that called for more effective equipment. Dramatic improvements are difficult to quickly accomplish in a large bureaucratic organization, but several important factors fostered

improved damage control throughout the US Navy. Admiral Russell endorsed Admiral Massey's recommendations, and the high degree of interest exhibited by the Chief of Naval Operations helped sustain the necessary resources required to evaluate and implement the recommended improvements. Finally, fires on the carriers *Enterprise* and *Saratoga* underscored the vital, continuing need for the proposed improvements.

The final chapter examines the lasting impact the *Forrestal* fire had on US Navy shipboard damage control, and what implications this fire and its aftermath have for damage control today.

¹Department of the Navy, *Manual of the Judge Advocate General Basic Final Investigative Report Concerning the Fire on Board the USS Forrestal (CVA-59) on July 29, 1967*. (Washington, D.C.: US Navy Office of the Judge Advocate General, 1968), 112, 125.

²Vice Admiral Charles T. Booth, *First Endorsement on RADM F. Massey, USN letter of 19 September 1967* (Norfolk, VA: Commander Naval Air Force, US Atlantic Fleet, 26 September 1967), 1.

³*Manual of the Judge Advocate General Basic Final Investigative Report Concerning the Fire on Board the USS Forrestal (CVA-59) on July 29, 1967*, 114, 126.

⁴Vice Admiral Booth, 2.

⁵Admiral Ephraim P. Holmes, *Second Endorsement on RADM F. Massey, USN letter of 19 September 1967* (Norfolk, VA: Commander in Chief, US Atlantic Fleet, 1 December 1967), 3.

⁶*Ibid.*, 5-6.

⁷*Ibid.*, 6.

⁸ *Ibid.*

⁹A letter from the Chief of Naval Operations to the Judge Advocate General, dated 21 August 1969, states that Rear Admiral's Massey's *Investigative Report* was returned to the Judge Advocate General on that date. A letter to the author from the Judge Advocate General's office on 23 September 2003 stated that the report is still held in their long-term storage facility in Suitland, Maryland.

¹⁰The author could not locate any evidence that recommendations proposed in Rear Admiral Massey's *Investigative Report* were tracked by the Navy after the report was given to the Judge Advocate General for safekeeping. Fortunately, many of these recommendations were included in Admiral Russell's report, which was tracked closely for several years.

¹¹Naval Safety Center, *Survey of Selected Aircraft Carrier Accidents* (Washington, D.C.: US Naval Safety Center, 1971), 30.

¹²Admiral James S. Russell, *Report of the Panel to Review Safety in Carrier Operations* (Washington, D.C.: Office of the Chief of Naval Operations, 1967), cover letter.

¹³*Ibid.*

¹⁴Chief of Naval Material, *Milestone Schedule and Status Report for Implementing the Recommendations of the Russell Panel Report and the Carrier Aircraft Support Study (CASS)* (Washington, D.C.: Chief of Naval Material, 20 March 1974), 3.

¹⁵Chief of Naval Material, *Periodic Status Reports on Russell Panel/CASS Report* (Washington, D.C.: Chief of Naval Material, 18 November 1974), 1.

¹⁶Rear Admiral Frederick A. Bardshar, *Record of Proceedings: Formal Board of Investigation Convened by Order of Commander Naval Air Force United States Pacific Fleet to Inquire into the Circumstances Surrounding a Fire Which Occurred on Board USS Enterprise (CVAN 65) on 14 January 1969 Ordered on 15 January 1969* (San Francisco, CA: Rear Admiral Bardshar, 11 February 1969), 21-22.

¹⁷*Ibid.*, 1.

¹⁸*Ibid.*, 37.

¹⁹*Ibid.*, 26.

²⁰*Ibid.*, 2, 38.

²¹*Ibid.*, 38-39.

²²*Ibid.*, 27.

²³Systems Associates, *Final Report: Carrier Aircraft Support Study (CASS)* (Long Beach, CA: Systems Associates, December 1971), ii-iii.

²⁴Chief of Naval Material, *Carrier Aircraft Support Study (CASS) Enterprise Responsibilities, Assignment of* (Washington, D.C.: Chief of Naval Material, 3 February 1969), 1.

²⁵Chief of Naval Material, 18 November 1974, 1.

²⁶Chief of Naval Material, *Budgetary and Cost Summary Russell Panel/CASS Recommendations* (Washington, D.C.: Chief of Naval Material, 17 May 1971), 1-3.

²⁷*Ibid.*

²⁸*Ibid.*, 4.

²⁹*Ibid.*

³⁰*Ibid.*, 5.

³¹Office of the Chief of Naval Operations, *RDT&E Efforts Associated with the Russell Panel Report* (Washington, D.C.: Office of the Chief of Naval Operations, November 1972), 1. Research at the Naval Sea Systems Command headquarters at the Washington Navy Yard revealed a memo from the Chief of Naval Operations requesting this special update “in view of the *Saratoga* fire.”

³²*Ibid.*, 5-8.

³³Chief of Naval Material (20 March 1974), 4-8.

CHAPTER 6

CONCLUSION

Lasting Impact of the *Forrestal* Fire

This thesis examined what lessons the Navy learned in the area of damage control from the July 1967 fire on USS *Forrestal*, and how the Navy applied these lessons to improve fleetwide damage control capability (doctrine, warship construction features, and damage control equipment). The research has demonstrated that the damage control capability of US Navy ships was significantly improved as a direct result of lessons learned from the July 1967 fire on USS *Forrestal*. Significant changes in the area of damage control resulted from analysis of this disaster, and these changes had lasting positive impact on US Navy damage control capability.

The tremendous loss of life, high number of injured sailors, extensive property damage to the ship and its complement of aircraft, and the loss of several months of operating time for a capital ship captured the attention of the Navy's top leaders. These leaders ordered a thorough investigation into the *Forrestal* fire. Although the resulting 7,500-page report highlighted several serious deficiencies in *Forrestal's* damage control capabilities, the scope of Rear Admiral Massey's investigation was necessarily limited. The Chief of Naval Operation's appointment of retired Admiral James Russell to review safety of aircraft carrier operations throughout the Navy had a much greater impact on improving damage control throughout the fleet. Admiral Russell found that most of the deficiencies found by the *Forrestal* fire investigators also existed aboard the Navy's other aircraft carriers. As a result, Admiral Russell incorporated all but one of Admiral Massey's thirty-one damage control improvement recommendations into his own report.

Lasting Impact on Doctrine

The fire had a relatively minor impact on damage control doctrine, which was fundamentally sound. The Navy's damage control doctrine had evolved with its ships over the years, and incorporated hard-learned lessons from earlier fires and battle damage sustained by Navy vessels.

However, Rear Admiral Massey and Admiral Russell discovered that the damage control proficiency of US Navy aircraft carrier crews was low because of inadequate training. For example, only 50 percent of *Forrestal's* crew members, and none of the embarked air wing personnel (who comprised approximately 40 percent of the sailors aboard *Forrestal*) had completed fire fighting training courses.¹ Admiral Russell wrote that the Navy's existing damage control training requirements were not being met because of insufficient damage control school capacity, high personnel turnover, and the low priority given to damage control readiness by many aircraft carrier commanding officers.² Poorly trained sailors were simply not able to competently fight serious fires in accordance with established doctrine.

These training deficiencies were relatively easy to correct in a short period of time. Damage control training facilities were expanded, and senior leaders directed Commanding Officers to ensure that their crews were properly trained. Rear Admiral Massey's investigation report into the *Forrestal* fire was widely distributed throughout the fleet. All of these measures increased damage control awareness throughout the fleet, at least in the short term. The similar fire on USS *Enterprise* nearly eighteen months later provided evidence that many training deficiencies had been corrected. The investigation report into the *Enterprise* fire praised crew members for efficiently fighting the

conflagration in accordance with prescribed doctrine to minimize damage.³ However, this report highlighted the Navy's dire need for the improvements in damage control and personnel protective equipment proposed in Admiral Russell's report.

Lasting Material Impact

Much of the long-term impact of the *Forrestal* fire can be found by examining the improved material items (warship construction features, damage control and personnel protective gear) that were proposed and developed in response to lessons learned from that event. These important developments were built into newly constructed vessels, and many existing ships were altered to incorporate the new technology. Refined versions of this equipment can be found on today's naval warships.

Successful material achievements included development of an advanced flight deck firefighting system, improved personnel protective equipment (including fire retardant uniforms, emergency escape breathing devices, and improved OBAs), improved hoses and nozzles. Navy officials also approved a standardized marking and lighting system for escape routes from interior compartments, and additional exits were constructed for many of these interior compartments.

Like the proposed training improvements, these material improvements were also relatively easy for the Navy to implement. Admiral Russell had access to the Navy's top military and civilian experts while developing his recommendations and substantial evidence indicated that they were necessary. The senior officer in the US Navy, Admiral Moorer, demanded frequent updates on the status of implementing *Russell Report* recommendations. As a result, there was little controversy over and broad support among the Navy's leadership for the vast majority of these proposed material improvements.

These recommendations were also prioritized to meet funding limitations. The January 1969 fire aboard *Enterprise* provided additional evidence of the validity of the proposed improvements. Although funding constraints, research, development, and testing all slowed implementation of these recommendations, the most significant recommendations were all incorporated into US Navy ships within a few years.⁴

Unsuccessful Damage Control Improvement Ideas

The preceding paragraphs have shown that training deficiencies and material deficiencies were rectified relatively easily. There was ample evidence that these deficiencies existed, and clear-cut solutions were readily developed to mitigate them. Most of the proposed solutions were noncontroversial, and enjoyed broad support from senior Navy leaders. However, recommendations that did not have such clear-cut technical solutions and challenged existing policies and organizational culture proved much more difficult to successfully implement.

Three significant recommendations proposed to improve shipboard damage control readiness in the wake of the *Forrestal* fire never materialized. Rear Admiral Massey proposed that the Bureau of Naval Personnel should stabilize manning of trained personnel on ships and air wings by minimizing personnel transfer from these units prior to deployment.⁵ However, the two senior admirals who endorsed his report prior to its submission to the Chief of Naval Operations rejected this proposal, primarily because of low manning levels at that time. Admiral Moorer did not insist that his subordinates find a way to stabilize manning. This recommendation was the one significant damage control improvement recommendation first proposed by the *Forrestal* fire investigators that Admiral Russell did not include in his report. Perhaps Admiral Russell sensed or was told

that manning stabilization was not feasible during his interviews with the senior officers who rejected the concept after Admiral Massey first proposed it. Admiral Russell's report did include several recommendations designed to ameliorate damage control training proficiency without manning stabilization. These proposals included increasing the emphasis on damage control training for officers and enlisted personnel prior to reporting to their first ships, and increasing the capacity of the fleet damage control training schools. Senior Navy leaders quickly accepted these alternative proposals. Still, Admiral Russell's failure to recommend manning stabilization reduced the visibility of this proposal.

Admirals Massey and Russell both recommended increasing the number of OBAs, OBA canisters, and containers of firefighting foam concentrate carried aboard Navy ships, citing shortages of these items during the *Forrestal's* fire. Vice Admiral Booth objected to immediately implementing this proposal, writing that additional analysis was required before dedicating additional funding and limited shipboard storage areas to these items.⁶ In his investigation report on the *Enterprise* fire, Rear Admiral Bardshar flatly rejected the need for additional quantities of these items, writing, "the *Enterprise* allowance for OBAs, canisters, foam, fire extinguishers and hoses was adequate."⁷ It appears likely that *Enterprise's* crew used less of these items in a fire very similar to that on *Forrestal* due to their higher training proficiency. In any event, the conflicting data on whether additional quantities of these items were actually required appears to have shifted the focus of Navy leaders to other recommendations with broader support.

The final significant recommendation not implemented by Navy leaders, dedicated funding for replacement of damage control items, was proposed solely by Admiral Russell. The *Russell Report* noted that damage control funding competed with all of the other requirements each ship had, and asserted that many Commanding Officers failed to place a high priority on damage control equipment. Admiral Russell wrote that this frequently resulted in poor material condition of damage control gear.⁸

Although Admiral Russell's logic was sound, this recommendation did not mesh well with Navy culture and tradition. Navy commanding officers were traditionally given complete authority to decide how to allocate limited operational funding for their ship. Many valid reasons existed for this arrangement--commanding officers were held completely responsible for the safety of the ship and its crew. Commanding officers also were presumed to have a much more intimate picture of their ship's condition and requirements, and were thus in a better position to determine allocation of operational funding than outsiders were. It appears likely that senior Navy officials were unwilling to take this decision-making authority away from commanding officers, or allocate additional dedicated funding for damage control items.⁹

Implications for Today's Navy

In July 1967 many people in the Navy thought that a flight deck fire on the magnitude of that on *Forrestal* was unlikely to occur. It was easy for them to believe that technological innovations such as armored flight decks and replacement of highly flammable aviation gasoline with less flammable jet fuel significantly reduced the risk of serious fire. However, the *Forrestal's* fire demonstrated that fire at sea remains a serious and enduring threat to the safety of ships and sailors.

Forrestal's designers built a ship that carried more aircraft, fuel, and ordnance than any earlier aircraft carriers. Unfortunately, the July 1967 fire on *Forrestal* provided strong evidence that these designers failed to ensure that her damage control capability was adequate for these increased hazards. The tragedy illustrated the vital, continuing need to assess damage control capability in new ship designs.

The fires on the *Forrestal* and *Enterprise* also demonstrated the importance of a well-trained and equipped damage control organization. The investigation reports into those incidents provide strong evidence that many sailors died needlessly on *Forrestal* because of poor training. Although it is true that their damage control equipment was inadequate, the fact remains that most sailors aboard *Forrestal* were not trained to effectively use the tools available to them. Conversely, *Enterprise's* well-trained crew was able to effectively fight a similar fire in January 1969, when the events on *Forrestal* were still very fresh in the minds of Navy personnel.

The events following the *Forrestal* fire also provide useful insight into one way to successfully implement change in a large, bureaucratic organization. The tremendous loss of life and high property damage certainly provided a sharp warning that the status quo of damage control on aircraft carriers was inadequate. Senior Navy leaders acted decisively to improve this situation. The Navy's senior officer appointed a retired four-star admiral to head a panel tasked with examining the safety of aircraft carrier operations. This officer, Admiral James Russell, was granted unfettered access to the Navy's top ship construction and damage control experts and the most experienced naval officers while developing proposals to improve damage control readiness. The Chief of Naval

Operation's strong personal commitment to the project sustained momentum throughout the several years required to implement the proposed solutions.

¹Admiral James S. Russell, *Report of the Panel to Review Safety in Carrier Operations* (Washington, D.C.: Office of the Chief of Naval Operations, 1967), A-73--A-74.

²*Ibid.*, A-74-A-76.

³Rear Admiral Frederick A. Bardshar, *Record of Proceedings: Formal Board of Investigation Convened by Order of Commander Naval Air Force United States Pacific Fleet to Inquire into the Circumstances Surrounding a Fire Which Occurred on Board USS Enterprise (CVAN 65) on 14 January 1969 Ordered on 15 January 1969* (San Francisco, CA: Rear Admiral Bardshar, 11 February 1969), 1-2, 26.

⁴Chief of Naval Material, *Milestone Schedule and Status Report for Implementing the Recommendations of the Russell Panel Report and the Carrier Aircraft Support Study (CASS)* (Washington, D.C.: Chief of Naval Material, 20 March 1974), 1-8.

⁵Department of the Navy, *Manual of the Judge Advocate General Basic Final Investigative Report Concerning the Fire on Board the USS Forrestal (CVA-59) on July 29, 1967* (Washington, D.C.: US Navy Office of the Judge Advocate General, 1968), 125.

⁶Vice Admiral Charles T. Booth, *First Endorsement on RADM F. Massey, USN letter of 19 September 1967* (Norfolk, VA: Commander Naval Air Force, US Atlantic Fleet, 26 September 1967), 2.

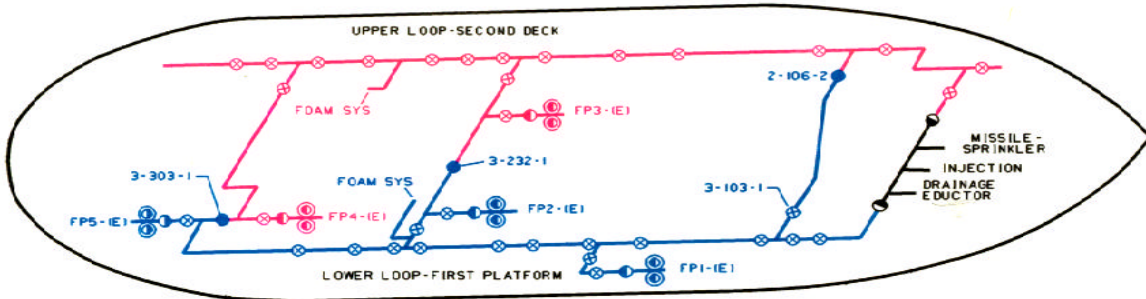
⁷Rear Admiral Bardshar, 39.

⁸Admiral Russell, A-33.

⁹Chief of Naval Material document of 20 March 1974, page 3, simply states that this proposal was rejected as "not feasible." A search of the Navy Operational Archives and records at the Naval Sea Systems Command at the Washington Navy Yard failed to provide any further details on why this proposal was considered infeasible.

APPENDIX A

TYPICAL NAVY FIREMAIN "LOOP" DIAGRAM



ALL PUMPS AVAILABLE FOR OPERATION OF THE MK13 GUIDED MISSILE LAUNCHING SYSTEM, SPRINKLER SYSTEM, BOOSTER SUPPRESSION & DRAINAGE EDUCTORS

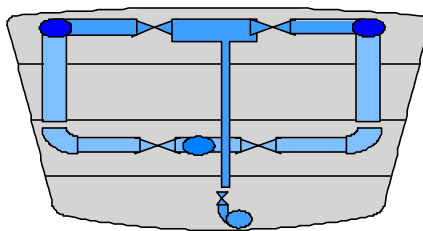
LOWER LOOP - FP1-(E), FP2-(E), & FP5-(E)

UPPER LOOP - FP3-(E), & FP4-(E)

THE FIREMAIN LOOP IS SEGREGATED INTO TWO SECTIONS, IN CONDITION "ZEBRA" AS INDICATED ABOVE. TO ESTABLISH CONDITION "ZEBRA" FROM CONDITION "X-RAY" OR "YOKE", THE FOLLOWING THREE "ZEBRA" VALVES ARE CLOSED.

| VALVE NO. | LOCATION | REMOTE CONTROL |
|-----------|-----------|----------------|
| 2-106-2 | 2-100-4-L | 2-292-01-C |
| 3-232-1 | 5-212-0-E | 2-292-01-C |
| 3-303-1 | 5-292-0-E | 2-292-01-C |
| 3-103-1 | 3-100-1-L | |

Cutaway View of Loop



Source: These diagrams originally appeared in a training presentation prepared by the US Navy's Surface Warfare Officer School at the Naval Education and Training Center, Newport, Rhode Island.

APPENDIX B
CHRONOLOGY OF EVENTS

This timeline was developed using the official Navy records in the Bibliography as references.

October 1955 – USS *Forrestal* (CVA-59) was commissioned.

April 1966 – January 1967 – *Forrestal* docked in Norfolk Naval Shipyard for extended maintenance and overhaul.

May 1966 – Captain John K. Beling assumed command of *Forrestal*.

January – May 1967 – *Forrestal* conducted predeployment training.

6 June 1967 – *Forrestal* departed Norfolk for deployment to Western Pacific.

24 July 1967 – *Forrestal* arrived on Yankee Station, Gulf of Tonkin, off coast of North Vietnam.

25 – 28 July 1967 – *Forrestal* launched air strikes against targets in North Vietnam.

29 July 1967 – A Zuni rocket accidentally fired from an F-4 Phantom jet staged on *Forrestal's* flight deck struck a nearby A-4 Skyhawk aircraft and started a large conflagration aboard the ship at 1051 local time. 134 personnel died; 161 others were injured.

30 July 1967 – The fires aboard *Forrestal* were extinguished by 0400 local time. Rear Admiral Lanham, commander of Carrier Division Two (Captain Beling's Immediate Superior in Command), who was embarked in *Forrestal* during the fire, ordered his staff to conduct a preliminary investigation into the fire. Vice Admiral Charles T. Booth, commander of the US Atlantic Fleet Naval Air Force, appoints Rear Admiral Forsyth Massey as senior member of the board of investigation into the *Forrestal* fire.

31 July 1967 – *Forrestal* arrived at Naval Air Station Cubi Point, Republic of the Philippines, for temporary repairs.

3 August 1967 – Rear Admiral Massey and his team of investigators arrived at Naval Air Station Cubi Point and began work. Rear Admiral Lanham's preliminary investigation ended; all information gathered was turned over to Admiral Massey's team.

21 August 1967 – Admiral Thomas Moorer, Chief of Naval Operations, appointed retired Admiral James S. Russell as director of a panel charged with reviewing safety in aircraft carrier operations.

19 September 1967 – Rear Admiral Massey completed his investigation and forwarded his report to Vice Admiral Booth.

26 September 1967 – Vice Admiral Booth completed his review of Rear Admiral Massey's report and forwarded it to Admiral Ephraim P. Holmes, Commander in Chief of the US Atlantic Fleet.

16 October 1967 – Admiral Russell completed his *Final Report of Panel to Review Safety in Carrier Operations* and submitted it to the Chief of Naval Operations.

19 October 1967 – Chief of Naval Operations forwarded Admiral Russell's report to an extensive list of naval commands, assigned Rear Admiral Edward C. Outlaw to coordinate analysis and implementation of proposed recommendations, and directed subordinate commands to provide comments on the proposed recommendations by 25 November 1967.

1 December 1967 – Admiral Holmes completed his review of Rear Admiral Massey's report.

23 July 1968 – Chief of Naval Operations directed the Chief of Naval Material to provide quarterly updates on the status of *Russell Report* recommendations.

November 1968 – The Naval Air Systems Command established a Carrier Aircraft Support Study (CASS) group

14 January 1969 – Flight deck fire erupted on the aircraft carrier *USS Enterprise* after a Zuni rocket exploded while attached to an F-4 Phantom jet staged on deck. Twenty-seven personnel perished; 344 others were injured (65 seriously).

15 January 1969 – Commander of US Pacific Fleet Naval Air Force appointed Rear Admiral Frederic A. Bardshar to investigate *Enterprise* fire.

February 1969 – Rear Admiral Bardshar completed his report. His report validated the necessity of nearly all of the damage control improvements proposed by Rear Admiral Massey and Admiral Russell. Chief of Naval Operations directed the CASS group to focus on following up lessons learned from *Enterprise* fire. The status of these recommendations were included in future quarterly progress reports to the Chief of Naval Operations outlining progress on *Russell Report* recommendations.

21 August 1969 – The Chief of Naval Operations returned Rear Admiral Massey's report, with endorsing letters from Vice Admiral Booth and Admiral Holmes, to the Navy's Judge Advocate General for storage.

December 1971 – Carrier Aircraft Support Study (CASS) completed.

28 August 1972 – Chief of Naval Operations directed the Chief of Naval Material to provide semiannual updates (instead of quarterly reports) on the status of *Russell Report* recommendations.

29 October 1972 – Machinery space fire in the aircraft carrier USS Saratoga killed three sailors and injured twelve others. Three days later, the Chief of Naval Operations requested a special report updating him on the status of *Russell Report* recommendations.

18 November 1974 – Periodic status reports on *Russell Report* recommendations discontinued.

APPENDIX C

SUMMARY OF SELECTED *RUSSELL REPORT* RECOMMENDATIONS

Admiral Russell's report was used as the source document for this appendix, which summarizes several of the most significant damage control improvement proposals discussed in the body of the thesis.

Recommendation 1-1: Advanced Flight Deck Fire Fighting System. Proposed features included "remote control, massive and quick response, cooling for ordnance, sufficient redundancy to compensate for derangement of portions of the system...a means for quick drainage or dispersal of large quantities of spilled fuel from the flight deck."

Recommendation 1-6: Marking of Escape Routes. Proposed establishing a "standardized system of marking and lighting emergency escape routes in aircraft carriers" to aid personnel attempting to escape smoke-filled interior compartments.

Recommendation 1-9: Improved Interior Communications. Recommended that all aircraft carriers be surveyed to determine adequacy of the shipboard general announcing system, the "IMC." It also recommended prompt correction of any deficiencies that were discovered.

Recommendation 1-10: Improved Fire Hose. Recommended that the Navy require neoprene wrapped hoses on flight and hangar decks to reduce kinking that commonly occurred with standard cotton-jacketed fire hoses used aboard Navy ships. It also proposed development of quick-disconnect couplings for these hoses.

Recommendation 1-11: Review of Ship Alterations Affecting Safety. Proposed that the Navy review all pending ship alterations and ship repair requests, and that items affecting damage control and firefighting be given high priority during maintenance periods.

Recommendation 1-22: Damage Control Equipage Allowance. Recommended further analysis of fires on the carriers *Oriskany* and *Forrestal* to determine an appropriate allowance for OBAs and their canisters, firefighting foam, fire extinguishers, hoses, and other damage control equipment.

Recommendation 1-23: Funding for Damage Control Equipment. Proposed that the Navy provide ships with dedicated funding for damage control items, to "avoid having safety equipment compete with all other ship upkeep items for the limited funds available."

Recommendation 1-26: Escape Criteria. Proposed changing ship construction criteria to require two exits from berthing compartments and working areas designed for ten or more men. Recommended modifying existing ships to meet these criteria, where feasible.

Recommendation 2-1: Current Mk-V Gas Mask Capabilities. Recommended distributing information to the fleet on the capabilities and limitations of using gas masks as an escape breathing device. The gas mask could be used to filter out airborne particles (protecting the wearer against some contaminants found in smoke), but provided the user with no protection against high levels of carbon monoxide or low oxygen levels.

Recommendation 2-3: Emergency Breathing Apparatus. Proposed development of masks with a small portable oxygen supply to eliminate one of the most serious limitations of using the gas mask as an escape breathing device.

Recommendation 2-6: Flight Deck Personnel Equipment. Proposed development of more effective personnel protective gear, such as fire retardant clothing.

Recommendation 2-7: OBA Improvement. Advocated further development of OBAs to make them smaller, more robust, and simpler to use.

Recommendation 2-8: Improved Proximity Suit. Recommended development of a more effective proximity suit. Also proposed including specialized boots as an integral part of the new suit.

Recommendation 5-1: Air Wing Damage Control / Fire Fighting Training. Recommended that all air wing personnel receive basic damage control and fire fighting training prior to embarking on an aircraft carrier.

Recommendation 5-2: Fleet Damage Control Training Facilities. Recommended expanding these facilities to meet fleet training requirements.

Recommendation 5-5: En Route Damage Control Training for Enlisted Personnel. Proposed mitigating the effect of high personnel turnover by providing training for junior enlisted personnel before they reported to their first ship.

Recommendation 5-7: Increased Emphasis on Damage Control. Recommended stressing the importance of damage control at the Navy's training commands, including Officer Commissioning School, Naval Reserve Officer Training Corps (NROTC) units, and the Naval Academy.

Recommendation 5-8: Training Aids. Advocated development of more effective and realistic damage control training aids, including a film containing actual footage of the *Forrestal* fire.

GLOSSARY

- 1 MC. Shipwide general announcing system.
- Class Alpha Fire. Involved combustible materials such as bedding, books, and clothing.
- Class Bravo Fire. Involved flammable liquids such as oils and paint.
- Class Charlie Fire. Occurred in electrical equipment.
- Class Delta Fire. Occurred when metals such as magnesium ignited.
- Compartment Check-Off List. Posted list of all watertight fittings in a shipboard compartment, or interior subdivision.
- Fire Bill. Published list posted on US Navy ships to assign specific duties to crew members in the event of a fire.
- Firemain Loop. A continuous line of piping containing firefighting water aboard Navy ships. A diagram of a typical loop is included in Appendix A.
- Manual of the Judge Advocate General Investigation.* Conducted to determine the cause of an accident, and to identify who should be held responsible for resulting damage.
- Material Condition Circle X-Ray. A modification of Material Condition X-Ray. Permitted crew members to open certain pre-designated watertight fittings.
- Material Condition Circle Yoke. A modification of Material Condition Yoke. Permitted crew members to open certain pre-designated watertight fittings.
- Material Condition Circle Zebra. A modification of Material Condition Zebra. Permitted crew members to open certain pre-designated watertight fittings.
- Material Condition X-Ray. The lowest degree of watertight integrity on a US Navy ship. Substantially eases crew access to interior compartments, but was rarely set.
- Material Condition Yoke. The intermediate degree of watertight integrity on a US Navy ship. Provided a good balance between convenience for crew and ship safety, and was typically set inport or while ships operated in friendly waters.
- Material Condition Zebra. The highest degree of watertight integrity on a US Navy ship. Substantially disrupts crew comfort, and is typically set for training, during emergencies, and prior to expected attack.
- Operating Target. Funds allocated to individual ships to purchase items such as paint, damage control equipment, paper, and soap.

Oxygen Breathing Apparatus. Portable oxygen-generating protective gear worn by shipboard firefighters to protect them from toxic gases.

Pilot Landing Aid Television. Camera system that recorded events on aircraft carrier flight decks.

PKP extinguishers. Portable dry chemical fire extinguishers used aboard Navy ships.

Ship Alteration. Approved modification of a vessel to correct an identified deficiency.

William fittings. Shipboard fittings marked with a black letter "W". These fittings were vital to ship operation, and were normally kept open regardless of which material condition was set.

BIBLIOGRAPHY

- Bardshar, Frederick A. *Record of Proceedings: Formal Board of Investigation Convened by Order of Commander Naval Air Force United States Pacific Fleet to Inquire into the Circumstances Surrounding a Fire Which Occurred on Board USS Enterprise (CVAN 65) on 14 January 1969 Ordered on 15 January 1969*. San Francisco, CA: Rear Admiral Bardshar, 11 February 1969.
- Bonner, Kit, and Carolyn Bonner. *Great Naval Disasters: U.S. Naval Accidents in the 20th Century*. Osceola, WI: MBI Publishing, 1998.
- Bureau of Naval Personnel. *Principles of Naval Engineering*. Washington, D.C.: United States Navy, 1970.
- Burlage, John D. "The Forrestal Fire." *Naval Aviation News*, October 1967, 7-14.
- Clancy, Tom. *Carrier: A Guided Tour of an Aircraft Carrier*. New York: Berkley Books, 1999.
- Chief of Naval Material. *Carrier Aircraft Support Study (CASS) Enterprise Responsibilities, Assignment of*. Washington, D.C.: Chief of Naval Material, 3 February 1969.
- Chief of Naval Material. *Budgetary and Cost Summary Russell Panel/CASS Recommendations*. Washington, D.C.: Chief of Naval Material, 17 May 1971.
- Chief of Naval Material. *Milestone Schedule and Status Report for Implementing the Recommendations of the Russell Panel Report and the Carrier Aircraft Support Study (CASS)*. Washington, D.C.: Chief of Naval Material, 20 March 1974.
- Chief of Naval Material. *Periodic Status Reports on Russell Panel/CASS Report*. Washington, D.C.: Chief of Naval Material, 18 November 1974.
- Commander, Naval Surface Force. *COMNAVSURFORINST 3502.1A: Surface Force Training Manual*. Washington, D.C.: United States Navy, 2003.
- Commander, Naval Surface Force. *COMNAVSURFLANTINST 3541.1C: Standard Repair Party Manual for Naval Surface Force*. Norfolk, VA: United States Navy, 1991.
- Department of the Navy. *Fire Equipment Tests Aboard the CVA-62 Related to Improved Aircraft Carrier Safety*. Washington, D.C.: United States Navy, 1968.
- Department of the Navy. *Human Factors Engineering Deficiencies Aboard CVAs*. Washington, D.C.: United States Navy, 1972.

Department of the Navy. *Investigation of Lighting and Directional Signs for Emergency Egress from Ships*. Washington, D.C.: United States Navy, 1968.

Department of the Navy. *Manual of the Judge Advocate General: Basic Final Investigative Report Concerning the Fire on Board the USS Forrestal (CVA 59)*. Washington, D.C.: United States Navy, 1967.

Department of the Navy, Bureau of Weapons. *Summary of Results of Pyrotechnics Portion of Fast Cook-Off Program*. Crane, IN.: United States Navy, 1969.

Freeman, Gregory A. *Sailors to the End*. New York: Avon Books, 2002.

Friedman, Norman. *U.S. Destroyers: An Illustrated Design History*. Annapolis, MD: United States Naval Institute, 1982.

Gillmer, Thomas C. *Modern Ship Design*. 2nd ed. Annapolis, MD: United States Naval Institute, 1986.

Manning, G. C., and T. L. Schumacher. *Principles of Warship Construction and Damage Control*. Annapolis, MD: United States Naval Institute, 1935.

Maritime Administration. *Marine Fire Prevention, Firefighting and Fire Safety*. Washington, D.C.: United States Maritime Administration, 1987.

McCain, John, and Mark Salter. *Faith of My Fathers: A Family Memoir*. New York: Random House, 1999.

McQuaid, Richard W. *A Survey of Aircraft Carrier Accidents from 1951-1967*. Washington, D.C.: Naval Sea Systems Command, 1968.

Naval Safety Center. *Survey of Selected Aircraft Carrier Accidents*. Washington, D.C.: Naval Safety Center, 1971.

Naval Sea Systems Command. *NSTM Chapter 079v3r2: Damage Control: Practical Damage Control*. Washington, D.C.: Naval Sea Systems Command, 2000.

Naval Sea Systems Command. *NSTM Chapter 555v1r9: Surface Ship Firefighting*. Washington, D.C.: Naval Sea Systems Command, 2002.

Naval Sea Systems Command. *NSTM Chapter 9930: Surface Ship Firefighting*. Washington, D.C.: Naval Sea Systems Command, 1986.

Naval Ship Systems Command. *NSTM Chapter 9930: Fire Fighting - Ship*. Washington, D.C.: Naval Ship Systems Command, 1967.

- Naval Weapons Laboratory. *Bomb Survivability in Fire Program*. Dahlgren, VA: Naval Weapons Laboratory, 1972.
- Navy Department. *Handbook of Damage Control: NAVPERS PUB 1619*. Washington, D.C.: Bureau of Ships, 1945.
- Navy Department. *War Damage Report No. 51, Destroyer Report: Gunfire, Bomb, and Kamikaze Damage, Including Losses in Action, 17 October, 1941 to 15 August, 1945*. Washington, D.C.: Bureau of Ships, 1947.
- Navy Department. *War Damage Report No. 56, USS Franklin (CV 13): Suicide Plane Crash Damage, Formosa - 13 October, 1944; Bomb Damage, Luzon - 15 October, 1944; Suicide Plane Crash Damage, Samar - 30 October, 1944; Bomb Damage, Honshu - 19 March, 1945*. Washington, D.C.: Bureau of Ships, 1946.
- Navy Department. *NSTM Chapter 93: Fire Fighting - Ship*. Washington, D.C.: Bureau of Ships, 1951.
- Noel, John V., and Edward L. Beach. *Naval Terms Dictionary*. Annapolis, MD: United States Naval Institute, 1971.
- Office of the Chief of Naval Operations. *RDT&E Efforts Associated with the Russell Panel Report*. Washington, D.C.: Office of the Chief of Naval Operations, November 1972.
- Rossell, Henry E., and Lawrence B. Chapman. *Principles of Naval Architecture, Volumes One and Two*. New York: The Society of Naval Architects and Marine Engineers, 1939.
- Russell, James S. *Report of the Panel to Review Safety in Carrier Operations*. Washington, D.C.: United States Navy, 1967.
- Sanders, Michael S. *The Yard: Building a Destroyer at the Bath Iron Works*. New York: HarperCollins, 1999.
- Systems Associates. *Final Report: Carrier Aircraft Support Study (CASS)*. Long Beach, CA: Systems Associates, 1971.
- Turabian, Kate L. *A Manual for Writers*. 6th ed. Chicago: University of Chicago Press, 1996.

U.S. Army. Command and General Staff College. ST 20-10, *Master of Military Art and Science (MMAS) Research and Thesis*. Ft. Leavenworth, KS: USA CGSC, July 2003.

Williams, Jerome, John J. Higginson, and John D. Rohrbough. *Sea and Air: The Marine Environment*. 2nd ed. Annapolis, MD: United States Naval Institute, 1975.

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MIL-F-24385(NAVY)
21 November 1969
SUPERSEDING
MIL-F-23905B(AS)
25 April 1967

MILITARY SPECIFICATION
FIRE EXTINGUISHING AGENT, AQUEOUS FILM FORMING
FOAM (AFFF) LIQUID CONCENTRATE, SIX PERCENT,
FOR FRESH AND SEA WATER

This specification has been concurred in by interested commands of the Navy Department and the Marine Corps.

1. SCOPE

1.1 This specification covers the requirements for aqueous film forming foam (AFFF) liquid concentrate fire extinguishing agent consisting of fluorocarbon surfactants and foam stabilizers. The liquid concentrate will be diluted for use in concentrations of six parts concentrate to ninety-four parts fresh or sea water by volume.

2. APPLICABLE DOCUMENTS

2.1 The following documents, of the issue in effect on date of invitation for bids or request for proposal, form a part of the specification to the extent specified herein:

SPECIFICATIONS

FEDERAL

TT-E-489 - Enamel, Alkyd, Gloss (For Exterior and Interior Surfaces).
PPP-D-700 - Drums: Metal, 55-Gallon, (For Acid and Corrosive Liquids).
PPP-D-729 - Drums: Metal, 55-Gallon, (For Shipment of Noncorrosive Material).
PPP-D-1152 - Drum, Steel, 55-Gallon (24-Gage) Reinforced.
PPP-P-704 - Pails, Metal: Shipping Steel, (1 through 12 Gallon).

MILITARY

MIL-P-116 - Preservation, Methods of.
MIL-G-5572 - Gasoline, Aviation, Grades 80/87, 100/130, 115/145.

STANDARDS

FEDERAL

FED-STD-595 - Colors.

MILITARY

MIL-STD-105 - Sampling Procedures and Tables for Inspection by Attributes.
MIL-STD-129 - Marking for Shipment and Storage.
MIL-STD-130 - Identification Marking of U.S. Military Property.
MIL-STD-147 - Palletized and Containerized Unit Loads, 40" x 48" Pallets, Skids, Runners, or Pallet-Type Base.

(Copies of specifications, standards, drawings, and publications required by suppliers in connection with specific procurement functions should be obtained from the procuring activity or as directed by the contracting officer.)

2.2 Other publications. The following documents form a part of this specification to the extent specified herein. Unless otherwise indicated, the issue in effect on date of invitation for bids or request for proposal shall apply.

AMERICAN SOCIETY FOR TESTING AND MATERIALS

ASTM A279-63 - Total Immersion Corrosion Test of Stainless Steels.
ASTM D445-65 - Test for Viscosity of Transparent and Opaque Liquids (Kinematic Viscosities).
ASTM D1141-52 (1965) - Substitute Ocean Water, Specification for.
ASTM D1298-67 - Test for Specific Gravity of Petroleum Liquids, Hydrometer Method.
ASTM D1331-56 - Tests for Surface and Interfacial Tension of Solutions of Surface Active Agents.

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(Application for copies should be addressed to the American Society for Testing and Materials, 1916 Race Street, Philadelphia, Pennsylvania 19103.)

(Technical society and technical association specifications and standards are generally available for reference from libraries. They are also distributed among technical groups and using Federal agencies.)

UNIFORM CLASSIFICATION COMMITTEE

Uniform Freight Classification Rules

(Application for copies should be addressed to the Uniform Classification Committee, 202 Union Station, 516 West Jackson Blvd., Chicago, Illinois 60606.)

NATIONAL CLASSIFICATION BOARD

National Motor Freight Classification Rules.

(Application for copies should be addressed to National Motor Freight Traffic Association, Inc., 1616 P Street, N.W., Washington, D.C. 20036.)

NATIONAL FIRE PROTECTION ASSOCIATION (NFPA)

NFPA No. 412 - Suggested Standard Test Procedures for Aircraft Rescue and Fire Fighting Vehicles Utilizing Foam (1969 Edition)

(Application for copies should be addressed to National Fire Protection Association, 60 Batterymarch Street, Boston, Mass. 02110).

3. REQUIREMENTS

3.1 Qualification. Liquid concentrate fire extinguishing agents furnished under this specification shall be products which are qualified for listing on the applicable Qualified Products List at the time set for opening of bids (see 4.3 and 6.3).

3.2 Material. The concentrate shall consist of fluorocarbon surfactants plus other compounds as required to conform to the requirements specified hereinafter. The material shall have no adverse effect on the health of personnel when used for its intended purpose.

3.3 Compatibility. The concentrate of one manufacturer shall be compatible with the concentrate furnished by the other manufacturers listed on the qualified products list for this specification. An admixture shall conform to 3.10, 3.11, and 3.13, when tested as specified in 4.7.7, 4.7.8, and 4.7.12. The percentages of the components in the admixture shall be determined by the testing activity.

3.4 Specific gravity. The specific gravity shall be determined as specified in 4.7.1. Samples tested subsequent to qualification shall deviate not more than 0.01 from the specific gravity value determined during qualification testing.

3.5 Viscosity. The concentrate shall have a maximum kinematic viscosity of 300 centistokes (cs) at $40^{\circ} \pm 0.1^{\circ}\text{F}$., when tested as specified in 4.7.2.

3.6 pH value. The concentrate shall have a pH value between 4.0 and 8.0 at $77^{\circ} \pm 1^{\circ}\text{F}$., when tested as specified in 4.7.3. Samples tested subsequent to qualification shall deviate not more than 0.5 from the pH value determined during qualification testing, but in no case shall be less than 4.0 or greater than 8.0 at $77^{\circ} \pm 1^{\circ}\text{F}$..

3.7 Surface tension. The solution shall have a maximum surface tension of 18 dynes per centimeter at $77^{\circ} \pm 1^{\circ}\text{F}$., when tested as specified in 4.7.4.

3.8 Interfacial tension. A 6-percent solution shall have a maximum interfacial tension of 5.0 dynes per centimeter at $77^{\circ} \pm 1^{\circ}\text{F}$., when tested as specified in 4.7.5.

3.9 Foamability. The solution of AFFF concentrate in water (six parts concentrate to ninety-four parts water by volume) shall produce a foam possessing an expansion of 7.0 minimum and a 25-percent drainage time of 3 minutes minimum value, when tested as specified in 4.7.6 with both fresh (tap) water and synthetic sea water.

3.10 Film formation and sealability. When tested as specified in 4.7.7, the film produced by the sample shall spread over the surface of the fuel, and shall result in a surface from which no sustained ignition of fuel vapors can be detected.

3.11 Fire performance.

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3.11.1 Twenty-eight square-foot test. When tested for fire performance as specified in 4.7.8, the fire shall be completely extinguished with an application density of 0.10 gal/ft² (84-second application time) or less, and shall exhibit a 25-percent burnback time of at least 240 seconds.

3.11.2 Four-hundred square-foot test. When tested for fire performance as specified in 4.7.9, at least 85 percent of the fire shall be extinguished within 30 seconds and the total of the "percent of fire extinguished" values recorded at 10, 20, 30, and 40 seconds shall be 285 or greater.

3.11.3 Twelve-hundred sixty square-foot test. When tested for fire performance as specified in 4.7.10, at least 85 percent of the fire shall be extinguished within 30 seconds, and the total of the "percent of fire extinguished" values recorded at 10, 20, 30, and 40 seconds shall be 285 or greater.

3.12 Corrosion. When tested as specified in 4.7.11, the corrosion rate of the concentrate shall not exceed 25 milligrams per square decimeter per day (mdd) for cold rolled steel, 0.5 mdd for 6061T6 aluminum alloy, and corrosion-resistant steel (GRES 304). The corrosion rate of a 6-percent sea water solution shall not exceed 10 mdd for cupro-nickel (90 percent Cu-10 percent Ni).

3.13 Stability. The concentrate and solution in fresh water shall be tested as specified in 4.7.12. At the end of the required storage period, the concentrate samples shall show no evidence of precipitation or stratification. The diluted solution samples shall show no evidence of stratification, and precipitate formation shall not exceed 1 percent by volume. In addition, stored samples shall conform to the limits specified herein, except that foam expansion shall be no less than 6.0 (after storage), when tested as specified in 4.7.1, 4.7.5, 4.7.6, and 4.7.7.

3.14 Marking.

3.14.1 Identification marking shall be in accordance with MIL-STD-130. In addition, the marking on the containers (see 5.3) shall be in white characters against a blue background (see 5.1.1.3).

3.14.2 Two identical markings conforming to figure 1 shall be applied to containers so that the markings are located diametrically opposite. The markings shall be applied on the containers in such a manner that water immersion, contact with the contents of the containers, or normal handling will not impair the legibility of the marking. No paper labels shall be used.

4. QUALITY ASSURANCE PROVISIONS

4.1 Responsibility for inspection. Unless otherwise specified in the contract or purchase order, the supplier is responsible for the performance of all inspection requirements as specified herein. Except as otherwise specified in the contract or order, the supplier may use his own or any other facilities suitable for the performance of the performance of the inspection requirements specified herein, unless disapproved by the Government. The Government reserves the right to perform any of the inspections set forth in the specification where such inspections are deemed necessary to assure supplies and services conform to prescribed requirements.

4.2 Classification of tests. The inspection of the fire extinguishing agent shall be classified as follows:

- (a) Qualification tests.
- (b) Quality conformance inspection.
 - (1) Examination of filled containers.
 - (2) Quality conformance tests.
 - (3) Production check tests.

4.3 Qualification tests. ^{1/}Qualification tests shall be conducted at a laboratory satisfactory to the Naval Ship Engineering Center. Qualification tests shall consist of examination and qualification tests shown in table I.

4.3.1 Samples for qualification tests. Five filled 5-gallon containers are required for the qualification tests.

^{1/} Application for qualification tests shall be made in accordance with "Provisions Governing Qualification SD-6" (see 6.3 and 6.3.1).

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THIS END UP

U.S.

AQUEOUS FILM FORMING FOAM (AFFF) LIQUID CONCENTRATE

In accordance with

MILITARY SPECIFICATION MIL-F-24385

THIS FIRE EXTINGUISHING CONCENTRATE IS FOR USE BY DILUTION WITH WATER IN FIXED OR MOBILE SYSTEMS. IT MAY BE USED ALONE OR IN COMBINATION WITH "TWINNED" DRY CHEMICAL EQUIPMENT. THE CONCENTRATE MAY BE DILUTED FOR USE IN FLOW PROPORTIONING EQUIPMENT WITH SEA WATER OR FRESH WATER AT VOLUME PROPORTIONS OF SIX GALLONS CONCENTRATE TO 94 GALLONS WATER. IT MAY ALSO BE DILUTED FOR READY-USE STORAGE AS A SIX-PERCENT PREMIX SOLUTION WITH FRESH WATER ONLY.

FOR READY USE DO NOT STORE BELOW 32°F. AVOID PROLONGED STORAGE ABOVE 120°F. DO NOT MIX WITH OTHER THAN LIQUID CONCENTRATE APPROVED UNDER SPECIFICATION MIL-F-24385 OR WATER.

MANUFACTURER'S NAME
ADDRESS
BATCH NO.
DATE OF MANUFACTURE.

Figure 1 - Container markings.

4.4 The examination and tests applicable to each classification shall be as shown in table I:

Table I - Categories of inspection

| Reference | Title | Qualification | Quality conformance | Production check <u>2/</u> |
|---------------------------|----------------------------------|---------------|---------------------|----------------------------|
| 4.5.2 | Examination of filled containers | X | X | X |
| 3.3, 4.7.7, 4.7.8, 4.7.12 | Compatibility | X | | |
| 3.4, 4.7.1 | Specific gravity | X | X | |
| 3.5, 4.7.2 | Viscosity | X | X | |
| 3.6, 4.7.3 | pH value | X | X | |
| 3.7, 4.7.4 | Surface tension | X | X | |
| 3.8, 4.7.5 | Interfacial tension | X | X | |
| 3.9, 4.7.6 | Foamability | X | X | |
| 3.10, 4.7.7 | Film formation | X | X | |
| 3.11.1, 4.7.8 | Fire performance (28 sq. ft.) | X | X | X |
| 3.11.2, 4.7.9 | Fire performance (400 sq. ft.) | X | X | |
| 3.113, 4.7.10 | Fire performance (1260 sq. ft.) | X | <u>1/</u> | |
| 3.12, 4.7.11 | Corrosion | X | | |
| 3.14, 4.7.12 | Stability | X | | |

1/ Either the 400-square foot or 1260-foot fire test may be performed for quality conformance testing at the discretion of the supplier.

2/ Tests of this specification, in addition to the fire performance test, will be performed as necessary to insure that the sample is essentially identical to the product upon which qualification approval has been granted.

4.5 Sampling for quality conformance inspection.

4.5.1 Inspection lot. For purposes of sampling, a lot shall consist of all material manufactured as one batch and transferred from one mixing tank to the shipping container.

4.5.2 Sampling for examination of filled containers. A random sample of filled containers shall be selected in accordance with MIL-STD-105 at inspection level I. The acceptable quality level = 2.5 percent defective to verify compliance with all requirements regarding fill, closure, marking, and other requirements not requiring tests, as specified in 4.6.1, 5.1.1.1, and 5.1.1.2.

4.5.3 Sampling for quality conformance tests. Three filled 5-gallon containers shall be selected at random from each lot and used as one composite sample for the tests specified in 4.6.2, or three 5-gallon containers of the product shall be withdrawn from an agitated mixing tank prior to packaging. The results of the tests required by 4.6.2 shall be submitted to the Naval Ship Engineering Center or the designated Laboratory.

4.5.4 Sampling for production check tests. In addition to the sample selected for quality conformance tests, four additional 5-gallon containers from the first lot offered for delivery under a contract or order, and thereafter from any one lot in each group of ten successive lots shall be selected and forwarded to a laboratory designated by the Naval Ship Engineering Center for the tests specified in 4.6.3.

4.6 Quality conformance inspection.

4.6.1 Examination of filled containers. Each sample filled container shall be examined for defects of construction of the container and the closure, for evidence of leakage, and for unsatisfactory markings. Each filled container shall also be weighed to determine the amount of contents. Any container in the sample having one or more defects or less than required fill, shall not be offered for delivery, and if the number of defective containers in any sample exceeds the acceptance number for the appropriate sampling plan of MIL-STD-105, this shall be cause for rejection of the lot represented by the sample.

4.6.2 Quality conformance tests. The samples selected in accordance with 4.5.3 shall be subjected to the tests of table I, as applicable.

4.6.2.1 Action in case of failure. If the sample tested is found to be not in conformance with any requirement of this specification, the lot represented by the sample shall be rejected.

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4.6.3 Production check tests. The samples selected as specified in 4.5.4 shall be composited by the designated testing laboratory, and the composite sample shall be subjected to the fire performance test specified in 4.7.8. In addition, the sample shall be subjected to such other tests of this specification as are necessary to determine that the sample is essentially identical to the product upon which qualification approval has been granted.

4.6.3.1 Action in case of failure. Acceptance of the first lot offered for delivery under a contract or order shall be withheld until a satisfactory report is received on the composite production check test sample. Thenceforth, except as hereinafter specified, acceptance and rejection of lots shall normally be on the basis of the sampling, examination, and tests specified in 4.5, 4.6, and 4.7 and acceptance shall not be withheld pending receipt of test reports on production check test samples. However, upon receipt of an unsatisfactory test report on a production check test sample, additional samples shall be selected from every subsequent lot offered for delivery. The samples so selected shall be submitted to a laboratory designated by the Naval Ship Engineering Center and shall there be subjected to the examination and tests specified in 4.6 and 4.7. Lots shall then be accepted only upon receipt of a satisfactory test report on the samples so selected. Additional testing shall be discontinued and lot acceptance returned to the normal basis when two successive lots have been accepted. The contractor shall not be permitted to submit more than three separate samples for production check tests (see 4.6.3) in the event of failure.

4.7 Test procedures.

(NOTE: Where sea water is required for tests, synthetic sea water in accordance with ASTM D1141-52 shall be used.)

4.7.1 Specific gravity. The specific gravity of the liquid concentrate shall be determined in accordance with ASTM Method D1298-67.

4.7.2 Viscosity. The viscosity of the liquid concentrate shall be determined in accordance with ASTM Method D445-65 using a capillary viscometer of appropriate size number at $40^{\circ} \pm 0.1^{\circ}\text{F}$.

4.7.3 pH value. The pH value of the liquid concentrate shall be determined potentiometrically, using a pH meter equipped with a glass electrode and a reference electrode.

4.7.4 Surface tension. The surface tension of a solution of 1 cc of the liquid concentrate in 370 cc of distilled water shall be determined in a Cenco DuNuoy tensiometer, or equal, in accordance with ASTM D1331-56 and until the readings come to an equilibrium (approximately 30 minutes).

4.7.5 Interfacial tension. The interfacial tension between reagent grade cyclohexane and a 6-percent by volume solution of the liquid concentrate in distilled water shall be determined in a Cenco DuNuoy tensiometer, or equal, in accordance with ASTM D1331-56, and until the readings come to an equilibrium.

4.7.6 Foamability. Foam samples for analyses shall be taken from the same equipment as used in the fire performance test specified in 4.7.8 which shall be operated in the same manner. A 6-percent solution shall be $70^{\circ} \pm 2^{\circ}\text{F}$. Foam shall be discharged from the nozzle held at hip height and directed onto the collection backboard from a distance of approximately 10 feet. The methods and procedures used shall be as specified in National Fire Protection Association Publication NFPA No. 412.

4.7.7 Film formation and sealability. The test shall determine the ability of a fire-extinguishing agent of the foam-forming type to develop a vapor-sealing film on a hydrocarbon fuel surface. As the foam drains, a small percentage of the liquid drop-out remains surface-borne and spreads to provide protection against re-ignition of exposed fuel.

4.7.7.1 A corrosion-resisting steel Graduated Measure of 1000 ml capacity (4-1/2 inches in diameter, 5 inches deep) (Cole-Parmer Co., Chicago, Illinois, or similar) shall be fitted at the top edge with two small metal clips protruding 1/8 inch into the opening. They shall serve to restrain an 80-mesh conical screen of corrosion-resisting steel (5 inches in height by 4-3/4 inches in diameter) from floating out of the container during the test. A Waring Automatic Blender, or similar, shall be used as the test foam maker (at $70^{\circ} \pm 5^{\circ}\text{F}$).

4.7.7.2 First, 600 ml of 98-percent cyclohexane shall be placed into the Graduated Measure. One hundred ml of the 6-percent solution to be tested shall be foamed for 10 seconds at low speed in the blender. Two hundred ml of this foam shall be poured onto the fuel surface. The screen shall then be inserted into the measure and clipped firmly into place, and a stopwatch shall be started.

4.7.7.2.1 After 1 minute of elapsed time, a small flame shall be passed six times around the fuel surface at a height of 1/2 inch ($\pm 1/8$ inch). A small flash may occur but no sustained ignition shall result if an effective vapor-seal is present. This flame can be readily provided using a hand-held propane tank fitted with a capillary tubing outlet and adjusted with the valve to give about a 1-inch long pilot flame.

4.7.8 Fire performance (28-square-foot test).

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4.7.8.1 Test site. The 28-square-foot fire performance test shall be conducted in a level circular pan 6 feet in diameter (28 square feet), fabricated from 1/4-inch thick steel and having sides 5 inches high, resulting in a freeboard of approximately 2-1/2 inches during tests. The pan shall be without leaks so as to contain gasoline on a substrate of water. The water depth shall be held to a minimum, and shall be used only to ensure complete coverage of the pan with fuel.

4.7.8.2 Test equipment. The nozzle used for applying agent shall be of a type available from National Foam System, Inc., West Chester, Pa., or equal, as a laboratory testing item with a flow rate of 2.0 gallons per minute (g.p.m.) at 100 pounds per square inch (p.s.i.) pressure. The outlet shall be modified by a "wing tip" spreader having a 1/8-inch wide circular arc orifice 1-7/8 inches long. (Bernz-o-matic flame spreader TX-1527, slightly pinched down.)

4.7.8.3 Test materials. The 6-percent solution in fresh water and sea water shall be $70^{\circ} \pm 10^{\circ}\text{F}$. The charge shall consist of 6-percent \pm 0.1 percent concentrate in fresh water and sea water. The fuel shall be 10 gallons of gasoline conforming to MIL-G-5572.

4.7.8.4 Test procedure. No tests shall be conducted with wind speeds in excess of 10 miles per hour. The complete fuel charge shall be dumped into the diked area within a 60-second time period.

4.7.8.4.1 The fuel shall be ignited within 60 seconds after completion of fueling and shall be permitted to burn freely for 15 seconds before the application of the extinguishing agent.

4.7.8.4.2 The fire shall be extinguished as rapidly as possible and in the most effective and expeditious manner. This shall be achieved by maintaining the nozzle 3-1/2 to 4 feet above the ground and angled upward at a distance that permits the closest edge of the foam pattern to fall on the nearest edge of the fire. The nozzle shall be moved slowly from side to side to permit the foam pattern to fall from edge to edge of the fire. The operator shall move forward and around the area as the fire front recedes and shall always maintain the nozzle in the same attitude. When the fire is extinguished, the time-for-extinguishment shall be recorded continuing distribution of the agent over the test area until exactly 3 gallons of premix has been applied. (90-second application time.)

4.7.8.4.3 Burnback. The burnback test shall start within 30 seconds after the 90-second solution application. A weighted 1-foot diameter pan having 2-inch side walls and charged with 1 quart of gasoline shall be placed in the center of the area. (An eyebolt with an 8-inch shaft attached to the center of the pan and a 10-foot pole with a hook on the end will facilitate the placement of the pan.) The fuel in the pan shall be ignited just prior to placement. Burnback time shall commence at the time of this placement and terminate when 25 percent of the fuel area (7 square feet), (36-inch diameter), originally covered with foam is aflame. After the large test pan area will sustain burning, the small pan shall be removed.

4.7.8.4.4 A minimum of three runs each in fresh water and sea water of the 28-square foot test, including burnback, will be required for qualification. One run each in fresh water and sea water will be required for quality conformance and production check tests.

4.7.8.5 Results: The following shall be recorded:

- (a) Time for extinguishment (seconds).
- (b) Time for 25 percent area burnback (seconds).

The following shall be calculated and reported:

- (a) Application density for extinguishment (gals/ft.²) =

$$\frac{2 \text{ gal.} \times 1}{\text{min.} \quad 28 \text{ ft.}^2} \times \frac{\text{Extinguishment time (seconds)}}{60}$$
- (b) Burnback time (seconds).

The results for each test run shall be reported.

4.7.9 Fire performance (400-square-foot test).

4.7.9.1 Test site. The fire test shall be conducted in a level circular area 22.6 feet in diameter (400 square feet). The base and surrounding dike shall be of material suitable for the containment of fuel on a substrate of water. The water depth shall be the minimum required to ensure complete coverage of the diked area with fuel.

4.7.9.2 Test equipment. The nozzle used for applying the agent shall be a Rockwood FFF nozzle with stream shaper designed to discharge 16 g.p.m. at 100 pounds per square inch (p.s.i.) or equal (available from Bliss-Portland, South Portland, Maine 04106). The test shall be run with the nozzle discharging 16 g.p.m. at 100 p.s.i. pressure at the nozzle (application rate 0.04 g.p.m. per square foot).

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4.7.9.3 Test materials. The solutions in fresh water and sea water shall be $70^{\circ} \pm 10^{\circ}\text{F}$, and shall contain 6.0 ± 0.1 percent AFFF concentrate. The fuel shall be 150 gallons of gasoline conforming to MIL-G-5572.

4.7.9.4 Test procedure. No tests shall be conducted with wind speeds in excess of 10 miles per hour. The complete fuel charge shall be dumped into the diked area as rapidly as possible. Before fueling for any test run, all extinguishing agent from the previous test runs shall be removed from the diked area.

4.7.9.4.1 The fuel shall be ignited within 60 seconds after completion of fueling, and shall be permitted to burn freely for 15 seconds before the application of the extinguishing agent.

4.7.9.4.2 The fire shall be extinguished as rapidly as possible, and in the most effective and expeditious manner. This shall be achieved by maintaining the nozzle 3-1/2 to 4 feet above the ground and angled upward at a distance that permits the closest edge of the foam pattern to fall on the nearest edge of the fire. The nozzle shall be moved slowly from side to side to permit the foam pattern to fall from edge to edge of the fire. The operator shall move forward and around the area as the fire front recedes, and shall always maintain the nozzle in the same attitude.

4.7.9.4.3 A minimum of three runs each in fresh water and sea water of the 400-square foot fire performance test shall be required for qualification. One run each in fresh water and sea water will be required for quality conformance and production check tests.

4.7.9.5 Results. The "percentage of fire extinguished" at 10-second intervals after beginning application of the extinguishing agent shall be recorded. The values recorded at 10, 20, 30, and 40 seconds shall be summed and reported for each test run.

4.7.10 Fire performance (1260-square-foot test).

4.7.10.1 Test site. The fire test shall be conducted in a level circular area 40 feet in diameter (1260 square feet). The base and surrounding dike shall be of nonporous material for the containment of fuel on a substrate of water. The water depth shall be the minimum required to ensure complete coverage of the diked area with fuel.

4.7.10.2 Test equipment. The nozzle used for applying agent shall be a Rockwood FFF nozzle with double screen designed to discharge 50 g.p.m. at 100 p.s.i. (available from Bliss-Portland, South Portland, Maine 04106) or equal. The test shall be run with the nozzle discharging 50 g.p.m. at 100 p.s.i. pressure at the nozzle.

4.7.10.3 Test materials. The solution in fresh water and sea water shall be $70^{\circ} \pm 10^{\circ}\text{F}$, and shall contain 6.0 ± 0.1 percent AFFF concentrate. The fuel shall be 250 gallons of gasoline conforming to MIL-G-5572.

4.7.10.4 Test procedure. No tests shall be conducted with wind speeds in excess of 10 miles per hour. The complete fuel charge shall be dumped into the diked area as rapidly as possible. Before fueling for any test run, all extinguishing agent from the previous test runs shall be removed from the diked area.

4.7.10.4.1 The fuel shall be ignited within 60 seconds after completion of fueling, and shall be permitted to burn freely for 15 seconds before the application of the extinguishing agent.

4.7.10.4.2 The fire shall be extinguished as rapidly as possible, and in the most effective and expeditious manner. This shall be achieved by maintaining the nozzle 3-1/2 to 4 feet above the ground and angled upward at a distance that permits the closest edge of the foam pattern to fall on the nearest edge of the fire. The nozzle shall be moved slowly from side to side to permit the foam pattern to fall from edge to edge of the fire. The operator shall move forward and around the area as the fire front recedes, and shall always maintain the nozzle in the same attitude.

4.7.10.4.3 A minimum of three runs each, in fresh water and sea water, of the 1260-square foot fire performance test shall be required for qualification. One run each in fresh water and sea water will be required for quality conformance and production check tests.

4.7.10.5 Results. The "percentage of fire extinguished" at 10-second intervals after beginning application of the extinguishing agent shall be recorded. The values recorded at 10, 20, 30, and 40 seconds shall be summed and reported for each test run.

4.7.11 Corrosion. The corrosion tests shall be conducted with the AFFF concentrate on cold rolled steel, corrosion-resistant steel (CRES 304), 6061T6 aluminum alloy, and with 6-percent solution prepared with synthetic sea water on cupro-nickel alloy consisting of 90 percent copper and 10 percent nickel as specified in ASTM A279-63. The metal coupons shall be approximately 1/16-inch thick and milled to a finished dimension of 1/2 inch by 3 inches. The metal coupons shall be two thirds immersed in the appropriate liquids and held for 38 days at a temperature of $98^{\circ} \pm 2^{\circ}\text{F}$. The container shall be capped to prevent evaporation. At the end of the exposure period, the weight loss shall be determined and calculated out on an mdd basis.

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4.7.12 Stability. Three samples each of the concentrate and 6-percent solution in fresh water shall be placed in cylindrical glass containers of 1000 ml. capacity (approximately 2 inches in diameter and 19 inches high). The containers shall be stoppered to prevent evaporation and stored in an oven maintained at $135^{\circ} \pm 5^{\circ}\text{F}$. for 10 days. Additional samples of both concentrate and dilute solution stored shall be of sufficient quantity to perform the test specified in 4.7.6 after storage.

4.7.12.1 At the end of the exposure period, the concentrate samples shall show no evidence of precipitation or stratification. The diluted solution samples shall show no evidence of stratification, and precipitate formation shall not exceed 1 percent by volume. Precipitation shall be determined visually in the glass storage containers. Stratification shall be determined by visual examination and by subjecting specimens drawn from the top and bottom of the glass storage containers to the tests specified in 4.7.1, 4.7.5, and 4.7.7.

4.8 Inspection for preparation for delivery. Samples items and packages shall be selected in accordance with MIL-P-116 and inspected to verify conformance with the requirements of section 5.

5. PREPARATION FOR DELIVERY

(The preparation for delivery requirements specified herein apply only for direct Government procurements. For the extent of applicability of the preparation for delivery requirements of referenced documents listed in Section 2, see 6.4.)

5.1 Preservation and packaging. Preservation and packaging for levels A and C shall be as specified hereinafter.

5.1.1 The foam-forming liquid shall be furnished in 5-gallon pails or 55-gallon drums as specified (see 6.2).

5.1.1.1 Five-gallon pails. The five-gallon pails shall conform to type I, class 3 of PPP-P-704 and as follows:

- (a) The interior of the pails shall have a coating system approved by Naval Ship Engineering Center which has demonstrated satisfactory resistance to the liquid concentrate. The supplier shall furnish appropriate data prior to qualification. Application of the coating shall ensure the packaged product from making contact with any metal part of the container.
- (b) Pour openings shall have a minimum diameter of 1-1/4 inches.
- (c) Wire handles shall be galvanized or protectively coated to resist corrosion.

5.1.1.2 Fifty-five gallon drums. Fifty-five gallon drums shall conform to type I of PPP-D-729, type I or III of PPP-D-700, or PPP-D-1152 at the option of the supplier.

5.1.1.2.1 Lining. Fifty-five-gallon drums shall be lined on all interior surfaces as specified for pails.

5.1.1.3 Exterior coating. Pails and drums shall have a bright blue exterior coating conforming to TT-E-489, color number 15123 of Federal Standard No. 595.

5.2 Packing. For levels A, B, and C, no further packing required.

5.2.1 Method of shipment shall comply with Uniform Freight or National Motor Freight Classification Rules or Regulations or other carrier rules as applicable to the mode of transportation.

5.2.2 Pallets. When specified (see 6.2), five-gallon pails shall be palletized in accordance with load type III of MIL-STD-147.

5.3 Marking. In addition to the marking specified in 3.14 and any special marking required in the contract or order, containers and palletized unit loads shall be marked in accordance with MIL-STD-129.

6. NOTES

6.1 Intended use. The concentrate is intended for use in mechanical foam generating equipment such as fire-fighting trucks or foam sprinkler systems for extinguishing fires in flammable liquids such as gasoline or fuel oils.

6.2 Ordering data. Procurement documents should specify the following:

- (a) Title, number, and date of this specification.
- (b) Level of packaging and packing required (5.1 and 5.2).
- (c) Size of container required (5.1.1).
- (d) Whether palletizing is required (5.2.2).

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6.3 With respect to products requiring qualification, awards will be made only for such products as have, prior to the time set for opening of bids, been tested and approved for inclusion in Qualified Products List QPL-24385 whether or not such products have actually been so listed by that date. The attention of the suppliers is called to this requirement, and manufacturers are urged to arrange to have the products that they propose to offer to the Federal Government tested for qualification, in order that they may be eligible to be awarded contracts or orders for the products covered by this specification. The activity responsible for the qualified products list is the Naval Ship Engineering Center, Department of the Navy, Center Building, Prince Georges Center, Hyattsville, Maryland, 20782 and information pertaining to qualification of products may be obtained from that activity. Application for Qualification tests shall be made in accordance with "Provisions Governing Qualification SD-6" (see 6.3.1).

6.3.1 Copies of "Provisions Governing Qualification" may be obtained upon application to Commanding Officer, Naval Publications and Forms Center, 5801 Tabor Avenue, Philadelphia, Pennsylvania 19120.

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TREATABILITY OF AQUEOUS FILM-FORMING FOAMS
USED FOR FIRE FIGHTING

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Lt USAF

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TECHNICAL REPORT NO. AFWL-TR-73-279

Final Report for Period June 1972 through August 1973

Approved for public release; distribution unlimited.

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FOREWORD

The research was prepared under Program Element 63723F, Project 683M.

Inclusive dates of research were June 1972 through August 1973. The report was submitted 26 November 1973 by the Air Force Weapons Laboratory Project Officer, Lieutenant Ronald H. Kroop (DEE).

This technical report has been reviewed and is approved.

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ABSTRACT

(Distribution Limitation Statement A)

The biodegradability of aqueous film-forming foams (AFFF) used for fire fighting was evaluated in laboratory-scale activated sludge and trickling filter reactors at the Air Force Weapons Laboratory (AFWL). Three AFFFs were evaluated: "Light Water" FC-200 from 3M Company; Aerowater 3 percent from National Foam Company; and Aerowater 6 percent, also from National Foam Company. Concentrations not to exceed 100 mg/l of AFFF influent to the biological treatment process could be satisfactorily treated without affecting the performance of the process and with apparent detoxification of the AFFF. More detailed bioassay tests are required. Adsorption of AFFFs onto activated carbon is practical with removals varying from 75 to 100 percent, depending on the AFFF.

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ABBREVIATIONS AND SYMBOLS

| | |
|------------------|---------------------------------|
| AFFF | aqueous film-forming foam |
| COD | chemical oxygen demand |
| COD _T | total chemical oxygen demand |
| COD _F | filtrate chemical oxygen demand |
| BOD | biochemical oxygen demand |
| BOD ₅ | 5-day biochemical oxygen demand |
| SS | suspended solids |
| MLSS | mixed liquor suspended solids |
| SVI | sludge volume index |

SECTION I
INTRODUCTION

1. BACKGROUND

Aqueous film-forming foams (AFFF), MIL-F-24385, are fire-fighting agents for use on fuel and oil-type fires. Aqueous film-forming foams are concentrates and are, therefore, diluted prior to use. The specified dilution is 6 percent AFFF and 94 percent fresh or sea water. Aqueous film-forming foams have or are currently replacing the protein-type foams as the primary fire-fighting agent at most Air Force installations.

The Military Specification for AFFFs, MIL-F-24385, is a performance specification and, therefore, the composition of the products will vary to some extent. Basically, the AFFFs are fluorocarbon surfactants with foam stabilizers (Ref. 1). The fluorocarbon surfactant is likely to be a sulfonate compound such as sodium fluorocarbon sulfonate where the sulfonate group is soluble in water and the fluorocarbon group soluble in the fuel or oil. The fluorocarbon group is generally in the 8- to 10-carbon chain length. The foam stabilizer is likely to be a polyethylene glycol or glycol ether derivative (Ref. 2).

Three specific AFFFs were investigated by the Air Force Weapons Laboratory (AFWL) to determine the treatability and hazards of disposing of AFFFs. These were Light Water FC-200 manufactured by 3M Company, St Paul, Minnesota, and Aerowater 6 percent and Aerowater 3 percent manufactured by National Foam Company, West Chester, Pennsylvania. FC-200 is on the Qualified Products List (QPL) of the Military Specification, and Aerowater 6 percent is being considered at the time of this report. Aerowater 3 percent cannot satisfy the requirements of the Military Specification; however, hangar deluge systems may use a 3 percent AFFF instead of the 6 percent. FC-200 concentrate has a chemical oxygen demand (COD) of 710,000 mg/l and a pH of 7.4. Aerowater 6 percent concentrate has a COD of 456,000 mg/l and a pH of 7.6. Aerowater 3 percent concentrate has a COD of 495,000 mg/l and a pH of 8.0.

2. PURPOSE OF STUDY

The original purpose of this effort was to solve the specific problem of disposing of AFFFs from the "Crash Rescue Fire-Fighting Training Smoke-Abatement System" at Hill AFB, Utah. Basically, the smoke-abatement system consists of water-spray injection just above the burning fuel. For the system at Hill AFB the water injected into the fire would be collected, retained, and recirculated. Retention would be accomplished in an earthen reservoir. There was concern that the AFFFs used in the fire-fighting training would be solubilized in the spray injection water and through recirculation of this water, the AFFF concentration would increase to the point where the spray injection water would have a detrimental effect on the fire. Therefore, to prevent the AFFF concentration from "building up" in the recirculated water, an attempt was made to determine if microbial growth could be achieved in the reservoir when AFFFs represented the only source of organic matter for the microorganisms (the required nutrients added). If the microorganisms could use the AFFFs as a source of organic matter, the AFFF concentration might be kept low enough to prevent build-up problems.

During the Second Annual Environmental Workshop hosted by the Air Force Weapons Laboratory (AFWL), numerous major Air Command environmental coordinators expressed concern for disposing of AFFFs after use, whether in a real fire or in a training situation. This, coupled with concern voiced by Hq USAF/PRE about the disposal of large volumes of AFFF from proposed warehouse and hangar deluge systems, led AFWL to expand the effort to investigate the disposal of AFFFs in a more general situation. Of prime importance was the determination of the feasibility and the limitations of using existing biological waste treatment processes for achieving biodegradation and detoxification of the AFFFs. Also investigated was the use of activated carbon adsorption with the intent to employ a simple adsorption column at fire-training sites which are remotely located and unable to tie into a sanitary sewer. This would become an integral part of a smoke-abatement system. After treatment with activated carbon, water could then be directly discharged onto the land, into a water course, or possibly recycled into the water source of the smoke-abatement system.

SECTION II
LITERATURE REVIEW

The Environmental Health Laboratory at Kelly AFB, Texas, conducted an investigation on the biodegradability and toxicity of Light Water FC-199 (Ref. 3). On a macroscopic basis FC-199 is different from FC-200 in that the pH of FC-199 concentrate is in the range of 4.5. FC-200 was developed to eliminate the corrosive properties of FC-199.

Lefebre (Ref. 3) demonstrated a toxic effect to microorganisms, as measured by oxygen uptake rates, at an FC-199 concentration of 2500 ppm. Laboratory-scale continuous-flow activated-sludge reactors were operated on a mixture of synthetic sewage and varying concentrations of FC-199. At 250 ppm of FC-199 in the influents and a 12-hour detention time, COD and BOD₅ removals were 91 and 96 percent, respectively. At 500 ppm FC-199, detention time 6 hours, COD and BOD₅ removals were 90 and 96 percent, respectively. At 500 ppm there was significant inhibition of nitrification (Ref. 3).

Systematic bioassays were conducted on untreated FC-199 using fathead minnows. It was determined that the 96-hour LC₅₀ (concentration at which 50 percent of the test fish are killed in 96 hours of exposure) was 398 ppm. Further, it was demonstrated that fathead minnows were able to survive during 8 days of testing in the clarified activated sludge reactor effluent when the FC-199 concentration was 250 ppm (Ref. 3).

The 3M Company has conducted some investigations into the disposal of Light Water FC-200, the AFFF product that they now manufacture. They have operated laboratory-scale continuous-flow activated-sludge reactors in which FC-200 was the only source of organic matter available to the microorganisms. At an FC-200 concentration of 250 ppm (COD - 175 mg/l), COD removal averaged 85 percent. At concentrations above 250 ppm, COD removal efficiency decreased. The source of microorganisms for the 3M Company laboratory-scale experiments was from their industrial wastewater-treatment plant activated-sludge reactor which has been receiving wastewater for years from the manufacturing of Light Water and other halogenated hydrocarbons (Ref. 4).

The 3M Company has also evaluated nonbiological methods of disposal. Oxidation with ozone, adsorption with activated carbon, foam fractionation, and incineration were investigated. Ozone oxidation and foam fractionation did not prove to be feasible. Incineration would be applicable only if the AFFF concentration were maintained fairly high, i.e., in the range of 1 to 6 percent. Activated carbon adsorption proved to be quite effective for dilute solutions of AFFF (Ref. 4).

Static bioassays have been conducted by the 3M Company on FC-200 using fathead minnows. It was demonstrated that both before and after biological wastewater treatment, the 96-hour LC_{50} was 80 ppm of FC-200 (Ref. 4).

SECTION III
MATERIALS AND METHODS

1. SCREENING EXPERIMENTS

The initial tests conducted on the three AFFFs consisted of 15-day biochemical oxygen demand (BOD) experiments using the static dilution technique. Biochemical oxygen demand tests for FC-200 were accomplished with both unacclimated and acclimated seed at an FC-200 dilution of 2/100,000. Aerowater 3 percent and Aerowater 6 percent concentrations were evaluated with unacclimated seed at a dilution of 1/100,000.

2. OXIDATION POND EXPERIMENTS

Four laboratory-scale oxidation ponds were operated at different organic loadings using Light Water FC-199 as the only source of organic matter available to the microorganisms. FC-199 was used because FC-200 had not yet been introduced at the time of the oxidation pond experiments. The oxidation ponds consisted of stainless steel water baths 18 inches (0.456 m) wide, 36 inches (0.912 m) long, and operated at a water depth of 10 inches (0.254 m). This yielded a liquid volume of 105 liters. The oxidation ponds were operated outdoors in direct sunlight during the months of May and June 1972. Originally, the oxidation ponds were filled with 103 liters of tap water and 2 liters of seed taken from the oxidation ponds on Kirtland AFB, New Mexico.

The primary purpose of the oxidation pond experiments was to simulate the loadings on the recirculation reservoir of the "Crash Rescue Fire-Fighting Training Smoke-Abatement System" at Hill AFB, Utah. To simulate the training operation which would be 3 to 5 days per month and several fires per day, Light Water was added to the four oxidation ponds in different amounts and at different time frequencies. Oxidation pond 1 (OP1) received 44 ml of Light Water concentrate initially to yield a 0.042 percent solution and a COD of 294 mg/l. For OP1 this was repeated every fifth day to simulate a fixed level of training every 5 days. The 44 ml was added in 4- to 11-ml aliquota every 2 hours for an 8-hour period. OP2 received 44 ml, repeated every tenth day. OP3 and OP4 received three times the amount of Light Water (132 ml) as did OP1 and OP2. This yielded an initial COD of 882 mg/l. Light water was added to OP3 every

fifth day and to OP4 every tenth day. Ammonium nitrate and a phosphorous solution was added each time to maintain a COD:N:P ratio of 100:5:2. Evaporation losses were made up daily, and samples were then taken for COD and suspended solids determinations.

3. ACTIVATED SLUDGE EXPERIMENTS

Activated sludge experiments were conducted for each AFFF, using laboratory-scale continuous-flow completely mixed reactors with separate upflow clarification (figure 1). The reactor volume was 8 liters, and the clarifier volume was 3 liters. Retention time in the reactor was 4 hours, taking into account a 25 percent return sludge flow rate. Reactor 1 was the control and received only synthetic wastewater, simulating domestic sewage. The synthetic wastewater consisted of a protein source, nonfat dry milk, and a carbohydrate source (common sugar). The nonfat dry milk represented 220 mg/l of COD, as did the sugar. Ammonium chloride, NH_4Cl , or ammonium sulfate, $(\text{NH}_4)_2\text{SO}_4$, was added to yield 40 mg/l of NH_3N . A mixture of monobasic and dibasic potassium phosphate, KH_2PO_4 and K_2HPO_4 , was added to yield 20 mg/l of P. Reactor 2



Figure 1. Activated Sludge Systems

received the synthetic wastewater and varying concentrations of FC-200. Reactor 3 received synthetic wastewater and Aerowater 3 percent. Reactor 4 received synthetic wastewater and Aerowater 6 percent. The last three reactors were brought to a steady-state condition with the synthetic wastewater before dosing with the AFFF.

Three separate activated sludge tests were conducted. Test 1 consisted of operating the four reactors until significant degradation in effluent quality occurred. Test 2 was conducted only on FC-200 and Aerowater 3 percent because the concentrations of each that yielded poor effluent quality in test 1 appeared too low. Therefore, the purpose of test 2 was to verify the results of test 1. It should be noted that near the end of test 2 reactor 4 was restarted on the synthetic wastewater and Aerowater 6 percent solely to provide an effluent for the toxicity experiments. Test 3 consisted of "slug loading" reactor 2 with 200 mg/l of FC-200 and reactor 4 with 200 mg/l of Aerowater 6 percent to determine the adverse effects, if any, on unacclimated microorganisms. This was done after the reactors were drained, reseeded, and brought to steady state on just the synthetic wastewater.

The AFFF concentration was increased in steps in each reactor for tests 1 and 2 (table I). It was originally intended to increase the AFFF concentration every 3 days; however, after observing the performance of the units, the frequency of increasing the AFFF concentration became variable, depending on the effluent quality. It should be noted that the influent wastewater was made during the late afternoon. Therefore increases in AFFF concentration were first reflected in the next morning's samples.

The performance of each reactor and the effluent quality was judged by analysis for mixed liquor suspended solids (MLSS), sludge volume index (SVI), total effluent COD, filtrate effluent COD, and effluent suspended solids (see analytical procedure for methods of analysis). Mixed liquor suspended solids (MLSS) and SVI were determined once a day in the morning. An attempt was made to maintain the MLSS concentration between 2000 to 3000 mg/l. Effluent samples were taken from a reservoir which contained 24 hours of flow and, therefore, represented composited samples.

Table I
 AFFF CONCENTRATIONS IN ACTIVATED SLUDGE EXPERIMENTS

| Day | AFFF concentration (mg/l) | | |
|---------------|---------------------------|------------------------|-----------------------------------|
| | FC-200 | Aerowater 3 percent | Aerowater 6 percent |
| <u>Test 1</u> | | | |
| 1- 4 | 0 | 0 | 0 |
| 5- 7 | 10 | 10 | 10 |
| 8-11 | 25 | 25 | 25 |
| 12-13 | 50 | 50 | 50 |
| 14-23 | 80 | 80 ¹ | 80 |
| 24-26 | 80 ² | | 120 |
| 27-32 | | | 150 |
| 33-37 | | | 210 |
| 38-53 | | | 250 |
| <u>Test 2</u> | | | |
| 1- 4 | 0 | 0 | |
| 5- 8 | 10 | 10 | |
| 9-11 | 20 | 20 | |
| 12-19 | 50 | 50 | |
| 20-25 | 80 | 80 | |
| 26-32 | 120 | 120 | |
| 33-39 | 160 | 160 | |
| 40-44 | 200 | 200 | |
| 45-52 | 250 | 250 | |
| 53-59 | 320 | 320 | 0 ⁴ |
| 60-66 | 320 ³ | 400 | 75, ⁵ 125 ⁶ |
| 67-70 | | 600 | 200 ⁷ |
| <u>Test 3</u> | | | |
| 1- 8 | 200 | | 200 |
| 9-11 | 0 | | 200 |

¹Day 18 reactor shutdown.

²Day 26 reactor shutdown.

³Day 62 reactor shutdown.

⁴Reactor started; being brought to steady state.

⁵Reactor begins 75 ppm AFFF on day 63.

⁶Reactor begins 125 ppm AFFF on day 66.

⁷Reactor begins 200 ppm AFFF on day 69.

4. TRICKLING FILTER EXPERIMENTS

A laboratory-scale trickling filter (figure 2) was operated to determine the adverse effects that FC-200 and Aerowater 6 percent would have on the performance of the trickling filter process. The trickling filters consisted of two columns operated independently (in parallel). Both contained 5.5 feet (1.680 m) of polypropylene plastic media (Kock Flexirings* 5/8 inch (0.0175 m) 105 ft²/ft³ (348 m²/m³)). As illustrated in figure 2, samples could be taken at depths of 18 inches (0.456 m), 36 inches (0.912 m), and 66 inches (1.815 m, full depth). This final discharge entered a small clarification and recirculation basin which was flushed with tap water every 2 to 4 days to remove sloughed biological solids.

Both columns were brought to steady state on the synthetic wastewater as described in the activated sludge experiments. Then column A (the column on the left) received varying concentrations of FC-200, and column B received Aerowater 6 percent. The concentrations received versus time are shown in table II.

Two tests were conducted for the FC-200 and the Aerowater 6 percent. Test 1 was without recycle at a hydraulic loading of 200 gpd/ft² (8150 l/day/m²), and test 2 was with a one-to-one recycle at a hydraulic loading of 200 gpd/ft², i.e., 100 gpd/ft² of influent and 100 gpd/ft² of recycled effluent. Between tests 1 and 2 the trickling filters received only synthetic wastewater for a period of 9 days.

Samples were taken from the two sampling ports of each column and from the final discharge. These samples were grab samples taken in the morning, with COD being the only parameter analyzed. Because the samples contained varying amounts of settleable solids, the samples were allowed to settle, and the supernatant was used for COD analysis.

5. ADSORPTION EXPERIMENTS

Both batch and continuous-flow activated-carbon adsorption experiments were conducted using Calgon Filtersorb 400 granular activated carbon. Only Aerowater 6 percent and FC-200 were evaluated. Solutions were made up to contain approximately 2000 mg/l of each AFFF. It was believed that this would represent

*Registered trademark.

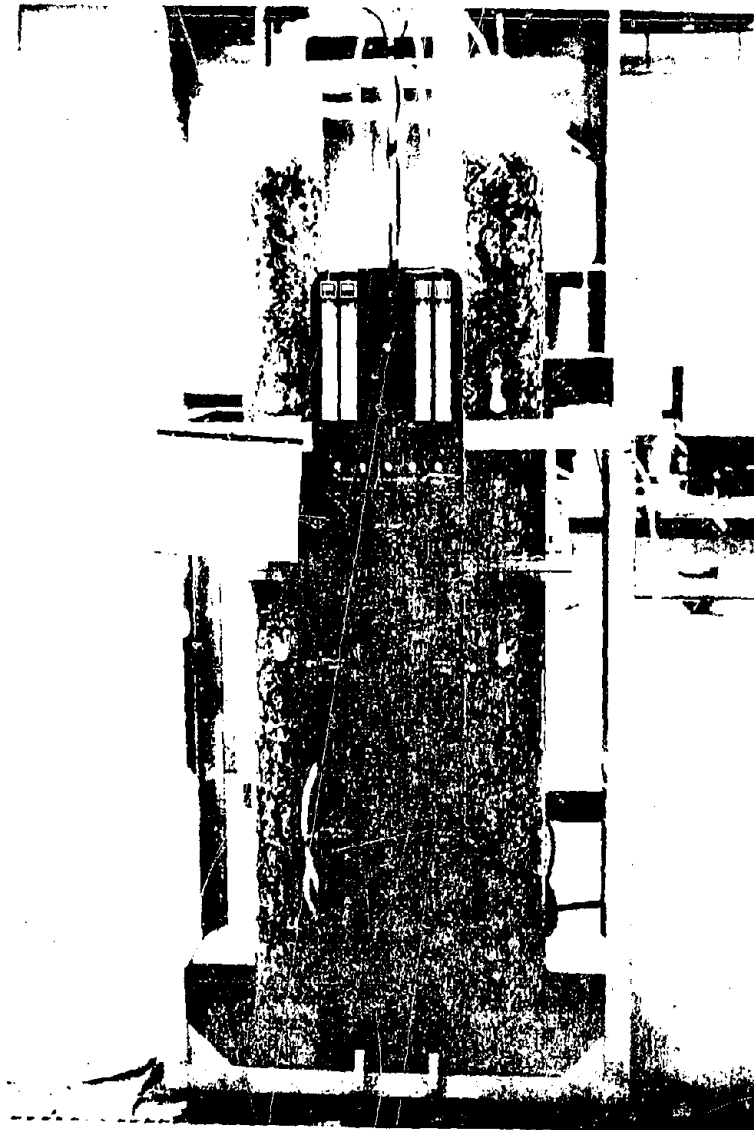


Figure 2. Trickling Filter System

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Table II

AFFF CONCENTRATIONS IN TRICKLING FILTER EXPERIMENTS

| <u>Day</u> | <u>AFFF concentration (mg/l)</u> | |
|-----------------------------------|--------------------------------------|--------------------------------|
| | <u>FC-200</u> | <u>Aerowater 6 percent</u> |
| <u>Test 1, No recycle</u> | | |
| 1- 2 | 0 | 0 |
| 3- 6 | 25 | 25 |
| 7-11 | 50 | 50 |
| 12-16 | 80 | 80 |
| 17-20 | 120 | 120 |
| 21-35 | 160 | 160 |
| <u>Test 2, One-to-one recycle</u> | | |
| 1 | 0 | 0 |
| 2- 8 | 25 | 25 |
| 9-14 | 50 | 50 |
| 15-21 | 80 | 80 |
| 22-29 | 120 | 120 |
| 30-37 | 160 | 160 |
| 38-45 | 200 | 200 |
| 46-50 | 250 | 250 |
| 51-54 | 300 | 300 |

an expected discharge of AFFF from a fire-training facility employing a water spray injection system for smoke abatement. For the batch tests, 4 liters of each AFFF solution were made. To 2 liters of each AFFF solution, 20 mls of JP-4 jet fuel were added, shaken, and allowed to separate. The purpose of adding JP-4 was to determine if certain compounds in the AFFF were preferentially soluble in JP-4 and would thereby be extracted from the aqueous phase. The effect of this extraction, if any, on the adsorption of the AFFF was determined by conducting batch adsorption tests on both the untreated (no JP-4) solutions and the aqueous phase of the JP-4-treated solutions. Five hundred ml erlenmeyer flasks were used, each containing 200 mls of solution and varying amounts of pulverized (-200 mesh) activated carbon. Five flasks were used for each solution, containing 0.1, 0.4, 0.8, 1.2, and 2.0 grams of activated carbon, weighed to four decimal places. The flasks were agitated for 1 hour on a gyratory shaker at 22°C, after which the activated carbon was removed by vacuum filtration, using GFC filter paper.

Continuous-flow experiments were conducted for the 2000-mg/l solutions (not treated with JP-4) of Aerowater 6 percent and FC-200. Small columns were used to achieve breakthrough in a reasonable time frame. The columns used were 1.25 inches (0.318 m) inside diameter and contained 24 inches (0.61 m) of activated carbon. The flow of 23.8 ml/min was set to yield an empty-bed contact time of 20 minutes. The flow was downflow with the discharge restricted to maintain a 2- to 3-inch liquid level above the activated carbon. Sampling ports were provided at 6 and 15 inches of activated carbon depth. Samples were taken periodically for analysis of COD.

6. TOXICITY EXPERIMENTS

To ascertain the detoxification, if any, that the biological wastewater treatment processes were achieving on the AFFFs, rainbow trout (4 to 6 inches in length (0.103 to 0.153 m)) were exposed to the activated sludge effluents (clarified effluent) from each reactor that, at the time, was receiving 200 mg/l of each AFFF. The trout were also exposed to the secondary effluent from the control. In addition, trout were exposed to each of the influents, i.e., synthetic wastewater and 200 mg/l AFFF, and to distilled water plus 200 mg/l AFFF. Four trout were added to each container having approximately 4 liters of liquid. The liquid was maintained at 10°C in an incubator and was aerated to maintain a dissolved oxygen concentration of 6 to 7 mg/l. During the test period (4 days), the liquid was changed once every 24 hours.

7. ANALYTICAL PROCEDURE

Chemical analyses were conducted on collected samples for determination of the desired compound (contaminant), thereby permitting evaluation of the treatment process performance. Chemical oxygen demands were determined in accordance with Standard Methods for the Examination of Water and Wastewater (Ref. 5). Both the standard and dilute technique were used as appropriate. Filtrate COD was determined on samples after filtering through GFC filter paper in accordance with Standard Methods... For the activated sludge effluents, the effluent suspended solids and filtrate COD were determined from filtering of the same sample. For MLSS and SVI, 100 mls were drawn from the reactor, placed in a 100-ml graduated cylinder, and allowed to settle for 30 minutes, at which time the volume of settled solids was read. The 100 mls were then filtered through GFC filter paper for determination of the MLSS. The SVI was then calculated from equation (1)

$$\text{SVI} = \text{mls of settled solids} \times 10,000/\text{MLSS} \quad (1)$$

Free fluoride was analyzed for in the activated sludge effluents to determine if the fluorocarbon compound was being biologically metabolized, yielding free fluoride. This analysis was conducted using both the SPADNS method and the free ion electrode method described in reference 5.

Several attempts were made to develop a method of analysis for determining the fate of the fluorocarbon fraction of the AFFF. The first attempt was to measure the absorbance of infrared light energy for the fluorocarbon bond in the infrared region of 7.5- to 10-micron wavelength. Several concentrations of pure AFFF in distilled water were scanned in this wavelength region. IR-Tran cells of various cell thicknesses were used. In the concentration range of interest for the AFFFs, 1 to 300 mg/l, the strong absorbance of the water in the 7.5- to 10-micron wavelength made this technique impractical.

Since extraction of the fluorocarbon fraction from the aqueous phase into a solvent could not be quantified without having the pure fluorocarbon compound by itself, i.e., no method to determine extraction efficiency, an attempt was made to evaporate the sample, then take it up in a polar or nonpolar solvent. The solvents used were benzene, chloroform, carbon tetrachloride, isopropyl ether, hexane, and methanol. Fifty mls of sample were evaporated at 103°C in 100-ml test tubes, then 50 ml of solvent was added and agitated on a vortex

mixer. The degree of resolubilization was determined visually. Aerowater 3 percent was the only AFFF that could be completely resolubilized, and this was in benzene. This was true even after 48 hours. However, the background adsorbance from benzene was too strong in the 7.5- to 10-micron wavelength. Thus, this technique was also ineffective for pure solutions.

The 3M Company developed a gas chromatographic technique for analysis of FC-200. However, "ghosting*" was a serious problem and made this method of analysis impractical. Further, it was learned from the 3M Company that the gas chromatographic method was for determination of the foam stabilizer fraction and not the fluorocarbon fraction.

*Ghosting is subsequent elution of the organic compound when the next sample is injected.

SECTION IV

RESULTS

1. SCREENING EXPERIMENTS

The screening experiments consisted of determining the biological oxygen demand (BOD) uptake over a 15-day period. FC-200 was evaluated using both acclimated and unacclimated seed. The acclimated seed was obtained from the activated sludge reactor receiving FC-200. The two Aerowater AFFFs were only evaluated using unacclimated seed. The results of these experiments are detailed in figures 3 through 5. For FC-200 it is seen that the acclimated seed demonstrated a slightly increased rate of oxygen uptake but not a higher overall total uptake. The 5-day BOD for the concentrated FC-200 is approximately 70,000 mg/l with the ultimate BOD (assuming this to occur at the 15-day point) of approximately 360,000 mg/l. The BOD₅ of Aerowater 3 percent concentrate was approximately 75,000 mg/l with a BOD_{ult} of 315,000 mg/l. Aerowater 6 percent concentrate had a BOD₅ of 40,000 mg/l with the ultimate BOD in excess of 280,000 mg/l.

Because of the tremendous dilution required (2/100,000 and 1/100,000) to determine BODs by the static dilution technique, the "typical" first order curve did not result. This is not to say that the data are invalidated but rather points out the limitation of BOD analysis. The significance to be drawn from the BOD tests performed is that at least some of the compounds in the AFFFs are available for biological metabolism, and further untreated AFFFs discharged into a watercourse would exert a very high oxygen demand.

2. OXIDATION POND EXPERIMENTS

As described in section III, four oxidation ponds were operated to simulate the AFFF loadings on the recirculation reservoir of the "Crash Rescue Fire-Fighting Training Smoke-Abatement System" at Hill AFB, Utah. In a more general sense, the results of the oxidation pond experiments could be related to any oxidation or holding pond where AFFFs represented the only source of organic matter available to the microorganisms. The COD reductions achieved in oxidation ponds (OP) 1 and 2 are shown in figure 6. Reductions from OP3 and OP4 are shown in figure 7. Reiterating, OP1 was loaded with 0.042 percent FC-199

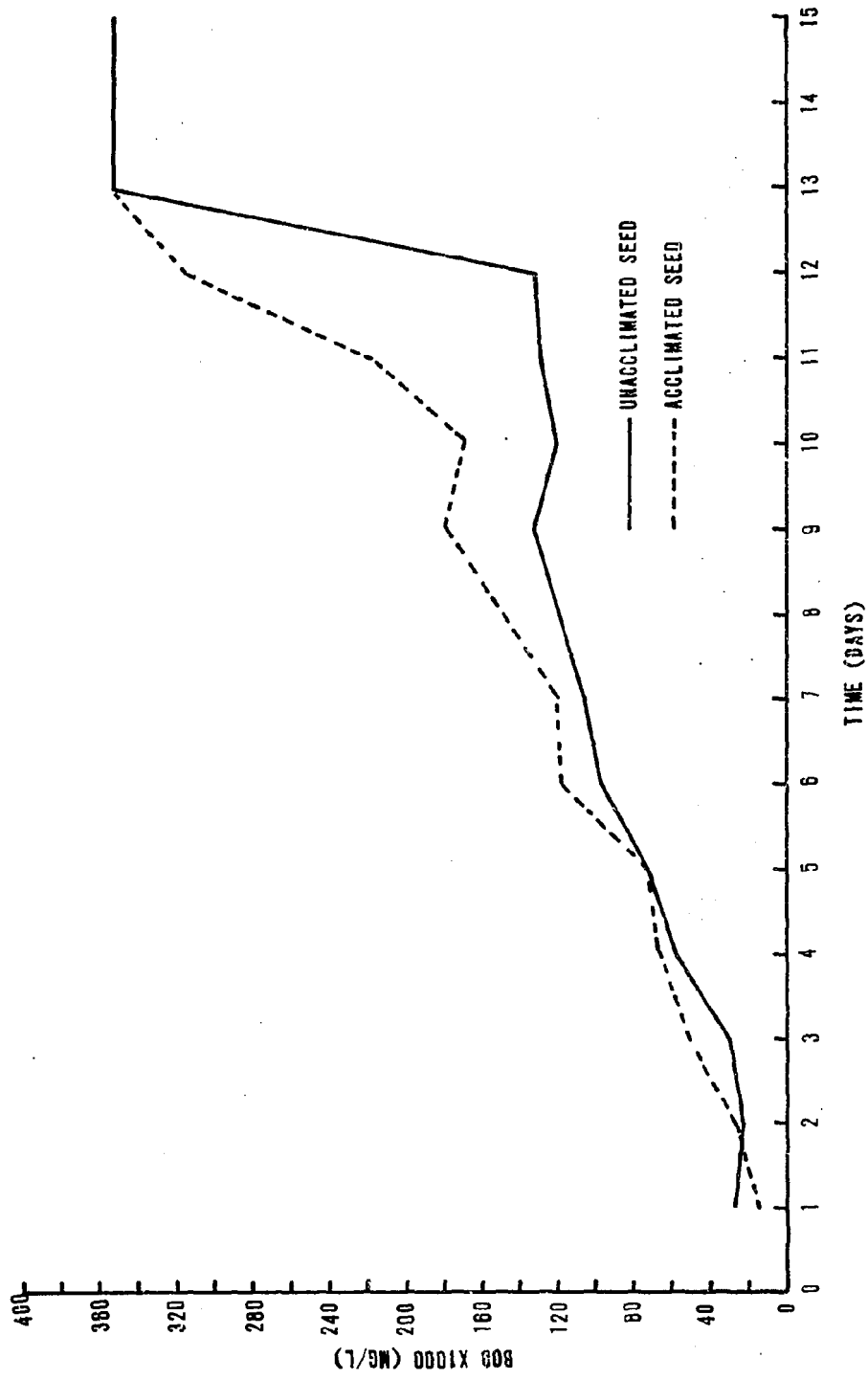


Figure 3. BOD Curve, FC-200

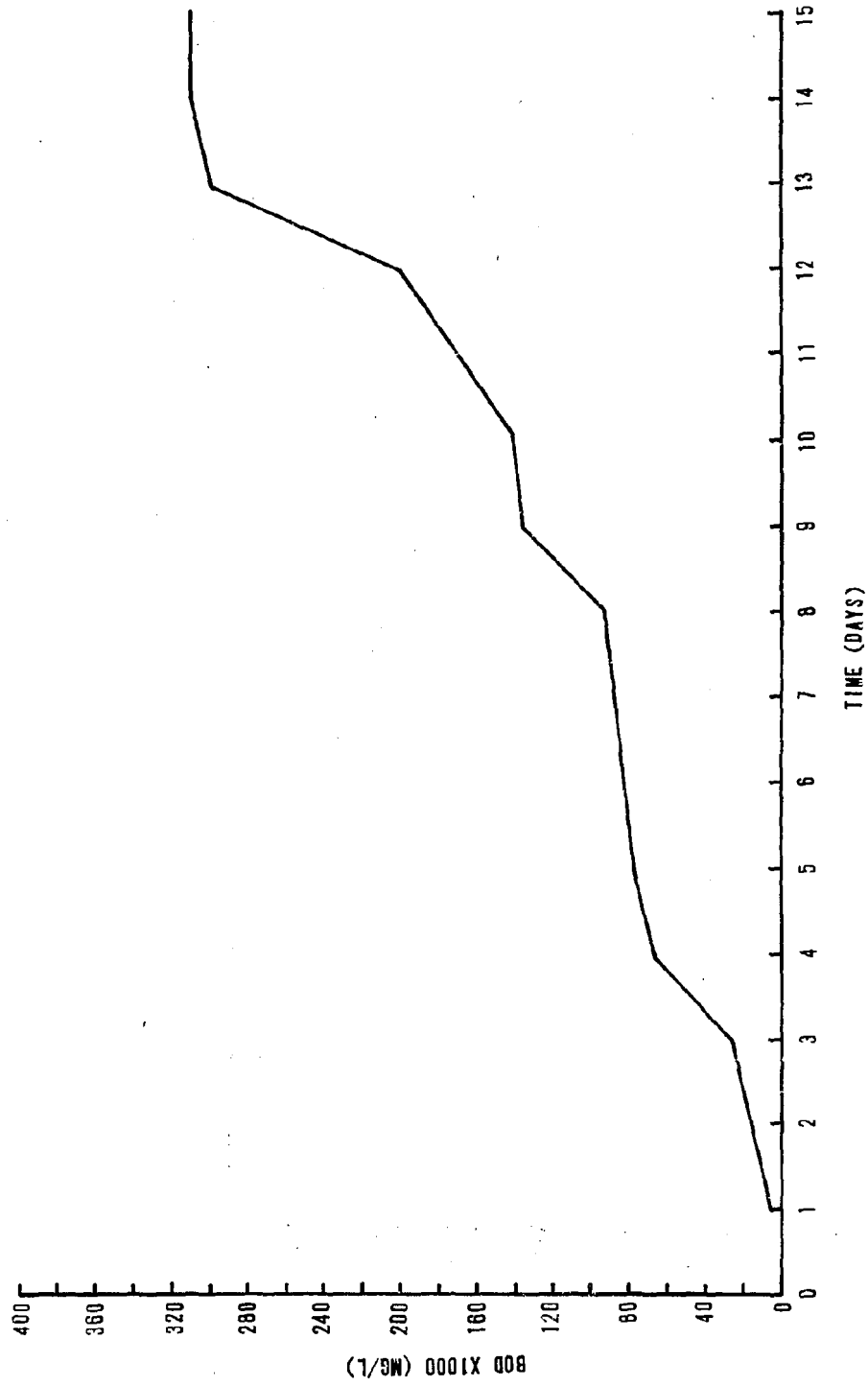


Figure 4. BOD Curve, Aerowater 3 Percent

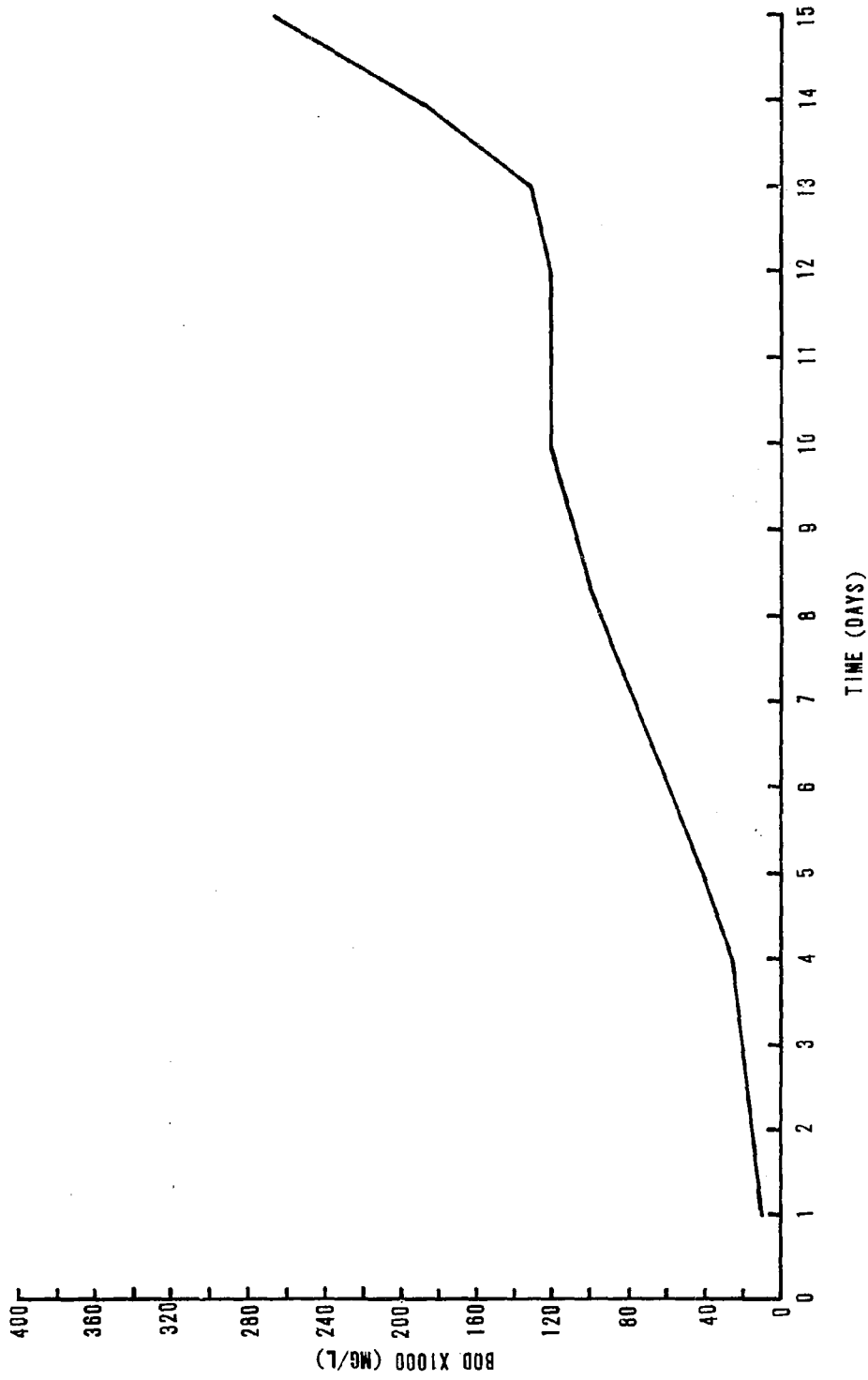


Figure 5. BOD Curve, Aerowater 6 Percent

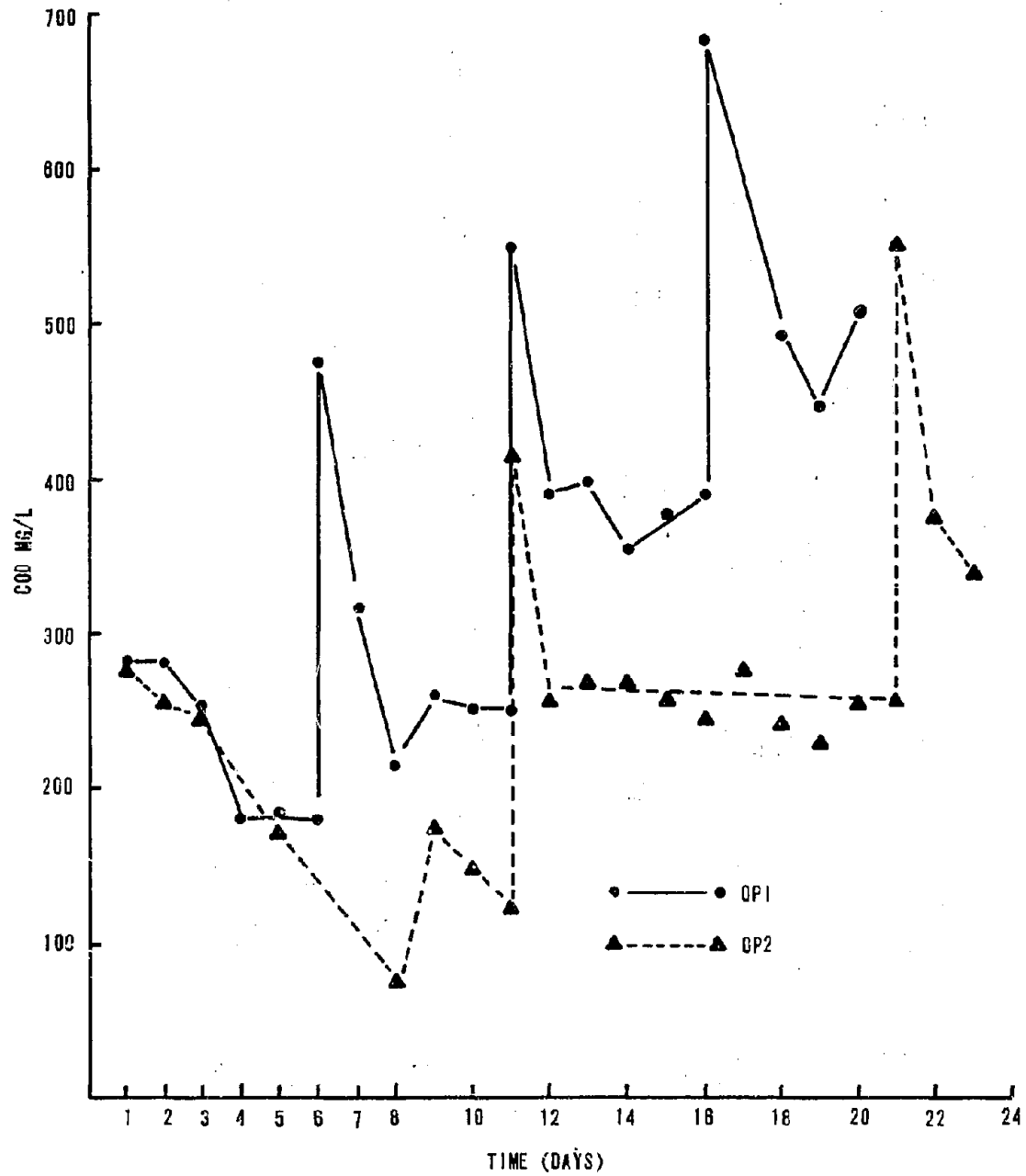


Figure 6. Oxidation Ponds 1 and 2, FC-199

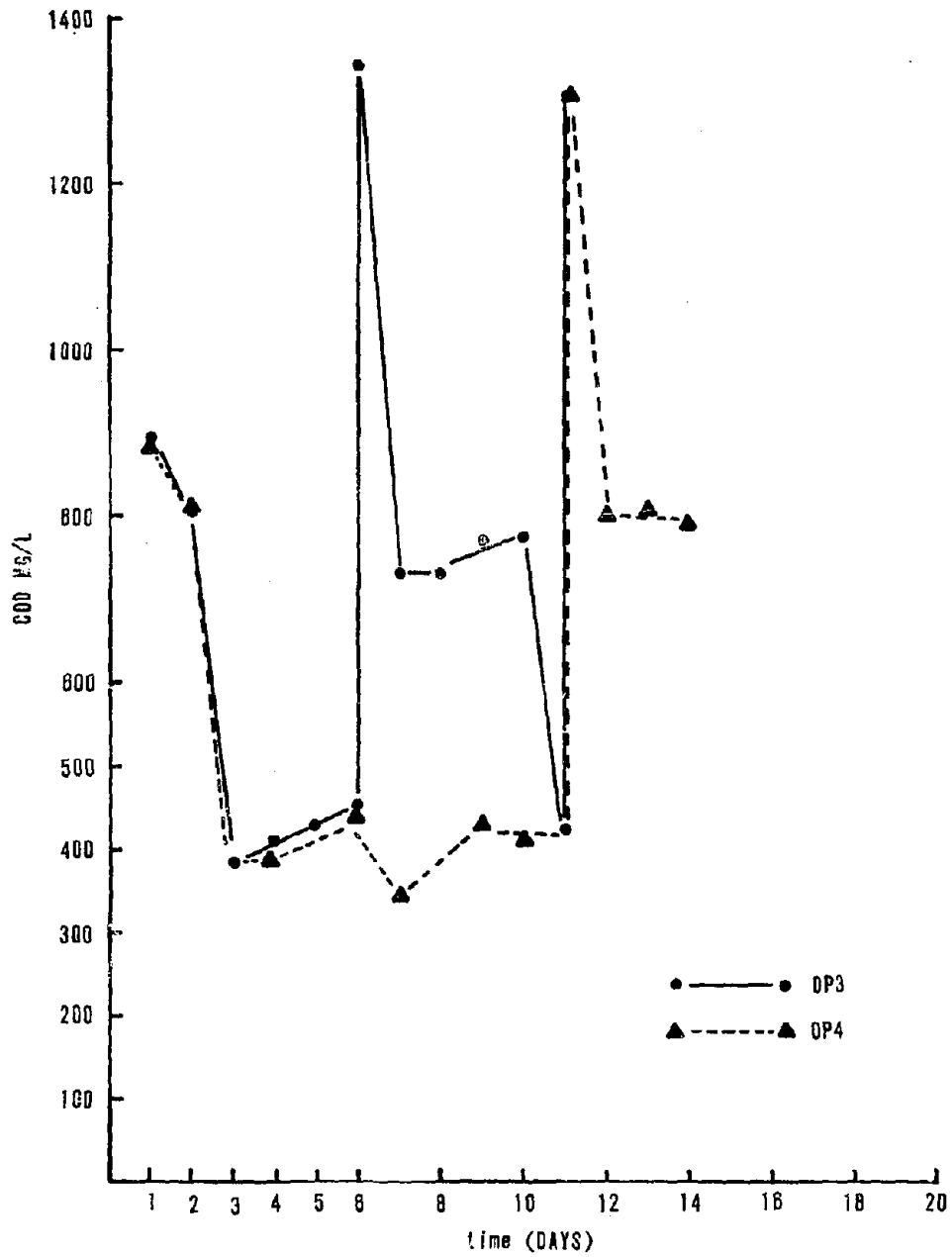


Figure 7. Oxidation Ponds 3 and 4, FC-199

every fifth day (initial COD - 294 mg/l) and OP2 every 10th day. Oxidation pond 3 was loaded with 0.136 percent FC-199 every fifth day (initial COD - 882 mg/l) and OP4 was loaded every 10th day. The results demonstrated a COD reduction occurring after dosing with FC-199 with most of the reduction occurring in the first 2 days after dosing. However, it is seen that there is a general build-up of some substance that is chemically but not biologically oxidizable. This COD reduction is not consistent with the concentration of suspended solids (taken to be biological solids) in the oxidation pond which did not increase with the decreasing COD, but rather followed no ascertainable pattern, varying in concentration between 10 and 70 mg/l for each of the oxidation ponds. If one assumes cell yields of 0.5 mg/l of biological oxidation of domestic wastewater to apply for the oxidation ponds, then biological solids concentrations in excess of 150 mg/l should have been observed.

The COD reduction achieved coupled with the lack of appreciable biological growth led to the assumption that some of the compounds in FC-199 were undergoing photochemical oxidation. Therefore, a fifth oxidation pond was set up but not seeded. The initial COD in this oxidation pond was 296 mg/l. Within the experimental error of the analysis, the COD concentration did not change over a 10-day period. Thus, it was concluded that photochemical oxidation was not the cause of the COD reduction. This leaves unanswered the reason for the observed COD reduction without appreciable biological growth.

3. ACTIVATED SLUDGE EXPERIMENTS

a. Test 1

The data collected for test 1 are listed in table III and are graphically represented in figures 8 through 11. The data show that none of the reactors were achieving proper settling characteristics as measured by sludge volume index and/or effluent suspended solids. This led to occasional use of alum (aluminum sulfate) and/or a cationic polyelectrolyte. Control of MLSS between 2000 to 3000 mg/l was attempted, but much of the time the reactors were outside of this concentration range. The control performance was more erratic than that desired. However, in general, COD removal was in the range of 85 to 90 percent for total effluent COD and consistently in excess of 90 percent removal for filtrate COD.

Table III

ACTIVATED SLUDGE ANALYSES, TEST 1

| <u>Day</u> | <u>COD_{INF}</u> | <u>COD_T</u> | <u>COD_F</u> | <u>SS_{EFF}</u> | <u>MLSS</u> | <u>SVI</u> | <u>Remarks</u> |
|------------|--------------------------|------------------------|------------------------|-------------------------|-------------|------------|---------------------|
| | | | | <u>Control</u> | | | |
| 1 | 500 | 24 | 24 | <10 | 788 | 800 | |
| 2 | | 44 | 48 | <10 | 1086 | | |
| 3 | | 133 | 71 | <10 | 1294 | 470 | |
| 4 | 440 | 55 | 16 | 48 | 1645 | 480 | |
| 5 | 445 | 95 | 103 | 26 | 2325 | 400 | |
| 6 | | 82 | 38 | 34 | 2640 | 363 | |
| 7 | 466 | 62 | 25 | 14 | 2274 | 370 | |
| 8 | | 24 | 25 | 16 | 2420 | 334 | |
| 9 | 457 | 150 | 34 | 18 | 2536 | | |
| 10 | 474 | 68 | 41 | 18 | 2240 | 313 | |
| 11 | | 53 | 37 | 25 | 2693 | 215 | |
| 12 | | 73 | 49 | 21 | 2569 | 237 | |
| 13 | 434 | 57 | 41 | 15 | 2384 | 252 | |
| 14 | | 43 | 31 | <10 | 2262 | 252 | |
| 15 | | 48 | 28 | 12 | 2652 | 294 | |
| 16 | | 64 | 60 | 23 | 1079 | 639 | |
| 17 | | 150 | 35 | 70 | 909 | 1023 | Adding 20 mg/l alum |
| 18 | | 43 | 20 | 14 | 1217 | 559 | |
| 19 | | 46 | 23 | 12 | 1146 | 785 | Discontinue alum |
| 20 | | 58 | 35 | 12 | 1290 | 450 | |
| 21 | | 16 | 20 | 15 | 1343 | 707 | |
| 22 | | 89 | 24 | 37 | 2383 | 411 | |
| 23 | 351 | 101 | 40 | 11 | 2860 | 339 | |
| 24 | | 15 | 16 | 10 | 3625 | 270 | |
| 25 | | 25 | 23 | 12 | 3375 | 190 | |
| 26 | | 34 | 25 | <10 | 4056 | 160 | |
| 27 | | 17 | 22 | <10 | 3364 | 214 | |
| 28 | | 24 | 7 | <10 | 2356 | 293 | |
| 29 | | 8 | 14 | <10 | 1958 | 460 | |
| 30 | | 74 | 18 | 17 | 2114 | 426 | |
| 31 | | 51 | 22 | 38 | 2319 | 328 | |

Table III (cont'd)

| <u>Day</u> | <u>COD_{INF}</u> | <u>COD_T</u> | <u>COD_F</u> | <u>SS_{EFF}</u> | <u>MLSS</u> | <u>SVI</u> | <u>Remarks</u> |
|------------|--------------------------|------------------------|------------------------|-------------------------|-------------|------------|--|
| 32 | | 66 | 31 | 23 | 2208 | 290 | |
| 33 | | 35 | 26 | <10 | 2490 | 246 | |
| 34 | | 40 | 36 | 41 | 2675 | 202 | |
| 35 | | 32 | 53 | 43 | 2686 | 279 | |
| 36 | | 72 | 14 | 50 | 2420 | 289 | |
| 37 | 351 | 58 | 15 | 44 | 2396 | 221 | |
| 38 | | 40 | 27 | 10 | 2571 | 307 | |
| 39 | 454 | 33 | 33 | 20 | 2430 | 407 | |
| 40 | | 50 | 21 | 34 | 1189 | 580 | |
| 41 | | 74 | 33 | 14 | 1083 | 553 | |
| 42 | No sample | | | | | | |
| 43 | | 53 | 15 | 14 | 1464 | 410 | |
| 44 | | 19 | 17 | 13 | 1453 | 475 | Begin 1 mg/l polyelct. 10 mg/l alum |
| 45 | | 182 | 36 | 123 | 1823 | 521 | |
| 46 | | 124 | 23 | 114 | 1444 | 270 | |
| 47 | | 75 | 18 | 27 | 1478 | 420 | |
| 48 | | 89 | 32 | 21 | 1295 | 386 | |
| 49 | 345 | 73 | 38 | 14 | 1602 | 393 | |
| 50 | | 59 | 19 | 13 | 1945 | 396 | |
| 51 | | 92 | 80 | | | | |
| 52 | | 87 | 67 | 45 | 2146 | 261 | |
| | | | | <u>FC-200</u> | | | |
| 1 | | 81 | 40 | 40 | 774 | | |
| 2 | | 59 | 24 | 10 | 609 | | |
| 3 | | 67 | 86 | 12 | 1232 | 450 | |
| 4 | | 59 | 31 | 15 | 1123 | 490 | |
| 5 | 445 | 82 | 40 | <10 | 2240 | 402 | First sample 10 mg/l FC-200 |
| 6 | | 90 | 41 | <10 | 2599 | 380 | |
| 7 | 404 | 88 | 33 | 13 | 2516 | 378 | |
| 8 | | 60 | 38 | 27 | 1742 | 419 | First sample 25 mg/l FC-200 |
| 9 | 468 | 120 | 73 | 45 | 1430 | | |

Table III (cont'd)

| Day | <u>COD_{INF}</u> | <u>COD_T</u> | <u>COD_F</u> | <u>SS_{EFF}</u> | <u>MLSS</u> | <u>SVI</u> | <u>Remarks</u> |
|-----|--------------------------|------------------------|------------------------|-------------------------|-------------|------------|--------------------------------|
| 10 | 474 | 155 | 51 | 91 | 914 | 492 | First sample 50 mg/l FC-200 |
| 11 | | 122 | 66 | 71 | 795 | 755 | Adding 10 mg/l alum |
| 12 | | 219 | 93 | 105 | 403 | 695 | Adding 20 mg/l alum |
| 13 | 426 | 117 | 73 | 23 | 734 | 926 | |
| 14 | | 83 | 59 | 16 | 690 | 1377 | |
| 15 | | 171 | 60 | 77 | 565 | 1664 | First sample 80 mg/l |
| 16 | | 100 | 72 | 49 | 661 | 1362 | |
| 17 | | 77 | 73 | <10 | 979 | 981 | |
| 18 | | 83 | 58 | 18 | 526 | 760 | |
| 19 | | --- | 54 | <10 | 939 | 958 | |
| 20 | | 69 | 65 | <10 | 1108 | 560 | |
| 21 | | 48 | 52 | <10 | 1015 | 887 | |
| 22 | | 121 | 65 | 44 | 925 | 1081 | |
| 23 | | 186 | 61 | 40 | 1394 | 710 | |
| 24 | | 149 | 46 | 35 | 1477 | 670 | |
| 25 | | 70 | 35 | 26 | 1288 | 776 | |
| 26 | | 33 | 32 | 17 | 1565 | 633 | |

Aerowater 3 Percent

| | | | | | | | |
|----|-----|-----|-----|-----|------|-----|-----------------------------------|
| 1 | | 57 | 32 | 16 | 766 | 980 | |
| 2 | | 48 | 28 | 15 | 421 | | |
| 3 | | 223 | 102 | <10 | 1277 | 220 | |
| 4 | | 55 | 35 | 18 | 1199 | 233 | |
| 5 | 450 | 198 | 155 | 61 | 2198 | 237 | First sample 10 mg/l 3 percent |
| 6 | | 91 | 36 | <10 | 2020 | 356 | |
| 7 | 428 | 62 | 25 | 16 | 3298 | 258 | |
| 8 | | 48 | 57 | 26 | 2772 | 238 | First sample 25 mg/l 3 percent |
| 9 | 453 | 85 | 54 | 19 | 2856 | | |
| 10 | 438 | 131 | 31 | 25 | 2591 | 208 | First sample 50 mg/l 3 percent |
| 11 | | 91 | 44 | 33 | 2687 | 261 | |
| 12 | | 93 | 53 | 35 | 2836 | 310 | |

Table III (cont'd)

| <u>Day</u> | <u>COD_{INF}</u> | <u>COD_T</u> | <u>COD_F</u> | <u>SS_{EFF}</u> | <u>MLSS</u> | <u>SVI</u> | <u>Remarks</u> |
|----------------------------|--------------------------|------------------------|------------------------|-------------------------|-------------|------------|-----------------------------------|
| 13 | 481 | 105 | 93 | 37 | 3680 | 226 | |
| 14 | | 39 | 31 | 10 | 3371 | 267 | First sample 80 mg/l |
| 15 | | 187 | 44 | 90 | 3500 | 274 | |
| 16 | | 300 | 68 | 108 | 2153 | 246 | |
| 17 | | 340 | 62 | 393 | 1889 | 529 | |
| 18 | | 130 | 38 | 65 | 326 | 552 | |
| <u>Aerowater 6 Percent</u> | | | | | | | |
| 1 | | 73 | 49 | 22 | 501 | 860 | |
| 2 | | 63 | 55 | 14 | 848 | | |
| 3 | | 180 | 43 | 11 | 1166 | 450 | |
| 4 | | 47 | 27 | 12 | 1184 | 439 | |
| 5 | 450 | 77 | 64 | 15 | 2063 | 339 | First sample 10 mg/l 6 percent |
| 6 | | 55 | 37 | 31 | 1300 | 484 | |
| 7 | 436 | 59 | 30 | <10 | 2010 | 393 | |
| 8 | | 44 | 44 | <10 | 1277 | 297 | First sample 25 mg/l 6 percent |
| 9 | 485 | 73 | 51 | 15 | 687 | | |
| 10 | 440 | 55 | 31 | <10 | 1420 | 317 | First sample 50 mg/l 6 percent |
| 11 | | 67 | 44 | 19 | 1055 | 351 | |
| 12 | | 73 | 53 | 19 | 1998 | 385 | |
| 13 | 473 | 65 | 45 | 10 | 1823 | 521 | First sample 80 mg/l 6 percent |
| 14 | | 71 | 47 | <10 | 2400 | 417 | |
| 15 | | 108 | 52 | 40 | 2434 | 403 | |
| 16 | | 72 | 56 | 19 | 1610 | 602 | |
| 17 | | 88 | 85 | 19 | 2494 | 401 | |
| 18 | | 110 | 54 | 43 | 1469 | 640 | |
| 19 | | 54 | 50 | 54 | 1448 | 663 | |
| 20 | | 69 | 54 | <10 | 3172 | 246 | |
| 21 | | 40 | 40 | 12 | 2730 | 231 | |
| 22 | | 49 | 28 | <10 | 3684 | 166 | |
| 23 | 424 | 57 | 50 | <10 | 2776 | 180 | First sample 120 mg/l |

Table III (cont'd)

| <u>Day</u> | <u>COD_{INF}</u> | <u>COD_T</u> | <u>COD_F</u> | <u>SS_{EFF}</u> | <u>MLSS</u> | <u>SVI</u> | <u>Remarks</u> |
|------------|--------------------------|------------------------|------------------------|-------------------------|-------------|------------|------------------------------------|
| 24 | | 45 | 48 | 14 | 3144 | 305 | |
| 25 | | 117 | 26 | 32 | 3365 | 285 | |
| 26 | | 96 | 65 | 27 | 2848 | 337 | |
| 27 | | 73 | 40 | 26 | 3007 | 326 | |
| 28 | | 56 | 25 | 29 | 2854 | 347 | First sample 150 mg/l 6 percent |
| 29 | | --- | 48 | 28 | 2955 | 332 | |
| 30 | | 68 | 33 | 24 | 2112 | 459 | |
| 31 | | 146 | 38 | 82 | 1914 | 381 | |
| 32 | | 98 | 42 | 48 | 1988 | 342 | |
| 33 | | 43 | 49 | 13 | 1226 | 285 | |
| 34 | | 75 | 24 | 40 | 1600 | 150 | First sample 210 mg/l 6 percent |
| 35 | | 66 | 33 | 98 | 1554 | 129 | |
| 36 | | 59 | 40 | 12 | 1498 | 207 | |
| 37 | | 48 | 37 | 10 | 1962 | 398 | |
| 38 | 529 | 89 | 54 | 33 | 2462 | 223 | First sample 250 mg/l 6 percent |
| 39 | 546 | 72 | 57 | 17 | 3052 | 193 | |
| 40 | | 70 | 48 | 21 | 2877 | 247 | |
| 41 | | 127 | 101 | --- | 1636 | 410 | |
| 42 | | 262 | 211 | --- | --- | --- | |
| 43 | | 172 | 114 | 33 | 2380 | 315 | |
| 44 | | 105 | 80 | 76 | 2670 | 135 | |
| 45 | | 162 | 94 | 31 | 1675 | 567 | |
| 46 | | 367 | 134 | 147 | 938 | 597 | |
| 47 | | 277 | 169 | 64 | 755 | 464 | |
| 48 | | 230 | 153 | 47 | 728 | 1278 | |
| 49 | 456 | 278 | 110 | 95 | 911 | 1021 | |
| 50 | | 182 | 112 | 61 | 1157 | 484 | |
| 51 | | 158 | 118 | --- | --- | --- | |
| 52 | | 95 | 89 | 118 | 756 | 529 | |

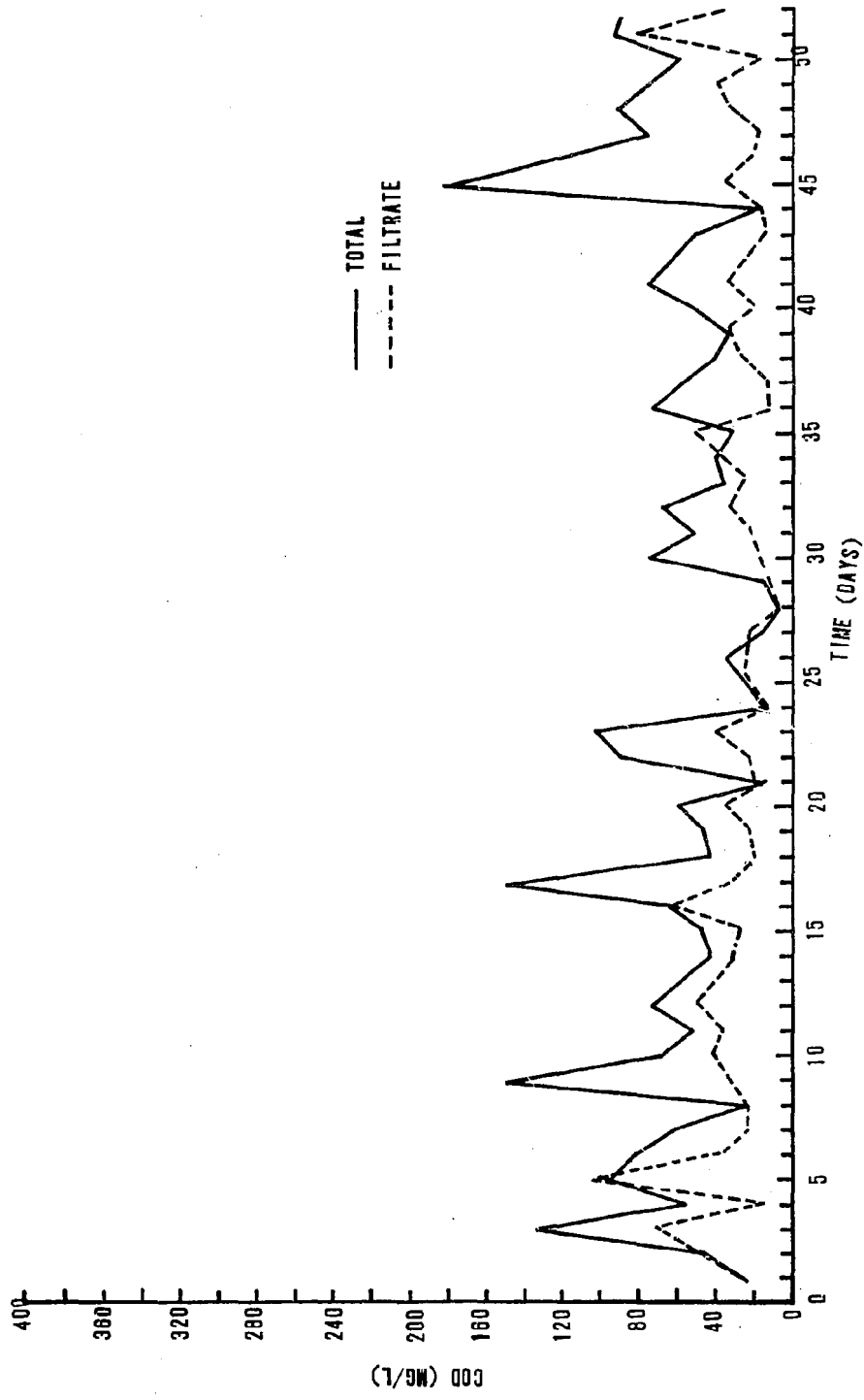


Figure 8. Test 1, Activated Sludge Effluent COD Control

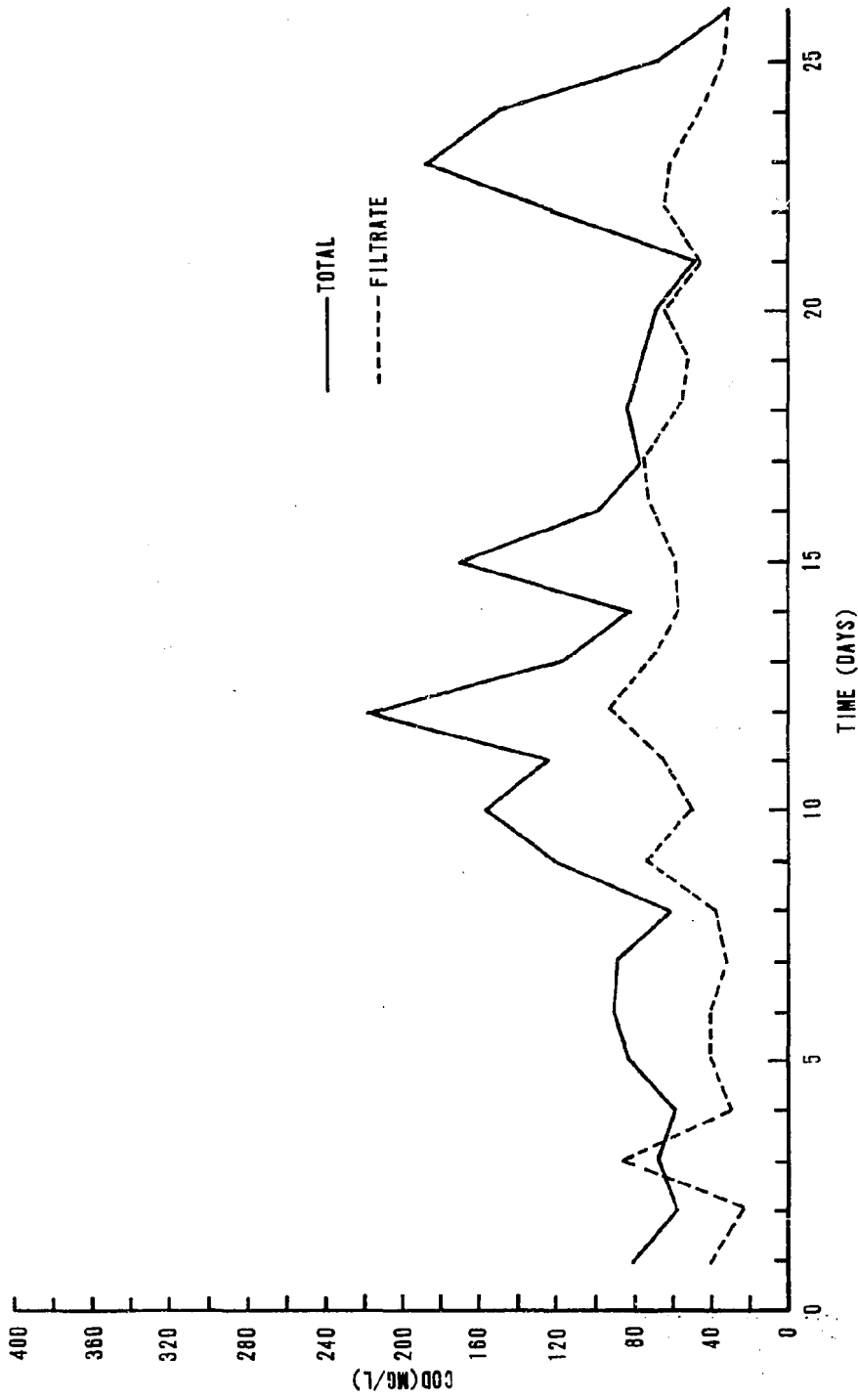


Figure 9. Test 1, Activated Sludge Effluent COD, FC-200

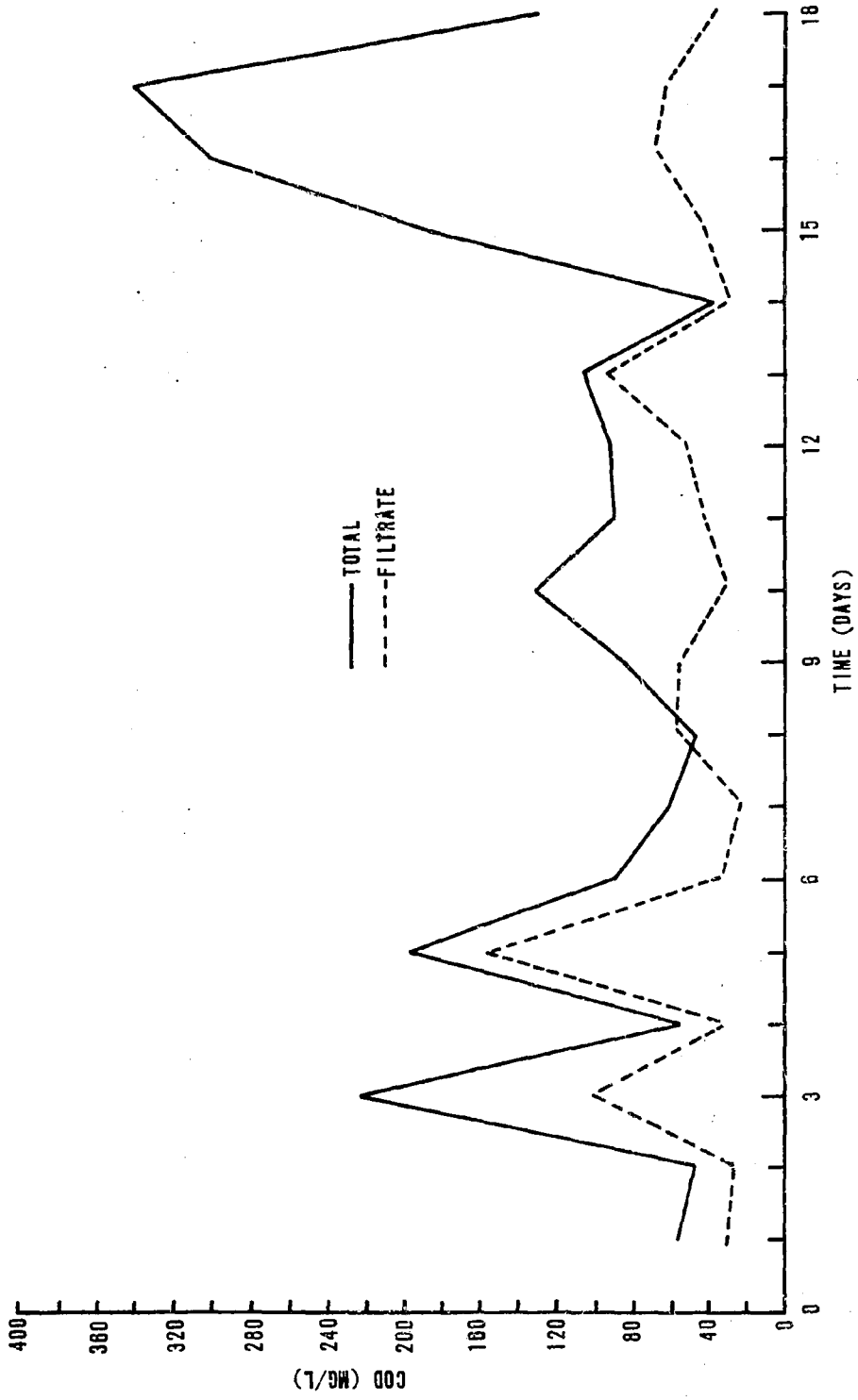


Figure 10. Test 1, Activated Sludge Effluent COD, Aerowater 3 Percent

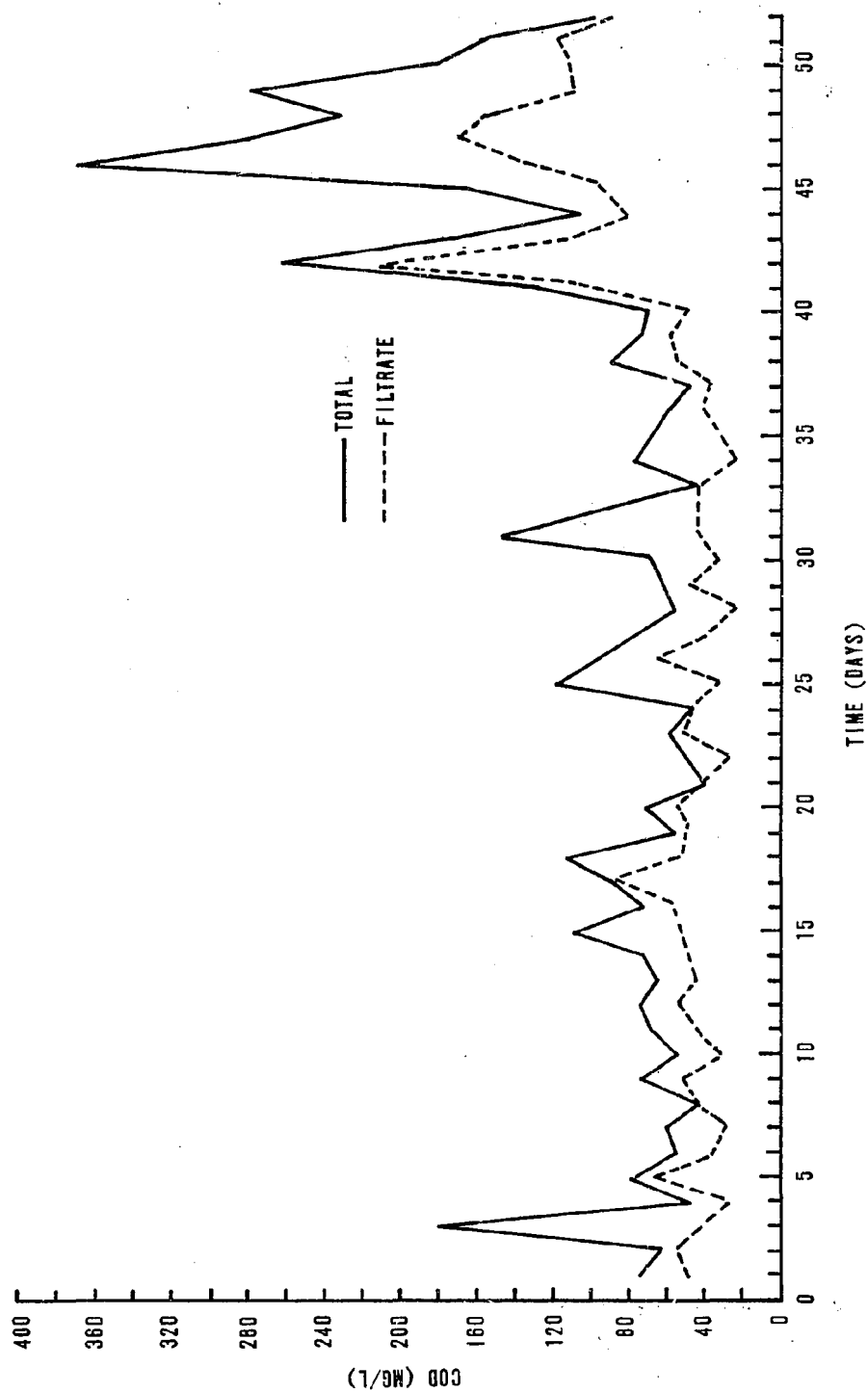


Figure 11. Test 1, Activated Sludge Effluent COD, Aerowater 6 Percent

For reactor 2 table III and figure 9 show that at the time the FC-200 concentration was increased to 50 mg/l, day 10, the MLSS decreased drastically, and the SVI increased roughly twofold. The use of alum to control this condition was only marginally successful. Effluent COD concentrations increased to unacceptable values. Although the FC-200 concentration was increased to 80 mg/l, it was clear that the activated sludge reactor performance had been upset at 50 mg/l of FC-200.

The performance of reactor 3, in which Aerowater 3 percent was used, yielded higher effluent CODs than either the control or the other two reactors up to the time (day 14) the concentration was increased to 80 mg/l. The total effluent COD increased drastically then, primarily because of effluent suspended solids. At day 16 the MLSS began to decrease rapidly, and the reactor was shut down on day 18.

Reactor 4 (Aerowater 6 percent) performance was reasonably consistent and acceptable (see table III and figure 11), although effluent CODs were somewhat higher than that of the control, until the concentration reached 250 mg/l. Shortly after the Aerowater 6 percent concentration was increased to 250 mg/l (day 38), the effluent COD, total and filtrate, increased significantly, the MLSS decreased, and the SVI increased appreciably at this time. It thus appeared that the activated sludge process could not tolerate 250 mg/l of Aerowater 6 percent.

b. Test 2

The results for test 2 are presented in table IV and figures 12 through 15. The primary purpose of test 2 (as stated in section III) was to determine if, in fact, the limiting concentrations of FC-200 and Aerowater 3 percent were valid. It is noted that during test 2, the performance of the reactors with respect to settlability and acceptable MLSS concentrations, effluent CODs, total and to some extent filtrate, were sporadic for the control. There were some mechanical difficulties encountered--the sludge recycle would stop during the night because of the geometry of the sludge hopper causing a clear zone with no sludge. This was corrected for the most part by keeping the volume of sludge in the bottom of the clarifier to a minimum.

The performance of reactor 2 (FC-200, table IV and figure 13) was unsteady during the initial dosing of FC-200, days 4 through 13, but was relatively satisfactory thereafter until day 37 when effluent quality began to

Table IV
ACTIVATED SLUDGE ANALYSES, TEST 2

| <u>Day</u> | <u>COD_{INF}</u> | <u>COD_T</u> | <u>COD_F</u> | <u>SS_{EFF}</u> | <u>MLSS</u> | <u>SVI</u> | <u>Remarks</u> |
|------------|--------------------------|------------------------|------------------------|-------------------------|-------------|------------|--------------------------------------|
| 1 | | 69 | | <u>Control</u> | | | |
| 1 | | 69 | 30 | 26 | 2123 | 57 | |
| 2 | | 54 | 38 | 21 | 2366 | 42 | |
| 3 | | 52 | 32 | 22 | 2084 | 48 | |
| 4 | | 41 | 25 | <10 | 2453 | 45 | |
| 5 | | 53 | 45 | 16 | 2557 | 43 | |
| 6 | 429 | 61 | 52 | <10 | 2349 | 64 | |
| 7 | | 71 | 49 | <10 | 2009 | 50 | |
| 8 | | 44 | 39 | 31 | 1840 | 54 | |
| 9 | 417 | 128 | 101 | <10 | 1834 | 55 | Solids concentration in clarifier |
| 10 | 386 | 61 | 44 | 18 | 2353 | 47 | No recycle or sludge |
| 11 | 402 | 43 | 30 | <10 | 1846 | 54 | |
| 12 | | 70 | 33 | 38 | 2866 | 63 | |
| 13 | 394 | 218 | 162 | 61 | 3432 | 52 | No sludge recycle |
| 14 | | 63 | 31 | <10 | 3476 | 40 | |
| 15 | No data | | | | | | |
| 16 | | 46 | 44 | 13 | 3269 | 58 | |
| 17 | | 84 | 35 | 42 | 2945 | 63 | |
| 18 | | 184 | 39 | 36 | 2808 | 64 | No sludge recycle |
| 19 | | 44 | 41 | 52 | 2999 | 63 | |
| 20 | 402 | 185 | 32 | 45 | 2866 | 59 | No sludge recycle |
| 21 | | 86 | 24 | 15 | 2764 | 61 | |
| 22 | | 37 | 35 | 87 | 2073 | 58 | |
| 23 | | 62 | 35 | 30 | 2575 | 43 | |
| 24 | 422 | 145 | 40 | 35 | 2398 | 67 | |
| 25 | 414 | 72 | 52 | 17 | 2148 | 61 | |
| 26 | | 39 | 34 | 14 | 2672 | 60 | |
| 27 | | 36 | 34 | <10 | 2972 | 47 | |
| 28 | 409 | 94 | 64 | 16 | 3710 | 43 | |
| 29 | | 73 | 63 | 24 | 2658 | 56 | |
| 30 | | 48 | 43 | 34 | 2237 | 63 | |

Table IV (cont'd)

| <u>Day</u> | <u>COD_{INF}</u> | <u>COD_T</u> | <u>COD_F</u> | <u>SS_{EFF}</u> | <u>MLSS</u> | <u>SVI</u> | <u>Remarks</u> |
|------------|--------------------------|------------------------|------------------------|-------------------------|-------------|------------|--------------------|
| 31 | | 26 | 21 | 29 | 3306 | 51 | |
| 32 | 382 | 30 | 28 | 53 | 3034 | 53 | |
| 33 | | 27 | 20 | <10 | 3217 | 50 | |
| 34 | | 22 | 19 | <10 | 3426 | 50 | |
| 35 | | 25 | 25 | 12 | 4017 | 42 | |
| 36 | | 24 | 21 | 17 | 3682 | 43 | |
| 37 | | 28 | 27 | 35 | 4169 | 41 | |
| 38 | | 42 | 30 | 13 | 2010 | 55 | Upset; broken line |
| 39 | 417 | 39 | 26 | 17 | 1968 | 61 | |
| 40 | | 35 | 31 | 25 | 2148 | 56 | |
| 41 | | 42 | 35 | 12 | 2105 | 57 | |
| 42 | | 62 | 32 | 23 | 2396 | 71 | |
| 43 | | 38 | 26 | 15 | 1819 | 71 | |
| 44 | 361 | 31 | 36 | <10 | 2491 | 80 | |
| 45 | | 37 | 33 | 21 | 1850 | 76 | |
| 46 | | 87 | --- | 23 | 2021 | 89 | |
| 47 | | 168 | 42 | 27 | 1840 | 109 | |
| 48 | | 50 | 27 | 11 | 1680 | 101 | |
| 49 | | 47 | 35 | 23 | 1673 | 90 | |
| 50 | | 45 | 37 | <10 | 2451 | 78 | |
| 51 | | 46 | 30 | 19 | 2271 | 88 | |
| 52 | 404 | 90 | 30 | 34 | 2204 | 109 | |
| 53 | 456 | 16 | 12 | <10 | 2289 | 100 | |
| 54 | | 30 | 30 | 12 | 2607 | 84 | |
| 55 | | 29 | 37 | <10 | 2213 | 90 | |
| 56 | | 32 | 30 | 12 | 2015 | 84 | |
| 57 | | 34 | 48 | <10 | 2254 | 80 | |
| 58 | | 64 | 70 | <10 | 2216 | 81 | |
| 59 | 445 | 57 | 56 | <10 | 3121 | 61 | |
| 60 | | 44 | 58 | 10 | 3541 | 56 | |
| 61 | | 41 | 27 | <10 | 3580 | 50 | |
| 62 | | 56 | 30 | 12 | 3733 | 54 | |
| 63 | | 54 | 49 | 16 | 3997 | 50 | |

Table IV (cont'd)

| <u>Day</u> | <u>COD_{INF}</u> | <u>COD_T</u> | <u>COD_F</u> | <u>SS_{EFF}</u> | <u>MLSS</u> | <u>SVI</u> | <u>Remarks</u> |
|---------------|--------------------------|------------------------|------------------------|-------------------------|-------------|------------|--------------------------------|
| 64 | 454 | 112 | 117 | 18 | 3820 | 47 | |
| 65 | | 65 | 37 | 22 | 3916 | 51 | |
| 66 | 461 | 52 | 47 | 26 | 3795 | 50 | |
| 67 | | | | 11 | 3897 | 44 | |
| 68 | 414 | 44 | 36 | 14 | 4319 | 46 | |
| 69 | | | | 26 | 3042 | 49 | |
| <u>FC-200</u> | | | | | | | |
| 1 | | 34 | 32 | 13 | 1491 | 67 | |
| 2 | | 50 | 32 | 39 | 1770 | 51 | |
| 3 | | 51 | 33 | 19 | 1814 | 50 | |
| 4 | 345 | 62 | 32 | 32 | 2083 | 67 | First sample 10 mg/l FC-200 |
| 5 | | 44 | 32 | 29 | 2351 | 51 | |
| 6 | 444 | 52 | 39 | <10 | 2698 | 41 | |
| 7 | | 184 | 66 | 122 | 2038 | 54 | |
| 8 | | 153 | 47 | 27 | 2279 | 57 | |
| 9 | 474 | 111 | 94 | <10 | 2260 | 62 | First sample 20 mg/l FC-200 |
| 10 | 339 | 68 | 46 | 24 | 2100 | 67 | |
| 11 | 402 | 43 | 30 | <10 | 1846 | 54 | |
| 12 | | 104 | 58 | 31 | 1861 | 65 | First sample 50 mg/l FC-200 |
| 13 | | 215 | 162 | 35 | 1700 | 65 | |
| 14 | 375 | 53 | 43 | 20 | 2111 | 62 | |
| 15 | No data | | | | | | |
| 16 | | 79 | 46 | 55 | 2584 | 58 | |
| 17 | | 71 | 47 | 36 | 2146 | 65 | |
| 18 | | 84 | 26 | 44 | 1756 | 68 | |
| 19 | | 49 | 44 | 54 | 1560 | 64 | |
| 20 | 480 | 54 | 50 | 92 | 1231 | 73 | First sample 80 mg/l FC-200 |
| 21 | | 56 | 45 | 22 | 1618 | 68 | |
| 22 | | 114 | 36 | 81 | 1354 | 66 | |

Table IV (cont'd)

| <u>Day</u> | <u>COD_{INF}</u> | <u>COD_T</u> | <u>COD_F</u> | <u>SS_{EFF}</u> | <u>MLSS</u> | <u>SVI</u> | <u>Remarks</u> |
|------------|-----------------------------|------------------------|------------------------|-------------------------|-------------|------------|---------------------------------|
| 23 | | 40 | 38 | 51 | 1635 | 27 | |
| 24 | 484 | 35 | 27 | 14 | 2500 | 60 | |
| 25 | 471 | 79 | 61 | 20 | 2430 | 62 | |
| 26 | | 89 | 36 | 28 | 3139 | 54 | First sample 120 mg/l FC-200 |
| 27 | | 45 | 45 | 11 | 3100 | 45 | |
| 28 | 504 | 61 | 53 | 22 | 3625 | 50 | |
| 29 | | 98 | 56 | 24 | 3266 | 55 | |
| 30 | | 43 | 43 | 35 | 4160 | 48 | |
| 31 | | 61 | 45 | 31 | 4414 | 41 | |
| 32 | 546 | 44 | 39 | 30 | 4654 | 39 | First sample 160 mg/l FC-200 |
| 33 | | 59 | 42 | 10 | 4175 | 50 | |
| 34 | | 90 | 41 | 53 | 3520 | 55 | |
| 35 | | 58 | 54 | 18 | 3374 | 50 | |
| 36 | | 49 | 45 | 19 | 3386 | 53 | |
| 37 | | 41 | 39 | 32 | 3612 | 53 | |
| 38 | | 48 | 39 | 25 | 3982 | 50 | |
| 39 | 551 | 76 | 67 | 15 | 3406 | 59 | First sample 200 mg/l FC-200 |
| 40 | | 98 | 84 | 33 | 3808 | 32 | |
| 41 | | 108 | 108 | 13 | 3758 | 67 | |
| 42 | | 139 | 118 | 117 | 3674 | 63 | |
| 43 | | 134 | 63 | 63 | 3209 | 65 | |
| 44 | 615 | 72 | 67 | <10 | 3749 | 53 | First sample 260 mg/l FC-200 |
| 45 | | --- | --- | 44 | 3470 | 52 | |
| 46 | | 60 | 50 | 20 | 2558 | 63 | |
| 47 | | 139 | 139 | 17 | 2549 | 59 | |
| 48 | | 40 | 39 | <10 | 2211 | 59 | |
| 49 | | 43 | 43 | 23 | 1872 | 69 | |
| 50 | No data; reactor overflowed | | | | | | |
| 51 | No data; reactor overflowed | | | | | | |
| 52 | 645 | 98 | 71 | 10 | 835 | 96 | First sample 320 mg/l |
| 53 | 537 | 170 | 95 | 25 | 1414 | 78 | |

Table IV (cont'd)

| <u>Day</u> | <u>COD_{INF}</u> | <u>COD_T</u> | <u>COD_F</u> | <u>SS_{EFF}</u> | <u>MLSS</u> | <u>SVI</u> | <u>Remarks</u> |
|----------------------------|--------------------------|------------------------|------------------------|-------------------------|-------------|------------|-----------------------------------|
| 54 | | 173 | 97 | 39 | 902 | 499 | |
| 55 | | 180 | 78 | 58 | 962 | 343 | |
| 56 | | 165 | 77 | 46 | 1257 | 684 | |
| 57 | | 86 | 34 | 60 | 2227 | 292 | |
| 58 | | 191 | 66 | 46 | 1433 | 188 | |
| 59 | 671 | 176 | 109 | 70 | 1559 | 603 | |
| 60 | | 158 | 86 | 83 | 1474 | 468 | |
| 61 | | 158 | 110 | 39 | 1149 | 305 | |
| <u>Aerowater 3 Percent</u> | | | | | | | |
| 1 | | 84 | 55 | 37 | 1509 | 60 | |
| 2 | | 53 | 37 | 31 | 1431 | 49 | |
| 3 | | 33 | 27 | 10 | 1522 | 53 | |
| 4 | 418 | 30 | 25 | <10 | 1825 | 49 | First sample 10 mg/l 3 percent |
| 5 | | 52 | 41 | 14 | 2098 | 43 | |
| 6 | 421 | 52 | 48 | <10 | 2305 | 52 | |
| 7 | | 111 | 71 | 32 | 2013 | 50 | |
| 8 | | 84 | 57 | 21 | 2412 | 54 | First sample 20 mg/l 3 percent |
| 9 | 472 | 182 | 89 | <10 | 2062 | 49 | |
| 10 | 449 | 77 | 41 | 33 | 1706 | 41 | |
| 11 | 425 | 46 | 43 | <10 | 1649 | 67 | |
| 12 | | 75 | 43 | 24 | 1904 | 74 | First sample 50 mg/l 3 percent |
| 13 | 394 | 261 | 152 | 65 | 1258 | 70 | |
| 14 | | 46 | 41 | 86 | 1615 | 124 | |
| 15 | No data | | | | | | |
| 16 | | 47 | 47 | 10 | 1575 | 70 | |
| 17 | | 54 | 43 | 12 | 1592 | 85 | |
| 18 | | 68 | 43 | 19 | 1761 | 85 | |
| 19 | | 44 | 44 | 23 | 1810 | 88 | |
| 20 | 457 | 77 | 46 | 36 | 1522 | 72 | First sample 80 mg/l |
| 21 | | 140 | 47 | 112 | 1662 | 90 | |
| 22 | | 37 | 36 | 57 | 1434 | 77 | |

Table IV (cont'd)

| <u>Day</u> | <u>COD_{INF}</u> | <u>COD_T</u> | <u>COD_F</u> | <u>SS_{EFF}</u> | <u>MLSS</u> | <u>SVI</u> | <u>Remarks</u> |
|------------|--------------------------|------------------------|------------------------|-------------------------|-------------|------------|-----------------------|
| 23 | | 46 | 29 | 32 | 1792 | 51 | |
| 24 | 465 | 69 | 32 | 43 | 2310 | 71 | |
| 25 | 457 | 76 | 58 | 22 | 2540 | 71 | |
| 26 | | 60 | 40 | 33 | 3330 | 60 | First sample 120 mg/l |
| 27 | | 47 | 42 | <10 | 3166 | 58 | 3 percent |
| 28 | 465 | 91 | 63 | 22 | 3720 | 48 | |
| 29 | | 78 | 56 | 23 | 2847 | 60 | |
| 30 | | 38 | 33 | 39 | 3682 | 52 | |
| 31 | | 51 | 43 | 37 | 3232 | 56 | |
| 32 | 515 | 41 | 35 | --- | 3736 | 51 | First sample 160 mg/l |
| 33 | | 44 | 27 | 13 | 3441 | 55 | 3 percent |
| 34 | | 37 | 37 | <10 | 3779 | 53 | |
| 35 | | 36 | 37 | 13 | 3880 | 46 | |
| 36 | | 49 | 41 | 28 | 3609 | 53 | |
| 37 | | 45 | 46 | 19 | 3867 | 52 | |
| 38 | | 66 | 48 | 15 | 3626 | 50 | |
| 39 | 528 | 57 | 47 | 24 | 3770 | 53 | First sample 200 mg/l |
| 40 | | 66 | 50 | 35 | 3974 | 58 | 3 percent |
| 41 | | 71 | 56 | 22 | 3637 | 52 | |
| 42 | | 77 | 49 | 40 | 3940 | 53 | |
| 43 | | 47 | 36 | 13 | 4048 | 52 | |
| 44 | 486 | 54 | 57 | 10 | 4519 | 51 | First sample 260 mg/l |
| 45 | | 54 | 66 | 15 | 3896 | 54 | 3 percent |
| 46 | | 62 | 22 | 22 | 4374 | 50 | |
| 47 | | 101 | 56 | 31 | 4272 | 56 | |
| 48 | | 43 | 39 | <10 | 4474 | 51 | |
| 49 | | 61 | 46 | 14 | 4556 | 55 | |
| 50 | | 63 | 55 | <10 | 4949 | 51 | |
| 51 | | 62 | 45 | <10 | 5418 | 42 | |
| 52 | 562 | 63 | 63 | <10 | 5230 | 52 | First sample 320 mg/l |
| 53 | 458 | 65 | 62 | <10 | 6027 | 50 | 3 percent |

Table IV (cont'd)

| <u>Day</u> | <u>COD_{INF}</u> | <u>COD_T</u> | <u>COD_F</u> | <u>SS_{EFF}</u> | <u>MLSS</u> | <u>SVI</u> | <u>Remarks</u> |
|------------|--------------------------|------------------------|------------------------|-------------------------|-------------|------------|-------------------------------------|
| 54 | | 58 | 67 | 18 | 5857 | 51 | |
| 55 | | 112 | 65 | 11 | 5830 | 45 | |
| 56 | | 106 | 73 | 13 | 4709 | 42 | |
| 57 | | 75 | 74 | <10 | 5172 | 43 | |
| 58 | | 103 | 93 | 11 | 5152 | 37 | |
| 59 | 634 | 152 | 105 | 23 | 2490 | 40 | First sample* 400 mg/l 3 percent |
| 60 | | 140 | 100 | 49 | 2858 | 35 | |
| 61 | | 121 | 82 | 36 | 2867 | 35 | |
| 62 | | 122 | 79 | 37 | 3374 | 36 | |
| 63 | | 90 | 92 | 152 | 2977 | 34 | |
| 64 | 530 | 110 | 98 | 21 | 3456 | 32 | |
| 65 | | 93 | 90 | 20 | 4061 | 30 | |
| 66 | 722 | 102 | 69 | 35 | 4026 | 35 | First sample 600 mg/l 3 percent |
| 67 | | --- | --- | 38 | 3664 | 27 | |
| 68 | 659 | 304 | 77 | 100 | 2654 | 30 | |
| 69 | | 412 | 98 | 147 | --- | --- | |

*Foaming causing bacteria to wash out of reactor

Aerowater 6 Percent

| | | | | | | | |
|----|-----|-----|-----|-----|------|-----|------------------------------------|
| 1 | | --- | --- | --- | 3051 | 187 | |
| 2 | | 69 | 49 | 35 | 3565 | 79 | |
| 3 | | 48 | 19 | 15 | 3506 | 80 | |
| 4 | | 61 | 30 | 31 | 3451 | 72 | First sample 75 mg/l 6 percent |
| 5 | | 46 | 51 | 11 | 4048 | 67 | |
| 6 | | 155 | 89 | 19 | 4227 | 62 | |
| 7 | 510 | 69 | 50 | 13 | 4485 | 65 | First sample 125 mg/l 6 percent |
| 8 | | 41 | 31 | 15 | 4094 | 66 | |
| 9 | | --- | --- | <10 | 3994 | 60 | |
| 10 | | 53 | 58 | 13 | 4636 | 58 | First sample 200 mg/l 6 percent |

Table IV (cont'd)

| <u>Day</u> | <u>COD_{INF}</u> | <u>COD_T</u> | <u>COD_F</u> | <u>SS_{EFF}</u> | <u>MLSS</u> | <u>SVI</u> | <u>Remarks</u> |
|------------|--------------------------|------------------------|------------------------|-------------------------|-------------|------------|----------------|
| 11 | | --- | --- | 29 | 4590 | 61 | |
| 12 | | 61 | 58 | <10 | 3190 | 72 | |
| 13 | | 39 | 40 | 17 | 2712 | 92 | |

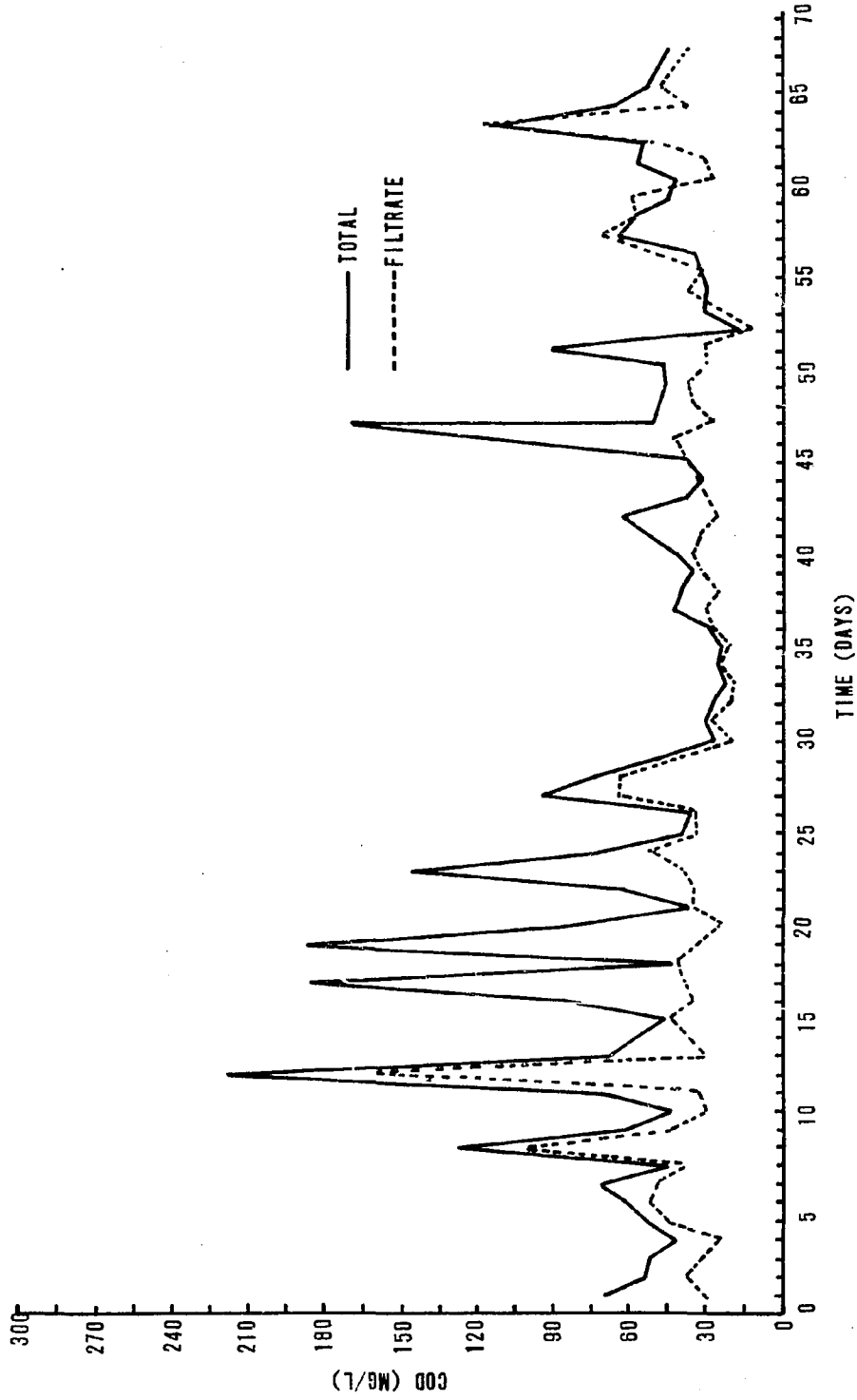


Figure 12. Test 2, Activated Sludge Effluent COD Control

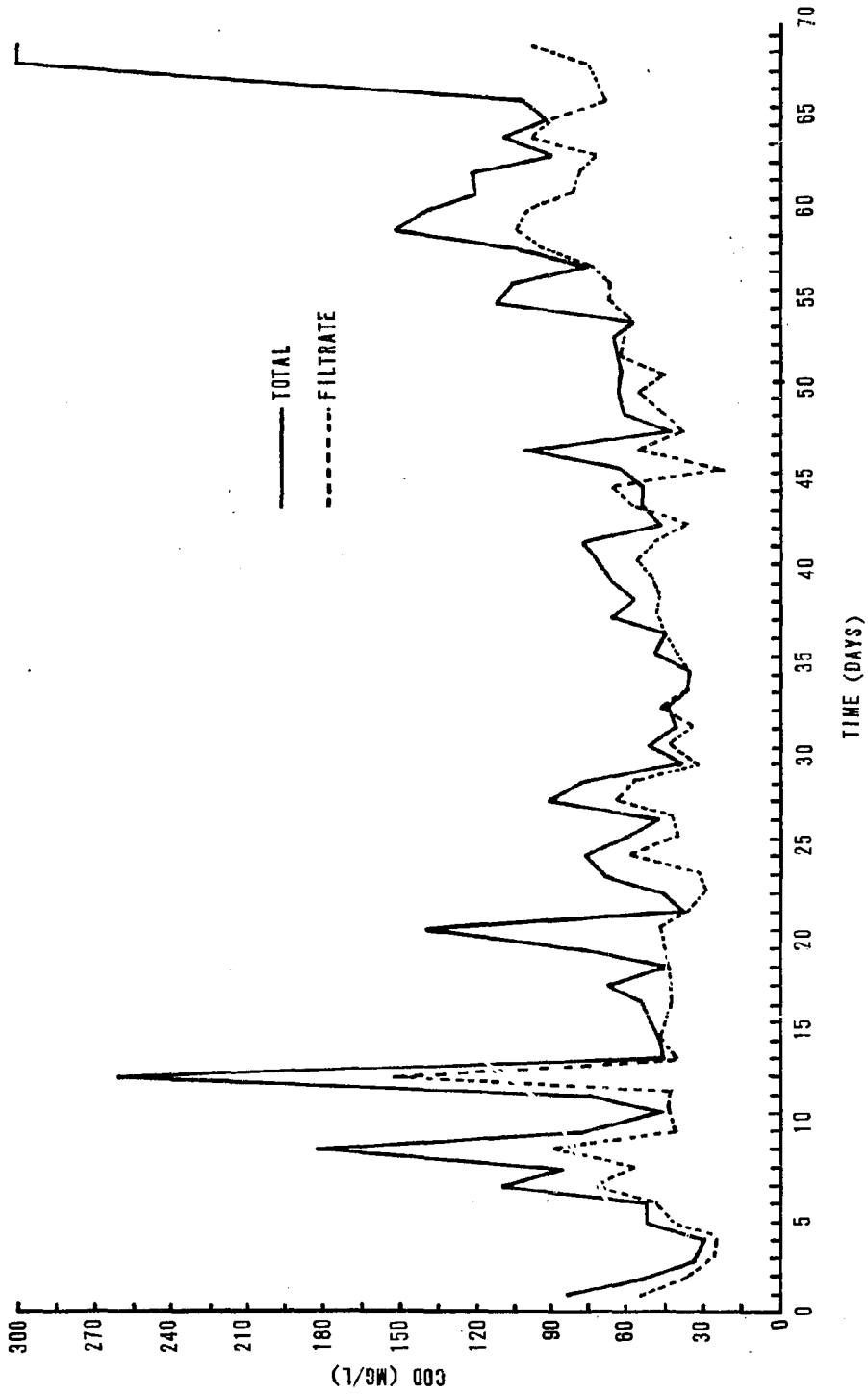


Figure 13. Test 2, Activated Sludge Effluent COD, FC-200

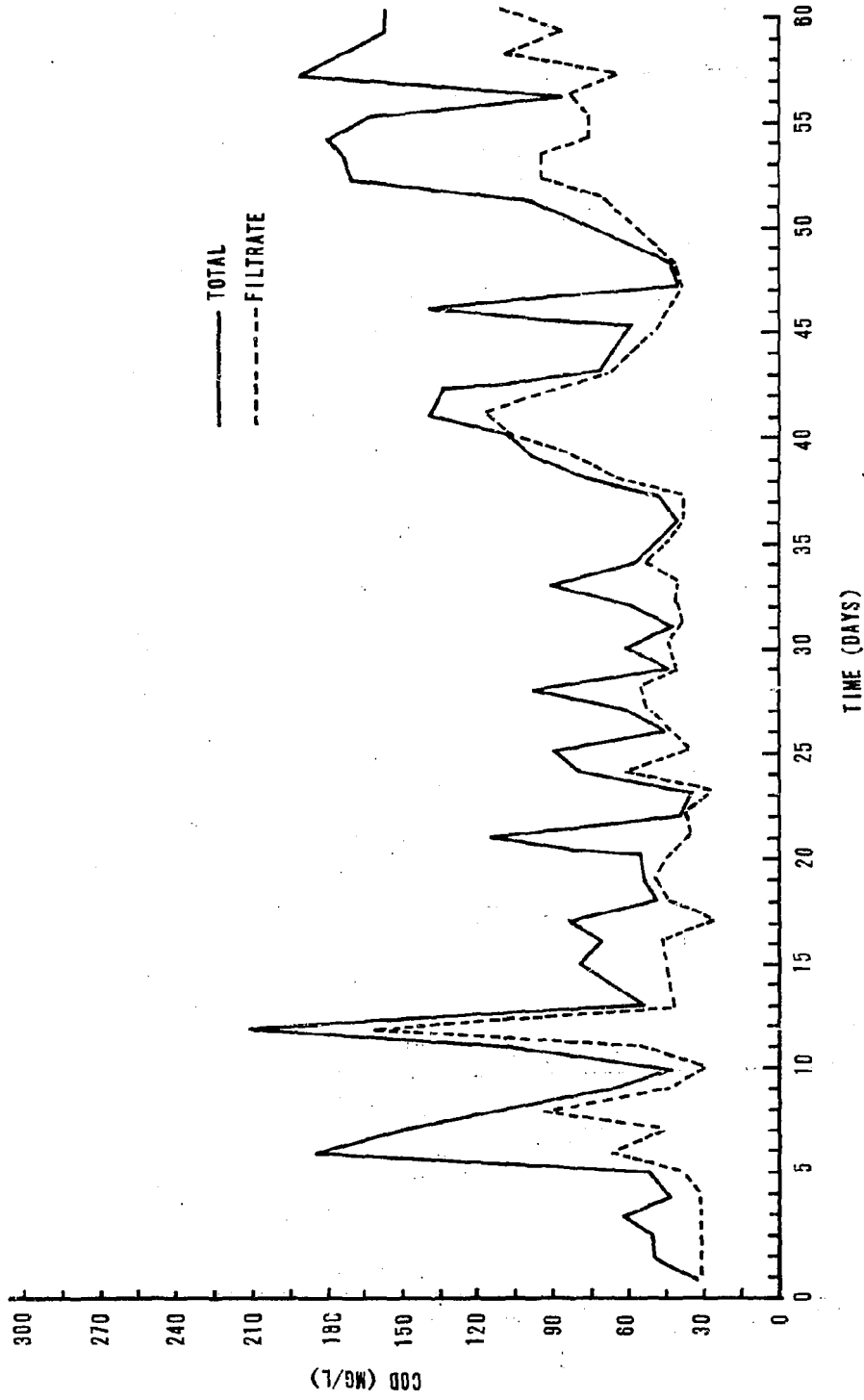


Figure 14. Test 2, Activated Sludge Effluent COD, Aerowater 3 Percent

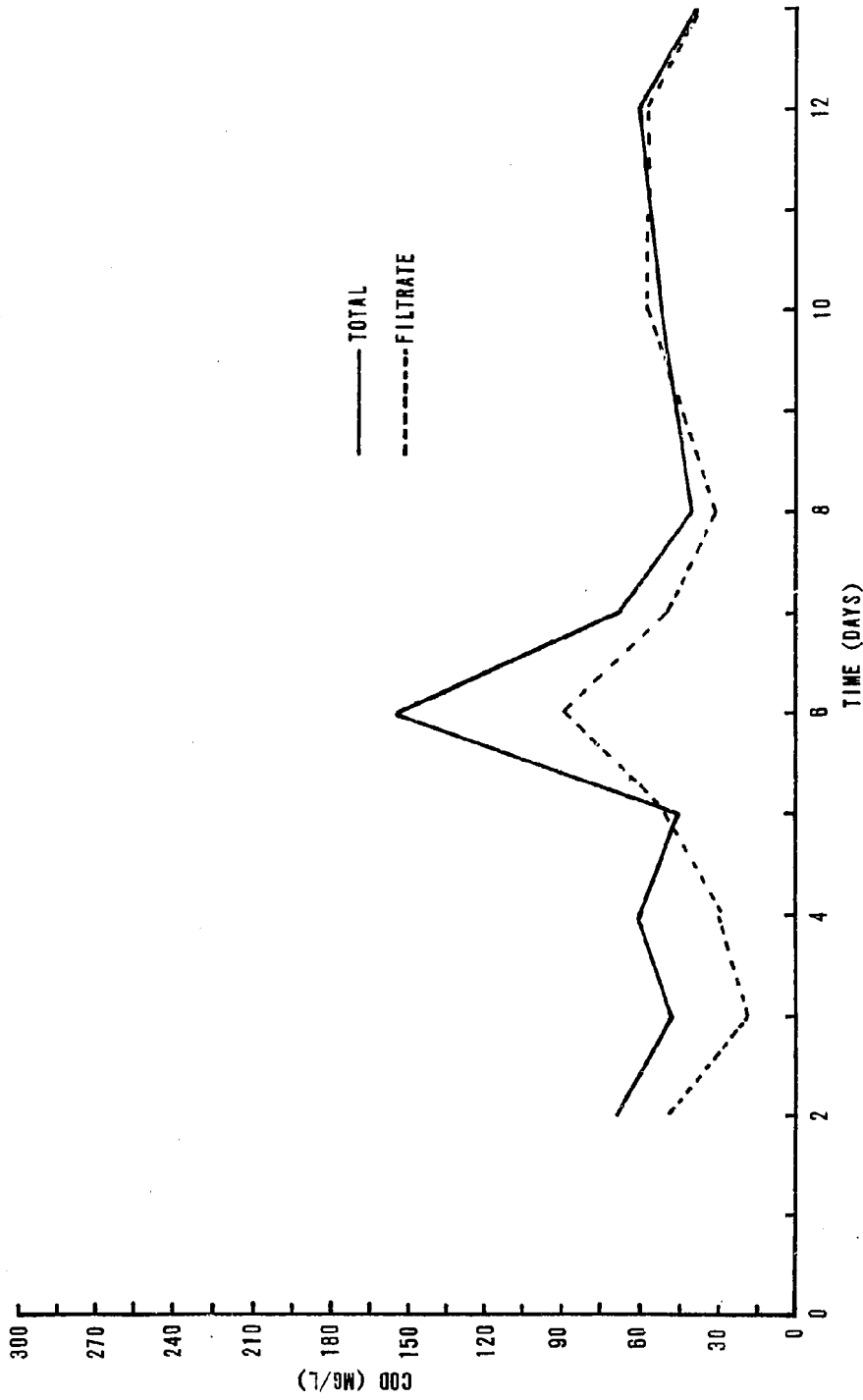


Figure 15. Test 2, Activated Sludge Effluent COD, Aerowater 6 Percent

degrade. This is several days after the reactor had been receiving 160 mg/l of FC-200. On days 50 and 51 the overflow line from the reactor to the clarifier plugged during the night. The reactor spilled over and washed out much of the MLSS. From that point on the reactor was unable to recover, and the effluent quality degraded seriously.

The effect of Aerowater 3 percent on the activated sludge process for test 2 is shown in figure 14. Again, unsteady performance was observed during the dosing of low concentrations of Aerowater 3 percent on days 4 through 14. After day 14 performance evened out, with the exception of day 21 when the effluent contained a high concentration of effluent suspended solids. This appears to have been caused by the increase of the Aerowater 3 percent concentration to 80 mg/l. At about day 35 the total and filtrate effluent COD began to rise gradually, apparently in response to increasing concentrations of Aerowater 3 percent. On day 53 effluent quality degraded rapidly in response to the increase of Aerowater 3 percent concentration to 320 mg/l. This degradation in effluent quality would have occurred sooner except that the MLSS was allowed to rise to over 5000 mg/l.

As stated earlier, reactor 4 was restarted on Aerowater 6 percent primarily to obtain an effluent for the toxicity experiments which were conducted at 200 mg/l of AFFF. Even though the Aerowater 6 percent concentration was increased relatively faster than for the other AFFFs, effluent quality (with the exception of day 6) was consistent and acceptable when measured against the control.

c. Test 3

Recognizing that slug loads of AFFFs would occur at domestic wastewater treatment plants, an attempt was made to determine what impact would result from such undesirable occurrences. Unacclimated activated sludge reactors were slug loaded with 200 mg/l of FC-200 and Aerowater 6 percent, then increased in the case of Aerowater 6 percent to 400 mg/l. The results of these slug loadings are listed in table V and figure 16 for FC-200 and in figure 17 for Aerowater 6 percent.

For FC-200 it was observed that 200 mg/l led to large volumes of foam which encapsulated much of the MLSS, carrying them out of the reactor. Effluent COD increased dramatically on day 7 (FC-200 was added the evening of day 6) and though the effluent COD decreased sharply on day 8, the upset for day 7 was clearly unacceptable.

Table V

ACTIVATED SLUDGE ANALYSES, TEST 3, SLUG LOADING

| <u>Day</u> | <u>COD_{INF}</u> | <u>COD_T</u> | <u>COD_F</u> | <u>SS_{EFF}</u> | <u>MLSS</u> | <u>SVI</u> | <u>Remarks</u> |
|----------------------------|--------------------------|------------------------|------------------------|-------------------------|-------------|------------|------------------------------------|
| <u>FC-200</u> | | | | | | | |
| 1 | | 112 | 22 | 33 | 1552 | 64 | |
| 2 | | 139 | 42 | 77 | 1692 | 236 | |
| 3 | 446 | 95 | 59 | 49 | 1892 | 476 | |
| 4 | | 79 | 47 | 34 | 3120 | 212 | |
| 5 | 445 | 85 | 31 | 36 | 3604 | 72 | |
| 6 | | --- | --- | 37 | 3526 | 65 | |
| 7 | 556 | 420 | 96 | 274 | 2478 | 77 | First sample 200 mg/l FC-200 |
| 8 | | 110 | 110 | 257 | --- | --- | Uncontrollable foaming |
| <u>Aerowater 6 Percent</u> | | | | | | | |
| 1 | | 61 | 58 | <10 | 3190 | 72 | At 200 mg/l 6 percent |
| 2 | | 39 | 40 | 17 | 2712 | 92 | |
| 3 | 535 | 31 | 31 | <10 | 3481 | 126 | |
| 4 | | 64 | 55 | --- | --- | --- | |
| 5 | 646 | 175 | 71 | 51 | 3093 | 259 | First sample 400 mg/l 6 percent |
| 6 | | 374 | 133 | 120 | 2755 | 334 | |
| 7 | | 435 | 135 | 121 | 3204 | 179 | |
| 8 | 628 | 183 | 125 | 47 | 3779 | 233 | |
| 9 | | 209 | 134 | 59 | 3724 | 207 | |
| 10 | | 194 | 112 | 83 | 4093 | 230 | |
| 11 | | 217 | 104 | 69 | 3995 | 235 | |

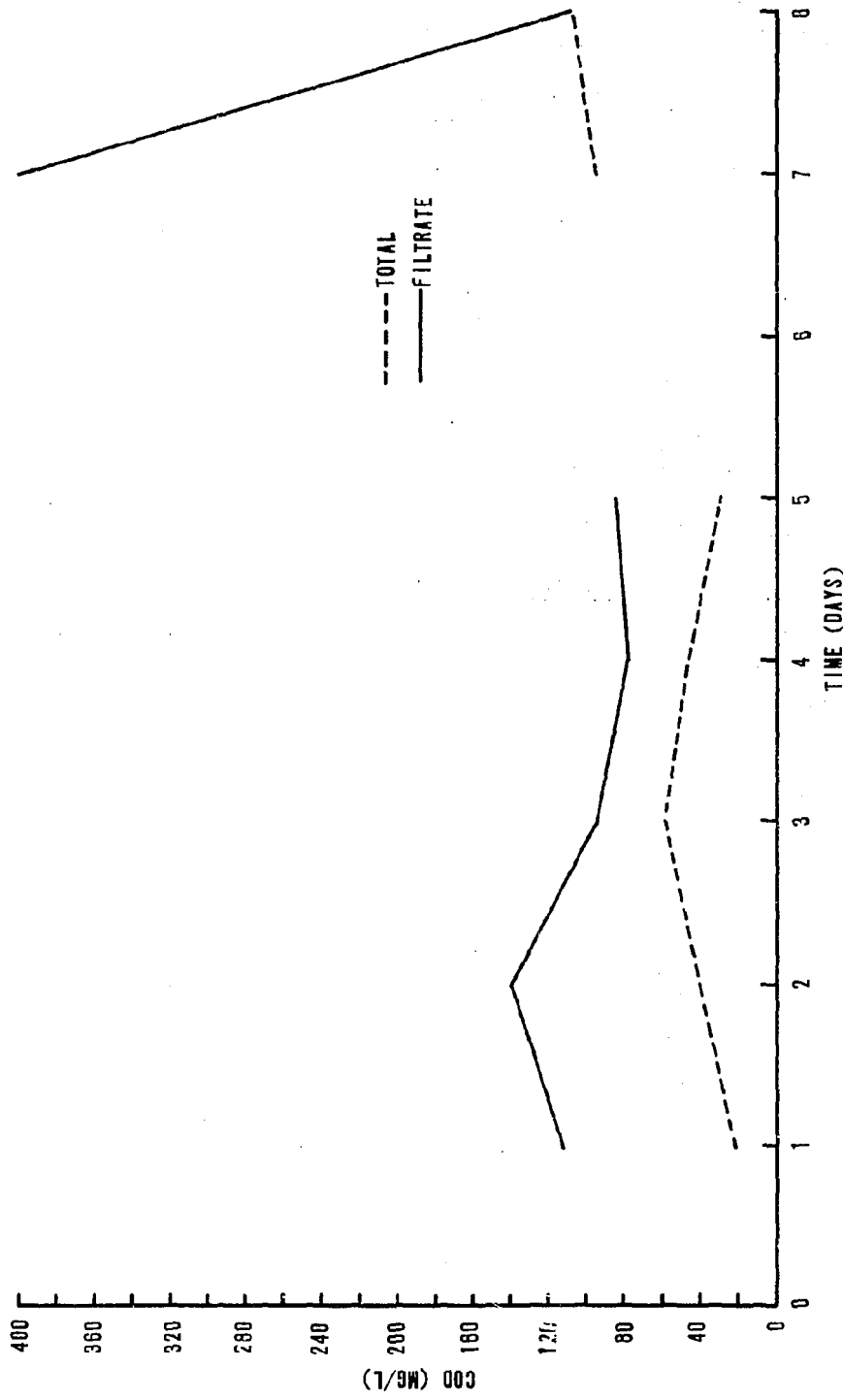


Figure 16. Test 3, Slug Loading, FC-200, Activated Sludge Effluent COD

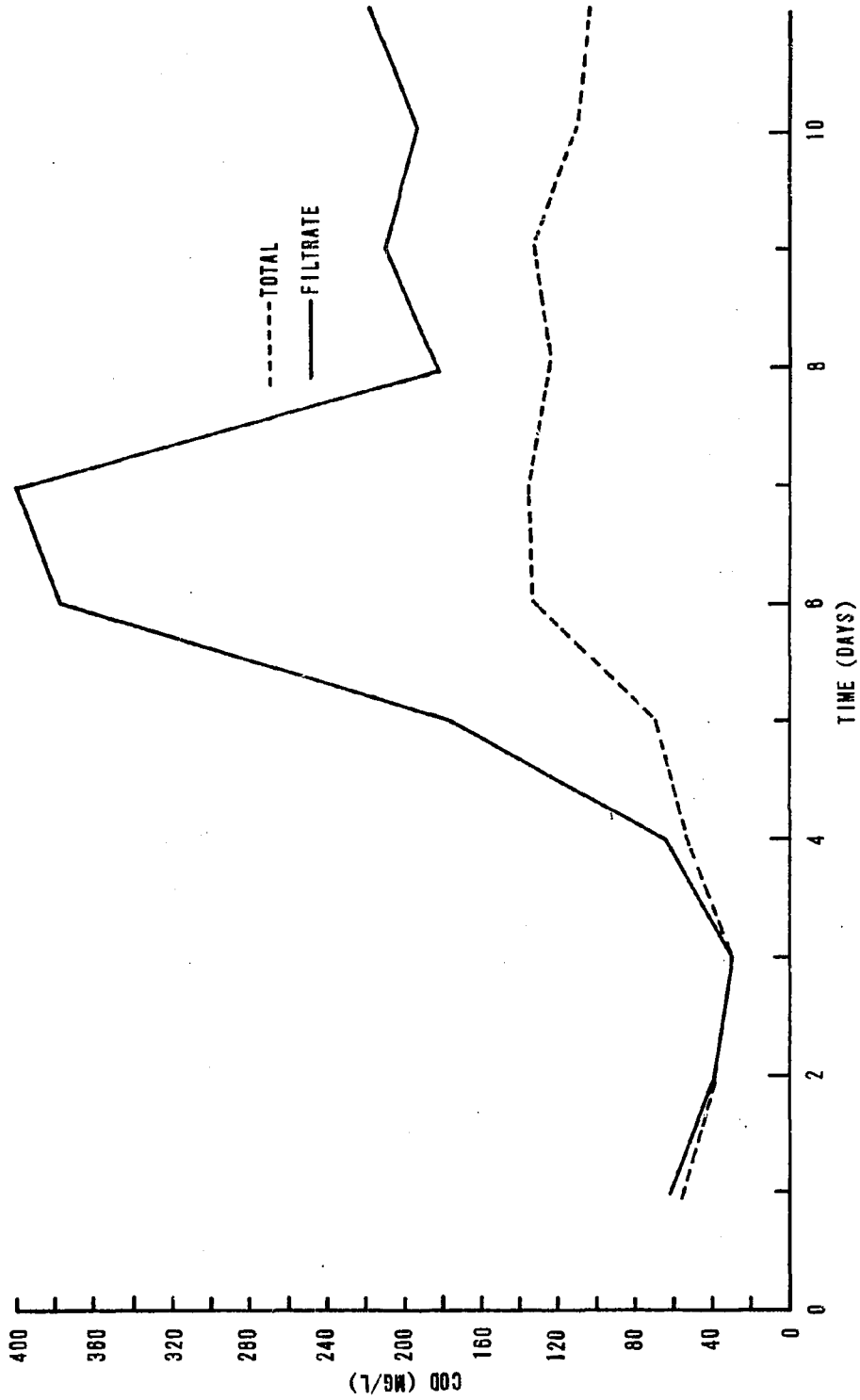


Figure 17. Test 3, Slug Loading, Aerowater 6 Percent, Activated Sludge Effluent COD

The slug load of 200 mg/l of Aerowater 6 percent did not appear to cause any drastic effects on the reactor performance, as shown in figure 17. Therefore, on day 4 the concentration was doubled, after which the total and filtrate effluent COD climbed rapidly, coupled with decreasing settlability. Thus, it appeared that the unacclimated reactor could tolerate a slug load of 200 mg/l but not 400 mg/l.

d. Summary of Activated Sludge Results

Summarizing the results of the activated sludge experiments, average percent COD removal and average effluent COD is plotted against influent AFFF concentration in figures 18 through 20. These figures were constructed by averaging the effluent COD values for a given influent AFFF and then connecting the lines between each point, thus permitting determination of where the effluent quality begins to decrease. Percent COD removal was plotted for both total and filtrate. Effluent COD was plotted for just the total. It must be remembered that increasing the AFFF concentration causes an increase in the influent COD (10 mg/l FC-200 \cong 7 mg/l COD, 10 mg/l Aerowater 3 percent \cong 5 mg/l COD, and 10 mg/l Aerowater 6 percent \cong 4.5 mg/l COD). Therefore, even if the same percent COD removal was obtained after increasing the AFFF concentration, the effluent COD would be higher. For this reason a more practical value is placed on the effluent COD curves.

For FC-200 (figure 18) it is seen that percent COD removal tends to increase and effluent COD tends to decrease up to 160 mg/l. The percent removal increase can be explained by the increasing influent COD attributed to the FC-200. The effluent COD decrease can be attributed to either unsteady performance initially or possibly to an inhibiting effect of the FC-200 on the unacclimated microorganisms. Effluent COD takes a sharp rise between 160 to 200 mg/l; however, at 260 mg/l the effluent COD decreases significantly. Since these are averaged values, these phenomena are not readily explainable.

In figure 19 it is seen that for Aerowater 3 percent the percent COD removal, total and filtrate, shows a gradual decline above an influent concentration of 160 mg/l. However, between 400 and 600 mg/l the percent filtrate COD removal remained constant, while the percent total COD removal dropped significantly. This is explained by the increased effluent suspended solids concentration. For the effluent COD there is a decrease in concentration up to 120 mg/l influent Aerowater 3 percent which, like FC-200, is attributed to

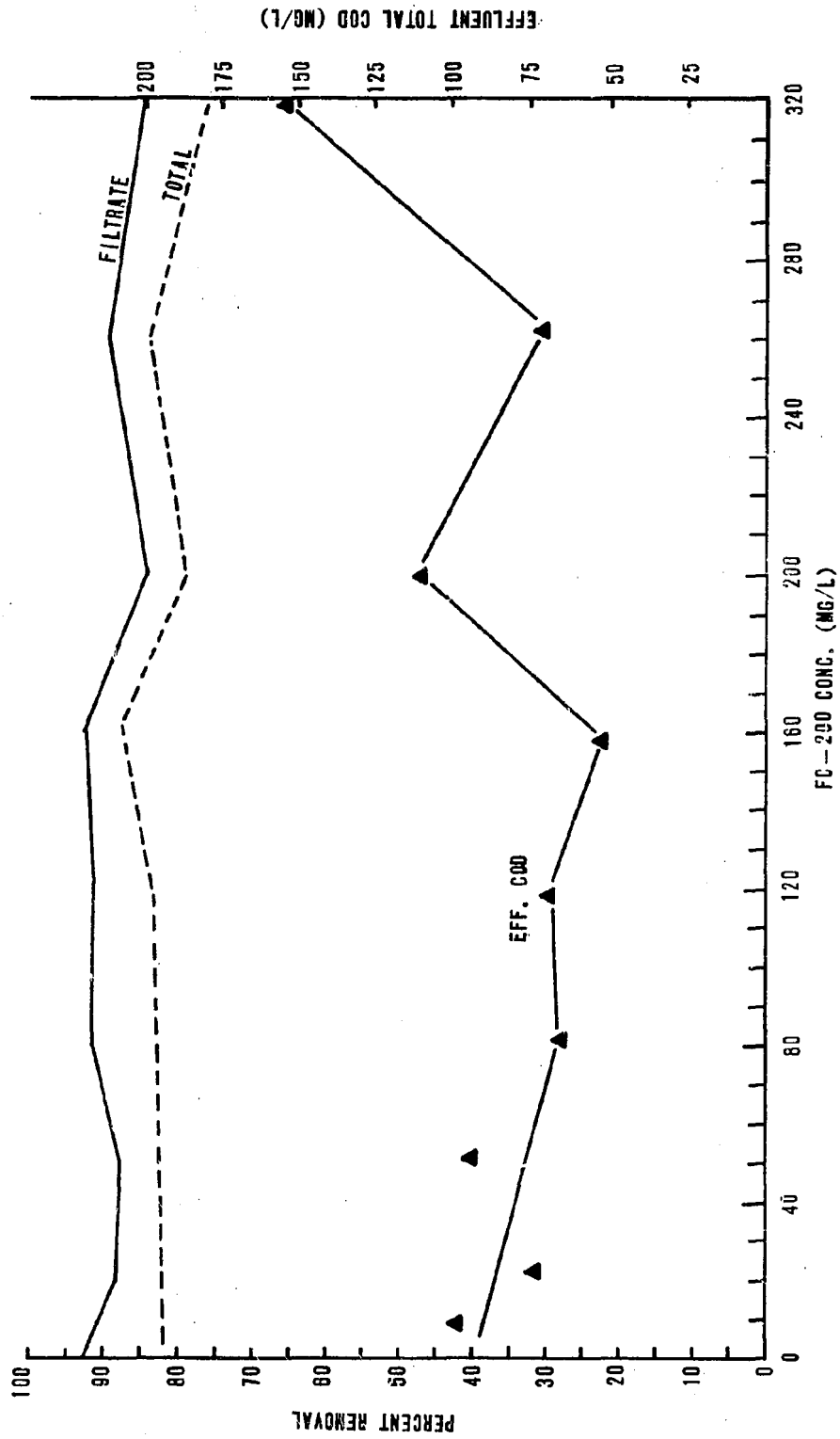


Figure 18. Percent COD Removal and Effluent COD versus Influent Concentration, Activated Sludge, FC-200

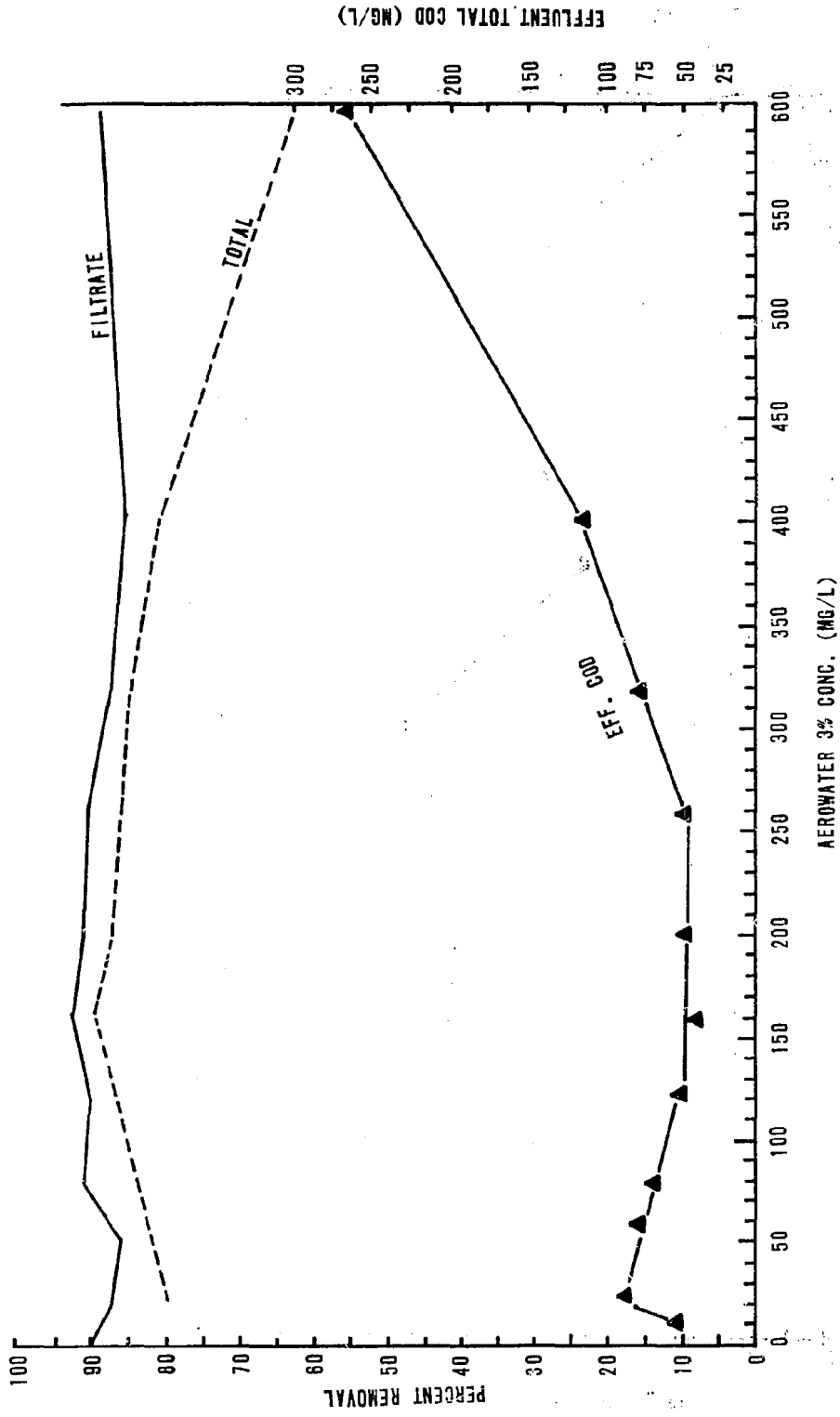


Figure 19. Percent COD Removal and Effluent COD versus Influent Concentration, Activated Sludge, Aerowater 3 Percent

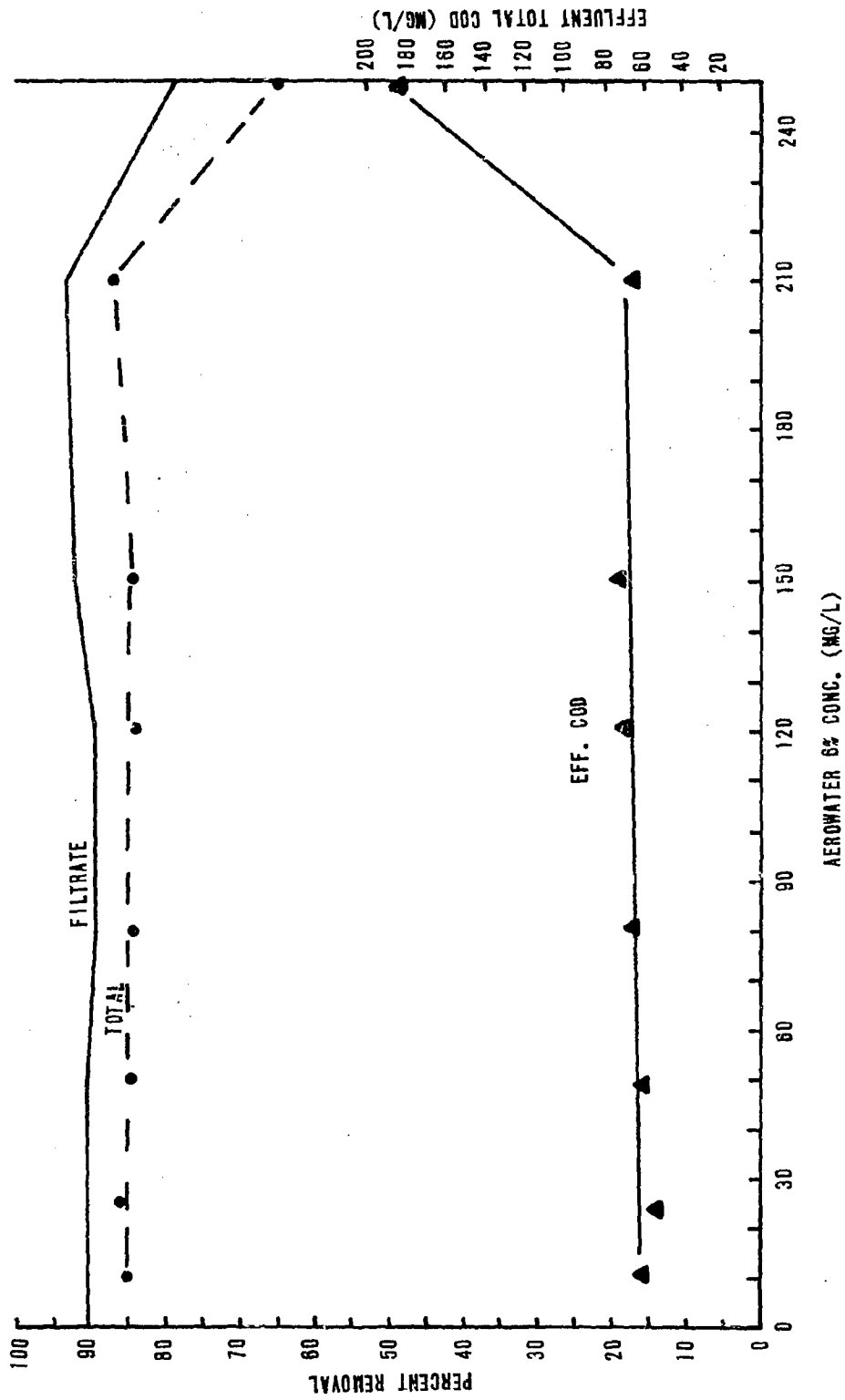


Figure 20. Percent COD Removal and Effluent COD versus Influent Concentration, Activated Sludge, Aerowater 6 Percent

either unsteady performance initially or an initial inhibiting effect. Above 250 mg/l the effluent COD increases to clearly unacceptable levels.

Summarizing the effects of Aerowater 6 percent on the activated sludge process, it is seen from figure 20 that total effluent COD increased quite gradually up to 210 mg/l, above which there was a sharp increase. This is reflected by the percent COD removal curves. Effluent CODs of 60 to 70 mg/l are as expected from a reasonably well-operated activated sludge plant.

4. TRICKLING FILTER EXPERIMENTS

a. Test 1

The data collected for test 1 are demonstrated in table VI and in figures 21 and 22. As stated in section III, test 1 was conducted with no recycle of the effluent. The hydraulic loading was 200 gpd/ft². Since both columns were receiving AFFFs and there were no additional columns available, a control was not run concurrently. However, just before the dosing of the AFFF, both columns A and B were achieving 75 to 85 percent COD removal when receiving synthetic wastewater. Samples were taken from the two sampling ports and the final discharge. These data are presented in table VI. Only the final discharge is presented in the figures to avoid cluttering of the illustrations. During Test 1, sloughing of the microorganisms was moderate and observed to be at a relatively constant rate. It is seen from table VI that, in general, for both FC-200 and Aerowater 6 percent, most of the COD removal occurred between sample port 2 and the final discharge. This is contrary to expected performance for standard trickling filters receiving domestic wastewater. This, coupled with the fact that the COD concentrations at sample ports 1 and 2 were frequently the same value with sample port 2 sometimes having higher COD than sample port 1, leads to the assumption that the samples taken at sample ports 1 and 2 were unrepresentative.

From figure 21 for FC-200 it is seen that the effluent CODs from the final discharge were quite erratic but do demonstrate an increasing effluent concentration with time (increasing FC-200 concentration). Essentially, the same observation is made for Aerowater 6 percent in that the effluent CODs were clearly unacceptable by the time 160 mg/l of AFFF was reached; the columns were converted back to receiving only synthetic wastewater on day 25.

Table VI
 TRICKLING FILTER ANALYSES, TEST 1, NO RECYCLE
 [COD (mg/l)]

| <u>Day</u> | <u>Influent</u> | <u>Port 1</u> | <u>Port 2</u> | <u>Final discharge</u> | <u>Remarks</u> |
|------------|-----------------|---------------|---------------|----------------------------|---------------------------------|
| | | | <u>FC-200</u> | | |
| 1 | | 331 | 331 | 60 | |
| 2 | | 411 | 359 | 103 | First sample 25 mg/l FC-200 |
| 3 | | 350 | 293 | 98 | |
| 4 | | 208 | 216 | 74 | |
| 5 | | 296 | 264 | 86 | |
| 6 | 373 | 271 | 240 | 95 | First sample 50 mg/l FC-200 |
| 7 | | 279 | 256 | 85 | |
| 8 | | 238 | 234 | 83 | |
| 9 | | 197 | 205 | 65 | |
| 10 | | 165 | 213 | 88 | |
| 11 | | 163 | 202 | 120 | |
| 12 | 368 | 182 | 253 | 96 | First sample 80 mg/l FC-200 |
| 13 | | 245 | 285 | 111 | |
| 14 | | 310 | 278 | 94 | |
| 15 | | 278 | 242 | 88 | |
| 16 | | 248 | 240 | 106 | First sample 120 mg/l FC-200 |
| 17 | | 326 | 294 | 110 | |
| 18 | | 397 | 413 | 113 | |
| 19 | | 411 | 340 | 158 | |
| 20 | 550 | 387 | 308 | 133 | First sample 160 mg/l FC-200 |
| 21 | | 368 | 225 | 186 | |
| 22 | | 400 | 354 | 300 | |
| 23 | | 377 | 392 | 285 | |
| 24 | | 226 | 365 | 201 | |
| 25 | | 414 | 367 | 176 | |

Table VI (cont'd)

| <u>Day</u> | <u>Influent</u> | <u>Port 1</u> | <u>Port 2</u> | <u>Final discharge</u> | <u>Remarks</u> |
|------------|-----------------|----------------------------|---------------|----------------------------|------------------------------------|
| | | <u>Aerowater 6 Percent</u> | | | |
| 1 | | 317 | 314 | 67 | First sample 25 mg/l 6 percent |
| 2 | | 296 | 348 | 89 | |
| 3 | | 386 | 337 | 81 | |
| 4 | | 220 | 252 | 70 | |
| 5 | | 216 | 304 | 62 | |
| 6 | 357 | 136 | 209 | 74 | First sample 50 mg/l 6 percent |
| 7 | | 120 | 213 | 74 | |
| 8 | | 155 | 202 | 100 | |
| 9 | | 110 | 173 | 61 | |
| 10 | | 189 | 193 | 54 | |
| 11 | | 83 | 163 | 94 | |
| 12 | 364 | 150 | 174 | 152 | First sample 80 mg/l 6 percent |
| 13 | | 91 | 202 | 146 | |
| 14 | | 246 | 214 | 146 | |
| 15 | | 111 | 206 | 122 | |
| 16 | | 205 | 181 | 80 | First sample 120 mg/l 6 percent |
| 17 | | 290 | 278 | 115 | |
| 18 | | 294 | 270 | 95 | |
| 19 | | 372 | 304 | 126 | |
| 20 | 484 | 332 | 324 | 117 | First sample 160 mg/l 6 percent |
| 21 | | 298 | 306 | 134 | |
| 22 | | 377 | 300 | 192 | |
| 23 | | 338 | 269 | 177 | |
| 24 | | --- | 274 | 89 | |
| 25 | | 348 | 270 | 109 | |

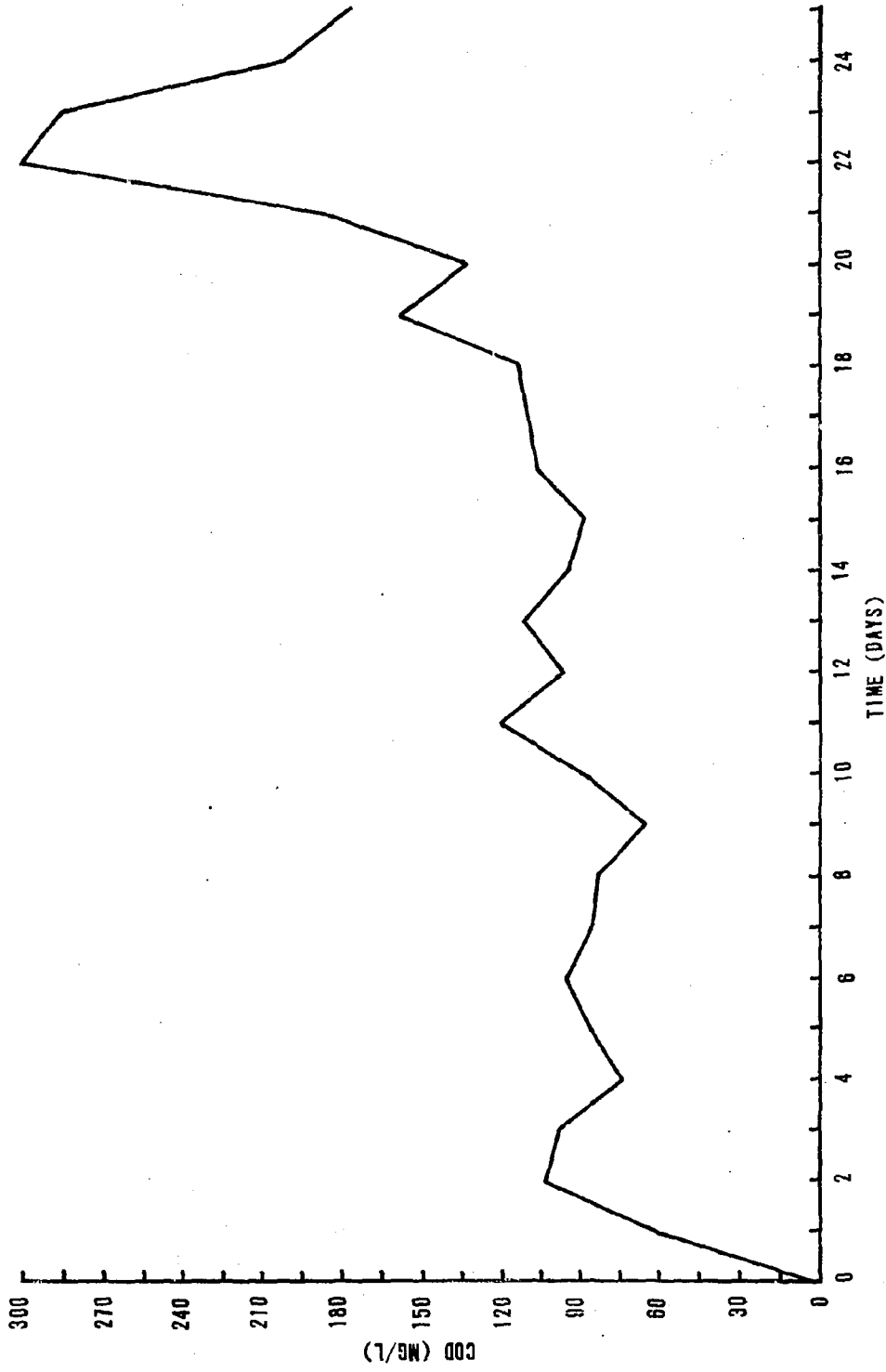


Figure 21. Trickling Filter Effluent COD (No Recycle), FC-200

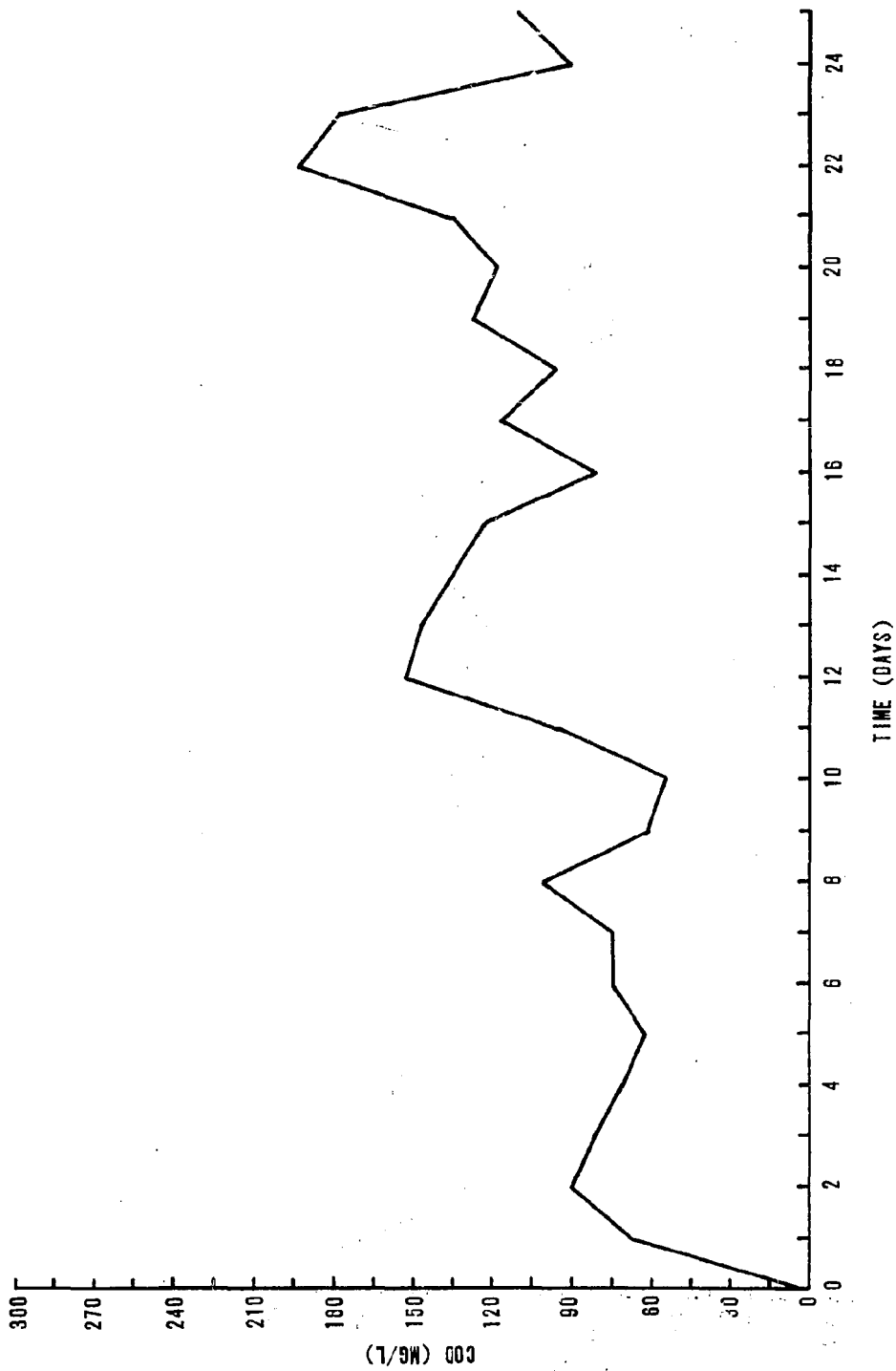


Figure 22. Trickling Filter Effluent COD (No Recycle), Aerowater: 6 Percent

b. Test 2

Test 2 consisted of dosing the columns with equal volumes of influent and recycled effluent, i.e., one-to-one recycle. The recycle was taken from the collection basin to which the final discharge entered. As stated in section III, the hydraulic loading was 200 gpd/ft² (8150 l/day/m²) of which 100 gpd/ft² was synthetic wastewater plus AFFF and 100 gpd/ft² was recycled effluent. After test 1, the columns were dosed with synthetic wastewater for 9 days, at which time it was considered acceptable to begin adding the FC-200 and Aerowater 6 percent. Table VII and figures 23 and 24 represent the results for test 2. It should be noted that the influent listed in table VII is that which was in the feed tank and not that which entered the top of the column. The COD concentration entering the top of the column at any time would equal the feed tank COD plus the recycled effluent COD divided by 2.

From figure 23 it is seen that for the trickling filter column receiving FC-200, no change in performance at the final discharge is observed up to about day 36, at which time the FC-200 concentration was increased to 200 mg/l. However, even up to this point the effluent COD was higher than expected and quite variable. Above 200 mg/l FC-200 effluent quality started to degrade beyond the already less than acceptable quality.

Recycling of effluent is a common practice in the operation of trickling filters to improve effluent quality. For the trickling filter loaded with FC-200, recycling the effluent did not improve performance but rather had some deleterious effects when the data is compared against test 1. However, there is insufficient data to determine if this occurrence is caused by the FC-200.

Figure 24 illustrates the performance of the trickling filter receiving Aerowater 6 percent during test 2. It can be seen that up to 300 mg/l of Aerowater 6 percent, influent to the trickling filter, there was no observed degradation of effluent quality. When compared against the data of test 1 (figure 22), it is seen that recycle of the effluent, which in turn lowers the organic loading, permitted the achievement of higher AFFF loadings than without recycle, while still yielding acceptable effluent quality.

c. Summary of Trickling Filter Results

Summarizing the results of the two trickling filter tests, influent AFFF concentration is plotted against averaged percent COD removal and effluent COD concentration for both no recycle and one-to-one recycle. This is plotted

Table VII
 TRICKLING FILTER ANALYSES, TEST 2, ONE-TO-ONE RECYCLE
 [COD (mg/l)]

| <u>Day</u> | <u>Influent</u> | <u>Port 1</u> | <u>Port 2</u> | <u>Final discharge</u> | <u>Remarks</u> |
|----------------------------|-----------------|---------------|---------------|------------------------|--------------------------------|
| <u>FC-200</u> | | | | | |
| 1 | | 234 | 191 | 127 | |
| 2 | | 184 | 160 | 112 | |
| 3 | | 244 | 220 | 124 | |
| 4 | | 192 | 200 | 128 | |
| 5 | | 288 | 264 | 144 | |
| 6 | | 212 | 248 | 64 | |
| 7 | | 236 | 216 | 78 | |
| 8 | | 273 | 301 | 98 | |
| 9 | | 301 | 294 | 123 | |
| <u>Aerowater 6 Percent</u> | | | | | |
| 1 | | --- | 139 | 87 | |
| 2 | | 96 | 76 | 52 | |
| 3 | | 100 | 80 | 36 | |
| 4 | | 80 | 72 | 36 | |
| 5 | | 164 | 96 | 24 | |
| 6 | | 156 | 64 | --- | |
| 7 | | 100 | 40 | 29 | |
| 8 | | 203 | 210 | 78 | |
| 9 | | 231 | 203 | 95 | |
| <u>FC-200</u> | | | | | |
| 1 | 488 | 321 | 294 | 106 | First sample 25 mg/l FC-200 |
| 2 | | 369 | 282 | 121 | |
| 3 | | 351 | 311 | 164 | |
| 4 | | 319 | 295 | 129 | |
| 5 | | 315 | 287 | 126 | |
| 6 | | 344 | 328 | 147 | |
| 7 | | 246 | 354 | 210 | |
| 8 | 484 | 329 | 298 | --- | First sample 50 mg/l FC-200 |

Table VII (cont'd)

| <u>Day</u> | <u>Influent</u> | <u>Port 1</u> | <u>Port 2</u> | <u>Final discharge</u> | <u>Remarks</u> |
|------------|-----------------|---------------|---------------|------------------------|---------------------------------|
| 9 | | 341 | 333 | 286 | |
| 10 | | 333 | 318 | 274 | |
| 11 | | 372 | 348 | 288 | |
| 12 | | 335 | 314 | 218 | |
| 13 | | 242 | 222 | 165 | |
| 14 | | 256 | 232 | 140 | |
| 15 | | 320 | 304 | 240 | First sample 80 mg/l FC-200 |
| 16 | | 203 | 203 | 147 | |
| 17 | | 271 | 283 | 195 | |
| 18 | | 232 | 232 | 192 | |
| 19 | | 292 | 240 | 224 | |
| 20 | | 160 | 144 | 128 | |
| 21 | 524 | 240 | 176 | 192 | First sample 120 mg/l FC-200 |
| 22 | | 320 | 312 | 240 | |
| 23 | | 202 | 165 | 133 | |
| 24 | No data | | | | |
| 25 | | 218 | 198 | 117 | |
| 26 | | 292 | 276 | 196 | |
| 27 | | 140 | 124 | 112 | |
| 28 | | 176 | 152 | 116 | |
| 29 | 584 | 304 | 280 | 192 | First sample 160 mg/l FC-200 |
| 30 | | 384 | 360 | 256 | |
| 31 | | 352 | 304 | 224 | |
| 32 | | 372 | 368 | 272 | |
| 33 | | 264 | 220 | 196 | |
| 34 | | 240 | 232 | 200 | |
| 35 | | 200 | 152 | 112 | |
| 36 | 559 | 269 | 281 | 225 | |
| 37 | 618 | 285 | 277 | 245 | First sample 200 mg/l FC-200 |
| 38 | | 457 | 394 | 378 | |
| 39 | | 449 | 201 | 386 | |

Table VII (cont'd)

| <u>Day</u> | <u>Influent</u> | <u>Port 1</u> | <u>Port 2</u> | <u>Final discharge</u> | <u>Remarks</u> |
|----------------------------|-----------------|---------------|---------------|------------------------|-----------------------------------|
| 40 | | 465 | 457 | 433 | |
| 41 | | 394 | 386 | 337 | |
| 42 | | 424 | 424 | 384 | |
| 43 | 592 | 424 | 416 | 380 | |
| 44 | | 432 | 408 | 368 | |
| 45 | 587 | 272 | 224 | 192 | First sample 250 mg/l FC-200 |
| 46 | | 280 | 216 | 224 | |
| 47 | | 237 | 213 | 213 | |
| 48 | | 153 | 145 | 153 | |
| 49 | | 269 | 277 | 237 | |
| 50 | 640 | 308 | 286 | 271 | First sample 300 mg/l FC-200 |
| 51 | | 401 | 318 | 303 | |
| 52 | | 320 | 288 | 268 | |
| 53 | | 336 | 272 | 216 | |
| 54 | | 337 | 305 | 265 | |
| <u>Aerowater 6 Percent</u> | | | | | |
| 1 | 464 | 194 | 194 | 119 | First sample 25 mg/l 6 percent |
| 2 | | --- | 143 | 113 | |
| 3 | | 223 | 179 | 83 | |
| 4 | | 147 | 128 | 61 | |
| 5 | | 150 | 134 | 36 | |
| 6 | | 214 | 176 | 58 | |
| 7 | | 103 | 56 | 52 | |
| 8 | 468 | 198 | 135 | 75 | First sample 50 mg/l 6 percent |
| 9 | | 222 | 123 | 87 | |
| 10 | | 230 | 171 | 75 | |
| 11 | | 233 | 170 | 83 | |
| 12 | | 210 | 125 | 133 | |
| 13 | | 210 | 97 | 113 | |
| 14 | | 132 | 88 | 32 | |

Table VII (cont'd)

| <u>Day</u> | <u>Influent</u> | <u>Port 1</u> | <u>Port 2</u> | <u>Final discharge</u> | <u>Remarks</u> |
|------------|-----------------|---------------|---------------|----------------------------|------------------------------------|
| 15 | 480 | 256 | 176 | 88 | First sample 80 mg/l 6 percent |
| 16 | | 139 | 84 | 52 | |
| 17 | | 187 | 120 | 84 | |
| 18 | | 192 | 84 | 84 | |
| 19 | | 180 | 120 | 52 | |
| 20 | | 120 | 88 | 60 | |
| 21 | 504 | 272 | 148 | 68 | First sample 120 mg/l 6 percent |
| 22 | | 120 | 112 | 64 | |
| 23 | | --- | 85 | 36 | |
| 24 | No data | | | | |
| 25 | | 80 | 61 | --- | |
| 26 | | 244 | 160 | 104 | |
| 27 | | 200 | 104 | 52 | |
| 28 | | 156 | 72 | 56 | |
| 29 | 528 | 200 | 128 | 96 | First sample 160 mg/l 6 percent |
| 30 | | 192 | 144 | 104 | |
| 31 | | 88 | 80 | 64 | |
| 32 | | --- | 136 | 56 | |
| 33 | | 96 | 64 | 32 | |
| 34 | | 208 | 120 | 40 | |
| 35 | | 136 | 88 | 64 | |
| 36 | 474 | 132 | 48 | 40 | |
| 37 | 545 | 165 | 68 | 28 | First sample 200 mg/l 6 percent |
| 38 | | 236 | 142 | 79 | |
| 39 | | 465 | 134 | 118 | |
| 40 | | 442 | 94 | 79 | |
| 41 | | 187 | 122 | 57 | |
| 42 | | 240 | 176 | 72 | |
| 43 | 560 | 240 | 160 | 96 | |
| 44 | | 244 | 160 | 96 | |
| 45 | 540 | 104 | 136 | 72 | First sample 250 mg/l 6 percent |

Table VII (cont'd)

| <u>Day</u> | <u>Influent</u> | <u>Port 1</u> | <u>Port 2</u> | <u>Final discharge</u> | <u>Remarks</u> |
|------------|-----------------|---------------|---------------|------------------------|------------------------------------|
| 46 | | 240 | 160 | 72 | |
| 47 | | 253 | 173 | 108 | |
| 48 | | 100 | 64 | 48 | |
| 49 | | 153 | 76 | 48 | |
| 50 | 584 | 211 | 218 | 143 | First sample 300 mg/l 6 percent |
| 51 | | 303 | 198 | 131 | |
| 52 | | 240 | 136 | 96 | |
| 53 | | 225 | 169 | 80 | |
| 54 | | 273 | 213 | --- | |

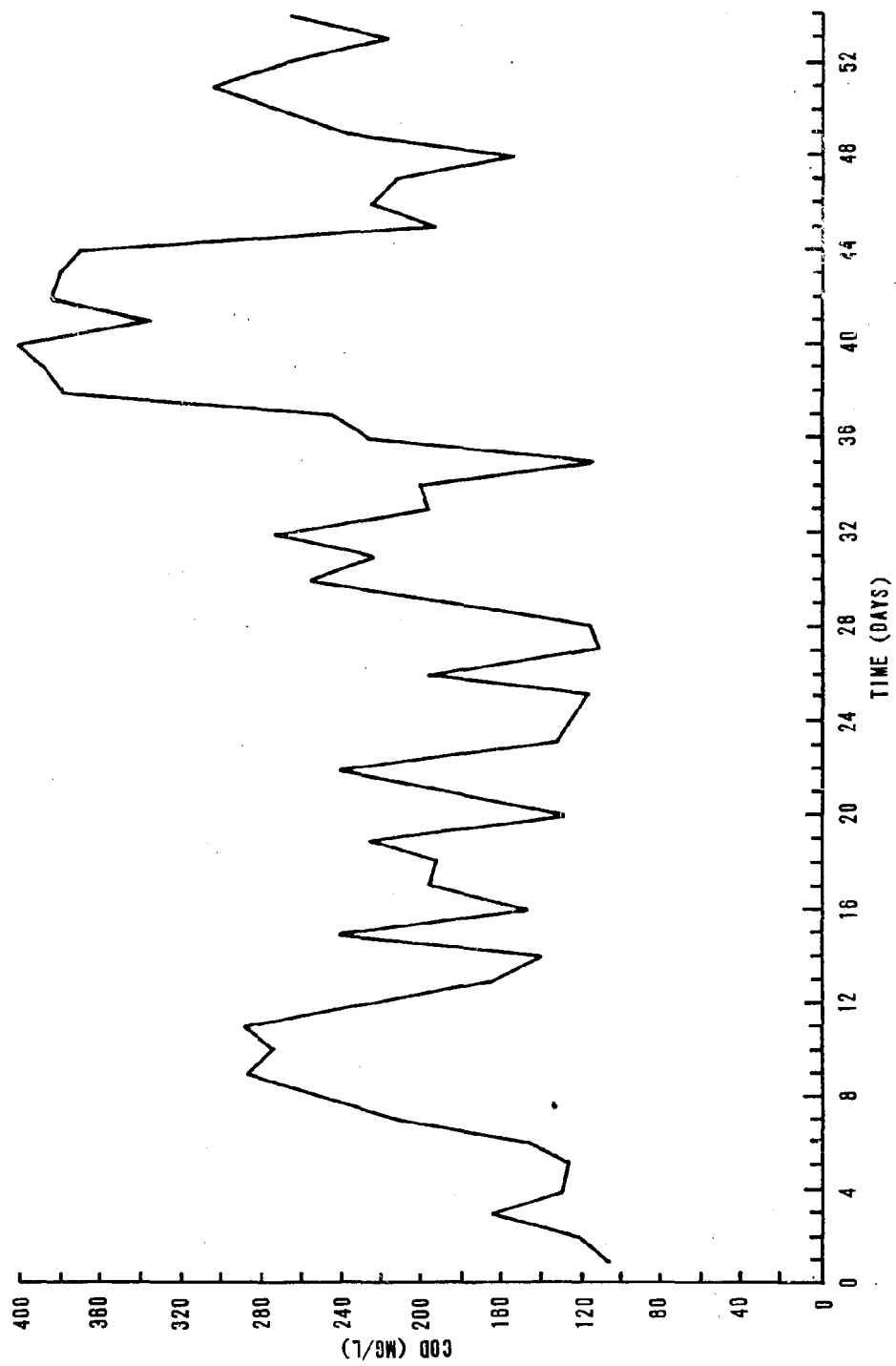


Figure 23. Trickling Filter Effluent COD (One-to-One Recycle), FC-200

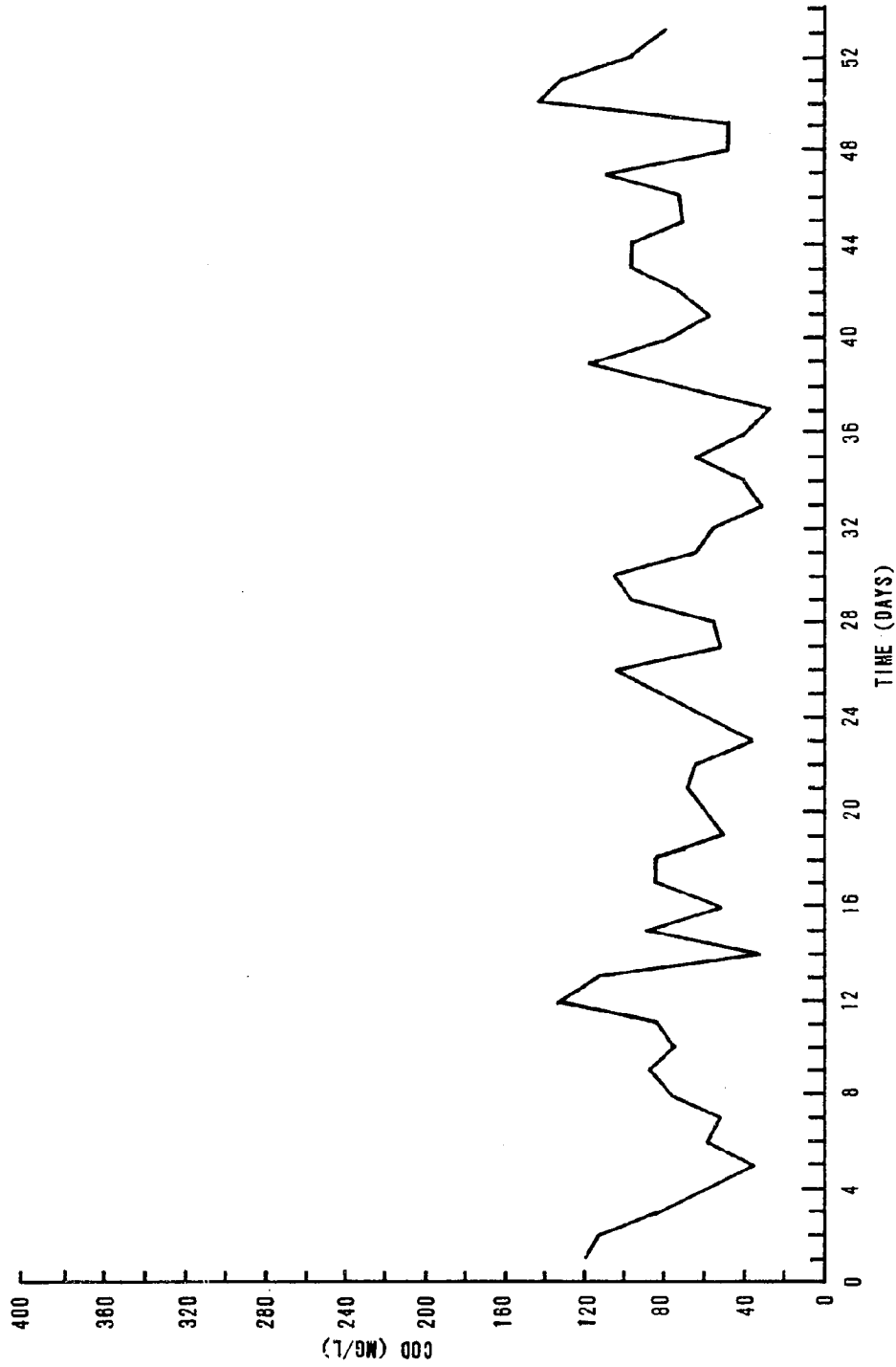


Figure 24. Trickling Filter Effluent COD (One-to-One Recycle), Aerowater 6 Percent

in figure 25 for FC-200 and in figure 26 for Aerowater 6 percent. It must be remembered that increasing AFFF concentrations results in increasing influent COD concentrations and thus affects percent COD removal. For FC-200, as was stated earlier, performance was better with no recycle than with the one-to-one recycle. Percent COD removals and effluent COD concentrations were less than acceptable for all concentrations of FC-200 in both tests. The FC-200 concentration above which the effluent quality starts to degrade beyond a baseline effluent quality (baseline not necessarily taken to be acceptable) appears to be 120 mg/l for both no recycle and one-to-one recycle.

The impact of Aerowater 6 percent on effluent quality is seen in figure 26. It was observed that above 50 mg/l of Aerowater 6 percent, with no recycle, there was a significant increase of effluent COD. On the other hand, for one-to-one recycle, the effluent COD remained nearly constant and of acceptable quality up to 250 mg/l of Aerowater 6 percent.

Why, in the case of FC-200, effluent quality would suffer from recycling of a portion of the effluent and improve in the case of Aerowater 6 percent is not readily explainable. This is a significant observation, but unfortunately, there are insufficient data to say that this occurrence is a result of the AFFF. It would be difficult to reason that recycling of the effluent containing treated or partially treated FC-200 would cause a decrease in effluent quality from that of no recycle. This is especially true since the overall mass of FC-200 entering the trickling filter from the feed solution during one-to-one recycle is one half of that during no recycle.

5. TOXICITY EXPERIMENTS

The results of the toxicity experiments are given in table VIII. From this table it is seen that for Aerowater 3 percent and Aerowater 6 percent all the rainbow trout were able to survive for 96 hours in the activated sludge effluent. However, for the FC-200 on the first test, all four trout had died within 24 hours. When the test was repeated, two trout died within 48 hours and the remaining two in the next 24 hours. Further, all the trout exposed to the influents and the distilled water containing untreated AFFFs died within 96 hours. That the trout would die in distilled water is not immediately explainable. Potential explanation for this occurrence is the sensitivity of the trout to the change in mineral content of water to which they were acclimated.

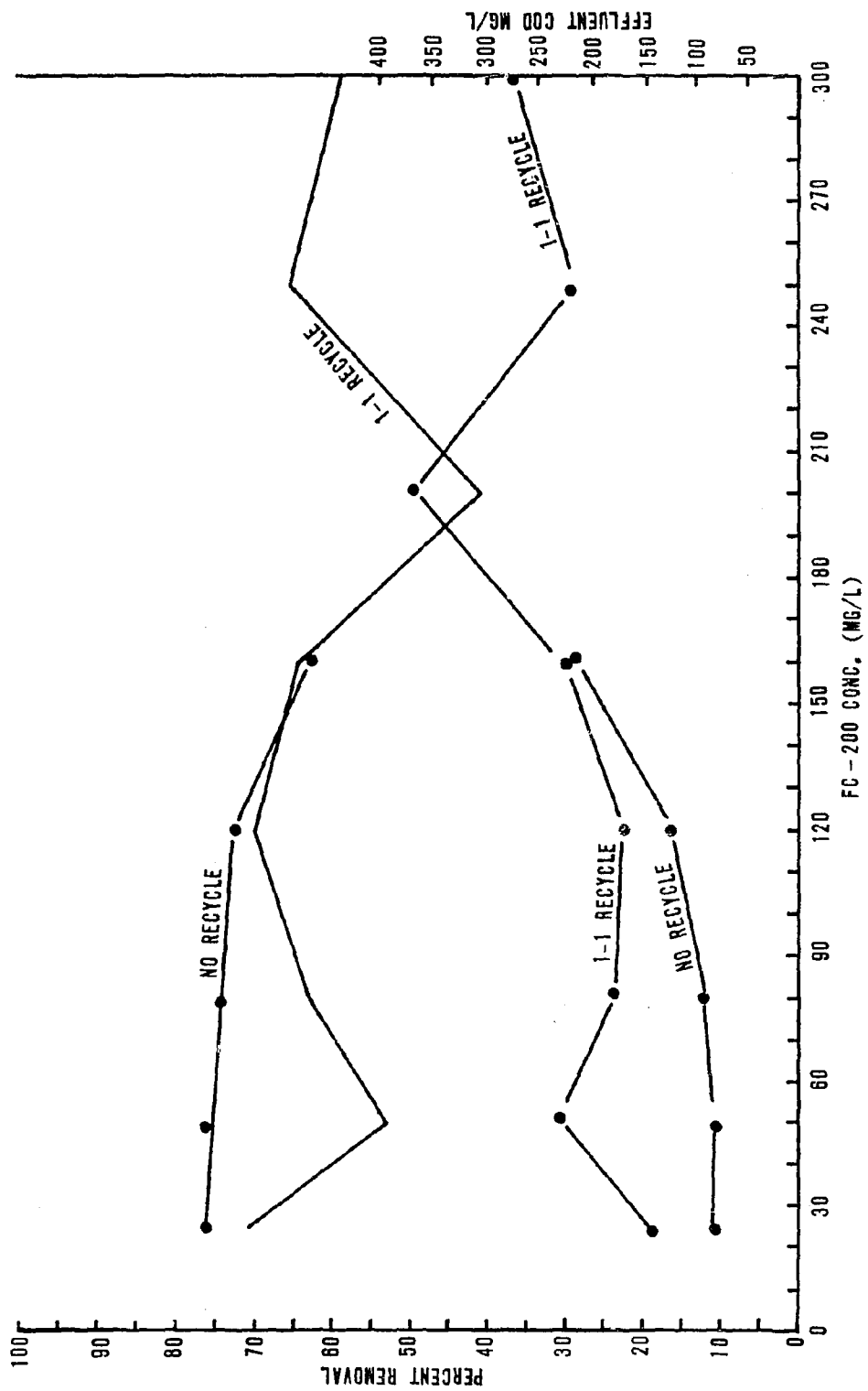


Figure 25. Percent COD Removal and Effluent COD versus Influent FC-200 Concentration, Trickling Filter

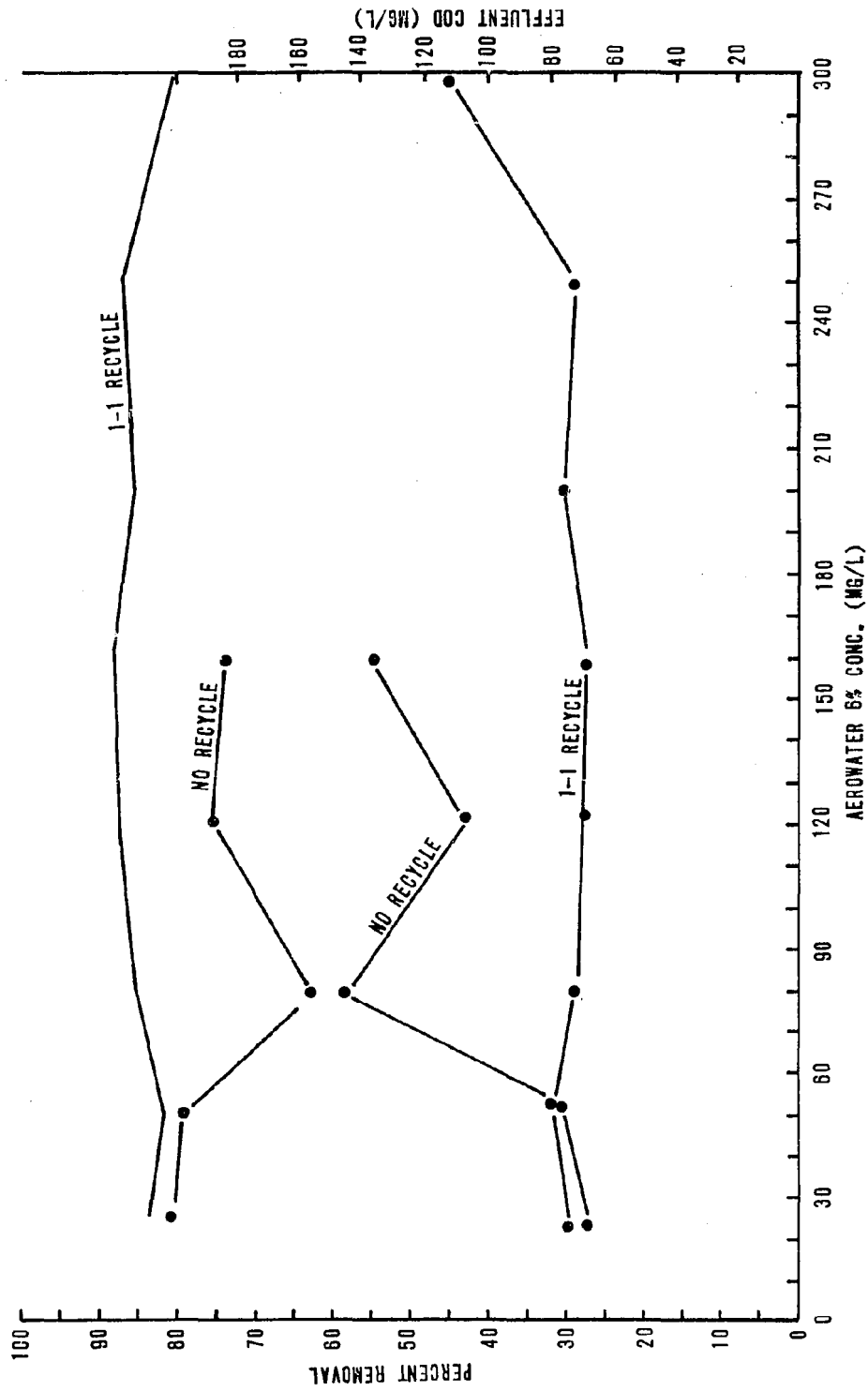


Figure 26. Percent COD Removal and Effluent COD versus Influent Aerowater 6 Percent Concentration, Trickling Filter

Table VIII
TOXICITY OF AFFF TO RAINBOW TROUT*

| <u>Condition</u> | <u>Time</u> | | | |
|---|--------------|--------------|--------------|--------------|
| | <u>24 hr</u> | <u>48 hr</u> | <u>72 hr</u> | <u>96 hr</u> |
| Effluent control | 0 | 0 | 0 | 0 |
| Effluent Aerowater 3 percent | 0 | 0 | 0 | 0 |
| Effluent Aerowater 6 percent | 0 | 0 | 0 | 0 |
| Effluent FC-200 | 4 | --- | --- | --- |
| Effluent FC-200 (repeat) | 1 | 2 | 4 | --- |
| Influent control (synthetic wastewater) | 2 | 2 | 4 | --- |
| Influent Aerowater 3 percent | 1 | 4 | --- | --- |
| Influent Aerowater 6 percent | 1 | 4 | --- | --- |
| Influent FC-200 | 1 | 4 | --- | --- |
| Distilled water | 1 | 2 | 2 | 4 |
| Distilled water and Aerowater 3 percent | 1 | 1 | 2 | 4 |
| Distilled water and Aerowater 6 percent | 1 | 2 | 4 | --- |
| Distilled water and FC-200 | 2 | 2 | 4 | --- |

*Starting with four trout per tank, number given is the cumulative number dead.

The data show that there is definite detoxification occurring by biological treatment for Aerowater 3 percent and Aerowater 6 percent. For FC-200 biological treatment does not appear to offer significant detoxification. However, one must be cautioned not to accept this as conclusive data since it represents only one test at one AFFF concentration. Further, the concentration of AFFF used is higher than that recommended (see Conclusions, section VI) for discharge into a sanitary sewer.

6. ADSORPTION EXPERIMENTS

The 2000-mg/l solutions of FC-200 and Aerowater 6 percent yielded CODs as indicated below (the average of triplicate analysis):

| | |
|--------------------------------------|-----------|
| FC-200 | 1500 mg/l |
| FC-200 after JP-4 | 1433 mg/l |
| Aerowater 6 percent | 944 mg/l |
| Aerowater 6 percent after JP-4 | 992 mg/l |

JP-4 added to distilled water (20 ml in 2 liters), then separated, yielded a COD of approximately 100 mg/l in the aqueous phase. This indicates that some of the compounds in JP-4 are at least slightly soluble in water. Coupling this fact with the COD data for the four solutions reveals that there was a decrease in COD of the FC-200 solution that was contacted with JP-4, although approximately 100 mg/l of COD was added from the JP-4. This indicates that a significant fraction of FC-200 is extracted into the JP-4 phase. This fraction is estimated to be approximately

$$\frac{1500 + 100 - 1433}{1500 + 100} = 10 \text{ percent}$$

Conversely for Aerowater 6 percent there is a 48-mg/l increase in COD after contact with JP-4. This indicates that a much smaller fraction of Aerowater 6 percent is taken up in the JP-4 phase.

The results of the batch adsorption experiments are given in figures 27 through 30. The notation used is $X = \text{wt of COD adsorbed} = \text{initial COD concentration } C_0 - \text{final COD concentration } C_f \times \text{volume}$, $M = \text{wt of activated carbon}$

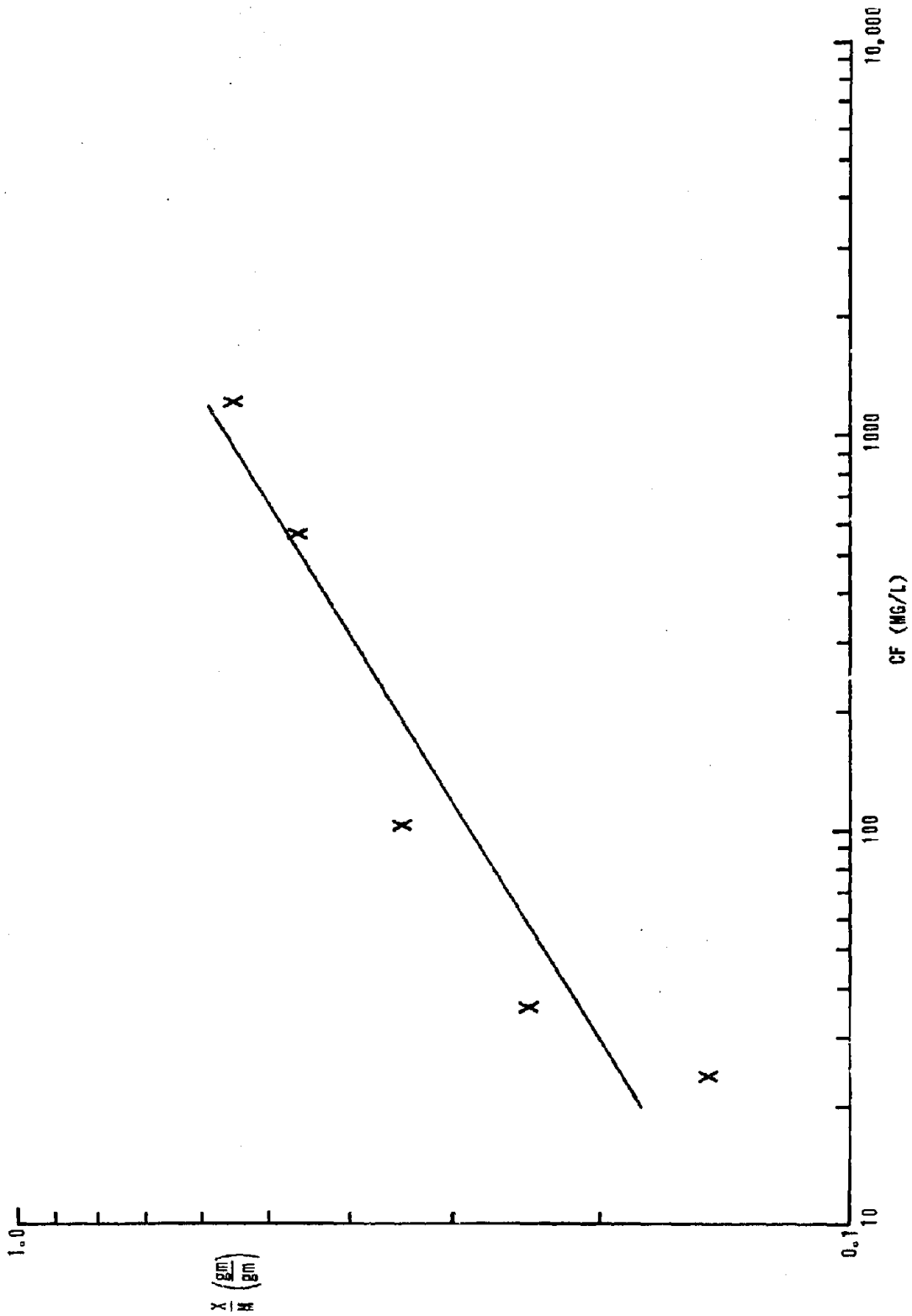


Figure 27. Batch Adsorption Isotherm, FC-200 (No JP-4)

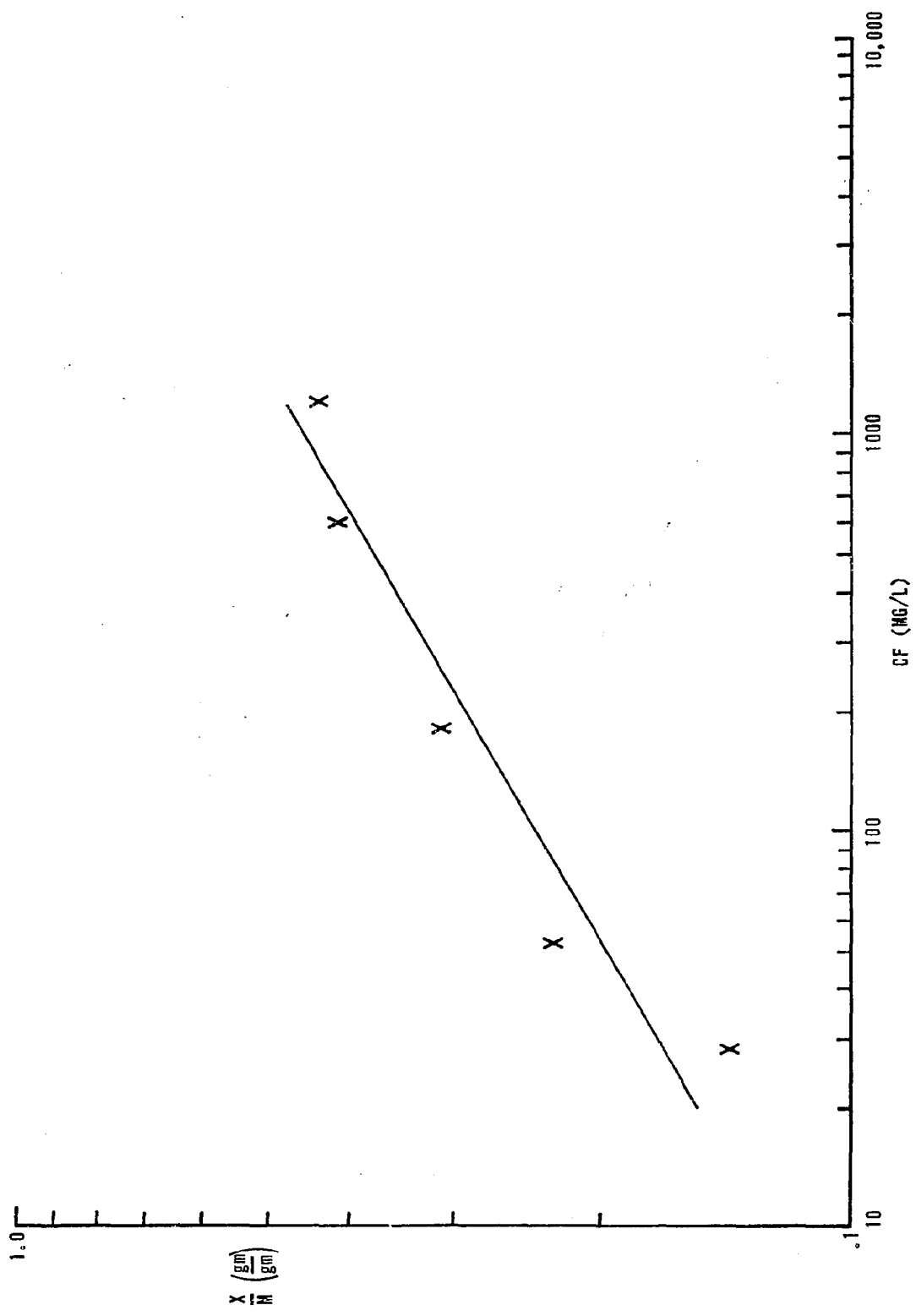


Figure 28. Batch Adsorption Isotherm, FC-200 (After JP-4 Extraction)

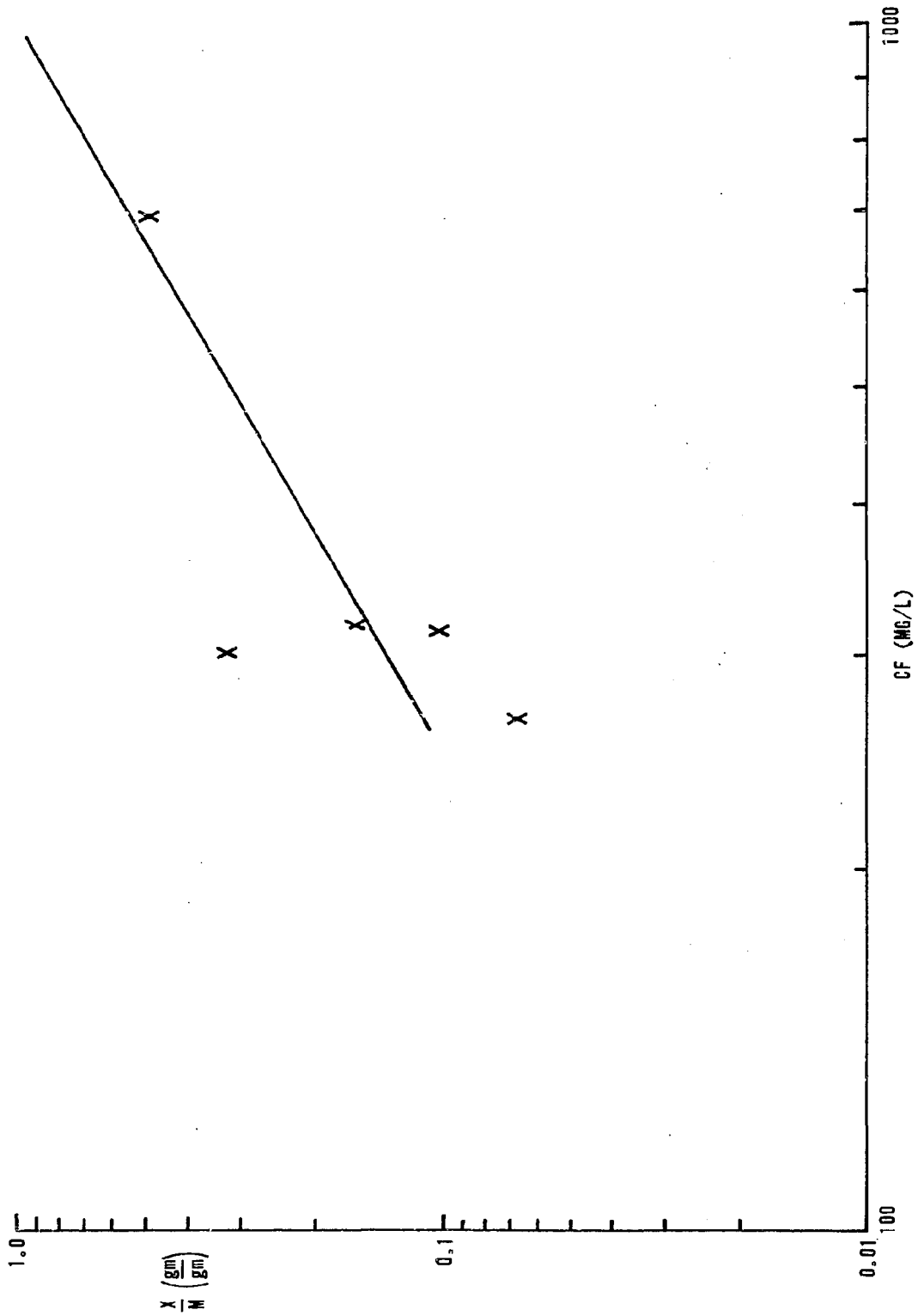


Figure 29. Batch Adsorption Isotherm, Aerowater 6 Percent (No JP-4)

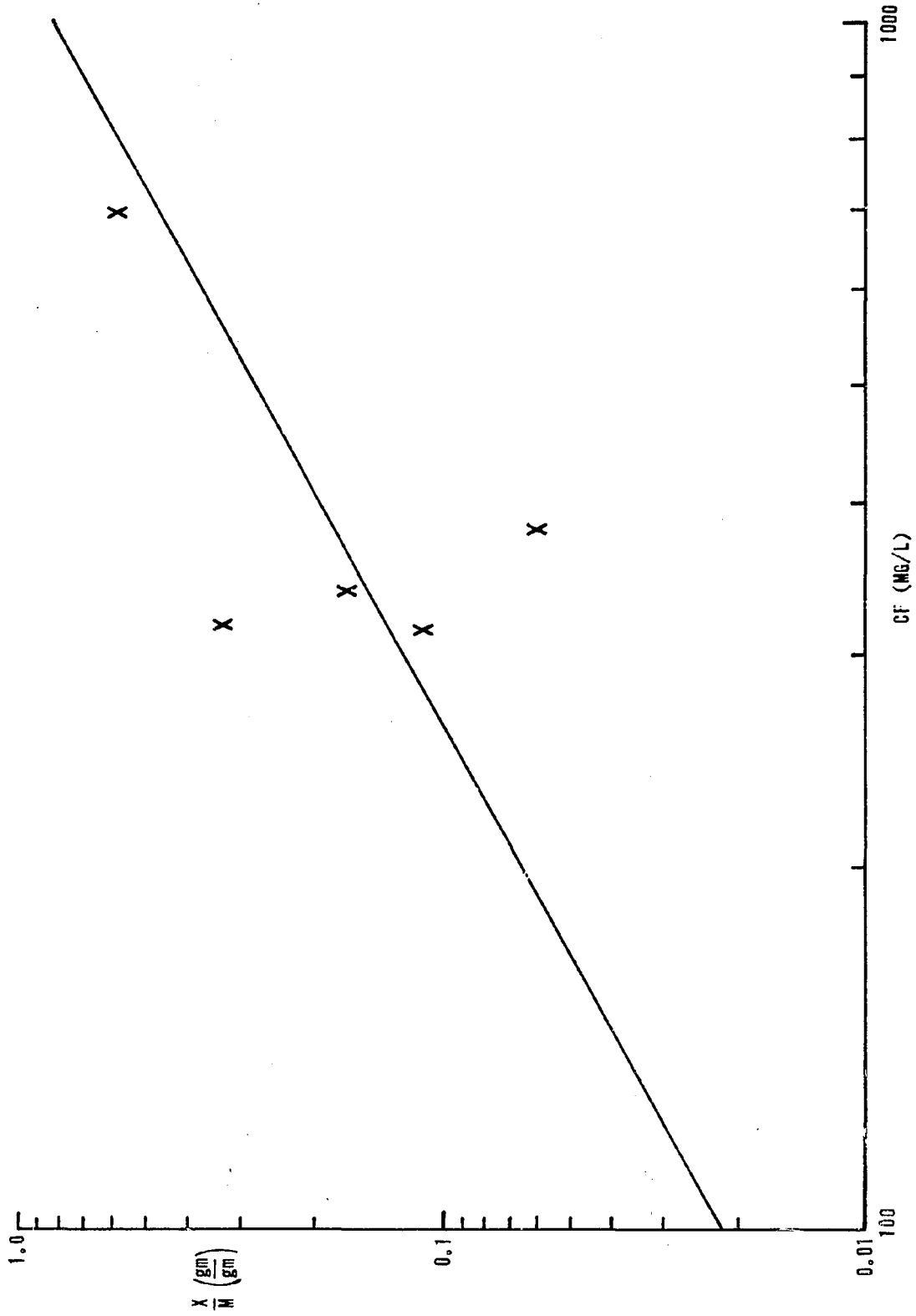


Figure 30. Batch Adsorption Isotherm, Aerowater 6 Percent (After JP-4 Extraction)

used, and C_F = final COD concentration = COD remaining in solution. X/M then becomes the carbon loading, also taken to be a good approximation of the adsorptive capacity.

Comparing figures 27 and 28, it is seen that the carbon loading is slightly lower for the FC-200 solution that was contacted with JP-4. X/M at C_F of 1500 mg/l = 0.6 for the FC-200 solution and equals 0.5 for the FC-200 solution contacted with JP-4. This difference is attributed to the presence of different organic compounds in the solution after JP-4 contact.

For Aerowater 6 percent one cannot make any comparisons because the batch adsorption data did not obey the Freundlich isotherm properties. A straight line is constructed through the data points in figures 29 and 30 using a least-squares fit. However, no validity is placed on this line. The data points do indicate the presence of a nonadsorbable component in the Aerowater 6 percent, comprising approximately 300 mg/l of COD. This is further substantiated in the continuous-flow experiments.

Assuming that some JP-4/water separator would be provided in a fire-training facility and therefore no JP-4 would contact the activated carbon, one can conclude from the batch data (at least for FC-200) that a somewhat reduced carbon loading (adsorptive capacity) will result from the interaction of the AFFF and the JP-4.

The results of the continuous-flow experiments are given in figure 31 for FC-200 and in figure 32 for Aerowater 6 percent. Only the pure solutions were used for the continuous-flow experiments. The breakthrough curves in figure 31 for the two sampling ports and the final discharge are very good with the slope of the breakthrough portion being relatively moderate. With respect to contact time until breakthrough, essentially all the FC-200 has been adsorbed by the time the water reaches the first sampling port (5 minutes contact time).

Being conservative and saying that the activated carbon is completely exhausted at the bottom of the breakthrough curve (approximately 360 minutes for port 1 and 1200 minutes for port 2), the adsorptive capacity for FC-200 is calculated to be 0.34 gm COD removed/gm of activated carbon. In terms of the FC-200, this is equivalent to 0.49 gm FC-200 removed/gm of activated carbon; or in terms of liquid volume, 0.48 ml FC-200 removed/gm of activated carbon (0.058 gal/lb). Expressed another way, for every gallon of FC-200 concentrate used, approximately 17 pounds of activated carbon would be required.

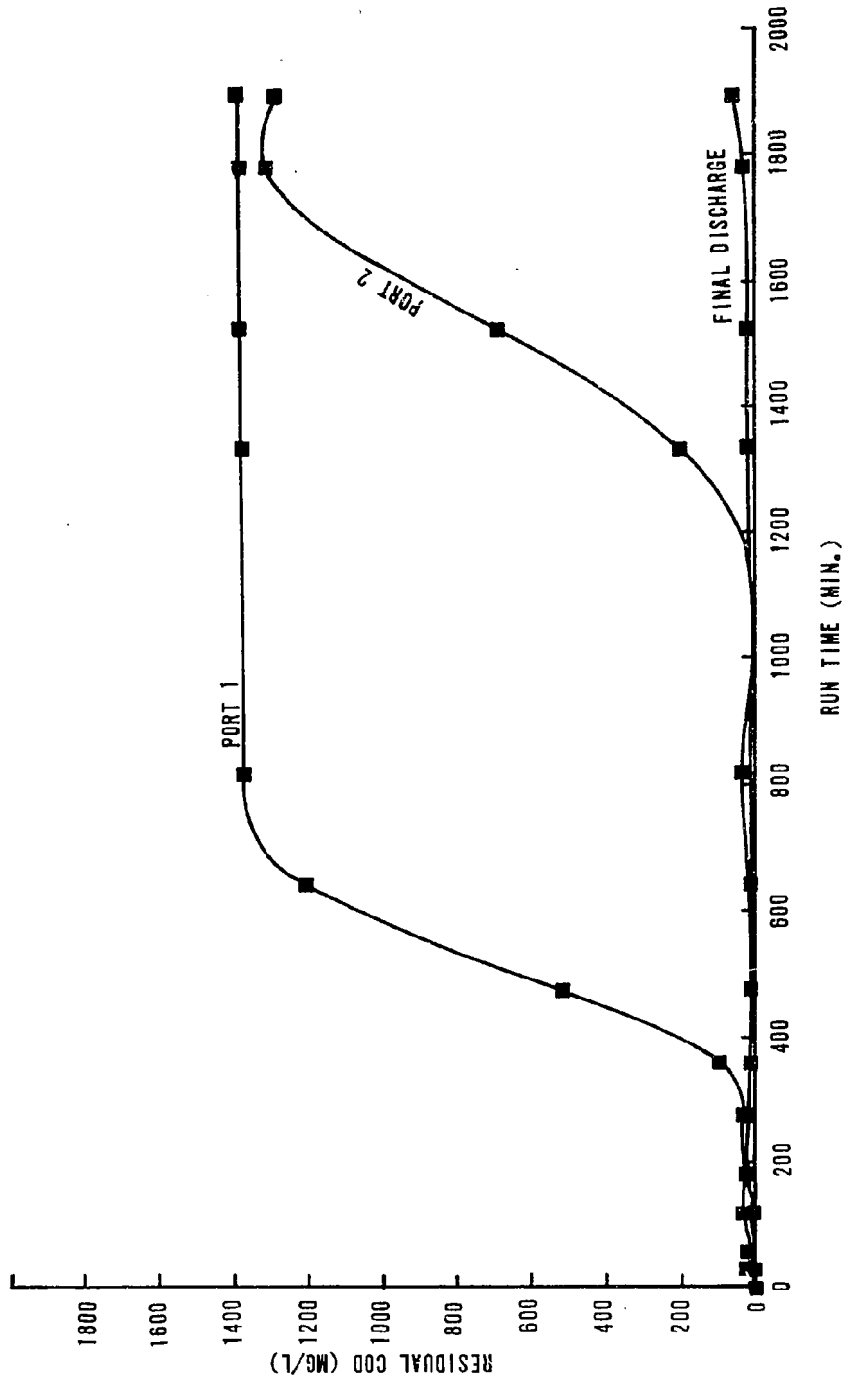


Figure 31. Breakthrough Curves, FC-200

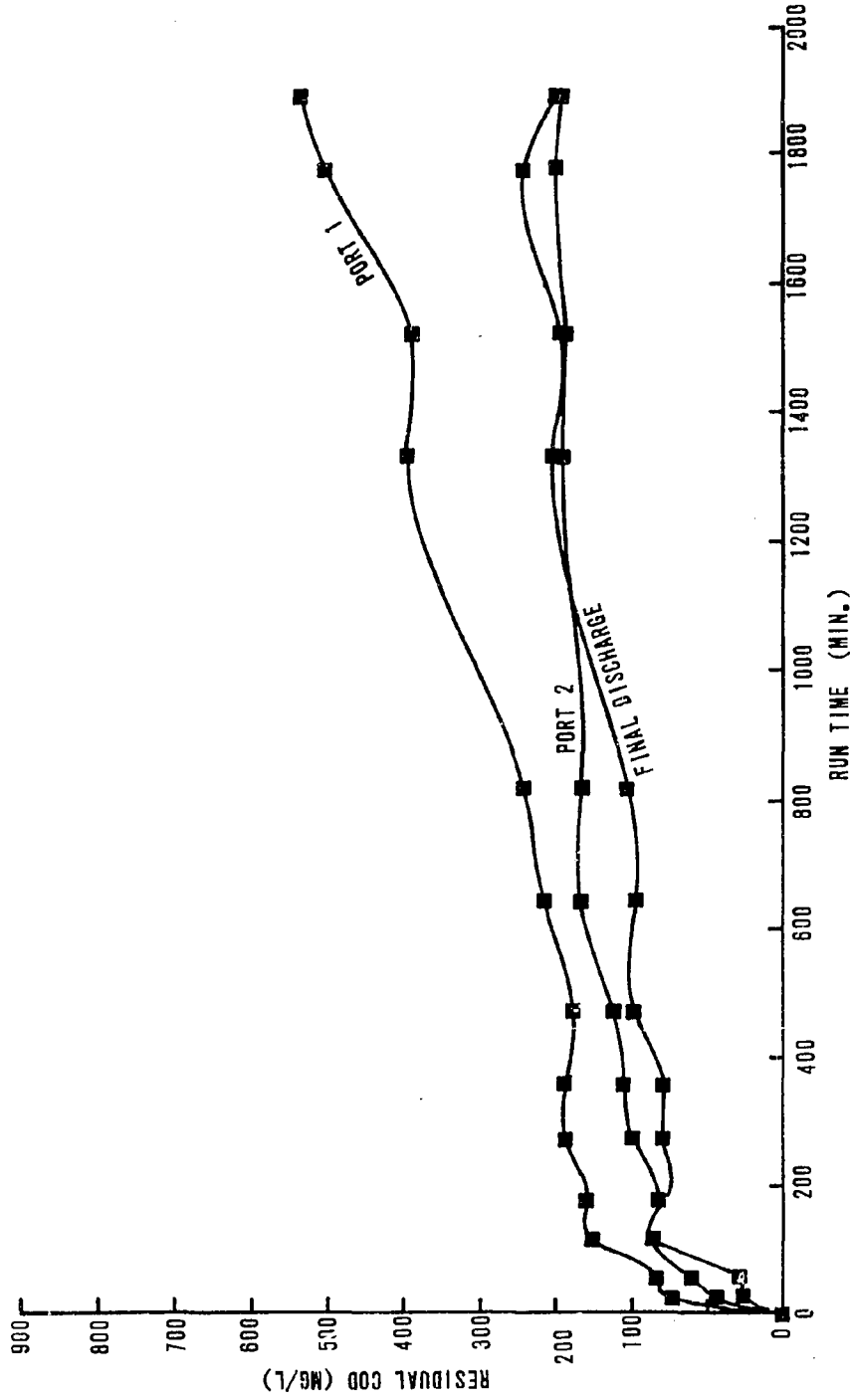


Figure 32. Breakthrough Curves, Aerowater 6 Percent

Recall that this is based on a conservative estimate of the adsorbed capacity and is for a 2000-mg/l solution of FC-200. If a more concentrated solution is processed, generally one can expect a higher adsorptive capacity since higher organic concentrations usually result in the activated carbon being relatively more saturated at exhaustion.

For Aerowater 6 percent it is seen in figure 32 that the breakthrough curves are not typical, and therefore it is not possible to calculate a realistic adsorptive capacity. This is due to a nonadsorbable fraction which accounts for 200 to 300 mg/l of COD. Therefore, virgin activated carbon is capable only of removing approximately 75 percent of the COD. A much longer contact time would further reduce the COD in the discharge, but not significantly, as evidenced by the difference in COD between the sampling ports at any given time. It is assumed that the nonadsorbable fraction is the foam stabilizer since this is likely to be a glycol compound which would be relatively polar and possibly of low molecular weight. Both properties would result in low affinity for being adsorbed on activated carbon. If this assumption is correct, the discharge of the water after activated carbon adsorption would likely be acceptable since glycol-type compounds are generally of low toxicity to aquatic life. On the other hand, the discharge at 200 to 300 mg/l of COD representing glycol compounds would pose a high oxygen demand since the glycol compounds are largely biodegradable.

SECTION V
DISCUSSION

1. BIODEGRADATION AND TOXICITY EXPERIMENTS

The results of the biodegradability experiments yielded much information as summarized below. First, it appears that it would be very difficult to acclimate a biological culture to degrade AFFFs when they represented the only source of organic matter. Second, the three AFFFs tested yielded for practical purposes the same degree of treatability when blended with a synthetic wastewater. Although the data tended to demonstrate that the biological waste treatment processes could assimilate higher concentrations of Aerowater 3 and 6 percent than FC-200, one would have to retest to verify this conclusively. Third, while AFFF dosages as high as 250 mg/l were capable of being treated, this was under laboratory conditions with a constant composition of influent wastewater; therefore a conservative maximum concentration of 80 to 100 mg/l is recommended. Since slug loading to unacclimated bacteria caused excessive foaming and impaired reactor performance, it appears obvious that bleeding in the AFFF at a controlled rate (not to exceed 50 mg/l initially and building up to 100 mg/l maximum) is a necessity. This would obviously require holding capabilities and some means of controlling the release to the sanitary sewer. Knowing the wastewater flow at the sewage treatment plant, one can easily calculate a release rate once the quantity of AFFF used is known.

Concerning the detoxification provided by biological waste treatment, the rudimentary experiments performed tend to indicate detoxification of Aerowater 3 percent and 6 percent, but not for FC-200. However, these experiments were too brief to draw a definite conclusion. It should be remembered that these toxicity experiments were conducted at influent AFFF concentrations of 200 mg/l; whereas it is recommended that the AFFF concentration not exceed 100 mg/l in the influent wastewater.

Since a good analytical method was not developed to follow the biodegradation, if any, of the AFFFs, one can only surmise what is happening to the major components, the fluorocarbon surfactant, and the foam stabilizer. The foam stabilizer, which is assumed to be some type of polyethylene glycol or glycol

ether, should be fairly biodegradable and should not pose any problems to either the treatment plant or the receiving stream. The fluorocarbon surfactant, on the other hand, is at best only partially biodegradable. The microorganisms can probably break down the fluorocarbon surfactant into smaller chain-length compounds and potentially oxidize the surfactant portion completely. The fraction of compound containing the fluorocarbon bonds will almost undoubtedly not oxidize. This was substantiated in the beginning of the activated sludge experiments where it was observed that no increase in free fluoride concentration was occurring in the treated effluent. It is possible that if the microorganisms were able to break the original compound to a compound containing only F, C, and H that the solubility in water would be significantly reduced so that it would tend to separate or be readily adsorbed onto a solid surface such as the microorganisms. How these assumptions and hypotheses fit in with detoxification of the AFFFs cannot be answered since the exact composition of each AFFF is not known.

2. ACTIVATED CARBON EXPERIMENTS

The results of the activated carbon adsorption experiments demonstrate a definite affinity of the AFFFs (particularly FC-200) for being adsorbed on activated carbon. Essentially, complete removal of the FC-200, as measured by COD, was achieved within 5 minutes of contact time. For the Aerowater 6 percent only partial removal (70 to 75 percent) of the COD was achieved. Increasing the contact time beyond 20 minutes would not yield appreciable increase in the COD removal. Why FC-200 was completely removed by activated carbon and the Aerowater 6 percent only partially removed is easily explained by the fact that they are different formulations and, although likely to be similar in composition, the differences in the compounds used readily account for adsorption of FC-200 and partial adsorption of Aerowater 6 percent.

The use of activated carbon for treating AFFFs would be preferred for the small-proficiency fire-training facilities where it is not feasible to tie into a sanitary sewer. Assuming a smoke-abatement system would be in use, all that would be required is a small holding facility to allow the JP-4 carryover to separate and a pump to lift the water to the top of an activated carbon column. The column can be constructed of any convenient plastic pipe. Plastic, PVC, polyethylene, etc., is necessary because granular activated carbon is very corrosive. It is envisioned that the column would be about 15 inches in diameter and about 10 feet in height. The actual size would have to be

determined for each fire-training facility. The top could be opened to the atmosphere for easy filling and withdrawal of the activated carbon. The bottom should be closed with the discharge regulated to keep the column flooded during operation. Since it is not expected to use more than a few hundred pounds of activated carbon per month, the exhausted activated carbon should be thrown away, accumulated in Remarketing and Distribution for potential resale, or mixed with coal (assuming coal is used on base for heating). By keeping a log on the number of gallons of FC-200 used, one can calculate the frequency of replacing the activated carbon by using the adsorptive capacity which conservatively, for FC-200, is 1 gallon FC-200 adsorbed per 17 pounds of activated carbon.

SECTION VI

CONCLUSIONS AND RECOMMENDATIONS

1. Biodegradation of AFFFs when they represent the only source of organic matter is not practical.
2. Discharge of AFFFs into sanitary sewers where physically practical should be done, but at a controlled rate so as not to exceed 100 mg/l of AFFF influent to the biological treatment plant. It does not appear that either activated sludge or tricking filter processes offer an advance over the other. The discharge rate should be set initially so as not to exceed, say, 50 mg/l of AFFF influent to the biological treatment plant to permit time for acclimation of the microorganisms. Slug loading should definitely be avoided. If practical, it is recommended that the AFFF be continuously discharged, which would result in the lowest concentration in the domestic wastewater.
3. From the aspect of biological treatability one cannot conclude decisively that any of the three AFFFs tested is more amenable to biological treatment than the others. Rather it is concluded that all three can be satisfactorily discharged into a sanitary sewer when the AFFF concentration does not exceed 100 mg/l (see conclusion 4).
4. Detoxification (lack of acute toxicity) of the AFFFs by biological treatment at 200 mg/l of AFFF appears to be achieved for the Aerowater products but not for FC-200. However, because of the rudimentary techniques employed, this cannot be taken as a firm conclusion. Long-term and precise bioassay tests should be conducted on each AFFF.
5. For small fire-training facilities using water spray-injection smoke-abatement systems where it is impractical to tie into a sanitary sewer, activated carbon adsorption should be employed before discharging the water containing AFFF.

REFERENCES

1. Military Specification, MIL-F-24385, Amendment 5, 17 February 1972.
2. Dr. Carhardt, Naval Research Laboratory, Washington, DC, personal communication.
3. Lefebre, E. E., Biodegradability and Toxicity of Light Water, EHL(K)-71-36, USAF Environmental Health Laboratory Report, November 1971.
4. Representatives of 3M Company, St Paul, MN, personal communication.
5. Standard Methods for the Examination of Water and Wastewater, 13th Ed., 1971.

USAF ENVIRONMENTAL HEALTH LABORATORY (AFLC)

UNITED STATES AIR FORCE

KELLY AFB, TEXAS 78241



BIODEGRADABILITY AND TOXICITY OF LIGHT WATER®
FC206, AQUEOUS FILM FORMING FOAM

November 1974

EHL(K) 74-26

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I. SUMMARY

Light Water[®], FC206, is an aqueous film forming foam (AFFF) used for fire fighting. Biodegradability studies show that it can be biologically treated in controlled concentrations up to 200 ul/l in synthetic sewage on a continuous basis. Higher concentration appear amenable to treatment in oxidation ponds over long time periods. Toxicity studies with fathead minnow juveniles and fry indicate that FC206 is less toxic than AFFF's previously tested. The 96-hour LC₅₀ for fathead minnow juveniles and fry were 1080 ul/l and 170 ul/l respectively. Using a 0.05 application factor, a concentration unit of 54 ul/l is recommended for discharge to any waters containing aquatic life.

II. INTRODUCTION

This is the fourth report on the biodegradability and toxicity of a commercial aqueous film forming foam used to fight fires by the Air Force. The results of studies of Light Water® (FC206) a product of Minnesota Mining and Manufacturing Co., St Paul, Minn, are presented here. The FC206 is used to make a six percent solution for the fire fighting operations. This study was conducted at the request of Hq USAF/SGPA and Hq USAF/PREE.

III. DISCUSSION

A. Composition

Results of analysis at this laboratory are shown in Table 1. The specific gravity of the concentrate is 1.020 with a pH of 7.8.

Table 1. Composition of FC206.

| PARAMETER | QUANTITY |
|---|--------------|
| Water | -70% |
| Diethylene Glycol Monobutyl Ether | -27% |
| Fluorocarbon (Structure not Determined) | - 2% |
| Sodium Sulfate | - 1% |
| Chemical Oxygen Demand | 500,000 mg/l |
| Total Organic Carbon | 96,000 mg/l |
| Surfactants (MBAS as LAS) | 41,000 mg/l |
| Fluorine | 14,000 mg/l |

B. Respiration Studies

1. Biochemical Oxygen Demand

The need for measurement of biochemical oxygen demand (BOD) over incubation periods in excess of the standard five days has been pointed out by several investigators and reported previously (5). Additionally, incubation at 25°C rather than the standard 20°C allows determination of the Ultimate BOD in a shorter time period without adverse affects on the micro-organism composition although temperatures in excess of 30°C would alter composition (2). Figure 1 is a curve showing the BOD over a 20-day period as measured with the E/BOD Respirometer as previously reported (12). Table 2 is a summary of these E/BOD measurements.

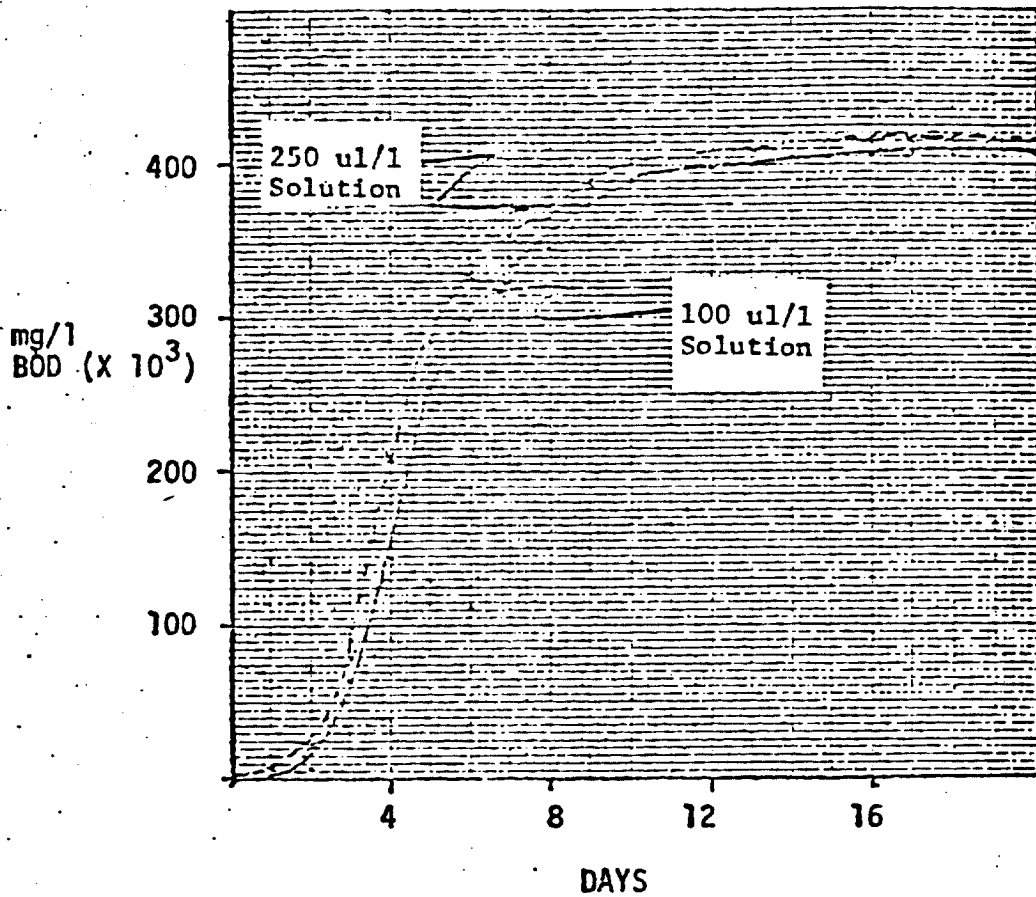


Figure 1. Biological Oxygen Demand as a Function of Time of FC 206 by USAF Environmental Health Laboratory, Kelly AFB TX, 1974.

Table 2. Summary of Data From Measurement of Extended BOD of FC206 at 25°C with the E/BOD Respirometer

| | mg/l | Percent of E/BOD ₂₀ |
|---------------------|----------------------|--------------------------------|
| E/BOD ₅ | 2.68X10 ⁵ | 65.2 |
| E/BOD ₁₀ | 3.95X10 ⁵ | 96.1 |
| E/BOD ₁₅ | 4.10X10 ⁵ | 99.7 |
| E/BOD ₂₀ | 4.11X10 ⁵ | |

2. Warburg Respirometer Studies

Figure 2 shows the variation in oxygen uptake with respect to concentration of the FC206. Acclimation of the microorganisms can be seen by the increase in oxygen uptake rates at the higher concentrations with respect to time. Since the dilution of FC206 from normal usage is to a six percent solution, oxygen up take was not measured beyond the 10 percent solution.

C. Pilot Plant Studies

1. Two bench-scale activated sludge pilot plants were fed increasing concentrations of FC206 in synthetic sewage of composition shown in Table 3. The plants began to show solids loss at an FC206 concentration of 200 to 225 ul/l. Most of the solids loss appeared to be physical in nature from the foaming action forcing the solids over the side of the reactor. Tables 4 and 5 are summaries of the measured parameters for each plant. Table 6 shows the recovery of solids in the first plant when the FC206 concentration was lowered from 500 ul/l to 200 ul/l.

Table 3. Composition of Synthetic Sewage Used in Biodegradability Studies

| | | |
|---------------------------------|------|------|
| Glucose | 160 | mg/l |
| Peptone | 160 | mg/l |
| Urea | 28.6 | mg/l |
| Na HCO ₃ | 102 | mg/l |
| KH ₂ PO ₄ | 32.5 | mg/l |
| Tap Water | | |

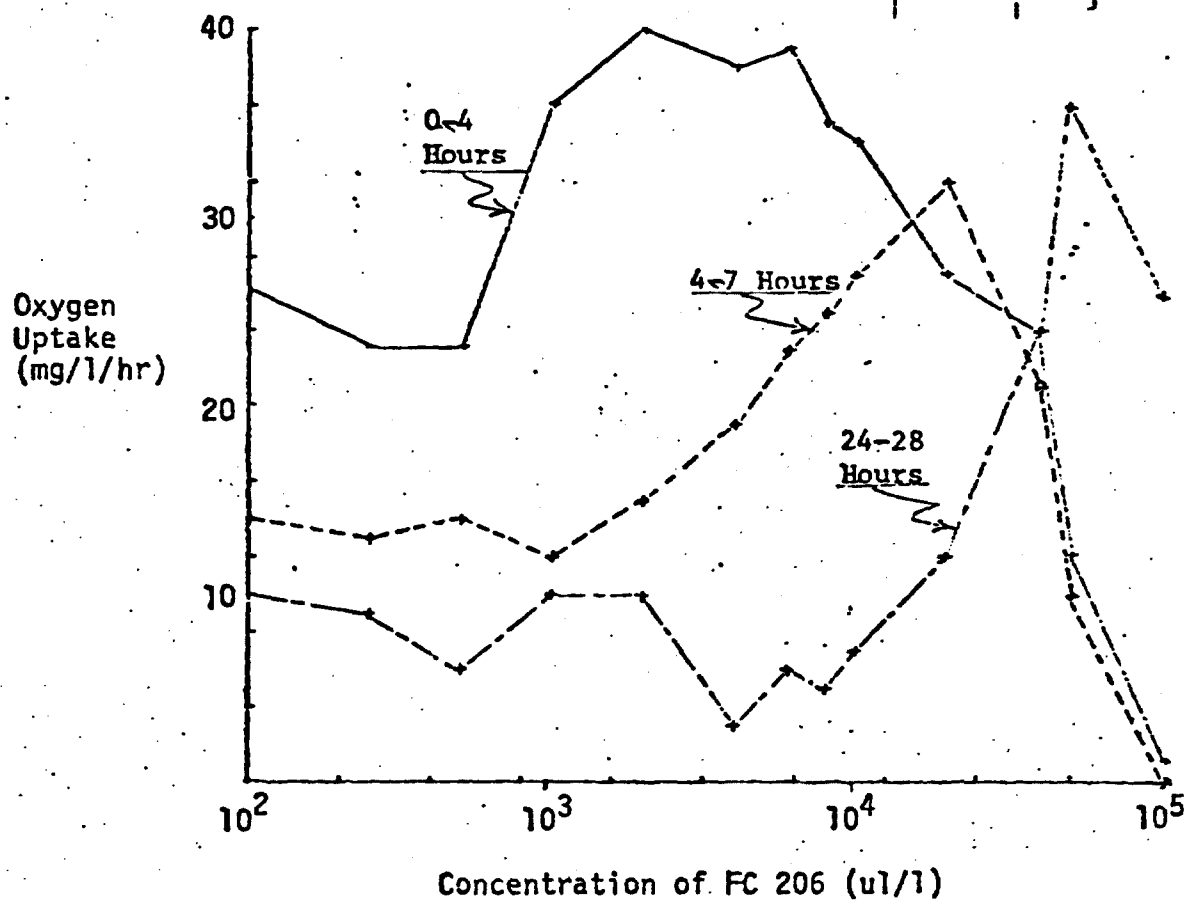


Figure 2. Oxygen Uptake of Varying Concentrations of FC 206 Using the Warburg Respirometer

2. Five Fathead minnows (Pimephales promelas) were placed in each container receiving effluent from each of the plants at the beginning of the study. One fish succumbed in the first plant effluent after 27 days and one in the second plant effluent after 43 days indicating that the effluents were relatively non-toxic. Five giant water fleas (Daphnia magna) were placed in each effluent container on the 36th day and survived to the termination of the study (51 days).

Table 4. Summary of Analysis of Samples From Activated Sludge Pilot Plant No. 1 Receiving FC206 and Synthetic Sewage.

| No. of Days | u1/1 FC206 | mg/1 Avg. MLSS | pH Range | D.O. Range mg/l | Percent BOD ₅ Removal | Percent TOD Removal |
|-------------|------------|----------------|----------|-----------------|----------------------------------|---------------------|
| 5 | 50 | 3045 | 7.2-7.3 | 4.0-6.2 | 97.8 | >95.8 |
| 3 | 75 | 3315 | 7.1-7.2 | 4.2-4.4 | No Data | >95.4 |
| 5 | 100 | 3363 | 7.2-7.3 | 4.8-5.6 | 98.9 | >95.6 |
| 3 | 200 | 3587 | 7.1-7.2 | 4.0-5.6 | 98.8 | >99 |
| 8 | 300 | 3016 | 7.2-7.4 | 4.0-6.0 | 92.1 | >99 |
| 5 | 400 | 2685 | 7.3-7.4 | 5.8-6.2 | 97.6 | 91.5 |
| 14 | 500 | 1763 | 7.4-7.8 | 5.0-7.4 | 94.8 | 54.5 |
| 1 | 300 | 1000 | 7.7 | 6.6 | 17.7 | >99 |
| 3 | 200 | 1513 | 7.7-8.1 | 6.0-7.2 | 85.7 | No Data |

Table 5. Summary of Analysis of Samples from Activated Sludge Pilot Plant No. 2 Receiving FC206 and Synthetic Sewage.

| No. of Days | u1/1 FC206 | mg/1 Avg. MLSS | pH Range | D.O. Range mg/l | Percent BOD ₅ Removal | Percent TOD Removal |
|-------------|------------|----------------|----------|-----------------|----------------------------------|---------------------|
| 5 | 50 | 2397 | 7.2-7.5 | 2.0-6.0 | 98.0 | >96.1 |
| 8 | 75 | 2648 | 7.2-7.3 | 4.8-5.8 | 98.8 | >95.4 |
| 3 | 125 | 2863 | 7.3-7.3 | 4.6-5.6 | 98.7 | >99 |
| 8 | 225 | 3052 | 7.2-7.4 | 4.6-5.4 | 98.3 | >99 |
| 5 | 250 | 2985 | 7.0-7.2 | 4.6-6.0 | 98.2 | >97.9 |
| 22 | 300 | 2414 | 7.1-7.4 | 4.4-7.0 | 96.5 | >98.2 |

Table 6. Daily Measurement of MLSS in Plant No. 1
From 30th to 51st Days.

| Day | u1/1 FC206 | mg/1 MLSS |
|-----|------------|-----------|
| 30 | 500 | 2810 |
| 31 | 500 | 2650 |
| 32 | 500 | 2820 |
| 36 | 500 | 840 |
| 38 | 500 | 1020 |
| 39 | 500 | 1100 |
| 43 | 500 | 1100 |
| 44 | 300 | 1000 |
| 45 | 200 | 1280 |
| 46 | 200 | 1460 |
| 51 | 200 | 1800 |

D. Toxicity Studies

1. METHODS AND MATERIALS

a. Experimental Animals

Toxicity studies used the fathead minnow (Pimephales promelas) to determine the relative toxicity of FC206 solutions -- (Concentrate and pilot plant effluents). Sexually-immature fathead minnows were supplied by the National Fish Hatchery at Uvalde, Texas. The fish were acclimatized to the laboratory conditions and local water for a minimum of 30 days before use. Mean fish weight was 0.913 gm ($\sigma = 0.370$). The fish were fed a commercial fish food*. Immature fathead minnow fry used in static bioassays were reared at EHL/K. Age of fry at time of use was 21 days.

b. Exposure Procedure

(1) Continual flow type bioassays used proportional diluting equipment as developed by Mount and Brungs (7) (8). These diluters supplied logarithmic scaled dilutions of the compound being tested to a flow-through chamber for each concentration in which the experimental animals were held. Studies with fry were static bioassays with three fry per each one-liter test concentration.

*Tetramin®, Distributor, Tetra Sales Corp. Hayward, CA 94545.

(2) Bioassays were performed in accordance with principles described in Standard Methods (12) and Sprague (9). Test animals were not fasted prior to testing. They were not fed during the actual assay period. Ten fish were used for each concentration and the control. Exposure chambers were plastic rat cages modified to contain 4 liters of diluted toxicant.

(3) Response of the test animals was recorded throughout a 96-hour test period. Probit analysis was performed on the data recorded at 24, 48, 72 and 96 hours of exposure to evaluate quantal response to graded doses. After the first bioassay, a true 96 hour replicate was performed using the same procedures and concentrations as used in the first run. In all these bioassays the test animals were placed into the exposure chambers in a random order by using a table of random numbers. The chambers themselves were positioned in random order. The control chamber contained water from the same water tank as the water that was used as the diluent in the other test chambers. The flow of diluted toxicant into the chamber was adjusted to a retention time of 2 hours. This is equal to a 6 hour, 95% replacement time and insures adequate maintenance of the dissolved oxygen concentration. The quantal response measured was death. A fish was counted as dead when all gill movement ceased. Dissolved oxygen and pH were monitored to insure that the cause of death was not lack of oxygen or changes in pH.

c. Dilution Water

Unchlorinated well water from a deep well was used as the dilution water in these studies. The water was collected in 400 gallon fibreglas trailer-tanks at an on-base well site. The water trailers were hauled to the Laboratory and allowed to sit at least 24 hours before the water was used. Air was bubbled through the water. The water was adjusted by heating or cooling to 24°C before it was run into the proportional diluter. The pH was 7.2 Hardness (EDTA as mg/l CaCO₃) was 194. Total alkalinity (as CaCO₃) was 160 mg/l.

d. Treatment use of Data

LC₅₀* or TL₅₀s were determined by the probit analysis method of Litchfield and Wilcoxon. (6) Other statistical treatments such as the (CHI)² test for "Goodness of Fit" were by standard formulas. (3) To be used in this report and the previous reports on Fire-Fighting foam chemicals, toxicity study results had to fulfill two important criteria. 1) Graded quanted responses had to definitively relate to the logarithms of serial dilutions in each test chamber. 2) the results had to be repli-

*LC₅₀, or Lethal Concentration 50%, is a concentration value statistically derived from the establishment of a dose-related response of experimental organisms to a toxicant. The LC₅₀ represents the best estimation of the dose required to produce death in 50% of the organisms. Note that a more toxic chemical has a smaller LC₅₀. The time period for which the 50% response was derived must also be indicated.

cable. The establishment of dose-effect and time-effect relationships allowed scientifically based predictions of the ecological effects of the tested chemicals on a body of water during use, accidental spillage or disposal. Also the relative toxicity of one material could be compared with another; perhaps with the goal of selecting one that would have the least effect on aquatic biota. Finally, the results could be used to set "allowable" or minimal effect concentrations in bodies of water that may receive these materials as waste.

2. Results of Toxicity Studies

a. The sexually immature minnows were exposed to concentrations of FC206 ranging from 800 u/l to 2500 u/l (see Figure 3). At 48, 72 and 96 hours of exposure there was 100 percent death at the 2500 u/l concentration and no deaths at the 800 u/l concentration. At 24 hours of exposure there were no deaths in the 1050 u/l concentration and 75 percent deaths in the 2500 u/l concentration..

b. Figure 4 illustrates the change in LC_{50} with increasing time of exposure. As the percent of deaths increase with time of exposure (lower LC_{50} s), there is a reduction in the slope of the curve between 72 and 96 hours. The reduction in the slope indicates that the 96 hour value may be approaching the incipient LC_{50} (lethal threshold concentration). Therefore, for FC206, the 96 hour LC_{50} is considered to be an adequate estimation of the incipient LC_{50} and can be used to set acceptable concentration limits of FC206 for short periods of time.

c. The 96 hour LC_{50} for 3 week old fry was 170 u/l. The LC_{50} value for fry compared with the 1080 u/l value for the juvenile fish indicates that the FC206 concentrate is approximately 6 times more toxic to the fry than more mature forms. Thus the increased sensitivity of immature forms indicates that the limits of safety using a 1/10 application factor for short term exposure would provide just adequate protection and that a 1/20 value would be more desirable.

Figure 3
 QUANTAL RESPONSE CURVES OF FISH EXPOSED TO FC 206

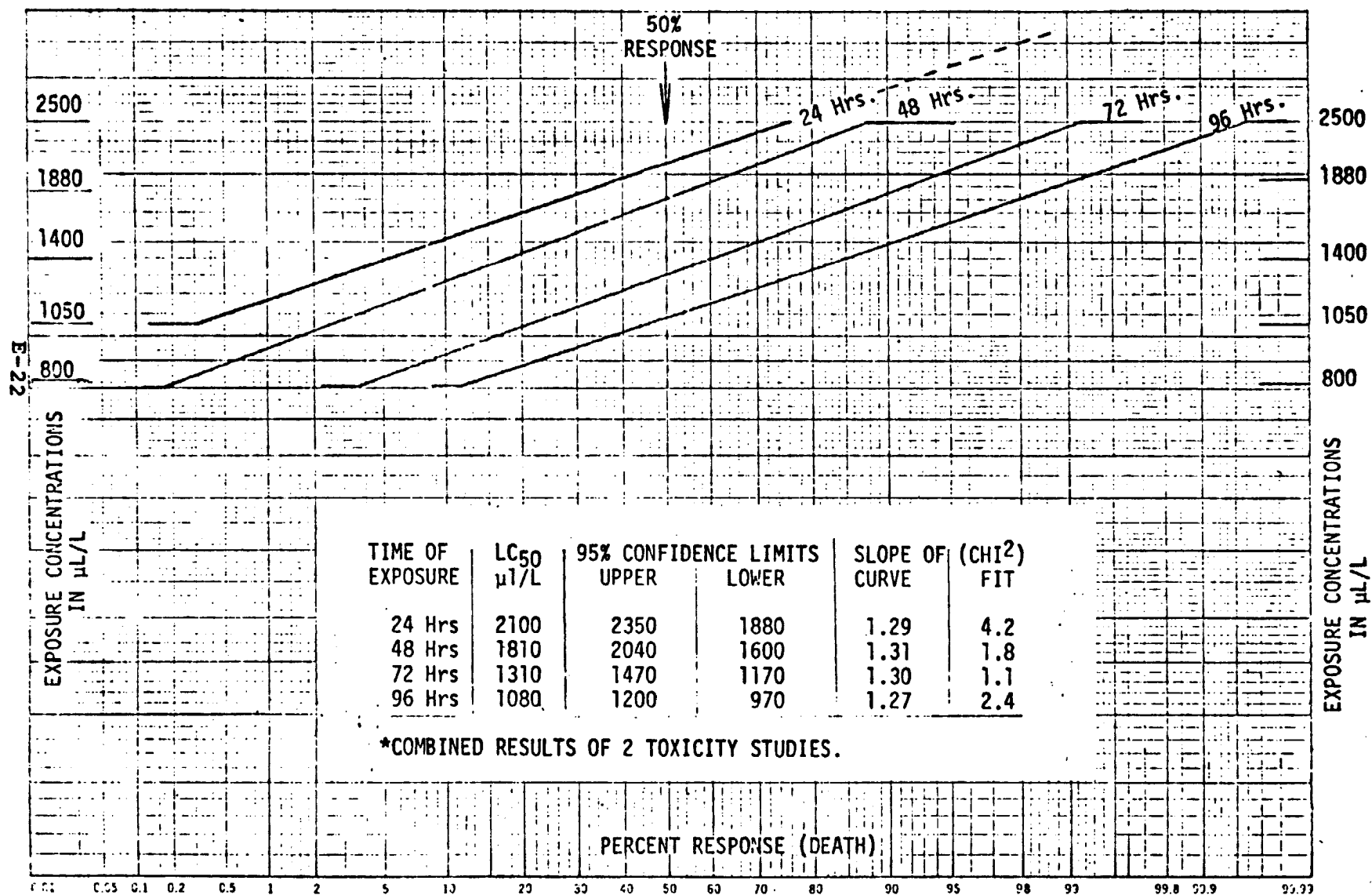
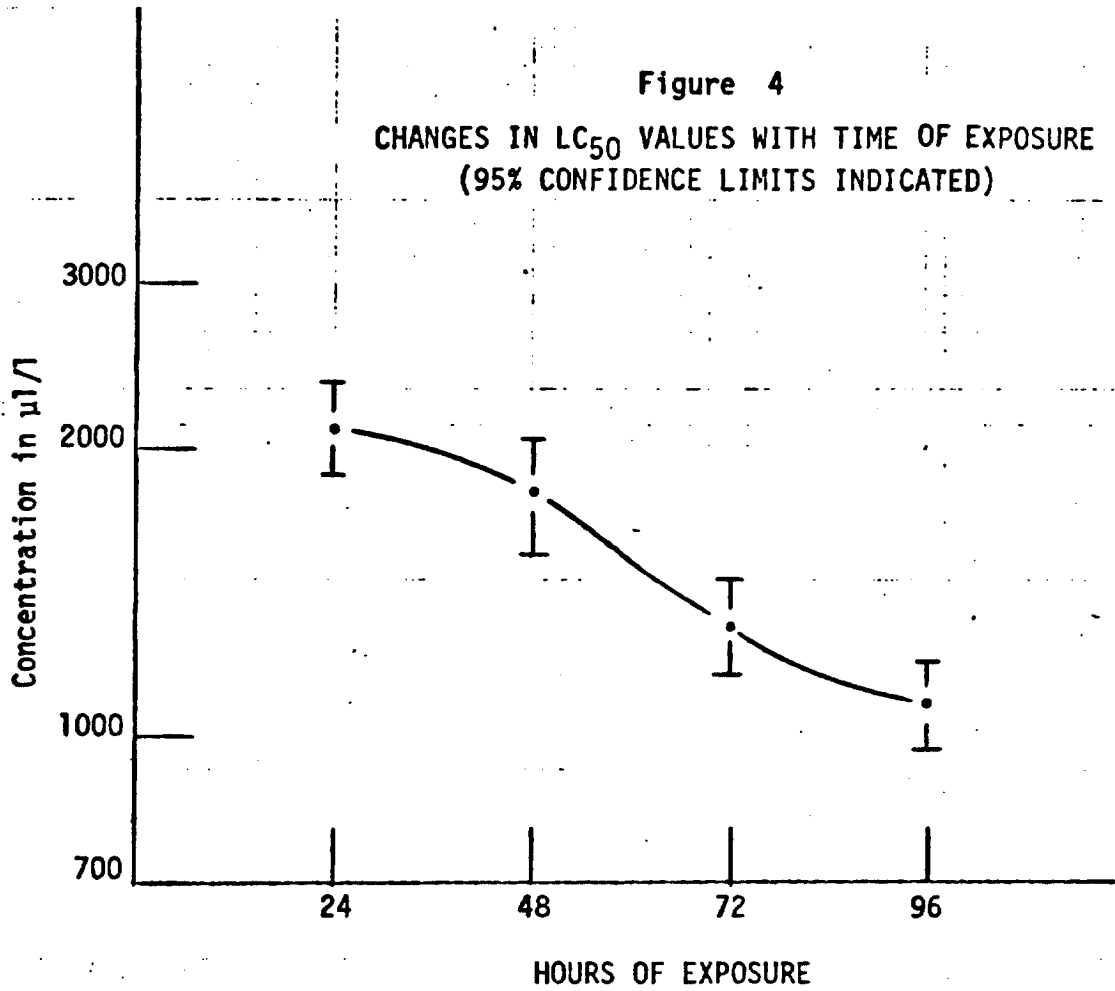


Figure 4

CHANGES IN LC_{50} VALUES WITH TIME OF EXPOSURE
(95% CONFIDENCE LIMITS INDICATED)



E. Comparison with AFFF's Previously Studies

1. Table 7 is a summary of the various parameters measured for each of the AFFF products studied thus far. (4,5,13). The greater percentage of the ultimate BOD being measured in the first five days on the newer products indicates a more rapid degree of biodegradability.

Table 7. Comparison of Various Parameters of AFFF's

| PARAMETER | 3M - LIGHT WATER | | | NAT'L FOAM SYSTEMS | |
|--|------------------|----------|----------|--------------------|----------|
| | FC199 | FC200 | FC206 | AOW 3 | AOW 6 |
| pH | 4.6 | 7.6 | 7.8 | 7.8 | 7.9 |
| Specific Gravity | 1.02 | 0.989 | 1.020 | 1.062 | 1.031 |
| Water | | 59% | 70% | 72% | 72% |
| Diethylene Glycol | | | | | |
| Monobutyl Ether | | 39% | 27% | 10% | 10% |
| COD (X10 ³) | 550 mg/l | 730 mg/l | 500 mg/l | 500 mg/l | 350 mg/l |
| TOC (X10 ³) | | 235 mg/l | 96 mg/l | 130 mg/l | 100 mg/l |
| BOD _u (X10 ³) | 18 mg/l | 450 mg/l | 411 mg/l | 354 mg/l | 300 mg/l |
| BOD ₅ (% BOD _u) | 37 | 2 | 65 | 45 | 45 |

2. Table 8 summarizes the daily changes in LC₅₀'s during 96-hour bioassays for each of the AFFF concentrates previously studied.

Table 8. Changes in Toxicity of AFFF's to Fathead Minnows with increase in time of exposure.

| | LC ₅₀ (Concentrations in µl/l) | | | | |
|---------|---|-------|-------|--------------------|-------|
| | 3M - LIGHT WATER | | | NAT'L FOAM SYSTEMS | |
| | FC199 | FC200 | FC206 | AOW 3 | AOW 6 |
| 24-Hour | 650 | * | 2100 | 1030 | 635 |
| 48-Hour | 588 | 135 | 1810 | 820 | 255 |
| 72-Hour | 450 | 97 | 1300 | 630 | 245 |
| 96-Hour | 398 | 97 | 1080 | 600 | 225 |

*No mortality in 24 hours in one bioassay but 50% in highest concentration (150 µl/l) in duplicate bioassay.

IV. CONCLUSIONS

A. No acute toxicity to activated sludge microorganisms was exhibited by FC206 up to 100,000 u1/1 of the concentrate in synthetic sewage/activated sludge. Dilution of the concentrate for fire fighting operations is six percent (60,000 u1/1).

B. Respiration studies indicate that acclimation of microorganisms to concentrations up to 100,000 u1/1 could occur and would allow successful waste treatment in oxidation ponds.

C. Bench scale - activated sludge treatment plants effectively treated concentrations of 200 u1/1 on a continuous feed basis. Above this concentration, sludge microorganisms were not able to build rapidly. This was probably due primarily to the physical removal of solids through foaming rather than direct toxicity to the microorganisms. Fathead minnows and daphnia lived in effluent from the plant being fed 500 u1/1.

D. In acute toxicity studies in which the test fish (Pimaphales promelas) were exposed to continuously replenished concentrations of FC206, the 96 hour LC₅₀ was 1080 u1/1 (0.11%). The 96 hour value was considered to be an adequate estimation of the incipient LC₅₀ (lethal threshold concentration) and suitable for use with application factors to predict "safe levels" for short-term exposure periods.

E. In comparing toxicities, FC206 concentrate was approximately six times more toxic to fry than the larger juvenile Fathead minnows. Also, FC206 concentrate was less toxic to Fathead minnows than previously tested fire fighting foams.

V. RECOMMENDATIONS

A. Wastewater from fire-fighting training operations should be passed through a gravity oil separator. The waste should then be held in a pond for natural oxidation and decomposition or pumped to a secondary sewage treatment facility at a controlled flow rate. Secondary treatment could be provided with the domestic sewage such that the influent to the sewage treatment plant will not contain in excess of 20 u1/1 of the FC206. This recommendation is based on training exercises and is not necessarily intended for operational use.

B. Using the 96 hour LC_{50} of 1080 u1/1 and an application factor of 0.05, the calculated "safe level" of FC206 concentrate is 54 u1/1 for short term exposure. For situations in which the aquatic animals will be exposed more than 4 days, concentration of FC206 should not exceed 20 u1/1 in the affected body of water.

VI. REFERENCES

1. Cairns, J., Jr., "Fish Bioassays - Reproducibility and Rating", Revista de Biologia, Vol 7, No. 21 & 2, (1969), pp 1-12.
2. Caskey, William, Personal Communication, Dept of Microbiology, Texas A & M University, College Station, TX.
3. Dixon, W.J., F. J. Massey, Introduction to Statistical Analysis, 3rd ed., McGraw-Hill, New York, 1969.
4. LeFebvre, E.E. 1971. "Biodegradability and Toxicity of Light Water ." Report No. EHL(K) 71-36. USAF Environmental Health Laboratory, Kelly AFB, Tx.
5. LeFebvre, E.E. and J.F. Thomas. 1973. "Biodegradability and Toxicity of AER-O-Water 3 and AER-O-Water 6 Aqueous Film Forming Foam". Report No. EHL(K) 73-22. USAF Environmental Health Laboratory, Kelly AFB, Tx.
6. Litchfield, J. T. and F. Wilcoxon, "A Simplified Method of Evaluating Dose Effect Experiments", J. Pharmacology & Experimental Therapeutics, Vol 96, (1949), pp 99-113.
7. Mount, D. I. and W. A. Brungs, "A Device for Continuous Treatment of Fish in Holding Chambers", Transactions of the American Fisheries Society, Vol 96, No. 1, 20 Jan 1967, pp 55-57.
8. Mount, D.I. and W.A. Brungs, "A Simplified Dosing Apparatus for Fish Toxicology Studies", Water Res., (1967), Vol 1, pp 21-29.
9. Sprague, J. B., "Bioassay Methods for Acute Toxicity", Water Res. Vol. 3, (1969), pp 793-821.
10. Sprague, J. B., "Utilizing and Applying Bioassay Results", Water Research, Vol. 4 (1970), pp 3-31.
11. Sprague, J. B., "Sublethal Effects and "SAFE" Concentrations Water Research, Vol. 5 (1971), pp 245-266.
12. Standard Methods for the Examination of Water and Waste Water, 13 ed., American Public Health Assoc., New York, (1971).
13. Thomas, J. F. and E. E. LeFebvre. 1974 "Biodegradability and Toxicity of FC200 Aqueous Film Forming Foam". Report No. EHL(K) 74-3, USAF Environmental Health Laboratory, Kelly AFB, Tx.

APPENDIX
Participants in Study

E-28

PARTICIPANTS

Biodegradability and Toxicity of Light Water, FC206 Aqueous Film Forming Foam

Biodegradability Studies:

Project Officer: Maj Edward E. LeFebvre
Consultant, Environmental Chemistry

1Lt Thomas Doane, Consultant, Environmental Chemistry
TSgt Samuel A. Britt, Laboratory Technician
Mr. Gilbert Valdez, Physical Sciences Aide
A1C Gregory Knerl, Laboratory Technician

Bioassays:

Maj. Roger Inman, Veterinary Ecologist Toxicologist
MSgt Melvin Struck, Laboratory Animal Technician
TSgt Jerold Akey, Laboratory Animal Technician

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APPENDIX F
SMALL SCALE AFFF/DYE DISPERSION TEST

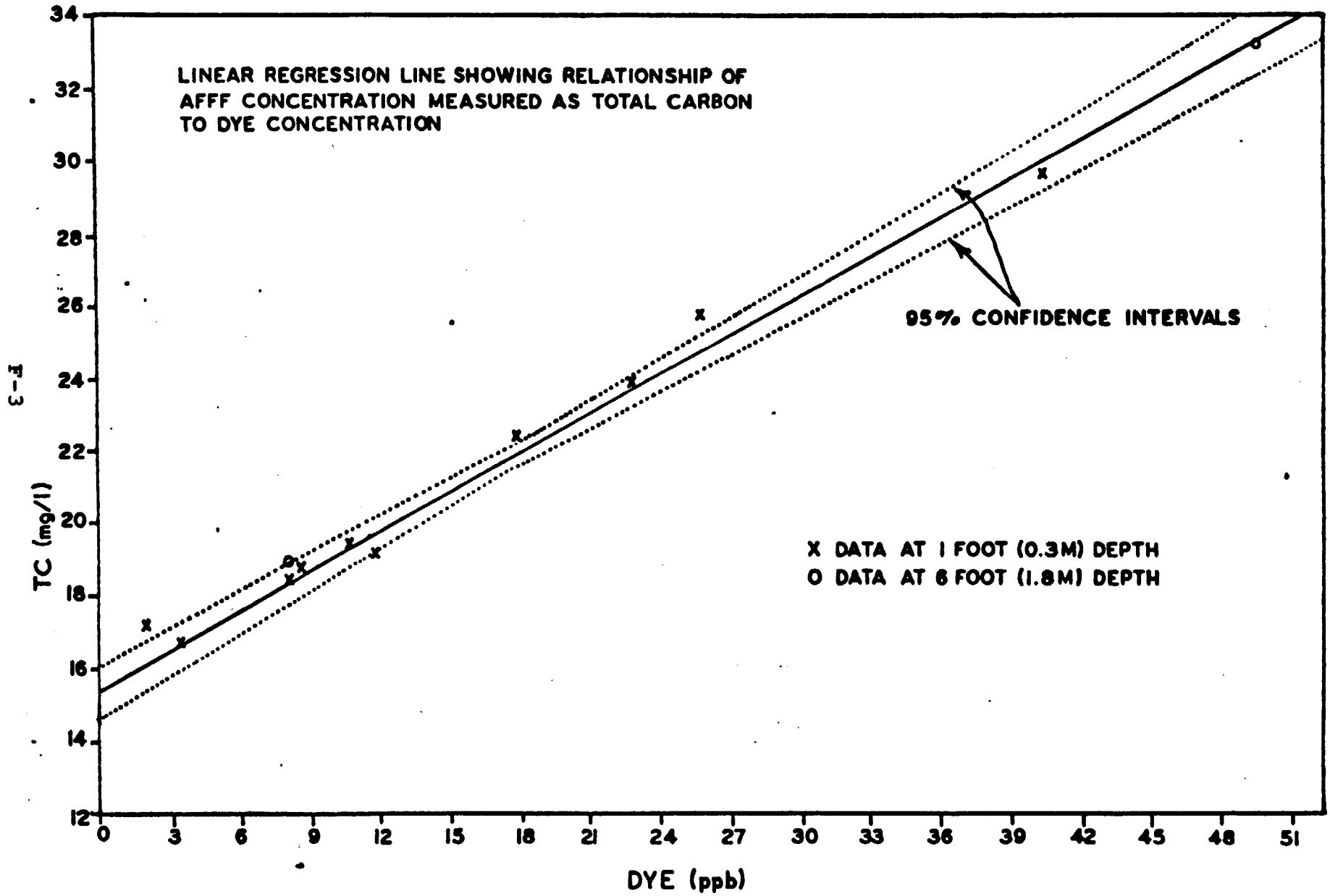
1. A small scale test was conducted in Dungan Basin at the David W. Taylor Naval Ship Research and Development Center, Annapolis Laboratory, on 3 September 1975. Released into the basin was a mixture of 1.2 gal (4.5 l) of AFFF (3M Co. FC-206) and 18.8 gal (71.2 l) of water drawn from the basin. The AFFF/water mixture was dyed to a concentration of 100 ppm (by weight) with rhodamine WT dye. The mixture was poured overboard at 1412 hours from a small boat in the center of the basin. Samples were pumped into collection bottles from depths of one foot (called surface samples, S), six feet, and nine feet from areas within the visible dye patch visually estimated to be those of highest dye concentration. Samples were analyzed for dye concentration, TC, and COD. Results of analyses are contained in table F-1. It was assumed that the increase in TC above background levels was due to the presence of AFFF.

2. Rhodamine dye concentration and TC data for samples collected at the one foot (0.3 m) depth are plotted in figure F-1. The relationship between dye and TC demonstrates that dye can be used to simulate the dispersion of AFFF. Although the rate of change in AFFF and dye was different, the dilution factors remained the same. Therefore, dilution data from an in situ dye dispersion study can be used to develop dilution factors applicable for predicting the decrease in AFFF concentration after release of a known quantity of AFFF under similar conditions in the study area.

Table F-1
Results of Laboratory Analyses of Water
Samples from Dungan Basin Before and
After the Addition of AFFF and Rhodamine Dye

| Time | Depth | | Dye Concentration (ppb) | TC (mg/l) | COD (mg/l) |
|------|-------|-----|---------------------------------------|--------------|-------------------|
| | (ft) | (m) | | | |
| Bkgd | 1 | 0.3 | <2 | 15.6 | 128 |
| Bkgd | 1 | 0.3 | <2 | 13.8 | 125 |
| Bkgd | 6 | 1.8 | <2 | 14.8 | 68 |
| Bkgd | 6 | 1.8 | <2 | 13.8 | 70 |
| 1412 | - | - | Release dye, 1.0×10^5 ppb | - | 2.6×10^4 |
| 1415 | 1 | 0.3 | 8.9 | 18.6 | 96 |
| 1415 | 6 | 1.8 | 8.3 | 18.7 | 80 |
| 1417 | 1 | 0.3 | 40.6 | 29.6 | 150 |
| 1417 | 6 | 1.8 | 49.5 | 33.2 | 144 |
| 1419 | 1 | 0.3 | 25.7 | 24.8 | 160 |
| 1419 | 6 | 1.8 | <2 | 14.6 | 84 |
| 1420 | 1 | 0.3 | 21.8 | 23.8 | 184 |
| 1420 | 6 | 1.8 | <2 | 14.8 | 104 |
| 1422 | 1 | 0.3 | 17.8 | 22.4 | 100 |
| 1422 | 6 | 1.8 | <2 | 14.8 | 80 |
| 1423 | 1 | 0.3 | 10.9 | 19.4 | 68 |
| 1423 | 6 | 1.8 | <2 | 14.1 | 148 |
| 1424 | 1 | 0.3 | 8.5 | 18.2 | 76 |
| 1424 | 6 | 1.8 | <2 | 15.3 | 64 |
| 1425 | 1 | 0.3 | 3.7 | 16.6 | 88 |
| 1425 | 6 | 1.8 | <2 | 14.1 | 132 |
| 1425 | 9 | 2.7 | <2 | 14.1 | 152 |
| 1427 | 1 | 0.3 | 11.9 | 19.2 | 100 |
| 1427 | 6 | 1.8 | <2 | 14.6 | 68 |
| 1427 | 9 | 2.7 | <2 | 14.1 | 188 |
| 1430 | 1 | 0.3 | 2.1 | 17.3 | 64 |
| 1430 | 6 | 1.8 | <2 | 13.6 | 48 |
| 1430 | 9 | 2.7 | <2 | 14.8 | 96 |

FIGURE F-1



APPENDIX G
TENTATIVE ALLOCATION PLANS AND CONSTRUCTION
SCHEDULES FOR SHIP CHT SYSTEMS, SWOBS,
AND PIPF SEWERS

TABLE G-1
 ACTIVITIES WHICH HAVE/PLAN TO HAVE PIERSIDE FACILITIES FOR
 SHIP-TO-SHORE SEWAGE TRANSFER TOGETHER WITH FACILITY DESCRIPTION AND STATUS*

15 October 1976

| LOCATION | MCON NO. | PCR NO. | DESCRIPTION | STATUS |
|--------------------------|----------|---------|--|--|
| <u>NORFOLK COMPLEX</u> | | | | |
| NAVSTA | P-807 | W289D | PIERS 7,12,20,21,22,23 PIER 24 PIER 25 | CONST.COMPL. FACILITY OPERATING UNDER CONST. UNTIL 6/78 UNDER CONST. UNTIL 7/77 |
| NAB LITTLE CREEK | P-206 | W131J | PIERS 56,57,58,59 | CONST.COMPL. FACILITY OPERATING |
| NAVSTA | P-911 | W289E | PIERS 2,3,4,5,10 | UNDER CONST. UNTIL 1/77 |
| NSY PORTSMOUTH | P-177 | W164G | WHARFS 1-12,15,23-27,29-33 35,36,38,39,41-45 | UNDER CONST. UNTIL 4/77 |
| NAB LITTLE CREEK | P-207 | W131K | PIERS 1-8,11-15,16-19 | UNDER CONST. UNTIL 3/77 |
| NSY PORTSMOUTH | P-999 | W164A | PIER C | UNDER CONST. UNTIL 4/77 |
| ----- | | | | |
| <u>SAN DIEGO COMPLEX</u> | | | | |
| NAVSTA | P-176 | W027D | PIER 4 | CONST.COMPL. FACILITY OPERATING |
| NSSF | P-036 | W304A | PIERS 5000,5002, DEPERMING PIER | CONST.COMPL. FACILITY OPERATING |
| NAS NORIA | P-313 | W018L | WHARFS I,J,K | CONST.COMPL. (MUNICIPAL CONN. COMPL.) Lift Station Pump Prob. |
| NAVSTA | P-179 | W027F | PIERS 5,6,8 SMALL CRAFT BASIN MOLE PIER PIERS 1,2,3 PIER 9 | UNDER CONST. UNTIL 5/77; PIER 5 CONST.COMPL. CONST.COMPL. CONST.COMPL. UNDER CONST. UNTIL 1/78 PLANNED EST.COMPLETION 12/78 |
| | P-191 | W032j | PIER 10 | PLANNED EST.COMPLETION 12/79 |
| | P-198 | - - | PIERS 11,12,13 | PLANNED EST.COMPLETION 12/80 |
| NSC | P-022 | W209K | BROADWAY PIER | UNDER CONST. UNTIL 12/76 |
| | P-023 | W209j | FUEL PIER PT.LOMA | UNDER CONST. UNTIL 12/77 |
| NUC | P-059 | W028D | PIERS 1,2 PT. LOMA | PLANNED EST. COMPLETION 6/78 |
| | P-057 | W028C | SAN CLEMENTE ISLAND | PLANNED EST. COMPLETION 7/79 |
| NAB CORONADO | P-093 | W220C | PIERS 3,8,13 | UNDER CONST. UNTIL 12/77 |

*NCBC letter to CNO, 25A1:WLR:hla, Control No. 610-23, Seria 5054 of 16 November 1976, enclosure (1).

TABLE 1 (cont.)

| LOCATION | MCON NO. | PCR NO. | DESCRIPTION | STATUS |
|-----------------------------|-----------|---------|---------------------------------|--|
| <u>CHARLESTON</u> | | | | |
| NSC | P-903 | W305A | PIER A | UNDER CONST. UNTIL 6/77 |
| NSY | | | PIERS C,D,F,G,H,J,K,L,M | UNDER CONST. UNTIL 6/77 |
| NAVSTA | | | PIERS N,P,Q,R,S,T,U | UNDER CONST. UNTIL 6/77 |
| NWS | P-901 | W119H | WHARF A, PIERS B,C, | UNDER CONST. UNTIL 11/76 |
| ----- | | | | |
| <u>MAYPORT</u> | | | | |
| NAVSTA | P-964 | W049K | WHARFS B,C,D,A | CONST.COMPL. FACILITY OPERATING |
| ----- | | | | |
| <u>PEARL HARBOR COMPLEX</u> | | | | |
| NSB | P-119 | W057G | PIERS S1-S5,S8,S9 | CONST.COMPL. (awaiting sewage transfer hose) |
| NAVSTA | P-991 | W165G | PIERS B1-B26, | UNDER CONST. UNTIL 2/77 |
| NSY | | | B1-B21,GD1-GD5, O2, MR NO. 2 | UNDER CONST. UNTIL 2/77 |
| NAVSTA | P-991A | W165H | PIERS M1-M4, | UNDER CONST. UNTIL 2/77 |
| NSC | | | H1-H4, | UNDER CONST. UNTIL 2/77 |
| NSB | | | S10-S14,S20,S21 | UNDER CONST. UNTIL 2/77 |
| NAVSTA | P-179 | W165I | A1-A7,S15-S19,F1-F5 | UNDER CONST. UNTIL 10/77 |
| NSC | | | V1-V4,K3-K11 | UNDER CONST. UNTIL 10/77 |
| NAVSTA | P-179A | W165J | F12,F13 | UNDER DESIGN, EST.COMPL. 7/78 |
| NAVMAG | P-179B | W165J | W1-W5 | UNDER DESIGN, EST.COMPL. 3/79 |
| ----- | | | | |
| <u>SAN FRANCISCO</u> | | | | |
| NAS ALAMEDA | P-100 | W007M | PIER 3 | CONST.COMPL. FACILITY OPERATING |
| | P-133 | W007N | PIERS 1,2 | CONST.COMPL. FACILITY OPERATING |
| NWS CONCORD | P-153 | W008F | PIER 2 | PLANNED, EST.COMPLETION 6/80 |
| NSY VALLEJO | P-203 | W031F | WHARFS 2-20,24 | PLANNED, EST.COMPLETION 5/78 |
| | | | PIERS 21-23 | PLANNED, EST.COMPLETION 5/78 |
| NSC OAKLAND | P-002,3,4 | W019F | ----- | PLANNED, EST.COMPLETION 12/79 |
| ----- | | | | |
| <u>PUGET SOUND</u> | | | | |
| NTS KEYPORT | P-190 | W146j | WHARF | UNDER CONST. UNTIL 1/77 |
| NSY BREMERTON | P-166 | W144K | PIERS 3-8 | PLANNED, EST. COMPLETION 1/80 |
| NSC BREMERTON | P-038 | W147N | FUEL PIER | PLANNED, EST. COMPLETION 5/77 |
| ----- | | | | |

TABLE G-1 (cont.)

| LOCATION | MCON NO. | PCR NO. | DESCRIPTION | STATUS |
|--------------------------|----------|---------|---------------------------------|---|
| <u>LONG BEACH</u> | | | | |
| NAVSTA | P-131 | W014F | PIERS 9,11,15 | CONST.COMPL. |
| NSY | P-172 | W015I | PIERS 1,2,3,6,E | CONST.COMPL. |
| NAVSTA | P-133 | W014G | PIER 7 | UNDER CONST. UNTIL 1/77 |
| NWS SEAL BEACH | P-096 | W035C | WHARF | PLANNED, EST. COMPLETION 7/78 |
| ----- | | | | |
| <u>GROTON/NEW LONDON</u> | | | | |
| NSB NEW LONDON | P-157 | W040D | PIEPS 1-4,6,8-10,12,13,15,17,31 | CONST.COMPL.(awaiting sewage transfer hose) |
| NUSC | P-116 | W332A | PIER 7 | PLANNED EST. COMPLETION 9/79 |
| ----- | | | | |
| <u>PENSACOLA</u> | | | | |
| NAS | P-999 | W051K | PIERS 302,302 | CONST.COMPL.(awaiting sewage transfer hose) |
| ----- | | | | |
| <u>WASHINGTON D.C.</u> | | | | |
| NAVSTA | P-194 | W042j | PIERS 1,4 | CONST.COMPL. FACILITY OPERATING |
| ----- | | | | |
| <u>PORTSMOUTH N.H.</u> | | | | |
| NSY | --- | --- | PIERS 1,2,3 | CONST.COMPL. FACILITY OPERATING |
| ----- | | | | |
| <u>ADAK</u> | | | | |
| NAVSTA | P-834 | W002I | PIER 3 | PLANNED, EST. COMPLETION 12/79 |
| ----- | | | | |
| <u>EARLE</u> | | | | |
| NWS | P-771 | W190A | PIERS 2,3 | PLANNED, EST. COMPLETION 6/77 |
| ----- | | | | |
| <u>NEW ORLEANS</u> | | | | |
| NSA | P-047 | W063C | PIER 1 | PLANNED, EST. COMPLETION 8/79 |
| ----- | | | | |
| <u>PANAMA CITY</u> | | | | |
| NSCL | P-999 | W266B | SOUTH DOCK, EAST DOCK | CONST.COMPL (awaiting sewage transfer hose) |
| ----- | | | | |

TABL. G-1 (cont.)

| LOCATION | MCON NO. | PCR NO. | DESCRIPTION | STATUS |
|------------------------|----------|---------|--------------|---|
| <u>PORT HUENEME</u> | | | | |
| CBC | P-332 | W023K | WHARFS 2-6,A | PLANNED, EST. COMPLETION 9/79 |
| ----- | | | | |
| <u>YORKTOWN</u> | | | | |
| NWS | P-336 | W136C | PIER 2 | UNDER CONST. UNTIL 1/77 |
| ----- | | | | |
| <u>PHILADELPHIA</u> | | | | |
| NSY | P-451 | W106D | PIERS 1,2,4 | UNDER CONST. UNTIL 11/76 CONST.COMPL.(awaiting sewage transfer hose) |
| | P-443 | W106B | PIERS 5,6 | |
| ----- | | | | |
| <u>ROOSEVELT ROADS</u> | | | | |
| NAVSTA | P-997 | W111H | PIERS 1,2,3 | UNDER CONST. UNTIL 4/77 |
| ----- | | | | |
| <u>GUAM</u> | | | | |
| NAVSTA | P-094 | W064K | A,B & V | UNDER CONST. UNTIL 11/76 |
| NAVSHIPREPFAC | | | L,M,N,& O | UNDER CONST. UNTIL 11/76 |
| NSD | | | R,S,T, & U | UNDER CONST. UNTIL 11/76 |
| NAVMAG | | | H | UNDER CONST. UNTIL 11/76 |
| NAVSTA | P-107 | W064R | X | PLANNED, EST. COMPLETION 12/79 |
| ----- | | | | |
| <u>PORTLAND, OR</u> | | | | |
| NAVRESCTR | O&MN | W258C | PIERSEWER | AWAITING AWARD OF CONST.CONTRACT (EST.COMPL. OF CONST. 4/77) |
| ----- | | | | |
| <u>TACOMA, WA</u> | | | | |
| NAVRESCTR | O&MN | W151C | PIERSEWER | AWAITING AWARD OF CONST.CONTRACT (EST.COMPL. OF CONST. 4/77) |
| ----- | | | | |
| <u>EVERETT, WA</u> | | | | |
| NAVRESCTR | O&MN | | PIERSEWER | UNDER CONST. UNTIL 1/77 |
| ----- | | | | |

G-4

TABLE G-1 (cont.)

| LOCATION | MCON NO. | PCR NO. | DESCRIPTION | STATUS |
|---------------------------------|---------------|---------|-----------------------|--------------------------------|
| <u>GALVESTON, TX</u> | | | | |
| NAVRESCTR | MCNR P-032 | W322A | PIERSEWER STRUCT. #11 | PLANNED, EST. COMPLETION 7/77 |
| <u>ST. PETERSBURG, FL</u> | | | | |
| NAVRESCTR | MCNR P-241 | W329A | PIERSEWER STRUCT. #6 | PLANNED, EST. COMPLETION 7/77 |
| <u>BRONX, NY (Fort Schyler)</u> | | | | |
| NAVRESCTR | MCNR P-315 | W324A | PIERSEWER | PLANNED, EST. COMPLETION 1/78 |
| <u>PERTH AMBOY</u> | | | | |
| NAVRESCTR | MCNR P-346 | W338A | PIERSEWER | PLANNED, EST. COMPLETION 12/78 |
| <u>PORTLAND, ME</u> | | | | |
| NAVRESCTR | MCNR P-343 | W340A | PIERSEWER | PLANNED, EST. COMPLETION 10/78 |
| <u>BALTIMORE, MD</u> | | | | |
| NAVRESCTR | MCNR P-243 | W072A | PIERSEWER | PLANNED, EST. COMPLETION 10/77 |
| <u>JACKSONVILLE, FL</u> | | | NO PIERSEWER PLANNED | |
| <u>BOSTON, MA</u> | | | NO PIERSEWER PLANNED | |
| <u>NEWPORT, RI (NETC)</u> | | | | |
| NAVSTA | P-208 | W116N | PIERSEWER PLANNED | |

TABLE G-1 (cont.)

| LOCATION | MCON NO. | PCR NO. | DESCRIPTION | STATUS |
|---|-----------|---------------|-------------------------|--------|
| <u>GREAT LAKES, IL</u> | | | NO PIERSEWER PLANNED | |
| <u>YOKOSUKA, JAPAN</u> | | | | |
| <u>LA MADDALENA, IT</u> | | | | |
| <u>HOLY LOCH, SC</u> | | | WILL USE SWOB | |
| <u>ROTA, SPAIN</u> | | | WILL USE SWOB | |
| <u>BAHRAIN</u> | | | | |
| <u>GAETA</u> | | | | |
| <u>NAPLES</u> | | | | |
| <u>BROOKLYN, NY (Floyd Bennett Field)</u> | NAVRESCTR | MCNR P-319 | W337B PIERSEWER PLANNED | |

G-6

TABLE G-2
SHIPS WASTE OFFLOAD BARGE (SWOB) ALLOCATION PLAN AND DELIVERY SCHEDULE*

| | FY74 PROCUREMENT (OIL) | | FY75 PROCUREMENT (OIL) | | | FY76 PROCUREMENT (OIL & SEWAGE) | | TOTAL ALLOCATED | |
|-------------------------|---------------------------|-----------|---------------------------|-----------|--------------------|------------------------------------|-----------------------|--------------------|-----------|
| | ALLOCATED | DELIVERED | ALLOCATED | DELIVERED | TO BE DELIVERED | ALLOCATED (OIL) | ALLOCATED (SEWAGE) | OIL | SEWAGE |
| NAVSHIPYD Portsmouth | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 |
| WPNSTA Earle | 0 | 0 | 2 | 0 | 1 (Note 1) | 1 | 0 | 2 | 0 |
| NAVSHIPYD Philadelpia | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 2 | 0 |
| WPNSTA Yorktown | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| NAVSTA Norfolk | 3 | 3 | 3 | 3 | 0 | 0 | 2 | 6 | 2 |
| NAVPHIBASE Little Creek | 1 | 1 | 1 | 1 | 0 | 0 | 1 | 2 | 1 |
| NAVSHIPYD Norfolk | 1 | 1 | 0 | 0 | 0 | 1 | 0 | 2 | 0 |
| NAVSTA Charleston | 2 | 2 | 0 | 0 | 0 | 1 | 0 | 3 | 0 |
| NAVSHIPYD Charleston | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 |
| NAVSHIPYD Puget Sound | 2 | 2 | 3 | 3 | 0 | 0 | 0 | 5 | 0 |
| NAVSHIPYD Mare Island | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| NAVFUELDEP Point Molate | 0 | 0 | 1 | 0 | 1-Jan '77 | 0 | 1 | 1 | 1 |
| NSC Oakland | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| NAVSHIPYD Long Beach | 2 | 2 | 0 | 0 | 0 | 0 | 1 | 2 | 1 |
| NAVSTA San Diego | 3 | 3 | 0 | 0 | 0 | 0 | 2 | 3 | 2 |
| NAS North Island | 2 | 2 | 0 | 0 | 0 | 0 | 0 | 2 | 0 |
| NAVSHIPYD Pearl Harbor | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| NAVSTA Pearl Harbor | 2 | 2 | 1 | 0 | 1 (Note 2) | 0 | 3 | 3 | 3 |
| NAVSTA Guam | 0 | 0 | 1 | 0 | 1 (Note 2) | 0 | 1 | 1 | 1 |
| NAVSTA Subic Bay | 0 | 0 | 1 | 0 | 1 (Note 2) | 0 | 0 | 1 | 0 |
| FLEACT Yokosuka | 0 | 0 | 2 | 0 | 2 (Note 3) | 0 | 0 | 2 | 0 |
| NAVSTA Rota | 0 | 0 | 1 | 0 | 1 (Note 4) | 0 | 1 | 1 | 1 |
| NAVSUPPO La Maddalena | 0 | 0 | 1 | 0 | 1 (Note 4) | 0 | 0 | 1 | 0 |
| NAVSTA Roosevelt Roads | 0 | 0 | 2 | 0 | 2-Jan '77 | 0 | 0 | 2 | 0 |
| NAVSTA Guantanamo Bay | 0 | 0 | 1 | 0 | 1-Jan '77 | 0 | 0 | 1 | 0 |
| TOTALS | 22 | 22 | 20 | 7 | 13 | 5 | 13 | 47 | 13 |

*Information provided by Naval Facilities Engineering Command (NAVFAC 104), 10 January 1977.

- Notes:
1. One barge delivered by contractor stored at NAVSHIPYD Puget Sound to be delivered by contractor to final destination.
 2. Three barges delivered by contractor in July 1976 to NAVSHIPYD Long Beach to await a Navy tow of opportunity to final destinations.
 3. Two barges delivered by contractor in September 1976 to NAVSHIPYD Long Beach to await a Navy tow of opportunity to final destinations.
 4. Three barges delivered by contractor in July 1976 to INACTSHIPAC Portsmouth to await a Navy tow of opportunity to final destinations.

FOR OFFICIAL USE ONLY

FOR OFFICIAL USE ONLY



NAVAL RESEARCH LABORATORY

WASHINGTON, D.C. 20375

IN REPLY REFER TO:

6180-525:HBP:pij
Prob. No. 61C05-19D

29 Oct 76

From: Commanding Officer, Naval Research Laboratory
Washington, D. C. 20375

To : Commander, Aeronautical Systems Division (ASD/AEG)
Wright Patterson Air Force Base, Ohio 45433

Subj: R&D Final Report on DOD-AGFSRS-76-10 (MIRP FY 7615-76-
05064) Improved Environmental Impact Properties for
AFFF Materials; forwarding of

Encl: (1) Two copies of subject report

1. Enclosure (1) is forwarded herewith for your information and retention.

6180-525A:HBP:pj
21 October 1976

Subj: R&D Final Report on DOD-AGFSRS-76-10 (MIPR FY 7615-76-05063)
Improved Environmental Impact Properties for AFFF Materials

Encl: (1) Work Statement from NRL Contract N00173-76-C-0295
(2) NSRDC/A ltr 2853:AMM 3160 dated 16 July 1976

1. A contract was signed, effective 29 June 1976, with the Ansul Co. to perform experimental work pertaining to the environmental characteristics of AFFF formulations and components thereof. A detailed statement covering the program is given in enclosure (1). A copy of Ansul's final report will be forwarded upon receipt at NRL. This is scheduled for December 1976.
2. Under separate contract with DTNSRDC/Annapolis, studies were completed on the recently qualified AFFF concentrate made by the Ansul Co. These results are given in enclosure (2).
3. This is a final report on the subject contract. The remaining work to be done at NRL after completion of the Ansul contract will be carried out under the sponsorship of the Air Force Civil Engineering Center.

H.B. Peterson (ED)

Henry B. Peterson
Head - Fire Suppression Section
Chemical Dynamics Branch
Code 6180 - Chemistry Division

Encl (1) to NRL ltr
6180-525:HBP:pj
NRL Prob C05-19D

SECTION F - DESCRIPTION/SPECIFICATIONS

CONTRACTOR'S PROPOSALF-1. PROPOSAL OBJECTIVE

- a) The purpose of this work is to explore the development of experimental AFFF formulations that would exhibit reduced impact on the environment while retaining certain fire suppression characteristics. In particular it is proposed to examine the effect of the AFFF formulation components on the biological oxygen demand of the concentrate. In light of results previously obtained with available concentrates, fish toxicity is not considered to be a problem and therefore will not be investigated.
- b) It is furthermore proposed that the requirements of the MIL-F-24385 Amendment 8 and the proposed revision thereto will not apply to the present investigation. There will in all probability be a trade off between biological impact and physiochemical characteristics. Fire performance and corrosion characteristics are of primary importance whereas refractive index, pH, viscosity, foam expansion ratio, and surface interfacial tension are of lesser importance.
- c) The generally accepted method for determining proportioned or premixed solution composition is to measure the refractive index of the solution. In order to get acceptable accuracy and precision with field type refractometers, solvent levels of 15-20% are currently used in commercial products. It is assumed that these levels are deleterious from a biological aspect. Some effort will be expended in evaluating alternate analytical techniques for the measurement of AFFF solution concentration.

1.2 PROGRAM STEPSa) Raw Material BOD₂₀

Twenty day BOD studies will be conducted on typical fluorocarbon surfactants, hydrocarbon surfactants and solvents. The purpose will be to determine the effect of chemical composition on BOD₂₀.

Encl (1) to NRL LTR RPT
6180-525A:HBP:pij

SECTION F - (Cont'd)

b) BOD₂₀ Design Experiment

Investigate the effect of component concentration and type on BOD₂₀. Candidate formulations will be selected based on this investigation.

c) Formulation Design Experiment

Formulations will be selected based on the BOD₂₀ investigation and screened for fire performance and physiochemical properties. This will include corrosion characteristics, concentrate stability in addition to fire performance.

d) Analytical Methods Evaluation

An investigation of alternate analytical methods for determining solution concentration will be conducted to determine if a simple method for use in the field is feasible.

STATEMENT OF WORK (NRL's)

ENVIRONMENTALLY IMPROVED
AQUEOUS FILM FORMING FOAM
(AFFF)F-2. INTRODUCTION

The present formulations with respect to fire suppression are highly effective. However, improvements are desired in the environmental area; i.e., development of compositions that have a reduced impact on the environment without loss of fire suppression effectiveness.

2.1 TECHNICAL TASKS

- a) The Contractor shall explore the development of experimental AFFF formulations that would exhibit a reduced impact on the environment while retaining fire effectiveness.
- b) The proposed study will examine the effect of AFFF formulation components on the biological oxygen demand (BOD), chemical oxygen demand (COD), biodegradability, toxicity toward sewage bacteria, fish toxicity, effect of component concentration on selected environmental/biological parameters, formulation design experiments, and analytical methods evaluation.

SECTION F - (Cont'd)

2.1.1 TASK I - Raw Material BOD₂₀ and COD

Twenty-day BOD studies shall be conducted on typical fluorocarbon surfactants, hydrocarbon surfactants and solvents. The purpose will be to determine the effect of chemical composition on BOD₂₀. Chemical oxygen demand (COD) measurements, toxicity toward sewage bacteria, and fish toxicity (kill fish) will also be made on the above materials.

2.1.2 TASK II - Biodegradability and BOD₂₀ Design Experiment

Investigate the effect of component concentration on biodegradability and BOD₂₀. Candidate formulations will be selected based on this investigation.

2.1.3 TASK III - Formulation Design Experiment

Formulations shall be selected based on the BOD₂₀ biodegradability investigation and screened for fire performance and physiochemical properties. This will include corrosion characteristics, concentrate stability in addition to fire performance.

In the event that a more highly concentrated material (to be used in less than a 6% solution) is desired, all environmental properties shall be adjusted to a 6% datum base.

2.1.4 TASK IV - Analytical Methods Evaluation

An investigation of alternate analytical methods for determining solution concentration shall be conducted to determine if a simple method for use in the field is feasible.

3. PERFORMANCE FIRE MEASUREMENTS

- 3.1 Compare fire performance of the new formulation with that of formulation currently manufactured and employed in the field - by the same test methods. Fire performance test procedures shall conform to Paragraph 4.7, Mil-F-24385 (NAVY) Amendment 8, as applicable.

SECTION F - (Cont'd)

4. RECORDS

- 4.1 Processing, formulations, method of preparation, aging, stabilization, and other pertinent parameters shall be maintained so that your process and materials can be later accurately duplicated, so that future programs may be coordinated or compared to the results and conclusions of your current study. These records shall be available for perusal by NRL Scientific Officer for a period of 1 year following completion of the work.

5. DELIVERABLES

- 5.1 1. The contractor shall provide NRL a final summary report on all tasks and sub-tasks of this study. It shall consist of summaries of all studies and experiments along with theoretical or experimental based conclusions or recommendations.
2. 100 gallons of experimental concentrate of the final selected formulation.

SECTION G - PRESERVATION/PACKAGING AND PACKING

1. Material shall be crated in accordance with best domestic commercial practices to assure safe delivery to the Naval Research Laboratory.
2. Marking: Receiving Officer, Naval Research Laboratory, Washington, D. C., 20375, Contract Number N00173-76-C-0295.
3. The Contractor shall mark all shipments under this contract in accordance with the edition of MIL-STD-129 "Marking for Shipments and Storage", in effect on the date of the contract.
4. The Contractor shall comply with FED STD 313 (Symbols for Packages and Containers for Hazardous Industrial Chemical and Materials) to the extent applicable.



DEPARTMENT OF THE NAVY
NAVAL SHIP RESEARCH AND DEVELOPMENT CENTER
HEADQUARTERS
BETHESDA, MARYLAND 20834

ANNAPOLIS LABORATORY
ANNAPOLIS, MD 21402
CARDEROCK LABORATORY
BETHESDA, MD 20034

IN REPLY REFER TO:
2853:AMM
3160

16 JUL 1976

From: Commander, David W. Taylor Naval Ship R&D Center
To: Director, Naval Research Laboratory, Code 6180
Subj: Ansul, AFFF, Ansul Co., Marinette, Wisconsin 54143, 6% concentrate,
DOT Formulation No. A-71108, Bioassay of
Ref: (a) Work Request No. N00173-76-WR-60166
Encl: (1) Report TM-28-76-29, "DTNSRDC Standard Static Marine Bioassay
Procedure for Shipboard Chemicals"

1. In compliance with reference (a), listed below are the results of the bioassay tests of Ansul:

- | | |
|---|--|
| A. <u>Fundulus sp.</u> Killifish | LC ₅₀ = 4,287 ppm in 96 hrs |
| B. <u>Artemia salina</u> Brine Shrimp | LC ₅₀ = 3,937 ppm in 72 hrs |
| C. <u>Pseudomonas nigrifaciens</u> Bacterial Species | Bactericidal = 50,000 ppm in 96 hrs Bacteriostatic = 40,000 ppm in 96 hrs |
| D. <u>Thalassiorira pseudonana</u> | LC = <4000 ppm in 96 hrs |

2. The results of the Biochemical Oxidation Demand (BOD) and the Chemical Oxidation Demand (COD) tests along with a comparison of the BOD test in saline and non-saline waters are listed on page 2. These tests were performed by Code 2850 according to the 13th Edition, 1971 of "Standard Methods for the Examination of Water and Waste-Water."

Encl (2) to NRL LTR RPT
6180-525A:HBP:pij

2853:AM
3160

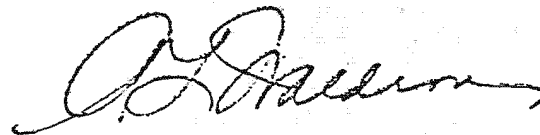
Subj: Ansul, AFFF, Ansul Co., Marinette, Wisconsin 54143, 6% concentrate,
DOT Formulation No. A-71108, Bioassay of

RESULTS OF BIOCHEMICAL OXYGEN DEMAND (BOD)
AND
CHEMICAL OXIDATION DEMAND (COD) STUDY OF ANSUL

| TEST DURATION (DAYS) | DILUTION | BOD (mg./l.) | |
|----------------------------|-----------|---------------------------|---------------------------|
| | | With NaCl | Without NaCl |
| 5 | 1:30,000 | 1.8 5.4 X 10 ⁴ | 1.4 4.2 X 10 ⁴ |
| | 1:100,000 | 1.2 1.2 X 10 ⁵ | 0.9 0.9 X 10 ⁴ |
| 10 | 1:30,000 | 1.4 4.2 X 10 ⁴ | oxygen depleted |
| | 1:100,000 | 1.9 1.9 X 10 ⁵ | 4.3 4.3 X 10 ⁵ |

COD = 4.09 X 10⁵ mg./l.

3. The results of the "In Vivo" tests indicate that Ansul has a relatively low level of toxicity and the BOD and COD test results indicate a reasonably high level of biodegradability.



A. L. WILLIAMS
By direction

Copy to:
NAVSEC (SEC 6101)

CANDIDATE ENVIRONMENTAL

IMPACT STATEMENT

DISCHARGING AQUEOUS FILM FORMING FOAM (AFFF)

TO HARBOR WATERS DURING TESTS OF

MACHINERY SPACE FIRE-FIGHTING FOAM SYSTEMS

ABOARD U.S. NAVY SHIPS

JANUARY 1978



DEPARTMENT OF THE NAVY
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IN REPLY REFER TO:

286:CSA
9593
2863-515

15 OCT 1976

From: Commander, David W. Taylor Naval Ship R&D Center
To: Commander, Naval Ship Engineering Center (SEC 6159)
Subj: Candidate Environmental Impact Statement (Draft) on Dis-
charging Firefighting System Aqueous Film Forming Foam
(AFFF) into Harbors; Status and Synopsis of
Ref: (a) DTNSRDC RDT&E Work Unit Summary 2863-514, AFFF Harbor
Dispersion Study, of 1 June 1975

1. Preparation of a draft Candidate Environmental Impact State-
ment (CEIS) on the discharge of AFFF from naval ships testing
their machinery space firefighting foam generating systems in
port (the proposed action) will be completed by 30 October 1976.
Difficulties obtaining adequate information for the preparation
of the CEIS have been encountered. These include the lack of
information on components of 3M Company FC206 AFFF concentrate
(which is proprietary), the unavailability of data on the quan-
tities of AFFF generated both aboard ships during system testing
and in each port facility and the frequency of such generation,
the wide variation in the environmental conditions at naval port
facilities which makes generalization of existing site character-
istics very difficult, and the limited data available for pre-
dicting the rates of dispersion and assimilation of AFFF dis-
charges into the harbors.

2. The above problems have been solved on the basis of informa-
tion obtained from the sources listed below, and of the stated
assumptions.

a. As stated, the 3M Company has not provided any useful
information about the components of FC206. However, estimates
of composition have been made by the U. S. Air Force, and results
of various tests indicate that FC206 is nearly 100% biodegradable.
Waste streams containing FC206 have also been successfully treated
by conventional activated sludge techniques in concentrations of
200 to 1000 mg/l with sewage although foaming problems were not
considered.

b. The quantities of AFFF that could be generated in Navy
ports were estimated on the basis of operational experience of
the Fire Fighting Assistance Team (FFAT), known equipment charac-
teristics, and ship location information. The numbers and types
of ships in each Navy homeport were listed. Using the number of
AFFF machinery space systems aboard each ship and the conclusion

that one-sixth of all system tests are conducted in port, the quantity of AFFF that could be generated per year for each port was calculated. Twelve Navy ports discharge 90% of the potential yearly total (the remaining ports discharge less than 30 gallons of AFFF concentrate per year).

c. The U. S. Navy Hydrographic Office (now NAVOCEANO) from 1959 through 1963 conducted studies of the relative flushing capabilities of eighteen harbors. Nine of these harbors are included in the 12 Navy ports with the highest potential AFFF discharge volume. It was possible to construct hypothetical examples of the worst case AFFF discharge for 9 ports and predict the rate of decrease of AFFF concentration in the discharge area based upon existing data. (Use of these data reduced the estimated project cost from \$125K to \$60K.)

3. Alternatives to the proposed action were investigated. These included utilization of an alternative nontoxic concentrate for tests; revising or refining test procedures to reduce the volume of discharge; rescheduling tests for discharge to pierside sewers, collection barges or open sea; performing tests with AFFF discharge contained as part of a closed system; redesigning shipboard maintenance plans to eliminate flow test; and enhancement of system component reliability to eliminate requirements for flow test. The alternatives as well as the proposed action were evaluated to determine the operationally and environmentally most acceptable alternatives.

4. A CEIS does not give specific conclusions or recommendations concerning a proposed action. It details the effects on the human environment of an action and of its alternatives. In a draft statement, an alternative may be favored. Also discussed are considerations that offset the adverse environmental effects of the proposed action.

5. The content of the CEIS can be summarized as follows. The preferred approach in the statement in preparation is continuation of current practice: discharging minimum quantities of AFFF into the waters of those harbors where collection and treatment or disposal of test effluent is not now practiced. Procedures are now available and are often used that both minimize the quantity of effluent generated and eliminate foaming of the discharge. Some Navy port facilities, on their own initiative, are evaluating procedures for collecting AFFF discharges in shipboard wastewater collection, holding and transfer (CHT) systems for transfer to pierside sanitary sewers or waste collection barges. A recommended

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minor modification of test procedures and effluent collection equipment, if coinciding with the Ship-to-Shore Sewage Transfer Program, could potentially eliminate AFFF discharges to harbor waters in major ports by calendar year 1981.

Copy to:
NAVSEA (SEA 0492P)



H. H. Singerman

H. H. SINGERMAN
By direction

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A003774

**CANDIDATE ENVIRONMENTAL
IMPACT STATEMENT**

**DISCHARGING AQUEOUS FILM FORMING FOAM (AFFF)
TO HARBOR WATERS DURING TESTS OF
MACHINERY SPACE FIRE-FIGHTING FOAM SYSTEMS
ABOARD U.S. NAVY SHIPS**

January 1978

Prepared by the David W. Taylor Naval Ship Research and
Development Center for the Naval Sea Systems Command in
accordance with OPNAVINST 6240.3D in compliance with Section
102(2)(c) of the National Environmental Policy Act of 1969

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LIST OF APPENDICES

- Appendix A - NAVSEA message 1915238 Feb 1975, AFFF Testing
(unclassified)
- Appendix B - Comparisons of the Various Parameters of AFFF's
- Appendix C - FP-180 Water Motor Proportioner
- Appendix D - AFFF System Test and Waste Disposal Procedures
- Appendix E - Biodegradability and Toxicity of FC-206
- Appendix F - Small Scale AFFF/Dye Dispersion Test
- Appendix G - Tentative Allocation Plans and Construction
Schedules for Ship CHT Systems, SWOB's, and
Pier Sewers

LIST OF ABBREVIATIONS AND SYMBOLS

| | |
|------------------|--|
| AFFF | - aqueous film forming foam |
| ASAP | - as soon as possible |
| AvGas | - aviation gasoline |
| BOD | - biochemical oxygen demand |
| BOD ₅ | - five-day biochemical oxygen demand |
| BOD _u | - ultimate biochemical oxygen demand |
| °C | - degree Celsius |
| CEIS | - candidate environmental impact statement |
| CHT | - collection, holding and transfer (tanks aboard ship) |
| cm ³ | - cubic centimetre |
| CNM | - Chief of Naval Material |
| COD | - chemical oxygen demand |
| DO | - dissolved oxygen |
| FC-200 | - type of "Light water" AFFF, 3M Company |
| FC-206 | - type of "Light water" AFFF, 3M Company |
| FFAT | - fire-fighting assistance team |
| FP-180 | - water motor proportioner for mixing fire fighting foam concentrate with sea water |
| ft | - foot |
| FWPCA | - Federal Water Pollution Control Act |
| g | - gram |
| gal | - gallon |
| gpm | - gallon per minute |
| HCCF | - high capacity fog foam |

JP-4 - Navy aircraft fuel
 JP-5 - Navy aircraft fuel
 l - litre
 LC₅₀ - concentration of a toxic substance that will
 kill 50 percent of test organisms within a
 specified time period
 l/s - litre per second
 m - metre
 m³ - cubic metre
 mg - milligram
 mg/l - milligram per litre
 NAVFAC - Naval Facilities Engineering Command
 NAVFACWESTDIV - Naval Facilities Engineering Command, Western
 Division
 NAVOCEANO - Naval Oceanographic Office
 NAVSEA - Naval Sea Systems Command
 NAVSEC - Naval Ship Engineering Center
 NCBC - Naval Construction Battalion Center
 NFPA - National Fire Protection Association
 NPDES - National Pollution Discharge Elimination System
 NRL - Naval Research Laboratory
 NSC - Naval Safety Center, Norfolk, Virginia
 pH - negative logarithm of the hydrogen ion concentration
 PKP - potassium bicarbonate powder
 PMS - preventive maintenance schedule

ppb - part per billion (1×10^{-9})
ppm - part per million (1×10^{-6})
SHIPALT - ship alteration
SWOB - ship waste off-load barge
TC - total carbon
TDS - total dissolved solids
TSS - total suspended solids
3M - Minnesota Mining and Manufacturing Company
 $\mu\text{l}/\text{l}$ - microlitres per litre

CEIS PREPARATION COST ESTIMATES

The following estimate of preparation costs for this document against the categories identified below are listed in accordance with OPNAVINST 6240.3D, paragraph 4302b.

1. Salaries of military and civilian personnel.

\$30K.

2. Associated travel costs. None.
3. Directly associated research costs. \$4.4K.
4. Contract and consultant costs directly related.

\$22.3K.

5. Indirect but related costs. \$1.3K.
6. Administrative costs. \$2K.
7. Costs of public hearings. None.

SECTION 1

SUMMARY

1. This is a Candidate Environmental Impact Statement (CEIS).
2. Title: Discharging Aqueous Film Forming Foam (AFFF) to Harbor Waters During Tests of Machinery Space Fire-Fighting Foam Systems Aboard U.S. Navy Ships.

Action: Administrative.

3. Action Description: Regular in situ testing of AFFF fire-fighting systems aboard ship is imperative in the interest of personnel safety and material protection. Each test of a machinery space system generates approximately 90 gal (0.34 m³) of AFFF at a concentration of 3.5 to 6 percent in sea water. Containment and disposal of AFFF test mixtures is difficult due to design configuration, foaming, or the unavailability of containment vessels. Therefore, AFFF is discharged overboard as it is produced.

a. All AFFF fire-fighting equipment that is newly installed, repaired, altered or converted from protein foam by an industrial activity is tested to insure proper operation and required output.

b. All AFFF fire-fighting equipment is tested on a six-month PMS.

Location: AFFF fire-fighting equipment is tested aboard naval ships located in 33 ports in the continental United States and Hawaii and in 6 naval shipyards servicing surface ships. Approximately 90 percent of the AFFF discharged is produced at naval installations in the following 10 locations.

San Diego, California

Norfolk (Naval Base), Virginia

Charleston, South Carolina

Honolulu (Pearl Harbor), Hawaii

Philadelphia, Pennsylvania

Mayport, Florida

Norfolk (Little Creek Amphibious Base), Virginia

Long Beach, California

Bremerton (Puget Sound), Washington

Alameda, California

4. Environmental Impact:

a. Air - no impact.

b. Navigable waters.

(1) Physical, chemical, biological.

(a) Discharge into harbors with inadequate natural mixing may result in localized areas of chemicals concentration - initial dilution and dispersion rapidly reduce chemicals concentration.

(b) Chemicals interaction with other contaminants already in the harbor is unknown - the possible effects of AFFF are reduced by discharging limited quantities and by rapid dilution.

(c) Certain concentrations of AFFF are toxic to marine organisms - the toxicity of AFFF has been determined, and the concentration of AFFF in harbor waters after discharge is well below acute toxic levels.

(d) The BOD of AFFF is very high - the BOD and COD of AFFF are nearly equal, indicating that the substance is nearly 100% biodegradable.

c. Socioeconomic - Port areas are normally associated with industrial activity and are not used for commercial fishing or recreation. The discharge of limited quantities of AFFF will have no socioeconomic affect on the port area.

d. Aesthetic - Testing with the recommended non-foaming nozzles will eliminate unsightly foam on the water surface previously associated with AFFF discharges.

5. Alternatives:

- a. Test with substitute concentrate material.
- b. Redefine test procedures to reduce discharge volume.
- c. Adjust test schedules for discharge only when collection, treatment, and disposal facilities are available.
- d. Perform tests with discharge contained as part of a closed system.
- e. Eliminate shipboard flow test by redesigning maintenance plan.
- f. Eliminate shipboard flow test by enhancing system component performance reliability.
- g. Preferred Approach - Discharge minimum quantities of AFFF into harbors where collection and treatment or alternate disposal of test effluent is not now practiced. Gradually eliminate discharge by utilizing collection, treatment, and disposal facilities now being constructed as they become available for service.

6. Environmental Significance

a. This statement concludes that the impact of the proposed action on the environment will not be environmentally significant. Given the low volumes of AFFF discharged, the infrequency of the discharge, and the rapid dilution that takes place in the receiving water, the proposed action should not be environmentally controversial when considered with the criticality of the fire protection function aboard ship. The environmental impact will be further reduced as adequate facilities for collection, treatment, and disposal of AFFF test effluents become available for service.

SECTION 2

INTRODUCTION

1. Project Description

Proposed Action: Discharge Aqueous Film Forming Foam (AFFF) to Harbor Waters During Tests of Machinery Space Fire-Fighting Foam Generation Systems Aboard U.S. Navy Ships.

a. Each surface ship of the Navy is equipped with a fire-fighting system with a capacity and state-of-readiness to combat and extinguish fires within the range of severity which could occur as a result of normal day-to-day operations or offensive or defensive combat incidents.

b. Criticality of the fire protection function dictates that equipment and fire-fighting crews be exercised on a regular basis as part of the maintenance program. A naval message from Commander, NAVSEA 0945D, appendix A, requires, "All AFFF fire-fighting equipment that is newly installed, repaired, altered or converted from protein foam by an industrial activity shall be tested to insure proper operation and required output." The message states that the following procedures be observed when testing AFFF hoses.

(1) The minimum acceptable concentration of AFFF in the output mixture of the system is 3.5 percent.

(2) The foam should be generated for one minute before sampling. After the sample has been taken, the system should be secured ASAP to avoid excessive use of AFFF concentrate.

(3) If the only work done on a system was on the foam generator (proportioner or pump), then only one hose shall be tested with AFFF to verify foam generator performance. One and one-half inch variable flow nozzles shall be tested at 95 gpm (6 l/s) in machinery spaces and 125 gpm (7.9 l/s) in hangar bays or flight decks. Two and one-half inch variable flow nozzles should be tested at 250 gpm (15.8 l/s).

(4) The above requirements apply, and the systems shall be tested and certified in port prior to ship trial runs, for testing of the machinery space AFFF fire-fighting system aboard active ships and new construction.

c. Critical areas of greatest fire potential (such as machinery spaces, hangar and flight decks, weapons elevators, and helicopter landing areas) are protected by fire-fighting foam generation equipment that employ AFFF as the extinguishing agent.

2. Background

a. Many fire-fighting formulations have been evaluated for efficiency and safety. Because oil floats on water, the application of water on an oil fire could spread the flaming oil, but by generating and applying a foam, an oil fire could be extinguished by smothering the flames. A protein-based "mechanical foam" was developed that, when mixed with water and air, would spread over the surface of an oil fire and prevent the vapors from escaping, mixing with air and burning. However, protein foam has the disadvantage of being fragile. If the foam

blanket is disturbed and broken, volatile vapors could escape and a flashback could occur. In a congested machinery space, it is likely that with the movement of firefighters and their equipment, this could occur.¹

b. AFFF was developed in the mid-1960's. It has the advantage of producing a more rugged vapor sealing blanket than protein foam. It can be vigorously sprayed on a fire and a vapor barrier would remain intact in foot traffic. The active ingredient in AFFF is fluorocarbon surfactant. Fluorocarbon surfactants function as effective vapor securing agents based upon their outstanding effect in reducing the surface tension of water and of their controllable oleophobic and hydrophilic properties, and on their chemical stability. Thus, the physical properties of water can be controlled so that it can foam, float, spread across and remain on the surface of a hydrocarbon fuel even though water itself is denser than the fuel. The term "light water" was based upon those properties. "Light water" appeared in several early military specifications defining the properties of this class of agents. The NFPA later adopted the term "aqueous film forming foam" to refer to fluorocarbon surfactant-based fire-fighting agents. The term "light water" has become associated with the fire-fighting products of the 3M Company.¹

¹Superscripts refer to similarly numbered entries in Section 10, References.

c. To improve shipboard protection against fires, the Navy is converting all protein foam generating fire-fighting equipment aboard ship to AFFF.² The AFFF concentrate specified for use in testing fire-fighting systems must conform to MIL-F-24385 (Military Specification Fire Extinguishing Agent, Aqueous Film Forming Foam (AFFF) Liquid Concentrate, Six Percent, for Fresh and Sea Water, Amendment 2, 25 June 1970). Approved AFFF concentrate (Light Water[®] FC-206, manufactured by 3M Company) is obtained from the Federal Supply under NSN-9C-4210-00-087-4742 for 5 gal (19 l) containers and NSN-9C-4210-00-087-4750 for 50 gal (190 l) drums.

d. A common type of AFFF currently used aboard naval ships is Light Water FC-200 manufactured by 3M Company. The stocks of FC-200 are gradually being replaced by FC-206. A comparison of various parameters of AFFF's are contained in appendix B. The constituents of the AFFF formulas are trade secrets and have not been disclosed to the Navy.

e. By design, the fire-fighting mixture should consist of 94% firemain water and 6% AFFF concentrate. However, acceptance test criteria allow for a mixture to contain, as a minimum, 3 1/2% AFFF concentrate. Considering the test use of a 1 1/2 inch nozzle at 90 gpm (5.7 l/s), an output of from 3.15 gal (11.9 l) to 5.4 gal (20.4 l) of the AFFF concentrate could be discharged overboard during each minute of the test. Since the ship would not be moving at the time of

[®]Light Water - Registered Trademark, 3M Company.

effluent discharge, its dispersion would be totally dependent upon the initial dilution of the discharge and diffusion due to local tidal movements, current flow, etc.

f. The foam proportioning equipment installed aboard Navy ships for machinery space fire control in most cases is the FP-180 foam proportioner. A description of the FP-180 and a diagram of a typical permanent installation is contained in appendix C.

g. The FP-1000 foam proportioner and the AFFF Two Speed Injection Pump are often installed in ship hanger bays and on flight decks. These highflow systems are not installed in machinery spaces and will not be tested in port (see section 3.a.(2)). Therefore, they will not be discussed further.

3. Site Characteristics

a. Obligatory in-port testing of AFFF fire-fighting systems is required after work on the system and during regular PMS testing:

(1) The message in appendix A states, "All AFFF fire-fighting equipment that is newly installed, repaired, altered or converted from protein foam by an industrial activity shall be tested to insure proper operation and required output."

For the purpose of this statement an "industrial activity" is defined as a facility at which the construction, conversion, or repair of ships is accomplished. Most industrial activity aboard Navy surface ships is done at the six naval shipyards listed below:

| <u>Activity</u> | <u>City</u> | <u>State</u> |
|------------------------------|---------------|--------------|
| Naval Shipyard: Philadelphia | Philadelphia, | PA |
| Naval Shipyard: Norfolk | Portsmouth, | VA |
| Naval Shipyard: Charleston | Charleston, | SC |
| Naval Shipyard: Long Beach | Long Beach, | CA |
| Naval Shipyard: Puget Sound | Bremerton, | WA |
| Naval Shipyard: Pearl Harbor | Honolulu, | HI |

(2) All AFFF fire-fighting equipment is also tested on a six-month PMS. For the purpose of this CEIS, it is assumed that regular PMS testing of non-machinery room AFFF system can be delayed until the earliest opportunity when a ship is underway in unrestricted waters. AFFF generated by these system tests can then be discharged directly overboard. However, the criticality of machinery room AFFF systems for personnel safety and material protection makes it imperative that these systems be tested at regular intervals (according to ship PMS) even though a ship may be in port. AFFF generated during in-port PMS testing is discharged overboard. Generation rates are based upon unclassified information about U.S. Navy commissioned surface ship inventories on a homport basis.³ The relative locations of U.S. Navy homeports are shown in figure 2-1. Estimates of the quantity of AFFF discharged overboard in each Navy port are given in table 4-4. The ports are ranked based upon the estimated quantity of AFFF discharged during in-port testing. Estimates of newly installed, repaired, altered or converted AFFF systems

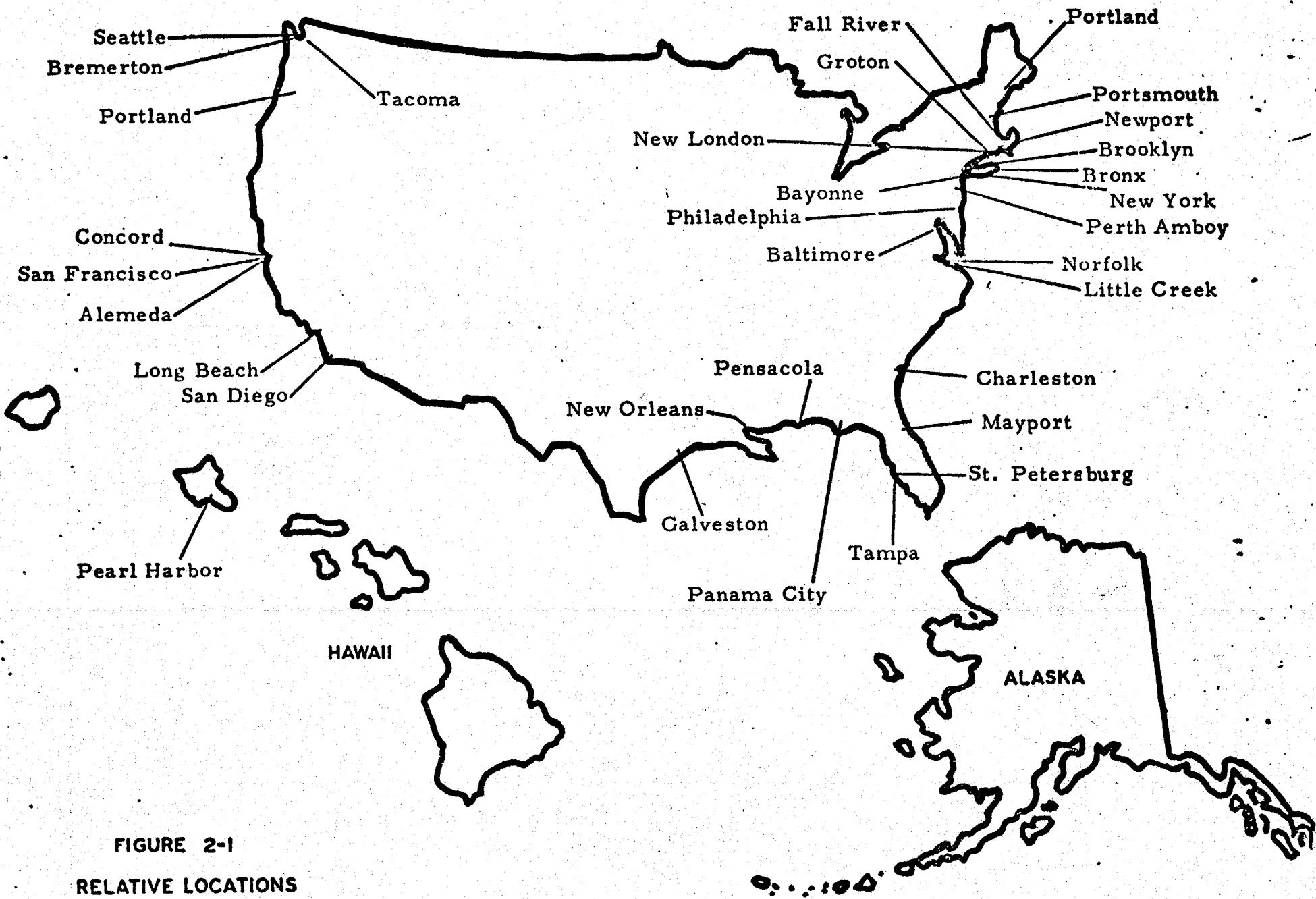


FIGURE 2-1
RELATIVE LOCATIONS
OF U.S. NAVY PORTS

are added onto port totals for PMS testing only when alternatives to direct discharge disposal procedures are not practiced (see table 4-2). Approximately 90 percent of the AFFF discharged is generated in the ten ports listed in table 2-1. The annual discharges in each of the remaining ports are estimated at less than 32 gal (0.12 m³) of AFFF concentrate per year. These quantities can be considered negligible.

Table 2-1
 Summary of Estimated Volumes of AFFF
 Discharged Overboard in Navy Ports Per Year
 During Testing of Machinery Space Fire-Fighting Systems

| Port Location | 6% AFFF gal (m ³) | Concentrate AFFF ₃ gal (m ³) |
|--------------------------------|----------------------------------|---|
| San Diego, CA | 9480 (35.88) | 568.8 (2.12) |
| Norfolk (Naval Station), VA(a) | 7770 (29.41) | 466.2 (1.76) |
| Charleston, SC(a) | 3690 (13.84) | 221.4 (0.84) |
| Honolulu (Pearl Harbor), HI(b) | 3360 (12.72) | 201.6 (0.76) |
| Philadelphia, PA (b) | 2760 (10.45) | 165.6 (0.63) |
| Mayport, FL | 2640 (9.90) | 158.4 (0.60) |
| Little Creek, Norfolk, VA | 1950 (7.31) | 117 (0.44) |
| Long Beach, CA(a) | 1560 (5.85) | 93.6 (0.35) |
| Bremerton (Puget Sound), WA(b) | 940 (3.56) | 56.4 (0.21) |
| Alameda, CA | 660 (2.47) | 40 (0.15) |
| Other Navy Homeports | 4163.3 (15.77) | 249.8 (0.95) |

(a) Excluding shipyard tests.
 (b) Including shipyard tests.

b. The information contained in table 2-2 was supplied by the Navy Environmental Support Office, NCBC, Port Hueneme, California. It tabulates the water quality classifications and parameters for which water quality standards have been adopted for each harbor area listed in table 2-1.

**Table 2-2
WATER QUALITY REFERENCES FOR SELECTED NAVY PORTS**

| Harbor Area | Beneficial or Protected Use Classification | | Applicable Standards/Objectives | | Water Quality References | Interstate/State/Local Water Quality Management Agencies |
|-------------------------------------|--|---|---------------------------------|--|---|--|
| | Code | Description (a) | Code | Parameter (b) | | |
| San Diego Bay San Diego, CA | Coastal | IND NAV REC-1 REC-2 COMM SAL RARE MAR MIGR SHELL | N/A | COLOR TASTE & ODOR FLOATING SOLIDS TSS SETTLABLE SOLIDS OIL & GREASE TURBIDITY pH DO BACTERIA TEMP TOXICITY General non-quantified limitations on waste from vessels | <ul style="list-style-type: none"> • "Comprehensive Water Quality Control Plan for the San Diego Basin (Abstract), July 1975" Source: San Diego Regional Water Quality Control Bd. 6154 Mission Gorge Rd. San Diego, CA | <ul style="list-style-type: none"> • California Water Quality Control Bd., San Diego Region (303 planning)(c) • Comprehensive Planning Organization of the San Diego Region (208 planning)(d) |
| Long Beach Harbor Long Beach, CA | Coastal | NAV REC-2 COMM RARE MAR SHELL | N/A | COLOR TASTE & ODOR FLOATING MATERIAL TSS SETTLABLE SOLIDS OIL & GREASE BIOSTIMULANTS TURBIDITY pH DO BACTERIA TEMP TOXICITY PESTICIDES | <ul style="list-style-type: none"> • "Water Quality Control Plan for the Los Angeles River Basin, Mar 1975" Source: Los Angeles Regional Water Quality Control Board 107 S. Broadway, Suite 4027 Los Angeles, CA 90012 | <ul style="list-style-type: none"> • California Water Quality Control Board, Los Angeles Region (303 planning) |
| San Francisco Bay Alameda, CA | | REC-1 REC-2 NAV MAR RARE WILD COMM IND SHELL | N/A | COLOR TASTE & ODOR FLOATING MATERIAL TSS SETTLABLE SOLIDS OIL & GREASE BIOSTIMULANTS TURBIDITY pH DO BACTERIA TEMP TOXICITY PESTICIDES | <ul style="list-style-type: none"> • "Water Quality Control Plan for the San Francisco Bay Basin, July 1975" Source: Bay Area Regional Water Quality Control Bd. 111 Jackson St. Oakland, CA 94607 | <ul style="list-style-type: none"> • California Water Quality Control Board, Bay Area Region (303 planning) • Association of Bay Area Governments (208 planning) • Bay Conservation District Commission (coastal zone management) |

(Continued)

Table 2-2
WATER QUALITY REFERENCES FOR SELECTED NAVY PORTS (CONTINUED)

| | Beneficial or Protected Use Classification | | Applicable Standards/Objectives | | Water Quality References | Interstate/State/Local Water Quality Management Agencies |
|------------------------------------|--|---------------------------------------|---------------------------------|---|---|--|
| | Code | Description (A) | Code | Parameter (B) | | |
| Killoughby Bay Norfolk, VA | IIa | ESTUARINE NUN REC-1 MAR | II | DO pH TEMP | <ul style="list-style-type: none"> "Small Coastal Basins Water Quality Data Report, Oct 76" Source: Virginia Institute Marine Science Attn: Dr. Bruce Neilson Gloucester Point, VA Virginia Water Quality Standards, amended Nov 74 "Water Quality Inventory 305(b) Report, Apr 1976" "Lower James River Basin 305(c) Report (Planning Bulletin 217(B), July 1974" Source: Virginia Water Control Board P.O. Box 11143 2111 N. Hamilton St. Richmond, VA 23230 | <ul style="list-style-type: none"> Virginia Water Control Board (303 planning) Hampton Roads Water Quality Agency (208 planning) Bureau of Shellfish Sanitation |
| Little Creek Virginia Beach, VA | III B | FREE FLOW STR. NUN REC-1 MAR | III B All Class | DO pH TEMP BACTERIA General non-quantified limitations on floating, toxic, and deleterious substances. | | |
| Cooper River Charleston, SC | SC | TIDAL REC-2 CGM MAR | SC | FLCAT. SOLIDS DO BACTERIA pH General non-quantified limitations on toxic and deleterious substances | <ul style="list-style-type: none"> Stream Classifications for State of South Carolina amended 9/1/72 Water Classifications Standards System, amended 1974 "Santee-Cooper River Basin Water Quality Management Plan, 1975" Source: SC Dept of Health and Environmental Control | <ul style="list-style-type: none"> South Carolina Dept. Health and Environmental Control (303 planning) Berkely-Charleston-forchester Planning Council (208 planning) South Carolina Wildlife and Marine Resources Center (coastal zone management) |
| St. John's River Mayport, FL | III | REC-1 REC-2 MAR WILD | | pH DO BACTERIA TURBIDITY TDS FLUORIDES CHLORIDES GROSS BETA CYANIDE COPPER ZINC CHROMIUM PHENOLS LEAD DETERGENTS MERCURY TEMP General non-quantified limitations on toxic and deleterious substances | <ul style="list-style-type: none"> "St. John's River Basin Plan" Source: Florida Dept. of Environmental Regulations Tallahassee, FL | <ul style="list-style-type: none"> Florida Dept. of Environmental Regulation (303 and 208 planning) Bureau of Coastal Zone Management, Department of Natural Resources (coastal zone management) |

2-10

(Continued)

Table 2-2
WATER QUALITY REFERENCES FOR SELECTED NAVY PORTS (CONTINUED)

| Harbor Area | Beneficial or Protected Use Classification | | Applicable Standards/Objectives | | Water Quality References | Interstate/State/Local Water Quality Management Agencies |
|---|---|--|---|--|---|---|
| | Code | Description (a) | Code | Parameter (b) | | |
| Sinclair Inlet Bremerton, WA | A | MIGR WILD REC-1 REC-2 IND NAV COMM SHELL | A | BACTERIA CO TEMP TOTAL DISSOLVED GAS pH TURBIDITY General non-quantified limitations on toxic and deleterious substances | None available | State Department of Ecology (303 and 208 planning, coastal zone management) |
| Delaware estuary (Zone 01.020) Philadelphia, PA | 1.2 1.3 2.2 2.4 3.1 3.2 4.1 4.2 4.3 | WARM MIGR IND WILD REC-2 boating REC-2 fishing POW NAV WASTE | a2 b4 c7 d9 e4 f4 g2 h2 j2 q2 w1 h | pH CO TEMP TEMP TDS BACTERIA TURBIDITY ALKALINITY NORC PHENOL RADIOACTIVITY TOX (e) | 25 PA Code Chapter 93, Water Quality Criteria, amended 6/23/74. USGS Report "Water Resources Data for Pennsylvania - Part II Water Quality Records" Source: District Chief, Water Resources Division, Federal Building, P.O. Box 1107, Harrisburg, PA 17108 | PA Dept of Environmental Resources (303 planning) Delaware River Basin Commission (303 coordinator, coastal zone management). Delaware Valley Regional Planning Commission (208 planning) |

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- (a) The abbreviated descriptions are modeled after the designations used by the Regional Water Quality Control Boards of California. The following description for each abbreviated designation is intended to provide a generalized concept rather than the specific definition offered by each locale.
- IND - Includes uses which do not depend primarily on water quality such as mining, cooling water supply, hydraulic conveyance, gravel washing, fire protection, and oil well repressurization.
 - NAV - Includes commercial and naval shipping.
 - POW - Uses for hydropower generation.
 - REC-1 - Includes all recreational uses involving actual body contact with water, such as swimming, wading, waterskiing, skin diving, surfing, sport fishing, uses in therapeutic spas, and other uses where ingestion of water is reasonably possible.
 - REC-2 - Recreational uses which involve the presence of water but do not require contact with water, such as picnicking, sunbathing, hiking, beachcombing, camping, pleasure boating, tidepool and marine life study, hunting, and aesthetic enjoyment in conjunction with the above activities as well as sightseeing.
 - COMM - The commercial collection of various types of fish and shellfish, including those taken for bait purposes, and sport fishing in ocean, bays, estuaries and similar non-freshwater areas.

(Continued)

WARM - Provides a warmwater habitat to sustain aquatic resources associated with a warmwater environment.

SAL - Provides an inland saline water habitat for aquatic and wildlife resources.

WILD - Provides a water supply and vegetative habitat for the maintenance of wildlife.

MAR - Provides for the preservation of the marine ecosystem including the propagation and sustenance of fish, shellfish, marine mammals, waterfowl, and vegetation such as kelp.

MIGR - Provides a migration route and temporary aquatic environment for anadromous and other fish species.

RARE - Provides an aquatic habitat necessary, at least in part, for the survival of certain species established as being rare and endangered species.

SHELL - The collection of shellfish such as clams, oysters, abalone, shrimp, crab, and lobster for either commercial or sport purposes.

MUN - Includes usual uses in community or military water systems and domestic uses from individual water supply systems.

WASTE - A receiving body for treated waste water effluent reflecting levels of treatment necessary to preserve all designated beneficial use categories.

(b) Specific quantified or non-quantified limitations are identified for each parameter in the appropriate area water quality documents.

(c) Planning pursuant to Section 333, PL92-500.

(d) Planning pursuant to Section 208, PL92-500.

(e) Threshold Odor Number.

SECTION 3

RELATIONSHIP OF PROPOSED ACTION TO LAND USE

PLANS, POLICIES AND CONTROLS FOR THE AFFECTED AREAS

1. The proposed action relates to the marine environment. There is no direct impingement upon land use plans, policies or controls. A possible indirect effect caused by the implementation of the proposed action would be increased levels of BOD in a localized portion of the harbor water immediately after receiving an AFFF discharge. When considered in combination with the existing (or projected) levels of contamination in the water, the action, if it occurs frequently enough, might prohibit a new land use which would generate a pollution level in excess of allowable limits established for the site by local or federal standards and regulations. However, the limited quantity of AFFF and the infrequency of testing causes an insignificant contribution to water quality degradation in comparison to the highly developed industrialized land uses already associated with surrounding shorelines.
2. The Navy has committed itself to assure that the operation of naval complexes has been reconciled with local land/water use plans, policies and controls.⁴ Navy-wide programs to improve ship-to-shore waste collection, handling and disposal will continue to reduce the environmental impact on areas surrounding naval bases and shipyards. The eventual disposal

of shipboard generated AFFF test solution will be incorporated into current environmental enhancement programs for which their relationship to land use plans, policies, and controls has been assessed.

SECTION 4

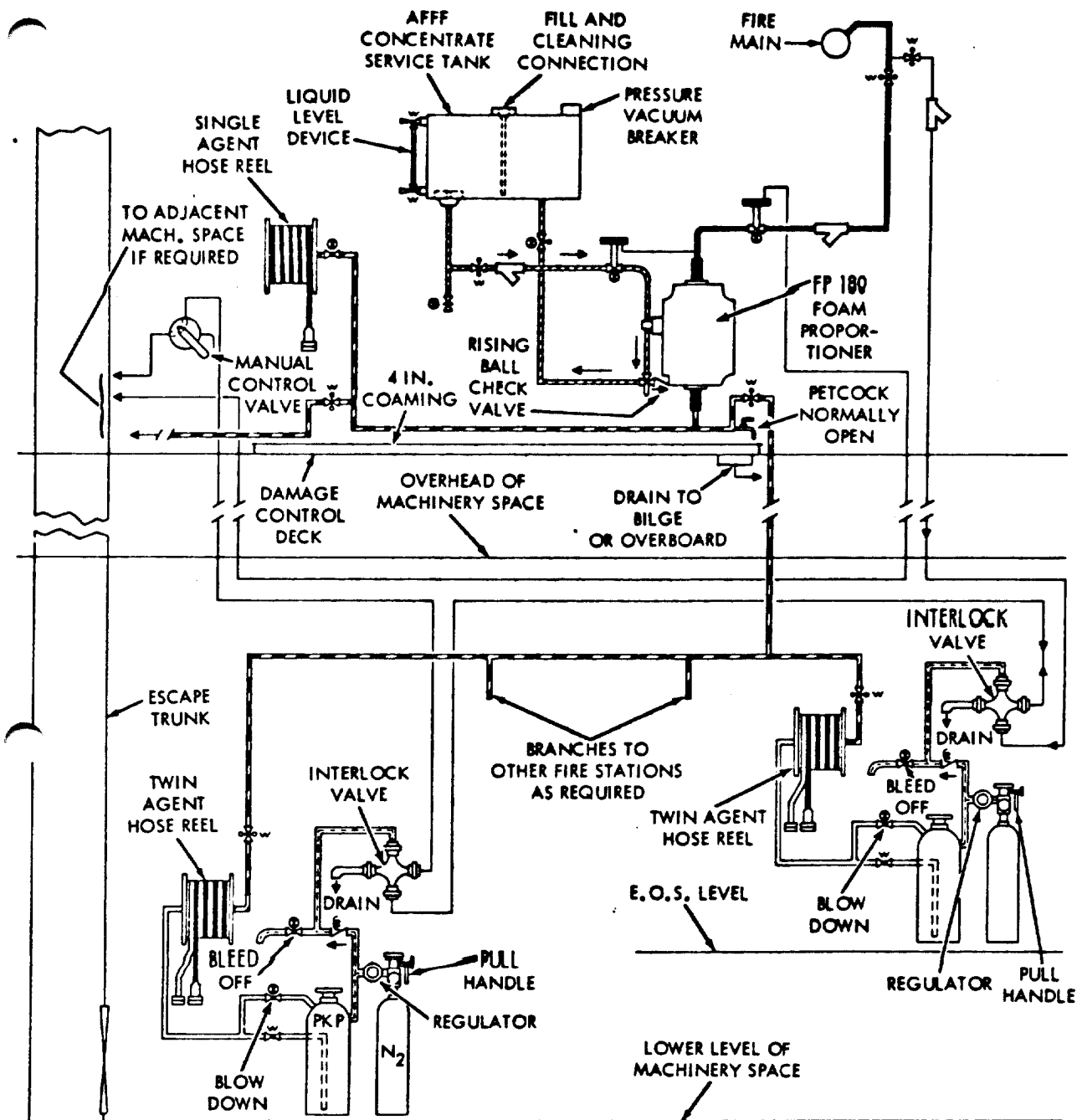
PROBABLE IMPACT OF THE PROPOSED ACTION

ON THE ENVIRONMENT

1. Introduction

a. It is essential that newly installed and modified AFFF fire-fighting systems be tested prior to ship departure for sea trials. U.S. Navy ships are presently having their protein foam generating fire-fighting equipment aboard surface ships converted to AFFF. The first systems converted were aircraft carrier hangar deck and flight deck equipment. SHIPALT's have been issued to convert aircraft carrier protein foam equipment to AFFF in the HCFF stations, hangar sprinkling systems, machinery spaces, fixed flight deck fire-fighting washdown systems, and hard hoses for hangar space and flight deck. Machinery space protein foam equipment for all other types of surface ships is also being converted by SHIPALT to AFFF use and combined ("twinned") with PKP. PKP is an effective fire-fighting agent for oil fires when the oil is in spray form and burning in space.⁵ Figure 4-1 is a diagram of a twin agent (AFFF and PKP) fire extinguishing system. The AFFF system can be operated independently of the PKP units for testing or fire fighting.

b. There are two circumstances when machinery space AFFF systems need to be operated to test the FP-180 foam proportioner:



- ⊗ GLOBE VALVE
- ⊗ GLOBE VALVE LOCKED OPEN
- ⊗ GLOBE VALVE LOCKED CLOSED
- ⊗ GATE OR BUTTERFLY VALVE
- ⊗ GATE OR BUTTERFLY VALVE LOCKED OPEN
- ⊗ GATE OR BUTTERFLY VALVE LOCKED CLOSED
- ⊗ BALL VALVE 1/4 TURN
- ⊗ CHECK VALVE
- ⊗ VALVE NORMALLY OPEN
- ⊗ VALVE NORMALLY CLOSED
- ⊗ 3 WAY 2 PORT COCK
- ⊗ PRESSURE ACTUATED VALVE, FAIL CLOSED
- ⊗ PRESSURE ACTUATED VALVE, FAIL OPEN
- ⊗ QUICK ACTING STRAINER
- ⊗ FLEXIBLE CONNECTION
- ⊗ SALT WATER (90-10 CU. NI.)
- ⊗ AFF CONCENTRATE (90-10 CU. NI. OR CRES. 304, 310, 316)
- ⊗ AFF/SALT WATER SOLUTION (90-10 CU. NI.)
- ⊗ DRY CHEMICAL (STEEL)
- ⊗ ACTUATING GAS CONTROL (90-10 CU. NI.)
- ⊗ HYDRAULIC CONTROL (90-10 CU. NI.)
- ⊗ SOFT SEAT SPRING LOADED CHECK VALVE

Figure 4-1
Twin Agent (AFFF and PKP) Fire Extinguishing System⁵

the first is after equipment is newly installed, repaired, altered or converted by an industrial activity; the second is scheduled preventive maintenance. NAVSEA 0993-LP-023-6010 technical manual requires preventive maintenance semiannually or more frequently if conditions warrant it.⁵ Appendix D contains a copy of the Long Beach Naval Shipyard procedures for testing AFFF/PKP fire-fighting systems. These procedures are representative of those used in other shipyards.

c. The environmental assessment parameters which relate to the proposed action and the appraisals of the magnitude of the resulting impacts are given in table 4-1. There are no apparent air quality impacts of the proposed action.

2. Navigable Waters Impact. The ecological effect of any chemical introduced into a given environment for the first time is a function of many factors. Its physical and chemical structure will determine what physiological influences it could exert on life forms with which it may come into contact. However, its concentration at any point in time is a measure of the probability of such effects occurring. Therefore, an assessment of maximum concentration expected and the speed with which the chemical is purged from the environment are essential elements in the formulation of impact estimates. Since these evaluations must precede a proposed action, direct measurements are not possible. Therefore, the best indirect evidence available has to be applied to the construction of a

Table 4-1

Appraisal of the Proposed Action's Impact Upon
the Environmental Assessment Parameters

| Assessment Parameter | Effect of the Proposed Action | Data or Observations for Evaluation of Parameter Impact |
|---|--|---|
| <p><u>Physical/</u> <u>Chemical/</u> <u>Biological</u></p> <p>Flow Variations, (concentration - time factors)</p> | <p>The discharge of a quantity of AFFF into harbor waters with inadequate natural mixing capability may result in localized areas of chemical concentration.</p> | <p>Information with regard to tidal, current and wind movements has been acquired in order to calculate the flushing capability of the receiving waters.</p> |
| <p>Associated Chemical Contaminants</p> | <p>The physical-chemical interaction of AFFF with other major chemical contaminants normally found in a particular harbor could result in altered dispersion, degradation, and toxicological properties of some of the reactants. This could influence the "self purification" capability of the harbor.</p> | <p>Qualitative and quantitative data regarding the major types of contaminants normally found in a particular harbor would determine the degree of chemical interaction with AFFF. Natural mixing in receiving waters and the extremely low concentration of chemicals and AFFF will minimize environmental effects.</p> |
| <p>Toxicological Properties of AFFF</p> | <p>It is possible that finite concentrations of any chemical will have a detrimental effect on some biological entity in a particular environment. Therefore, the nature of this influence, the spectrum of biological life affected, and the concentration constraints imposed within a particular environment will determine if AFFF and its anticipated usage will constitute an ecological hazard.</p> | <p>The influence of AFFF on marine life in a harbor and contiguous waters must be determined. These effects should be evaluated within the practical range of chemical concentrations anticipated if the proposed action is implemented and should include short-range (acute and sub-acute) and long-range (chronic) toxicity testing. Data currently available (appendix E) supplies the requisite information.</p> |

4-4

Table 4-1 (cont'd)

| Assessment Parameter | Effect of the Proposed Action | Data or Observations for Evaluation of Parameter Impact |
|---|--|--|
| <p>pH of AFFF Effluents</p> <p>AFFF Pollution Loading Potential</p> | <p>The pH of the AFFF product in question, FC-206, is identified at approximately the neutral point, 7.8, in appendix B; therefore, there should be minimal impact on the pH of the harbor waters.</p> <p>The BOD and COD of FC-206 are very high (appendices B and E). This means that high chemical concentrations could temporarily deplete the DO content of the receiving waters if discharged in large quantities.</p> | <p>The applicable procurement specification, MIL-F-24385, for the AFFF allows as acceptable a range of pH from 4 to 8. The specification should be changed to conform more closely to the reported control value of pH 7 to 8.</p> <p>The fact that BOD and COD values for FC-206 are relatively the same is indicative that this material is highly biodegradable. The fact that the BOD₅ is 65% of the BOD_u indicates the material is rapidly biodegradable.</p> |
| <p><u>Socioeconomic</u></p> <p>Fishing (commercial and recreational)</p> <p>Water Skiing and Swimming</p> | <p>The discharge of AFFF is not expected to affect commercial fishing or recreational use. Harbor areas associated with shipyards are centers of industrial activity and are not used for recreation.</p> | <p>Rapid dilution and biochemical degradation of AFFF within the industrial harbor areas should reduce concentrations to within acceptable limits while within the harbor whereby normal fish feeding or recreational water uses outside harbor areas are not affected.</p> |
| <p><u>Aesthetic</u></p> <p>Water Surface</p> | <p>The surfactant and film forming characteristics of the AFFF mixture could result in an unsightly film on the harbor surface.</p> | <p>AFFF testing can be conducted with nonfoaming nozzles. When discharged overboard the AFFF disperses beneath the surface (appendix F).</p> |

hypothetical case. Before constructing such a case, the following information must be obtained: (a) the quantity and frequency of potential AFFF discharges; (b) the dilution of a discharge and natural mixing within the harbor; and (c) the rate of removal of the discharge from the receiving waters by natural flushing and by decomposition.

a. While specific data on the generation rates of AFFF from machinery space system testing are not available, it is possible to estimate the quantity of AFFF solution generated per system test and the frequency of those tests using data and information obtained from naval shipyards and experience gained by the FFAT.

(1) Quantities of AFFF generated at naval shipyards as a result of machinery room FP-180 testing are contained in table 4-2. These have been provided by the shipyards cited. They were derived by multiplying the number of ships having their fire-fighting foam systems converted from protein to AFFF by the quantity of foam generated while testing each system. No data are available on the generation rates of AFFF from semiannual PMS maintenance aboard ships in port; however, experience of the FFAT has shown that approximately 90 gal (0.34 m³) of 6% AFFF solution are generated per test and that ships' operating schedules usually obligate in-port PMS testing at a frequency of about once every three years.

Other PMS testing is conducted at sea. The above estimates

are reasonable compared with data in a report on handling ship industrial wastes in San Diego, California. The report is being prepared by contract for NAVFACWESTDIV. The monthly generation rate of AFFF was compiled based on NAVSEC (SEC 6159) survey data from 1972 and on contacts with cognizant commands in the area. Typical AFFF waste generation rates were reported at 530 gal (2.0 m³) for 40 ships at the Naval Station, 660 gal (2.5 m³) for 5 ships at North Island, and 30 gal (0.1 m³) for 4 ships at the Submarine Support Facility.⁶ The report estimates include some non-machinery space AFFF equipment testing.

Table 4-2
Quantity of AFFF Generated During
In-Port Fire-Fighting Foam System
Testing at Naval Shipyards (NSY)*

| Activity | Number of Ships | AFFF | | Period (years) | Disposal Procedure |
|------------------|--------------------|-------|-------------------|-------------------|-----------------------|
| | | (gal) | (m ³) | | |
| Portsmouth NSY | | ** | ** | | |
| Philadelphia NSY | 11 | 1500 | 5.7 | 1 | None |
| Norfolk NSY | - | 8000 | 30.3 | 1.5 | Yes |
| Charleston NSY | 3 | 225 | 0.9 | 1 | Yes |
| Long Beach NSY | 9 | 1100 | 4.2 | 1 | Yes |
| Mare Island NSY | | ** | ** | | |
| Puget Sound NSY | 1 | 400 | 1.5 | 1 | None |
| Pearl Harbor NSY | | *** | *** | | |

*Calendar year 1975 estimates.
**No surface ships serviced during CY75.
***Data not available.

(2) The numbers of machinery spaces and proportioners aboard ships with fire-fighting foam systems are given in table 4-3. The quantity of 6% AFFF that could be generated aboard ship per year is estimated for each significant Navy port in table 4-4. Estimates were obtained by multiplying the output

per proportioner by the total number of FP-180 proportioners aboard the ships in the group. The experiences of the FFAT indicate that approximately 90 gal (0.34 m³) of AFFF are generated during a single test. For in-port PMS testing once every three years, the total quantity of AFFF concentrate generated per port per year is also estimated in table 4-4 assuming maximum generating conditions of 90 gal (0.34 m³) AFFF solution at 6%.

Table 4-3
 FP-180 Proportioners in Machinery Room Spaces
 Aboard U.S. Navy Ships by Class Grouping

| Group | Number FP-180 Proportioners | Ship Classes in Group |
|-------|-----------------------------|--|
| 1 | 1 | AE, ASR, ARS |
| 2 | 2 | AD, AFS, AG, AO, AOE, AOG, AOR, AR, AS, ATF, FFG, LCC, LKA, LPD, LPH, LPA, LSD, ATS, MSC, MSO, LHA, AF |
| 3 | 4 | CG (DLG), DD, DDG, FF, LST, CGN |
| 4 | 6 | CV, CVN |

(3) The AFFF generation estimates from the shipyards given in table 4-2 are included in table 4-4. When a shipyard is in the same harbor area as a homeport (i.e., Norfolk, VA), the shipyard generation rates were combined with those estimates of PMS testing. Shipyards not associated with homeports (i.e., Long Beach, CA) are listed and ranked with those ports in table 4-4.

Table 4-4

Estimated Yearly Quantity of AFFF Generated Aboard Ships In Port Based Upon 90 Gal (0.34 m³) of 6% Mixture Per Test Once Every Three Years and CY75 Shipyard Generation Estimates

| U.S. Navy Port Listing (a) | Rank (b) | Number of Ships in Group | | | | Total Number of Proportion- ers In Port | Estimated Gal (m ³) of 6% AFFF Generated | | Estimated Total Gal (m ³) of AFFF Concentrate Dis- charged Per Year |
|-------------------------------|-------------|-----------------------------|----|----|---|---|---|--------------|--|
| | | Group | | | | | Port | Shipyard | |
| | | 1 | 2 | 3 | 4 | | | | |
| Alameda, CA | 10 | | 2 | | 3 | 22 | 660 (2.47) | | 40 (0.15) |
| Baltimore, MD | | | | 1 | | 4 | 120 (0.45) | | 7.2 (0.03) |
| Bayonne, NJ | | | | 1 | | 4 | 120 (0.45) | | 7.2 (0.03) |
| Bronx, NY | | | | 1 | | 4 | 120 (0.45) | | 7.2 (0.03) |
| Bremerton, WA | 9 | | 2 | 2 | 1 | 18 | 540 (2.02) | 400 (1.51) | 56.4 (0.21) ^(c) |
| Brooklyn, NY | | | | 1 | | 4 | 120 (0.45) | | 7.2 (0.03) |
| Charleston, SC | 3 | 3 | 10 | 25 | | 123 | 3690 (13.84) | 225 (0.85) | 221.4 (0.84) ^(d) |
| Concord, CA | | 8 | | | | 8 | 240 (0.90) | | 14 (0.05) |
| Groton, CT | | 1 | | | | 1 | 30 (0.11) | | 1.8 (0.01) |
| Fall River, MA | | | 1 | | | 2 | 60 (0.22) | | 3.6 (0.02) |
| Galveston, TX | | | | 1 | | 4 | 120 (0.45) | | 7.2 (0.03) |
| Pensacola, FL | | | | | 1 | 6 | 180 (0.67) | | 11 (0.04) |
| Portland, ME | | | 2 | | | 4 | 120 (0.45) | | 7.2 (0.03) |
| Little Creek, VA | 7 | 3 | 11 | 10 | | 65 | 1950 (7.31) | | 117.0 (0.44) |
| Long Beach, CA | 8 | | 3 | 10 | 1 | 52 | 1560 (5.85) | 1100 (4.16) | 93.6 (0.35) ^(d) |
| Mayport, FL | 6 | 2 | 7 | 15 | 2 | 88 | 2640 (9.90) | | 158.4 (0.60) |
| New London, CT | | | 1 | 1 | | 6 | 180 (0.67) | | 10.8 (0.04) |
| New Orleans, LA | | | | 1 | | 4 | 120 (0.45) | | 7.2 (0.03) |
| New York, NY | | | | 2 | | 8 | 240 (0.91) | | 14 (0.05) |
| Newport, RI | | | 1 | 4 | | 18 | 540 (2.04) | | 32 (0.12) |
| Norfolk, VA | 2 | 3 | 29 | 42 | 5 | 259 | 7770 (29.41) | 8000 (30.28) | 466.2 (1.76) ^(d) |
| Panama City, FL | | | 1 | | | 2 | 60 (0.23) | | 3.6 (0.01) |
| Pearl Harbor, HI | 4 | 8 | 13 | 20 | | 112 | 3360 (12.72) | | 201.6 (0.76) ^(d) |
| Perth Amboy, NJ | | | 2 | | | 4 | 120 (0.45) | | 7.2 (0.03) |
| Philadelphia, PA | 5 | | 1 | 10 | | 42 | 1260 (4.77) | 1500 (5.68) | 165.6 (0.63) ^(c) |
| Portland, OR | | | 1 | 2 | | 10 | 300 (1.14) | | 18 (0.07) |
| Portsmouth, NH | | | 1 | | | 2 | 60 (0.23) | | 3.6 (0.02) |
| Tampa, FL | | | | 1 | | 4 | 120 (0.45) | | 7.2 (0.03) |
| San Diego, CA | 1 | 2 | 41 | 55 | 2 | 316 | 9480 (35.88) | | 568.8 (2.12) |
| San Francisco, CA | | | 7 | 2 | | 18 | 540 (2.04) | | 32 (0.12) |
| Seattle, WA | | | | 3 | | 12 | 360 (1.36) | | 22 (0.08) |
| St. Petersburg, FL | | | 2 | | | 4 | 120 (0.45) | | 7.2 (0.03) |
| Tacoma, WA | | | 1 | 1 | | 6 | 180 (0.68) | | 11 (0.04) |

(a) U.S. homeports for naval surface ships.³

(b) Ranked by estimated quantity of AFFF generated per year during testing.

(c) Includes AFFF generated by shipyard tests; no alternate disposal procedure.

(d) Excludes AFFF generated by shipyard tests; alternate disposal procedure practiced.

b. The long-range effect of a contaminant on the harbor environment is dependent on the contaminant's rate of removal. Theoretical analyses of the dilution and flushing capabilities for each of 18 harbors were made by the U.S. Navy Hydrographic Office (now NAVOCEANO) from 1959 through 1963. The analyses were based on available measurements of the physical and dynamic characteristics of the site. The results of each theoretical analysis were reported separately for each port, and the dilution and flushing capabilities of each port were compared in a summary report.⁷ The summary report states: "...The major factors, not necessarily in order of importance, which determine the reduction of concentration of an introduced contaminant are: (1) volume of water available for dilution, (2) rate at which the contaminant is dispersed throughout this volume, and (3) rate of advection (i.e., movement by currents)."⁷ The methods of investigation and the conclusions of the report are summarized in the following paragraphs.

(1) The Hydrographic Office report states that the volume of water available for dilution is not actually a criterion of flushing capability, although it is of obvious importance since a harbor with poor flushing characteristics still might be safe from contamination if great dilution takes place; a harbor with a small dilution volume and a relatively high rate of flushing might retain a high amount of contamination for a relatively long period of time.

Examples are Long Beach, California which has a large dilution volume and Mare Island Strait, San Francisco, California which has a high flushing rate as shown in figure 4-2.

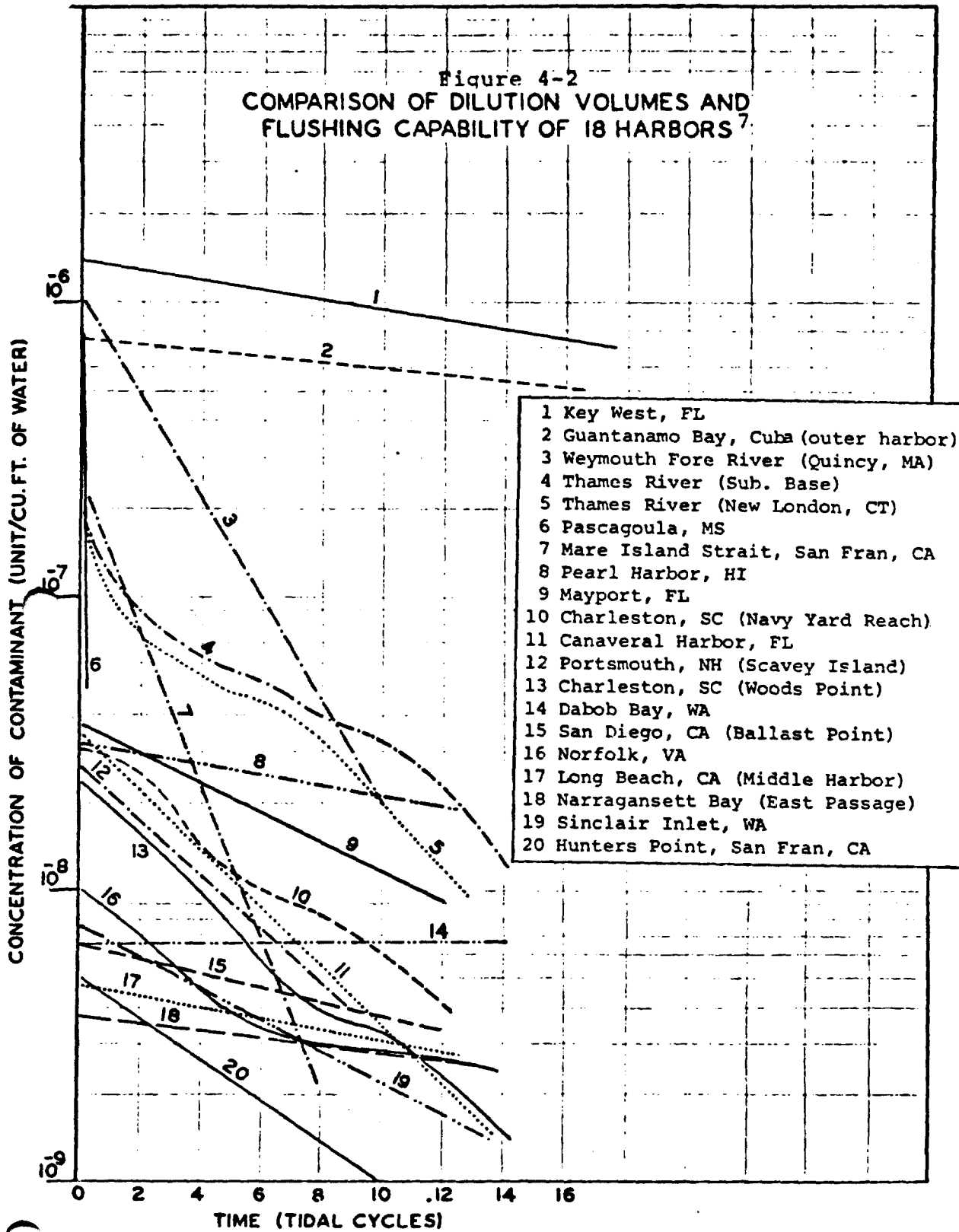
(2) The amount of turbulence within a water area will determine the rate at which a contaminant is dispersed throughout the dilution volume. For the most part, tidal currents are the source of turbulence. However, horizontal or vertical motion induced through seiches, waves, winds, etc. may serve as a mixing agent. The distribution of conservative physical properties indicates the relative degrees of mixing.

(3) Figure 4-2, Comparison of Dilution Volumes and Flushing Capability of 18 Harbors, taken from this report, was based upon the following assumptions and conclusions.⁷

(a) The initial dilution volume was taken to be the volume of water defined by the length of a flood tidal excursion and the width and depth of the body of water through which the tidal excursion is measured. Where possible this volume was calculated, however where current speed data were not available and the embayment was considered sufficiently small, the volume of the embayment was taken as the dilution volume.

(b) Flushing also affects the concentration of contaminant within a harbor. A contaminant will be removed from an area either by net flow from it or by mixing of the harbor water and the currents passing the entrance of the harbor. These factors were reflected in the exchange ratio.

Figure 4-2
 COMPARISON OF DILUTION VOLUMES AND
 FLUSHING CAPABILITY OF 18 HARBORS ⁷



for each of these harbors, and this ratio was adjusted to account for the fraction of the tidal prism that is lost during each tidal cycle. It was further assumed that a volume of new uncontaminated water replaces the lost fraction of the tidal prism. These considerations were applied to nonestuarine embayments and to harbors in estuarine embayments in which the point source of contamination was not more than one flood tidal excursion from the entrance. (Flood excursion is defined in the study as the distance traveled by a "particle" of water or of contaminant between one slack before flood and the succeeding slack before ebb.) If the point source was located more than one flood tidal excursion from the harbor entrance, and the harbor was estuarine, the distribution of the contaminant between the point source and the harbor entrance was calculated. It was assumed that the contaminant contained in a segment at a given time was uniformly distributed throughout the high tide volume of that segment. The concentration within the segment was calculated, and the highest concentration found within the estuary at a given time was plotted in figure 4-2. The curves show the rate of decrease of peak concentration within a harbor over 14 tidal cycles. Their relative slopes afford a comparison of the rates of contaminant decrease among the harbors. The position of the curve at time = 0 reflects the amount of dilution that the contaminant would undergo within the first tidal cycle after introduction (assuming that 100

units of contaminant are introduced and the dilution volume is the volume of water defined by the length of a flood tidal excursion and the width and depth of the body of water through which the tidal excursion is measured).

(4) Advection is the true flushing agent as other processes mentioned tend only to reduce the concentration of a contaminant; they do not remove it from the area. Currents immediately offshore from the harbor serve as a mode of transport to oceanic areas where dilution volumes are virtually unlimited.

(5) For analyzing the relative flushing capabilities of the harbors, the data available were inadequate for examining many of the probabilities involved in the event of contamination. In some locations stratification of water results from density differences, and the net inflow in the bottom layer of this type of estuary would be upstream rather than seaward. Should the bottom layer of this type of estuary become contaminated, the flushing time would be prolonged greatly.

(6) The Hydrographic Office summary report cautioned that in light of their information, the flushing analysis for each harbor is believed to be valid insofar as the data available at the time would allow. The limitations imposed by data deficiencies are pointed out in each of the 18 reports for the individual harbors.

c. To verify the results of the theoretical flushing analyses, the Hydrographic Office conducted actual dye tracer field tests for a group of harbors representing the types of harbors studied for their relative flushing capabilities (dye being a conservative substance during the periods observed). The dilution factors measured during five field tests conducted at large Navy ports are summarized in table 4-5. The peak concentration of any conservative contaminant at a time after release can be predicted by multiplying the total amount of contaminant released (concentration x volume) by the dilution factors in the table for that time.

(1) The field test procedures consisted of releasing a quantity of dissolved tracer dye (rhodamine-B, or fluorescein) and monitoring its dilution and dispersion until dye concentrations had decreased below the detection limit of the analytical equipment (two parts of dye per hundred billion parts of water) or until the dye had been transported out of the harbor. Field measurements of the test areas included collection of water samples for analysis of dye concentration and salinity, current and temperature measurements and aerial photographs.

(2) A comparison of the results of the flushing analyses and field tests indicates the usefulness and the limitations of the tidal prism method. One of the basic assumptions of the tidal prism theory is that the contaminating material must be distributed uniformly both horizontally and vertically throughout

Table 4-5
Dilution Factors for Five Navy Harbors Determined from Field
Measurements of Dye Dilution and Dispersion

| Time After Release | | Dilution Factor (per litre) | | | | |
|--------------------|------|-----------------------------|---|--|---|--|
| | | Mayport Basin ⁸ | Pearl Harbor ⁹ (Southeast Loch) | San Diego ¹⁰ (Ballast Point) | San Francisco ¹¹ (Mare Island Strait) | Norfolk ¹² (Hampton Roads) |
| Hrs. | Min. | | | | | |
| 0 | 10 | | | 6.6E-7* | | 2.2E-7 |
| 0 | 30 | | | 6.6E-9 | 1.8E-7 | 7.1E-8 |
| 1 | 0 | 2.2E-9 | | 9.2E-10 | 1.2E-7 | 1.1E-8 |
| 2 | 0 | 1.2E-9 | | | 9.5E-8 | |
| 3 | 0 | 5.5E-10 | | 1.0E-10 | 5.7E-8 | 1.3E-10 |
| 4 | 0 | | 1.2E-7 | | 3.3E-8 | |
| 5 | 0 | 4.9E-10 | 1.0E-7 | | 1.6E-8 | |
| 6 | 0 | | 8.0E-8 | 2.6E-11 | | 2.4E-11 |
| 8 | 0 | | 6.2E-8 | | | |
| 10 | 0 | 3.3E-10 | 4.8E-8 | | | |
| 12 | 0 | | 4.4E-8 | 1.3E-11 | | 7.7E-12 |
| 15 | 0 | 2.2E-10 | | | | |
| 24 | 0 | 1.1E-10 | 2.6E-8 | | | 2.6E-12 |
| 48 | 0 | 1.1E-11 | 9.7E-9 | | | 1.5E-12 |
| 72 | 0 | 3.3E-12 | 6.6E-9 | | | |
| 96 | 0 | | 4.4E-9 | | | |
| 120 | 0 | | 3.2E-9 | | | |
| 240 | 0 | | 2.9E-9 | | | |

Superscripts 8-12 refer to references, Section 10.
*FORTRAN exponent form: 6.6E-7 = 6.6 x 10⁻⁷

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the harbor. Thus, valid comparison of the predicted decreasing peak concentration curve and the observed curve cannot be made until the dye is uniformly distributed throughout the basin. For the Mayport Basin field test this occurred within six hours.⁸ Application of the tidal prism method to the entire volume of Pearl Harbor failed to give realistic estimates of the decreasing concentration of a contaminant released within the harbor; however, concentration decreases within the Southeast Loch where the shipyard and naval station are located can be estimated fairly accurately after mixing of the dye within the loch is complete at 48 hours after release.⁹ A comparison of the other field tests with the theoretical analyses indicated that the predicted reductions in peak contaminant concentrations as shown in figure 4-2 are valid for predicting the flushing rate of a contaminant from a harbor.

(3) In all cases field tested by the Hydrographic Office, the initial dilution rate as seen from peak concentration curves is very rapid. This fact has also been borne out by other dye dispersion studies.¹³

(4) To confirm that a 6% AFFF solution will disperse in a manner similar to that of a dye release, a small scale test was conducted in Dungan Basin at the David W. Taylor Naval Ship Research and Development Center, Annapolis Laboratory. The experiment involved the release of 20 gal (75.7 l) of 6% AFFF mixture composed of 1.2 gal (4.5 l) of AFFF concentrate

mixed with 18.8 gal (71.2 l) of dilution water and dyed with rhodamine WT dye to an initial concentration of 100 ppm by weight. The experiment proved the applicability of using dye to obtain dilution factors applicable for AFFF. (The experimental procedure and results are contained in appendix F.)

d. The dilution factors contained in the Hydrographic Office field reports can be used to estimate the maximum concentration of AFFF within a harbor after a discharge and to estimate the rates of removal from the harbor by flushing.

(1) Based upon the Hydrographic Office dilution factors and the estimated quantity and frequency of potential AFFF discharges, hypothetical cases for an AFFF release can be developed. Each case is hypothetical in the sense that the discharge from a single ship (point source) is used in the calculations whereas it is possible that discharges from additional ships could enter the harbor at the same time. Furthermore, it is assumed that the ship will discharge its AFFF in a harbor location where there is good mixing; it is possible that AFFF would sometimes be discharged in less desirable areas such as those sheltered from the diluting effects of tidal flows. To offset these possibilities, the worst case conditions are assumed: the maximum quantity of AFFF would be discharged per ship and biological decomposition of the AFFF would not occur.

(2) Theoretical peak AFFF concentrations have been calculated in table 4-6 based upon the dilution factors given in table 4-5. Sample calculations for five ports are based on the hypothetical discharge of AFFF from the largest ship likely to be berthed at those locations since it would emit the largest volume of AFFF and would thus provide a more rigorous test. It is recognized that all systems would not be checked simultaneously but would probably be exercised over a period of a few hours. Each test could involve the generation of about 90 gal (0.34 m³) of maximum 6% concentration AFFF. The system will be secured as soon as possible after sample collection. In order to evaluate the worst possible case, calculations are based on the unlikely assumption that all machinery space FP-180 proportioners are tested simultaneously and the ship represents a single point source.

(3) A sample calculation for determining peak AFFF concentration following testing aboard an AS-type ship berthed at the Submarine Support Facility, Ballast Point, San Diego, follows.

(a) AFFF generated during testing of two FP-180 machinery space proportioners aboard an AS-type ship is 180 gal (0.68 m³) of 6% solution containing 10.8 gal (40.9 l) of concentrate.

(b) The dilution factor (DF) in San Diego ten minutes after release is 6.6×10^{-7} /litre.¹⁰

Table 4-6
 Peak AFFF Concentrations in Four Navy Harbors
 at Intervals After Discharge of 6% AFFF Test Mixture

| Time After Discharge | | Peak AFFF Concentration in mg/l | | | | |
|----------------------|------|---------------------------------|--------------------------------|-----------------------------|-------------------------------------|--------------------------|
| | | Mayport Basin* | Pearl Harbor* (Southeast Loch) | San Diego** (Ballast Point) | San Francisco* (Mare Island Strait) | Norfolk* (Hampton Roads) |
| Hrs. | Min. | | | | | |
| 0 | 10 | | | 28.0 | | 27.0 |
| 0 | 30 | | | 0.28 | 23.0 | 8.8 |
| 1 | 0 | 0.27 | | 0.04 | 15.0 | 1.4 |
| 2 | 0 | 0.15 | | | 12.0 | |
| 3 | 0 | 0.07 | | <0.01 | 7.1 | 0.02 |
| 4 | 0 | | 15.0 | | 4.1 | |
| 5 | 0 | | 12.0 | | 2.0 | |
| 6 | 0 | | 10.0 | | | <0.01 |
| 8 | 0 | | 7.8 | | | |
| 10 | 0 | 0.06 | 6.0 | | | |
| 12 | 0 | | 5.5 | | | |
| 15 | 0 | 0.03 | | | | |
| 24 | 0 | 0.02 | 3.3 | | | |
| 48 | 0 | <0.01 | 1.2 | | | |
| 72 | 0 | | 0.8 | | | |

*CV-type ship, six FP-180's tested, 540 gal 6% AFFF (32.4 gal concentrate).
 **AS-type ship, two FP-180's tested, 180 gal 6% AFFF (10.8 gal concentrate).

4-20

(c) Therefore, the AFFF concentration at that time can be calculated.

$$(40.9 \text{ litre AFFF}) \frac{(10^3 \text{ cm}^3)}{\text{litre}} \frac{(1.02 \text{ g AFFF})}{\text{cm}^3} = 4.2 \times 10^4 \text{ g AFFF}$$

$$(4.2 \times 10^4 \text{ g AFFF}) \frac{(6.6 \times 10^{-7} \text{ DF})}{\text{litre}} \frac{(10^3 \text{ mg})}{\text{g}} = 28 \text{ mg AFFF per litre}$$

Using the same procedure, the predicted AFFF concentration after one hour is further reduced to 0.04 mg/l.

e. Based upon the results of the Hydrographic Office studies as shown in figure 4-2, it is apparent that there is considerable variability between harbors with regard to the dispersion of substances within harbors and the rate substances will be flushed from harbors. This is due to differences in harbor volumes, tidal flow volumes, eddies, currents, etc. Therefore, it was impractical to experimentally measure actual peak AFFF concentrations in Navy harbors after shipboard AFFF system test effluent discharges. However, from the information presented thusfar on the limited quantity and frequency of AFFF discharges, on the rapid dilution of a discharge, and on the rate of removal of AFFF from a harbor by natural flushing, it is possible to predict concentrations of AFFF after discharge, and the following conclusions can be drawn.

(1) Immediate Effect of an AFFF Discharge. The initial dilution (determined by measuring peak dye concentration immediately after completion of the release) of the dye released during the Hydrographic Office dye dispersal field test for

Key West was approximately 1000 times.¹⁴ Key West had the lowest dilution predicted for the 18 harbors studied, as shown in figure 4-2. During coastal dye dispersion studies using 5000 gal (18.9 m³) of a seawater-sewage-dye mixture, initial dilutions of 1000 to 2000 times were measured at the point of discharge.¹³ The small scale AFFF/dye discharge into Dungan Basin discussed in appendix F indicated initial dilutions of 3200 times. Thus, the initial concentration of AFFF (60,000 ppm maximum) can be expected to be reduced to no more than 60 ppm very soon after impact with the receiving waters. This concentration is only 5% of the 40-hour LC₅₀ concentration found toxic to brine shrimp during bioassay tests conducted at the David W. Taylor Naval Ship Research and Development Center. Therefore, the immediate effect of the proposed action, discharging AFFF to harbor waters during in-port testing of machinery space fire-fighting systems, on the environment is considered negligible based upon the dilutions expected during the discharge. Appendix E contains toxicity data on six other representative saltwater organisms tested by the Center as well as tests on additional fresh and saltwater organisms conducted by other laboratories.

(2) Long-Term Effect of AFFF Discharges. The chronic effects of AFFF have not been evaluated and total quantities of chemical discharged during the simultaneous testing of fire-fighting equipment from several ships have not been measured

(although based upon the assumed in-port testing frequency and the relatively small number of machinery space proportions, the likelihood of multiple tests being conducted at the same time and location is remote). However, it can be concluded from the concentration data in table 4-6 and the toxicity data in appendix E that the dosage of AFFF required to kill 50% of the organisms after 96 hours of exposure (LC_{50}) was considerably higher than the residual AFFF concentration calculated to persist in any of the five selected harbors at the end of that period of time. In fact, for even the largest theoretical AFFF discharge given in table 4-6, the concentration of AFFF in the marine environment will be reduced in minutes to levels well below those acutely toxic to marine organisms. Furthermore, biodegradation data for FC-206 (appendices B and E) indicate that within the accuracy of the BOD and COD tests, AFFF FC-206 is virtually wholly biodegradable.

SECTION 5

ALTERNATIVES TO PROPOSED ACTION

1. The U. S. Navy is committed to providing adequate fire protection for the prevention, containment, and extinguishment of fires. Testing is necessary to verify the readiness of fire-fighting equipment to effectively respond, as called upon, to combat fires. Confidence in both equipment and personnel is achieved by exercising the fire-fighting stations on a regular basis and verifying system performance after alterations or repairs.

a. The need for maintaining a fast, effective system for shipboard fire fighting has been repeatedly demonstrated. Since 1969 alone, over 1100 shipboard fires have been reported to the Naval Safety Center. Major losses in that period of time include the USS KENNEDY/USS BELKNAP collision and fire in 1975 (now estimated at \$213M, 8 deaths), USS NEWPORT NEWS in 1972 (\$6.5M, 21 deaths), USS FORCE in 1973 (total loss), USS KITTYHAWK in 1973 (\$1M, 6 deaths), USS FORRESTAL in 1972 (\$20M) and in 1967 (\$20M, 133 deaths), USS ENTERPRISE in 1969 (\$5M, 27 deaths) and USS ORISKANY (\$10M, 43 deaths). NSC reports 106 property damage accidents involving fires in machinery spaces aboard surface ships from July 1974 to January 1977, totalling \$5.8M in material damage and 36 casualties.

b. As ships and ships' systems become more sophisticated and the use of aluminum and composite structural materials increases, the vulnerability to fire also increases. To keep pace

with the need for more sophisticated fire-fighting strategy, methods for the prevention, containment, and extinguishment of fires have been improving. One such improvement was the development of AFFF in the mid-1960's to replace protein foam.¹⁵

c. Tests by NRL demonstrated that "light water" was two to three times as effective as protein foam in extinguishing bilge fires and recommended that a dual discharge system of "light water" and PKP be adopted for rapid, improved extinguishment of fuel fires in shipboard engine room spaces.¹⁶ Further testing by NRL, NAVSEC, and NAVSEA continued to demonstrate the superiority of AFFF over protein foam for extinguishing fires involving AvGas, JP-4, and JP-5.¹⁷

d. The objective of Navy fire protection strategy is to markedly reduce the vulnerability of ships, aircraft, facilities, and personnel to the hazards and damages of fire from both hostile and peacetime action.¹⁵ AFFF systems are an integral part of a ship's fire-fighting capability. The following proposed action and alternatives are analyzed with that objective in mind as well as the environmental impact of AFFF system testing.

2. Proposed Action: Overboard Discharge of Foam. The objective of the proposed action is to dispose of effluent produced by machinery space AFFF fire-fighting foam system testing. The current approach to testing AFFF systems is to generate foam through one nozzle on each proportioner, to

quickly sample the discharge for determination of AFFF

concentration in the mixture, and to secure the system as soon as possible to prevent excessive use of AFFF concentrate. The foam is usually discharged directly overboard due to the unavailability of collection and/or treatment facilities.

3. There are six basically different alternative approaches to the proposed action. They are summarized as follows.

a. Alternative (A). Test with Substitute Concentrate Material. Direct research and development efforts toward obtaining a substitute material for fire equipment test use which is more acceptable environmentally and which is functional as AFFF.

b. Alternative (B). Refine Procedures to Reduce Discharge Volume. Refine the test procedures to reduce the volume of the AFFF mixture produced.

c. Alternative (C). Adjust Test Schedules for Discharge Only When Collection, Treatment and Disposal Facilities are Available. Establish that tests only be conducted when the AFFF discharge can be handled in an environmentally acceptable manner. This includes discharge to pier sewers, collection barges or on the open sea while underway.

d. Alternative (D). Perform Tests with Discharge Contained as Part of a Closed System. Provide, as ancillary shipboard equipment, a dedicated holding tank capability to support the AFFF flow test and cause minimal scheduling interference. The AFFF mixture test effluent could be disposed of in accordance with the plan of alternative (C).

The implementation of alternative (B) would improve the feasibility of the portable tankage alternative by reducing the volume to be handled.

e. Alternative (E). Eliminate Shipboard Flow Test by Redesigning Maintenance Plan. Redesign the plan of maintenance for the fire-fighting equipment to eliminate the shipboard flow test requirements.

f. Alternative (F). Eliminate Shipboard Flow Test by Enhancing System Component Performance Reliability. Enhance system reliability by modifying equipment to increase confidence of system performance to an acceptable level without regular flow testing using AFFF.

4. Figures 5-1 through 5-6 summarize the adverse and beneficial effects (including those with cost and risk elements) in flow chart form, and develop the follow-on technical and administrative actions necessary for the conclusive acceptance or rejection of each alternative.

5. When the objective of alternative (A), test with a substitute concentrate material, is considered with regard to the environmental assessment parameters in table 4-1, it is concluded that by the nature of the change to a less harmful material, the potential for harmful impact is measurably reduced.

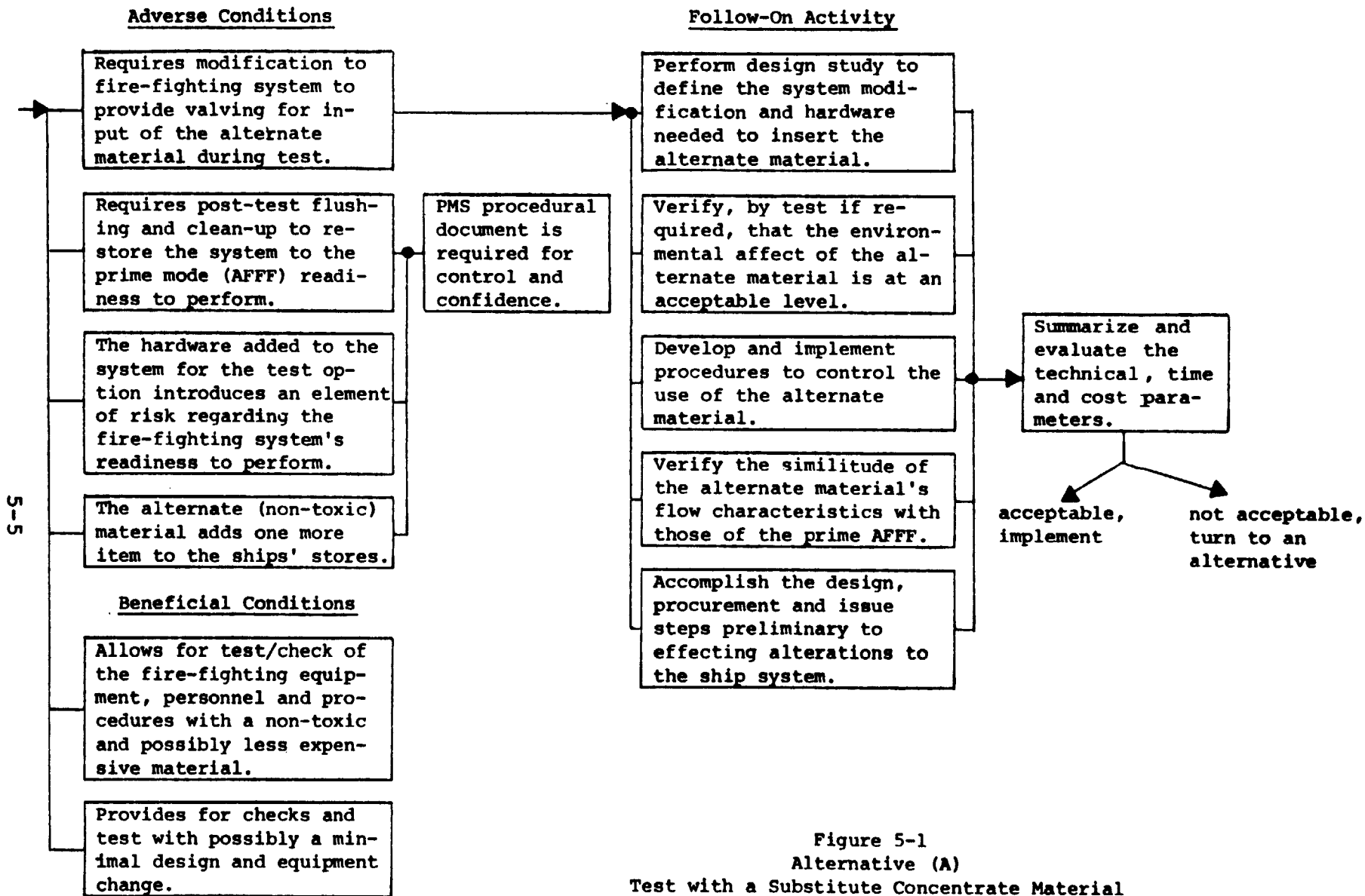


Figure 5-1
 Alternative (A)
 Test with a Substitute Concentrate Material
 Flow Chart

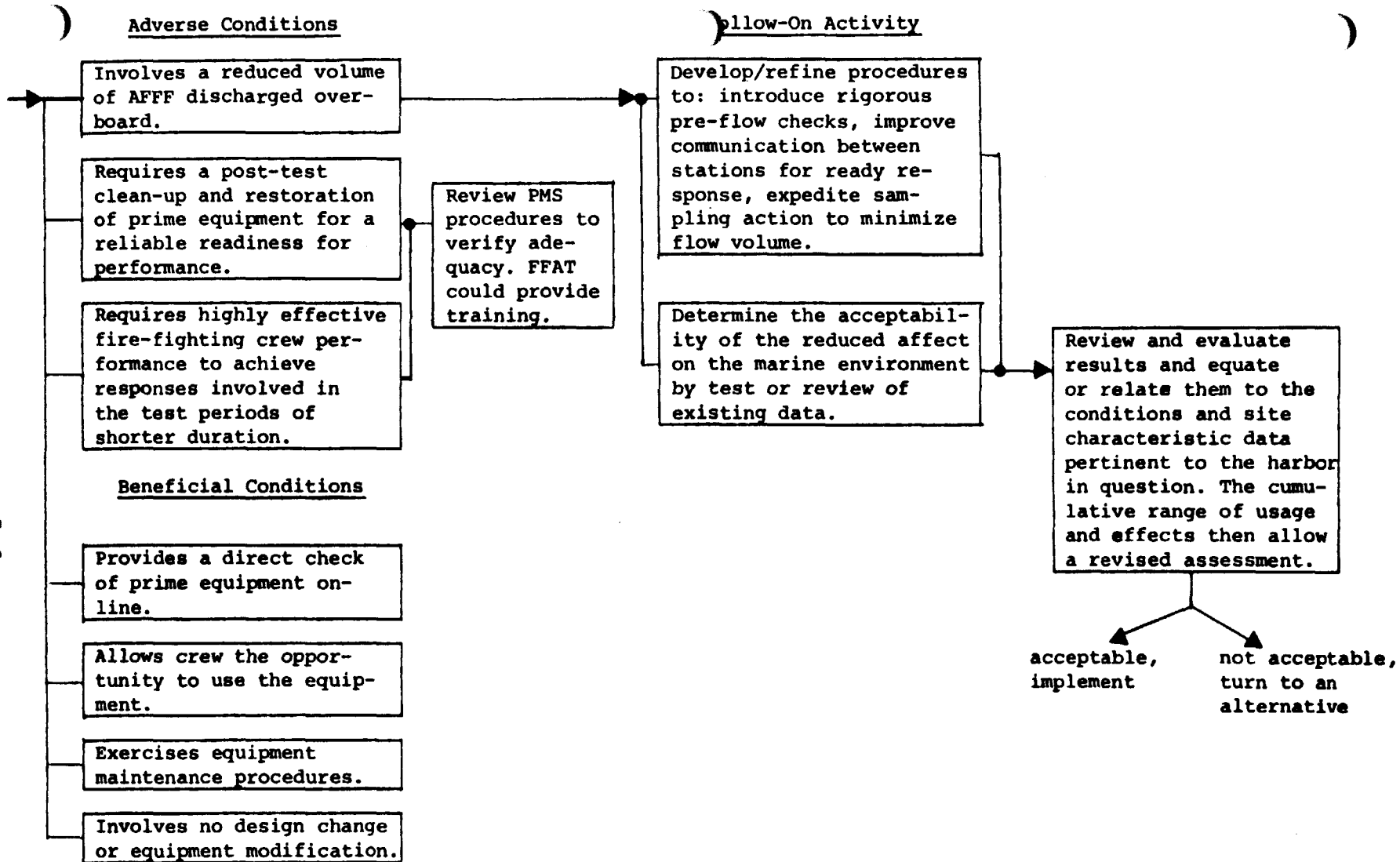


Figure 5-2
 Alternative (B)
 Refine Procedures to Reduce Discharge Volume
 Flow Chart

5-7

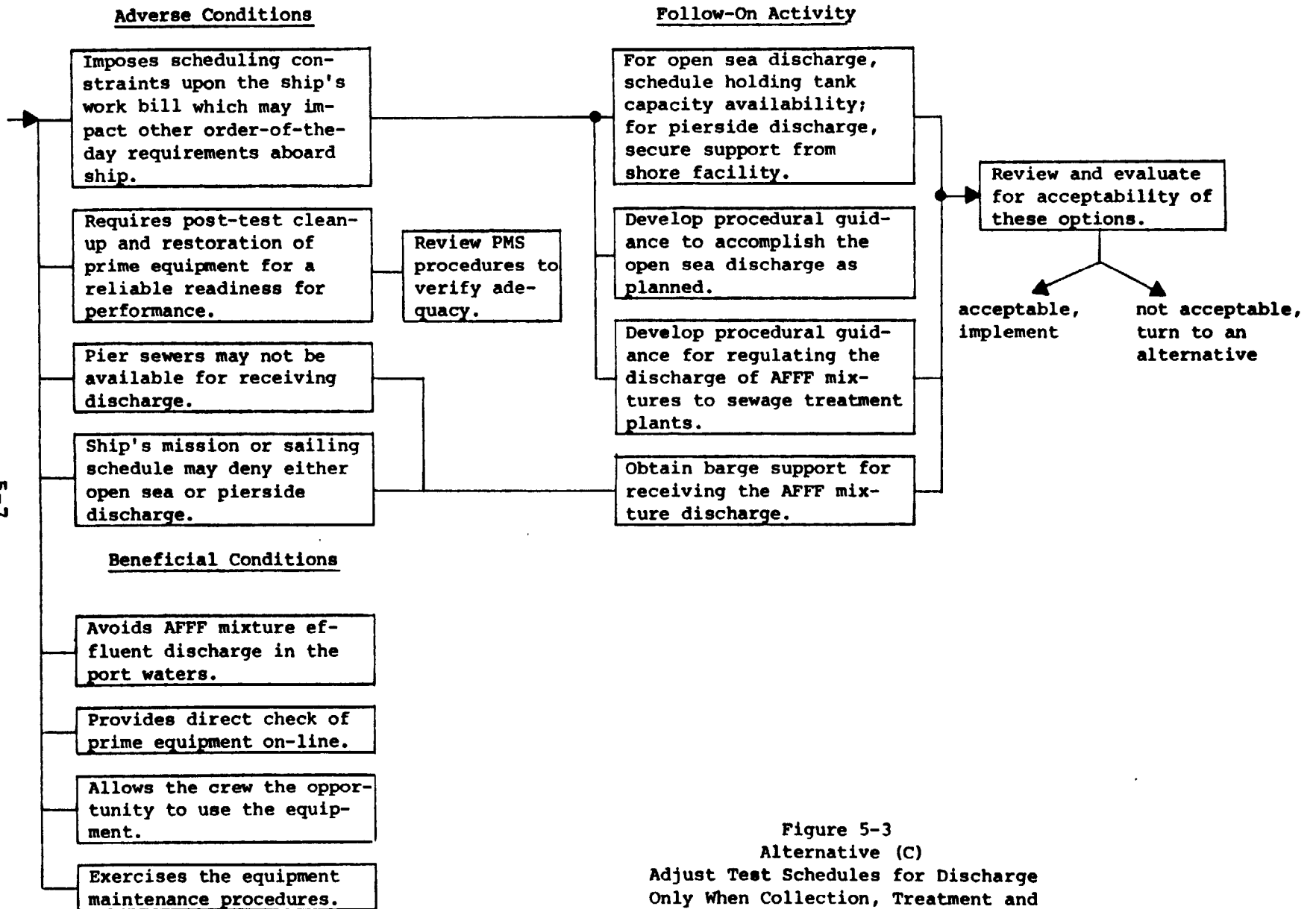


Figure 5-3
Alternative (C)
Adjust Test Schedules for Discharge
Only When Collection, Treatment and
Disposal Facilities are Available
Flow Chart

Adverse Conditions

Requires the development of a dedicated holding tank system capability.

Requires preparatory time and manpower to set up tankage.

Requires post-test clean-up to restore the system to the prime readiness to perform.

The tankage requires space and maintenance to remain effective.

Involves development, procurement, check-out time and cost.

Beneficial Conditions

Avoids AFFF mixture effluent discharge in the port waters.

Provides direct check of prime equipment on-line.

Allows crew the opportunity to use the equipment.

Exercises the equipment maintenance procedures.

PMS procedural document is required for control and confidence.

Follow-On Activities

Perform design study to define the tankage hardware required to hold the AFFF mixture.

Verify the design objectives by test.

Accomplish the design, procurement and issue steps to equip the Fleet.

Summarize and evaluate the technical, time and cost parameters.

acceptable, implement

not acceptable, turn to an alternative

Figure 5-4
Alternative (D)
Perform Tests with Discharge Contained as Part of a Closed System Flow Chart

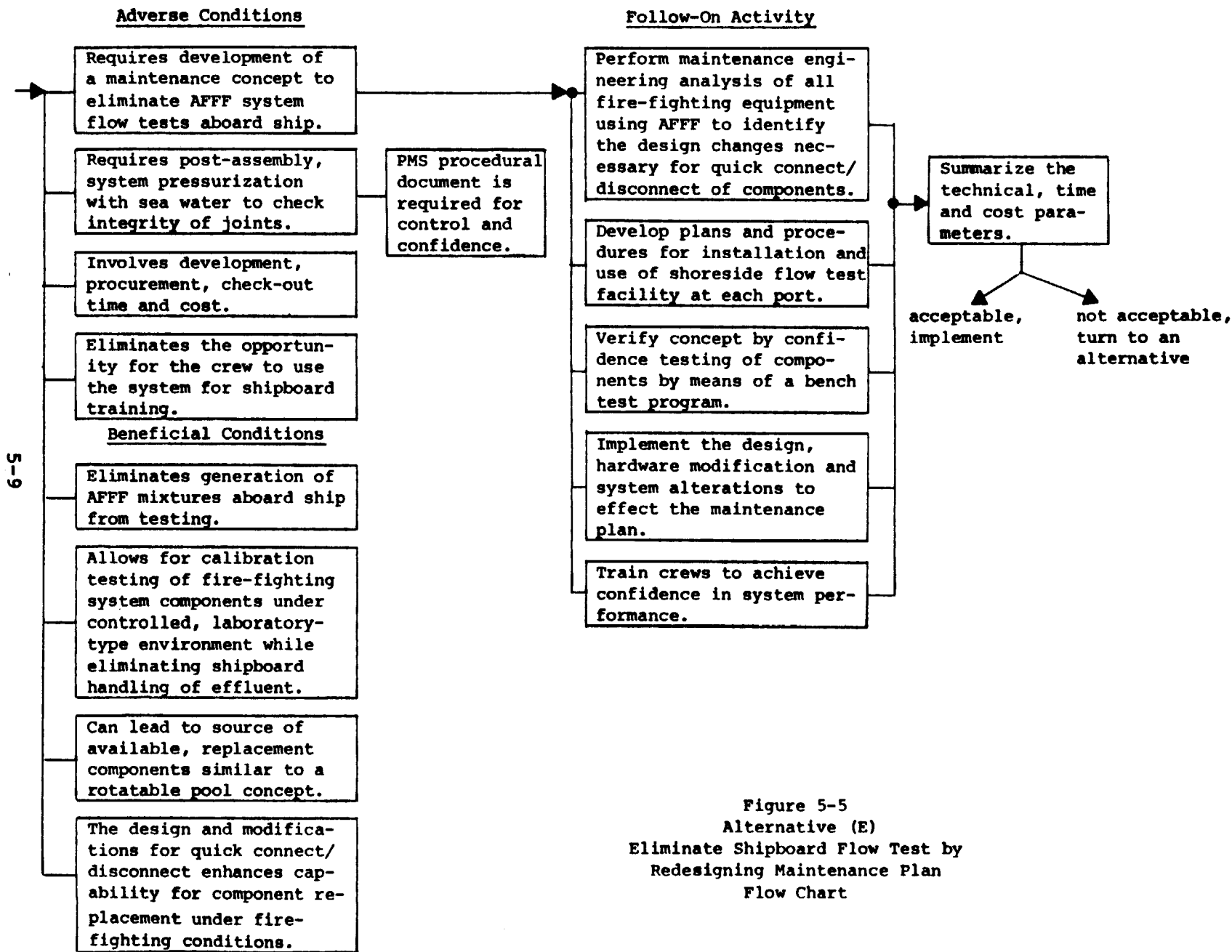


Figure 5-5
Alternative (E)
Eliminate Shipboard Flow Test by
Redesigning Maintenance Plan
Flow Chart

5-10

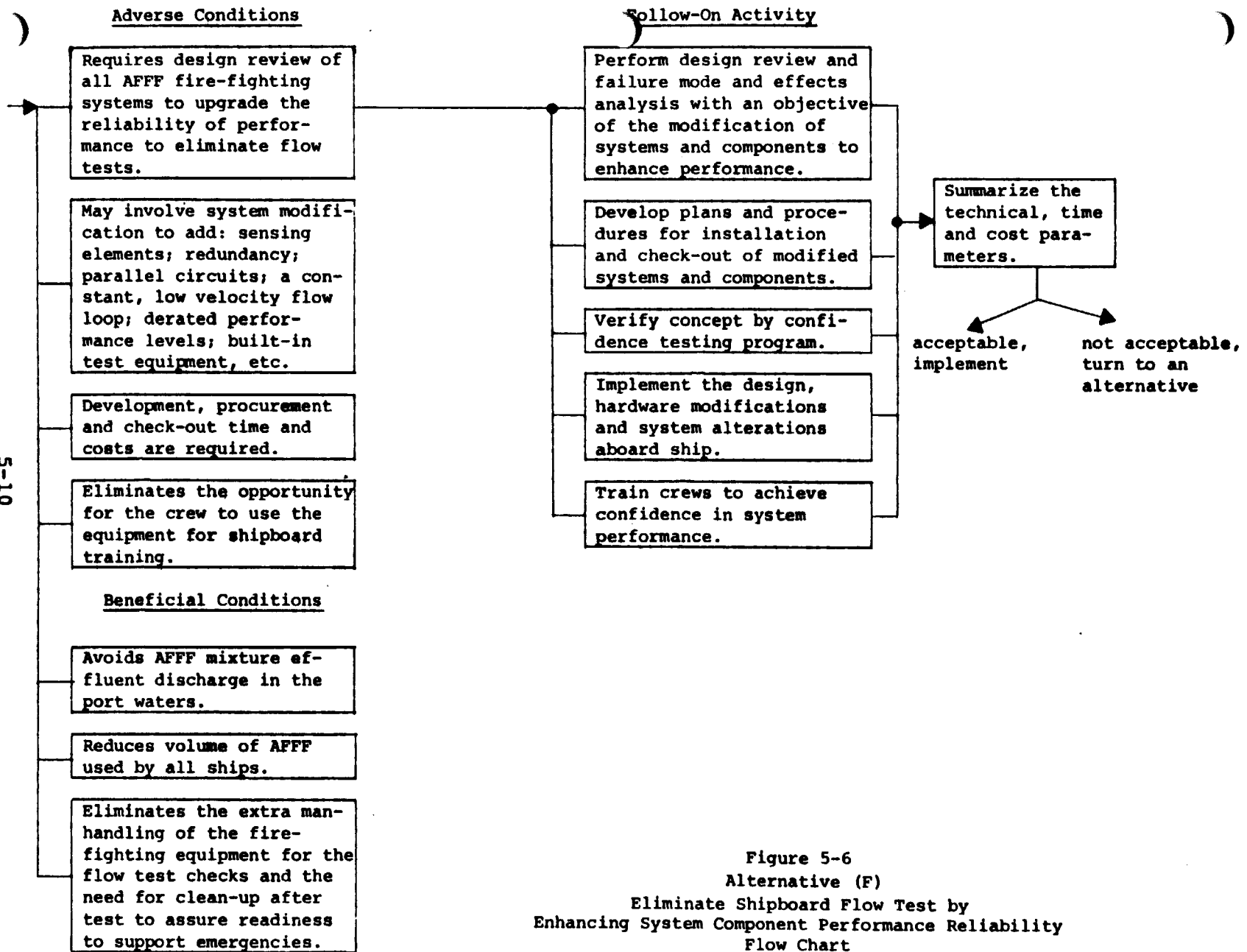


Figure 5-6
Alternative (F)
Eliminate Shipboard Flow Test by
Enhancing System Component Performance Reliability
Flow Chart

a. This alternative has already been investigated by NRL.¹⁸ The NRL report considered several test materials which duplicated AFFF concentrate in viscosity and had a suitable refractive index for analysis using the hand-held refractometer presently used. Glycerin was one of the materials found to give the desired performance, was readily available and was low in cost, and it was therefore evaluated. The NRL study concluded, "It is feasible to simulate AFFF concentrates for proportioner testing by adding appropriate agents to water to give it the proper viscosity and refractive index."¹⁸ However, the use of a substitute material was not recommended. The report further stated, "It is believed that the logistical problem of having a simulated concentrate in the supply system, the operation of change-over from real concentrate to simulant and then back to real concentrate for each test, and the increased potential for introducing errors and confusion would not be justified on the basis of the differential costs per gallon of the simulated and real concentrates."¹⁸

b. NAVSEC considered glycerin as an AFFF substitute for testing but found it unacceptable from an operational standpoint although glycerin has a lower toxicity than FC-206 (appendix E). They stated the following.

"Because glycerin might react with AFFF substances and make AFFF substances ineffective, use of glycerin for testing of foaming stations would require that the tanks be washed out following use of glycerin and refilled with AFFF. The chance of contamination of AFFF tanks by glycerin, which might make AFFF tanks inoperable or reduce the AFFF concentration to unacceptable limits, makes the use of glycerin for testing proportioning pumps less advisable.

In addition, the use of glycerin for testing could allow operational mistakes that affect foam unit performance to occur. If a foam station was accidentally left filled with glycerin, the foam unit could be totally ineffective. If a second tank and valving were added, valves could be left set in the wrong position after testing. Any of these occurrences could turn a small fire into a major casualty if the foam unit malfunctioned. The subsequent possible loss of lives therefore makes this alternative unacceptable."¹⁹

c. AFFF is a highly developed fire-fighting substance. It is unlikely that a substitute substance could be found that is compatible with AFFF such that operational effectiveness

is not degraded and a substance that is also environmentally more acceptable for discharge.

d. Therefore, alternative (A), test with substitute concentrate material, has been rejected.

6. When the objective of alternative (B), refine procedures to reduce discharge volume, is considered with regard to the environmental assessment parameters of table 4-1, it is concluded that, by the nature of the change to reduce the volume of the discharge, the potential for harmful impact is reduced.

a. Current testing time is now approximately one minute. Shorter times may be acceptable providing foam is being delivered from the nozzle in a uniform spray pattern and the hose has been previously flushed with salt water to verify that the hose is not clogged. However, if new in-line test devices (as described in section 9) are adopted, observation of nozzle spray pattern will be impossible. Also, even though the test operating time could theoretically be reduced, there is no assurance that the test team could or would minimize generation times. An AFFF discharge would still result.

b. Alternative (B), refine procedures to reduce discharge volume, is rejected.

7. Alternatives (C) and (D) have as an objective, the elimination of untreated AFFF discharges in port while still permitting system testing as currently practiced; therefore, the potential for damaging the environment is eliminated if adequate treatment is provided.

a. Alternative (C), adjust test schedules for discharge only when collection, treatment and disposal facilities are available, relies on direct discharge to waste collection systems other than those specifically for AFFF containment. These waste collection systems include shipboard wastewater CHT systems, SWOB's, donuts and tank trucks. Also included in alternative (C) is discharge to open sea in unrestricted waters directly from AFFF systems undergoing tests or indirectly through CHT systems. Such an alternative is not considered viable, however, as ship safety requires that machinery space AFFF fire fighting systems be tested prior to getting underway.

(1) CHT systems are being installed on ships as part of the Navy program to eliminate the discharge of shipboard sanitary wastes into navigable waters.

(a) CHT systems provide for the collection and transfer of sewage from waste drains as well as soil drains. Waste drains collect wastewater from hotel services such as showers, lavatories, laundries, galleys, sculleries, sinks, etc. Soil drains collect sanitary sewage from water closets and urinals. Separate soil and waste drains transport waste to collection headers for diversion overboard or to the holding tank. The holding tank contains sensing elements to control sewage pumps, a flushing system, and may contain an aeration system. Waste is transferred from the holding tank by sewage pumps, through discharge piping overboard either to the sea or through deck discharge fittings and hose to shore.²⁰

(b) The major advantage of utilizing CHT systems for collection of shipboard generated AFFF is that the waste handling system is already aboard, and therefore extensive installation and alteration of a specific AFFF waste handling system is avoided. A lesser advantage from an AFFF waste handling standpoint is the initial dilution with other waste streams that the AFFF will have in the tank prior to pump-out. The degree of dilution will vary from ship class to class based upon the normal working capacity of the tank. Any dilution of AFFF waste prior to handling or treatment will lessen the possible waste handling problems due to foaming and lessen the possible waste treatment problems due to high BOD loading. A tentative installation schedule for CHT's is provided in appendix G.

(2) SWOB's were originally conceived for the collection of oily waste from aircraft carriers, ships at anchor, and ships berthed at remote locations. The SWOB's procured in FY74 and FY75 were outfitted to handle only oily waste. Eighteen will be constructed with FY76 funds; thirteen will handle sewage, five oily waste. A sewage retrofit package developed in FY76 can be used at the discretion of the user activity to convert an oily waste barge to a sewage barge.

(a) SWOB's scheduled for procurement in FY76 are 75,000 gal (284 m³) barges intended for the collection of sewage from ships at anchor, or berthed at locations where

pier sewers are not planned because of high construction costs. The barges would transport the waste collected to available pier sewers or some other discharge location for adequate treatment and disposal. A tentative allocation plan for SWOB's is provided in appendix G.

(b) The advantages of utilizing SWOB's for collection and transport of AFFF wastes are the same as those for CHT systems.

(3) Waste oil rafts, or "donuts" as they are called, are for the collection and transport of oily waste from ships berthed at piers without oily waste collection facilities and from ships at anchor.

(a) A donut is a circular or elliptical cylinder with a flotation collar at the upper open end. The lower end of the cylinder extends several feet beneath the harbor water surface. The bottom is usually closed by baffles (older systems have open bottoms). Waste oil or waste oil-water mixture is discharged from a ship into the top of the donut displacing water within the donut. The water and oil separate gravimetrically within the donut. The floating oil is confined within the donut and any water added flows out of the donut and mixes with the harbor water. A donut can be towed from ship to ship until full, and then it is pumped out to an oil disposal or reclamation facility.

(b) A donut is an unsatisfactory means of collection and transportation for AFFF discharges. The specific gravity of sea water (1.02 - 1.03 at 4°C) and the specific gravity of AFFF (FC-206, 1.020 at 4°C) are nearly identical. Furthermore, they are fully miscible. Therefore, AFFF and sea water will not separate gravimetrically and a donut will have no separation or confining effect.

(4) Liquid wastes are often removed from naval installations by contractors utilizing tank trucks. Wastes can be collected in shoreside tanks which are emptied by a contractor or discharged directly into waiting trucks.

(a) Disposal of AFFF waste discharges by contractor is an acceptable alternative that is practiced in some locations (i.e., Long Beach Naval Shipyard, appendix D). However, disposal by contractor involves additional coordination between ship, shore facility, and contractor, and therefore it involves additional expense and possibly delays.

(b) Collection of AFFF in tanks could be an acceptable alternative until other more efficient alternatives become available.

b. Alternative (D), perform tests with discharge contained as part of a closed system, relies on a designated shipboard holding tank for containing AFFF wastes. Alternative (D) differs from alternative (C) in that specific ancillary shipboard equipment would have to be provided for alternative (D).

(1) Allocating additional space and equipment aboard ship for handling only wastes from AFFF testing is not attractive. A closed test system would only be used during infrequent in-port testing (estimated as once every three years). It would have to be fabricated of materials compatible with AFFF and cleaned and serviced after use. The added benefit derived from dilution with other shipboard waste streams (in CHT system collection alternative (C)) prior to disposal would also be lost. Strict shipboard size and weight limitations would make location of an AFFF collection system difficult. Therefore, the operational and physical disadvantages of providing a separate, closed AFFF test system makes alternative (D) much less attractive than utilizing existing waste handling systems, alternative (C).

(2) Alternative (D), perform tests with AFFF discharge contained as part of a closed system, is rejected.

8. Alternative (E), eliminate shipboard flow test by redesigning maintenance plan, has as an objective the elimination of shipboard flow testing with AFFF and thus the generation of the waste aboard ship.

a. This option recognizes that the fire-fighting systems are comprised of electro/mechanical/hydraulic components connected electrically and/or hydraulically aboard ship. System evaluation could identify the key components requiring AFFF flow test for operational confidence. With some design change,

the critical components could be given quick connect/disconnect capability to allow the scene of confidence checks of the components to shift from the ship to shore side where the AFFF discharge could be more easily disposed of without contamination of harbor waters. An overall shipboard fire-fighting system pressure/flow confidence check could be performed using sea water. A program of design, procurement, training and installation is involved. The implementation of this alternative accrues a dividend by increasing the effectiveness of maintenance capabilities.

b. Although alternative (E) eliminates shipboard testing, implementation of a maintenance plan would require time. Shipboard testing would have to continue in the interim period. Alternative (E) is rejected.

9. Alternative (F), eliminate shipboard flow test by enhancing system component performance reliability, has as an objective the elimination of shipboard flow testing with AFFF.

a. A systems analysis could be performed with the objective of changing equipment design to maximize the operational reliability and thereby, by performance, assure confidence in the system without regular flow tests using AFFF. Consideration of the classic paths to increased reliability such as: redundancy, added sensing circuits or parallel circuits, derated performance requirements, built-in test equipment, etc. are warranted.

b. Alternative (F), like alternative (E), also eliminates shipboard testing. However, also like alternative (E), alternative (F) would require time to implement. Thus, alternative (F) is rejected.

10. Table 5-1 summarizes the advantages and disadvantages of the six alternative actions considered. The alternatives are rated satisfactory or unsatisfactory based upon evaluation criteria under the environmental and operational objectives. Each alternative was evaluated based upon the same criteria in table 5-1. Implementation of any of the alternatives would reduce the navigable waters impact of the proposed action; however, alternatives (A), (D), (E), and (F) all have operational disadvantages and were therefore rejected. Alternatives (B) and (C) have been rated most satisfactory based upon the operational objective and are therefore most desirable. However, neither alternative (B) nor (C) can be implemented immediately. Therefore, due to the firm safety requirement for continuing AFFF system testing, the following approach is preferred.

11. Preferred Approach. Considering the proposed action and the alternative actions with a high regard for safety as well as the environment, the preferred approach to testing AFFF fire-fighting systems is continuation of current practice: in port, discharge minimum quantities of AFFF into the waters of those harbors where collection and treatment or alternate disposal of test effluent is not now practiced, and at sea, conduct as many of the necessary tests as possible while a ship is underway in unrestricted waters.

Table 5-1
Comparative Summary of the Affects of the Alternative Actions

| Evaluation Criteria | Alternatives | | | | | | | |
|--|--------------|-----|-----|-----|-----|-----|---|---|
| | (A) | (B) | (C) | (D) | (E) | (F) | | |
| <u>Environmental Objective: Reduce Environmental Impact</u> | | | | | | | | |
| 1. Navigable waters impact reduction. | S | S | S | S | S | S | | |
| 2. Lead time to begin implementation of alternative. | U | U | U | U | U | U | | |
| <u>Operational Objective: Reliable, Efficient, Simple Operation</u> | | | | | | | | |
| Maximize; | | | | | | | | |
| 1. Crew confidence by direct check of equipment on-line. | S | S | S | S | U | U | | |
| 2. Crew experience through actual equipment use. | S | S | S | S | U | U | | |
| Minimize; | | | | | | | | |
| 1. AFFF system complexity. | U | S | S | U | S | U | | |
| 2. AFFF equipment redesign or modification. | S | S | S | S | U | U | | |
| 3. Ancillary equipment not otherwise available. | U | S | S | U | S | U | | |
| 4. Logistical support. | U | S | S | U | U | U | | |
| 5. Maintenance (manpower) requirement. | U | S | U | S | U | S | | |
| 6. Additional training requirement. | U | U | S | U | S | S | | |
| 7. Imposition of test scheduling restraints. | S | S | U | S | S | S | | |
| S - satisfactory | TOTAL S | | 5 | 9 | 8 | 6 | 5 | 4 |
| U - unsatisfactory | TOTAL U | | 6 | 2 | 3 | 5 | 6 | 7 |

a. AFFF system test procedures can be used that both minimize the quantity of effluent generated and eliminate the foaming of the discharge on the harbor surface. Some Navy port facilities, on their own initiative, have implemented procedures for collecting AFFF discharges in portable tanks, pierside sanitary sewers, waste collection barges, or tank trucks (Norfolk Naval Shipyard, Charleston Naval Shipyard, Mayport Naval Station, San Diego Naval Station, and Long Beach Naval Shipyard). Appendix D includes disposal procedures used by Long Beach Naval Shipyard (an example of tank truck disposal) and Norfolk Naval Shipyard (an example of disposal in a sanitary sewer). Until adequate collection and disposal procedures are tested and implemented at other port facilities, direct overboard disposal of AFFF test effluents will be necessary. Adoption of test procedures using the in-line test device recommended by the FFAT, and further development of more environmentally acceptable AFFF formulations would continue to reduce the impact of overboard discharges (see section 9).

b. Table 5-2 shows the capabilities for treating AFFF discharged to the sanitary sewer system at the ten major naval port facilities listed in table 2-1. Estimates of the daily sewage flows from the naval installations and the operating capacities of the listed sewage treatment plants have been

Table 5-2

Treatment Capabilities for AFFF at Major Naval Port Facilities

| Naval Port Facility | | Plant Name | Type | Operating Daily Flow in Millions gal (m ³) | Tank Truck Pumpout Rate for 200 µl/l Port Facility Discharge | Sewage Treatment Plant Influent AFFF Concentration with 200 µl/l Port Facility Discharge |
|---|--|--|-------------------|--|--|--|
| Location | Approximate Daily Flow in Millions gal (m ³) | | | | gpm (l/m) | µl/l |
| San Diego, CA: Naval Station, North Island, Point Loma | 1.0 (0.004) | City of San Diego Metropolitan Sewage Treatment Plant, Point Loma | Primary | 100 (0.378) | 0.14 (0.53) | 2.0 |
| | 1.5 (0.006) | | | | 0.21 (0.79) | |
| | 0.2 (0.001) | | | | 0.03 (0.10) | |
| Norfolk, VA | 4.0 (0.015) | Hampton Roads Sanitary District, Army Base Plant | Primary (E.1979) | 16 (0.060) | 0.56 (2.1) | 50 |
| Charleston, SC | 1.4 (0.005) | North Charleston Sewer District Plant | Primary (E.1980)* | 11 (0.042) | 0.19 (0.74) | 25 |
| Pearl Harbor, HI | 5.5 (0.021) | Fort Kamehameha Tri-services Treatment Plant | Secondary | 5.5 (0.021) | 0.76 (2.89) | 200 |
| Philadelphia, PA | 1.0 (0.004) | City of Philadelphia South East Water Pollution Control Plant | Primary (E.1980) | 136 (0.515) | 0.14 (0.53) | 1.4 |
| Mayport, FL | 0.6 (0.002) | Mayport Naval Station Treatment Plant | Secondary | 0.6 (0.002) | 0.08 (0.32) | 200 |
| Little Creek, VA | 1.0 (0.004) | Hampton Roads Sanitary District, Elizabeth River Plant | Secondary | 16 (0.060) | 0.14 (0.53) | 12 |
| Long Beach, CA | 1.0 (0.004) | Port of Long Beach, City of Los Angeles, Terminal Island Treatment Plant | Secondary | 11 (0.042) | 0.14 (0.53) | 18 |
| Bremerton, WA | 0.6 (0.002) | Charleston Treatment Plant | Primary (E.1980)* | 6 (0.023) | 0.08 (0.32) | 20 |
| Alameda, CA | 1.1 (0.004) | East Bay Municipal Utilities District Treatment Plant | Primary (E.1977) | 80 (0.303) | 0.15 (0.58) | 2.8 |

*Estimated completion date of secondary treatment plant.

obtained from the Navy Environmental Support Office (Code 25), Port Hueneme, California, and NAVFAC Engineering Field Divisions. A maximum target AFFF concentration of 200 $\mu\text{l}/\text{l}$ in the port facility has been selected to minimize foaming in the municipal sewer system. Based upon findings of a USAF study (appendix E), operational problems due to foaming occurred in a bench scale-activated sludge sewage treatment plant at concentrations above 200 $\mu\text{l}/\text{l}$. The USAF study concludes that FC-206 can be successfully treated at concentrations of 200 $\mu\text{l}/\text{l}$ on a continuous basis. Tests reported by the 3M Company (appendix E) showed no microbial inhibition at concentrations less than 1000 mg/l. Therefore, it appears that the degree of foaming and not the treatability of AFFF effluents will determine acceptable discharge concentrations.

c. Dilution of an AFFF test effluent within the port facility will occur in two stages: first, initial dilution in the CHT tank; second, dilution in the port facility sewer system. Figure 5-7 illustrates the initial dilution required in a CHT tank such that, when combined with the dilution in the sewer system, the AFFF concentration leaving the facility does not exceed 200 $\mu\text{l}/\text{l}$. Figure 5-7 assumes collection of 90 gal (0.34 m^3) of 6% AFFF solution (5.4 gal [20.4 l] AFFF) per CHT tank discharge. Pumping rates of 100 gpm (6.3 l/s) and 150 gpm (9.5 l/s) are most common; exceptions are 400 gpm (25 l/s) pumps aboard two NIMITZ class ships, 800 gpm (50 l/s) pumps aboard five TARAWA class ships, and 20 gpm (1.3 l/s)

pumps aboard one ALBANY class ship.²¹ Ships with a combination CHT tank capacity and pumping rate that plots below their facility location line in figure 5-7 would have to find alternative disposal or dilution procedures (i.e., separate holding tank, SWOB barge, etc.).

d. Thus, completion of shipboard CHT tank installation, pier sewer construction, and SWOB delivery could eliminate AFFF system test effluent discharges to harbor waters by calendar year 1981.

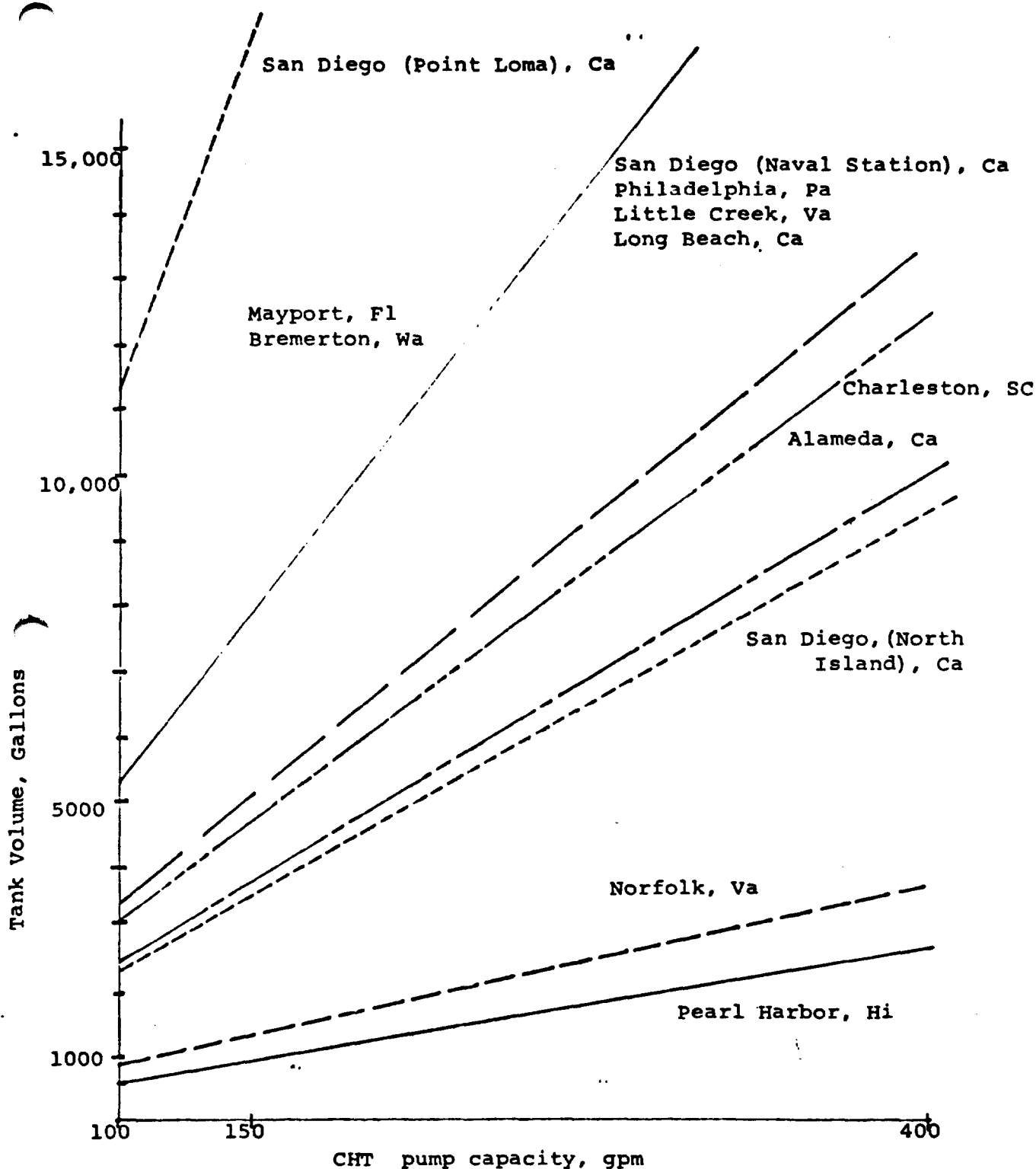


Figure 5-7. CHT Tank Dilution Volumes Required to Maintain AFFF Concentrations at or Below 200 ul/l in the Port Facility Discharge.

SECTION 6

PROBABLE ADVERSE ENVIRONMENTAL EFFECTS WHICH

CANNOT BE AVOIDED SHOULD THE PROPOSAL BE IMPLEMENTED

1. Although the quantities of 6% AFFF mixtures that will be discharged are very small compared to other wastes discharged in and around harbor areas, a single assessment of the environmental effects of an action which occurs in many varied locations and under differing circumstances is difficult. Regularly scheduled testing of AFFF fire-fighting systems will occur aboard less than 500 Navy ships scattered in not less than 33 ports.
2. The chronic effects of AFFF chemicals on marine life are as yet unknown. Potential toxicities of residual chemical forms and the possible bioaccumulation of AFFF chemicals in plants or animals has not yet been determined. However, existing evidence on the high degree of biodegradability of AFFF and the treatability of AFFF mixtures by conventional biological treatment plants, provides supportive evidence that AFFF can be assimilated into the environment with little if any harmful effect (appendix E).

SECTION 7

THE RELATIONSHIP BETWEEN LOCAL SHORT-TERM USE OF MAN'S ENVIRONMENT AND THE MAINTENANCE AND ENHANCEMENT OF LONG-TERM PRODUCTIVITY

1. The current discharge of AFFF test effluents into harbor waters for disposal should have no immediate or short-term effect upon the use of a harbor area for industrial purposes. It is unlikely that the industrialized uses of port facilities will change in the near future because commercial aquatic or recreational uses of the environment are not currently compatible with an industrialized area. Therefore, long-term productivity of the harbor area as currently defined will not be affected.

SECTION 8

ANY IRREVERSIBLE AND IRRETRIEVABLE COMMITMENTS OF RESOURCES THAT WOULD BE INVOLVED IN THE PROPOSED ACTION SHOULD IT BE IMPLEMENTED

1. The tests and bioassays reported in appendix E are all of a comparatively short-term duration. The long-range impact resulting from the continued use and discharge of AFFF mixtures is not known. It has been recognized that persistent contamination at low levels of toxicity may be more harmful to marine life than sporadic occurrences of higher concentrations.²² Discharges of AFFF test mixtures into harbors are only avoidable in those ports in which facilities for collection and transfer of liquid waste from ship to shore are operational. Preceding implementation of preferred alternative solutions identified in section 5, water quality in the immediate vicinity of an AFFF discharging vessel will be adversely affected for a short time. There are no corroborating data from long-term tests at low levels of AFFF concentration. The level of any irreversible or irretrievable commitment of natural resources by implementation of the proposed action, if it were to continue unchanged, is not known.

SECTION 9

CONSIDERATIONS THAT OFFSET THE ADVERSE ENVIRONMENTAL EFFECTS

1. The CNM/NAVSEA FFAT has found that many shipboard installed fire-fighting systems and foam proportioners were unreliable for a variety of reasons (i.e., proportioners worn, valving faulty and/or misaligned, electrical circuitry incomplete or otherwise inoperative and piping integrity severely degraded). One of the principal reasons for the conditions found has been attributed to the lack of adequate testing of proportioners and associated systems due to environmental considerations. Because of such considerations, current in-port test procedures require that foam discharges must be collected on board in a tank or discharged to a suitable containment vessel. At-sea test procedures specify that a ship must be underway at 10 knots and be outside the 12-mile limit prior to conducting tests that discharge foam solutions overboard. As a result, when the foregoing requirements cannot be met, many foam proportioners and associated systems are not properly tested prior to a ship getting underway. In event of a shipboard fire such lack of testing presents an undue hazard to the ship as well as to personnel aboard. Together with routine PMS testing requirements, tests are particularly needed after completion of alterations, repairs, or installation of AFFF systems during ship overhauls or after construction. A firm requirement exists to conduct tests in port prior to sea trials.

AFFF discharge from some systems cannot be easily contained due to necessary design configurations and the amount of foam produced. The problem of containment is further complicated in some instances because suitable collection vessels are not readily available, and ship's bilges, tanks and/or barges usually contain small amounts of oil making them unsatisfactory for receiving AFFF mixtures. Disposal of mixtures of oil and AFFF solutions is extremely difficult from a practical standpoint in that AFFF renders the oil unsuitable for disposal by conventional means. It is therefore imperative, in the interest of personnel safety and material protection, that fully operable and reliable fire-fighting systems be maintained aboard ship. This requires regularly scheduled operational PMS testing and operational testing after equipment is newly installed, repaired, altered or converted. Until practical means of collection and alternate means of disposal are developed, it will be necessary to discharge AFFF mixtures overboard.

2. The following actions are currently being undertaken and will directly or indirectly either reduce the volumes of AFFF discharged or lessen the environmental impact of those discharges.

a. In view of the chronological improvement in the toxicological character of AFFF formulations as supported by evidence contained in appendix E, it is reasonable to assume that

variants could ultimately become available that would be environmentally even more acceptable than currently available AFFF's. A study has begun to develop new formulations of AFFF material to improve environmental characteristics (Contract No. N00173-76-R-B-039). The development of experimental AFFF formulations that would exhibit a reduced impact on the environment while retaining fire-fighting effectiveness will be explored. The study will examine the effect of AFFF formulation components on the BOD, COD, biodegradability, toxicity toward sewage bacteria, fish toxicity, effect of component concentration on selected environmental/biological parameters, formulation design experiments, and analytical methods evaluation. New AFFF formulas will be selected and screened for fire-fighting performance and physiochemical properties. Alternate analytical methods for determining solution concentration shall be conducted to determine if a simpler method for use in the field is feasible.

b. The Navy has embarked on a program to eliminate the discharge of shipboard sanitary wastes into navigable waters in accordance with PL 92-500, its implementing standards and regulations. To accomplish this program, pier sewers are being constructed to collect ship CHT system discharge for shoreside treatment. Pier sewer construction began in FY73 and is scheduled for completion in FY81. Pier sewers will provide

an environmentally acceptable means for disposal of shipboard generated AFFF testing mixtures to sewage treatment plants. The construction schedule for major port wastewater collection facilities ashore as of 15 October 1976 is contained in appendix G.

c. The discharge into a harbor of AFFF solutions through an aeration nozzle has, in the past, produced unsightly expanses of foam floating on the harbor surface. Through the adoption of an in-line foam testing device developed by the FFAT, the aeration nozzle is no longer required for testing and the foaming problem is being eliminated. The device consists of a standard nozzle gauge adapter now required for foam testing, a small drain valve for sample collection, and a selection of interchangeable orifice plates for obtaining desired flow rate. The open end of the hose run from the device may be inserted directly into a tank top or held beneath the surface of a receiving body of water. It prevents the normal 5 to 1 expansion of foam that causes a collecting tank to fill and overflow rapidly or that causes the unsightly foam layer floating on a harbor surface.

SECTION 10

REFERENCES

1. Geyer, G.B., "History, Research, and Foam Developments," Proceedings of a Seminar on Fire Fighting Foams - Their Characteristics and Uses in Fuel Conservation, John Hopkins University, APL/JHU FPP B74-1, December 1974.
2. Chapman, K.H., "Shipboard Foam Fire Fighting Equipment Conversion from Protein Foam to AFFF," NAVSHIPS Tech News, pp. 15-22, February 1974.
3. DTNSRDC Report TM-1863-5-76, "Catalog of U.S. Navy Commissioned Surface Ships and Shipboard Waste Management Systems," December 1976.
4. OPNAVINST 6240.3D of 24 August 1975, Chapter 1, Part 1, Paragraph 1103.
5. NAVSEA 0993-LP-023-6010 Technical Manual, Type 1, Operation and Service Manual with Illustrated Parts List for Fire Extinguishing System, Twin Agent (AFFF and PKP), 10 January 1975.
6. "Ship's Industrial Waste Handling Report," Draft, Prepared by Lowry and Associates, San Diego, for NAVFACWESTDIV, September 1976.
7. Ridley, E.W., "The Relative Flushing Capability of Eighteen Harbors," unpublished manuscript 33-60, U.S. Navy Hydrographic Office, July 1960.

8. Fisher, L.J., "Field Report, Mayport Basin, Florida, Dye Dispersal Tests," unpublished manuscript 38-63, U.S. Naval Oceanographic Office, August 1963.
9. Fisher, L.J., "Field Report, Pearl Harbor Dye Dispersal Tests," unpublished manuscript 102-61, U.S. Navy Hydrographic Office, July 1961.
10. Cline, C.H. and Ridley, E.L., "Field Report, San Diego, Dye Dispersal Tests," unpublished manuscript 14-60, U.S. Navy Hydrographic Office, May 1960.
11. Fisher, L.J., "Field Report, Mare Island Strait Dye Dispersal Tests," unpublished manuscript 0-26-62, U.S. Navy Hydrographic Office, April 1962.
12. Cline, C.H. and Maloney, W.E., "Field Report, James River Dye Dispersal Tests," unpublished manuscript 1-60, U.S. Navy Hydrographic Office, February 1960.
13. "Dispersion of Sanitary Wastewater Discharges from Navy Ships," NSRDC Report 4194, August 1974.
14. Fisher, L.J., "Field Report, Key West Harbor Dye Dispersal Test," unpublished manuscript 13-61, U.S. Navy Hydrographic Office, May 1961.
15. "Strategy on Fire Protection," NRL Memorandum 6180-428:HWC: pij to NAVMAT 03T, 12 August 1976.
16. Jablonski, E.J., Peterson, H.B., and Tuve, R.L., "A Comparative Testing Study of Fire Extinguishing Agents for Shipboard Machinery Spaces," NRL Memorandum Report 1696, 15 April 1966.

17. Darwin, R.L. and Jablonski, E.J., "Full Scale Fire Test Studies of Sea Water Compatible 'Light Water' as Related to Shipboard Fire Protection," GPO 1969-394-017/S109, 25 August 1969.
18. Gipe, R.L., Butler, C.S., and Peterson, H.B., "A Substitute Liquid for AFFF Concentrate for Checking Proportioners," NRL Memorandum Report 2733, February 1974.
19. Environmental Impact Assessment/Report, "The Effect of Discharging Aqueous Film Forming Foam (AFFF) to the Sea," NAVSEC 6159, July 1974.
20. NAVSEA 0901-005-0002 Technical Manual, Chapter 9005, Section V - Sewage, 1976.
21. Rice, M.S., Liu, H., and McClellan, G.E., "CHT Ship/Shore Interface Information Book," Hydronautics Technical Report 7607.41-1, Prepared for NAVSEC 6159, October 1976.
22. Warren, C.E., "Problems of Toxic Substances in Biology and Water Pollution Control," W.B. Saunders Co., Philadelphia, 1971.

APPENDIX A
EXCERPT FROM
NAVSEA MESSAGE 191523Z FEB 1975
AFFF TESTING

FM COMNAVSEASYSKOM WASHINGTON DC

TO (SHIPYARDS)

A. COMNAVSHIPSYSKOM WASHINGTON DC 230053Z FEB 74 (NOTAL)

B. COMNAVSHIPSYSKOM WASHINGTON DC 010005Z NOV 74 (NOTAL)

1. The requirements of ref A are superseded by this message. Naval industrial activities must test each shipboard AFFF fire fighting system that has been newly installed, modified or repaired by the activity prior to ship departure. The tests shall be conducted using only approved AFFF concentrate solutions and results certified to the ship's commanding officer. If the test solutions must be collected, they shall be clearly identified and disposed of in accordance with local regulations. End of summary.

2. All AFFF fire fighting equipment that is newly installed, repaired, altered or converted from protein foam by an industrial activity shall be tested to insure proper operation and required output. It is recommended that ship's force verify proper lineup and operational integrity of all other fire fighting systems not included in the foregoing. The following shall be observed when testing AFFF hoses:

a. The minimum acceptable concentration of AFFF in the output mixture of the system is 3.5 percent.

b. Allow foam to be generated for one minute before taking a sample. After the sample has been taken the system should be secured ASAP to avoid excessive use of AFFF concentrate.

c. If the only work done on a system was on the foam generator, (proportioner or pump), then only one hose shall be tested with AFFF to verify the foam generator performance. It is recommended, however, that all other hose lines be tested by use of salt water to verify system line up.

d. All systems shall be tested with the installed nozzle at maximum trigger depression or maximum handle throw. 1 and 1/2 inch variable flow nozzles shall be set at 95 gallons per minute, (gpm), in machinery spaces, and 125 gpm in hangar bays or flight decks. Set 2 and 1/2 inch var. flow nozzles at 250 gpm.

e. Output concentration shall be determined by refractometer analysis, using American Optical Inst. Co. Refractometer No. 10402 or 10430 or equal, NSN 1H 6650-00-107-8509, estimated unit price is \$83.00. Samples for refractometer analysis shall be taken at the discharge of the nozzle and analyzed IAW MRC 13 C33R or 24 D82U within two hours after collection. Results of refractometer analysis shall be certified in writing from the industrial activity to the ship commanding officer prior to ship departure.

3. After extensive investigation and tests, it has been determined that AFFF fire fighting systems must be tested with AFFF concentrate to confirm specified system operation and concentration output. No substitute testing liquid is acceptable. The AFFF concentrate shall conform to MIL-F-24385 as identified

in ref B. Approved AFFF concentrate is available in the supply system under NSN 9C-4210-00-087-4742 for 5 gal. containers and NSN 90-4210-00-087-4750 for 50 gal. drums. Direct proprietary purchase of AFFF from any other source rather than the Navy Supply System shall not be made without prior approval of NAVSEA. Some previous 3-M products not on the qualified products list (QPL) that may be found aboard ship are still acceptable for Navy shipboard use. These formulations are the 3-M Co. formulations FC 195 and FC 199. These formulations are compatible with currently stocked QPL concentrates. 3-M formulation FC 196 should not be used due to its high free chlorine ion content which promotes pitting and corrosion of stainless steel.

4. For testing of the machinery space AFFF fire fighting systems the following requirements are applicable for active ships and new construction:

- a. The requirements of paras 2 and 3 apply.
- b. The systems shall be tested and certified in port prior to ship trial runs.
- c. When testing in port AFFF/water foam shall not be discharged into harbor water since such discharge may be harmful to marine life. The AFFF/water foam can be either collected and contained in drums, tanks, tank trucks, sludge barges, closed bottom donuts, YO's or other suitable containers, or the foam can be discharged into the machinery space bilge.

If the AFFF/water foam is tested by discharging into the bilge, then bilge discharging shall be deferred until the ship is outside the 50-mile limit.

d. The AFFF/water foam should not be commingled with reclaimable waste oil products.

e. In port disposal of collected foam shall be governed by local regulations. Guidance information for in port disposal is available from the Environmental Branch of the cognizant NAVFAC Engineering Field Divisions.

5. For testing of AFFF fire fighting systems other than machinery space AFFF fire fighting system, the following requirements are applicable for active and new construction ships:

a. The requirements of paras 2 and 3 apply.

b. The required tests may be conducted while ship is at dockside, when the ship is outside the 3 mile limit and underway at a speed of at least ten knots or when the ship is outside the 12 mile limit, whichever is the most practical.

c. If the tests are conducted at dockside, the requirements of paragraph 4.c to 4.f apply.

d. If conducted while ship is outside the 3 mile limit and underway at ten knots or when ship is outside the 12 mile limit the AFFF/water foam may be discharged overboard as they are discharged from the system.

e. Aircraft carrier flight deck washdown systems (flush deck and deck edge nozzles) shall be tested outside the 12 mile limit. It is recommended that prior to AFFF/water foam testing the flight deck washdown system be thoroughly flushed with salt water to remove any oil and dirt that may have drained through the nozzles into the system.

6. NAVSEA is to be notified in the event that local authority prohibitions or other circumstances preclude testing and certification of shipboard AFFF systems as required by this msg. The point of contact at NAVSEA is Mr. P. Hans, SEA 0495D, Auto-von 222-8504.

7. This msg does not authorize the expenditure of customer funds nor does it authorize change orders without prior NAVSEA or TYCOM approval.

APPENDIX B
COMPARISONS OF THE VARIOUS PARAMETERS OF AFFF'S

Comparison of Various Parameters of AFFF's*

| Parameter | 3M - Light Water | | | National Foam Systems | |
|---|------------------|----------|----------|-----------------------|----------|
| | FC199 | FC200 | FC206 | AOW 3 | AOW 6 |
| pH | 4.6 | 7.6 | 7.8 | 7.8 | 7.9 |
| Specific Gravity | 1.02 | 0.989 | 1.020 | 1.062 | 1.031 |
| Water | | 59% | 70% | 72% | 72% |
| Diethylene Glycol Monobutyl Ether | | 39% | 27% | 10% | 10% |
| COD ($\times 10^3$) | 550 mg/l | 730 mg/l | 500 mg/l | 500 mg/l | 350 mg/l |
| TOC ($\times 10^3$) | | 235 mg/l | 96 mg/l | 130 mg/l | 100 mg/l |
| BOD _u ($\times 10^3$) | 18 mg/l | 450 mg/l | 411 mg/l | 354 mg/l | 300 mg/l |
| BOD ₅ (% BOD _u) | 37 | 2 | 65 | 45 | 45 |
| *USAF EHL(K) Rept. 74-26, November 1974. (FOUO) | | | | | |

B-1

APPENDIX C

FP-180 WATER MOTOR PROPORTIONER

Naval Ships Technical Manual, Chapter 9930, Fire Fighting - Ship,
Articles 9930.120 to 9930.123, September 1967 edition. (FOUO)

9930.120 FP-180 WATER MOTOR PROPORTIONER

1. The FP-180 water motor proportioner has 2½-inch connections at both the inlet and outlet sides and two ½-inch foam pickup tubes. It is a positive displacement foam liquid pump driven by a positive displacement water motor. Flow through the water motor causes the foam pump to inject a metered amount of foam into the fire stream, depending on the position of the foam valve. (See figure 9930-39.)

2. The foam valve has 3 positions, 1 for each of the 2 pickup tubes and an "off" position. A plexi-glass sight tube enables the operator to determine when to shift from 1 pickup tube to the other as a foam can becomes empty, thus ensuring a continuous supply of foam. In the "off" position, with flow through the fire line, water is delivered through the foam pump under pressure, and both water-motor and pump "float" on the line making the fire line available for conventional fire fighting.

3. The FP-180 may be permanently installed for some applications. In this case flexible couplings must be attached to the water motor inlet and outlet and a fixed pipe leading from an installed foam tank will be attached to one pickup tube inlet and the other inlet will be plugged. The foam valve is placed in one position only.

4. The water motor proportioner is designed to proportion 6 percent foam liquid into the fire lines at inlet pressures of 75 to 175 psi and with flows of 60 to 180 g.p.m.

5. Foam can be dispensed by any of the four following combinations:

- a. One 1½-inch line equipped with foam nozzle and proportioner supplied by either a 1½- or 2½-inch hose line.
- b. Two 1½-inch lines wyed off from the 2½-inch outlet. Both lines equipped with foam nozzles.
- c. Three 1½-inch lines with foam nozzles.
- d. One 2½-inch line equipped with foam nozzle.

9930.121 OPERATION OF THE PORTABLE FP-180 PROPORTIONER

1. Connect inlet to 2½-inch hose line and connect discharge lines, within capacity of proportioner and as needed. (On ships having 1½-inch fireplugs single 1½-inch inlet and outlet lines can be used.)

2. Set foam valve to "off" position. Foam valve should always be in "off" position except when actually drafting foam.

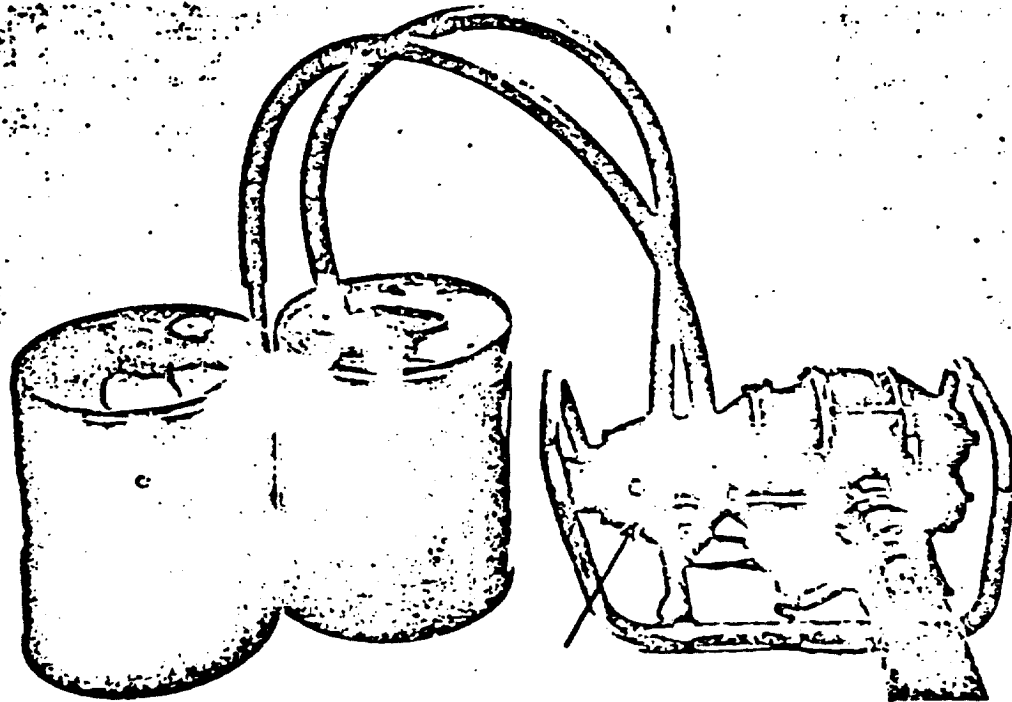


Figure 9930-39. Incoming, or upstream side, arrow points to handle in a foam position.

3. Insert each pickup tube in full foam can.
4. Actuate hose line. To start proportioning foam, shift to "foam" position. The valve is so designed that, in intermediate positions, a jet of water flows through the pickup tube, purging air and ensuring an immediate prime of the foam pump. No noticeable dwell at intermediate positions is necessary to complete the action. If foam liquid color does not show in the plexiglass tube within a few seconds, shift to the other foam position and check for a blocked pickup tube or an air leak in the line.
5. When a foam can is almost empty, shift to other "foam" position and replace empty can.
6. After proportioning foam, always flush the foam pump by running the proportioner two or three minutes in the "off" position, then work the valves two or three times when the unit is running. Return valve handle to "off" position when finished.

2. After draining a few ounces of light lubricating oil should be squirted into the motor through the suction and discharge openings. Oil should also be squirted into the foam valve and foam pump. To get oil into the foam pump, place the foam valve in a "foam" position and pour oil into the corresponding pickup tube opening. Turn the extended shaft several revolutions by hand to distribute the oil within the proportioner.

3. The proportioner should periodically be checked for free turning. Always replace the cover over the extended motor shaft to prevent oil leakage or entrance of foreign matter.

4. If the unit fails to turn freely and there are no foreign objects in the water motor visible through inlet or outlet connections, look for dried foam liquid or foreign matter in the foam pump. Have the foam valve in one of the "foam" positions. Pour water through the corresponding inlet connection and turn the rotors first one way then the other. Hot water dissolves caked foam liquid deposits faster than cold water. Never use gasoline or any solvent to wash out dried foam liquid. It may be necessary to remove the foam valve and accessory piping from the pump and pour water directly into the pump ports. At any time that this is done, it is well to clean all foam-carrying accessories before they are replaced on the unit.

9930.122 OPERATION OF PERMANENTLY INSTALLED FP-180 FOAM PROPORTIONER

1. Installed FP-180 foam stations are arranged the same on all ships but may differ in type of controls used to actuate the system. Controls may consist of local manual control valves or remote hydraulic control valves.
2. The station will be composed of an FP-180, 50-gallon foam tank and associated piping and valves. The foam tank is arranged for quick filling from 5-gallon cans. Fitted with a vent, drain connection gage glass and access plates for cleaning.
3. The stations are installed to supply foam for machinery spaces and helicopter landing platforms. Proportioners for landing platforms are arranged for local manual control at the station. Those for machinery spaces may be arranged for remote control from the foam hose outlets in the machinery and/or local manual control at the station. Figure 9930-40 shows the latest machinery space foam installation. The system is activated by turning the control cock to "drain", relieving pressure on valve 1 which opens admitting seawater. Valve 2 is then opened by firemain pressure admitting foam liquid to the proportioner. This type system fails open, that is, any breach of control lines actuates the foam proportioner. The foam outlet valves still have to be opened to supply the hose lines.
4. On older installations, valve 1 is similar to valve 2 and is opened by turning the control cock to a position which admits firemain pressure to the valve bonnet, opening the valve. This type system fails closed when the control lines are breached.
5. On still older installations the foam outlets are located outside the space on damage control deck with the foam station. In this case, one must leave the space to obtain the hose line and activate the station.

9930.123 CARE AND MAINTENANCE OF THE FP-180 WATER-MOTOR PROPORTIONER

1. Foam liquid dries into a hard-surfaced sticky film that may prevent operation of the proportioner. It is therefore important that the pump and water motor be carefully flushed after each use. The unit should be thoroughly drained after flushing. Stand the unit on the water motor discharge and turn the extended shaft clockwise with a wrench applied to the milled flats on the end of the shaft.

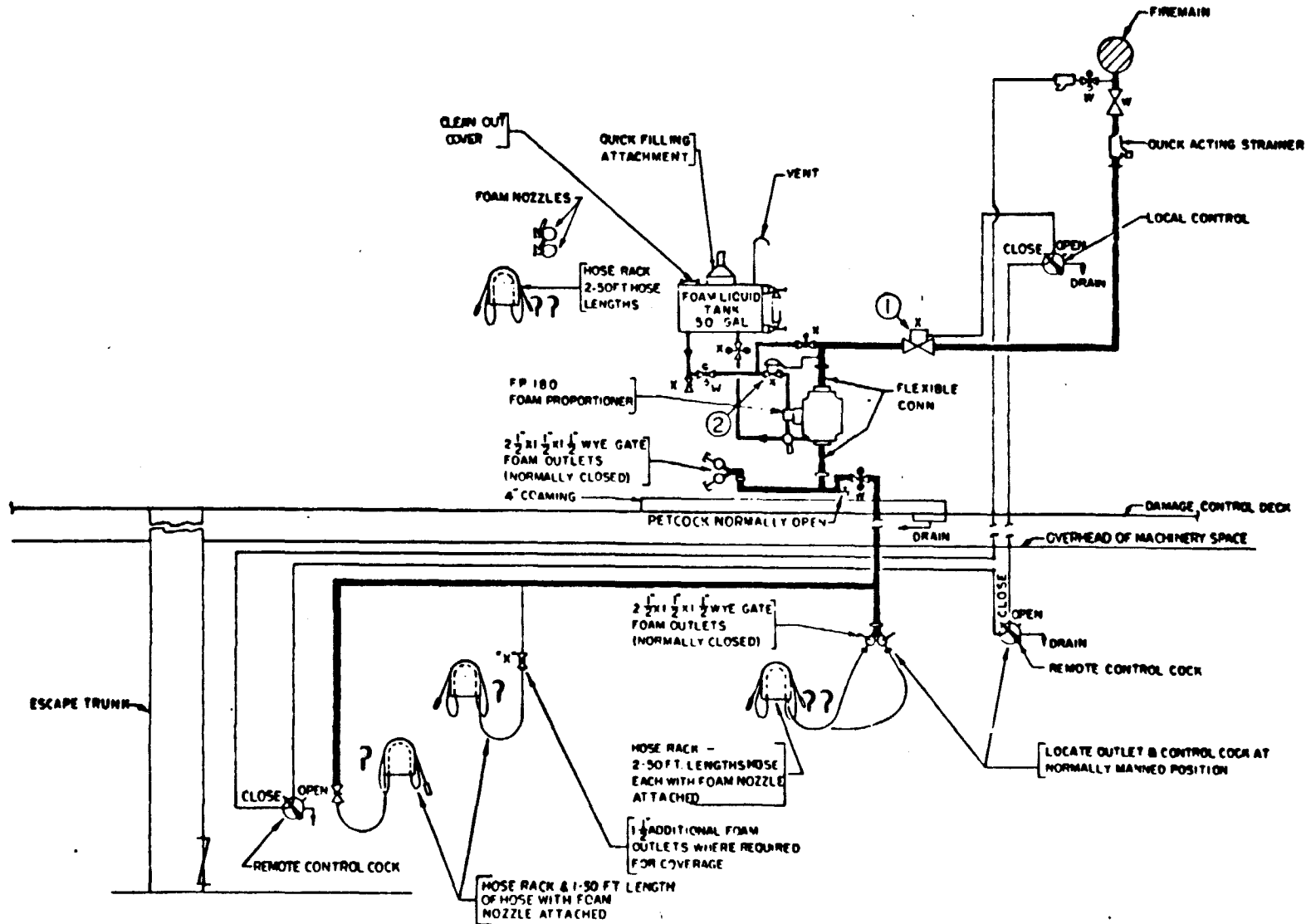


Figure 9930-40. Diagrammatic arrangement of foam hose system.

APPENDIX D

AFFF SYSTEM TEST AND WASTE DISPOSAL PROCEDURES

1. AFFF/PKP Fire-Fighting System Test Procedures for Long Beach Naval Shipyard (18 pages)
2. Hazardous Waste Disposal Procedure No. 10 from Norfolk Naval Shipyard (1 page)
3. "Disposal of Aqueous Film Forming Foam (AFFF) Wastes," Pollution Solution, Naval Environmental Protection Support Service, PS-003A, 18 September 1975 (4 pages)

WRP:nn(303)
2 April 1976

MEMORANDUM

From: W. R. Prince, Operational Safety Advisor, LBNS
To: Craig Alig, Code 2863, Naval Ship R. and D. Center
Subj: Disposal of AFFF

1. Craig, below is the information you requested:

a. Based on nine regular overhauls per year, we dispose of approximately 1100 gallons of AFFF per year.

b. It is off loaded into a 2500 gallon sludge tank, transported to a holding area, picked up by an outside contractor, and dumped in a Class I Sanitation dump.

2. Hope this information will be of some benefit to you.


Bill Prince

D-1

AFFF SYSTEM
TEST PROCEDURE

1.0 PURPOSE:

To verify and determine strength and tightness of newly installed twin agent fire extinguishing system and to demonstrate satisfactory operation of system.

2.0 REFERENCES:

- 2.1 OPNAV INST 6240.3C of 20 Apr 1973
- 2.2 NAVSEA Notice 9930 of 13 Sep 1973
- 2.3 NAVSEA MESG R 2300537 Feb 74
- 2.4 NAVSEA Technical Manual 0993-023-6010 Fire Extinguishing System
Twin Agent (AFFF and PKP)
- 2.5 Type-507-450663 - C1 FP180 - Foam Liquid Proportioner Modifications
- 2.6 Type-507-4506918 - Operating Diagram Machinery Spaces Fire Fighting System

D-3

| SIZE | CODE IDENT. NO. | NAVSEA DRAWING NO. | | | REV. |
|-------|-----------------|--------------------|--|--|-------|
| A | 89219 | | | | |
| SCALE | | | | | SHEET |

3.0 PREREQUISITES

PIPING

3.1 All existing piping not removed by conversion shall be inspected for presence of protein foam deposits, if found, clean as follows:

3.2 (a) One flushing with hot water for period of 15 minutes.

(b) One flushing with solution of hot water and 10% AFFF.

PROPORTIONER

3.3 The existing FP180 proportioner/s (total to be tested ()) shall be tested for proper operation.

3.4 Proper operation of the proportioner is determined by color-comparison analysis of the protein-salt water mixture with known admixtures of 2, 4, 6, and 8 percent or by measurement of the mixture using a refractometer. Five percent protein in the mixture is the minimum allowed and indicates proper proportioner operation. For operation of the refractometer, see Maintenance Requirement Cards (MRC) 92 B88V Q for the procedure of AFFF systems in machinery space of MRC 13 C33R A for AFFF/HCCF Stations.

3.5 Proportioners failing to pass the refractometer test shall be replaced with new FP180 proportioners.

3.6 Proportioners which pass refractometer test shall be flushed in accordance with paragraph 3.2.(a) and 3.2.(b).

4.0 TEST EQUIPMENT

4.1 Supply of small containers

4.2 1-1/2" firehose (sufficient length)

5.0 SERVICES REQUIRED

5.1 Salt water services

D-4

| SIZE | CODE IDENT. NO. | NAVSEA DRAWING NO. | | | REV. |
|-------|-----------------|--------------------|--|--|------|
| A | 89219 | | | | |
| SCALE | | SHEET | | | |

7.0 PRECAUTIONS

7.1 In compliance with the environmental protection policies of reference (2.1), Aqueous Film Forming Foam (AFFF) may be harmful to marine life and shall not be discharged into navigable waters. Despite this restriction, it is essential that newly installed and modified AFFF fire fighting systems be tested prior to ship departure for sea trials as specified in reference (2.3).

7.2 Therefore, all AFFF fire fighting equipment newly installed, repaired, altered, or converted from protein foam, by industrial activities, shall be tested to insure design operability and output. These tests shall be conducted and the results returned to Design Code 260.15 for written certification to the commanding officer prior to trials or departure.

7.3 Test requirements shall include verification that the system output contains a minimum AFFF concentration of 3.5 percent as specified in reference (2.2). Output concentration shall be determined by refractometer in accordance with applicable MRC cards. Samples for refractometer analysis shall be taken at the discharge of a hose nozzle and analyzed within 2 hours after collection.

7.4 An exception is granted for sample testing of aircraft carrier flight deck washdown fire fighting systems while in port. Verification of output concentration of these systems may be deferred for performance beyond the 12-mile limit because of the impracticability of collecting AFFF foam discharge from slush deck nozzles. All other washdown systems tests shall be conducted prior to getting under way.

7.5 Mixtures containing AFFF, produced by these tests, must be contained in drums, tanks, sludge barges or closed bottom donuts as required for oil disposal in reference (2.1). However, AFFF should not be co-mingled with reclaimable waste oil products. The mixture shall not be discharged into harbor waters since AFFF could produce concentrations affecting marine life. Disposal, including introduction into municipal sewer systems, shall be governed by local regulations.

7.6 Report immediately to the Ship's Superintendent any defects which may delay completion of test.

7.7 List the locations of blanks, etc., used during the conduct of tightness test on Sheet No.

7.8 Observe normal safe working practices in accordance with LBNSY Instruction 5100.27C.

D-5

| SIZE | CODE IDENT. NO. | NAVSEA DRAWING NO. | | | REV. |
|-------|-----------------|--------------------|--|--|------|
| A | 89219 | | | | |
| SCALE | | SHEET | | | |

9.2 HYDROSTATIC TEST - PHASE II

9.2.1 At each foam station with the foam proportioner and AFFF tank isolated, test new firemain and foam concentrate piping hydrostatically to 150 PSIG.

9.2.2 At each foam station with the dry chemical and nitrogen tanks and the dry chemical portion of the machinery space hose reels isolated, test PKP supply piping to hose reels hydrostatically to 330 PSIG for 30 minutes minimum and examine piping, valves, and fittings for tightness. After satisfactory completion of this test, drain water from piping and thoroughly dry out by blowing through with warm, dry air.

9.2.3 At each foam station with the new nitrogen piping between the 3-way hytrol valve and nitrogen-PKP tank assembly isolated, test this piping hydrostatically to 330 PSIG. After satisfactory completion of this test, drain water from piping and thoroughly dry out by blowing through with warm, dry air.

9.2.4 REPORT

The AFFF piping system was given a hydrostatic test and was found satisfactory on the date indicated.

C/260.15 Test Engr/Tech _____ Date _____

Shop Personnel _____ Date _____

Ship's Representative _____ Date _____

9.3 PRE-OPERATIONAL TEST - PHASE III (PKP SYSTEM ONLY)

9.3.1 Make sure all nozzles are closed.

9.3.2 Close black ball valve.

9.3.3 Remove the safety clip from the nitrogen cylinder valve and pull the quick opening "pull" handle.

9.3.4 Observe the opening of the powertrol and hytrol valves and the flow of AFFF solution from the normally open petcock.

9.3.5 Close the nitrogen cylinder valve, and install the safety clip and lead and wire seal.

9.3.6 Open the blue ball valve.

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| SIZE | CODE IDENT. NO. | NAVSEA DRAWING NO. | | | REV. |
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| SCALE | | | | SHEET | |

9.3.7 Open the dry chemical nozzle and hold open until evidence of flow ceases.

9.3.8 Close blue ball valve and replace pin and lead and wire seal.

9.3.9 Open green ball valve. Powerrol and hytrol valves should close immediately and flow from the petcock should gradually decrease to zero.

9.3.10 Wait 5 minutes. Close green ball valve.

NOTE: If powerrol and hytrol valves close before green ball valve is opened probable cause is faulty check valve.

9.3.11 Open black ball valve.

9.3.12 Check nitrogen cylinder pressure. If over 1500 PSI, system is ready for use. If under 1500 PSI, replace with spare cylinder.

9.3.13 Repeat steps 9.3.1 through 9.3.12 for remaining PKP units.

9.3.14 Return to each PKP unit in the previous order and open and close green ball valves to check for pressure build-up.

NOTE: When shutting down the system after test or use leave the green ball valve open for 5 minutes to insure that N₂ pressure is relieved.

9.3.15 REPORT

The PKP units were pre-operated and where found satisfactory on the date indicated.

C/260.15 Test Engr/Tech _____ Date _____

Ship's Representative _____ Date _____

9.4 OPERATIONAL TEST - PHASE IV

9.4.1 Fill the AFFF supply tank with fresh water.

9.4.2 From each foam station operate the AFFF system using the local control valve as per operating chart of reference (2.6), discharging overboard through hose station on DC deck and using additional 1-1/2" fire hose as required.

D-8

| SIZE | CODE | IDLNT. NO. | NAVSEA DRAWING NO. | | | REV. |
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| SCALE | | | SHEET | | | |

9.4.3 Observe that the water level in the AFFF tank falls at a normal rate. (Approximately 5 GPM when discharging through a 1-1/2" nozzle).

9.4.4 Demonstrate foam recirculation using the FP180 test procedure on operating chart of reference (2.6).

9.4.5 Perform the following operational test on the dry chemical extinguisher set:

- (1) Remove safety clip from nitrogen cylinder valve and pull lever.
- (2) Check that sea water and AFFF concentrate valves are in open position.
- (3) Close cylinder valve and replace safety clip.
- (4) Seal cylinder valve with lead and wire seals.
- (5) Open and close dry chemical nozzles quickly and observe discharge of "Purple-K" dry chemical.
- (6) Open and close AFFF nozzles in the machinery space hose reels quickly and observe discharge.
- (7) Close black dry chemical valve.
- (8) Open blue hose clean out valve.
- (9) Open dry chemical nozzle to clear all dry chemical from hose line and relieve all pressure from tank.
- (10) Close blue hose clean out valve.
- (11) Replace ring pin and seal with lead and wire seal.
- (12) Open black dry chemical valve.
- (13) Open green vent valve and check that sea water and AFFF concentrate valves close.
- (14) Close green vent valve.
- (15) Remove fill cap and replace "Purple-K" which was used, approximately 15 pounds.
- (16) Replace fill cap, hand tighten.
- (17) Replace nitrogen cylinder if pressure is less than 1500 PSI at 70°F.
- (18) Replace any missing lead and wires.

D-9

| SIZE | CODE IDENT. NO. | NAVSEA DRAWING NO. | | | REV. |
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| A | 89219 | | | | |
| SCALE | | | SHEET | | |

9.4.6 During the operation of AFFF system, take one (1) sample of the foam solution and submit to the lab, Code 134.1, for refractometer analysis.

NOTE: After completion of the refractometer analysis, the lab should submit results to Code 260.15.

9.5 REFRACTOMETER ANALYSIS - PHASE V (Lab only)

9.5.1 A refractometer analysis shall be accomplished by the Industrial Lab to determine the AFFF concentration of the AFFF solution.

NOTE: This procedure has been incorporated into the Maintenance Requirement Cards (MRC) for the AFFF system for machinery spaces (performed every six months) and the AFFF high capacity fog foam (AFFF/HCCFF) stations (performed annually) to ensure an adequate as well as an efficient amount of concentrate (3.5 to 6 percent) is available.

During test operation of a foam-proportioning system, the pollution-control requirement must be adhered to; that is, foam generating tests of foam equipment must be conducted when the foam generated is retained in a tank or barge.

9.5.2 To perform the refractometer analysis, the following equipment is required:

- 12-inch ruler
- Data sheet and graph paper
- Eye dropper
- Light water (AFFF concentrate)
- Clean bucket
- 100-ml beaker
- 50-ml beaker
- Sample bottles
- Lens tissue, 100 sheets
- 100-cc volumetric flasks (3), marked 2%, 4%, and 6% and glass flask stoppers
- Funnel
- 1.3330-1.3700 angstrom optical refractometer, American Optical Instrument Company No. 10420 or 0-30 scale AOIC No. 10430 or equal, No. 10430 is available from SPCC under FSN No. 1H6650-600-6154
- 10-ml measuring pipette

D-10

| SIZE | CODE IDENT. NO. | NAVSEA DRAWING NO. | | REV. |
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| A | 89219 | | | |
| SCALE | | SHEET | | |

9.5.3 PREPARATION OF CALIBRATION CURVE

9.5.3.1 Since the concentration of sea water varies depending on the area or region where the ship is operating, a new calibration curve must be developed for each refractometer analysis. Obtain about 50-ml of AFFF concentrate from the storage tank; this can be drawn from the gauge glass drain. To ensure that no sediment is drawn out, drain and refill the gauge glass before taking the test sample. Next obtain from the firemain about a gallon of sea water. First, clean and dry three 100-cc volumetric flasks and designate 2, 4, and 6 percent respectively. Then fill these flasks approximately 3/4 full with the sea water; into the flask marked 2 percent, pipette 2-cc of the collected AFFF concentrate; into the flask marked 4 percent, pipette 4-cc of AFFF concentrate; into the flask marked 6 percent, pipette 6-cc of concentrate. Next fill the volumetric flasks up to the 100-cc line with water, insert the glass stopper, and invert each flask several times to mix thoroughly. The next step is determining the refractive index of the sea water sample and the 2-, 4-, and 6-percent samples. With the aid of an eye dropper, place a few drops of the sea water sample on the glass surface of the refractometer. Make sure all air bubbles are expelled when the top prism plate is moved into its closed position against the bottom glass surface. Best readings are obtained when the refractometer is held level, pointed toward an overhead light source and a slight finger pressure is applied on the upper prism. Read the number from the left-hand scale where the horizontal line appears between the dark and light fields and record the value of the data sheet (See Table I). This value is the refractive index of the sea water sample and will be the concentration "0 percent" value. Special care should be observed in cleaning the glass surface of the prism. The fluid should be removed by lightly blotting and wiping with lens tissue. A dry lens tissue should then be dipped in clean fresh water and the glass surface should be lightly wiped with the wet tissue and then dried with a dry lens tissue. Using the same method as for "0 percent" concentration, obtain refractive index values for the 2, 4, and 6 percent standard solutions and record the readings on the data sheet. Special care should be taken to clean the refractometer's glass surface and rinse out the eye dropper with fresh water after each reading. A calibration curve can now be plotted using the refractive index as the vertical values and horizontal values increasing from 0 to 10 percent (See Table 2).

9.5.3.2 Plot the values from Table 1 for the "0 percent" water sample and the 2, 4, and 6 percent standard solutions on the graph paper and draw a straight line through the four points; this will be the calibration curve for the particular station where the concentration sample was taken. If a straight line is not obtained, discard the samples and start again with fresh samples. This completes the preparation for analysis of the test samples.

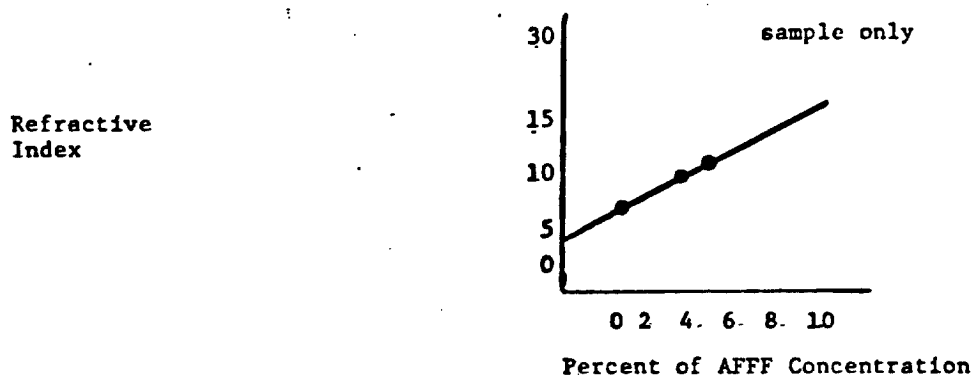
D-11

| SIZE | CODE IDENT. NO. | NAVSEA DRAWING NO. | | | REV. |
|-------|-----------------|--------------------|--|--|-------|
| A | 89219 | | | | |
| SCALE | | | | | SHEET |

Table 1

| Concentration | | Refractive index from scale readings |
|---------------|--------------------------|---|
| % Concentrate | % Water | |
| 1.0 | 100 (Water sample) | 1. |
| 2.2 | 98 (Standard solution) | 2. |
| 3.4 | 96 (Standard solution) | 3. |
| 4.6 | 94 (Standard solution) | 4. |
| 5.- | --- (System test sample) | 5. |

Table 2



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| | | | | | |
|-------|-----------------|----------------------|--|--|------|
| SIZE | CODE IDENT. NO. | NAVSHIPS DRAWING NO. | | | REV. |
| A | 89219 | | | | |
| SCALE | | SHEET | | | |

9.5.4 FOAM SOLUTION TEST

9.5.4.1 Samples of foam solution may be collected wherever it can be certain that the sample is a true representation of the system output. After allowing sufficient time to elapse after start up to ensure that the system has come to equilibrium (about one minute), a sample may be obtained by holding a container with a handle into the edge of the handline stream (or from a pan set on the deck to catch some of the foam discharge from a flight deck fire fighting system flush deck nozzle.)

9.5.4.2 Now place a few drops of foam solution from the system test sample on the refractometer and obtain its refractive index (samples should be analyzed within two hours after the system test run). Using the refractive index, the concentration of the sample can be obtained from the calibration curve. Record the concentration on the data sheet. If the test samples read less than 3.5 percent, attempt the following corrections and retest the system: Inspect foam concentrate tank supply lines to AFFF/HFFF FP1000 proportioner of AFFF injection pump for obstructions and closed valves; clean the AFFF supply line strainer; inspect foam or flight deck flush deck nozzles for obstructions; increase firemain pressure, inspect FP1000 proportioner foam pump for seizure or binding; check proportioner foam pump rotor clearances; using one and two hoses respectively, compare the proportioner RPM with that in the proportioner manual. If RPM is not up to specification, the proportioner should be repaired. If unable to obtain 3.5 to 6 percent station operating concentration, report deficiency to D.C. Central, and retain data sheets and graphs for comparison against future tests.

D-13

| | | | | | | |
|--|-------|-----------------|--------------------|--|--|------|
| | SIZE | CODE IDENT. NO. | NAVSEA DRAWING NO. | | | REV. |
| | A | 89219 | | | | |
| | SCALE | | SHEET | | | |

FORM NAVY B-907/700 (REV. 10 74)

REPORT

| | AFFF STATION | AFFF/PKP STATION | AFFF/PKP STATION | AFFF/PKP STATION | AFFF/PKP STATION |
|---|-----------------|---------------------|---------------------|---------------------|---------------------|
| 1. Workmanship | _____ | _____ | _____ | _____ | _____ |
| 2. Agreement with ref. dwgs. | _____ | _____ | _____ | _____ | _____ |
| 3. Instruction and label plates | _____ | _____ | _____ | _____ | _____ |
| 4. Tightness of foam liquid tank | _____ | NA | NA | NA | NA |
| 5. Proportioner oil level | _____ | NA | NA | NA | NA |
| 6. Were the following provided at foam outlet on D.C. deck? | | | | | |
| (a) 1 foam nozzle | _____ | NA | NA | NA | NA |
| (b) 125' of 1-1/2 hose | _____ | NA | NA | NA | NA |
| 7. Were the following provided at each hose outlet in the machinery space? | | | | | |
| (a) 50' length 1-1/2" hose | NA | _____ | _____ | _____ | _____ |
| (b) 50' length 3/4 hose | NA | _____ | _____ | _____ | _____ |
| (c) 1 twin agent nozzle | NA | _____ | _____ | _____ | _____ |
| 8. Hydrostatic Test | | | | | |
| (a) 150 PSI held for 30 minutes for SW piping | _____ | NA | NA | NA | NA |
| (b) 330 PSI held for 30 minutes for nitrogen piping | NA | _____ | _____ | _____ | _____ |

D-14

| SIZE | CODE IDENT. NO. | NAVSEA DRAWING NO. | | | REV. |
|-------|-----------------|--------------------|--|--|------|
| A | 89219 | | | | |
| SCALE | | SHEET | | | |

REPORT

| | AFF STATION | AFF/PKP STATION | AFF/PKP STATION | AFF/PKP STATION | AFF/PKP STATION |
|--|----------------|--------------------|--------------------|--------------------|--------------------|
| (c) 330 PSI held for 30 minutes for PKP supply piping | NA | | | | |
| 9. Operational Test performed | | | | | |
| 10. Was dry chemical nozzle opened to clear all dry chem- ical from hose line and relieve all pressure from tank? | NA | | | | |
| 11. Were green vent valve and blue valve closed at end of test on dry chemical extinguisher set? | NA | | | | |
| 12. Was black valve open at end of test on dry chemical extinguishing set? | NA | | | | |
| 13. Was "Purple-K" which was used replaced? | NA | | | | |
| 14. Was foam pump flushed and drained? | | NA | NA | NA | NA |
| 15. Refractometer tests results | | NA | NA | NA | NA |

D-15

| | | | | | | |
|--|-------|-----------------|--------------------|--|--|------|
| | SIZE | CODE IDENT. NO. | NAVSEA DRAWING NO. | | | REV. |
| | A | 89219 | | | | |
| | SCALE | | SHEET | | | |

REPORT

| | AFFF STATION | AFFF/PKP STATION | AFFF/PKP STATION | AFFF/PKP STATION | AFFF/PKP STATION |
|---|-----------------|---------------------|---------------------|---------------------|---------------------|
| 1. Workmanship | _____ | _____ | _____ | _____ | _____ |
| 2. Agreement with ref. dwgs. | _____ | _____ | _____ | _____ | _____ |
| 3. Instruction and label plates | _____ | _____ | _____ | _____ | _____ |
| 4. Tightness of foam liquid tank | _____ | NA | NA | NA | NA |
| 5. Proportioner oil level | _____ | NA | NA | NA | NA |
| 6. Were the following provided at foam outlet on D.C. deck? | | | | | |
| (a) 1 foam nozzle | _____ | NA | NA | NA | NA |
| (b) 125' of 1½ hose | _____ | NA | NA | NA | NA |
| 7. Were the following provided at each hose outlet in the machinery space? | | | | | |
| (a) 50' length | NA | _____ | _____ | _____ | _____ |
| (b) 50' length ¾ hose | NA | _____ | _____ | _____ | _____ |
| (c) 1 twin agent nozzle | NA | _____ | _____ | _____ | _____ |
| 8. Hydrostatic Test | | | | | |
| (a) 150 PSI held for 30 minutes for SW piping | _____ | NA | NA | NA | NA |
| (b) 330 PSI held for 30 minutes for nitrogen piping | NA | _____ | _____ | _____ | _____ |

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| | | | | | |
|-------|-----------------|--------------------|--|--|------|
| SIZE | CODE IDENT. NO. | NAVSEA DRAWING NO. | | | REV. |
| A | 89219 | | | | |
| SCALE | | SHEET | | | |

REPORT

| | AFFF STATION | AFFF/PKP STATION | AFFF/PKP STATION | AFFF/PKP STATION | AFFF/PKP STATION |
|--|-----------------|---------------------|---------------------|---------------------|---------------------|
| (c) 330 PSI held for 30 minutes for PKP supply piping | NA | | | | |
| 9. Operational Test performed | | | | | |
| 10. Was dry chemical nozzle opened to clear all dry chemi- cal from hose line and relieve all pressure from tank? | NA | | | | |
| 11. Were green vent valve and blue valve closed at end of test on dry chemical extinguisher set? | NA | | | | |
| 12. Was black valve open at end of test on dry chemical extinguishing set? | NA | | | | |
| 13. Was "Purple-K" which was used replaced? | NA | | | | |
| 14. Was foam pump flushed and drained | | NA | NA | NA | NA |
| 15. Refractometer test results | | NA | NA | NA | NA |

D-17

| | | | | | | |
|--|-------|-----------------|--------------------|-------|--|------|
| | SIZE | CODE IDENT. NO. | NAVSEA DRAWING NO. | | | REV. |
| | A | 89219 | | | | |
| | SCALE | | | SHEET | | |

PWINST 11350.1 CH 2
Code 403
23 April 1975

HAZARDOUS WASTE DISPOSAL PROCEDURE NO. 10

DATE ISSUED: 11 APR 1975

HAZARDOUS MATERIAL COVERED: Aqueous Film Forming Foam (AFFF) Wastes

FSN 4210-00-087-4742

FSN 4210-00-087-4750

SPECIAL HANDLING INSTRUCTIONS: Collect AFFF wastes in containers of suitable size to permit easy handling. Containers may be flushed and reused.

DISPOSAL INSTRUCTIONS: Discharge to the Yard sanitary sewerage system at a controlled rate not to exceed 10 gallons of undiluted AFFF per hour.

Prepared by: Lt. C. V. Cecil, CEC, USN, Code 403

Concurrence:

Code 730

William J. Mann

POLLUTION SOLUTION

PS-003A
(Rev. 18 Sep 1975)

NAVAL
ENVIRONMENTAL
PROTECTION
PS SUPPORT
SERVICE



NAVY ENVIRONMENTAL SUPPORT OFFICE
Naval Construction Battalion Center, Port Hueneme, California 93043

DISPOSAL OF AQUEOUS FILMFORMING FOAM (AFFF) WASTES

I PROBLEM

AFFF products are fluorocarbon surfactants used for fire fighting. AFFF wastes from firefighting system tests and training exercises must be disposed of in accordance with local and federal guidelines.

More Details of the Problem: Naval industrial activities must test each shipboard AFFF firefighting system that has been installed, modified, or repaired to ensure that the minimum concentration of AFFF in the output mixture is 3.5% (the optimum is 6%). The foam is generated for one minute at flow rates of 95 to 250 gpm before the sample is taken to measure AFFF concentration.

In-port and under certain circumstances at sea, the effluent containing AFFF must be collected and clearly identified for other than direct disposal to the ocean.

AFFF wastewaters containing petroleum are produced from training operations at firefighting schools. For additional guidance in handling these wastes, see Reference 2.

II SOLUTIONS

The acceptable procedures for shore disposal of AFFF wastes are summarized from References 2 and 3 as follows:

A. Discharge Wastes to Sewage Treatment Plant: AFFF wastes free from oil can be discharged to free flowing sanitary sewers at controlled rates. Safe discharge concentrations to a secondary sewage treatment plant (STP) depend upon the specific AFFF used and the average flow rate of the plant. If the AFFF is identified, the safe discharge concentration listed in the table below can be used to determine the discharge rate. It is advisable to discharge at the recommended concentration or at a concentration which will allow acclimation until it is certain that the plant is adapted to this type of waste. Conditions in some localities might allow discharge up to or exceeding the maximum.

If the AFFF concentrate in the waste cannot be identified but is known to be on the AFFF specifications³ qualified products list, the lowest discharge limit should be assumed (10 µl/l recommended to 100 µl/l maximum).

TABLE 1
COMPARISON OF CONCENTRATIONS OF AFFF IN SYNTHETIC SEWAGE
AMENABLE TO BIOLOGICAL TREATMENT
(Data from Table 8, Reference 4)

| Manufacturer's AFFF Concentrate Label | Recommended ^a for Treatment µl/l (ppm) (gal per million gal of secondary STP flow) | Maximum to ^b Sewage Treatment Plant µl/l (ppm) |
|---|--|---|
| FC-199 | 25 | 250 |
| FC-200 | 10 | 10 |
| FC-206 | 20 | 200 |
| Aer-O-Water 3 | 150 | 1700 |
| Aer-O-Water 6 | 150 | 1700 |
| K74-100 | 25 | 250 |

^a Based on reactions to microorganisms, aquatic life, and safety factors

^b Based on activated sludge pilot plant studies using a synthetic sewage consisting of glucose (160 mg/l), peptone (160 mg/l), urea (28.6 mg/l), sodium bicarbonate (102 mg/l), potassium phosphate (32.5 mg/l), and tap water

B. Discharge Wastes to Receiving Body of Water

Wastes can be discharged to a stream containing aquatic life within the following limits:

RECOMMENDED MAXIMUM CONCENTRATION OF AFFF FOR
DIRECT DISCHARGE TO STREAM
(From Reference 4)

| <u>AFFF CONCENTRATE</u> | <u>MAXIMUM CONCENTRATION µl/l (ppm)</u> |
|-----------------------------|---|
| FC-199 | 20 |
| FC-200 | 5 |
| FC-206 | 54 |
| Aer-O-Water 3 | 60 |
| Aer-O-Water 6 | 22 |
| K74-100 | 55 |

C. Filter Waste Through Activated Carbon: AFFF products can be adsorbed on carbon⁵. The efficiency depends upon the particular AFFF concentrate, e.g., 100 percent removal of FC-200 and 70-75 percent removal of Aer-O-Water 6 within 5 minutes of contact time. The effluent may be suitable for discharge to a stream or it can be discharged into a sanitary sewer at an appropriate rate. Pending development of techniques for recovering the adsorbed chemicals, the used carbon can be disposed of in incinerators, mixed with coal for coal-burning furnaces, or disposed of in landfill sites which accept household wastes.

D. The attached flow diagram, Figure 1, can be used to determine the options and restrictions of disposal methods, including disposal at sea.

III RECOMMENDATIONS

The preferred method for disposal of AFFF wastes is discharging to a biological sewage treatment plant under controlled conditions.

IV BENEFITS

Disposal by controlled rate of discharge to a biological treatment plant is a simple and safe procedure which can be accomplished at most naval activities. This method reduces the possibility of environmental damage and eliminates costs of storage and special handling.

V CONTACT

Additional details regarding these disposal methods may be obtained from NAVFAC, Code 0451E, or by contacting NESO, Code 2522, Autovon 360-5071.

VI REFERENCES

1. Naval Message 191523Z Feb 75 COMNAVSEASYSKOM, Washington, D.C.
2. NAVFACENGCOM letter 1042/WEG of 13 May 1975, to: NCBC Port Hueneme, Subj: Aqueous Filmforming Foam; revised disposal guidance.
3. Military Specifications, MIL-F-24385 (NAVY), 21 Nov 1969.
4. E. E. Lefebvre and R. C. Inman, "Biodegradability and Toxicity of Ansul K74-100, Aqueous Film Forming Foam," U.S.A.F. Environmental Health Laboratory, EHL (k) 75-3, Jan 1975.
5. R. K. Kroop and J. E. Martin, Treatability of Aqueous Film-Forming Foams Used for Fire Fighting, Air Force Weapons Laboratory, Kirkland Air Force Base, AFWL-TR, 73-279, February, 1974.

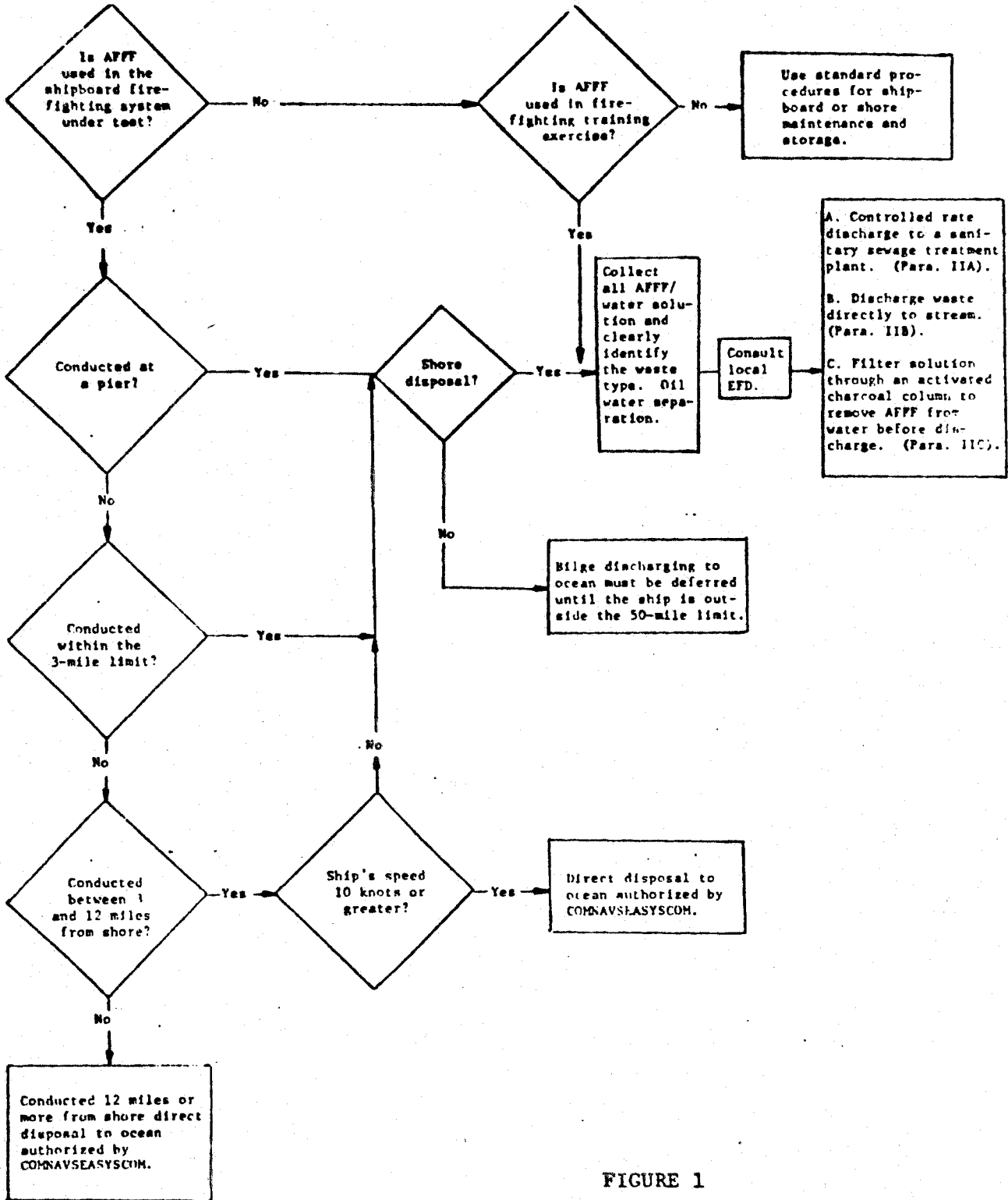


FIGURE 1

Flow Diagram for Disposal of Waste From AFFF Firefighting Tests

APPENDIX E

BIODEGRADABILITY AND TOXICITY OF FC-206

1. 3M Company letter to Mr. C. Alig, Subject:
FC-206, dtd 25 June 1976 (3 pages)
2. NAVSEC letter to NAVSEA, 6159C/SD, 9360/
593.344, ETA 4088025, Ser 270, dtd 3 July
1974, enclosure (1), Bioassay Data (excerpt)
(5 pages)
3. USAF Environmental Health Laboratory Report
EHL(K) 74-26, November 1974 (21 pages)



GENERAL OFFICES • 3M CENTER • SAINT PAUL, MINNESOTA 55101 • TEL. (612) 733-1110

| | |
|---|---------------------|
| ENVIRONMENTAL ENGINEERING AND POLLUTION CONTROL 3M COMPANY P.O. BOX 33331 • 900 BUSH AVENUE • SAINT PAUL, MINNESOTA 55133 | TEL. (612) 733-6033 |
|---|---------------------|

June 25, 1976

Subject: FC-206

Mr. Craig Alig
 Naval Ship R & D
 Code 2863
 Annapolis, MD 21402



Dear Mr. Alig:

This is in response to your request regarding the environmental effects of "LIGHT WATER" Brand Aqueous Film Forming Foam Concentrate FC-206.

The 3M Company is conducting an ongoing program to evaluate and assess the environmental impact of its new and existing products. In accordance with this program, FC-206 has been subjected to a testing schedule designed to evaluate the product's overall environmental impact. Where possible, this product has been tested utilizing those existing methods and procedures which are outlined in "Standard Methods for the Examination of Water and Wastewater," 13th Edition, 1971.

Due to the basic nature and function of FC-206, the wastewater discharge from its use in either an actual or simulated situation, is most likely to find its way to an aquatic ecosystem, usually being first conveyed to a wastewater treatment system. For this reason, the information presented in this letter will be directed toward the aquatic toxicity and biological treatability characteristics of FC-206.

The freshwater aquatic toxicity studies which have been conducted on FC-206 have utilized a warm water and cold water fish (Pimephales promelas and Salmo gairdneri). The results of the studies on the concentrate as sold are as follows:

Species

Fish

96-Hr. LC₅₀

| | |
|---|--------------------------------|
| Fathead minnow (<u>Pimephales promelas</u>) | 3000 mg/l Continuous Flow Test |
| Rainbow trout (<u>Salmo gairdneri</u>) | 1800 mg/l Static Test |

Invertebrate aquatic toxicity studies have been conducted on FC-206. The species tested and their toxicity responses are as follows:

| <u>Species</u> | <u>48-Hr. LC₅₀</u> |
|-------------------------------------|-------------------------------|
| Water flea (<u>Daphnia Magna</u>) | 5850 mg/l |
| Scud (<u>Gammarus fasciatus</u>) | 5170 mg/l |

Marine aquatic toxicity studies have been conducted on FC-206. The species tested and their toxicity responses are as follows:

| <u>Species</u> | <u>96-Hr. LC₅₀</u> |
|--|-------------------------------|
| Mummichog (<u>Fundulus heteroclitus</u>) | 1820 mg/l Static Test |
| Grass shrimp (<u>Palaemonetes vulgaris</u>) | 280 mg/l Static Test |
| Fiddler crab (<u>Uca pugilator</u>) | 3260 mg/l Static Test |
| | <u>48-Hr. LC₅₀</u> |
| Atlantic oyster larvae (<u>Crassostrea virginica</u>) | >100 <240 mg/l |

The ability of an FC-206 wastewater discharge to be stabilized in a biological wastewater treatment system has been evaluated in accordance with parameters such as the biochemical and chemical oxygen uptake rate which are normally used in treatability studies. The biochemical and chemical oxygen demand test results are as follows:

| | |
|--------------------|--------------|
| BOD ₅ | 210,000 mg/l |
| BOD _{ult} | 420,000 mg/l |
| COD | 420,000 mg/l |

The oxygen uptake tests by the dissolved oxygen probe method have shown that no microbial inhibition will occur at FC-206 concentrations less than 1000 mg/l. This concentration level has also been confirmed through tests which measure activity of microorganisms by the TTC* reduction in an activated sludge biological population.

*TTC (2,3,5-Triphenyltetrazolium Chloride) Re: "Dehydrogenase Enzyme as a Parameter of Activated Sludge Activities," Ford, et al. Proceedings of the 21st Industrial Waste Conference, Purdue, May 3, 4, and 5, 1966.

Mr. Craig Alig

June 25, 1976

In addition, a conventional activated sludge pilot plant was successfully operated using a feed source which consisted of a mixture of settled domestic sewage and FC-206. At an FC-206 concentration of 1000 mg/l, the average reductions in COD and BOD levels were 73% and 86%, respectively. When operating at an FC-206 level of 1000 mg/l, the average BOD₅ concentration in the effluent from the pilot plant was 18 mg/l.

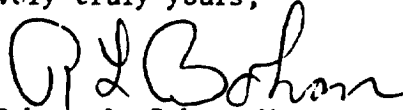
In general, it is advisable to treat FC-206 wastewater discharges in combination with either domestic or industrial wastewater in a biological or physiochemical wastewater treatment system. A combined raw wastewater discharge providing a maximum concentration of 1000 mg/l FC-206 concentrate would permit satisfactory treatment.

All statements, technical information and recommendations contained herein are of a general nature and are based on laboratory tests we believe to be reliable, but the accuracy, completeness or applicability to particular circumstances is not guaranteed. No express warranties are created herein, and implied warranties of merchantability and fitness for a particular purpose are disclaimed.

A more complete evaluation of your specific situation should be based on the particular circumstances and factors involved, including consultation with the appropriate pollution control agencies.

We hope this information will be of value to you. If we can be of further assistance, please contact Mr. D.L. Bacon on (612) 733-5453.

Very truly yours,



Robert L. Bohon, Manager
Environmental Laboratory

RLB/mab

BIOASSAY DATA EXCERPTED FROM ENCLOSURE (1), NAVSEC LETTER TO NAVSEA, 6159C/SD, 9630/593.344, ETA 4088025, SER 270, DATED 3 JULY 1974.

FC-200 AFFF and FC-206 AFFF toxicities were determined by performing bioassays on seven representative saltwater organisms at the Naval Ship Research and Development Center, Annapolis Division. The seven saltwater organisms tested were carefully selected as representatives of the water column. Bioassays were also performed on two other commercial alternative AFFF substances (Aerowater Number 3 and Aerowater Number 6), (manufactured by the National Foam Corporation) and on glycerine, a substance that was considered as a possible alternative to AFFF for use for pierside testing of foam station units.

The organisms tested are listed in table 1. Because it is a representative marine fish species and can be raised in the laboratory, 2 to 3 inch length Killifish (Fundulus majalus) were used for testing. The two bottom organisms that were used were the common Atlantic Oyster (Crassostrea virginia) and the Ribbed Bay Mussel (Modiolus modiolus). The barnacle used was the common white acorn species (Balanus eburneus). The brine shrimp (Artemia salina) tested was the San Francisco Bay strain. Although it is not found in brackish waters, its inclusion in a bioassay procedure has many advantages: (a) it is a standard bioassay organism used by many biology laboratories; (b) it is a reference organism used by EPA; (c) its life cycle, maintenance and culture conditions are very well documented; and (d) its response to a host of chemicals is known. Cyclotella nanna is a brown centric diatom, fully oceanic, but often found in brackish water. Pseudomonas nigrificans (American Type Cultural Collection No. 19375) is a marine bacteria belonging to that vast group of bacteria (Pseudomonas) which is found in almost all the salt waters of the world. Bacteria are the common denominator in water, so their inclusion in a bioassay is absolutely necessary. These organisms were selected and placed in test tanks or flasks. The desired amounts of the chemicals were added volumetrically, and at the end of 96 hours the LC_{50} (concentration of the chemical which is lethal to 50% of the test organisms) was recorded. (For brine shrimp, a 40 hour LC_{50} was determined.) Table 2 shows the actual number of organisms used for testing of each concentration of any one chemical.

The LC_{50} for these chemicals are listed in table 3. Table 3 shows that the least toxic AFFF compound is FC-206, although glycerine is less toxic than FC-206.

Table 1BIOASSAY ORGANISMS

| <u>Name</u> | <u>Type</u> | <u>Stage</u> | <u>Habitat</u> |
|--|---------------------------|-----------------------------------|----------------------------|
| <u>Killi Fish</u> <u>(Fundulus majalus)</u> | Fish Vertebrate | Young Adult 2-3" long | Estuarine Water Columns |
| <u>Bay Mussel</u> <u>(Modiolus modiolus)</u> | Mollusc Shelled | Adult 1-2" long | Brackish Bottom |
| <u>Brine Shrimp</u> <u>(Artemia salina)</u> | Bronchiopod Crustacean | Adult (2 weeks old) | Standard Bioassay |
| <u>Barnacle</u> <u>(Balanus eburneus)</u> | Cirriped Crustacean | Adult 3/4-1 1/2" base | Brackish Littoral |
| <u>Oyster</u> <u>(Crassostrea virginia)</u> | Mollusc Shelled | Adult 2" - 4" | Brackish Bottom |
| <u>Diatom</u> <u>(Cyclotella nana)</u> | Algae Brown Green | 1-2 x 10 ⁶ cells/cc | Oceanic |
| <u>Marine Bacteria</u> <u>(Pseudomonas Nigrificans)</u> | Bacteria | 2 x 10 ⁷ cells/cc | Oceanic to Brackish |

Table 2

NUMBER OF ORGANISMS AND CHEMICAL CONCENTRATIONS

| <u>Organism</u> | <u>Number of Organisms/ Test Concentration</u> | <u>No. of Concentrations</u> | <u>Total No. of Organisms</u> |
|-----------------|---|----------------------------------|-----------------------------------|
| Killi Fish | 6 | (Control & 9) x 3 | 180 |
| Bay Mussel | 6 | (Control & 9) x 3 | 180 |
| Brine Shrimp | 20 | (Control & 9) x 3 | 600 |
| Barnacle | 10 | (Control & 9) x 3 | 300 |
| Oyster | 6 | (Control & 9) x 3 | 180 |
| Algae | 2 test tubes each with 10 ³ to 10 ⁶ cells/cc | (Control & 9) x 3 | 60 tubes |
| Bacteria | 2 test tubes each with 10 ⁷ cells/cc | (Control & 9) x 3 | 60 tubes |

Table 3

96 HOUR LC₅₀ (40 hour LC₅₀ for brine shrimp)

FC-200 AFFF (3M Company)

| <u>Organism</u> | <u>96 Hr. LC₅₀</u> |
|-----------------|-------------------------------|
| Fish | 76 ppm |
| Brine Shrimp | 80 ppm |
| Oyster | Greater than 60,000 ppm |
| Mussel | 26,530 ppm |
| Barnacle | 283 ppm |
| Algae | 110 ppm |
| Bacteria | 1,000 ppm |

FC-206 AFFF (3M Company)

| <u>Organism</u> | <u>96 Hr. LC₅₀</u> |
|-----------------|-------------------------------|
| Fish | 2,679 ppm |
| Brine Shrimp | 1,187 ppm |
| Oyster | Greater than 60,000 ppm |
| Mussel | 10,000 ppm |
| Barnacle | 10,000 ppm |
| Algae | 1,560 ppm |
| Bacteria | 10,000 ppm |

Glycerine

| <u>Organism</u> | <u>96 Hr. LC₅₀</u> |
|-----------------|-------------------------------|
| Fish | 51,870 ppm |
| Brine Shrimp | 17,275 ppm |
| Oyster | Greater than 60,000 ppm |
| Mussel | 35,660 ppm |
| Barnacle | 45,000 ppm |
| Algae | 33,500 ppm |
| Bacteria | Greater than 100,000 ppm |

National Foam Aerowater Number 3
(National Foam Corporation)

| <u>Organism</u> | <u>96 Hr. TC 50</u> |
|-----------------|-------------------------|
| Fish | 850 ppm |
| Brine Shrimp | 727 ppm |
| Oyster | Greater than 60,000 ppm |
| Mussel | 150 ppm |
| Barnacle | 155 ppm |
| Algae | 574 ppm |
| Bacteria | 20,000 ppm |

National Foam Aerowater Number 6
(National Foam Corporation)

| <u>Organism</u> | <u>96 Hr. TC 50</u> |
|-----------------|---------------------|
| Fish | 900 ppm |
| Brine Shrimp | 8,567 ppm |
| Oyster | 35,000 ppm |
| Mussel | 80 ppm |
| Barnacle | 427 ppm |
| gae | 980 ppm |
| Bacteria | 20,000 ppm |

USAF ENVIRONMENTAL HEALTH LABORATORY (AFLC)

UNITED STATES AIR FORCE

KELLY AFB, TEXAS 78241



BIODEGRADABILITY AND TOXICITY OF LIGHT WATER®
FC206, AQUEOUS FILM FORMING FOAM

November 1974

EHL(K) 74-26

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I. SUMMARY

Light Water[®], FC206, is an aqueous film forming foam (AFFF) used for fire fighting. Biodegradability studies show that it can be biologically treated in controlled concentrations up to 200 ul/l in synthetic sewage on a continuous basis. Higher concentration appear amenable to treatment in oxidation ponds over long time periods. Toxicity studies with fathead minnow juveniles and fry indicate that FC206 is less toxic than AFFF's previously tested. The 96-hour LC₅₀ for fathead minnow juveniles and fry were 1080 ul/l and 170 ul/l respectively. Using a 0.05 application factor, a concentration unit of 54 ul/l is recommended for discharge to any waters containing aquatic life.

II. INTRODUCTION

This is the fourth report on the biodegradability and toxicity of a commercial aqueous film forming foam used to fight fires by the Air Force. The results of studies of Light Water® (FC206) a product of Minnesota Mining and Manufacturing Co., St Paul, Minn, are presented here. The FC206 is used to make a six percent solution for the fire fighting operations. This study was conducted at the request of Hq USAF/SGPA and Hq USAF/PREE.

III. DISCUSSION

A. Composition

Results of analysis at this laboratory are shown in Table 1. The specific gravity of the concentrate is 1.020 with a pH of 7.8.

Table 1. Composition of FC206.

| PARAMETER | QUANTITY |
|---|--------------|
| Water | -70% |
| Diethylene Glycol Monobutyl Ether | -27% |
| Fluorocarbon (Structure not Determined) | - 2% |
| Sodium Sulfate | - 1% |
| Chemical Oxygen Demand | 500,000 mg/l |
| Total Organic Carbon | 96,000 mg/l |
| Surfactants (MBAS as LAS) | 41,000 mg/l |
| Fluorine | 14,000 mg/l |

B. Respiration Studies

1. Biochemical Oxygen Demand

The need for measurement of biochemical oxygen demand (BOD) over incubation periods in excess of the standard five days has been pointed out by several investigators and reported previously (5). Additionally, incubation at 25°C rather than the standard 20°C allows determination of the Ultimate BOD in a shorter time period without adverse affects on the micro-organism composition although temperatures in excess of 30°C would alter composition (2). Figure 1 is a curve showing the BOD over a 20-day period as measured with the E/BOD Respirometer as previously reported (12). Table 2 is a summary of these E/BOD measurements.

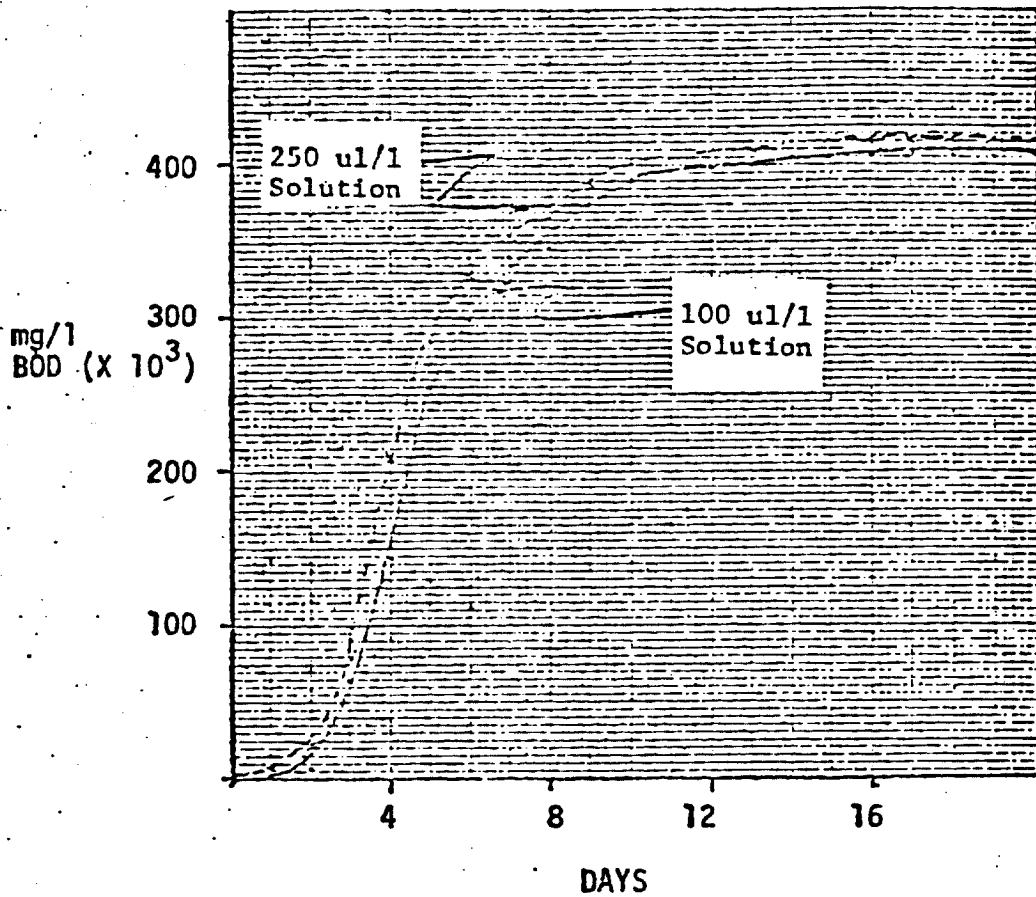


Figure 1. Biological Oxygen Demand as a Function of Time of FC 206 by USAF Environmental Health Laboratory, Kelly AFB TX, 1974.

Table 2. Summary of Data From Measurement of Extended BOD of FC206 at 25°C with the E/BOD Respirometer

| | mg/l | Percent of E/BOD ₂₀ |
|---------------------|----------------------|--------------------------------|
| E/BOD ₅ | 2.68X10 ⁵ | 65.2 |
| E/BOD ₁₀ | 3.95X10 ⁵ | 96.1 |
| E/BOD ₁₅ | 4.10X10 ⁵ | 99.7 |
| E/BOD ₂₀ | 4.11X10 ⁵ | |

2. Warburg Respirometer Studies

Figure 2 shows the variation in oxygen uptake with respect to concentration of the FC206. Acclimation of the microorganisms can be seen by the increase in oxygen uptake rates at the higher concentrations with respect to time. Since the dilution of FC206 from normal usage is to a six percent solution, oxygen up take was not measured beyond the 10 percent solution.

C. Pilot Plant Studies

1. Two bench-scale activated sludge pilot plants were fed increasing concentrations of FC206 in synthetic sewage of composition shown in Table 3. The plants began to show solids loss at an FC206 concentration of 200 to 225 u1/l. Most of the solids loss appeared to be physical in nature from the foaming action forcing the solids over the side of the reactor. Tables 4 and 5 are summaries of the measured parameters for each plant. Table 6 shows the recovery of solids in the first plant when the FC206 concentration was lowered from 500 u1/l to 200 u1/l.

Table 3. Composition of Synthetic Sewage Used in Biodegradability Studies

| | | |
|---------------------------------|------|------|
| Glucose | 160 | mg/l |
| Peptone | 160 | mg/l |
| Urea | 28.6 | mg/l |
| Na HCO ₃ | 102 | mg/l |
| KH ₂ PO ₄ | 32.5 | mg/l |
| Tap Water | | |

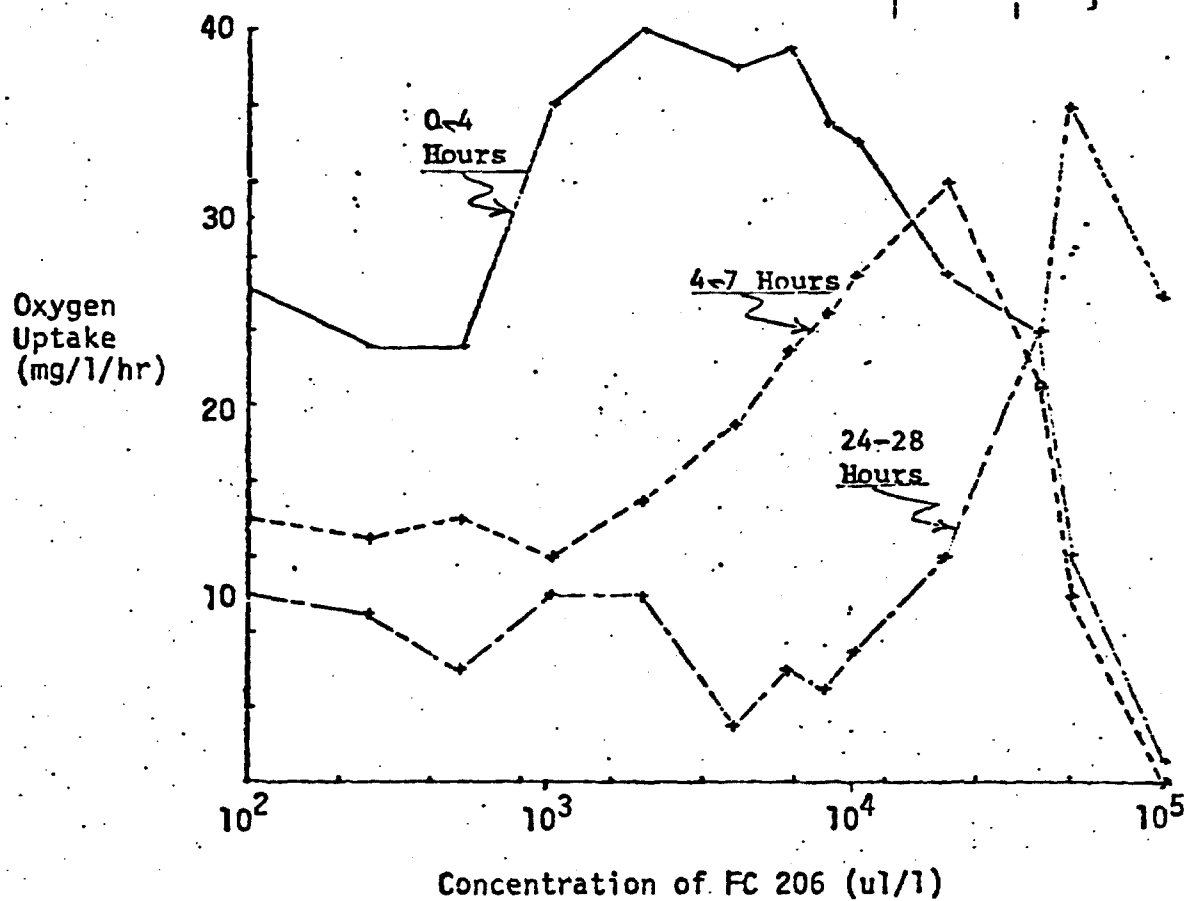


Figure 2. Oxygen Uptake of Varying Concentrations of FC 206 Using the Warburg Respirometer

2. Five Fathead minnows (Pimephales promelas) were placed in each container receiving effluent from each of the plants at the beginning of the study. One fish succumbed in the first plant effluent after 27 days and one in the second plant effluent after 43 days indicating that the effluents were relatively non-toxic. Five giant water fleas (Daphnia magna) were placed in each effluent container on the 36th day and survived to the termination of the study (51 days).

Table 4. Summary of Analysis of Samples From Activated Sludge Pilot Plant No. 1 Receiving FC206 and Synthetic Sewage.

| No. of Days | u1/1 FC206 | mg/1 Avg. MLSS | pH Range | D.O. Range mg/l | Percent BOD ₅ Removal | Percent TOD Removal |
|-------------|------------|----------------|----------|-----------------|----------------------------------|---------------------|
| 5 | 50 | 3045 | 7.2-7.3 | 4.0-6.2 | 97.8 | >95.8 |
| 3 | 75 | 3315 | 7.1-7.2 | 4.2-4.4 | No Data | >95.4 |
| 5 | 100 | 3363 | 7.2-7.3 | 4.8-5.6 | 98.9 | >95.6 |
| 3 | 200 | 3587 | 7.1-7.2 | 4.0-5.6 | 98.8 | >99 |
| 8 | 300 | 3016 | 7.2-7.4 | 4.0-6.0 | 92.1 | >99 |
| 5 | 400 | 2685 | 7.3-7.4 | 5.8-6.2 | 97.6 | 91.5 |
| 14 | 500 | 1763 | 7.4-7.8 | 5.0-7.4 | 94.8 | 54.5 |
| 1 | 300 | 1000 | 7.7 | 6.6 | 17.7 | >99 |
| 3 | 200 | 1513 | 7.7-8.1 | 6.0-7.2 | 85.7 | No Data |

Table 5. Summary of Analysis of Samples from Activated Sludge Pilot Plant No. 2 Receiving FC206 and Synthetic Sewage.

| No. of Days | u1/1 FC206 | mg/1 Avg. MLSS | pH Range | D.O. Range mg/l | Percent BOD ₅ Removal | Percent TOD Removal |
|-------------|------------|----------------|----------|-----------------|----------------------------------|---------------------|
| 5 | 50 | 2397 | 7.2-7.5 | 2.0-6.0 | 98.0 | >96.1 |
| 8 | 75 | 2648 | 7.2-7.3 | 4.8-5.8 | 98.8 | >95.4 |
| 3 | 125 | 2863 | 7.3-7.3 | 4.6-5.6 | 98.7 | >99 |
| 8 | 225 | 3052 | 7.2-7.4 | 4.6-5.4 | 98.3 | >99 |
| 5 | 250 | 2985 | 7.0-7.2 | 4.6-6.0 | 98.2 | >97.9 |
| 22 | 300 | 2414 | 7.1-7.4 | 4.4-7.0 | 96.5 | >98.2 |

Table 6. Daily Measurement of MLSS in Plant No. 1
From 30th to 51st Days.

| Day | u1/1 FC206 | mg/1 MLSS |
|-----|------------|-----------|
| 30 | 500 | 2810 |
| 31 | 500 | 2650 |
| 32 | 500 | 2820 |
| 36 | 500 | 840 |
| 38 | 500 | 1020 |
| 39 | 500 | 1100 |
| 43 | 500 | 1100 |
| 44 | 300 | 1000 |
| 45 | 200 | 1280 |
| 46 | 200 | 1460 |
| 51 | 200 | 1800 |

D. Toxicity Studies

1. METHODS AND MATERIALS

a. Experimental Animals

Toxicity studies used the fathead minnow (Pimephales promelas) to determine the relative toxicity of FC206 solutions -- (Concentrate and pilot plant effluents). Sexually-immature fathead minnows were supplied by the National Fish Hatchery at Uvalde, Texas. The fish were acclimatized to the laboratory conditions and local water for a minimum of 30 days before use. Mean fish weight was 0.913 gm ($\sigma = 0.370$). The fish were fed a commercial fish food*. Immature fathead minnow fry used in static bioassays were reared at EHL/K. Age of fry at time of use was 21 days.

b. Exposure Procedure

(1) Continual flow type bioassays used proportional diluting equipment as developed by Mount and Brungs (7) (8). These diluters supplied logarithmic scaled dilutions of the compound being tested to a flow-through chamber for each concentration in which the experimental animals were held. Studies with fry were static bioassays with three fry per each one-liter test concentration.

*Tetramin®, Distributor, Tetra Sales Corp. Hayward, CA 94545.

(2) Bioassays were performed in accordance with principles described in Standard Methods (12) and Sprague (9). Test animals were not fasted prior to testing. They were not fed during the actual assay period. Ten fish were used for each concentration and the control. Exposure chambers were plastic rat cages modified to contain 4 liters of diluted toxicant.

(3) Response of the test animals was recorded throughout a 96-hour test period. Probit analysis was performed on the data recorded at 24, 48, 72 and 96 hours of exposure to evaluate quantal response to graded doses. After the first bioassay, a true 96 hour replicate was performed using the same procedures and concentrations as used in the first run. In all these bioassays the test animals were placed into the exposure chambers in a random order by using a table of random numbers. The chambers themselves were positioned in random order. The control chamber contained water from the same water tank as the water that was used as the diluent in the other test chambers. The flow of diluted toxicant into the chamber was adjusted to a retention time of 2 hours. This is equal to a 6 hour, 95% replacement time and insures adequate maintenance of the dissolved oxygen concentration. The quantal response measured was death. A fish was counted as dead when all gill movement ceased. Dissolved oxygen and pH were monitored to insure that the cause of death was not lack of oxygen or changes in pH.

c. Dilution Water

Unchlorinated well water from a deep well was used as the dilution water in these studies. The water was collected in 400 gallon fibreglas trailer-tanks at an on-base well site. The water trailers were hauled to the Laboratory and allowed to sit at least 24 hours before the water was used. Air was bubbled through the water. The water was adjusted by heating or cooling to 24°C before it was run into the proportional diluter. The pH was 7.2 Hardness (EDTA as mg/l CaCO₃) was 194. Total alkalinity (as CaCO₃) was 160 mg/l.

d. Treatment use of Data

LC₅₀* or TL₅₀s were determined by the probit analysis method of Litchfield and Wilcoxon. (6) Other statistical treatments such as the (CHI)² test for "Goodness of Fit" were by standard formulas. (3) To be used in this report and the previous reports on Fire-Fighting foam chemicals, toxicity study results had to fulfill two important criteria. 1) Graded quanted responses had to definitively relate to the logarithms of serial dilutions in each test chamber. 2) the results had to be repli-

*LC₅₀, or Lethal Concentration 50%, is a concentration value statistically derived from the establishment of a dose-related response of experimental organisms to a toxicant. The LC₅₀ represents the best estimation of the dose required to produce death in 50% of the organisms. Note that a more toxic chemical has a smaller LC₅₀. The time period for which the 50% response was derived must also be indicated.

cable. The establishment of dose-effect and time-effect relationships allowed scientifically based predictions of the ecological effects of the tested chemicals on a body of water during use, accidental spillage or disposal. Also the relative toxicity of one material could be compared with another; perhaps with the goal of selecting one that would have the least effect on aquatic biota. Finally, the results could be used to set "allowable" or minimal effect concentrations in bodies of water that may receive these materials as waste.

2. Results of Toxicity Studies

a. The sexually immature minnows were exposed to concentrations of FC206 ranging from 800 u/l to 2500 u/l (see Figure 3). At 48, 72 and 96 hours of exposure there was 100 percent death at the 2500 u/l concentration and no deaths at the 800 u/l concentration. At 24 hours of exposure there were no deaths in the 1050 u/l concentration and 75 percent deaths in the 2500 u/l concentration..

b. Figure 4 illustrates the change in LC_{50} with increasing time of exposure. As the percent of deaths increase with time of exposure (lower LC_{50} s), there is a reduction in the slope of the curve between 72 and 96 hours. The reduction in the slope indicates that the 96 hour value may be approaching the incipient LC_{50} (lethal threshold concentration). Therefore, for FC206, the 96 hour LC_{50} is considered to be an adequate estimation of the incipient LC_{50} and can be used to set acceptable concentration limits of FC206 for short periods of time.

c. The 96 hour LC_{50} for 3 week old fry was 170 u/l. The LC_{50} value for fry compared with the 1080 u/l value for the juvenile fish indicates that the FC206 concentrate is approximately 6 times more toxic to the fry than more mature forms. Thus the increased sensitivity of immature forms indicates that the limits of safety using a 1/10 application factor for short term exposure would provide just adequate protection and that a 1/20 value would be more desirable.

Figure 3
 QUANTAL RESPONSE CURVES OF FISH EXPOSED TO FC 206

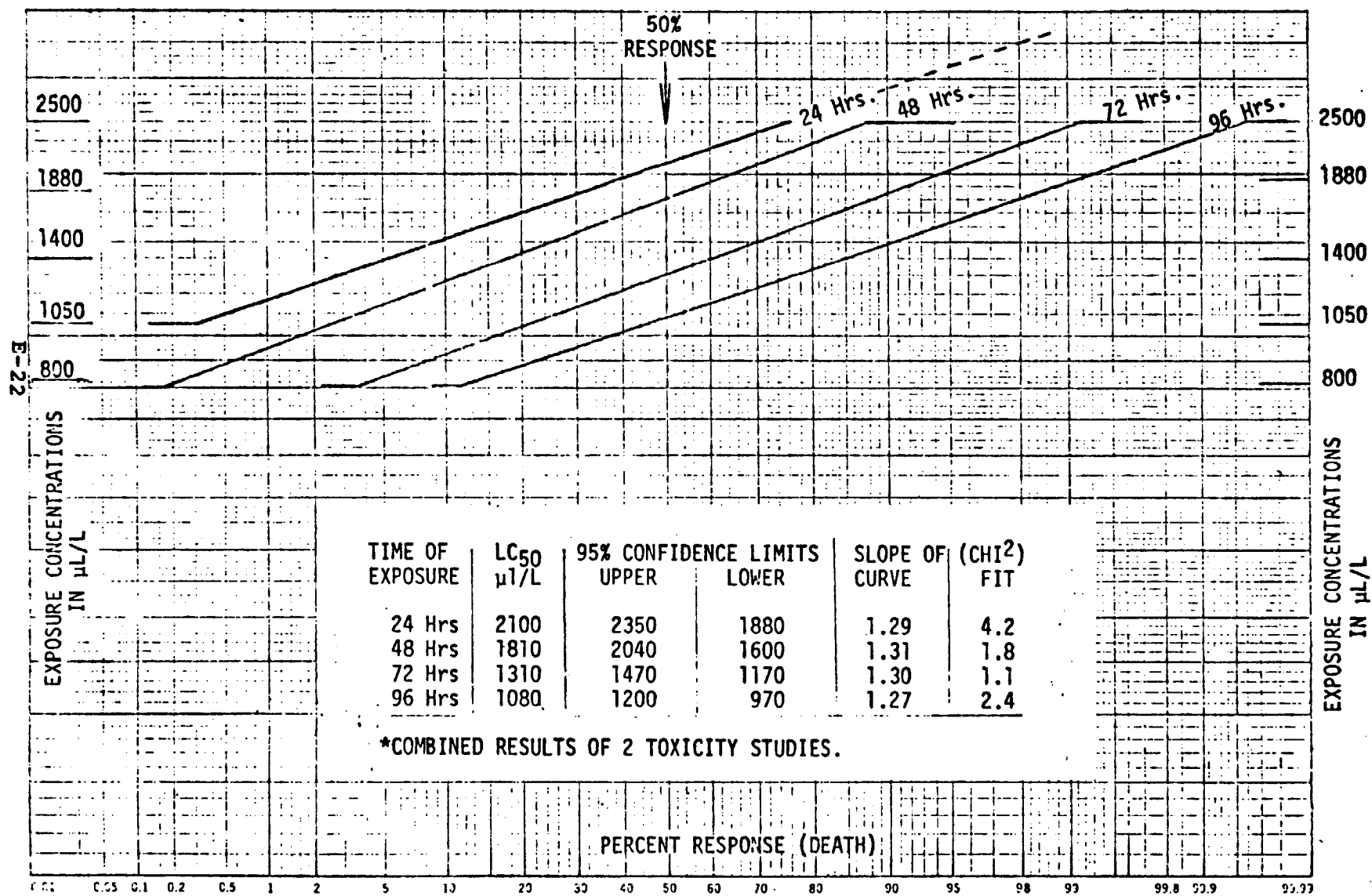
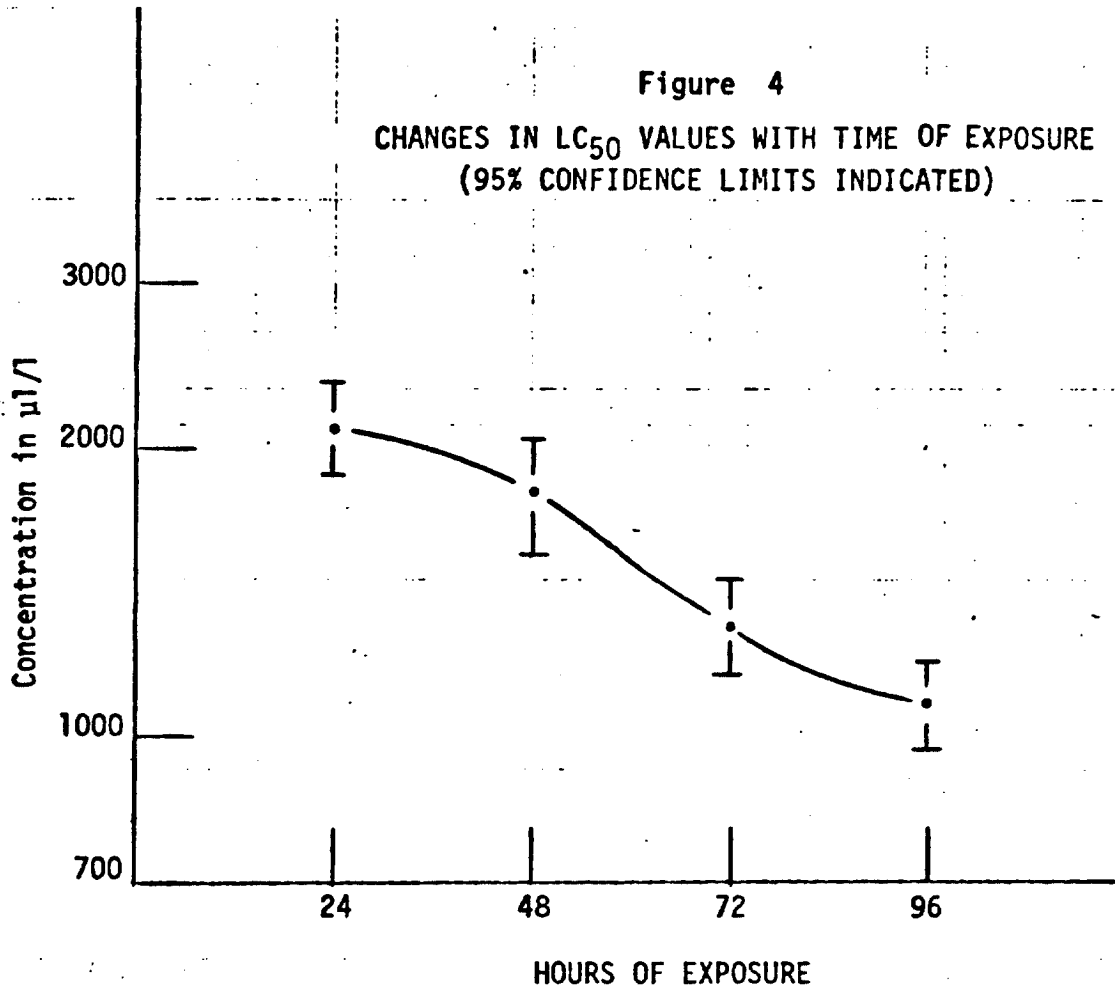


Figure 4

CHANGES IN LC_{50} VALUES WITH TIME OF EXPOSURE
(95% CONFIDENCE LIMITS INDICATED)



E. Comparison with AFFF's Previously Studies

1. Table 7 is a summary of the various parameters measured for each of the AFFF products studied thus far. (4,5,13). The greater percentage of the ultimate BOD being measured in the first five days on the newer products indicates a more rapid degree of biodegradability.

Table 7. Comparison of Various Parameters of AFFF's

| PARAMETER | 3M - LIGHT WATER | | | NAT'L FOAM SYSTEMS | |
|--|------------------|----------|----------|--------------------|----------|
| | FC199 | FC200 | FC206 | AOW 3 | AOW 6 |
| pH | 4.6 | 7.6 | 7.8 | 7.8 | 7.9 |
| Specific Gravity | 1.02 | 0.989 | 1.020 | 1.062 | 1.031 |
| Water | | 59% | 70% | 72% | 72% |
| Diethylene Glycol | | | | | |
| Monobutyl Ether | | 39% | 27% | 10% | 10% |
| COD (X10 ³) | 550 mg/l | 730 mg/l | 500 mg/l | 500 mg/l | 350 mg/l |
| TOC (X10 ³) | | 235 mg/l | 96 mg/l | 130 mg/l | 100 mg/l |
| BOD _u (X10 ³) | 18 mg/l | 450 mg/l | 411 mg/l | 354 mg/l | 300 mg/l |
| BOD ₅ (% BOD _u) | 37 | 2 | 65 | 45 | 45 |

2. Table 8 summarizes the daily changes in LC₅₀'s during 96-hour bioassays for each of the AFFF concentrates previously studied.

Table 8. Changes in Toxicity of AFFF's to Fathead Minnows with increase in time of exposure.

| | LC ₅₀ (Concentrations in µl/l) | | | | |
|---------|---|-------|-------|--------------------|-------|
| | 3M - LIGHT WATER | | | NAT'L FOAM SYSTEMS | |
| | FC199 | FC200 | FC206 | AOW 3 | AOW 6 |
| 24-Hour | 650 | * | 2100 | 1030 | 635 |
| 48-Hour | 588 | 135 | 1810 | 820 | 255 |
| 72-Hour | 450 | 97 | 1300 | 630 | 245 |
| 96-Hour | 398 | 97 | 1080 | 600 | 225 |

*No mortality in 24 hours in one bioassay but 50% in highest concentration (150 µl/l) in duplicate bioassay.

IV. CONCLUSIONS

A. No acute toxicity to activated sludge microorganisms was exhibited by FC206 up to 100,000 u1/1 of the concentrate in synthetic sewage/activated sludge. Dilution of the concentrate for fire fighting operations is six percent (60,000 u1/1).

B. Respiration studies indicate that acclimation of microorganisms to concentrations up to 100,000 u1/1 could occur and would allow successful waste treatment in oxidation ponds.

C. Bench scale - activated sludge treatment plants effectively treated concentrations of 200 u1/1 on a continuous feed basis. Above this concentration, sludge microorganisms were not able to build rapidly. This was probably due primarily to the physical removal of solids through foaming rather than direct toxicity to the microorganisms. Fathead minnows and daphnia lived in effluent from the plant being fed 500 u1/1.

D. In acute toxicity studies in which the test fish (Pimaphales promelas) were exposed to continuously replenished concentrations of FC206, the 96 hour LC₅₀ was 1080 u1/1 (0.11%). The 96 hour value was considered to be an adequate estimation of the incipient LC₅₀ (lethal threshold concentration) and suitable for use with application factors to predict "safe levels" for short-term exposure periods.

E. In comparing toxicities, FC206 concentrate was approximately six times more toxic to fry than the larger juvenile Fathead minnows. Also, FC206 concentrate was less toxic to Fathead minnows than previously tested fire fighting foams.

V. RECOMMENDATIONS

A. Wastewater from fire-fighting training operations should be passed through a gravity oil separator. The waste should then be held in a pond for natural oxidation and decomposition or pumped to a secondary sewage treatment facility at a controlled flow rate. Secondary treatment could be provided with the domestic sewage such that the influent to the sewage treatment plant will not contain in excess of 20 u1/1 of the FC206. This recommendation is based on training exercises and is not necessarily intended for operational use.

B. Using the 96 hour LC₅₀ of 1080 u1/1 and an application factor of 0.05, the calculated "safe level" of FC206 concentrate is 54 u1/1 for short term exposure. For situations in which the aquatic animals will be exposed more than 4 days, concentration of FC206 should not exceed 20 u1/1 in the affected body of water.

VI. REFERENCES

1. Cairns, J., Jr., "Fish Bioassays - Reproducibility and Rating", Revista de Biologia, Vol 7, No. 21 & 2, (1969), pp 1-12.
2. Caskey, William, Personal Communication, Dept of Microbiology, Texas A & M University, College Station, TX.
3. Dixon, W.J., F. J. Massey, Introduction to Statistical Analysis, 3rd ed., McGraw-Hill, New York, 1969.
4. LeFebvre, E.E. 1971. "Biodegradability and Toxicity of Light Water ." Report No. EHL(K) 71-36. USAF Environmental Health Laboratory, Kelly AFB, Tx.
5. LeFebvre, E.E. and J.F. Thomas. 1973. "Biodegradability and Toxicity of AER-O-Water 3 and AER-O-Water 6 Aqueous Film Forming Foam". Report No. EHL(K) 73-22. USAF Environmental Health Laboratory, Kelly AFB, Tx.
6. Litchfield, J. T. and F. Wilcoxon, "A Simplified Method of Evaluating Dose Effect Experiments", J. Pharmacology & Experimental Therapeutics, Vol 96, (1949), pp 99-113.
7. Mount, D. I. and W. A. Brungs, "A Device for Continuous Treatment of Fish in Holding Chambers", Transactions of the American Fisheries Society, Vol 96, No. 1, 20 Jan 1967, pp 55-57.
8. Mount, D.I. and W.A. Brungs, "A Simplified Dosing Apparatus for Fish Toxicology Studies", Water Res., (1967), Vol 1, pp 21-29.
9. Sprague, J. B., "Bioassay Methods for Acute Toxicity", Water Res. Vol. 3, (1969), pp 793-821.
10. Sprague, J. B., "Utilizing and Applying Bioassay Results", Water Research, Vol. 4 (1970), pp 3-31.
11. Sprague, J. B., "Sublethal Effects and "SAFE" Concentrations Water Research, Vol. 5 (1971), pp 245-266.
12. Standard Methods for the Examination of Water and Waste Water, 13 ed., American Public Health Assoc., New York, (1971).
13. Thomas, J. F. and E. E. LeFebvre. 1974 "Biodegradability and Toxicity of FC200 Aqueous Film Forming Foam". Report No. EHL(K) 74-3, USAF Environmental Health Laboratory, Kelly AFB, Tx.

APPENDIX
Participants in Study

PARTICIPANTS

Biodegradability and Toxicity of Light Water, FC206 Aqueous Film Forming Foam

Biodegradability Studies:

Project Officer: Maj Edward E. LeFebvre
Consultant, Environmental Chemistry

1Lt Thomas Doane, Consultant, Environmental Chemistry
TSgt Samuel A. Britt, Laboratory Technician
Mr. Gilbert Valdez, Physical Sciences Aide
A1C Gregory Knerl, Laboratory Technician

Bioassays:

Maj. Roger Inman, Veterinary Ecologist Toxicologist
MSgt Melvin Struck, Laboratory Animal Technician
TSgt Jerold Akey, Laboratory Animal Technician

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APPENDIX F
SMALL SCALE AFFF/DYE DISPERSION TEST

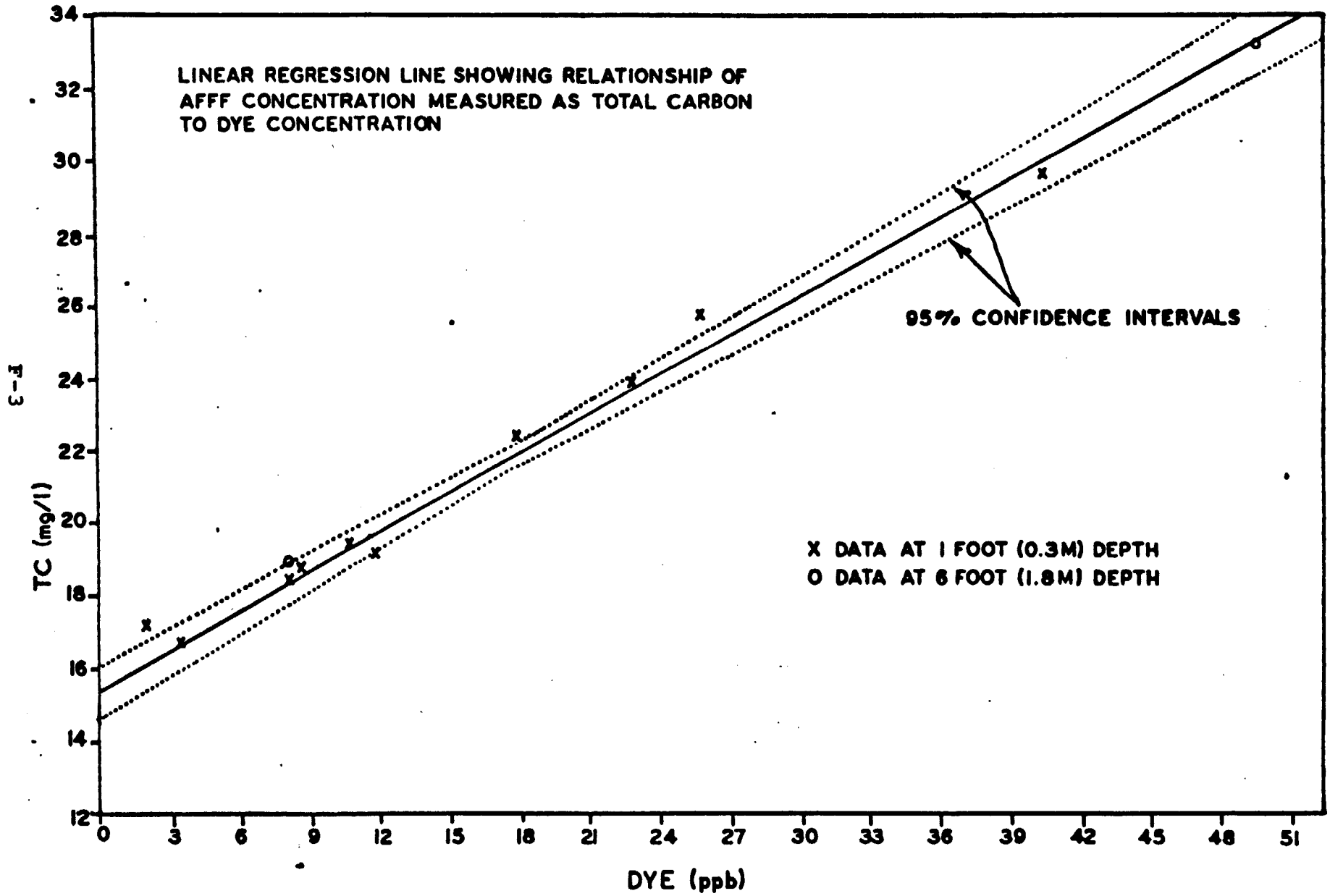
1. A small scale test was conducted in Dungan Basin at the David W. Taylor Naval Ship Research and Development Center, Annapolis Laboratory, on 3 September 1975. Released into the basin was a mixture of 1.2 gal (4.5 l) of AFFF (3M Co. FC-206) and 18.8 gal (71.2 l) of water drawn from the basin. The AFFF/water mixture was dyed to a concentration of 100 ppm (by weight) with rhodamine WT dye. The mixture was poured overboard at 1412 hours from a small boat in the center of the basin. Samples were pumped into collection bottles from depths of one foot (called surface samples, S), six feet, and nine feet from areas within the visible dye patch visually estimated to be those of highest dye concentration. Samples were analyzed for dye concentration, TC, and COD. Results of analyses are contained in table F-1. It was assumed that the increase in TC above background levels was due to the presence of AFFF.

2. Rhodamine dye concentration and TC data for samples collected at the one foot (0.3 m) depth are plotted in figure F-1. The relationship between dye and TC demonstrates that dye can be used to simulate the dispersion of AFFF. Although the rate of change in AFFF and dye was different, the dilution factors remained the same. Therefore, dilution data from an in situ dye dispersion study can be used to develop dilution factors applicable for predicting the decrease in AFFF concentration after release of a known quantity of AFFF under similar conditions in the study area.

Table F-1
Results of Laboratory Analyses of Water
Samples from Dungan Basin Before and
After the Addition of AFFF and Rhodamine Dye

| Time | Depth | | Dye Concentration (ppb) | TC (mg/l) | COD (mg/l) |
|------|-------|-----|---------------------------------------|--------------|-------------------|
| | (ft) | (m) | | | |
| Bkgd | 1 | 0.3 | <2 | 15.6 | 128 |
| Bkgd | 1 | 0.3 | <2 | 13.8 | 125 |
| Bkgd | 6 | 1.8 | <2 | 14.8 | 68 |
| Bkgd | 6 | 1.8 | <2 | 13.8 | 70 |
| 1412 | - | - | Release dye, 1.0×10^5 ppb | - | 2.6×10^4 |
| 1415 | 1 | 0.3 | 8.9 | 18.6 | 96 |
| 1415 | 6 | 1.8 | 8.3 | 18.7 | 80 |
| 1417 | 1 | 0.3 | 40.6 | 29.6 | 150 |
| 1417 | 6 | 1.8 | 49.5 | 33.2 | 144 |
| 1419 | 1 | 0.3 | 25.7 | 24.8 | 160 |
| 1419 | 6 | 1.8 | <2 | 14.6 | 84 |
| 1420 | 1 | 0.3 | 21.8 | 23.8 | 184 |
| 1420 | 6 | 1.8 | <2 | 14.8 | 104 |
| 1422 | 1 | 0.3 | 17.8 | 22.4 | 100 |
| 1422 | 6 | 1.8 | <2 | 14.8 | 80 |
| 1423 | 1 | 0.3 | 10.9 | 19.4 | 68 |
| 1423 | 6 | 1.8 | <2 | 14.1 | 148 |
| 1424 | 1 | 0.3 | 8.5 | 18.2 | 76 |
| 1424 | 6 | 1.8 | <2 | 15.3 | 64 |
| 1425 | 1 | 0.3 | 3.7 | 16.6 | 88 |
| 1425 | 6 | 1.8 | <2 | 14.1 | 132 |
| 1425 | 9 | 2.7 | <2 | 14.1 | 152 |
| 1427 | 1 | 0.3 | 11.9 | 19.2 | 100 |
| 1427 | 6 | 1.8 | <2 | 14.6 | 68 |
| 1427 | 9 | 2.7 | <2 | 14.1 | 188 |
| 1430 | 1 | 0.3 | 2.1 | 17.3 | 64 |
| 1430 | 6 | 1.8 | <2 | 13.6 | 48 |
| 1430 | 9 | 2.7 | <2 | 14.8 | 96 |

FIGURE F-1



APPENDIX G
TENTATIVE ALLOCATION PLANS AND CONSTRUCTION
SCHEDULES FOR SHIP CHT SYSTEMS, SWOBS,
AND PIPR SEWERS

TABLE G-1
 ACTIVITIES WHICH HAVE/PLAN TO HAVE PIERSIDE FACILITIES FOR
 SHIP-TO-SHORE SEWAGE TRANSFER TOGETHER WITH FACILITY DESCRIPTION AND STATUS*

15 October 1976

| LOCATION | MCON NO. | PCR NO. | DESCRIPTION | STATUS |
|--------------------------|----------|---------|--|--|
| <u>NORFOLK COMPLEX</u> | | | | |
| NAVSTA | P-807 | W289D | PIERS 7,12,20,21,22,23 PIER 24 PIER 25 | CONST.COMPL. FACILITY OPERATING UNDER CONST. UNTIL 6/78 UNDER CONST. UNTIL 7/77 |
| NAB LITTLE CREEK | P-206 | W131J | PIERS 56,57,58,59 | CONST.COMPL. FACILITY OPERATING |
| NAVSTA | P-911 | W289E | PIERS 2,3,4,5,10 | UNDER CONST. UNTIL 1/77 |
| NSY PORTSMOUTH | P-177 | W164G | WHARFS 1-12,15,23-27,29-33 35,36,38,39,41-45 | UNDER CONST. UNTIL 4/77 |
| NAB LITTLE CREEK | P-207 | W131K | PIERS 1-8,11-15,16-19 | UNDER CONST. UNTIL 3/77 |
| NSY PORTSMOUTH | P-999 | W164A | PIER C | UNDER CONST. UNTIL 4/77 |
| ----- | | | | |
| <u>SAN DIEGO COMPLEX</u> | | | | |
| NAVSTA | P-176 | W027D | PIER 4 | CONST.COMPL. FACILITY OPERATING |
| NSSF | P-036 | W304A | PIERS 5000,5002, DEPERMING PIER | CONST.COMPL. FACILITY OPERATING |
| NAS NORIA | P-313 | W018L | WHARFS I,J,K | CONST.COMPL. (MUNICIPAL CONN. COMPL.) Lift Station Pump Prob. |
| NAVSTA | P-179 | W027F | PIERS 5,6,8 SMALL CRAFT BASIN MOLE PIER PIERS 1,2,3 PIER 9 | UNDER CONST. UNTIL 5/77; PIER 5 CONST.COMPL. CONST.COMPL. CONST.COMPL. UNDER CONST. UNTIL 1/78 PLANNED EST.COMPLETION 12/78 |
| | P-191 | W032j | PIER 10 | PLANNED EST.COMPLETION 12/79 |
| | P-198 | - - | PIERS 11,12,13 | PLANNED EST.COMPLETION 12/80 |
| NSC | P-022 | W209K | BROADWAY PIER | UNDER CONST. UNTIL 12/76 |
| | P-023 | W209j | FUEL PIER PT.LOMA | UNDER CONST. UNTIL 12/77 |
| NUC | P-059 | W028D | PIERS 1,2 PT. LOMA | PLANNED EST. COMPLETION 6/78 |
| | P-057 | W028C | SAN CLEMENTE ISLAND | PLANNED EST. COMPLETION 7/79 |
| NAB CORONADO | P-093 | W220C | PIERS 3,8,13 | UNDER CONST. UNTIL 12/77 |

*NCBC letter to CNO, 25A1:WLR:hla, Control No. 610-23, Seria 5054 of 16 November 1976, enclosure (1).

TABLE 1 (cont.)

| LOCATION | MCON NO. | PCR NO. | DESCRIPTION | STATUS |
|-----------------------------|-----------|---------|---------------------------------|--|
| <u>CHARLESTON</u> | | | | |
| NSC | P-903 | W305A | PIER A | UNDER CONST. UNTIL 6/77 |
| NSY | | | PIERS C,D,F,G,H,J,K,L,M | UNDER CONST. UNTIL 6/77 |
| NAVSTA | | | PIERS N,P,Q,R,S,T,U | UNDER CONST. UNTIL 6/77 |
| NWS | P-901 | W119H | WHARF A, PIERS B,C, | UNDER CONST. UNTIL 11/76 |
| ----- | | | | |
| <u>MAYPORT</u> | | | | |
| NAVSTA | P-964 | W049K | WHARFS B,C,D,A | CONST.COMPL. FACILITY OPERATING |
| ----- | | | | |
| <u>PEARL HARBOR COMPLEX</u> | | | | |
| NSB | P-119 | W057G | PIERS S1-S5,S8,S9 | CONST.COMPL. (awaiting sewage transfer hose) |
| NAVSTA | P-991 | W165G | PIERS B1-B26, | UNDER CONST. UNTIL 2/77 |
| NSY | | | B1-B21,GD1-GD5, O2, MR NO. 2 | UNDER CONST. UNTIL 2/77 |
| NAVSTA | P-991A | W165H | PIERS M1-M4, | UNDER CONST. UNTIL 2/77 |
| NSC | | | H1-H4, | UNDER CONST. UNTIL 2/77 |
| NSB | | | S10-S14,S20,S21 | UNDER CONST. UNTIL 2/77 |
| NAVSTA | P-179 | W165I | A1-A7,S15-S19,F1-F5 | UNDER CONST. UNTIL 10/77 |
| NSC | | | V1-V4,K3-K11 | UNDER CONST. UNTIL 10/77 |
| NAVSTA | P-179A | W165J | F12,F13 | UNDER DESIGN, EST.COMPL. 7/78 |
| NAVMAG | P-179B | W165J | W1-W5 | UNDER DESIGN, EST.COMPL. 3/79 |
| ----- | | | | |
| <u>SAN FRANCISCO</u> | | | | |
| NAS ALAMEDA | P-100 | W007M | PIER 3 | CONST.COMPL. FACILITY OPERATING |
| | P-133 | W007N | PIERS 1,2 | CONST.COMPL. FACILITY OPERATING |
| NWS CONCORD | P-153 | W008F | PIER 2 | PLANNED, EST.COMPLETION 6/80 |
| NSY VALLEJO | P-203 | W031F | WHARFS 2-20,24 | PLANNED, EST.COMPLETION 5/78 |
| | | | PIERS 21-23 | PLANNED, EST.COMPLETION 5/78 |
| NSC OAKLAND | P-002,3,4 | W019F | ----- | PLANNED, EST.COMPLETION 12/79 |
| ----- | | | | |
| <u>PUGET SOUND</u> | | | | |
| NTS KEYPORT | P-190 | W146j | WHARF | UNDER CONST. UNTIL 1/77 |
| NSY BREMERTON | P-166 | W144K | PIERS 3-8 | PLANNED, EST. COMPLETION 1/80 |
| NSC BREMERTON | P-038 | W147N | FUEL PIER | PLANNED, EST. COMPLETION 5/77 |
| ----- | | | | |

TABLE G-1 (cont.)

| LOCATION | MCON NO. | PCR NO. | DESCRIPTION | STATUS |
|--------------------------|----------|---------|---------------------------------|---|
| <u>LONG BEACH</u> | | | | |
| NAVSTA | P-131 | W014F | PIERS 9,11,15 | CONST.COMPL. |
| NSY | P-172 | W015I | PIERS 1,2,3,6,E | CONST.COMPL. |
| NAVSTA | P-133 | W014G | PIER 7 | UNDER CONST. UNTIL 1/77 |
| NWS SEAL BEACH | P-096 | W035C | WHARF | PLANNED, EST. COMPLETION 7/78 |
| ----- | | | | |
| <u>GROTON/NEW LONDON</u> | | | | |
| NSB NEW LONDON | P-157 | W040D | PIEPS 1-4,6,8-10,12,13,15,17,31 | CONST.COMPL.(awaiting sewage transfer hose) |
| NUSC | P-116 | W332A | PIER 7 | PLANNED EST. COMPLETION 9/79 |
| ----- | | | | |
| <u>PENSACOLA</u> | | | | |
| NAS | P-999 | W051K | PIERS 302,302 | CONST.COMPL.(awaiting sewage transfer hose) |
| ----- | | | | |
| <u>WASHINGTON D.C.</u> | | | | |
| NAVSTA | P-194 | W042j | PIERS 1,4 | CONST.COMPL. FACILITY OPERATING |
| ----- | | | | |
| <u>PORTSMOUTH N.H.</u> | | | | |
| NSY | --- | --- | PIERS 1,2,3 | CONST.COMPL. FACILITY OPERATING |
| ----- | | | | |
| <u>ADAK</u> | | | | |
| NAVSTA | P-834 | W002I | PIER 3 | PLANNED, EST. COMPLETION 12/79 |
| ----- | | | | |
| <u>EARLE</u> | | | | |
| NWS | P-771 | W190A | PIERS 2,3 | PLANNED, EST. COMPLETION 6/77 |
| ----- | | | | |
| <u>NEW ORLEANS</u> | | | | |
| NSA | P-047 | W063C | PIER 1 | PLANNED, EST. COMPLETION 8/79 |
| ----- | | | | |
| <u>PANAMA CITY</u> | | | | |
| NSCL | P-999 | W266B | SOUTH DOCK, EAST DOCK | CONST.COMPL (awaiting sewage transfer hose) |
| ----- | | | | |

TABL. G-1 (cont.)

| LOCATION | MCON NO. | PCR NO. | DESCRIPTION | STATUS |
|------------------------|----------|---------|--------------|---|
| <u>PORT HUENEME</u> | | | | |
| CBC | P-332 | W023K | WHARFS 2-6,A | PLANNED, EST. COMPLETION 9/79 |
| ----- | | | | |
| <u>YORKTOWN</u> | | | | |
| NWS | P-336 | W136C | PIER 2 | UNDER CONST. UNTIL 1/77 |
| ----- | | | | |
| <u>PHILADELPHIA</u> | | | | |
| NSY | P-451 | W106D | PIERS 1,2,4 | UNDER CONST. UNTIL 11/76 CONST.COMPL.(awaiting sewage transfer hose) |
| | P-443 | W106B | PIERS 5,6 | |
| ----- | | | | |
| <u>ROOSEVELT ROADS</u> | | | | |
| NAVSTA | P-997 | W111H | PIERS 1,2,3 | UNDER CONST. UNTIL 4/77 |
| ----- | | | | |
| <u>GUAM</u> | | | | |
| NAVSTA | P-094 | W064K | A,B & V | UNDER CONST. UNTIL 11/76 |
| NAVSHIPREPFAC | | | L,M,N,& O | UNDER CONST. UNTIL 11/76 |
| NSD | | | R,S,T, & U | UNDER CONST. UNTIL 11/76 |
| NAVMAG | | | H | UNDER CONST. UNTIL 11/76 |
| NAVSTA | P-107 | W064R | X | PLANNED, EST. COMPLETION 12/79 |
| ----- | | | | |
| <u>PORTLAND, OR</u> | | | | |
| NAVRESCTR | O&MN | W258C | PIERSEWER | AWAITING AWARD OF CONST.CONTRACT (EST.COMPL. OF CONST. 4/77) |
| ----- | | | | |
| <u>TACOMA, WA</u> | | | | |
| NAVRESCTR | O&MN | W151C | PIERSEWER | AWAITING AWARD OF CONST.CONTRACT (EST.COMPL. OF CONST. 4/77) |
| ----- | | | | |
| <u>EVERETT, WA</u> | | | | |
| NAVRESCTR | O&MN | | PIERSEWER | UNDER CONST. UNTIL 1/77 |
| ----- | | | | |

G-4

TABLE G-1 (cont.)

| LOCATION | MCON NO. | PCR NO. | DESCRIPTION | STATUS |
|---------------------------------|---------------|---------|-----------------------|--------------------------------|
| <u>GALVESTON, TX</u> | | | | |
| NAVRESCTR | MCNR P-032 | W322A | PIERSEWER STRUCT. #11 | PLANNED, EST. COMPLETION 7/77 |
| <u>ST. PETERSBURG, FL</u> | | | | |
| NAVRESCTR | MCNR P-241 | W329A | PIERSEWER STRUCT. #6 | PLANNED, EST. COMPLETION 7/77 |
| <u>BRONX, NY (Fort Schyler)</u> | | | | |
| NAVRESCTR | MCNR P-315 | W324A | PIERSEWER | PLANNED, EST. COMPLETION 1/78 |
| <u>PERTH AMBOY</u> | | | | |
| NAVRESCTR | MCNR P-346 | W338A | PIERSEWER | PLANNED, EST. COMPLETION 12/78 |
| <u>PORTLAND, ME</u> | | | | |
| NAVRESCTR | MCNR P-343 | W340A | PIERSEWER | PLANNED, EST. COMPLETION 10/78 |
| <u>BALTIMORE, MD</u> | | | | |
| NAVRESCTR | MCNR P-243 | W072A | PIERSEWER | PLANNED, EST. COMPLETION 10/77 |
| <u>JACKSONVILLE, FL</u> | | | NO PIERSEWER PLANNED | |
| <u>BOSTON, MA</u> | | | NO PIERSEWER PLANNED | |
| <u>NEWPORT, RI (NETC)</u> | | | | |
| NAVSTA | P-208 | W116N | PIERSEWER PLANNED | |

TABLE G-1 (cont.)

| LOCATION | MCON NO. | PCR NO. | DESCRIPTION | STATUS |
|---|-----------|---------------|-------------------------|--------|
| <u>GREAT LAKES, IL</u> | | | NO PIERSEWER PLANNED | |
| <u>YOKOSUKA, JAPAN</u> | | | | |
| <u>LA MADDALENA, IT</u> | | | | |
| <u>HOLY LOCH, SC</u> | | | WILL USE SWOB | |
| <u>ROTA, SPAIN</u> | | | WILL USE SWOB | |
| <u>BAHRAIN</u> | | | | |
| <u>GAETA</u> | | | | |
| <u>NAPLES</u> | | | | |
| <u>BROOKLYN, NY (Floyd Bennett Field)</u> | NAVRESCTR | MCNR P-319 | W337B PIERSEWER PLANNED | |

G-6

TABLE G-2
SHIPS WASTE OFFLOAD BARGE (SWOB) ALLOCATION PLAN AND DELIVERY SCHEDULE*

| | FY74 PROCUREMENT (OIL) | | FY75 PROCUREMENT (OIL) | | | FY76 PROCUREMENT (OIL & SEWAGE) | | TOTAL ALLOCATED | |
|-------------------------|---------------------------|-----------|---------------------------|-----------|--------------------|------------------------------------|-----------------------|--------------------|-----------|
| | ALLOCATED | DELIVERED | ALLOCATED | DELIVERED | TO BE DELIVERED | ALLOCATED (OIL) | ALLOCATED (SEWAGE) | OIL | SEWAGE |
| NAVSHIPYD Portsmouth | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 |
| WPNSTA Earle | 0 | 0 | 2 | 0 | 1 (Note 1) | 1 | 0 | 2 | 0 |
| NAVSHIPYD Philadelpia | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 2 | 0 |
| WPNSTA Yorktown | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| NAVSTA Norfolk | 3 | 3 | 3 | 3 | 0 | 0 | 2 | 6 | 2 |
| NAVPHIBASE Little Creek | 1 | 1 | 1 | 1 | 0 | 0 | 1 | 2 | 1 |
| NAVSHIPYD Norfolk | 1 | 1 | 0 | 0 | 0 | 1 | 0 | 2 | 0 |
| NAVSTA Charleston | 2 | 2 | 0 | 0 | 0 | 1 | 0 | 3 | 0 |
| NAVSHIPYD Charleston | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 |
| NAVSHIPYD Puget Sound | 2 | 2 | 3 | 3 | 0 | 0 | 0 | 5 | 0 |
| NAVSHIPYD Mare Island | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| NAVFUELDEP Point Molate | 0 | 0 | 1 | 0 | 1-Jan '77 | 0 | 1 | 1 | 1 |
| NSC Oakland | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| NAVSHIPYD Long Beach | 2 | 2 | 0 | 0 | 0 | 0 | 1 | 2 | 1 |
| NAVSTA San Diego | 3 | 3 | 0 | 0 | 0 | 0 | 2 | 3 | 2 |
| NAS North Island | 2 | 2 | 0 | 0 | 0 | 0 | 0 | 2 | 0 |
| NAVSHIPYD Pearl Harbor | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| NAVSTA Pearl Harbor | 2 | 2 | 1 | 0 | 1 (Note 2) | 0 | 3 | 3 | 3 |
| NAVSTA Guam | 0 | 0 | 1 | 0 | 1 (Note 2) | 0 | 1 | 1 | 1 |
| NAVSTA Subic Bay | 0 | 0 | 1 | 0 | 1 (Note 2) | 0 | 0 | 1 | 0 |
| FLEACT Yokosuka | 0 | 0 | 2 | 0 | 2 (Note 3) | 0 | 0 | 2 | 0 |
| NAVSTA Rota | 0 | 0 | 1 | 0 | 1 (Note 4) | 0 | 1 | 1 | 1 |
| NAVSUPPO La Maddalena | 0 | 0 | 1 | 0 | 1 (Note 4) | 0 | 0 | 1 | 0 |
| NAVSTA Roosevelt Roads | 0 | 0 | 2 | 0 | 2-Jan '77 | 0 | 0 | 2 | 0 |
| NAVSTA Guantanamo Bay | 0 | 0 | 1 | 0 | 1-Jan '77 | 0 | 0 | 1 | 0 |
| TOTALS | 22 | 22 | 20 | 7 | 13 | 5 | 13 | 47 | 13 |

*Information provided by Naval Facilities Engineering Command (NAVFAC 104), 10 January 1977.

- Notes:
1. One barge delivered by contractor stored at NAVSHIPYD Puget Sound to be delivered by contractor to final destination.
 2. Three barges delivered by contractor in July 1976 to NAVSHIPYD Long Beach to await a Navy tow of opportunity to final destinations.
 3. Two barges delivered by contractor in September 1976 to NAVSHIPYD Long Beach to await a Navy tow of opportunity to final destinations.
 4. Three barges delivered by contractor in July 1976 to INACTSHIPAC Portsmouth to await a Navy tow of opportunity to final destinations.

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**THE TOXICITY OF PERFLUORO-N-DECANOIC ACID
AND 2,3,7,8-TETRACHLORODIBENZO-P-DIOXIN IN
L5178Y MOUSE LYMPHOMA CELLS**

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AFAMRL-TR-82-50

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FOR THE COMMANDER



ROGER C. INMAN, Colonel, USAF
Chief
Toxic Hazards Division
Air Force Aerospace Medical Research Laboratory

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| 18. SUPPLEMENTARY NOTES * Microbiological Associates, 5221 River Road, Bethesda, MD 20816 ** Department of Preventive Medicine and Biometrics, Uniformed Services University of the Health Sciences, 4301 Jones Bridge Road, Bethesda, MD 20814 AFAMRL Primary Investigator: Dr. M. E. Andersen, AFAMRL/THB, (513) 255-5150. | | |
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| 20. ABSTRACT (Continue on reverse side if necessary and identify by block number) Perfluoro-n-decanoic acid (PFDA) causes toxic sequelae in vivo very similar to those caused by 2,3,7,8-tetrachlorodibenzo-p-dioxin (TCDD). The toxicity of these two compounds, several other polyfluorinated fatty acids, and corresponding hydrogenated fatty acids have been studied in vitro in L5178Y mouse lymphoma cells. Below concentrations which cause cell lysis ($\geq 500 \mu\text{g/ml}$), PFDA did not affect suspension growth. After 24 hr treatment with concentrations between 1 and 100 $\mu\text{g/ml}$ treated cells no longer grew into clones when plated in semi-soft agar. This impairment of clone-forming ability was reversible after growth of | | |

treated cells in fresh medium for 36 hr. Perfluoro-n-octanoic acid did not impair clone-forming ability at any concentration; and neither did the straight-chain hydrogenated fatty acid analogs. All polyfluorinated acids tested (either perfluorinated or ω -hydro-analogs) with chain length 9 or greater caused impairment of clone-forming ability after treatment with concentrations that were non-toxic in suspension. TCDD (highest dose, 0.5 $\mu\text{g/ml}$) had no effect on growth in suspension. After 48 hr treatment with TCDD concentrations of 0.01 $\mu\text{g/ml}$ or greater, plated cells formed clones with altered morphology. These clones were less discrete, lacking a clearly defined boundary. The effect on clone morphology required 36 hr treatment of cells with TCDD in suspension and was reversible following 48 hr growth in fresh medium. Cell division time in suspension was 10-12 hrs and was unaffected by PFDA or TCDD. In vivo PFDA treatment altered erythrocyte fragility in rats. It is suggested that the toxicity of PFDA and TCDD in vivo and in L5178Y cells in vitro may be due to an ability of these chemicals to interfere with normal structure and/or function of biological membranes.

PREFACE

This research was performed in the Biochemical Toxicology Branch, Toxic Hazards Division, Air Force Aerospace Medical Research Laboratory from January 1980 through December 1981. It was performed in support of Task 2312V1, "Toxicological Mechanisms of Air Force Chemicals and Materials;" Work Unit 2312V118, "Effects of Air Force Propellants and Chemicals on Metabolic Mechanisms." Portions of this work were presented at the 21st Annual Meeting of the Society of Toxicology, Boston, Massachusetts, 22-26 February 1982.

INTRODUCTION

Perfluorinated fatty acids, perfluorinated sulfonic acids, and appropriate derivatives are used commercially in numerous applications which take advantage of their exceptional surfactant properties and extreme chemical and thermal stability (Guenther and Victor, 1962). Most commercially important derivatives are based on perfluoroalkyl chain lengths of 5 to 7. The acute and subchronic toxicity of ammonium perfluoro-n-octanoate (PFOA) has been described in detail in both rats and rhesus monkeys (Griffith and Long, 1980). Less is known of the toxicity of longer chain analogs.

In an abstract Andersen et al. (1981) described the acute toxicity of perfluoro-n-decanoic acid (PFDA; nonadecafluoro-n-decanoic acid; $C_{10}F_{19}O_2H$) in a variety of rodent species. This acid was significantly more toxic than PFOA and its toxicity differed both quantitatively and qualitatively from that of the shorter chain analog. Toxic signs and target organs for PFDA were similar to those seen with 2,3,7,8-tetrachlorodibenzo-p-dioxin (TCDD). The single dose oral LD_{50} - 30 days of PFDA in male rats was about 50 mg/kg and rats intubated with 90 mg/kg lost nearly 50% of their initial body weight before dying two to three weeks after intubation. As does TCDD, PFDA caused severe thymic atrophy.

As part of a comparison of the biological effects of PFDA and TCDD, we have evaluated the toxicity of these chemicals in several isolated cell systems. In part, this paper describes effects of various polyfluorinated fatty acids, hydrogenated fatty acids, and TCDD on growth characteristics of L5178Y mouse lymphoma cells, a T-cell derived lymphoma (Muller et al., 1981), which grows both in suspension and in semi-soft agar. A T-cell lymphoma was used because T-lymphocytes appear to be targets of PFDA and TCDD toxicity in rodents. This conclusion was based on the marked thymic cortical atrophy noted in animals treated with either of these chemicals. L5178Y cells are commonly used for mutagenicity testing and the mutagenic potential of these chemicals in L5178Y cells is reported elsewhere (Rogers et al., 1982). In addition, limited results of osmotic fragility studies of erythrocytes from rats treated with PFDA are described in an attempt to relate altered osmotic fragilities to the effects of PFDA on L5178Y cells.

MATERIALS AND METHODS

L5178Y Mouse Lymphoma Cells: L5178Y cells were originally obtained from Dr. C. F. Arlett, MRC, Cell Mutation Unit, Brighton, England. They were routinely screened for mycoplasma contamination. The routine methods for maintenance of L5178Y cells and the soft agar cloning technique were as described elsewhere (Cole and Arlett, 1976), except that McCoy's 5A medium (supplemented with penicillin, streptomycin, sodium pyruvate, and 10% horse serum) was used instead of Fischer's medium. For toxicity experiments, L5178Y cells were treated for 24 hrs with doses of PFDA ranging from 0.01 μ g/ml to 1 mg/ml, or for 48 hrs with doses of TCDD ranging from 0.001 μ g/ml to 0.50 μ g/ml. At the end of the treatment period, cells were centrifuged, washed in McCoy's 5A medium and resuspended in McCoy's 5A containing 20% horse serum. Cells were plated for growth in soft agar, and plates were examined for clones after 9-10 days incubation in a humidified CO_2

incubator. Horse serum was obtained from Gibco-Biocult. Penicillin, streptomycin, and sodium pyruvate were obtained from Sigma.

Chemicals: Fatty acids (all > 99% pure)¹, perfluoro-n-decanoic acid (>98%)¹, perfluoro-n-octanoic acid (>96%)¹, 11-H eicosafuoro-n-undecanoic acid (97-99%)², and 9-H hexadecafluoro-n-nonanoic acid³ were obtained commercially. The latter two compounds contain a single hydrogen at the omega position. Perfluoro-n-dodecanoic acid⁴ (71% C₁₁F₂₃CO₂H; 3% C₁₀F₂₁CO₂H; 2% C₉F₁₉CO₂H; remainder unidentified, nonfunctional fluorocarbon) and TCDD were gifts⁵. For L5178Y studies, TCDD was dissolved in acetone and the fatty acids and fluorinated analogs were dissolved in dimethylsulfoxide except perfluorinated dodecanoic was also dissolved in acetone.

Osmotic Fragility: Male Fischer 344 rats (200-300 g) were treated ip with 50 mg PFDA/kg. Propylene glycol:water (50:50 v/v) was used as diluent with a final dosing volume of 2 ml/kg. Treated and diluent control rats in groups of four to five were killed at various times after injection. Blood was drawn from the inferior vena cava after opening the abdomen of anesthetized rats and erythrocytes harvested by centrifugation. Osmotic fragility was determined as described in Dacie and Lewis (1963). Curves were constructed for hemolysis at 10 saline concentrations between 0.25 and 0.85%. Data presented are percent hemolysis at a single intermediate saline concentration, 0.4%.

RESULTS

Fatty Acids: PFDA had little effect on L5178Y suspension growth at concentrations below 100 µg/ml (Fig. 1). At concentrations of 500 µg/ml or above, cells were dissolved by the surfactant action of the acid and neither cells nor debris were visible in suspensions at these concentrations. In comparison to the dose-response curve for suspension growth, the curve for clone-forming ability was shifted some 2.5 log units to the left: the ED₅₀-24 hr for impairing clone-forming ability was approximately 3×10^{-1} µg/ml. To our knowledge, this ability - dissociating the markers of suspension growth and clone-forming ability in these transformed cells - has not been reported for any other chemical. Perfluorinated-n-dodecanoic and 11-H-eicosafuoro-n-undecanoic acid caused a similar displacement of the two dose response curves (Table 1). On the other hand, PFOA which was slightly less toxic to cells in suspension than was PFDA did not show the differential toxicity with respect to suspension and clonal growth. The ω-H-hexadecafluoro-n-nonanoic acid displaced the dose response curves for suspension and clone forming ability, but the displacement was less than that seen with PFDA (Table 1). With hydrogenated fatty acid analogs from C₈ to C₁₁, toxicity was equal both in suspension and in agar (Table 2).

¹ Aldrich Chemical Company, Milwaukee, WI 53233.

² PCR Research Chemicals, Inc., Gainesville, FL 32602.

³ Alfred Bader Library of Rare Chemicals, Division of Aldrich Chemical Company, Milwaukee, WI 53233.

⁴ Commercial Chemicals Division 3M, 3M Center, St Paul, MN 55144.

⁵ Dow Chemical USA, Midland, MI 46460.

24 HR. TREATMENT OF L5178Y CELLS WITH PFDA.

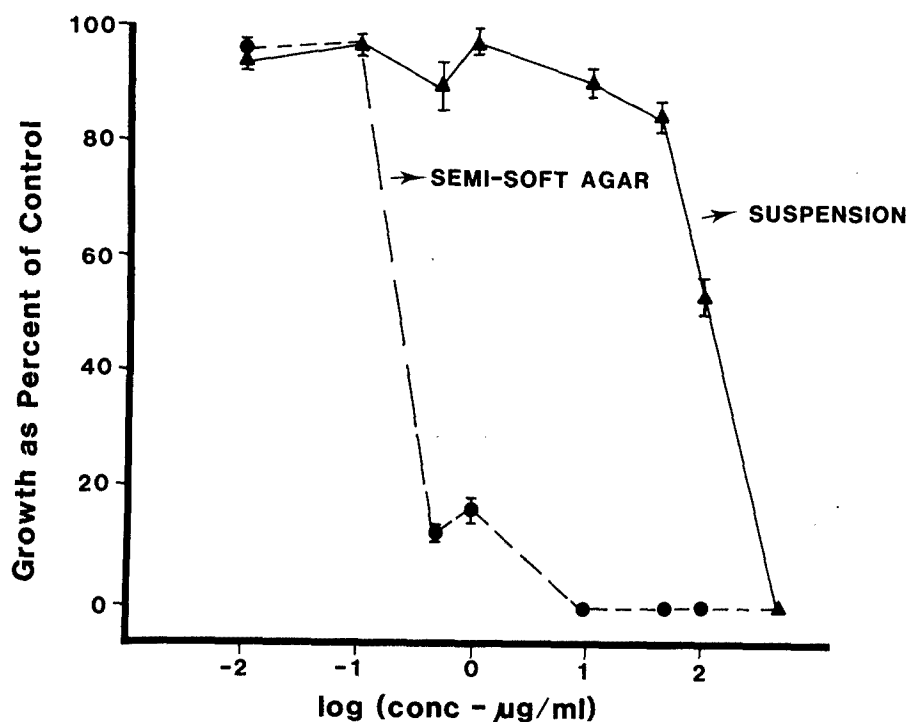


Figure 1. Toxicity of PFDA in L5178Y Cells. L5178Y cells were grown for 24 hr in the presence of varying amounts of PFDA (x-axis). Triangles are total growth in suspension as percent of control growth in the absence of PFDA. Aliquots of the cells treated with different concentrations were plated and grown for 8 to 10 days on semi-soft agar. Circles are percent of plated cells which gave rise to clones relative to similar values for control cells. Data points are mean and standard errors (n = 3-7).

Table 1

The Effects of Various Polyfluorinated Fatty Acids on Growth of L5178Y Mouse Lymphoma Cells in Suspension and on their Clone Forming Ability in Semi-Soft Agar

| Dose (µg/ml) | Perfluoro-n-octanoic Acid | | 9-H Hexadecafluoro-n-nonanoic Acid | | Perfluoro-n-decanoic Acid | | 11-H Eicosadecafluoro-n-undecanoic Acid | | Perfluoro-n-dodecanoic Acid | |
|-----------------|---------------------------|------|------------------------------------|------|---------------------------|----------|---|------|-----------------------------|------|
| | Suspension | Agar | Suspension | Agar | Suspension | Agar | Suspension | Agar | Suspension | Agar |
| | (% Control) | | (% Control) | | (% Control) | | (% Control) | | (% Control) | |
| 0.01 | 94 ^a | 98 | 94 | 97 | 94 ± 2 ^b | 96 | 96 | 100 | 87 | 97 |
| 0.1 | 100 | 96 | 83 | 95 | 97 ± 1.4 ^c | 97 ± 0.7 | 78 | 90 | 78 | 87 |
| 0.5 | | | | | 89 ± 4.7 ^b | 12 ± 1.1 | | | | |
| 1 | 89 | 98 | 94 | 95 | 97 ± 1.1 ^b | 16 ± 1.9 | 75 | 11 | 91 | 25 |
| 10 | 89 | 98 | 94 | 89 | 90 ± 2.2 ^b | 0 | 82 | 0 | 72 | 0 |
| 50 | 76 | 90 | 92 | 89 | 84 ± 2.3 ^b | 0 | 82 | 0 | 75 | 0 |
| 100 | 76 | 90 | 83 | 0 | 53 ± 3.6 ^b | 0 | 82 | 0 | 72 | 0 |
| 500 | 21 | 21 | --- ^d | --- | --- | --- | --- | --- | --- | --- |
| 1000 | --- ^d | --- | --- ^d | --- | --- | --- | --- | --- | --- | --- |

^a Result of single experiment. Numbers in each column are growth as percent of growth of control cells.

^b Mean ± standard error (n = 3).

^c Mean ± standard error (n = 7).

^d These concentrations dissolved cells in suspension.

Table 2

The Effect of Various Fatty Acids on Growth of L5178Y Mouse Lymphoma Cells in Suspension and on their Clone Forming Ability in Semi-Soft Agar

| Dose ($\mu\text{g/ml}$) | Nonanoic Acid Suspension Agar | | Decanoic Acid Suspension Agar | | Undecanoic Acid Suspension Agar | |
|------------------------------|----------------------------------|----|----------------------------------|----|------------------------------------|----|
| | (% Control) | | (% Control) | | (% Control) | |
| 0.01 | 85 ^a | 98 | 106 | 96 | 95 | 96 |
| 0.1 | 82 | 98 | 94 | 94 | 85 | 93 |
| 1 | 92 | 98 | 100 | 93 | 75 | 96 |
| 10 | 90 | 94 | 84 | 90 | 82 | 93 |
| 50 | 85 | 98 | 75 | 82 | 82 | 86 |
| 100 | 72 | 88 | 63 | 63 | 42 | 44 |
| 500 | 33 | 26 | -- ^b | -- | -- ^b | -- |
| 1000 | -- ^b | -- | -- ^b | -- | -- ^b | -- |

^a Numbers in both columns are growth as percent of growth of control cells.

^b These concentrations dissolved cells in suspension.

Time to Effect and Reversibility: Cell division time for L5178Y cells in suspension under growth conditions used in this study was 10 to 12 hours. An experiment was performed to see if cells required a period of treatment with PFDA before diminished clone-forming ability could be observed. Cells were grown in suspension containing 0.5 μg PFDA/ml and removed at various times for plating to observe loss of clone-forming ability (Fig. 2a). There was a lag of 8 hr before any appreciable effect was observed and the time of treatment required to reduce plating efficiency to 50% of control was about 12 hr, i.e., one cell generation.

Cells were also grown for 24 hr in the presence of 0.5 μg of PFDA/ml harvested by centrifugation and washed in fresh growth medium. These treated cells were resuspended for growth in fresh, uncontaminated medium and aliquots withdrawn after various times for plating (Fig. 2b). The decreased plating efficiency was reversible, but recovery was more prolonged than the time required to induce the diminished clone-forming ability. The time of growth in fresh medium necessary to restore 50% plating efficiency was nearly 36 hr, or about three cell generations. Cell division time of L5178Y cells in suspension was unaffected by pretreatment with 0.5 μg PFDA/ml.

Dioxin: In L5178Y cells TCDD did not dissociate growth in suspension from growth in soft agar at any concentration tested, up to 0.5 $\mu\text{g/ml}$. However, the morphology of the clones obtained after treating cells in suspension with concentrations of TCDD between 0.01 and 0.5 $\mu\text{g/ml}$, was markedly different from controls (Fig. 3). Instead of the well-circumscribed, circular clusters of control clones, those clones formed after dioxin-treatment were less-discrete and lacked a well-defined border. After growing cells in suspension for 46 hr in the presence of 0.005 μg TCDD/ml,

**TIME TO RESPONSE/TIME TO RECOVERY OF L5178Y
CELLS TREATED WITH PFDA.**

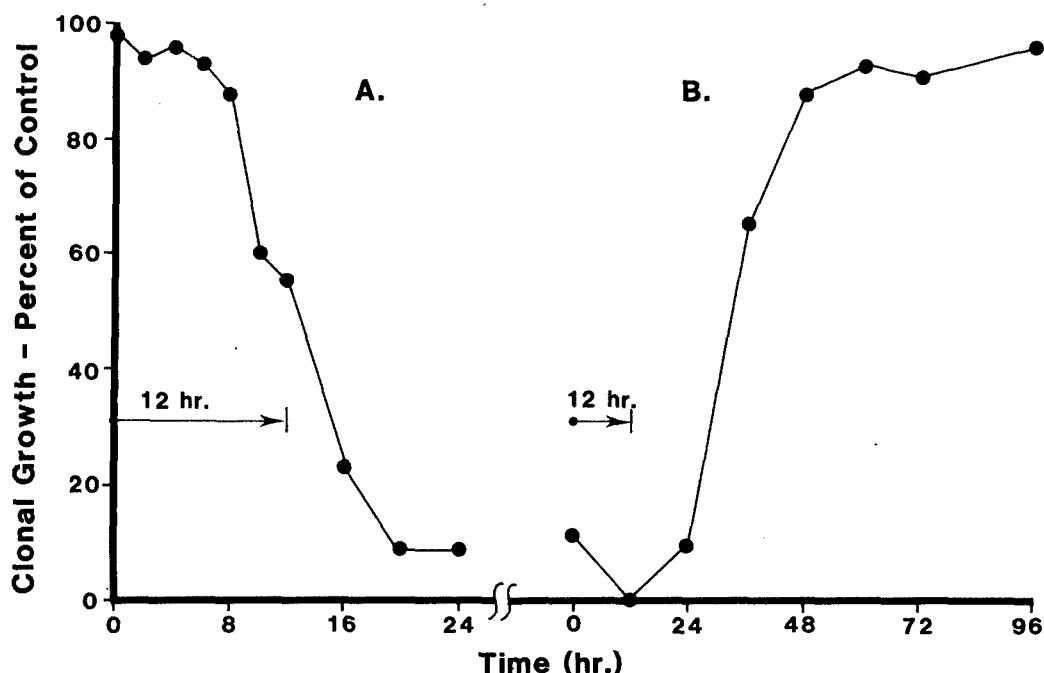


Figure 2. Time course of impairment and recovery of cloning ability in L5178Y cells treated with PFDA in suspension. A: Time to effect: cells were grown for various lengths of time (x-axis) in suspension in a medium containing 0.5 μg PFDA/ml and plated in semi-soft agar. Growth is expressed as percent of plated cells forming clones after treatment relative to percent of untreated cells which give rise to clones. B: Time to recovery: cells were treated in suspension with 0.5 μg PFDA/ml for 24 hr, and harvested by centrifugation. Aliquots were removed and grown in fresh, uncontaminated medium for various lengths of time (x-axis). Cells were then plated to observe recovery of the ability to form clones.

all clones formed after plating were normal; at 0.01 $\mu\text{g}/\text{ml}$, most clones formed were abnormal; and by 0.5 $\mu\text{g}/\text{ml}$, all clones had altered morphology. By inspection of the plates, the ED₅₀, that is the concentration of dioxin required to produce alterations affecting 50% of the formed clones when cells were initially maintained in suspension with dioxin for 48 hr before plating, was about 0.01 $\mu\text{g}/\text{ml}$, i.e., about $3 \times 10^{-8}\text{M}$.

In time-course experiments analogous to those in Fig. 2, but conducted with 0.01 μg dioxin/ml, the time of treatment in suspension required to produce 50% of maximum response in altering clone morphology was about 36 hr. A time to recovery of normal growth characteristics was also estimated for cells grown initially for 48 hr in the presence of 0.01 μg TCDD/ml. The time of growth in fresh medium required to give a 50% return to normal clonal morphology was about 48 hr. As noted with PFDA, effects on clone growth were reversible, but recovery and expression times for the effects were longer with TCDD than with PFDA.

Red Blood Cell Fragility: Rat red blood cells were obtained from rats killed at various times after ip injection of 50 mg PFDA/kg. There was increased resistance to hemolysis after treatment with PFDA (Fig. 4) and the time course of decreased fragility was similar to the time course of weight loss in treated rats (Andersen et al., 1981).

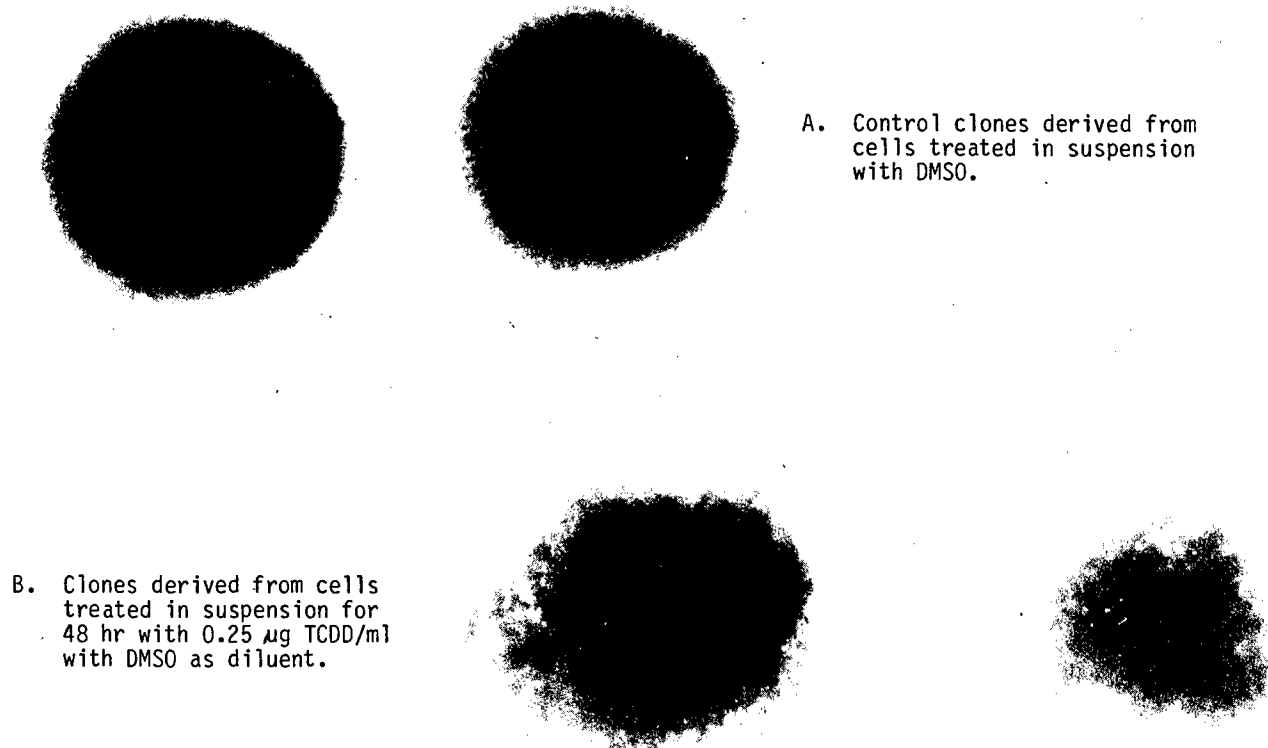


Figure 3. Altered clone morphology after treating L5178Y cells in suspension with TCDD.

DISCUSSION

Knutson and Poland (1980) studied the effects of TCDD on 23 cultured cell types and found no toxicity in any of these mammalian cell lines at treatment concentrations of up to 10^{-7} M and contact times of up to two weeks. Markers for toxicity included (1) alterations in the morphology of cells or the cell cultures, (2) percentage viable cells, and (3) growth rate. Among the 23 cell lines were five lymphoid cell types derived from thymic cortex - three were murine and two were virally transformed human leukocytes. All these cell types were tested for growth in suspension and cell viability by trypan blue exclusion. Beatty et al. (1975) found that TCDD had no effect on growth or morphology of normal human lymphocytes in suspension. Our results are similar to the extent that TCDD did not affect growth or cell viability of L5178Y cells in suspension. The altered growth characteristics observed in this paper are more subtle and only apparent when cells are grown in semi-soft agar, where they are constrained to grow in close proximity to each other. The concentration dependence of the effect with TCDD is such that a 48 hr treatment with 0.01 µg/ml (i.e., about 3×10^{-8} M TCDD) causes the effect in most of the treated cells. This concentration is reasonable for physiological significance since the mouse LD₅₀ is about 300 µg TCDD/kg, or about 1 µmoles/kg (McConnell et al., 1978).

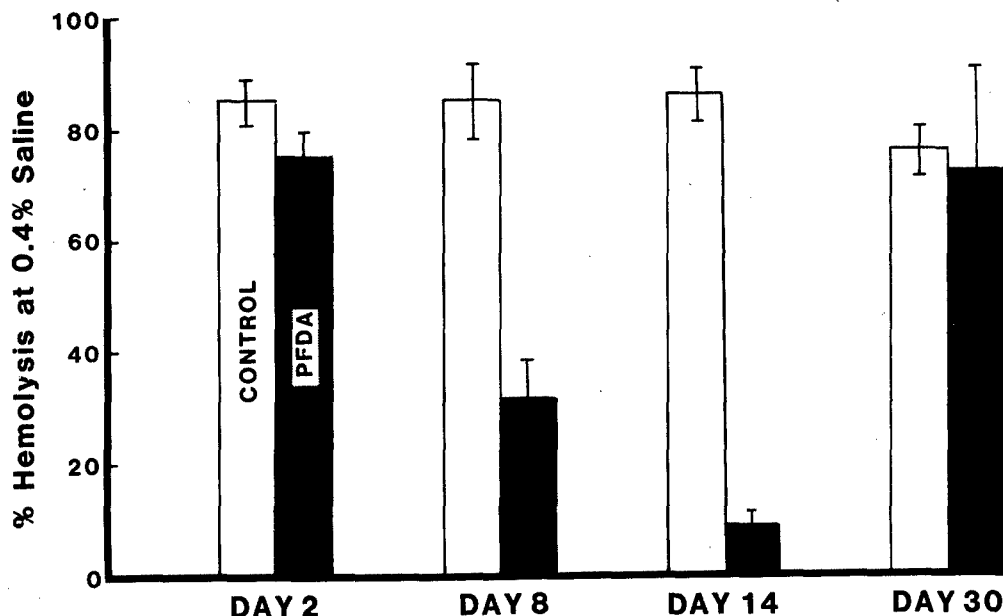


Figure 4. Relative osmotic fragilities of red blood cells from rats injected ip with 50 mg PFDA/kg and killed at various times after injection. Data are mean and standard deviation (n = 4-5). From the overall curves with 10 salt concentrations, the concentration at which 50% hemolysis occurred was 0.43, 0.38, 0.34, and 0.43%, respectively, in treated rats at 2, 8, 16, and 30 days. Control groups at these sampling times had 50% hemolysis at 0.45, 0.44, 0.45, and 0.43%, respectively.

Alterations in clone morphology seen after TCDD are striking, but estimations of concentration dependence are essentially qualitative, i.e., the percentage of abnormal clones is estimated by inspection and making a distinction between normal and slightly abnormal clones is difficult. We have maintained a restrictive definition of what constitutes an abnormal clone and scoring was done solely by Dr. A. M. Rogers. For these reasons, the estimated ED₅₀ for the effects with TCDD are probably high. More quantitative determinations of these TCDD dose response curves await determination of the biochemical basis of the altered morphology and methods to unequivocally identify altered clonal units.

With PFDA, results are readily quantified since treated cells no longer proliferate in semi-soft agar. The ED₅₀ - 24 hr for the loss of clone-forming ability was 0.3 µg/ml (i.e., about 6×10^{-7} M); this contrasts to a single dose LD₅₀ in mice of about 100-150 mg PFDA/kg or 0.2-0.3 mmoles/kg (Andersen et al., 1981; Van Rafelghem and Andersen, unpublished experiments, 1981).

With the polyfluorinated acids examined, this toxicity is present with acids of chain length greater than 8. The differences in single cell toxicity between the fluorinated octanoic and decanoic acids are striking, but consistent with the different acute toxicity reported for these two acids in rats. The hydrogenated fatty acids are without differential effect on clone-forming ability of L5178Y cells. In terms of cell lysis, expressed

as toxicity in suspension, hydrogenated and polyfluorinated fatty acids were about equipotent (Tables 1 and 2).

The molecular basis of the impairment of clone-forming ability is unknown. Subtle changes may have occurred in cell membranes to inhibit growth of cells when maintained in close contact. In this regard, the osmotic fragility results suggest a biological membrane more resistant to hypoosmotic insult. Increased resistance can be due to a variety of causes, one of which is altered membrane composition (Kuiper et al., 1971). Preliminary studies in our laboratory have now shown that erythrocytes from PFDA-treated animals also show increased membrane fluidity (M. George and M. E. Andersen, unpublished studies, 1982), and that the total fatty acid composition of the liver lipid pool in these rats shows a dramatic shift toward increasing unsaturation, especially in the stearic to oleic acid ratio (Olson et al., 1982). While indirect, these results suggest compositional and functional alterations in membranes subsequent to PFDA exposure in the rat in vivo.

There is no unifying hypothesis explaining the toxicity of TCDD and materials causing similar toxic effects, i.e., certain polyhalogenated biphenyls (Sleight et al., 1981; Biocca et al., 1981) and long-chain perfluorinated fatty acids of chain length 9 or above (Andersen et al., 1981). It may be that these various chemicals, including PFDA and TCDD, are toxic due to effects on cell membranes resulting in interference with cell-cell or cell-mediator interactions. These effects could either be direct or mediated by interference with some endogenous hormonal control of membrane composition/function. Toxicity would not be a result of cell necrosis or grossly visible organellar alterations, but from more subtle structural alterations of biomembranes and attendant disturbances in intercellular communication. This hypothesis is under active investigation in our laboratory.

The cell line used for this research was so-called TK ^{+/+} with regard to the gene locus for the enzyme thymidine kinase (TK). Our stock of these cells, brought to Dayton from England by Dr. Rogers, was destroyed during a malfunction of the deep freeze storage unit. We have not observed differential effects on suspension and clonal growth with L5178Y TK^{+/-} cells - a cell line more commonly used in mutation research and, therefore, much more readily available. It appears that future work on this phenomenon will have to be restricted to the TK^{+/+} cells.

REFERENCES

- Andersen, M.E., Baskin, G., and Rogers, A.M., 1981, "The acute toxicity of perfluoro-n-decanoic acid: Similarities with 2,3,7,8-tetrachlorodibenzo-dioxin," The Toxicologist, 1, 16.
- Beatty, P.W., Lemback, K.J., Holscher, M.A., and Neal, R.A., 1975, "Effects of 2,3,7,8-tetrachlorodibenzo-p-dioxin (TCDD) on mammalian cells in tissue cultures," Toxicol. Appl. Pharmacol., 31, 309-312.

Biocca, M., Gupta, B.N., Chae, K., McKinney, J.D., and Moore, J.A., 1981, "Toxicity of selected symmetrical hexachlorobiphenyl isomers in the mouse," Toxicol. Appl. Pharmacol., 58, 461-474.

Cole, J. and Arlett, C.F., 1976, "Ethyl methanesulphonate mutagenesis with L5178Y mouse lymphoma cells. A comparison with ouabain, thioguanine, and excess thymidine resistance," Mutation Res., 34, 507-526.

Dacie, J.V. and Lewis, S.M., Practical Hematology, 3rd ed., J.A. Churchill, Ltd., London, 1963.

Griffith, F.D. and Long, J.E., 1980, "Animal toxicity studies with ammonium perfluorooctanoate," Amer. Ind. Hyg. Assoc. J., 41, 576-583.

Guenthner, R.A. and Victor, M.L., 1962, "Surface active materials from perfluorocarboxylic and perfluorosulfonic acids," Industrial and Engineering Chem. Prod. Res. & Dev., 1, 165-169.

Knutson, J.C. and Poland, A., 1980, "2,3,7,8-tetrachlorodibenzo-p-dioxin: Failure to demonstrate toxicity in twenty-three cultured cell types," Toxicol. Appl. Pharmacol., 54, 377-383.

Kuiper, P.J.C., Livne, A., and Meyerstein, N., 1971, "Changes in lipid composition and osmotic fragility of erythrocytes of hamster induced by heat exposure," Biochem. Biophys. Acta, 248, 300-305.

McConnell, E.E., Moore, J.A., Haseman, J.K., and Harris, M.W., 1978, "The comparative toxicity of chlorinated dibenzo-p-dioxins in mice and guinea pigs," Toxicol. Appl. Pharmacol., 44, 335-356.

Muller, W.E.G., Zahn, P.K., Maidhof, A., Schroder, H.C., and Umezawa, H., 1981, "Bestatin, a stimulator of polysome assembly in T-cell lymphoma (L5178Y)," Biochem. Pharmacol. 30, 3375-3377.

Olson, C.T., Andersen, M.E., George, M.E., Van Rafelghem, M.J., and Back, A.M., 1982, "The toxicology of perfluorodecanoic acid in rodents," presented at the Thirteenth Annual Conference on Environmental Toxicology, Dayton, Ohio.

Rogers, A.M., Andersen, M.E., and Back, K.C., 1982, "Mutagenicity of 2,3,7,8-tetrachlorodibenzo-p-dioxin and perfluoro-n-decanoic acid in mouse lymphoma cells," Mutation Res. 105, 445-449.

Sleight, S.C., Render, J.A., Akoso, B.T., Aust, S.D., and Nachreiner, R., 1981, "Comparative toxicopathology of firemaster BP-6, 2,2,4,4',5,5'-hexa-bromobiphenyl (HBB) and 3,3',4,4',5,5'-HBB after 10 and 30 days of dietary administration to rats," The Toxicologist 1, 12.

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Technical Document 825
July 1985

**TOXICITY OF AQUEOUS FILMFORMING
FOAMS TO MARINE ORGANISMS:
LITERATURE REVIEW AND
BIOLOGICAL ASSESSMENT**

S. M. Salazar

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| 19 ABSTRACT (Continue on reverse if necessary and identify by block number) This document summarizes information from literature regarding the toxicity of aqueous filmforming foams (AFFF) and presents results of supplementary toxicity tests using AFFF and appropriate marine organisms. | | | |
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INTRODUCTION

Aqueous filmforming foams (AFFF) are used regularly by the Air Force and Navy in training exercises at fire-fighting schools and, when necessary, for fuel/oil fire control aboard ship. These AFFF agents work by producing a flame-quenching blanket that floats on the surface of fuel and/or water. This blanketing results in complete surface vapor-proofing, cooling the fuel, and preventing reflash or reburning of the extinguished surface. These agents are also effective on unburned fuels, rendering them fireproof to future ignition.

The AFFFs are a combination of fluorocarbons, surfactants, and solubilizers. They have an exceptional resistance to thermal, chemical, electrical, and biological attack (Chan, 1982). The AFFF agents are produced by only a few different manufacturers under the guidelines and specifications given in MIL-F-24385C (Military Specification, 1981). Approximately 1 million gallons of AFFF are produced for Naval and Air Force use annually. Depending on the formulation being used, the concentrate is diluted to either an optimum 3- or 6-percent solution with freshwater, seawater, or bilge water before using in fire-fighting systems. Wastewater resulting from training exercises generally contains less than half the original AFFF concentration. About 200 million gallons of AFFF wastewater are being generated annually by the Navy and the Air Force.

The usage of AFFF and the disposal of AFFF-laden wastewater have the potential for an adverse impact on the environment. These foams are potentially toxic due to the fluorocarbons and surfactants. Additionally, the wastewater contains other contaminants such as residual fuel and combustion products, which could add to the toxicity. The use of seawater or bilge water as the dilutor yields other potentially toxic contaminants from the high concentrations of chlorides and sulfides (Chan, 1982).

The possible adverse effects of AFFF and AFFF-laden wastewater are divided into two categories: (1) the toxic effects to the aquatic/marine environment and (2) the effects on biological processes in sewage treatment plants. There is a potential for adverse effects on sewage treatment organisms if these wastewaters are discharged directly into the sewage system. Possible impacts are (1) inhibition of microbial oxygen uptake, (2) toxicity to microbial organisms, (3) foaming in aeration basins, and (4) development of sludge settling problems in clarifiers.

The toxicity of AFFF to various freshwater and marine organisms has been assessed. The 3-M Company (manufacturer of several "Lightwater" AFFF agents) has tested each of its products for toxicity to freshwater and/or marine organisms. Product Environmental Data Sheets prepared by the 3-M Company are presented in Appendix A. These reports provide information on the toxicity of AFFF agents to freshwater and marine organisms as well as information regarding possible effects on conventional biological treatment facilities. The USAF Environmental Health Laboratory, Kelly AFB, Texas, performed assays on AFFF agents manufactured by Ansul Company (Ansul K74-100); National Foam Systems, Inc. (Aer-O-Water 3 and Aer-O-Water 6); and 3-M Company (Lightwater FC-199, FC-200, and FC-206). Their toxicity data along with information regarding recommended levels to sewage treatment facilities and direct stream discharge are presented in Appendix B. A compilation of toxicity data from the available literature has been assembled and is presented as Table 1.

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Table 1. Data available from the literature on the toxicity of AFFE agents to freshwater and marine organisms.

| Agent/Species Assessed | (Freshwater/Marine) | Results of Study | Source |
|--|---------------------|------------------------------------|-------------------------|
| FC-199: | | | |
| <u>Fathead Minnow (Pimephales promelas)</u> | (FW) | 96 hr LC ₅₀ = 398 mg/l | LeFebvre & Thomas, 1973 |
| FC-200: | | | |
| <u>Fathead Minnow (Pimephales promelas)</u> | (FW) | 96 hr LC ₅₀ = 97 mg/l | LeFebvre & Thomas, 1973 |
| FC-203: | | | |
| <u>Fathead Minnow (Pimephales promelas)</u> | (FW) | 96 hr LC ₅₀ = 750 mg/l | 3M Co., 1980a |
| <u>Rainbow Trout (Salmo gairdneri)</u> | (FW) | 96 hr LC ₅₀ = 1300 mg/l | 3M Co., 1980a |
| <u>Water Flea (Daphnia magna)</u> | (FW) | 48 hr LC ₅₀ = 1600 mg/l | 3M Co., 1980a |
| <u>Scud (Gammarus fasciatus)</u> | (FW) | 48 hr LC ₅₀ = 1100 mg/l | 3M Co., 1980a |
| <u>Green Algae (Chlorella pyrenoidosa)</u> | (FW) | No growth inhibition @ 1000 mg/l | 3M Co., 1980a |
| <u>Blue-green Algae (Phormidium inundatum)</u> | (FW) | No growth inhibition @ 1000 mg/l | 3M Co., 1980a |
| <u>Oyster larvae (Crassostrea virginica)</u> | (M) | 48 hr LC ₅₀ = 47 mg/l | 3M Co., 1980a |
| <u>Killifish (Fundulus heteroclitus)</u> | (M)* | 95 hr LC ₅₀ = 2500 mg/l | 3M Co., 1980a |
| <u>Grass Shrimp (Palaemonetes pugio)</u> | (M) | 96 hr LC ₅₀ = 510 mg/l | 3M Co., 1980a |
| FC-203A: | | | |
| <u>Fathead Minnow (Pimephales promelas)</u> | (FW) | 96 hr LC ₅₀ = 300 mg/l | 3M Co., 1980a |
| FC-203C: | | | |
| <u>Killifish (Fundulus heteroclitus)</u> | (M)* | 96 hr LC ₅₀ = 1400 mg/l | 3M Co., 1982a |
| <u>Fathead Minnow (Pimephales promelas)</u> | (FW) | 96 hr LC ₅₀ > 2000 mg/l | 3M Co., 1982a |
| <u>Green Algae (Selenastrum capricornatum)</u> | (FW) | 96 hr LC ₅₀ = 408 mg/l | 3M Co., 1982a |
| FC-206: | | | |
| <u>Fathead Minnow (Pimephales promelas)</u> | (FW) | 96 hr LC ₅₀ = 3000 mg/l | 3M Co., 1980b |
| <u>Fathead Minnow (P. promelas) juveniles</u> | (FW) | 96 hr LC ₅₀ = 1080 µl/l | LeFebvre & Inman, 1974 |
| <u>Fathead Minnow (P. promelas) fry</u> | (FW) | 96 hr LC ₅₀ = 170 µl/l | LeFebvre & Inman, 1974 |
| <u>Rainbow Trout (Salmo gairdneri)</u> | (FW) | 96 hr LC ₅₀ = 1800 mg/l | 3M Co., 1980b |
| <u>Killifish (Fundulus heteroclitus)</u> | (M)* | 96 hr LC ₅₀ = 1820 mg/l | 3M Co., 1980b |
| <u>Grass Shrimp (Palaemonetes vulgaris)</u> | (M) | 96 hr LC ₅₀ = 280 mg/l | 3M Co., 1980b |

* Found in brackish to saltwater environments.

Table 1. Data available from the literature on the toxicity of AFFF agents to freshwater and marine organisms (continued).

| Agent/Species Assessed | (Freshwater/Marine) | Results of Study | Source |
|---|---------------------|---|-------------------------|
| <u>FC-206 (Continued):</u> | | | |
| <u>Fidler Crab (<i>Uca pugilator</i>)</u> | (M) | 96 hr LC ₅₀ = 3260 mg/l | 3M Co., 1980b |
| <u>Oyster Larvae (<i>Crassostrea virginica</i>)</u> | (M) | 48 hr LC ₅₀ = > 100 < 240 mg/l | 3M Co., 1980b |
| <u>Water Flea (<i>Daphnia magna</i>)</u> | (FW) | 48 hr LC ₅₀ = 5850 mg/l | 3M Co., 1980b |
| <u>Scud (<i>Gammarus fasciatus</i>)</u> | (FW) | 48 hr LC ₅₀ = 5170 mg/l | 3M Co., 1980b |
| <u>Green Algae (<i>Chlorella pyrenoidosa</i>)</u> | (FW) | Growth inhibited at 1:1000 dilution | Chan 1982 |
| <u>Blue-green Algae (<i>Phormidium inundatum</i>)</u> | (FW) | Growth inhibited at 1:1000 dilution | Chan, 1982 |
| <u>FC-206A:</u> | | | |
| <u>Bluegill Sunfish (<i>Lepomis macrochirus</i>)</u> | (FW) | 96 hr LC ₅₀ = 1200 mg/l | 3M Co., 1980c |
| <u>Fathead Minnow (<i>Pimephales promelas</i>)</u> | (FW) | 96 hr LC ₅₀ > 3000 mg/l | 3M Co., 1980c |
| <u>Water Flea (<i>Daphnia magna</i>)</u> | (FW) | 48 hr LC ₅₀ = 2300 mg/l | 3M Co., 1980c |
| <u>FC-206C:</u> | | | |
| <u>Killifish (<i>Fundulus heteroclitus</i>)</u> | (M)* | 96 hr LC ₅₀ > 2000 mg/l | 3M Co., 1982b |
| <u>Fathead Minnow (<i>Pimephales promelas</i>)</u> | (FW) | 96 hr LC ₅₀ > 2000 mg/l | 3M Co., 1982b |
| <u>Green Algae (<i>Selenastrum capricornutum</i>)</u> | (FW) | 96 hr LC ₅₀ = 345 mg/l | 3M Co., 1982b |
| <u>FC-780:</u> | | | |
| <u>Killifish (<i>Fundulus heteroclitus</i>)</u> | (M)* | 96 hr LC ₅₀ > 5000 mg/l | 3M Co., 1982c |
| <u>FC-780B:</u> | | | |
| <u>Bluegill Sunfish (<i>Lepomis macrochirus</i>)</u> | (FW) | 96 hr LC ₅₀ = 1600 mg/l | 3M Co., 1981 |
| <u>Killifish (<i>Fundulus heteroclitus</i>)</u> | (M)* | 96 hr LC ₅₀ = 3900 mg/l | 3M Co., 1981 |
| <u>AOW-3:</u> | | | |
| <u>Fathead Minnow (<i>Pimephales promelas</i>)</u> | (FW) | 96 hr LC ₅₀ = 600 mg/l | Lefebvre & Thomas, 1973 |
| <u>AOW-6:</u> | | | |
| <u>Fathead Minnow (<i>Pimephales promelas</i>)</u> | (FW) | 96 hr LC ₅₀ = 225 mg/l | Lefebvre & Thomas, 1973 |
| <u>ANSUL K74-100:</u> | | | |
| <u>Fathead Minnow (<i>Pimephales promelas</i>)</u> | (FW) | 96 hr LC ₅₀ = 1100 mg/l | Lefebvre & Inman, 1975 |

These earlier studies demonstrated that a wide range of toxic concentrations exist for a variety of organisms. Larvae of the Eastern oyster (*Crassostrea virginica*) were the most sensitive organisms tested, with a 48-hour EC_{50} of 47 mg/liter to the FC-203 formulation (manufactured by the 3-M Company). All species of fish tested showed a high tolerance to the various AFFF agents tested with an average LC_{50} near 1500 mg/liter. In general, these data suggest the available AFFF formulations are mildly toxic or nontoxic.

The second area of concern is the impact of AFFF on sewage treatment organisms. The 3-M Company has performed biodegradation tests, microbial respiration inhibition tests, and activated sludge pilot plant studies on many of its AFFF products. These results, along with the recommended treatment concentrations, are summarized in Table 2. Information for AFFF agents produced by the Ansul Company and the National Foam Systems Company are also included in this table. These data suggest that there is little potential for toxicity from AFFF introduced to the sewage treatment facilities. There is a potential problem, however, with excessive foaming for some of the agents. The recommended treatment concentrations reflect these precautions.

The vast majority of the available toxicity data has come from studies performed on freshwater organisms. Since there is a high potential for dispersion of AFFF in the marine environment and this is a prime Navy operating area, more studies on the toxicity to marine organisms should be conducted before a final assessment can be made. The purpose of this study was to collect information from the literature regarding the toxicity of AFFF and conduct supplementary toxicity tests using AFFF and appropriate marine organisms. This work was performed during October 1982 at the Naval Ocean Systems Center by personnel in the Marine Sciences Division with funding from the Naval Facilities Engineering Command.

METHODS

The FC-780B AFFF agent manufactured by the 3-M Company is the formulation currently being used by the Navy. It is routinely diluted to a 6-percent solution for fire-fighting purposes. It was assessed for toxicity to marine phytoplankton and crustaceans. The 96-hour definitive toxicity tests were preceded with a series of range-finding tests to identify the approximate toxic concentration. Conditions and procedures were the same for both range-finding and definitive toxicity tests. The species selected for these tests are routinely used for bioassays and toxicity testing.

TOXICITY TO PHYTOPLANKTON

The toxicity of this AFFF agent to marine phytoplankton was determined by monitoring *in vivo* fluorescence (IVF) and 3-(3,4-dichlorophenyl)-1, 1-dimethylurea (DCMU)-induced fluorescence (DCMU-F). The IVF measurements were used to estimate growth rates according to the procedures given in Lockheed (1979), with minor modifications. The ratios of DCMU-F to IVF were calculated for phytoplankton under the various test conditions and used as a measure of photosynthetic efficiency (Roy & Legendre, 1979, 1980).

Table 2. Effects of various AFFF agents on sewage treatment facilities. Information collected from data reported in the literature.

| AFFF Agent/ 20 Day BOD (mg/l) | Effects on Microbial Respiration | Effects on Microbial Activity | Activated Sludge Pilot Plant Studies | Recommended Treatment Concentration/Source |
|----------------------------------|---|---|--|---|
| FC-200: 339,000 | N/A | N/A | N/A | 5 µl/l Thomas & LeFebvre, 1974 |
| FC-203: 1,060,000 | No inhibition @ conc. up to 1000 mg/l | No inhibition @ conc. up to 1000 mg/l | N/A | N/A 3M Co., 1980a |
| FC-203A: 427,000 | N/A | N/A | N/A | N/A 3M Co., 1980a |
| FC-203C: 580,000 | No inhibition @ conc. up to 1000 mg/l. | N/A | N/A | 25 mg/l 3M Co., 1982a |
| FC-206: 210,000 | No inhibition @ conc. up to 1000 mg/l. | No inhibition @ conc. up to 1000 mg/l. | Acceptable treatability below 1000 mg/l; 1000 mg/l does cause foaming. | 100 mg/l 3M Co., 1980b |
| FC-206A: 330,000 | No inhibition @ conc. up to 1000 mg/l. | No inhibition @ conc. up to 1000 mg/l. | No foaming or sludge settling problems during testing. | N/A 3M Co., 1980c |
| FC-206C: 330,000 | No inhibition @ conc. up to 1000 mg/l. | N/A | N/A | 50/mg/l 3M Co., 1982b |
| FC-780B: 372,000 | N/A | N/A | N/A | 100 mg/l 3M Co., 1981 |
| ACW-3: 338,000 | N/A | N/A | N/A | 60 µl/l LeFebvre & Thomas, 1973 |
| AOW-6: 287,000 | N/A | N/A | N/A | 22.5 µl/l LeFebvre & Thomas, 1973 |
| ANSUL K74-100: 154,000 | N/A | N/A | N/A | 55 µl/l LeFebvre & Inman, 1975 |

NA = Not applicable

The phytoplankton Dunaliella sp. (Division Chlorophyta) was selected as the test species for this study. Stock cultures of Dunaliella were maintained in exponential-phase growth on Guillard's F/2 medium (Guillard & Ryther, 1962) at constant temperature (18 °C) and illumination (1.9 milliwatts/cm²).

Determination of Test Concentrations

Two range-finding tests were done prior to the definitive toxicity test with Dunaliella. In the first range-finding test, FC-780B AFFF concentrations of 0.01, 0.10, and 1.00 gm/liter were assessed over a 96-hour period. No deleterious effects were observed in phytoplankton at these concentrations of this AFFF agent. The second range-finding test, a 72-hour assay, resulted in no effect at either a 1.0- or a 2.0-gm/liter exposure. Complete cessation of growth and death of cells were observed at the 10.0-gm/liter exposure after 72 hours. A concentration of 60.0-gm/liter (equal to the 6-percent dilution) resulted in immediate death of the exposed phytoplankton. The AFFF concentrations used in the definitive toxicity test, 2.0, 4.0, 8.0, and 10.0 gm/liter plus controls, were selected from the results obtained in the second range-finding test.

Test Procedures

For all toxicity tests, 1.5 liters of culture media were inoculated with stock phytoplankton 5 days prior to the start of the test. After this 5-day period, the cells had entered exponential-phase growth. Cell density was approximately 6.0×10^4 cells/ml. Test solutions were prepared by adding 100 ml of this culture to 100 ml of each AFFF test solution. A final cell density of 3×10^4 cells/ml was achieved. Control samples were prepared by combining 100 ml of the phytoplankton culture with 100 ml of filtered seawater.

The AFFF test solutions were prepared by weighing aliquots of AFFF concentrate to the nearest 0.001 gm. These known amounts of concentrate were diluted with appropriate volumes of 0.45- μ filtered seawater to achieve the desired AFFF concentrations.

Twenty replicates were prepared for the controls and for each FC-780B AFFF concentration assessed. A 6.5-ml aliquot of phytoplankton/AFFF solution was delivered to the test containers. Ten-ml (13 by 100 mm) glass-stoppered KIMAS glass tubes were used for the test containers. These tubes fit directly into the fluorometer.

All tubes were cleaned and conditioned in the following manner. They were first soaked for 24 hours in RBS-35 biological cleaning solution. This solution was decanted, and the tubes were rinsed six times in hot tap water followed by six rinses with deionized water. A 24-hour soak in filtered seawater followed the washing regime. The seawater soak was decanted just prior to the start of the test.

Immediately after combining algae and AFFF, the tubes were filled with the test solutions and IVF measurements were made on all replicates. Fluorescence measurements were made with a Turner Designs model 10-000R fluorometer. Following these IVF measurements, DCMU-F measurements were made on three replicates selected randomly from each treatment condition. DCMU-F measurements were made approximately 1 minute after adding 50 μ l deionized water saturated with DCMU to the phytoplankton samples. The samples containing DCMU were discarded after measurement; remaining samples were maintained in a constant temperature incubator (18 °C) under constant illumination (1.9 milliwatts/cm²). Tubes were held in a wire mesh rack suspended approximately 18 cm above eight "Cool White" fluorescent bulbs.

The IVF and DCMU-F measurements were made at 24-hour intervals over a 96-hour period. All samples were placed on a Vortex mixer for 15 seconds prior to measurement to assure sample homogeneity.

Data Analysis

The data obtained over the 96-hour period were used to assess differences in growth rates and photosynthetic efficiencies in phytoplankton. Growth rates were determined from the IVF data. Using the IVF data as the dependent variable and time as the independent variable, linear regression equations were generated for phytoplankton grown under each condition. Since growth rate is approximated by the slope of the regression line, similar slopes indicate similar growth rates. An analysis of covariance on these linear regression equations was used to compare growth rates (slopes) of controls and treatments. The data were also displayed graphically to depict subtle changes in IVF over time, since the regression equations and the statistical analyses did not show where such changes occurred.

The productivity efficiency of phytoplankton was computed as the ratio of DCMU-F to IVF. These values were determined for each 24-hour period over the 96 hours. As with the IVF data, the productivity efficiency data were plotted against time to depict subtle trends. The Kruskal-Wallis test was used to determine if differences existed among treatments at each sampling period. This statistical test compares each sample with all remaining samples to maximize the number of possible comparisons. If a significant difference was detected by the Kruskal-Wallis test, the nonparametric multiple range test (Zar, 1974) was used to determine where differences occurred. Control versus "Treatment" comparisons are reported here. All statistical tests were performed at the 95-percent confidence level.

TOXICITY TO BRINE SHRIMP

The second species selected for AFFF toxicity testing was *Artemia salina*, commonly known as brine shrimp. Toxicity to brine shrimp was determined by calculating the percent survival after a 96-hour exposure period. Ten-day-old larvae were used in this series of tests.

Larvae were obtained by hatching brine shrimp eggs in the laboratory. San Francisco Bay brand eggs were mixed with seawater and aerated to assure continual mixing of the solution. The brine shrimp hatched 48-72 hours later. At this time, larvae were separated from egg cases and maintained on the green alga Dunaliella for 10 days. Brine shrimp were held in the constant temperature (18 °C) and illumination (1.9 milliwatts/cm²) incubator during the rearing phase and toxicity testing.

Determination of Test Concentrations

Previous experiments in this laboratory with brine shrimp have indicated their tolerance to toxic materials to be equal to or greater than that demonstrated by Dunaliella. For this reason, the first range-finding test with brine shrimp assessed AFFF concentrations of 0.10, 0.50, and 1.0 gm/liter. After 72 hours, survival was 100 percent for the controls and 88 percent for shrimp exposed to the highest concentration of AFFF (1.0 gm/liter). Since this test demonstrated no toxicity, a second test was run in which AFFF concentrations of 1.0, 3.0, and 9.0 gm/liter were assessed. One-hundred-percent mortality was observed at the highest concentration after 96 hours. Survival at 1.0 and 3.0 gm/liter was 86 and 52 percent, respectively. Survival for the control organisms was 80 percent after 96 hours. Because of this low control survival, these test results could not be used in determining LC₅₀ values for brine shrimp exposed to AFFF. However, apparently AFFF concentrations ranging from 1.0 to 9.0 gm/liter should bracket the LC₅₀. Therefore, these same concentrations were used in the definitive toxicity test.

Test Procedures

Test solutions of the desired concentrations were prepared by adding known amounts of AFFF concentrate to appropriate volumes of 0.45 µ filtered seawater. Five replicates per concentration were prepared, each consisting of 40 ml. Five controls were also prepared, each containing 40 ml of 0.45 µ filtered seawater. The test containers used were 50-ml glass test tubes, cleaned and conditioned as previously described for glassware used in the phytoplankton tests. After the tubes were filled with test solutions, 10 larval brine shrimp were fed Dunaliella (approximately 4 times 10⁵ cells/shrimp/day). The samples were maintained for 96 hours in the incubator. The number of live shrimp per replicate was recorded at 24-hour intervals.

Data Analysis

The survival data for each treatment were plotted against time to examine trends. The 96-hour survival data were compared statistically with the Kruskal-Wallis test to determine if differences existed among treatments. If differences were detected, the nonparametric multiple range test was used to identify where these differences existed. The data were evaluated at the 95-percent confidence level.

RESULTS

PHYTOPLANKTON

Growth curves were generated from the IVF data for the control algae and for algae exposed to various concentrations of AFFF (Figure 1). Changes in IVF over time are quite similar for the controls and the 2.0-gm/liter exposure. *Dunaliella* at the 2.0-gm/liter exposure had a slightly higher IVF output than the controls. With 4.0-gm/liter AFFF, IVF was lower than the controls only during the first 48 hours. After 48 hours this treatment series demonstrated increased IVF. This suggests that the cells were only affected initially and later recovered. There was no change in IVF for *Dunaliella* at the 8.0-gm/liter exposure over the first 72 hours. A very short increase in IVF was seen with the 96-hour measurement. There was essentially no change in IVF over time for *Dunaliella* at the 10.0-gm/liter exposure.

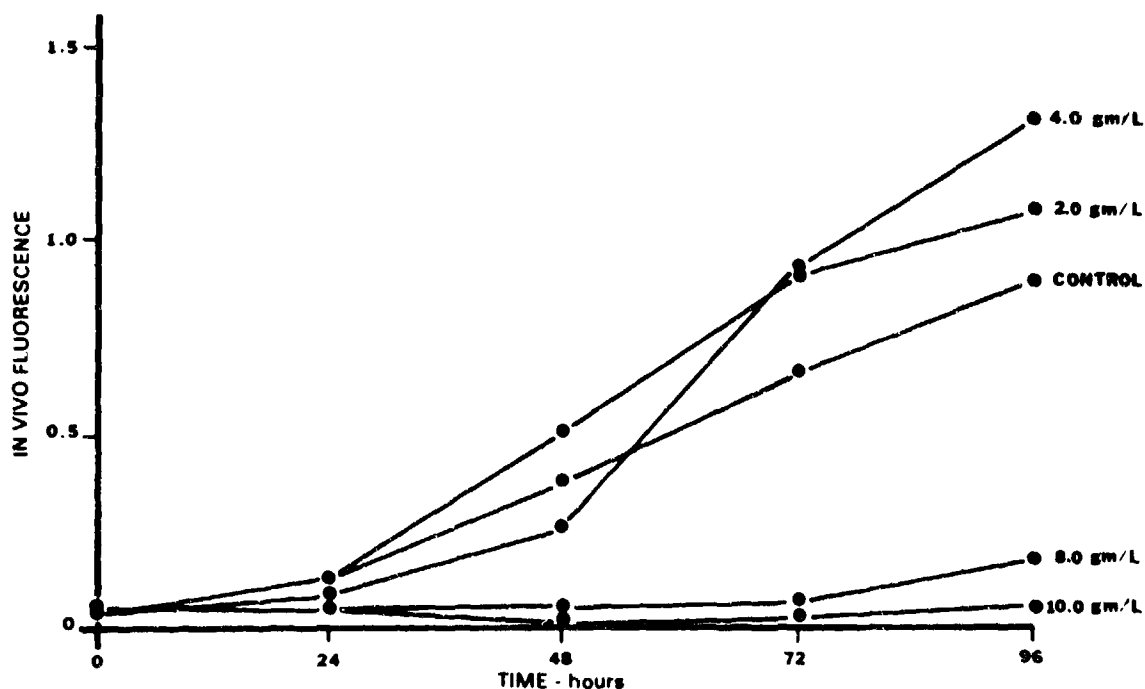


Figure 1. Effects of AFFF on the in vivo fluorescence of *Dunaliella* during the 96-hour exposure period.

These growth curves were analyzed with a linear regression analysis and an analysis of covariance (Table 3). The results of these statistical tests indicated significant differences in slopes between the controls and both the 2.0-gm/liter and the 4.0-gm/liter treatments. In both cases, the growth rates for exposed phytoplankton were significantly higher than the growth rate for the controls. This suggests there was possible growth stimulation in *Dunaliella* due to AFFF exposure.

Table 3. Linear regression equations generated from the in vivo fluorescence data and the results of statistical analyses on these data. Data evaluated at the 95-percent confidence level.

| | <u>Linear Regression Equation</u> | <u>r²</u> |
|---------------|-----------------------------------|----------------------|
| Control | Y = 0.0098X - 0.030 | 0.9606 |
| 2.0 gm/liter | Y = 0.0120X - 0.0382 | 0.9604 |
| 4.0 gm/liter | Y = 0.0140X - 0.1401 | 0.8905 |
| 8.0 gm/liter | Y = 0.0013X - 0.0133 | 0.4280 |
| 10.0 gm/liter | Y = 0.000067X - 0.0377 | 0.0140 |

Analysis of Covariance Test Results

$$F_{\text{calc}} = 14.31$$

$$F_{\text{crit}} = 3.09$$

Yes, there is a significant difference among slopes.

Multiple Comparison Test Results

| | <u>Q_{calc}</u> | <u>Q_{crit}</u> | <u>Conclusion</u> |
|-----------------|-------------------------|-------------------------|-------------------------|
| Control vs 2.0 | 5.99 | 2.00 | Significant difference |
| Control vs 4.0 | 6.76 | 3.35 | Significant difference |
| 2.0 vs 4.0 | 3.16 | 2.80 | Significant difference |
| Control vs 8.0 | -- | -- | Significant difference* |
| Control vs 10.0 | -- | -- | Significant difference* |

* Significant difference determined by visual examination of data and resulting linear regression equations.

When compared to the controls, both the 8.0- and 10.0-gm/liter AFFF treatments had significantly lower growth rates (Figure 1). These differences are obvious from the graphical data. The data from these treatments were not analyzed statistically because they did not meet the necessary criteria of significant regressions. Regression equations for these two data sets had slopes of essentially zero. Both data sets had negative growth rates for the first 2 days of the experiment. Low levels of IVF exhibited by the 8.0- and 10.0-gm/liter exposures indicate that growth in Dunaliella was inhibited at these AFFF concentrations.

The ratios of DCMU-F/IVF obtained for the controls and Dunaliella exposed to four concentrations of the FC-780B AFFF over the 96-hour period are shown in Figure 2. The relationships observed in the IVF data between controls and AFFF-exposed phytoplankton are also present in these ratios. First, the ratios for the 2.0-gm/liter exposure parallel the control values throughout the test, with the values for the treatments being slightly lower than the controls. The 4.0-gm/liter exposure resulted in decreasing ratios over the

first 72 hours and increasing ratios over the next 48 hours. After 96 hours, the ratios were quite similar to the controls. This increase may be an indication of recovery by *Dunaliella*. Exposure of *Dunaliella* to 8.0- and 10.0-gm/liter AFFF resulted in ratios that declined from 2.0 to approximately 1.0 during the first 48 hours. A ratio of 1.0 is characteristic of dead or near-dead cultures. A slight increase in the DCMU-F/IVF ratio was observed during the last 24 hours for phytoplankton as the 8.0-gm/liter exposure. Phytoplankton exposed to 10.0-gm/liter AFFF did not show signs of recovery over the entire test period.

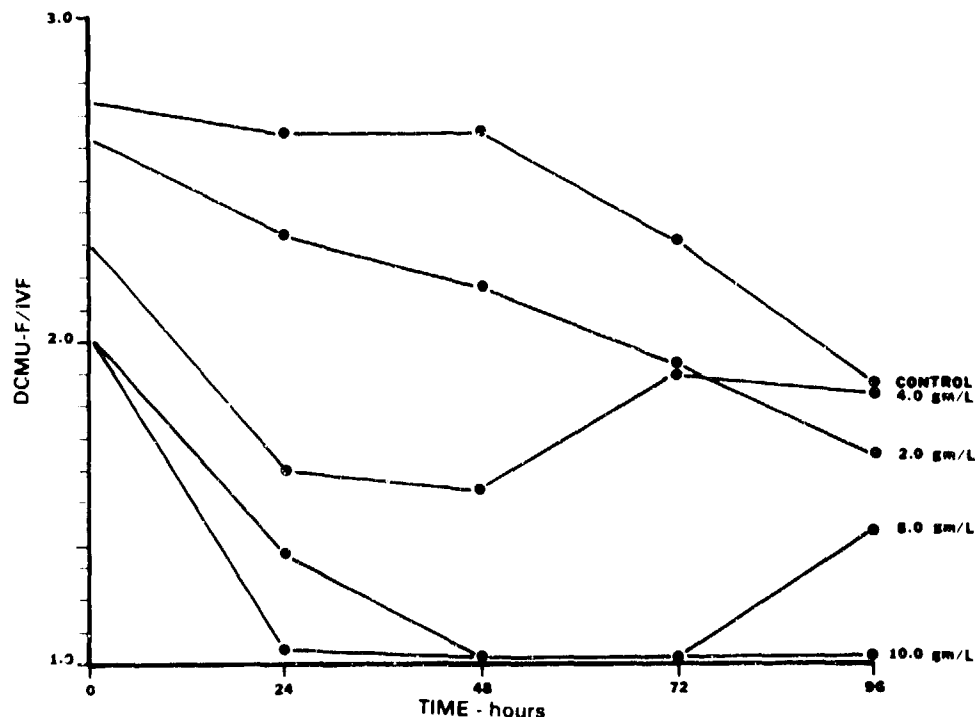


Figure 2. Effects of the FC-780B AFFF on the ratio of DCMU-fluorescence to in vivo fluorescence for *Dunaliella* during the 96-hour exposure period.

The Kruskal-Wallis tests applied to the DCMU-F/IVF ratios resulted in significant intergroup differences at each sampling period. Multiple range tests (Table 4) indicated the ratios for phytoplankton at the 2.0-gm/liter exposure were similar to those of the control phytoplankton throughout the 96 hours. The ratios for phytoplankton at the 8.0- and 10.0-gm/liter exposures were significantly different from the control values over the same period. Significant differences in ratios between the controls and phytoplankton at the 4.0-gm/liter exposure were found to exist at the 24- and 48-hour sampling periods.

Table 4. Results of the nonparametric multiple comparisons performed on productivity efficiency data. All evaluations were made at the 95-percent confidence level.

Nonparametric Multiple Comparison Test Results

| <u>Time of Measurement</u> | <u>Significantly Similar</u> | <u>Significantly Different</u> |
|----------------------------|-------------------------------------|---|
| Initial - T ₀ | Control = 2.0 gm/l Control = 4.0 | Control ≠ 8.0 gm/l Control ≠ 10.0 |
| 24 Hours | Control = 2.0 gm/l | Control ≠ 4.0 gm/l Control ≠ 8.0 Control ≠ 10.0 |
| 48 Hours | Control = 2.0 gm/l | Control ≠ 4.0 gm/l Control ≠ 8.0 Control ≠ 10.0 |
| 72 Hours | Control = 2.0 gm/l Control = 4.0 | Control ≠ 8.0 gm/l Control ≠ 10.0 |
| 96 Hours | Control = 2.0 gm/l Control = 4.0 | Control ≠ 8.0 gm/l Control ≠ 10.0 |

The phytoplankton were examined for cellular abnormalities, activity, and general appearance at the end of the test. A Zeiss light microscope was used. Algal cells from the controls and the 2.0-gm/liter treatment appeared active with normal shapes and sizes. Very little detrital material was present. Cells from the 4.0-gm/liter exposure were also active and of normal shape and size, but the density was slightly depressed. The 8.0-gm/liter exposure resulted in both suppressed densities and activity. Surviving cells were of the normal shape and size; however, much detrital material was observed. Very few live cells were found in the 10.0-gm/liter exposure. The sample media for this treatment contained a high level of particulates.

BRINE SHRIMP

The survival data obtained for 10-day-old larval brine shrimp are given in Figure 3. Control survival was 98 percent after 96 hours. Treatment survival after 96 hours for the 1.0- and 3.0-gm/liter AFFF exposures were 92 and 96 percent, respectively. No significant differences were found between controls and treatments. The results suggest 9.0-gm/liter AFFF is toxic to these organisms. Survival was 46 percent at 48 hours, 10 percent at 72 hours, and 0 percent at 96 hours.

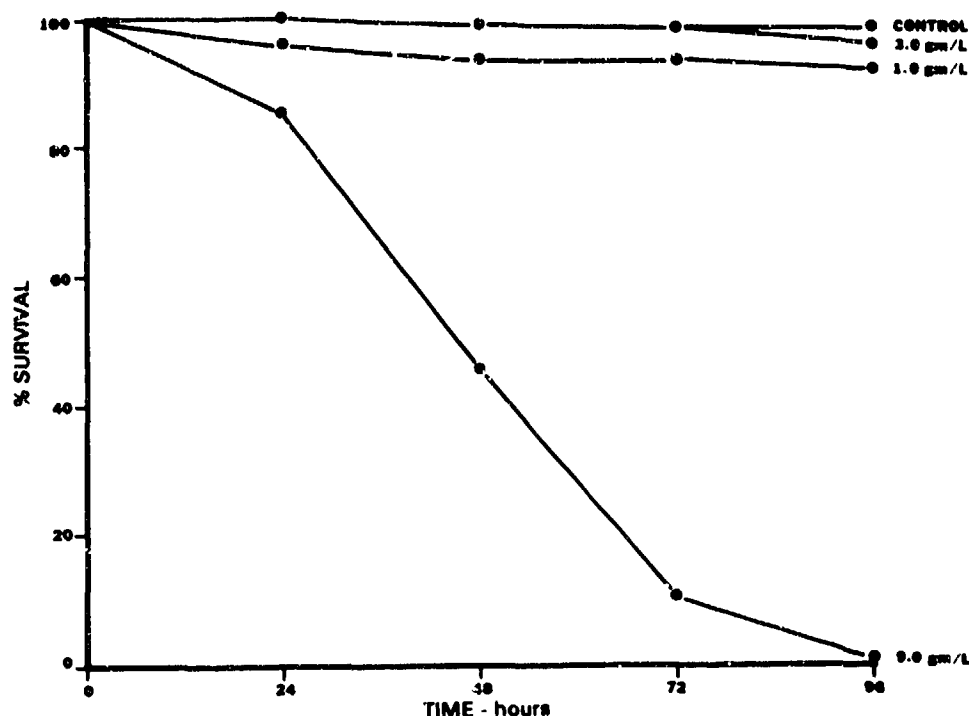


Figure 3. Effects of the FC-780B AFFF on the survival rate of *Artemia salina* during the 96-hour exposure period.

The brine shrimp were actively swimming throughout the test in the controls, 1.0-, and 3.0-gm/liter exposures. Phytoplankton added as the food source increased slightly in density over time for the same three conditions. Brine shrimp in the 9.0-gm/liter exposure were inactive after the first 24 hours with the majority laying on the bottom of the test tubes. Phytoplankton supplied to these samples did not increase in density over time. These samples turned slightly cloudy after 48 hours.

DISCUSSION

FC-780B AFFF was not toxic to the marine alga *Dunaliella* at concentrations up to 4.0-gm/liter (40,000 ppm). Based on data from this study, the 96-hour EC_{50} for *Dunaliella* for FC-780B AFFF is between 4.0- and 8.0-gm/liter. It is not clear whether the actual EC_{50} is closer to 4.0- or 8.0-gm/liter, but based on the fact that 4.0-gm/liter did have a slight effect at 48 hours and the 8.0-gm/liter killed almost everything, it is likely that the actual EC_{50} is closer to 4.0-gm/liter.

Similarly, there was no significant toxicity to brine shrimp nauplii (*Artemia salina*) at concentrations of 3.0-gm/liter (30,000 ppm). There was a significant difference in survival between the 3.0-gm/liter exposure and the

9.0-gm/liter exposure. The estimated 96-hour LC_{50} is between 4.0 and 6.0-gm/liter. The 96-hour LC_{50} estimated for brine shrimp is in the range of those reported by the 3-M Company (1981) for Bluegill sunfish (1.6 gm/liter) and Killifish (3.9 gm/liter).

From the available literature, the 96-hour LC_{50} concentrations for the majority of organisms appear to be equal to or slightly greater than 1.0 gm/liter. The results obtained in this and previous studies show that the various AFFF agents can be considered mildly toxic to marine life at concentrations near 6.0 gm/liter. This is within a factor of 10 from concentrations actually used in fire-fighting operations (60 gm/liter). Between 3.0 and 4.0 gm/liters there may be a sublethal effect, but both Dunaliella and A. salina appear to recover from these effects. AFFF concentrations below 1.0 gm/liter are not toxic to the marine organisms tested here.

The increase in phytoplankton density upon exposure to the lower concentrations of AFFF suggests algal blooms may result from dumping this material into seawater. The reason for enhanced growth is unclear at this time. However, they may not be a significant problem since concentrated AFFF will not remain in the water column very long. Tidal cycles, wave activity, and currents will aid in dispersing and diluting the AFFF.

The recovery capability of phytoplankton after exposure to AFFF concentrations approaching the EC_{50} is an indication of the organisms' ability to avoid significant environmental impacts. This recovery was observed in both cell density and productivity efficiency for Dunaliella exposed to AFFF concentrations of 4.0 gm/liter. As the concentration decreases due to initial mixing in the water column, exposed phytoplankton have the capability of recovering from the initial shock and reproducing normally.

The potential problems in sewage treatment facilities have not been addressed in depth in this study. The 3-M Company suggests diluting the FC-780B AFFF formulation at a rate of 1 gallon per 10,000 gallons sewage (see the Product Environmental Data Sheet for the FC-780B AFFF agent, Appendix A). This dilution rate prevents serious foaming in aeration basins as well as settling problems in the clarifiers. The data reported in the available literature show that the problems of disposal and introduction into sewage treatment systems have been adequately covered.

In addition to the retention times and treatment procedures in disposal operations being worked out for several AFFF agents, an alternative method of disposal has been investigated. The Naval Civil Engineering Laboratory (NCEL) has developed an oil/water separation system based on ultrafiltration and reverse osmosis processes. This system is capable of separating unburned oil and AFFF from the wastewater (Chan, 1982). Both oil and AFFF are reclaimed and used again rather than being dumped into the sewage system or seawater. Only after complete separation is the wastewater dumped. NCEL tested the system at the San Diego Navy Firefighting School during 1979. The results of these studies were very promising. It is a very feasible method of reclaiming fuel and AFFF as well as eliminating potential adverse environmental impacts resulting from ocean or sewage system disposal.

CONCLUSIONS

cont'd
The results of this study suggest that the dispersion of AFFF agents in the marine environment should not have a significant impact on marine life. Dilution of the 6-percent solution used for fire-fighting operations by wave and tidal activity results in concentrations that can be considered mildly toxic or nontoxic to marine life. The FC-780B AFFF is not toxic to the marine alga Dunaliella at concentrations up to 4.0 gm/liter. The estimated 96-hour LC_{50} for brine shrimp, Artemia salina, is between 4.0 and 6.0 gm/liter. These LC_{50} concentrations are in the range of those reported for other marine and freshwater organisms.

REFERENCES

- Chan, D. B. (1982). Draft initial feasibility report on AFFF-laden wastewater treatment/recovery. (NCEL Tech. Memo. 54-82-06) Port Hueneme, CA: Naval Civil Engineering Laboratory.
- Guillard, R. and J. Rhyther (1962). Studies on marine planktonic diatoms. Can. J. Microbiol. 8:229-239.
- LeFebvre, E. E. and R. C. Inman (1974). Biodegradability and toxicity of LIGHTWATER FC-206 Aqueous Film Forming Foam. (Report No. EHL(K) 74-26) Kelly AFB, Texas: USAF Environmental Health Laboratory.
- LeFebvre, E. E. and R. C. Inman (1975). Biodegradability and toxicity of ANSUL K74-100 Aqueous Film Forming Foam. (Report No. EHL(K) 75-3) Kelly AFB, Texas: USAF Environmental Health Laboratory.
- LeFebvre, E. E. and J. F. Thomas (1973). Biodegradability and toxicity of AER-O-WATER 3 and AER-O-WATER 6 Aqueous Film Forming Foam. (Report No. EHL(K) 73-22) Kelly AFB, Texas: USAF Environmental Health Laboratory.
- Lockheed Aircraft Service Co. (1979). Independent research and development projects - 1979. Ocean sediment study: I. An inexpensive phytoplankton bioassay technique.
- Military Specification (MIL-F-24385C) (1981). Fire extinguishing agent, aqueous film-forming foam (AFFF). Liquid concentrate for fresh and seawater. Naval Sea Systems Command.
- Thomas, J. F. and E. E. LeFebvre (1974). Biodegradability and toxicity of FC-200, Aqueous Film Forming Foam. (Report No. EHL(K) 74-3) Kelly AFB, Texas: USAF Environmental Health Laboratory.
- 3-M Company (1980a). Product Environmental Data. Commercial Chemicals Division. "Lightwater" brand aqueous film forming foam concentrates FC-203 and FC-203A. 3-M Environmental Laboratory, Environmental Engineering and Pollution Control.
- 3-M Company (1980b). Product Environmental Data. Commercial Chemicals Division. "Lightwater" brand aqueous film forming foam concentrate FC-206. 3-M Environmental Laboratory, Environmental Engineering and Pollution Control.
- 3-M Company (1980c). Product Environmental Data. Commercial Chemicals Division. "Lightwater" brand aqueous film forming foam concentrate FC-206A. 3-M Environmental Laboratory, Environmental Engineering and Pollution Control.
- 3-M Company (1981). Product Environmental Data. Commercial Chemicals Division. Military Spec. Type AFFF 6% Concentrate FC-780B. 3-M Environmental Laboratory, Environmental Engineering and Pollution Control.

- 3-M Company (1982a). Product Environmental Data. Commercial Chemicals Division. "Lightwater" brand aqueous film forming foam concentrate FC-203C. 3-M Environmental Laboratory, Environmental Engineering and Pollution Control.
- 3-M Company (1982b). Product Environmental Data. Commercial Chemicals Division. "Lightwater" brand aqueous film forming foam concentrate FC-206C. 3-M Environmental Laboratory, Environmental Engineering and Pollution Control.
- 3-M Company (1982c). Product Environmental Data. Commercial Chemicals Division. 3-M Brand Commercial Grade AFFF 6% Concentrate FC-780. 3-M Environmental Laboratory, Environmental Engineering and Pollution Control.
- Roy, S. and L. Legendre (1979). DCMU-enhanced fluorescence as an index of photosynthetic activity in phytoplankton. Marine Biology 55:93-101.
- Roy, S. and L. Legendre (1980). Field studies of DCMU-enhanced fluorescence as an index of in situ phytoplankton photosynthetic activity. Can. J. Fish. Aquat. Sci. 37(6):1028-1031.
- Zar, J. H. (1974). Biostatistical analysis. Englewood Cliffs, N.J.: Prentice-Hall.

APPENDIX A
3-M PRODUCT
ENVIRONMENTAL DATA SHEETS

Product Environmental Data



Environmental Laboratory
Environmental Engineering and Pollution Control

900 Bush Avenue
PO Box 33331
St Paul, MN 55133
612/778 5104

COMMERCIAL CHEMICALS DIVISION
"LIGHT WATER" BRAND AQUEOUS FILM
FORMING FOAM CONCENTRATES
FC-203 AND FC-203A

DESCRIPTION: Water-miscible fire extinguishing agents.

APPEARANCE: Clear, amber liquids.

USAGE: Foams, containing 3% FC-203 or FC-203A in water, cover and thus extinguish hydrocarbon liquid-based fires. For more detailed usage information, see your technical service representative.

WASTE DISCHARGE: Facilities which use "LIGHT WATER" Brand AFFF agents in actual or simulated firefighting activities usually direct the resulting wastes to wastewater treatment systems. Whenever possible, 3M recommends disposing of FC-203 and FC-203A wastes in this manner. However, aquatic and soil environments sometimes receive these wastes untreated.

AQUATIC TOXICITY DATA:

Freshwater Organisms

Fish

Static 96-Hr. LC50

| | <u>FC-203</u> | <u>FC-203A</u> |
|--|---------------|----------------|
|--|---------------|----------------|

| | | |
|--|----------|----------|
| Fathead minnow (<u>Pimephales promelas</u>) | 750 mg/l | 300 mg/l |
|--|----------|----------|

| | | |
|--|-----------|----|
| Rainbow trout (<u>Salmo gairdneri</u>) | 1300 mg/l | -- |
|--|-----------|----|

Invertebrates

Static 48-Hr. LC50

| | | |
|-------------------------------------|--------------------------------|--|
| Water flea (<u>Daphnia magna</u>) | 1600 mg/l (1300-2100 mg/l)* | |
|-------------------------------------|--------------------------------|--|

| | | |
|------------------------------------|-------------------------------|--|
| Scud (<u>Gammarus fasciatus</u>) | 1100 mg/l (840-1300 mg/l)* | |
|------------------------------------|-------------------------------|--|

Algae - FC-203 concentrations <1000 mg/l did not prevent the growth of Chlorella pyrenoidosa and Phormidium inundatum.

Date: 7/29/80 (Supersedes 3/4/80)

Page 1 of 3

These data are intended for the use of a person qualified to evaluate environmental data.

All statements, technical information and recommendations contained herein are of a general nature and are based on laboratory tests or literature information we believe to be reliable, but the accuracy, completeness or applicability to particular circumstances is not guaranteed. 3M makes no representation that the customer's use and disposal of the product will comply with all applicable environmental laws, regulations and rules.

Product Environmental Data



Environmental Laboratory
Environmental Engineering and Pollution Control

900 Bush Avenue
PO Box 33331
St. Paul, MN 55133
612/778 5104

COMMERCIAL CHEMICALS DIVISION
"LIGHT WATER" BRAND AQUEOUS FILM
FORMING FOAM CONCENTRATES
FC-203 AND FC-203A

(continued)

AQUATIC TOXICITY DATA (continued)

Marine Organisms

| <u>Species</u> | <u>48-Hr. EC₅₀** (FC-203)</u> |
|--|--|
| Eastern Oyster embryo-larvae (<u>Crassostrea virginica</u>) | 47 mg/l (10-234 mg/l)* |
| | <u>96-Hr. LC₅₀ (FC-203)</u> |
| Common mummichog (<u>Fundulus heteroclitus</u>) | 2500 mg/l (1700-3600 mg/l)* |
| Grass shrimp (<u>Palaemonetes pugio</u>) | 510 mg/l (360-710 mg/l)* |

Low DO could have contributed to the toxicity of FC-203 to shrimp.

* 95% confidence limits

** The effect measured was the reduction of the number of embryo-larvae developing to the straight-hinged veliger stage.

TOTAL ORGANIC CARBON (TOC): 264,000 mg/l

BIODEGRADATION AND TREATABILITY DATA:

| <u>Biodegradation</u> | <u>FC-203</u> | <u>FC-203A</u> |
|-----------------------|----------------|----------------|
| BOD ₅ | 560,000 mg/l | 72,000 mg/l |
| BOD ₂₀ | 1,060,000 mg/l | 427,000 mg/l |
| COD | 1,070,000 mg/l | 648,000 mg/l |

Date 7/29/80 (Supersedes 3/4/80)

Page 2 of 3

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Product Environmental Data



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612/778 5104

COMMERCIAL CHEMICALS DIVISION
"LIGHT WATER" BRAND AQUEOUS FILM
FORMING FOAM CONCENTRATES
FC-203 AND FC-203A

(continued)

Effect on Microbial Respiration

Dissolved oxygen concentration measurements, performed by placing a dissolved oxygen probe in activated sludge mixed liquor and ceasing aeration, showed no inhibition of microbial oxygen uptake rates at FC-203 concentrations up to 1000 mg/l.

Effect on Microbial Activity

The TTC* test, which measures microbial toxicity by assaying dehydrogenase enzyme activity in microbial cultures, showed no enzyme inhibition at FC-203 concentrations up to 1000 mg/l. This indicates an absence of microbial toxicity at this concentration.

*TTC (2,3,5-Triphenyltetrazolium Chloride) Re: "Dehydrogenase Enzyme as a Parameter of Activated Sludge Activities," Ford, et al. Proceedings of the 21st Industrial Waste Conference, Purdue, May 3, 4, and 5, 1966.

When possible, tests were performed in accordance with Standard Methods for the Examination of Water and Wastewater, American Public Health Association, 1740 Broadway, New York, 10019.

Date: 7/29/80 (Supersedes 3/4/80)

Page 3 of 3

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Product Environmental Data



Environmental Laboratory
Environmental Engineering and Pollution Control

900 Bush Avenue
PO Box 33331
St. Paul, MN 55133
612/778 5104

COMMERCIAL CHEMICALS DIVISION
"LIGHT WATER" BRAND AQUEOUS FILM
FORMING FOAM CONCENTRATE
FC-206

DESCRIPTION: Water-miscible fire extinguishing agent.

APPEARANCE: Clear, amber liquid.

USAGE: Foams, containing 6% FC-206 in water, cover and thus extinguish hydrocarbon liquid-based fires. For more detailed usage information, see your technical service representative.

WASTE DISCHARGE: Facilities which use FC-206 in actual or simulated firefighting activities usually direct the resulting wastes to wastewater treatment systems. Whenever possible, 3M recommends disposing of FC-206 wastes in this manner. However, aquatic and soil environments sometimes receive these wastes untreated.

AQUATIC TOXICITY DATA:

Freshwater Organisms

Species

Invertebrates

48-Hr. LC₅₀

Water flea (Daphnia magna)

5850 mg/l

Scud (Gammarus fasciatus)

5170 mg/l

Fish

96-Hr. LC₅₀

Fathead minnow (Pimephales promelas)

3000 mg/l Continuous Flow Test
1500 mg/l Static Test

Rainbow trout (Salmo gairdneri)

1800 mg/l Static Test

Marine Organisms

96-Hr. LC₅₀

Mummichog (Fundulus heteroclitus)

1820 mg/l Static Test

Grass shrimp (Palaemonetes vulgaris)

280 mg/l Static Test

Fiddler Crab (Uca pugilator)

3260 mg/l Static Test

Date:

12/11/80 (Supersedes 4/4/79)

Page 1 of 4

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Product Environmental Data



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612/778 5104

COMMERCIAL CHEMICALS DIVISION
"LIGHT WATER" BRAND AQUEOUS FILM
FORMING FOAM CONCENTRATE
FC-206

(continued)

AQUATIC TOXICITY DATA (continued)

| <u>Marine Organisms</u> | <u>48-Hr. EC₅₀</u> |
|--|-------------------------------|
| Atlantic oyster larvae (<u>Crassostrea virginica</u>) | >100 <240 mg/l |

SOIL SORPTION STUDIES:

Effect of Soil on Toxicity

Soil contact with FC-206 solutions reduces their aquatic toxicity. In the absence of soil, only 60% of fathead minnows (Pimephales promelas) survived 48-hr. static exposure to 2500 mg/l of FC-206. None survived for 72 hours. Mixing 10 g/l of 2% organic soil containing 56% sand, 21% silt, and 23% clay into the same FC-206 solution increased fish survival to 100% at 48 hours and 50% at 72 hours. Suspended soil components in natural waters are expected to similarly reduce FC-206 toxicity.

Soil COD Removal

Shaking 100-ml aqueous solutions of FC-206 for 24 hours with 100 g of soil reduced the soluble COD. The soil used was 57% sand, 36% silt, and 7% clay. It had a 2.5% organic matter content and a cation exchange capacity of 15.3 meq/100 g. The results summarized in the following table suggest that at low concentrations of FC-206, soil contact may also reduce the COD of wastewater.

| <u>Concentration of FC-206 in Initial Aqueous Solution (mg/l)</u> | <u>% of COD Removed From Aqueous Phase</u> |
|---|--|
| 600 | 30 |
| 6,000 | 7 |
| 60,000 | 3 |

Date:

~~12/11/80 (Supersedes 4/4/79)~~

~~Page 2 of 4~~

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Product Environmental Data



Environmental Laboratory
Environmental Engineering and Pollution Control

900 Bush Avenue
PO Box 33331
St. Paul, MN 55133
612/778 5104

COMMERCIAL CHEMICALS DIVISION
"LIGHT WATER" BRAND AQUEOUS FILM
FORMING FOAM CONCENTRATE
FC-206

(continued)

BIODEGRADATION AND TREATABILITY DATA:

| | |
|---|--------------|
| 5-Day Biochemical Oxygen Demand (BOD ₅) | 210,000 mg/l |
| 20-Day Biochemical Oxygen Demand (BOD ₂₀) | 420,000 mg/l |
| Chemical Oxygen Demand (COD) | 420,000 mg/l |
| Total Organic Carbon (TOC) | 94,000 mg/kg |

OECD Biodegradation Test

The "Modified OECD Screening Test with DOC Analysis" and supplemental parallel sterile controls conclusively demonstrated the extensive biodegradability of FC-206. In 14 days, the dissolved organic carbon (DOC) levels of FC-206 degraded by 90%. The parallel sterile controls proved that this DOC loss was not due to chemical or physical processes such as adsorption, volatilization, or precipitation of the parent material.

Effect on Microbial Respiration

Dissolved oxygen concentration measurements, performed by placing a dissolved oxygen probe in activated sludge mixed liquor and ceasing aeration, showed no inhibition of microbial oxygen uptake rates at FC-206 concentrations up to 1000 mg/l.

Effect on Microbial Activity

The TTC* test, which measures microbial toxicity by assaying dehydrogenase enzyme activity in microbial cultures, showed no enzyme inhibition at FC-206 concentrations up to 1000 mg/l. This indicates an absence of microbial toxicity at this concentration.

*TTC (2,3,5-Triphenyltetrazolium Chloride) Re: "Dehydrogenase Enzyme as a Parameter of Activated Sludge Activities," Ford, et al. Proceedings of the 21st Industrial Waste Conference, Purdue, May 3, 4, and 5, 1966.

Date: 12/11/80 (Supersedes 4/4/79)

Page 3 of 4

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Product Environmental Data



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COMMERCIAL CHEMICALS DIVISION
"LIGHT WATER" BRAND AQUEOUS FILM
FORMING FOAM CONCENTRATE
FC-206

(continued)

Activated Sludge Pilot Plant Studies

Operation of a conventional activated sludge pilot plant demonstrated the biological treatability of FC-206-containing wastes at concentrations below 1000 mg/l. This system, when operated on a mixture of settled domestic sewage and 1000 mg/l of FC-206, gave average BOD and COD reduction of 86% and 73%, respectively. The average BOD₅ in the effluent was 18 mg/l.

Although not toxic, treating wastes containing 1000 mg/l of FC-206 per liter is not recommended because of foaming. Laboratory tests have shown that foaming is reduced at concentrations below 100 mg/l and eliminated at 10 mg/l.

When possible, tests were performed in accordance with Standard Methods for the Examination of Water and Wastewater, American Public Health Association, 1740 Broadway, New York, 10019.

Date: 12/11/80 (Supersedes 4/4/79) Page 4 of 4

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Product Environmental Data



Environmental Laboratory
Environmental Engineering and Pollution Control

900 Bush Avenue
PO Box 33331
St. Paul, MN 55133
612/778 5104

COMMERCIAL CHEMICALS DIVISION

"LIGHT WATER" BRAND AQUEOUS FILM FORMING FOAM CONCENTRATE, FC-206A

DESCRIPTION: Water-miscible fire extinguishing agent.

APPEARANCE: Light yellow liquid.

USAGE: Foams containing 6% FC-206A in water cover and thus extinguish hydrocarbon liquid-based fires. For more detailed usage information, see your technical service representative.

AQUATIC TOXICITY DATA:

| <u>Test Organisms</u> | <u>Conditions</u> | <u>96-Hr. LC50</u> |
|--|-------------------|-----------------------------|
| Bluegill sunfish (<u>Lepomis macrochirus</u>) | (Static) | 1.2 g/l (1.1 - 1.3 g/l)* |
| Fathead minnow (<u>Pimephales promelas</u>) | (Continuous flow) | >3.0 g/l |
| | | <u>48 Hr. EC50</u> |
| Water flea (<u>Daphnia magna</u>) | (Static) | 2.3 g/l (1.9 - 2.9 g/l)* |

Effect on Microbial Respiration

Dissolved oxygen concentration measurements, performed by placing a dissolved oxygen probe in activated sludge mixed liquor and ceasing aeration, showed no inhibition of microbial oxygen uptake rates at FC-206A concentrations up to 1000 mg/l.

* 95% confidence limit.

Date: 1/4/80

Page 1 of 2

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Product Environmental Data



Environmental Laboratory
Environmental Engineering and Pollution Control

900 Bush Avenue
PO Box 33331
St. Paul, MN 55133
612/778 5104

COMMERCIAL CHEMICALS DIVISION

"LIGHT WATER" BRAND AQUEOUS FILM FORMING FOAM CONCENTRATE, FC-206A

(continued)

Effect on Microbial Activity

The TTC** test, which measures microbial toxicity by assaying dehydrogenase enzyme activity in microbial cultures, showed no enzyme inhibition at FC-206A concentrations up to 10,000 mg/l. This indicates an absence of microbial toxicity at this concentration

BIODEGRADATION:

| | |
|---------------------------------|--------------|
| Chemical Oxygen Demand (COD) | 451,000 mg/l |
| Biochemical Oxygen Demand (BOD) | |
| BOD ₅ | 200,000 mg/l |
| BOD ₂₀ | 330,000 mg/l |

WASTE DISCHARGE:

Facilities which use FC-206A in actual or simulated firefighting activities usually direct the resulting wastes to wastewater treatment systems. Whenever possible, 3M recommends disposing of FC-206A wastes in this manner. However, aquatic and soil environments sometimes receive these wastes untreated.

DISPOSAL: May be bled to wastewater system with a treatment plant in accordance with local regulations.

**TTC (2,3,5-Triphenyltetrazolium Chloride) Re: "Dehydrogenase Enzyme as a Parameter of Activated Sludge Activities," Ford, et al. Proceedings of the 21st Industrial Waste Conference, Purdue, May 3, 4, and 5, 1966.

Date 1/4/80

Page 2 of 2

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Form 14705-B-PWC

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Product Environmental Data



Environmental Laboratory Environmental Engineering and Pollution Control

900 Bush Avenue
PO Box 33331
St. Paul, MN 55133
612/778 5104

COMMERCIAL CHEMICALS DIVISION MILITARY SPEC. TYPE AFFF 6% CONCENTRATE FC-780B

DESCRIPTION: Fire extinguishing agent.

APPEARANCE: Clear amber liquid.

| COMPOSITION: | Wt. % |
|-------------------------|-------|
| Water | 75 |
| Butyl Carbitol | 15 |
| Synthetic Detergents | <5 |
| Fluoroalkyl Surfactants | <5 |
| Urea | 5 |

USAGE: FC-780B is employed at a 6% level (i.e., 94 parts water to 6 parts FC-780B) to extinguish fires involving liquid fuels and other liquid organic compounds.

WASTE DISCHARGE: Facilities which use FC-780B in actual or simulated firefighting activities usually direct the resulting wastes to wastewater treatment systems. Whenever possible, 3M recommends disposing of FC-780B wastes in this manner. However, aquatic and soil environments sometimes receive these wastes untreated.

DISPOSAL: Bleed to wastewater treatment system in accordance with local regulations. Diluting 1 gallon of FC-780B in >10,000 gallons of sewage prevents the product from causing serious foaming in aeration basins and prevents it from causing sludge settling problems in clarifiers. USEPA Hazardous Waste Number: None.

AQUATIC TOXICITY:

| Test Organism | 96-Hr. LC50 | 95% C.I. |
|---|-----------------------|--------------------|
| Scaphiopus (<u>Lepomis macrochirus</u>) | 1,600 mg/l | (1,300-1,800 mg/l) |
| Scaphiopus (<u>Fundulus heteroclitus</u>) | | (3,400-4,600 mg/l) |

2/9/81 (Supersedes 1/8/80)

Page 1 of 2

Date:

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A-11

Product Environmental Data



Environmental Laboratory
Environmental Engineering and Pollution Control

900 Bush Avenue
PO Box 33331
St. Paul, MN 55133
612/778 5104

COMMERCIAL CHEMICALS DIVISION
MILITARY SPEC. TYPE AFFF 6% CONCENTRATE
FC-780B

(continued)

TREATABILITY: Neither foaming nor sludge settling problems developed as a result of aeration in laboratory scale activated sludge reactors containing 100 mg/l of FC-780B. Based on these results, no serious foaming or settling problems are anticipated in waste treatment systems containing less than 100 mg/l of FC-780B.

BIODEGRADATION: **

| | |
|--|--------------|
| Chemical Oxygen Demand (COD) | 387,000 mg/l |
| Ratio of Twenty-Day Biochemical Oxygen Demand to Chemical Oxygen Demand (BOD ₂₀ /COD) | 0.96 |

* 95% confidence interval.

** As reported by the Naval Research Laboratory, Fire Suppression Section, Washington, DC.

2/9/81 (Supersedes 1/8/80)

Page 2 of 2

Date:

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Form 14705-C PWO

Product Environmental Data



Environmental Laboratory Environmental Engineering and Pollution Control

900 Bush Avenue
PO Box 33331
St. Paul, MN 55133
612/778 5104

COMMERCIAL CHEMICALS DIVISION

"LIGHT WATER"® BRAND AQUEOUS FILM FORMING FOAM CONCENTRATE, FC-203C

DESCRIPTION: Water-miscible fire control agent.

APPEARANCE: Clear, amber colored liquid.

USAGE: Foams containing 3% FC-203C in water cover and thus extinguish hydrocarbon liquid-based fires. For more detailed usage information, see your technical service representative.

AQUATIC TOXICITY DATA:

| <u>Test Organisms</u> | <u>Conditions</u> | <u>96-Hr. LC₅₀</u> |
|---|-------------------|-----------------------------------|
| Killifish (<u>Fundulus heteroclitus</u>) | (continuous flow) | 1,400 mg/l (1,000-2,000 mg/l)* |
| Fathead minnow (<u>Pimephales promelas</u>) | (Continuous flow) | >2,000 mg/l |
| | | <u>96-Hr. EC₅₀**</u> |
| Single cell green algae (<u>Selenastrum capricornatum</u>) | | 408 mg/l (156-995 mg/l)* |

*95% confidence limits.

**Concentration inhibiting growth (measured as cell dry weight) by 50%.

Effect on Microbial Respiration

Dissolved oxygen concentration measurements, performed by placing a dissolved oxygen probe in activated sludge mixed liquor containing 1,000 mg/l of FC-203C and ceasing aeration, showed an increased oxygen uptake rate. This indicates an absence of acute microbial toxicity at this concentration and suggests that biodegradable portions of this product are utilized by nonacclimated microbial populations.

Date: 5/26/82

Page 1 of 2

Date:

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A-13

Product Environmental Data



Environmental Laboratory
Environmental Engineering and Pollution Control

900 Bush Avenue
PO Box 33331
St. Paul, MN 55133
612/778 5104

COMMERCIAL CHEMICALS DIVISION

"LIGHT WATER"® BRAND AQUEOUS FILM FORMING FOAM CONCENTRATE, FC-203C

(continued)

BIODEGRADATION:

| | |
|--|----------|
| Chemical Oxygen Demand (COD) | 0.78 g/g |
| 20-Day Biochemical Oxygen Demand (BOD) | 0.58 g/g |
| 20-Day Carbonaceous Biochemical Oxygen Demand | 0.59 g/g |

DISPOSAL OF FIREFIGHTING WASTES:

If possible, 3M recommends handling wastes resulting from actual or simulated firefighting activities by pretreating in an oil-water separator followed by bleeding to a wastewater treatment system. Serious foaming can be prevented by adjusting the discharge rate so that the FC-203C concentration reaching the aeration basin will be ≤ 25 mg/l (1 gallon of FC-203C concentrate in $\geq 40,000$ gallons of sewage).

DISPOSAL OF PRODUCT:

Bleed to a wastewater treatment system in accordance with local regulations. Adjusting discharge rates as described in the section above should reduce serious foaming problems in the receiving treatment system.

5/26/82

Page 2 of 2

Date:

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Product Environmental Data



Environmental Laboratory Environmental Engineering and Pollution Control

900 Bush Avenue
PO Box 33331
St Paul, MN 55133
612/778 5104

COMMERCIAL CHEMICALS DIVISION

"LIGHT WATER"® BRAND AQUEOUS FILM FORMING FOAM CONCENTRATE, FC-206C

DESCRIPTION: Water-miscible fire control agent.

APPEARANCE: Clear, amber colored liquid.

USAGE: Foams containing 6% FC-206C in water cover and thus extinguish hydrocarbon liquid-based fires. For more detailed usage information, see your technical service representative.

AQUATIC TOXICITY DATA:

| <u>Test Organisms</u> | <u>Conditions</u> | <u>96-Hr. LC50</u> |
|---|-------------------|------------------------|
| Killifish (<u>Fundulus heteroclitus</u>) | (continuous flow) | >2,000 mg/l |
| Fathead minnow (<u>Pimephales promelas</u>) | (Continuous flow) | >2,000 mg/l |
| | | <u>96-Hr. EC50**</u> |
| Single cell green algae (<u>Selenastrum capricornatum</u>) | | 345 mg/l (34-1630)* |

*95% confidence limits.

**Concentration inhibiting growth (measured as cell dry weight) by 50%.

Effect on Microbial Respiration

Dissolved oxygen concentration measurements, performed by placing a dissolved oxygen probe in activated sludge mixed liquor containing 1,000 mg/l of FC-206C and ceasing aeration, showed an increased oxygen uptake rate. This indicates an absence of acute microbial toxicity at this concentration and suggests that biodegradable portions of this product are utilized by nonacclimated microbial populations.

5/26/82

Page 1 of 2

Date:

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Form 14705-C PWO

Product Environmental Data



Environmental Laboratory Environmental Engineering and Pollution Control

900 Bush Avenue
PO Box 33331
St. Paul, MN 55133
612/778 5104

COMMERCIAL CHEMICALS DIVISION

"LIGHT WATER"® BRAND AQUEOUS FILM FORMING FOAM CONCENTRATE, FC-206C

(continued)

BIODEGRADATION:

| | |
|--|----------|
| Chemical Oxygen Demand (COD) | 0.40 g/g |
| 20-Day Biochemical Oxygen Demand (BOD) | 0.33 g/g |
| 20-Day Carbonaceous Biochemical Oxygen Demand | 0.34 g/g |

DISPOSAL OF FIREFIGHTING WASTES:

If possible, 3M recommends handling wastes resulting from actual or simulated firefighting activities by pretreating in an oil-water separator followed by bleeding to a wastewater treatment system. Serious foaming can be prevented by adjusting the discharge rate so that the FC-206C concentration reaching the aeration basin will be ≤ 50 mg/l (1 gallon of FC-206C concentrate in $\geq 20,000$ gallons of sewage).

DISPOSAL OF PRODUCT:

Bleed to a wastewater treatment system in accordance with local regulations. Adjusting discharge rates as described in the section above should reduce serious foaming problems in the receiving treatment system.

Date: 5/26/82

Page 2 of 2

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Product Environmental Data



Environmental Laboratory
Environmental Engineering and Pollution Control

900 Bush Avenue
PO Box 33331
St. Paul, MN 55133
612/778 5104

COMMERCIAL CHEMICALS DIVISION

3M BRAND COMMERCIAL GRADE AFFF 6% CONCENTRATE
FC-780

DESCRIPTION: Fire extinguishing agent.

APPEARANCE: Clear amber liquid.

COMPOSITION:

| | <u>Percent by Weight</u> |
|--|--------------------------|
| Diethylene glycol monobutyl ether (Butyl Carbitol®) | 14 |
| Water | 77 |
| Fluoroaliphatic surfactants | <5 |
| Organic surfactants | <5 |
| Urea | 6 |

USAGE: FC-780 is employed at a 6% level (e.g., 94 parts water to 6 parts FC-780) to extinguish fires involving liquid fuels and other liquid organic compounds.

AQUATIC TOXICITY:

| | |
|----------------------------------|--------------------|
| <u>Test Organism</u> | <u>96-Hr. LC50</u> |
| | <u>FC-780</u> |
| FC-780 /1 | |
| (<u>Fundulus heteroclitus</u>) | |

BIODEGRADATION: *

| | |
|--|----------|
| Chemical Oxygen Demand (COD) | 0.32 g/g |
| Ratio of Twenty-Day Biochemical Oxygen Demand to Chemical Oxygen Demand (BOD ₂₀ /COD) | 0.98 |

* As reported by the Naval Research Laboratory, Fire Suppression Section, Washington, DC.

Date: 6/11/82 (Supersedes 1/8/80)

These data are intended for the use of a person qualified to evaluate environmental data.

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APPENDIX B
AFFF ASSAY DATA

Data taken from: D.B. Chan, 1982. Draft initial feasibility report on AFFF-laden wastewater treatment/recovery. Technical Memo 54-82-06.

D. Biological Treatment

The Air Force performed four biodegradability and toxicity studies respectively for AER-O-Water (AOW) 3 and 6 (Ref 3), FC-200 (Ref 2), FC-206 (Ref 4), and ANSUL K74-100 (Ref 5) AFFF. Results from these studies are summarized in Table 3.

Table 3. Biological Treatment of AFFF

| AFFF Agent | Operation Parameters | | Organic Removal, % | | Remarks |
|---------------|----------------------|-------------------|---|-----------------------------|---|
| | Detention Time | Influent Feed | COD | BOD | |
| 1. AOW-3 | 7.6 hrs. | 50-2400 ppm (V/V) | 94 down to 66 in 94 days Continuous Experiment | 97 down to 66 in 94 days | Ethylene Glycol not biodegradable. Plant did not recover after 1,700 ppm feed |
| 2. AOW-6 | 7.5 hrs. | 50-2400 ppm (V/V) | 86 down to 50 in 94 days | 96 down to 74 in 94 days | Plant did not recover after 1,700 ppm feed |
| 3. FC-200 | 6-8 hrs. | 50-250 ppm | 89 down to 45 in 53 days | Maintained at 96 in 53 days | Efficiency degraded after 100 ppm feed |
| 4. FC-206 | 6-8 hrs. | 50-300 ppm (V/V) | Maintained 96 - 98 | 98 down to 96.5 in 51 days | Efficiency degraded after 250 ppm feed |
| 5. ANSUL K74- | 6-8 hrs. | 50-3500 ppm (V/V) | | 98 down to 75 in 98 days | Efficiency degraded after 250 ppm feed |

All experiments were conducted under the following conditions:

- a. Using bench-scale, continuous feed activated sludge process
- b. Employing pure AFFF concentrate and synthetic sewage as feeding substrate
- c. Acclimating activated sludge with synthetic sewage before AFFF was gradually (dosage increased with time) fed to the process

Table 1. Changes in toxicity of AFFF's to Fathead Minnows with increase in time of exposure (From LeFebvre and Inman, 1975).

LC₅₀ Concentration (µl/l)

| | <u>3M - Light Water</u> | | | <u>Nat'l Foam Systems</u> | | <u>ANSUL Co.</u> |
|----------|-------------------------|--------|--------|---------------------------|------|------------------|
| | FC-199 | FC-200 | FC-206 | AOW3 | AOW6 | K74-100 |
| 24 Hours | 650 | * | 2100 | 1030 | 635 | 1725 |
| 48 Hours | 588 | 135 | 1810 | 820 | 255 | 1425 |
| 72 Hours | 450 | 97 | 1300 | 630 | 245 | 1150 |
| 96 Hours | 398 | 97 | 1080 | 600 | 225 | 1100 |

*No mortality in 24 hours in one bioassay but 50% in highest concentration (150 µl/l) in duplicate bioassay.

Table 5. Comparison of concentrations of AFFF in synthetic sewage amenable to biological treatment (From LeFebvre and Inman, 1975).

| | 3M - LIGHT WATER | | | NAT'L FOAM SYSTEMS | | ANSUL |
|---|------------------|---------|----------|--------------------|-----------|----------|
| | FC199 | FC200 | FC206 | AOW3 | AOW6 | K74-100 |
| Maximum to Sewage Treatment Plant Recommended for Treatment | 250 µl/l | 70 µl/l | 200 µl/l | 1700 µl/l | 1700 µl/l | 250 µl/l |
| | 25 µl/l | 70 µl/l | 20 µl/l | 150 µl/l | 150 µl/l | 25 µl/l |

Table 6. Recommended maximum concentration of AFFF for direct discharge to stream containing aquatic life. (From LeFebvre and Inman, 1975).

| 3M - LIGHT WATER | | | NAT'L FOAM SYSTEMS | | ANSUL |
|------------------|--------|---------|--------------------|-----------|---------|
| FC199 | FC200 | FC206 | AOW3 | AOW6 | K74-100 |
| 20 µl/l | 5 µl/l | 54 µl/l | 60 µl/l | 22.5 µl/l | 55 µl/l |

AD-A218 637

AFOEHL REPORT 89-129EQ0063LEA



Biological Analysis of Three Ponds at Peterson AFB,
Colorado Springs CO

GREGORY ZAGURSKY
WILLIAM H. JEFFERSON III
ROBERT D. BINOVI, Lt Col, USAF, BSC

November 1989

Final Report

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AF Occupational and Environmental Health Laboratory (AFSC)
Human Systems Division
Brooks Air Force Base, Texas 78235-5501

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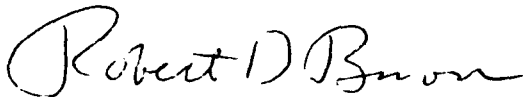
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ROBERT D. BINOVI, Lt Col, USAF, BSC
Chief, Environmental Quality Division

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| | | | | | |
| 19. ABSTRACT (Continue on reverse if necessary and identify by block number) A series of three man-made ponds on the golf course at Peterson AFB, Colorado Springs CO were analyzed to determine their current ecological status and future potential for recreational fishing. Biological analysis consisted of collection, enumeration and identification of organisms from the water column and sediment from three sampling sites at each pond. The ponds were evaluated on the basis of species diversity and the types of species present. Chemical analysis of water and sediments for toxicants was also performed. The results indicated that ponds 1 and 2 are in excellent ecological condition and should be able to maintain stocked game fish which are safe for human consumption. Pond 3 cannot be recommended for stocking with fish in its current condition. Low species diversity suggests that this pond is being stressed by an unknown pollutant. The most likely source is a storm drain which may be a chronic source of pollutants for this pond. <i>Keywords!</i> | | | | | |
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We wish to extend our personal thanks to some specific individuals at AFOEHL who made this research effort rewarding and enjoyable. Lt Col Bob Binovi provided leadership, support, encouragement and some funny stories. The assistance of Lt Becky Bartine and Sgts Rolon and Hernandez was invaluable in solving many problems. A special thanks and salute to Sgt Carol Wilson who worked and put up with us on a day-to-day basis. She was an unending source of assistance, support and supplies. Thanks also to the Biology Department at the Air Force Academy and the Colorado Fish and Game Department for their timely response to our needs for equipment when our shipment from AFOEHL became lost.

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I. INTRODUCTION

A series of three man-made, 1- to 2-acre ponds at Peterson AFB in Colorado Springs CO have been impacted by the introduction of pollutants from the flightline area through the storm drainage system resulting in fish kills and an apparent decrease in the invertebrate and plant populations in one of the ponds, designated pond 3. The remaining two ponds (ponds 1 and 2) have been impacted to a lesser extent because of pumping of water from pond 3 into these two ponds. Base personnel were particularly concerned about the ecological health of pond 3 because they would like to utilize the pond as a recreational fishing pond and as a source of water for the base golf course. USAF Clinic/SGPB requested AFOEHL conduct a survey of the ponds in June 1989. The survey was conducted by Gregory Zagursky, William (Jeff) Jefferson, University of South Carolina, Lt Col Robert D. Binovi, 2Lt Rebecca Bartine, and SSgt Carole Wilson.

The objectives of this survey were to (1) determine the physical factors or toxicant responsible for the original biological impact, (2) determine if the ponds are now capable of maintaining a fish population and (3) determine if fish taken from these ponds are and will be safe for human consumption. Also from a long-term perspective, findings of this survey could suggest preventive measures that will maintain the water quality of the ponds for game fish stocking and golf course irrigation and suggest ways to restore the ponds to a natural ecological state with a self-sustaining population of game fish.

II. DISCUSSION

A. Sampling Strategy

The initial approach to accomplish the objectives was wide-ranging because of the unknown nature of the toxicants. The fire suppressant material, Ansulite Aqueous Film Forming Foam (AFFF), which was accidentally spilled into pond 3 shortly before the first fish kill, was initially suspected as the toxicant. Unfortunately, it could not be proven for certain that the chemical was the source of the problem because AFFF would not persist very long in the environment and yet a subsequent restocking resulted in a second fish kill, and pond 3 receives drainage from areas on base subject to spills and discharges of other potentially toxic chemicals, complicating the problem of targeting for a specific toxicant.

All sampling was conducted during the period 6-8 June 1989. Three sampling sites were established in each pond: station C was near the deepest point of each pond; station B was located where the water depth equaled the depth of the photic zone; station A was approximately 1 meter from the shoreline. The biological health of all three ponds was evaluated at the population level (Warren, 1971) by qualitatively and quantitatively sampling the water column and the benthos (bottom sediment) for invertebrates, vertebrates and plants. The water column was sampled for plants and animals with plankton nets, seines and water bottles. Benthic samples were taken along transects with grab samplers for macrobenthos and cores for meiobenthos and the infauna preserved in the field. Since there is a gradient to the impact, with pond 2 being slightly impacted and pond 1 apparently not having been impacted at all, pond 1 was used as a control for comparing species

position. The usual set of physical measurements (temperature, pH, secchi disk depth, nutrient levels) was taken at each pond.

In order to determine possible toxic chemical levels in 3 ponds, both water and sediment samples were analyzed for a series of possible toxicants (hydrocarbons, heavy metals, pesticides, herbicides). Fish tissue was similarly evaluated for toxic chemicals to determine if it was safe for human consumption.

B. Physical Characteristics

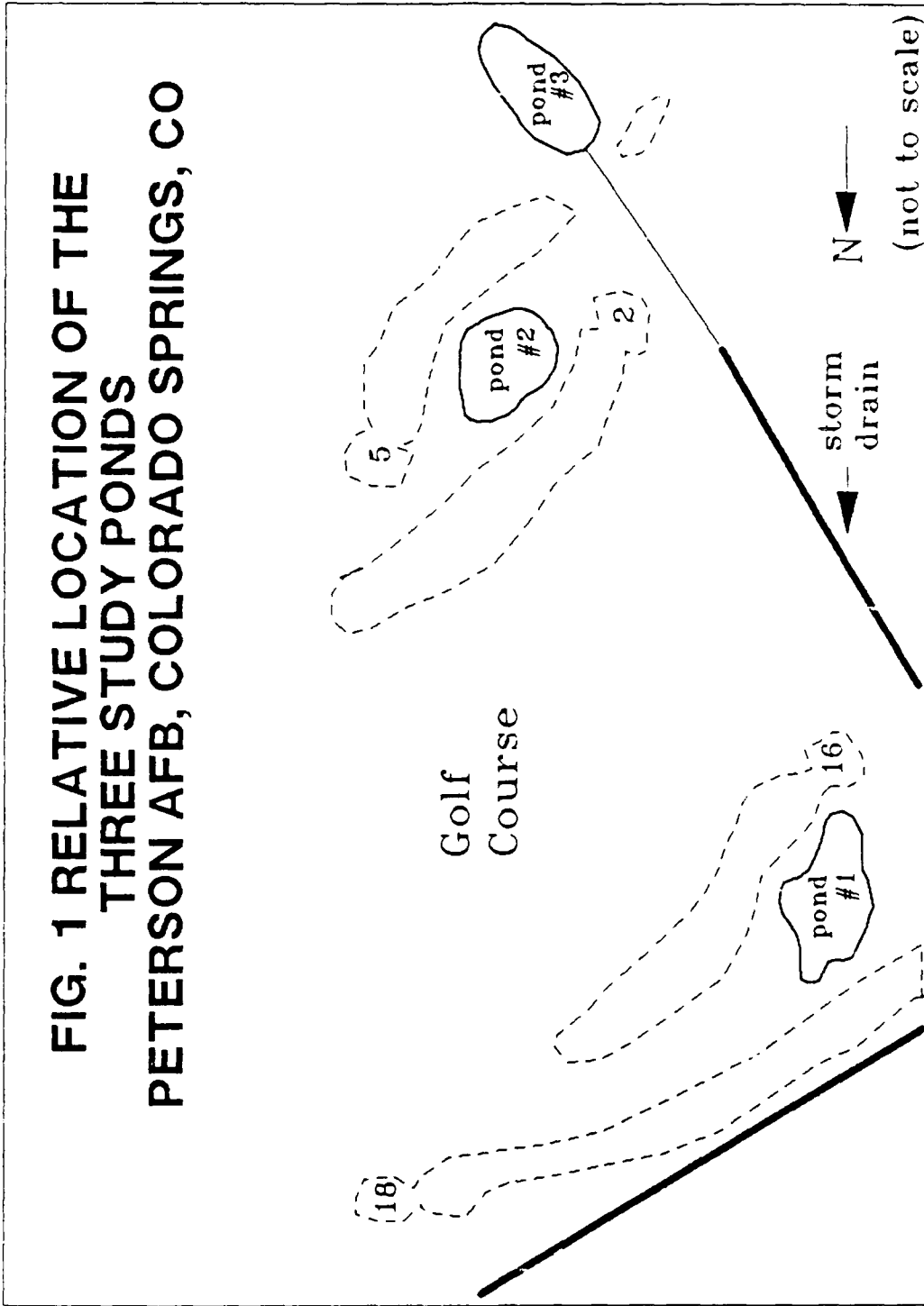
All three ponds were located on the golf course at Peterson AFB, Colorado Springs CO. Figure 1 shows the relative locations of the three ponds and photos of each. The circumference of each pond was measured with a tape and the volumes computed. The pH, temperature and dissolved oxygen levels were measured at various locations and depths with probes. The depth was measured by using a weighted rope and the photic zone (depth of light penetration) measured by using a white, water sampling bottle. The results are summarized in Table 1.

TABLE 1 - PHYSICAL CHARACTERISTICS OF 3 PONDS

| | POND 1 | POND 2 | POND 3 |
|--|---------|----------|---------|
| TEMPERATURE (C) | 14 | 14 | 15 |
| pH (range) | 7.8-8.2 | 7.1-7.6 | 6.2-6.5 |
| Dissolved Oxygen (surface/depth) | 9.0/9.7 | 9.6/10.0 | 6.7/6.9 |
| Circumference (m) | 384.6 | 303.9 | 360.0 |
| Deepest Point (m) | 3.9 | 1.8 | 1.65 |
| Depth of Photic Zone (m) | 1.35 | 0.67 | 0.90 |
| Estimated Shoreline Plant Cover (%) | 80 | 70 | 0 |

Ponds 1 and 2 had mechanical aerators in operation at the time of sampling and water was being pumped into each. Ponds 1 and 2 also had moderate amounts of vascular plant detritus (mainly tree leaves) along the shoreline. The general water quality of ponds 1 and 2 appeared to be good to excellent. Pond 3 had no aerator and was receiving an inflow of 242,000 gallons/day from an open channel storm drain as measured by an ISCO 2780 flow meter (Lt Col Binovi, pers. comm.). The decaying, floating bodies of 30-50 *Necturus* sp. (mudpuppies) were observed along the shoreline of pond 3. Also, pond 3 had no observable submerged aquatic vegetation and no aquatic shoreline macrophytes. General water quality of pond 3 was poor.

**FIG. 1 RELATIVE LOCATION OF THE
THREE STUDY PONDS
PETERSON AFB, COLORADO SPRINGS, CO**





Pond 1



Pond 2

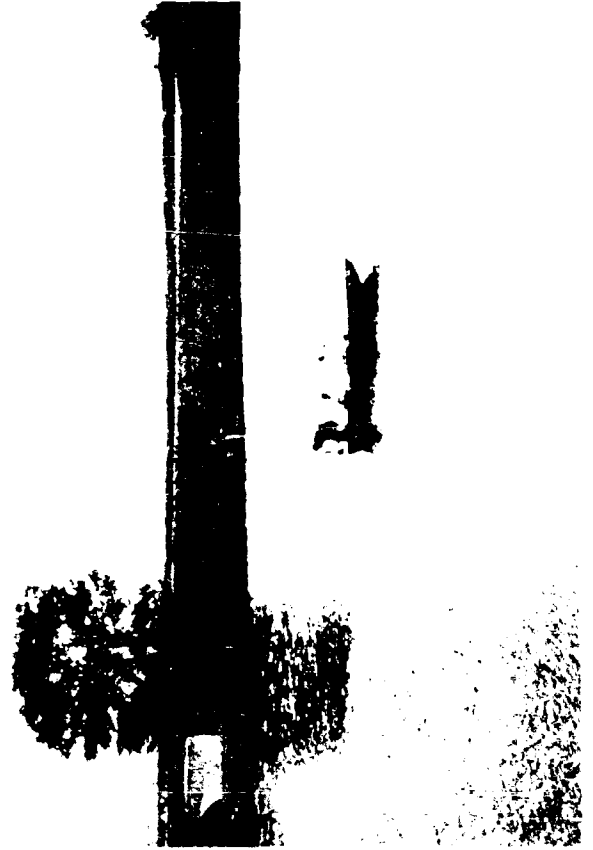


Figure 1 (cont'd)

C. Phytoplankton Composition

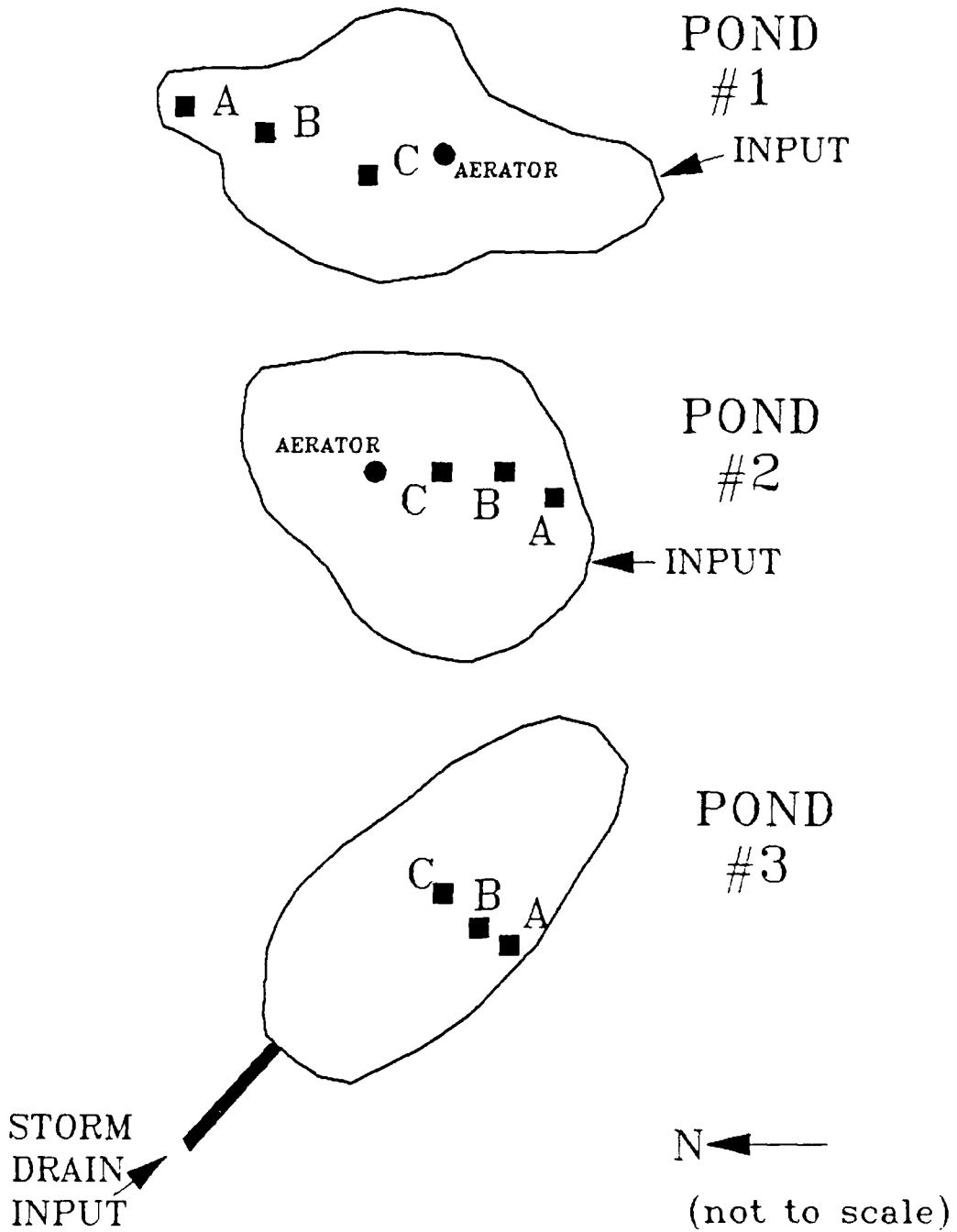
Replicate phytoplankton samples were collected at stations C and B in all ponds by filling a 2-liter bottle with water, 0.5 meters under the water surface. Figure 2 locates the sampling sites. The samples were immediately preserved with Lugol's fixative (Wetzel and Likens, 1979). Three 1 ml subsamples were counted from each sample using a Sedgwick-Rafter counting cell under 100X magnification. The phytoplankton were identified to the genus level and the results summarized in Table 2. The diversity of species at each station in each pond was calculated by using the Shannon-Wiener species diversity index (H') (Shannon and Wiener, 1963).

This data clearly indicates that pond 3 was unable to support a phytoplankton community. This lack of primary producers is strong evidence that this pond was stressed. Comparison of the Shannon-Wiener diversity indices also indicates that ponds 1 and 2 have healthy, diverse and large phytoplankton communities which probably result in a fairly high primary productivity which can support higher trophic levels. The differences in species composition between ponds 1 and 2 may be due in part because of the greater depth of pond 1 and the deeper photic zone. The generally reduced numbers of organisms collected at station C can be attributed to the aerators which probably reduced the number of delicate species.

**Table 2 - Phytoplankton Species Composition
(mean number/ml)**

| Genus | POND 1 | | POND 2 | | POND 3 | |
|-----------------------------------|--------|--------|--------|--------|---------|--------|
| | Sta. B | Sta. C | Sta. B | Sta. C | Sta. B. | Sta. C |
| <u>Anacystis</u> | 4.5 | 0.25 | 11.25 | 3.5 | 0.0 | 0.0 |
| <u>Acanthocystis</u> | 4.4 | 1.5 | 1.24 | 0.75 | 0.0 | 0.0 |
| <u>Asterionella</u> | 4.7 | 0.75 | 21.5 | 12.0 | 0.0 | 0.0 |
| <u>Ceratium</u> | 0.25 | 0.5 | 1.0 | 1.0 | 0.0 | 0.0 |
| <u>Closterium</u> | 0.25 | 0.0 | 0.25 | 0.0 | 0.0 | 0.0 |
| <u>Cocconeis</u> | 19.4 | 11.25 | 16.5 | 5.25 | 0.0 | 0.0 |
| <u>Coelastrum</u> | 0.25 | 12.88 | 14.5 | 20.25 | 0.0 | 0.0 |
| <u>Cosmarium</u> | 1.5 | 5.0 | 69.5 | 69.0 | 0.0 | 0.0 |
| <u>Cymbella</u> | 31.0 | 9.0 | 39.63 | 4.75 | 0.0 | 0.0 |
| <u>Dictyosphaerium</u> | 147.5 | 78.8 | 419.75 | 337.5 | 0.0 | 0.0 |
| <u>Fragilaria</u> | 355.4 | 195.0 | 525.25 | 416.75 | 1.25 | 1.75 |
| <u>Gloeobotrys</u> | 12.0 | 7.0 | 24.75 | 20.5 | 0.0 | 0.0 |
| <u>Nephrocytium</u> | 69.75 | 18.5 | 287.0 | 379.25 | 1.25 | 0.25 |
| <u>Oocystis</u> | 6.0 | 2.0 | 7.0 | 9.75 | 0.0 | 0.0 |
| <u>Pediastrum</u> | 36.75 | 6.0 | 116.75 | 84.25 | 0.0 | 0.0 |
| <u>Scenedesmus</u> | 168.25 | 83.25 | 177.5 | 149.25 | 0.0 | 0.0 |
| <u>Sphaerocystis</u> | 58.75 | 125.25 | 119.75 | 190.75 | 0.0 | 0.25 |
| <u>Staurastrum</u> | 341.75 | 341.75 | 276.5 | 239.5 | 1.0 | 0.75 |
| <u>Synedra</u> | 32.75 | 56.25 | 6.75 | 0.5 | 0.0 | 0.0 |
| Unknown diatoms | 254.75 | 63.0 | 54.25 | 17.3 | 1.5 | 1.75 |
| Shannon-Wiener Diversity Index | 2.12 | 2.07 | 2.21 | 2.12 | 1.37 | 0.67 |

FIG. 2 SAMPLING SITES



D. Zooplankton Composition

Replicate zooplankton samples were collected at stations C and B in all ponds (Fig 2) by taking vertical tows from the pond bottom to the pond surface using a 153-micron mesh, 0.5-m diameter plankton net. Since a flow meter was not available, these samples are not quantitative and species composition can only be compared on a relative basis. The samples were fixed with 5% buffered formalin and then stained with rose bengal to facilitate sample enumeration. A Hansen-Stempel pipet was used to withdraw three 1-ml subsamples from each replicate sample. The animals in the sample were enumerated using a dissecting microscope under 100X magnification. Identification was to the lowest taxonomic group using Pennack (1953) for species keys. Since these samples were qualitative, it was not possible to calculate a species diversity index.

These results (Table 3) show a similar trend to those seen in the phytoplankton composition table. Ponds 1 and 2 have a relatively greater species diversity than pond 3. The rotifer species are almost nonexistent in pond 3, probably because these species are sensitive to poor quality water conditions. The low diversity of species in pond 3 is typical of systems which are under stress from either physical conditions or pollutants. There is a shift in species dominance between ponds 1 and 2, but the relative diversity of species remains the same. The shift may be due to the decreased depth of pond 2 which results in a decrease in feeding area and increased competition amongst species.

**Table 3 - Zooplankton Species Composition
(mean percentage of total)**

| Organism Name | POND 1 | | POND 2 | | POND 3 | |
|----------------------|--------|--------|--------|--------|--------|--------|
| | Sta. B | Sta. C | Sta. B | Sta. C | Sta. B | Sta. C |
| CRUSTACEA: | | | | | | |
| <u>Bosmina</u> | 4.6 | 3.3 | 22.4 | 25.9 | 0.0 | 0.0 |
| <u>coregoni</u> | | | | | | |
| <u>Bosmina</u> | 4.4 | 4.3 | 8.2 | 9.5 | 0.29 | 0.5 |
| <u>Tongi-rostris</u> | | | | | | |
| <u>copepoides</u> | 4.4 | 3.8 | 2.4 | 1.4 | 1.2 | 1.4 |
| <u>Cyclops sp.</u> | 7.2 | 7.6 | 13.8 | 12.6 | 2.3 | 3.5 |
| <u>Daphnia pulex</u> | 10.4 | 10.0 | 7.1 | 6.3 | 18.6 | 17.3 |
| <u>Diaptomus sp.</u> | 0.23 | 0.11 | 0.0 | 0.3 | 0.0 | 0.0 |
| <u>nauplii</u> | 29.4 | 31.3 | 16.8 | 17.3 | 77.2 | 77.1 |
| ROTIFERA: | | | | | | |
| <u>Brachionus</u> | 0.06 | 0.05 | 0.0 | 0.15 | 0.0 | 0.0 |
| <u>plicatilis</u> | | | | | | |
| <u>Keratella</u> | 35.2 | 37.0 | 29.7 | 24.4 | 0.15 | 0.25 |
| <u>cochlearis</u> | | | | | | |
| <u>Keratella</u> | 3.9 | 2.8 | 1.3 | 1.9 | 0.29 | 0.0 |

Note: Totals do not equal 100 because of rounding.

E. Benthos Composition

Replicate benthic samples were collected at stations A, B and C in all ponds (Fig 2). Meiobenthic infauna (defined as larger than 64 microns and smaller than 125 microns) were collected by taking 5.07 cm² cores of the sediment. Macrobenthic infauna were collected by taking a composite sample of three 5.07 cm² cores. All of these samples were preserved with 5% formalin and later stained with rose bengal to facilitate the counting of organisms. Before identification and enumeration, the meiofauna samples were sieved through a 125- and 64-micron sieve and the material retained on the 64-micron sieve was examined. Macrobenthic samples were only sieved through a 125-micron sieve. Organisms were identified to the lowest possible taxonomic group by use of a dissecting microscope with a magnification of 100X. Since these samples were quantitative, the diversity of species at each station in each pond was calculated by using the Shannon-Wiener species diversity index (H'). The results for the meiofauna are summarized in Tables 4, 5 and 6.

The Shannon-Wiener species diversity index for the meiofauna populations of ponds 1, 2 and 3 is 1.5, 1.4 and 1.1 respectively. Once again pond 3 has a lower species diversity, but the difference is not as great. This is somewhat expected since the sediment is a more stable environment and benthic populations are buffered against any rapid physical changes in the water column. The greatest difference in ponds is seen at station C where pond 3 has a sharply reduced number of organisms. Observations in the field indicated that the sediment at this site was almost completely anaerobic. The species composition and dominant species vary widely between the ponds. This again can be attributed to the relatively stable environment of the benthos which leads to the establishment of relatively constant biological communities with patchy distribution.

**Table 4 - Meiofauna Composition of Sampling Station A
(mean number/core)**

| Organism Name | POND 1 | POND 2 | POND 3 |
|--|--------|--------|--------|
| <u>Tobrillus</u> sp. (nematode) | 38.5 | 18.5 | 14.2 |
| <u>Stauroneis</u> sp. (benthic diatom) | 22.6 | 0.0 | 0.0 |
| <u>Nitzschia</u> sp. (benthic diatom) | 4.5 | 52.6 | 0.0 |
| Contracted Rotifera | 16.8 | 11.1 | 20.0 |
| Desmids (green algae) | 5.9 | 58.2 | 38.4 |
| <u>Planaria</u> sp. (flatworm) | 4.8 | 2.3 | 4.3 |
| Crustacea nauplii | 7.7 | 6.2 | 3.8 |
| <u>Chaetonotus</u> sp. (gastrotrich) | 0.0 | 2.9 | 0.0 |

**Table 5 - Meiofauna Composition of Sampling Station B
(mean number/core)**

| Organism Name | POND 1 | POND 2 | POND 3 |
|--|--------|--------|--------|
| <u>Tobrillus</u> sp. | 74.3 | 21.6 | 18.0 |
| <u>Stauroneis</u> sp. (benthic diatom) | 283.4 | 0.0 | 0.0 |
| Contracted Rotifera | 15.8 | 16.9 | 13.6 |
| Desmids | 4.8 | 3.3 | 17.3 |
| Bdelloidae rotifer | 0.0 | 1.2 | 3.5 |
| <u>Planaria</u> sp. | 1.7 | 10.9 | 0.8 |

**Table 6 - Meiofauna Composition of Sampling Station C
(mean number/core)**

| Organism Name | POND 1 | POND 2 | POND 3 |
|--|--------|--------|--------|
| <u>Tobrillus</u> sp. (nematode) | 12.6 | 110.4 | 5.9 |
| <u>Stauroneis</u> sp. (benthic diatom) | | 48.7 | 0.0 |
| <u>Nitzschia</u> sp. (benthic diatom) | 5.8 | 62.1 | 0.0 |
| Contracted Rotifera | 3.0 | 3.5 | 1.6 |
| Desmids (green algae) | 0.0 | 0.0 | 6.2 |
| Nematoda - unidentified | 8.1 | 19.0 | 4.5 |
| <u>Chaetonotus</u> sp. (gastrotrich) | 21.8 | 24.7 | 2.9 |
| <u>Tardigrada</u> | 5.2 | 17.3 | 2.1 |

The data collected for macrobenthic populations is summarized in Tables 7, 8 and 9. The Shannon-Wiener species diversity index for the macrobenthic populations of ponds 1, 2 and 3 is 1.75, 1.9 and 1.4

**Table 7 - Macrofauna Composition of Sampling Station A
(mean number/core)**

| Organism Name | POND 1 | POND 2 | POND 3 |
|--|--------|--------|--------|
| <u>Actinolaiminia</u> sp. (nematode) | 13.4 | 8.5 | 1.3 |
| <u>Tobrillus</u> sp. (nematode) | 42.3 | 20.7 | 11.5 |
| <u>Naidium breviseta</u> (oligochaete) | 14.3 | 0.0 | 0.0 |
| <u>Metriocnemus knobi</u> (insect larva) | 14.6 | 12.8 | 0.0 |
| <u>Chironomus tentans</u> (insect larva) | 0.0 | 0.0 | 5.5 |
| <u>Macrocylops albidus</u> (crustacean) | 2.3 | 2.9 | 6.6 |
| <u>Pleuroxus aduncus</u> (crustacean) | 0.0 | 0.0 | 43.1 |
| <u>Musculium</u> sp. (bivalve) | 1.2 | 3.2 | 0.0 |
| <u>Candona</u> sp. (ostracod) | 6.9 | 10.3 | 0.0 |
| <u>Planaria</u> sp. (flatworm) | 4.0 | 11.1 | 1.5 |
| Harpacticoid copepods nauplii | 0.0 | 0.0 | 6.2 |
| | 0.7 | 2.1 | 5.4 |
| Desmids (green algae) | 1.6 | 24.6 | 2.3 |

**Table 8 - Macrofauna Composition of Sampling Station B
(mean number/core)**

| Organism Name | POND 1 | POND 2 | POND 3 |
|--|--------|--------|--------|
| <u>Actinolaiminia</u> sp. (nematode) | 3.4 | 1.8 | 0.0 |
| <u>Tobrillus</u> sp. (nematode) | 29.4 | 18.3 | 45.8 |
| <u>Naidium breviseta</u> (oligochaete) | 8.9 | 9.1 | 0.0 |
| <u>Lumbriculus inconstans</u> (oligochaete) | 0.0 | 0.0 | 44.9 |
| <u>Metriocnemus knobi</u> (insect larva) | 4.1 | 8.9 | 0.0 |
| <u>Chironomus tentans</u> (insect larva) | 0.0 | 0.0 | 11.5 |
| <u>Macrocyctops albidus</u> (crustacean) | 0.0 | 0.0 | 4.1 |
| <u>Musculium</u> sp. (bivalve) | 2.7 | 3.2 | 0.0 |
| <u>Candona</u> sp. (ostracod) | 3.6 | 2.9 | 0.0 |
| <u>Planaria</u> sp. (flatworm) | 1.9 | 21.2 | 3.2 |
| <u>Attheyella</u> sp. (crustacea) | 1.6 | 1.1 | 0.0 |
| <u>Desmids</u> (green algae) | 0.0 | 2.6 | 3.5 |

**Table 9 - Macrofauna Composition of Sampling Station C
(mean number/core)**

| Organism Name | POND 1 | POND 2 | POND 3 |
|--|--------|--------|--------|
| <u>Actinolaiminia</u> sp. (nematode) | 6.6 | 2.3 | 0.0 |
| <u>Tobrillus</u> sp. (nematode) | 78.9 | 98.2 | 49.1 |
| <u>Naidium breviseta</u> (oligochaete) | 16.5 | 8.4 | 0.0 |
| <u>Lumbriculus inconstans</u> (oligochaete) | 0.0 | 0.0 | 29.6 |
| <u>Metriocnemus knobi</u> (insect larva) | 0.0 | 3.7 | 0.0 |
| <u>Chironomus tentans</u> (insect larva) | 0.0 | 0.0 | 4.7 |
| <u>Macrocyctops albidus</u> (crustacean) | 0.0 | 0.0 | 6.4 |
| <u>Musculium</u> sp. (bivalve) | 1.2 | 2.3 | 0.0 |
| Nematode - unidentified | 16.8 | 3.8 | 4.3 |

Once again the species diversity of pond 3 is the lowest, indicating that the conditions of this pond are not as good as those of ponds 1 and 2. N. breviseta, M. knobi and Musculium are all organisms which occur only in well oxygenated, high quality aquatic systems. They are absent from pond 3 and replaced by low oxygen tolerant species (L. inconstans and C. tentans) which occupy the same niche.

F. Fish Composition

The fish and macroinvertebrate populations of the shoreline waters of all three ponds were sampled by pulling a 10-foot long, 0.5-inch mesh seine along the banks. The only fish caught by this method were Pimephales promelas (fathead minnows) from ponds 1 and 2; no fish were caught in pond 3. A total of 636 minnows were measured for their standard length and minnows from both ponds had similar length frequency distributions and mean standard length of 38.7 mm.

Also caught in ponds 1 and 2 were Cambarus bartoni (crayfish) which had a mean carapace length of 44.5 mm. The only organisms seined from pond 3 were leeches (Class: Hirundinea), snails and a large aquatic beetle (Hydrophilus sp.)

G. Chemical Analysis

Both water and sediment samples were taken from each pond and the storm drain input to pond 3 for chemical analysis by AFOEHL/SA for total organic carbon (TOC), nitrates, orthophosphates, oil and grease, and MBAS surfactants. An additional group analysis referred to as E.P. Toxicity was done on water and sediment samples for each pond. E.P. Toxicity analyzes for pesticides and a group of biologically active heavy metals. Also, trout (sampled by volunteers using long line sampling methods) and fathead minnows were analyzed for mercury and PCBs as recommended by the EPA. For the sake of brevity, only the significant results are reported.

The only analysis to produce detectable results in the fish flesh was for the PCB Aroclor 1254 which was present in 0.07 and 0.11 $\mu\text{g}/\text{gram}$ concentrations in both the minnow and trout from pond 2. The E.P. Toxicity analysis of the sediments from pond 3 indicated the metals barium, cadmium, lead and selenium were all present in higher concentrations than ponds 1 and 2. While none of these levels are currently dangerous, there should be concern as to finding the source for these toxicants. The results of these analyses are given in Table 10.

III. CONCLUSIONS

The ecological conditions of ponds 1 and 2 appear to be excellent based on these findings and they should continue to provide an excellent area to stock with game fish. Pond 3 should not be used for recreational fishing in its current condition. Its ecological condition is questionable as indicated by its low species diversity levels and the presence of pollution indicator species. The primary problem with utilizing pond 3 as a game fishing area is the continuous introduction of stormwater from the storm drain. The presence of the drain means that there is the constant potential for an ecological disaster on a small scale. The drain is a constant source of water of unknown quality. If any pollutant is accidentally spilled anywhere on the base, it has a good chance of entering this drain and pond 3. Also, the storm drain is a source of chronic pollution which may take years to manifest itself. Pesticides applied on the golf course or other areas of the base shortly before a downpour could affect acute toxicity in pond 3. Other chemicals which could conceivably cause acute toxicity problems would be fuels and oil spills, AFFF, and large solvent spills.

Applications of fertilizers anywhere along the storm drainage system would cause chronic low oxygen conditions by stimulating algal bloom. The fact that low levels of some PCBs are detected in fish and the sediments have higher levels of some biologically active metals should cause concern. While these levels are not currently dangerous, the sources of these pollutants need to be determined and minimized before a problem arises.

One caveat of this study is that all of the samples analyzed (both chemical and biological) were collected over a 2-day period and may not reflect year round conditions. This study should be continued with periodic sampling so that any temporal variability can be observed. This is particularly true of any pollution study in which there may be a chronic, low-level addition of pollutants.

TABLE 10 - E.P. TOXOCITY ANALYSIS FOR METALS
 mean (std. dev.) in mg/l; n=2

| METAL | POND 1 | | POND 2 | | POND 3 | | STORM DRAIN INPUT |
|----------|----------------|--------------|---------------|-------------|-------------|----------------|----------------------|
| | WATER | SEDIMENT | WATER | SEDIMENT | WATER | SEDIMENT | |
| ARSENIC | <0.050 | <0.050 | <0.050 | <0.050 | <0.050 | <0.050 | <0.050 |
| BARIUM | 0.0245(0.0035) | 0.445(0.106) | 0.032(0.0) #1 | 0.32(0.057) | 0.32(0.057) | 0.78(.071) #2 | 0.04(0.0028) #4 |
| CADMIUM | <0.010 | <0.010 | <0.010 | <0.010 | <0.010 | 0.0125(0.0021) | <0.010 |
| CHROMIUM | <0.010 | <0.010 | <0.010 | <0.010 | <0.010 | <0.010 | <0.010 |
| LEAD | <0.050 | <0.050 | <0.050 | <0.050 | <0.050 | 0.0895(0.043) | <0.050 |
| MERCURY | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 |
| SELENIUM | <0.050 | <0.050 | <0.050 | <0.050 | <0.050 | 0.11(0.0) #3 | <0.050 |
| SILVER | <0.010 | <0.010 | <0.010 | <0.010 | <0.010 | <0.010 | <0.010 |

#1 significantly different from pond 3 (t-test alpha=0.05)
 #2 significantly different from pond 2 (t-test alpha=0.05)
 #3 significantly different from ponds 1 and 2 (t-test alpha=0.05)
 #4 significantly different from ponds 1 and 3 (t-test alpha=0.05)

IV. RECOMMENDATIONS

1. Pond 3 would benefit from mechanical aeration, as do ponds 1 and 2. Recommend capability to maintain a minimum of 5 mg/L during nighttime operation be provided to prevent stress to game fish population.

2. The current practice of using water from pond 3 to fill ponds 1 and 2 should also be curtailed in order to keep these ponds in top condition.

3. In order to utilize pond 3 for fishing, the storm drain should be diverted to some other area before the pond can be prepared to accept fish.

4. Prevent unweathered AFFF from entering the storm drainage system. Hangar fire suppressant systems should be provided with a holding pond to capture the release of AFFF and retain it sufficiently to affect its biodegradation before release into the stormwater system.

5. Aircraft washing, paint stripping, and other corrosion control activities should not be performed at locations such as the ramps where the rinsewater would enter the storm drainage system even after exiting an oil/water separator.

REFERENCES

1. Pennack, R.W. Fresh-Water Invertebrates of the United States. Ronald Press Co. New York. 1953.
2. Shannon, C.E. and W. Wiener. The Mathematical Theory of Communication. University of Illinois Press, Urbana. 1963.
3. Warren, C.E. Biology and Water Pollution Control. W.B. Saunders Co. Phila. 1971.
4. Wetzel, R.G. and G.E. Likens. Limnological Analysis. W.B. Saunders Co. Phila. 1979.

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2

AD-A232 241

Hazardous Waste Minimization Assessment: Fort Carson, CO

by
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Bernard A. Donahue

On November 8, 1984, the U.S. Congress signed into public law the Hazardous and Solid Waste Amendments (HSWA) act establishing a national policy on waste minimization. Regulations created to support the HSWA require hazardous waste generators to develop and follow a hazardous waste minimization program. Moreover, the Department of Defense has established a goal of 50 percent reduction in hazardous waste generation by 1992 (compared to 1985 generation data).

After surveying hazardous material procurement; hazardous waste generation; and current methods of treatment, storage, and disposal, researchers conducted feasibility and economic analyses of minimization options and prepared a hazardous waste minimization (HAZMIN) plan for Fort Carson, CO.

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FOREWORD

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COL Everett R. Thomas is Commander and Director of USACERL and Dr. L.R. Shaffer is Technical Director.

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HAZARDOUS WASTE MINIMIZATION ASSESSMENT: FORT CARSON, CO

1 INTRODUCTION

Background

Waste minimization is the process of reducing the net outflow of hazardous solid, liquid, and gaseous effluents from a given source or generating process. It involves reducing air emissions, contamination of surface and ground water, and land disposal by means of source reduction, recycling processes, and treatment leading to complete destruction. Transferring pollutants from one medium to another (e.g., from water to air) by treatment processes is not waste minimization.

On November 8, 1984, the U.S. Congress signed into public law¹ the Hazardous and Solid Waste Amendments (HSWA) act establishing a national policy on waste minimization. HSWA required the U.S. Environmental Protection Agency (USEPA) to issue regulations that began the process of implementing the 1984 amendments to the Resource Conservation and Recovery Act (RCRA).² Among the Federal regulations is a requirement that every generator of hazardous wastes (HW) producing in excess of 2205 pounds (lb)* per month certify, when hazardous wastes are manifested (listed on a tracking document), that a hazardous waste minimization program is in operation.³ Generators are required to submit biennial reports to the USEPA that describe efforts taken to reduce the volume and toxicity of waste generated during the year. Federal regulations issued in October 1986 clarify the status of small quantity (220 to 2205 lb/month) generators (SQG) of hazardous waste.⁴ SQGs are required to make a "good faith" effort to minimize hazardous waste generation and implement the best available treatment, storage, or disposal alternative economically feasible.

The more restrictive regulations, high treatment/disposal expenses, and increased liability costs prompted private industry and several government agencies to critically examine means that will lead to prevention of pollution as opposed to end-of-pipe treatment methods. Waste minimization is economically beneficial to Army installations. Some of the cost savings realized by minimizing wastes result from: reduced transportation and disposal costs for offsite disposal; reduced compliance costs for permits, monitoring, and enforcement; reduced onsite treatment costs; reduced onsite storage and handling costs; lower risk of spills, accidents, and emergencies; lower long term liability and insurance costs; reduced raw materials costs; reduced waste generation fees; reduced effluent costs and assessments from local sewage treatment plants; reduced production costs through better management and efficiency; and, reduced operation and maintenance costs.

In fiscal year (FY) 1987, the Army directly paid (through a centrally funded process) the Defense Logistics Agency (DLA) \$17.5 million for disposal of only 15 percent of the total wastes generated

¹ Public Law 98-616, *Hazardous and Solid Waste Amendments* (1984).

² Public Law 94-480, *Resource Conservation and Recovery Act* (1976).

* Regardless of the units of measure used in source documents, all measurements have been converted to English units. Metric conversions are on p 157.

³ 40 CFR 261, *Identification and Listing of Hazardous Waste*, and 40 CFR 262, *Standards Applicable to Generators of Hazardous Wastes* (1985).

⁴ Federal Register, Vol 51, No. 190 (October 1986), pp 35190-35194.

by Army installations.⁵ The DLA, through its Defense Reutilization and Marketing Offices (DRMOs) located in several regions, was responsible for disposal of most categories of hazardous waste generated by the installations. The installations do not have a separate funding account for waste disposal and therefore do not realize the responsibility for waste generation and the cost of disposal. Beginning in FY 1990, the accounting process for waste disposal will be decentralized to provide a strong economic incentive to reduce waste generation.⁶ The installations will have to pay the waste disposal costs from their operation and maintenance budget.

In December 1985, the Joint Logistics Commanders (JLC) established the following Department of Defense (DOD) policy:⁷

The generation of hazardous waste (HW) at Department of Defense activities is a short- and long-term liability in terms of cost, environmental damage, and mission performance. A HW minimization program shall be developed by each service and shall contain the basic concepts in this directive.

Recognizing the liabilities of improper disposal and the advantages of waste minimization, JLC set a DOD-wide goal of 50 percent reduction in hazardous waste generation by 1992, based on the baseline generation in 1985. The Department of the Army is following this DOD goal and has established a policy⁸ applicable to all Active Army, Reserve, and National Guard installations.

Army installations are like small cities with a variety of activities that generate pollution within their boundaries. Unlike civilian cities, where there are many SQGs, each installation as a whole (and its Commander) is a generator held responsible for complying with regulations and reducing pollution from all the activities within its boundaries. Environmental protection must be made a primary concern of every employee on an installation. Everyone must make an effort to protect our air, water, and land from industrial and chemical contaminants. Pollution prevention pays not only in terms of complying with regulations, saving in disposal/treatment costs, reducing liability and improving public image, but also in maintaining the good health and welfare of all people.

Each installation is responsible for implementing a hazardous waste minimization (HAZMIN) plan and each employee, military and civilian, is responsible for following the plan. To comply with both the letter and the spirit of the law, the U.S. Army Forces Command (FORSCOM) contracted the U.S. Army Construction Engineering Research laboratory (USACERL) to prepare HAZMIN plans for five FORSCOM installations. This report is the first of the plans and provides a framework for surveying similar installations and developing their HAZMIN plan.

Objective

The objective of this research was to develop a hazardous waste minimization plan for Fort Carson, CO to include the actions necessary to accomplish reduction in volume and toxicity of hazardous wastes generated.

⁵ V.J. Ciccone and Associates, Inc., *Program Status Report: Department of the Army Hazardous Waste Minimization*, (U.S. Army Environmental Office, August 1988), p 43.

⁶ Office of the Assistant Chief of Engineers, "Hazardous Waste Disposal Funding," DAEN-ZCP-B Memorandum (Department of the Army, 28 October 1988).

⁷ Joint Logistics Commanders, "Hazardous Waste Minimization Program," Memorandum to the Deputy Secretary of Defense (12 December 1985).

⁸ *Hazardous Waste Minimization (HAZMIN) Policy* (Department of the Army, 1989).

Approach

The following approach was used to develop the plan:

1. Prepare a study strategy that included development of a protocol for conducting a HW inspection/survey. The inspection/survey protocol was developed from literature reviews and previous HW surveys performed by the U.S. Army Environmental Hygiene Agency (USAEHA), and the U.S. Army Construction Engineering Research Laboratory (USACERL).
2. Conduct a survey of all possible waste generated at Fort Carson from 22 through 25 January 1989, 5 through 24 March 1989; and 27 August through 2 September 1989.
3. Compile data on hazardous materials procurement by different users on the installation.
4. Compile data on hazardous waste generation for each possible generator on the installation.
5. Compile information on each waste stream including: waste characterization; waste source; baseline generation; current method of treatment, storage, and disposal and the associated costs; and past/present minimization efforts and associated costs.
6. Prioritize waste streams by criteria such as: composition, quantity, degree of hazard, method and cost of disposal, compliance status, liability, and potential to minimize.
7. Identify and prioritize minimization options for major waste streams.
8. Conduct feasibility and economic analyses of minimization options.
9. Prepare the final plan.

Scope

Although an attempt was made to quantify all the hazardous materials procured by and hazardous wastes generated at Fort Carson, a study of the mass balance of chemicals entering and wastes leaving the installation (which allows development of strategies for waste minimization) could not be completed because of lack of data.

Some of the tables prepared for this report contain blanks. The blanks do not represent zero waste generation, but rather that the data was not available. Fort Carson should make every effort to locate the data and update the tables. Proper inventory control will generate data for future use.

Mode of Technology Transfer

The HAZMIN plan (Appendix A) will be presented to Fort Carson for implementation. The recommendations that have been made should be incorporated in the installation policies and regulations.

2 HAZARDOUS WASTE MINIMIZATION

The HSWA requires generators of hazardous wastes to certify that they have a waste minimization program. Every waste shipment manifest (or tracking document) is accompanied by the following declaration, in compliance with Section 3002(b) of HSWA:

The generator of the hazardous waste has a program in place to reduce the volume and toxicity of such waste to the degree determined by the generator to be economically practicable; . . .

HSWA Section 3002(a) requires the generators of hazardous wastes to submit a biennial report, including their efforts to reduce the volume and toxicity of wastes generated. HSWA Section 3005(h) requires facilities that treat, store, or dispose of hazardous wastes to submit annual reports accompanied by similar declarations on waste minimization.

The HSWA also established a national land disposal restriction program by developing a schedule for banning all hazardous wastes from land disposal by May 1990. In November 1986, USEPA issued the first set of restrictions regarding land disposal of hazardous wastes.⁹ These restrictions prohibited land disposal of untreated and concentrated spent solvents. Deadlines for banning land disposal were extended for other solvent wastes because it was felt that sufficient nationwide capacity for treatment did not then exist. It may well be that in a few years commercial land disposal will be available only to hazardous waste residues from treatment processes. In addition, generators must realize that they may be held liable for environmental contamination. Therefore, alternatives to land disposal are necessary.

Minimization includes any reduction in hazardous waste generation and any activities that result in either a reduction in the total volume or quantity of hazardous wastes, or a reduction in the toxicity of hazardous wastes produced, or both, as long as the activities are consistent with the national goal minimizing present and future threats to the environment.¹⁰ By this definition, treatment options such as incineration are considered HAZMIN techniques. HAZMIN, therefore, can be achieved by:

1. Source Reduction: reducing or eliminating waste generation at the source, usually within a process or by an action taken to reduce the amount of waste leaving a process,
2. Recycling Onsite/Offsite: using a waste as an effective substitute for a commercial product, or as an ingredient or feedstock in a process. Recycling also implies reclaiming useful constituent fractions from a waste or removing contaminants, allowing the waste to be reused, or
3. Treatment: eliminating the hazardous characteristics of a waste to make it nonhazardous to human health and the environment.

The hierarchy that should be used in a waste minimization process is shown in Figure 1.* The small amount of residue (e.g., ash) from the process will require "ultimate" disposal (e.g., landfill burial). Various waste minimization techniques, discussed in detail below, are shown in Figure 2.

⁹Federal Register, Vol 51, No. 190.

¹⁰*Minimization of Hazardous Waste. Executive Summary and Fact Sheet*, EPA/530/SW-86/033A (U.S. Environmental Protection Agency [EPA], Office of Solid Waste, 1986).

*Figures and tables are located at the end of each chapter.

These techniques can be divided into three HAZMIN categories. Maximum waste reduction is usually achieved by using the best combination of suitable techniques from all three categories.

Source Reduction

Source reduction is at the top of the hierarchy and is the "ideal" solution to the problem of hazardous wastes. All wastes have some potential to be minimized by using better operating practices, product/material substitution, and process changes. Source reduction eliminates the need for storage, transportation, treatment, and residue disposal, and the associated liabilities.

Better Operating Practices

Better operating practices include the simplest source reduction measures such as reducing spillage and leaks, inventory control, employee education/training and control, and better materials/wastes handling practices (e.g., segregation). Experience has shown that education and training programs in safety and hazardous materials/wastes management can be very effective. One approach to good housekeeping is to automate or computerize continuous processes, thereby decreasing human involvement and errors. Waste segregation is an extremely important housekeeping practice that should be incorporated into the work standard. For example, mixing a minute quantity of hazardous waste with a large quantity of nonhazardous waste generates a large quantity of hazardous waste that has to be reported and properly disposed of. Therefore, wastes should never be mixed (e.g., solvents and oils, trash and solvents/oils, gasoline and solvents, etc.). Also, the purity of the waste determines its recyclability (discussed below). Combining dissimilar wastes reduces the chance of recovering either one of them. By using waste segregation and improved handling, most generators could considerably reduce the quantities of wastes generated.

Inventory control is perhaps the most critical and effective better operating practice for HAZMIN. It is a low-cost and easily implementable method that is popularly used in many industries.¹¹ The quantities of wastes generated can be minimized by reducing the amount of excess material in stock and the amount used in any process or operation. Controlling the purchase of raw materials is the first step in inventory control. Standard operating procedures that allow local or Federal supply system purchase of only approved materials should be established. New materials must be approved before purchase. A tracking system should be established to ensure that all the materials purchased are used properly. Such a materials "manifest" system is a tool that is useful not only in minimizing waste generation but also in complying with the Community "Right-To-Know" law.¹²

Product/Material Substitution

Product/material substitution is a major category of source reduction. Most hazardous wastes are so categorized because they result from processes that use hazardous materials as input or in an intermediate step. Product substitutions are necessary to minimize the environmental impacts of some products (e.g., pesticides such as DDT, 2,4,5-T etc.) and associated wastes. Use of nonhazardous or less hazardous products as substitutes is therefore recommended. An example of product substitution is replacing cadmium plated products with zinc or aluminum plated products in metal finishing operations.

¹¹ G.E. Hunt and R.N. Schechter, "Minimization of Hazardous-Waste Generation," in *Standard Handbook of Hazardous Waste Treatment and Disposal*, H.M. Freeman Ed. (McGraw Hill, New York, NY, 1989), pp 5.3-5.27; D. Huisingsh, *Profits of Pollution Prevention: A Compendium of North Carolina Case Studies* (North Carolina Board of Science and Technology, Raleigh, NC, 1985).

¹² Public Law 99-499 Title III, *Superfund Amendments and Reauthorization Act* (1986).

Material substitution can also be viewed as a change in a process that involves using nonhazardous or less hazardous input or raw material, or a material with few impurities. Less hazardous materials with fewer impurities can reduce the likelihood of generating high volumes of hazardous wastes. Some examples of material substitution are:¹³ replacing chlorinated solvents (e.g., trichloroethylene [TCE], 1,1,1-trichloroethane) with hot caustic solutions or detergents in degreasing operations; using noncadmium pigments in ink manufacture; and replacing cyanide formulations with noncyanide formulations in cadmium electroplating baths.

One major form of product/material substitution is "aqueous" substitution; the use of water-based materials as inputs or products in a process. Many aqueous alternatives have been developed by the chemical industries. Some examples of aqueous substitution are:¹⁴ replacing organic liquids (e.g., TCE, Stoddard solvent, xylene, toluene, etc.) with water-based products (e.g., Citrikleen, Histoclear, etc.) in metal cleaning and degreasing operations; replacing petroleum-based fluids with water-based fluids in metalworking and machining operations; substituting solvent-based ink with water-based ink in the printing processes; and using a water-based developing system instead of a solvent-based system in the manufacture of printed circuit boards.

Process Changes

Some generators will have to consider either improvements in the manufacturing process or even major changes in the technological processes to achieve waste reduction. Process change is a category of source reduction and includes source control. Source control implies examination and reevaluation of the processes that generate hazardous waste. Process optimization and increased efficiency were terms commonly used in source control projects to obtain the best quality product. Not much attention was paid to the waste. The concept of source control, therefore, is not new. Optimizing a process or increasing its efficiency also reduces the quantities of wastes generated. Process change or source control can further be divided into: process/equipment modifications, improved controls, and energy/water conservation.

Process/equipment modifications will require that operating/manufacturing processes and equipment used for waste minimization be redesigned. Some examples of process modifications are:¹⁵ using dry plastic media blasting instead of wet chemical stripping (with methylene chloride, hot caustics, etc.) to remove paint from metallic substrates, replacing cocurrent rinsing with countercurrent rinsing in metal plating and surface finishing operations, and retrofitting the existing chrome-plating processes with equipment that reduces the discharge of rinsewater to almost zero.

Improved controls could also be included under "better operating practices." It implies proper control of processes or equipment to reduce emissions and waste generation. Conserving energy/water by controlling the heat input and reducing the amount of rinse/process water used can reduce emissions, solid wastes, and wastewater.

Recycling Onsite/Offsite

After all source reduction techniques have been examined for a particular waste stream, recycling options, both onsite and offsite, should be considered. Three types of onsite recycling operations are

¹³ *Alternative Technology for Recycling and Treatment of Hazardous Wastes*, Third Biennial Report (California Department of Health Services, Alternative Technology and Policy Development Section, 1986).

¹⁴ *Alternative Technology for Recycling and Treatment of Hazardous Wastes*.

¹⁵ *Alternative Technology for Recycling and Treatment of Hazardous Wastes*.

available:¹⁶ (1) reuse of waste in the same process (e.g., continuous recycling of rinsewaters in plating/finishing operations, recycling of tetrachloroethylene in dry cleaning operations), (2) use of the waste in a different process (e.g., using waste battery acid as a neutralizing agent in an industrial wastewater treatment plant), and (3) processing the waste to produce a reusable product (e.g., distilling solvents, burning used oil for heat content, etc.). Offsite recycling includes methods used to process the waste to produce a usable product (e.g., re-refining waste oil, reclaiming lead from lead-acid batteries, recovering silver from fixing bath solutions, incinerating hazardous wastes for heat content, etc.).

Recycling of hazardous wastes is encouraged by the Federal and State governments. Hazardous waste generators must explore all recycling opportunities for wastes whether or not the generation is reduced. Industrial recyclers are available for a number of wastes. Recyclable wastes include:¹⁷ unused commercial chemical products, halogenated solvents, oxygenated solvents, hydrocarbon solvents, petroleum products (including oils and hydraulic fluids), pickling liquor, unspent acids and alkalis, and selected empty containers. Some offsite programs recycle batteries, mercury, and drums. Offsite recycling is also a major part of the program called "solvent leasing." In this program, a generator will lease process equipment. The equipment owner provides clean solvent and is responsible for removing and recycling used solvent.

An offsite recycling method that needs to be evaluated by DLA and DRMOs is the use of waste exchanges to recycle wastes. Waste exchanges are operations that engage or assist in transferring wastes and information concerning wastes. They help generators develop effective waste minimization programs and comply with legislative and regulatory requirements. A list of waste exchanges operating in North America is provided in Table 1. Some of these organizations are waste information "clearinghouses" and others are waste material exchanges. The information exchanges are usually nonprofit organizations that provide information about the availability and demand of waste materials. Material exchanges act as agents or brokers, and usually take the waste materials, process them, and market them for profit.

Treatment

Treatment of hazardous wastes should be the last minimization choice; after source reduction and recycling, but before "ultimate" disposal. Treatment alternatives must be considered only if source reduction and recycling are not feasible or economically practical. A treatment process: (1) destroys or detoxifies a hazardous waste to a material safe for disposal, (2) concentrates or reduces the volume of wastes for safer handling and disposal, or (3) immobilizes the hazardous components to keep them from the environment. Generators of large amounts of hazardous wastes usually treat the wastes onsite; generators of small amounts of hazardous wastes use offsite treatment facilities. With the increased availability of commercially packaged treatment units, generators may opt to treat wastes onsite. A hazardous residue requiring "ultimate" disposal may still be generated. Treatment processes include neutralization, filtration, evaporation, incineration, and precipitation. Acids, bases, and plating wastes are some of the waste streams that can be treated readily.

Four broad categories of treatment technologies (physical, chemical, biological, and thermal) are applicable to all waste streams. Physical treatment techniques, generally involving phase separation (e.g., solids from liquids), include:¹⁸ separation techniques such as centrifugation, clarification,

¹⁶ *Alternative Technology for Recycling and Treatment of Hazardous Wastes.*

¹⁷ *Alternative Technology for Recycling and Treatment of Hazardous Wastes.*

¹⁸ *Alternative Technology for Recycling and Treatment of Hazardous Wastes.*

coagulation, decantation, encapsulation, filtration, flocculation, flotation, foaming, sedimentation, thickening, and ultrafiltration; and specific component removal techniques such as adsorption, blending, catalysis, crystallization, dialysis, distillation, electro dialysis, evaporation, magnetic separation, leaching, ion exchange, liquid-liquid extraction, reverse osmosis, stripping, and sand filtration. Some of the physical treatment techniques can be readily used as pretreatment steps (e.g., filtration, sedimentation, etc.) before onsite recycling of wastes and also as a part of better housekeeping practices.

Chemical treatment techniques that use the differences in chemical properties of substances, include:¹⁹ mound adsorption, fixation, oxidation, precipitation, reduction, chlorination, chlorinolysis, cyanide destruction, degradation, detoxification, ion exchange, neutralization, ozonation, and photolysis. Biological treatment techniques include:²⁰ activated sludge digestion, aerobic processes, composting, trickling filtration, and waste stabilization. Biological treatment processes rely on microorganisms (bacteria, fungi, etc.) to decompose and/or bioaccumulate the contaminants in wastes.

As a HAZMIN technique, treatment, unlike source reduction or recycling, has legal (or RCRA) implications. A permit has to be obtained for treatment of hazardous wastes. Only elementary neutralization (e.g., laboratory acids/bases neutralization) and "enclosed" wastewater and other treatment units are exempt from permitting requirements.²¹

HAZMIN Assessment

The HAZMIN assessment procedure and development of the plan (Appendix A) was based on the methods described in *EPA (Environmental Protection Agency) Manual for Waste Minimization Opportunity Assessments*²², and other references.²³ The assessment protocol and survey forms are attached in Appendix B.

Development of a successful HAZMIN program contains four critical phases: planning and organization, assessment, feasibility analysis, and implementation (see Figure 3). Figure 4 indicates the two phases that CERL was involved in. FORSCOM recognized the need for the development of a HAZMIN program and did the initial planning and organization.

The first task in the assessment phase is to gather all the available information pertaining to hazardous materials procurement, waste generation, and operating procedures. Second, the waste streams are prioritized and selected for assessment. Team members are selected and a survey agenda is organized. The next step is the actual survey that includes: interviewing supervisors, foremen, and operators; observing housekeeping practices; inquiring about standard operating procedures; and gathering information about levels of administrative controls. Waste minimization options are then evaluated. The most promising options are selected for detailed evaluation.

In the feasibility analysis phase, the technical and economic feasibility of selected minimization options is evaluated. This phase includes the installation information (Chapter 3) and data gathered

¹⁹ *Alternative Technology for Recycling and Treatment of Hazardous Wastes.*

²⁰ *Alternative Technology for Recycling and Treatment of Hazardous Wastes.*

²¹ 40 CFR 260, *Hazardous Waste Management System: General* (1985).

²² *EPA (Environmental Protection Agency) Manual for Waste Minimization Opportunity Assessments*, EPA/600/2-88-025 (USEPA, Hazardous Waste Engineering Research Laboratory, 1988).

²³ R.H. Hemstreet, "How to Conduct your Waste Minimization Audit," in *Waste Minimization Manual*, (Government Institutes, Inc., Rockville, MD, 1987), pp 61-75; M.E. Resch, "Hazardous Waste Minimization Audits using a Two-Tiered Approach," *Environmental Progress*, Vol 7 (1988), pp 162-166; M. Drabkin, C. Fromm, and H. M. Freeman, "Development of Options for Minimizing Hazardous Waste Generation," *Environmental Progress*, Vol 7 (1988), pp 167-173.

(Chapter 4), waste minimization techniques for the various types of sources and wastes (Chapters 5 to 11), and economic analysis of minimization options for select waste streams (Chapter 12).

Fort Carson should implement the HAZMIN plan according to methodology presented in Chapter 13. Successful implementation of the plan will require command support and commitment. Continuance of the HAZMIN program in the future will require constant evaluation of the goals, reassessment of generators, and developing newer/better procedures for minimizing wastes.

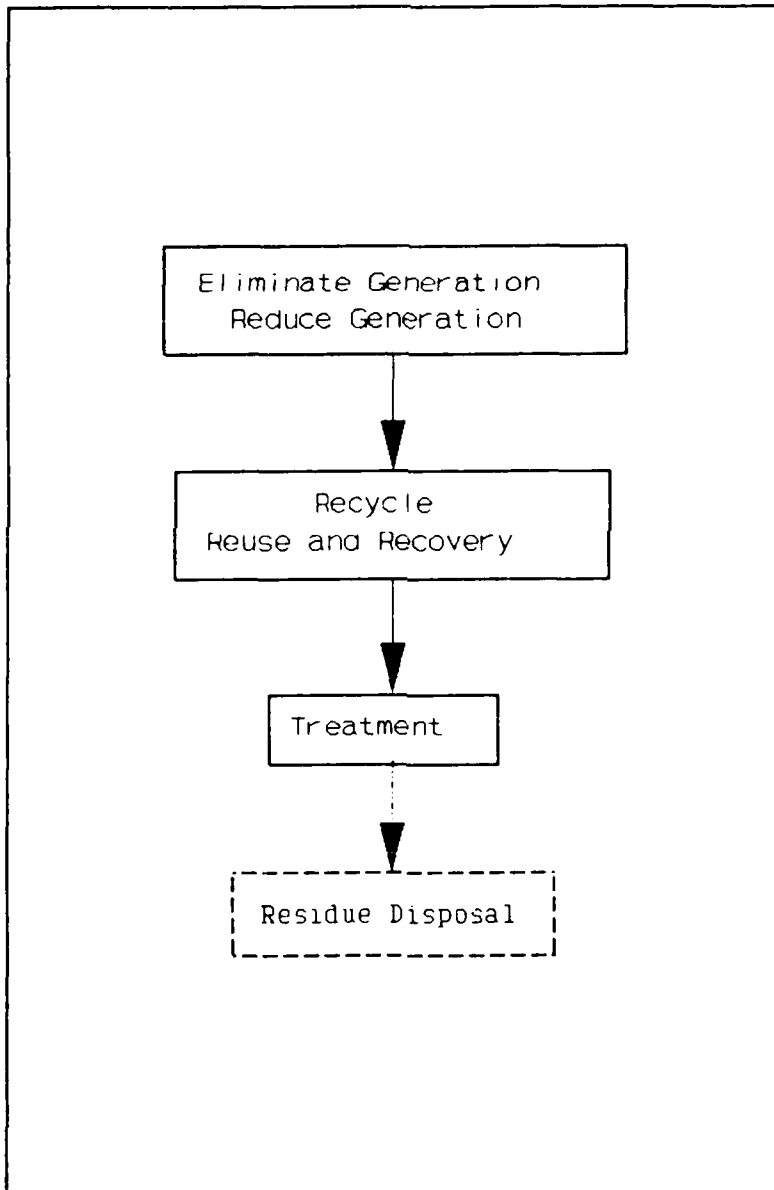


Figure 1. Waste minimization hierarchy.

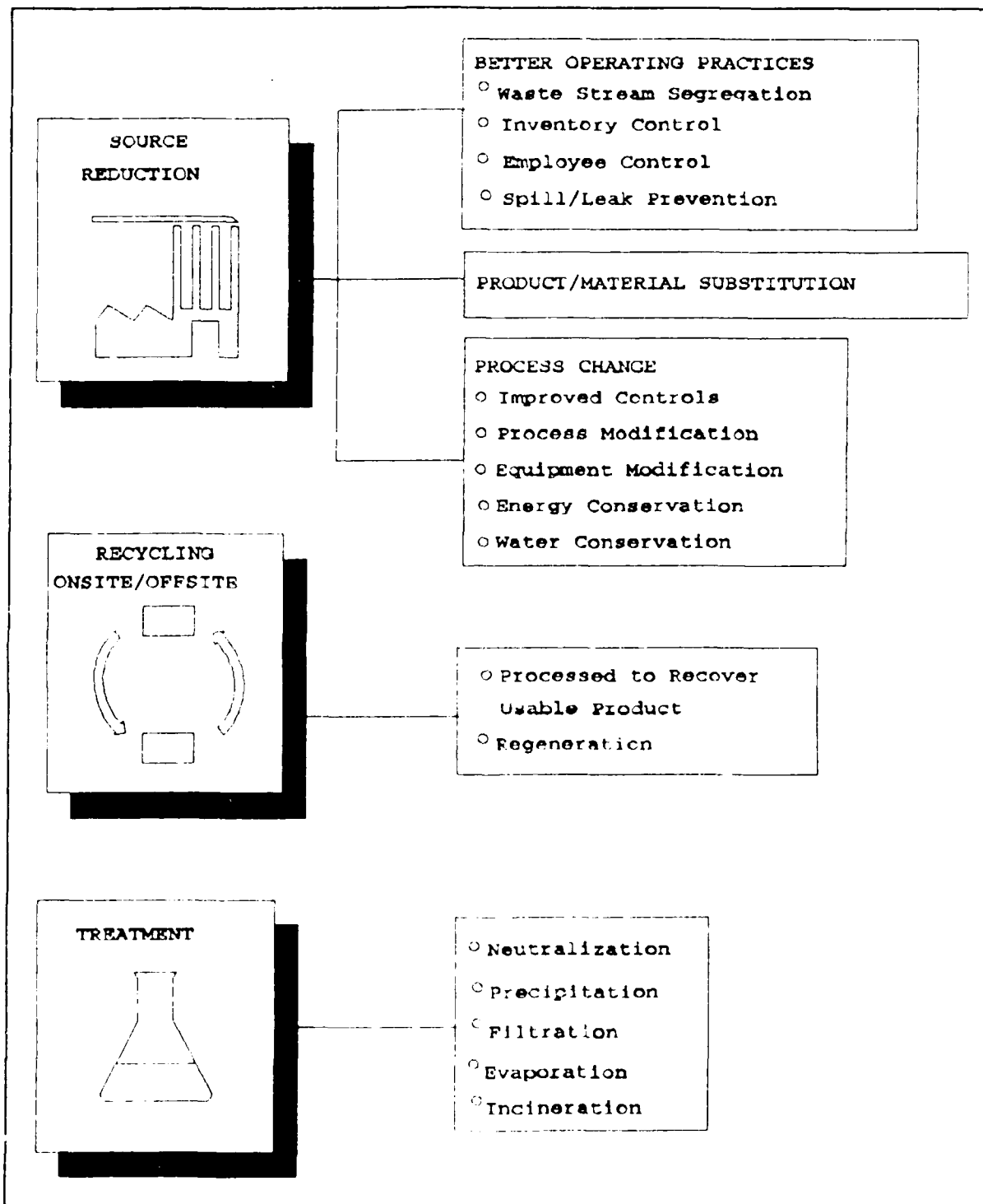


Figure 2. Waste minimization techniques.

Table 1
List of Waste Exchanges

| | | |
|--|---|---|
| <p>Alberta Waste Materials Exchange 4th Floor Terrace Plaza 4445 Calgary Trail South Edmonton, Alberta CANADA T6H 5R7 (403) 450-5461</p> <p>California Waste Exchange Department of Health Services Toxic Substances Control Division 714 P Street Sacramento, CA 95814 (916) 324-1807</p> <p>Canadian Inventory Exchange* 900 Blondin Ste-Adele, Quebec CANADA J0R 1L0 (514) 229-6511</p> <p>Canadian Waste Materials Exchange Ontario Research Foundation Sheridan Park Research Community Mississauga, Ontario CANADA L5K 1B3 (416) 822-4111</p> <p>Enkam Research Corporation* P.O. Box 590 Albany, NY 12202 (518) 436-9684</p> <p>Georgia Waste Exchange* c/o America Resource Recovery P.O. Box 7178, Station A Marietta, GA 30065 (404) 363-3022</p> <p>Great Lakes Regional Waste Exchange 470 Market Street, S.W. Suite 100-A Grand Rapids, MI 49503 (616) 451-8992</p> | <p>Indiana Waste Exchange P.O. Box 1220 Indianapolis, IN 46206 (317) 634-2142</p> <p>Industrial Materials Exchange Service 2200 Churchill Road IUSEPA/SLPC-24 Springfield, IL 62706 (217) 782-0450</p> <p>Industrial Waste Information Exchange New Jersey Chamber of Commerce 5 Commerce Street Newark, NJ 07102 (201) 623-7070</p> <p>Manitoba Waste Exchange c/o Biomass Energy Institute, Inc., 1329 Niakwa Road Winnipeg, Manitoba CANADA R2J 3T4 (204) 257-3891</p> <p>Montana Industrial Waste Exchange Montana Chamber of Commerce P.O. Box 1730 Helena, MT 59624 (406) 442-2405</p> <p>Northeast Industrial Waste Exchange 90 Presidential Plaza, Suite 122 Syracuse, NY 13202 (315) 422-2405</p> <p>Resource Recovery of America** P.O. Box 75283 Tampa, FL 33675-0283 (813) 248-9000</p> | <p>South Waste Exchange Urban Institute UNCC Station Charlotte, NC 28223 (704) 547-2307</p> <p>Southern Waste Information Exchange P.O. Box 6487 Tallahassee, FL 32313 (904) 644-5516</p> <p>Tennessee Waste Exchange Tennessee Manufacturers and Taxpayers Association 226 Capitol Blvd., Suite 800 Nashville, TN 37219 (615) 256-5141</p> <p>Wastelink, Division of Tenecon Associates* P.O. Box 12 Cincinnati, OH 45174 (513) 248-0012</p> <p>Western Waste Exchange ASU Center for Environmental Studies Krause Hall Tempe, AZ 85287 (602) 965-1858</p> <p>Zero Waste Systems** 2928 Poplar Street Oakland, CA 94608 (415) 893-8261</p> |
|--|---|---|

*For-profit information exchange.

**Material waste exchange.

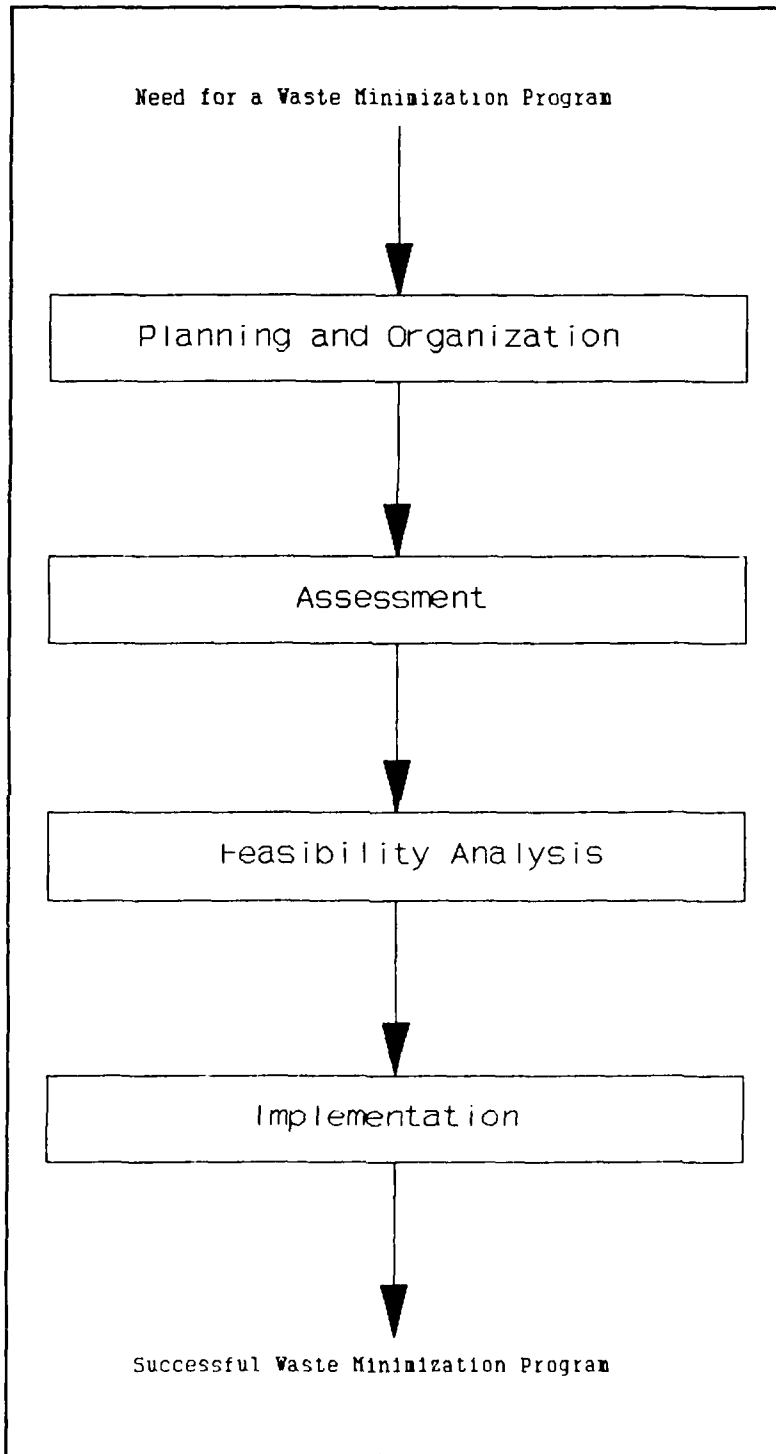


Figure 3. Hazardous waste minimization program development procedure.

ASSESSMENT

- **Prioritize and Select Assessment Targets**
- **Select and Interview Personnel**
- **Collect HM Procurement and HW Generation Data**
- **Survey Site and Review Data**
- **Prioritize Waste Streams and Generate Options**
- **Screen and Select Options for Further Evaluation**

FEASIBILITY ANALYSIS

- **Technical Evaluation**
- **Economic Evaluation**
- **Select Options for Implementation**

Figure 4. Hazardous waste minimization assessment and feasibility analysis procedure.

3 FORT CARSON

History/Geography

Fort Carson, named in honor of Brigadier General Christopher "Kit" Carson, a former frontiersman, is home of the 4th Infantry Division (Mechanized). It is located in eastern Colorado, near Colorado Springs, on rolling plains that border the Rocky Mountains. Military commanders and officials in Washington, DC, chose Colorado Springs as the site of an Army camp on January 6, 1942. The original camp consisted of 60,048 acres of land. Colorado Springs donated 5533 acres, 29,676 acres were purchased from private owners, and 262 acres were purchased from the Department of Interior. The State of Colorado leased 24,577 acres to the Army.

More land was deemed necessary to train a mechanized division. Therefore, an additional 78,741 acres of land was acquired south of the original reservation in 1965 and 1966 from private owners, the State of Colorado, the Colorado School of Mines, and the Department of Interior. With those additions, the total area amounted to the current size of 138,789 acres.

Because of the immediate need for a place to train soldiers, round-the-clock construction at Camp Carson began in early 1942. To avoid grading, the camp was built to conform to the shape of the land, thus providing it with a "banana" belt look. Facilities were built for 35,173 enlisted men, 1818 officers, and 592 nurses. A semipermanent hospital with space for 1726 beds, a prisoner of war internment camp, and barns to house horses and mules were also built.

During World War II (WW II), about 104,165 soldiers were trained at Camp Carson. Three infantry divisions (71st, 104th, and 10th Mountain) and more than 125 other units were activated. Additionally, more than 100 units were transferred from other installations to train at this mountain post. Use of mules in the Army stopped in 1956 and the associated Field Artillery Battalion (pack) was deactivated when helicopters arrived. The 10th Mountain Division was formed and trained at Camp Hale (20 miles west of Leadville, CO) to move weapons over mountainous terrain in any kind of weather. This division was deactivated in 1946 and a Mountain Cold Weather Training Detachment was created and then transferred to Fort Greeley, Alaska, in 1957. In 1965, the Army traded Camp Hale to acquire land on Fort Carson's southern border.

A prisoner of war internment camp was opened in 1943; approximately 9000 German, Italian, and Japanese prisoners of war were interned. These prisoners were repatriated following the end of the war.

The strength of the post after WW II dropped drastically, to only 600 personnel and 320 patients by April 4, 1946. Many units were deactivated and Camp Carson was ready for closure. However, with the advent of military activity in Korea, many reserve units were called for active duty. A Camp Carson Separation Center was established in 1951 to separate Korean Conflict veterans from the service; approximately 100,000 soldiers were processed there. Camp Carson became Fort Carson in 1954. The Cuban Missile Crisis and the Berlin Blockade lead to the activation of the 5th Infantry Division at Fort Carson.

During the Vietnam Conflict (1965 to 1968), approximately 29,000 soldiers in 61 units were trained at Fort Carson and transferred to Vietnam. By July 1967, the number of military personnel and civilians rose to 24,735 and 2445, respectively. Following the conflict, cutbacks were ordered and the number of military personnel dropped to 20,400 while civilian strength rose to 2860 and has remained relatively stable since 1973. The 4th Infantry Division was ordered to locate at Fort Carson in 1970.

In 1974, an additional 245,000 acres of land was acquired at Piñon Canyon, 100 miles southeast of Fort Carson. The Piñon Canyon Maneuver Site was opened for training in 1985. Each brigade of the 4th Infantry Division trains at Piñon Canyon before training at the National Training Center at Fort Irwin, CA. A number of permanent buildings (including the Evans U.S. Army Community Hospital) were constructed at Fort Carson to replace the WW II structures.

Since deployment of the 4th Infantry Division at Fort Carson, it was reorganized into its current form of a mechanized infantry division with the nickname "The Ironhorse Division." It has three maneuver brigades, a combat aviation brigade, four field artillery battalions, and many combat support and combat service support units. This "Ivy" division, as it is also known, has a long history of successful participation in several wars. It is a training division that is a combat-ready "fire brigade" ready to quell aggression wherever and whenever required.

Tenants

The tenants at Fort Carson that generate, handle, or dispose of hazardous materials/waste are:

1. U.S. Army Medical Department Activity (MEDDAC),
2. U.S. Army Dental Activity (DENTAC), and
3. Defense Reutilization and Marketing Office.

Other tenants also located at Fort Carson are: 902nd Military Intelligence (MI) group, Logistics Assistance Office (LAO), U.S. Army Criminal Investigation Command (USACIC), U.S. Army Legal Service Agency, Maintenance Assistance and Instruction Team (MAIT) No. 20, Air Force Air Weather Service Unit, U.S. Army Commissary, U.S. Army Calibration, U.S. Army Audit Agency, U.S. Army Reserve 3rd Battalion 87th Infantry, and Naval Reserve Center.

Environmental Programs

This section provides a description of the status of environmental quality as affected by the number of pollution sources at Fort Carson. The information has been extracted from an *Environmental Operations Review*²⁴ conducted by AEHA, other assessments,²⁵ discussion with the Environment, Energy, and Natural (EENR) Office personnel, and the survey conducted during the course of this study.

Air Pollution Control

Fort Carson is required to comply with Federal Clean Air Act Amendments of 1977 and Colorado Air Quality Control Act regulations. These regulations are enforced by the Air Pollution

²⁴ *Environmental Operations Review - 4th Infantry Division (Mechanized) and Fort Carson, Colorado Springs, CO*, Study No. 37-26-1385-87, (U.S. Army Environmental Hygiene Agency, August 1986).

²⁵ B.N. McMaster, J.D. Bonds, L.C. Carter, W.G. Fraser, J.B. Holly, E.A. Knauff, J.B. Sosebee, J.H. Wiese, and K.A. Civitarese, *Installation Assessment of the Headquarters, Fort Carson and 4th Infantry Division (Mechanized), Fort Carson, Colo., and its Subinstallations Headquarters, Fort Douglas and U.S. Army Support Detachment, Fort Douglas, Utah, and Headquarters, Fort Missoula, Fort Missoula, Mont.*, Report No. DRXTH-AS-IA-82330 (Prepared for the Commander, Headquarters, Fort Carson and 4th Infantry Division (Mechanized), Fort Carson, CO, and U.S. Army Toxic and Hazardous Materials Agency, Aberdeen Proving Ground, MD, 1983); *Multimedia Inspection Nov. 30 - Dec. 7 1987; Fort Carson, Colorado; Final Inspection Report* (U.S. Environmental Protection Agency, Region VIII, Denver, Colorado, 1988).

Control Division (APCD) of the Colorado Department of Health and the El Paso County Health Department. Fort Carson and Piñon Canyon are located in the San Isabel Intrastate Air Quality Control Region (AQCR) (Colorado AQCR Nos. 4 and 7). AQCR 4, which encompasses most of Fort Carson, has been classified as "better than National Ambient Air Quality Standard (NAAQS)" for sulfur dioxide (SO₂), "cannot be classified or better than NAAQS" for ozone (O₃) and nitrogen oxide (NO_x), and "does not meet primary NAAQS" for carbon monoxide (CO), total suspended particulates (TSP), and particulate matter less than 10 microns (PM10). AQCR 7, which includes the southern portion of Fort Carson and Piñon Canyon has been classified as "better than NAAQS" for SO₂, TSP, and PM10; and "cannot be classified or better than NAAQS" for O₃, CO, and NO_x.

The EENR at Fort Carson maintains a listing of all the air pollution sources. Stationary sources of air pollution include: boilers/minor combustion sources, incinerators, open burning/open detonation (OB/OD), fuel storage/dispensing, painting, metal cleaning, and miscellaneous (woodworking, building demolition, training exercises, construction/land development projects, etc.) operations. In addition, there are a number of mobile sources (tactical and nontactical vehicles, aircraft, etc.) of emissions that are maintained in compliance through an inspection and maintenance program, a transportation control plan, and a smoking vehicle program.

A majority of Fort Carson's boilers/minor combustion sources, located throughout the post, are exempt from Colorado permitting requirements based on size and/or date of installation. They have all been in compliance with Colorado standards for visible emissions. The permits required have been obtained and updated for installation and modification of boilers in buildings 1860, 6290, 633, 635, and 636; the industrial wastewater treatment plant (IWTP) steam sludge heater; boilers at some of the vehicle and aircraft maintenance facilities; and several boilers at Piñon Canyon.

Only "specification used oil" is occasionally burned in one of the three natural gas/No. 6 fuel oil-fired, high temperature boilers at the Central High Temperature Hot Water Plant (Bldg 1860). The current air emissions permit for these boilers limits the quantities of fuel oil burned annually to 137,000 lb and the sulfur content of the backup fuel to 0.5 percent. The visible emissions must be limited to 0.5 percent. Burning of used or waste oil is not addressed in the permit (although the boiler may qualify as a utility boiler), and may be illegal.

Three stationary engine test cells located in the DOL industrial maintenance shop (Bldg 8000) are used to test engines from wheeled and tracked vehicles. Emissions of less than 5 tons/yr from these cells are exhausted to the atmosphere. Although exempt from permit requirements, filing of an APEN is probably required.

A new pathological incinerator (Consumat Model C-75P rated at 200 lb/hr) was purchased in 1986 to replace the old one (Shenandoah Model G-71/JTC) located in the veterinary clinic (Bldg 6000). Its operation is in compliance with the APCD regulations. In the past, solvents were illegally burned at a firefighter training pit at the Butts Army Air Field. That practice has been stopped and a RCRA (Part B) permit has been obtained for open burning/open detonation of ordnance at Ranges 1, 1A, 121, and 123. A permit is required for open burning of building structures at Piñon Canyon.

The vehicle paint booth in Bldg 8000 was modified in the mid-1980's to accommodate Chemical Agent Resistant Coating (CARC) painting operations. CARC paints contain hexamethylene diisocyanate (HDI) and a number of other methyl isocyanates that are moderately to highly toxic air pollutants. Two other paint booths are located in the autocraft shop (Bldg 2427) and a fourth one is located at the training aids fabrication center (Bldg 6054). The potential of toxic emissions exists from all these booths.

A number of large fuel storage tanks are located throughout Fort Carson. Most of them require permits. However, none of them are regulated as sources of volatile organic carbon (VOC) emissions. A major source of VOC emissions is the vapor degreaser, in Bldg 8000, which is exempt from permitting requirements based on the date of installation. Degreasers containing 1,1,1-trichloroethane are specifically exempt from Colorado VOC regulations since 1,1,1-trichloroethane is considered a "low toxicity air contaminant," and because Fort Carson is in an O₃ attainment area.

Woodworking operations (Bldg 2426 and 210) generate very small quantities of emissions and therefore do not require a permit. There are, however, a number of sources of fugitive dust (e.g., unpaved roads, coal piles, etc.) for which permits have been obtained and a particulate control plan has been developed.

Fort Carson has a number of WW II era buildings that have asbestos insulation. Friable asbestos is being removed or encapsulated in all the buildings that are in use or in the ones that are burned. A proper asbestos management plan has been developed and implemented.²⁶

Emissions testing, instrumentation, and mechanic certification are commonly conducted at the Adjustment, Inspection, and Realignment stations. Vehicles built before 1968 and all emergency response vehicles are routinely tested for emissions. Emissions testing may also be required for privately owned vehicles in the future.

Fort Carson does not have an air pollution emergency episode plan. However, it has an excellent ambient air quality monitoring network for both the main post and Piñon Canyon which must be fully developed and maintained. A comprehensive review of all the sources of toxic emissions should also be conducted to comply with the forthcoming amendments to the Clean Air Act and changes in the State of Colorado VOC and air pollution regulations.

Water Pollution Control

Fort Carson purchases water from the city of Colorado Springs. No contingency/emergency plan exists to cope with a possible shortage of potable water. Although the water distribution system dates back to the early 1940's, no significant problems have been noted. A regular monitoring, inspection, and maintenance program, however, is lacking. The back-flow prevention and cathodic protection systems must be inspected and maintained.

A sanitary wastewater treatment plant (WWTP) at Fort Carson, that was designed in the 1940's and slightly modified in the 1980's, has a capacity of 3 to 4 million gallons per day (MGD). In addition to the municipal wastewaters, the sewer system receives influent from the industrial wastewater treatment plant (IWTP) and from the laundry, photographic shop, painting shops, boiler plants, vehicle wash racks with oil/water separators, and other minor industrial sources. The capacity is exceeded every other day and flows of 6 to 7 MGD are generated at the head of the plant when there are major storms. An increase in waste load, cold weather over an extended period of time, and more stringent discharge standards may cause a noncompliance with the National Pollutant Discharge Elimination System (NPDES) permit.

An IWTP was designed in 1981 as an integral part of the centralized vehicle washrack and consisted of sedimentation, oil skimming, biological (aerobic) treatment, chemical addition, flocculation, and multimedia filtration. Because of problems with filtration system capacity, operation of the facility

²⁶ *Fort Carson Asbestos Control Program - Asbestos Management Plan, Draft Report* (Directorate of Engineering and Housing, Fort Carson, Colorado Springs, CO, 16 February 1989).

was halted. A system redesign has not yet been completed. In the meantime, wastewater from the collection system (lift stations and gravity flow sewers) and the "birdbaths" flows into an equalization pond and is then pumped to the two surface aerated biological ponds. The overflow bypasses the remaining IWTP and flows into the WWTP.

Both the Spill Prevention Control and Countermeasures Plan (SPCCP) and the Installation Spill Contingency Plan (ISCP) are currently being updated.

Solid Waste Management

Fort Carson has more than 600 dumpsters located throughout the post for collection of solid waste. A contractor collects the trash from all the dumpsters and transports it to a landfill onpost. No waste is transported offpost. The major generators are the mess and dining facilities, and the commissary; followed by the billeting and family housing areas. The dumpsters are not washed regularly.

Only one landfill (260 acres) is currently active and being operated by General Electric (GE) contractor personnel. It has been in operation since 1978 and is regulated by the Colorado Department of Health and the El Paso County Health Department according to the Colorado Solid Waste Regulations. The landfill has 5 water quality monitoring wells to record the depth and condition of the groundwater around the landfill. Groundwater is monitored for leaching of pollutants.

Although a standing operating procedure (SOP) exists and the landfill is inspected monthly by EENR personnel, several violations have been noted in previous studies. Access to the landfill is not limited and illegal dumping is prevalent. A barrier must be built to secure the facility.

A grit/oil pit is located in a 1/2-acre lagoon near the active landfill. This pit contains grit from the installation's oil/water separators and grit interceptors. In the Environmental Operations Review (EOR) study,²⁷ a number of other wastes such as aerosol cans, empty drums, and typical vehicle maintenance wastes were also observed in the pit. Presence of HW (e.g., solvents) in the pit makes it an illegal HW disposal facility and Fort Carson is most probably in violation of HW regulations. Additionally, the site has a very high potential for groundwater contamination.

The inactive landfills (No. 2, 5, and 6) are also potential sources of groundwater contamination. Monitoring of groundwater beneath these landfills is also necessary. AEHA conducted a hydrogeologic investigation of these sites in 1988 and recommended expansion of the existing landfill (No. 1) by 114 acres. Some of the corrective actions required for the other landfills include: improving the landfill cover, revegetation of the surfaces, and cleanup of groundwater when required.

A solid waste recycling program has been developed and is successful in segregating paper products, brass, and other metallic products. Aluminum is not recycled.

Hazardous Materials and Waste Management

The USEPA has authorized the State of Colorado to operate its own HW management program. Therefore, HW generators such as Fort Carson are regulated by Colorado HW regulations 5 CCR, parts 2, 99, 100, and 260 through 267,²⁸ which are very similar to Federal HW regulations.²⁹ Fort Carson

²⁷ *Environmental Operations Review.*

²⁸ *Title 5, Code of Colorado Regulations (CCR), Parts 2, 99, 100, 260-267, 1985.*

is classified as a "generator," and as owner and operator of a HW Treatment, Storage, or Disposal Facility (TSDF).

A HW storage facility (Building 9248) is currently authorized to operate under interim status regulations, awaiting approval of a Part B permit. It was originally an ammunition storage bunker that has been refurbished to accommodate different types of wastes (ignitable, corrosive, reactive, toxic, etc.). The facility is in compliance with all the general facility standards and specific requirements for the use and management of containers.

At one time, there were 4 OB/OD sites (Ranges 1, 1A, 121, and 123) used for burning and detonation of small arms ammunition and other reactive wastes. An application has been made to include Ranges 1 and 121 on the Fort Carson's Part A HW TSDF permit to maintain compliance with specific standards for thermal treatment facilities. The other two ranges have been closed. AEHA has conducted a detailed study³⁰ of the OB/OD ranges and made detailed recommendations for proper operation and compliance with regulatory requirements.

Use of the grit/oil pit, next to Landfill 1, for disposal of the wastes from the oil-water separators is not a good practice. It is also used for illegal dumping by some of the troop units. When tested in 1987, the waste was found to be nonhazardous. The disposal practice continues, while awaiting the construction of a drying bed. The construction was requested in 1987 and has yet to begin.

The open burning of solvents and oils mixed with contaminated fuel at the Butts Army Airfield's Fire Training Pit used to be commonplace. Such a practice would constitute illegal hazardous waste treatment. However, only contaminated fuel is used for fire training and it is constantly monitored for halogen content.

The Commander has the overall responsibility for proper maintenance and operation of the HW management program and is the "owner" of the above TSDF. DRMO, an installation tenant, operates the HW storage facility. The EENR office is assigned the responsibility of maintaining the HW management program and, therefore, shares some of the responsibility for proper operation of the storage facility.

Fort Carson is in complete compliance with generator requirements such as obtaining an EPA identification number (#CO 2210020150); establishing a sampling and analysis program; providing for accumulation, packaging, labeling, and marking; placarding of vehicles used for transportation; submission of annual reports and exception reports; and recordkeeping.

Fort Carson has a good HW management program. An HW inventory was developed in accordance with Army Regulation (AR) 420-47; however, it is not comprehensive and should be updated. A training program was established, in 1988 by EENR to train personnel from each unit. It concentrates on petroleum, oils, and lubricants (POL) management and should be updated to include proper HW management (including packaging, labeling, storage, transport, etc.) and minimization. An HW management plan was written in early 1980 and revised in 1984. It includes forming a hazardous waste management board (HWMB) from the original Environmental Quality Control Committee that used to discuss all forms of environment protection. It also identifies all individual generators, and

²⁹ Title 40, Code of Federal Regulations (CFR), Parts 260-266, 270-271, 1985; 40 CFR, Part 761, 1986; 49 CFR, Part 171-173, 178-179, 1985.

³⁰ Investigation of Soil Contamination at the Open-Burning/Open-Detonation Grounds, Hazardous Waste Study No. 37-26-0552-86 (U.S. Army Environmental Hygiene Agency, Aberdeen Proving Ground, Maryland, 1986).

provides guidance for handling, management, and proper disposal of HW. A contractor is revising the plan.

Fort Carson needs to establish a detailed inventory of wastes generated by all the units (including generation rates) and a tracking program for all the major HWs. The management of hazardous materials (HM) always has a direct impact on generation and management of HWs. A proper HM management program should be established. This program should include flagging of incoming materials, tracking of materials to their users, proper inventory of materials used, and their use rates. HMs must not be stored in unlabeled drums, and unused materials must be turned in for resale or disposal.

A number of underground storage tanks (USTs) are located throughout Fort Carson. All of them have been located. USEPA has been notified. A program of leak testing and remediation of leaking underground storage tanks is currently underway.

Some of the specific HWs and their management practices at the unit level will be discussed below. Additional discussion of wastes generated and materials used at Fort Carson is in Chapter 4. Used oil, unserviceable lead-acid batteries/battery acid, painting wastes, oil analysis wastes, vehicle radiator cleaning wastes, engine coolant, and PCB transformers/oils are the major wastes at Fort Carson.

Used/Waste Oil. Used oil is generated in a large quantity by all the vehicle and aircraft maintenance activities. Fort Carson has a used oil treatment (energy recovery) program. A contractor collects the used oil from all the above ground and underground storage tanks and transports it to a tank farm located near Building 1860 where it is burned in one of the boilers. Only "specification" used oil can be burned in the boiler.

A major problem with the used oil at Fort Carson is that it becomes a HW because of poor management practices. Used solvents and other HW are mixed with the used oil at many of the activities. This practice creates large quantities of "hazardous" waste oil. Proper segregation of the wastes can alleviate this problem. Because there are stringent regulatory requirements concerning types of boilers, generators, and burners of HW fuel, proper testing is required before burning. A monitoring program, using colorimetric CLOR-D-TECT³¹ kits, has been established to test used oil for chlorinated solvents. Used oil that tests positive for halogenated contamination with the use of CLOR-D-TECT kits are sent to a private laboratory for complete analysis of flashpoint, halogens, heavy metals, and sulfur content. Complete laboratory analyses are also performed prior to the transfer of used oil from oil-water separators at Building 1399 to 40,000 gallon storage tanks at Building 1860.

Segregation and proper management of used oil definitely reduces the quantity of hazardous waste generated. It can result in a major savings in disposal costs and would result in used oil suitable for offsite recycling, sale, or disposal to oil recyclers/rerefiners or any other commercial TSDF.

Lead-Acid Batteries/Electrolyte. Vehicle maintenance activities generate a large number of unserviceable lead-acid batteries. At one time, there were three battery neutralization shops (Bldgs 8000, 8030, and 8142) at Fort Carson. Currently, all batteries are drained and the acid neutralized at the DOL Battery Shop (Bldg 8000). The neutralized acid is released into the industrial waste treatment system; the drained batteries are strapped to wooden pallets and turned in to DRMO. The battery casings are sent to the Department of Energy, Idaho Falls, ID, office for recycling.

³¹ CLOR-D-TECT is a trade mark of the Dexsil Corporation [1 Hamden Park Drive, Hamden, CT 06517; (203) 288-3509]. CLOR-D-TECT 1000 is a go-no-go kit for determining if used oil is contaminated with chlorinated solvents. CLOR-D-TECT Q4000 is a quantitative test for determination of chloride (0 to 4000 ppm) in used oil.

A number of operational problems were discovered at the shops; some have yet to be corrected. In Bldg 8000, the air exchange rate in the battery charging area has been increased and the pH meter repaired. However, the battery shop in Bldg 8030 (belonging to 204th Maint. Bn.) has been shut down with work orders pending for repairs. It is currently only a turn-in point. The battery shop in Bldg 8142, which is part of 183rd Maint. Co., was shut down because of plumbing problems with the neutralization sump, poor air exchange rate, and other ventilation problems. While a work order for repairs is pending, the electrolyte is drained and collected in 55-gal drums and transported to Bldg 8000 for neutralization. Once the repairs are completed, neutralization might resume at the two shops.

The acid is likely to be EP toxic for lead (which must be verified by testing). Therefore, the practice of neutralization and draining into the sewer may be illegal. This practice should be stopped and a proper treatment permit obtained before continuing to neutralize. The sump sediment (consisting of gravel and sludge) must also be tested frequently.

According to Federal and State Regulations, used lead-acid batteries (wet or dry) which are reclaimed are exempt from classification as a HW and, therefore, from requirements for storage, manifesting, and notification. Fort Carson does not have to include the weight of batteries in HW generation rate calculations. Not draining the batteries is the best alternative to current practice which generates a corrosive waste.

Painting Wastes. Two large painting booths in the DOL Consolidated Maintenance Building (Bldg 8000) are used for vehicle painting operations. Smaller paint booths are located in two other buildings, and small-scale painting operations are conducted throughout Fort Carson. Spent paint thinners, paint-contaminated coveralls, empty paint cans, partially full cans of paint, paint booth filters, and grinding residue from paint removal wastes are accumulated and turned in to DRMO for disposal as HW. Empty paint cans and grinding residue with dried paint can be treated as a solid waste and disposed of in the Fort Carson landfill. The filters must be turned in to DRMO if they contain heavy-metal-based paint particles. If not, they can also be treated as solid waste.

Hand sanding and grinding operations are commonly conducted in Bldg 8000. Large quantities of sanding/grinding residue accumulate on the walls and other surfaces. This residue is collected and disposed of as solid waste. Occasionally, it is tested to determine the heavy metal content. The recent installation of a new centralized sand-vacuum system, and the eventual installation of a grind-vacuum system, will alleviate the waste generation problem, reduce air pollution, and hasten the residue collection/disposal.

Oil Analysis Wastes. An oil analysis laboratory in Bldg 8000 is operated by a contractor for analysis of used engine oil under the Army Oil Analysis Program (AOAP). A single mixed waste stream, consisting of heptane, 2,2-butyliminodiethanol, isopropanol, 1,1,1-trichloroethane, and oil was continuously generated in the laboratory. This mixture was then poured into the large underground storage tank containing used oil from other vehicle maintenance operations in Bldg 8000 creating "hazardous" waste oil. Further mixing of this oil with the rest of the installation's used oil generated very large quantities of waste oil which had to be disposed of at a very high price. Segregating the oil analysis wastes into: (1) unused oil samples - which can be mixed with other used oil; (2) oil mixed with heptane, 2,2-butyliminodiethanol - that may be "hazardous" because of ignitability; and (3) oil mixed with 1,1,1-trichloroethane - a listed (F001) HW; is a key to minimizing the amount of waste oil generated.

Radiator Cleaning Wastes. A large hot caustic wash tank for cleaning radiators is located in the DOL Radiator Repair Shop (Bldg 8000). A solution of sodium hydroxide and water is used. This solution is periodically discharged into the sewer system. A testing and monitoring program must be

established to comply with regulations. The wastewater could be corrosive and EP toxic for heavy metals. If EP toxic, it has to be handled as a HW.

A second tank in Bldg 250 belongs to the DPCA's Auto Crafts shop but has never been used.

Used Engine Coolant. The vehicle maintenance activities generate large quantities of used engine coolant. This antifreeze solution (50 percent mixture of ethylene glycol and water) is not a hazardous waste. It could be, and some of it is, discharged into the sewer. However, it is a good practice to collect it and recycle it onsite or through an offsite recycling contractor because of the increase in price (\$4 to \$8/gal) of new antifreeze.

PCB Management: GE's Exterior Electric Shop has compiled a comprehensive inventory of PCB transformers on Fort Carson. Included in the inventory are PCB concentrations for all the transformers in service. PCB transformers (> 50 parts per billion [ppb] and < 60,000 parts per million [ppm] of PCB) are inspected at least once a year and allowed to continue in operation till they fail. When they cannot be used anymore, they are disposed of as a HW. The oil is drained out of the out-of-service non-PCB transformers and the metal sold as scrap.

A rudimentary HAZMIN program has been started as part of the Used Solvent Elimination (USE) program at Fort Carson. A closed-loop contract recycling service (Safety-Kleen) is used to supply cleaning solvent (petroleum naphtha) to most of the vehicle maintenance facilities. However, a hazardous (ignitable) solvent (flash point 105 °F) is being used. It should be replaced with a less hazardous solvent (flash point > 140 °F). The following HAZMIN elements were identified in the 1986 EOR:³² (1) comprehensive HW inventory; (2) accurate HW identification; (3) segregation of HW and nonhazardous waste; (4) USE and HAZMIN program interface; (5) substitution of nonhazardous materials for hazardous materials; (6) inventory control of hazardous materials purchased; and (7) onsite treatment only under the elementary neutralization permitting³³ exclusion.

The above AEHA recommendations are further emphasized throughout this report. Other recommendations are made in Chapter 13 and in the HAZMIN plan (Appendix A).

Pesticide/Pest Management

Fort Carson has a good comprehensive pest management program and a plan for pesticide management has been prepared. Additional details and recommendations are available in the EOR.

³² *Environmental Operations Review.*

³³ 40 CFR 260, *Hazardous Waste Management System: General*, 1985.

4 SOURCES OF WASTE GENERATION AND TYPES OF WASTES

FORSCOM Installations

FORSCOM installations are generally administrative, hospital/medical, or active troop installations. Various quantities of hazardous wastes are generated at these installations depending on their respective missions. For comparison, Table 2 shows the quantities of hazardous waste generated at 22 installations.³⁴ Fort Carson generated 41, 32, and 31 tons in 1985, 1986 and 1987, respectively, as reported in the survey and in their annual *Defense Environmental Status Reports*. These are wastes that were turned in to the DRMO for proper disposal; the numbers do not reflect quantities of: waste oil that is being recycled for heat recovery; acid drained and neutralized from lead-acid batteries; burning of gasoline, aviation fuel, at the fire training area; contaminated water treated at the wastewater treatment plant; hazardous air emissions; etc.

Table 2 does not show the actual quantities of wastes generated at Fort Carson. The data presented in this chapter were obtained from a survey of the various generators, offsite shipping manifests, and IDMS³⁵ data. An analysis of the data indicates that the average waste (including hazardous and nonhazardous) generation rate is 3,233,467 lb/yr (1621 tons/yr) not including PCB-contaminated equipment. Almost half of it consists of lead-acid battery casings, medical infectious waste, and boiler blowdown. Only 441 metric tons/yr of hazardous or "potentially" hazardous wastes are generated.

Source Types

Many different source types generate hazardous wastes. It is necessary to understand each of the source types and the wastes generated before attempting to minimize the total quantities generated.

Fort Carson is an active troop installation with few tenants. There are a number of major waste streams and small quantities of many different types of miscellaneous wastes. The approach of assessing each generator of wastes was used in the development of the HAZMIN plan. The first step, therefore, was to identify and prioritize all the generators on the installation. Next, each generator was considered in order of decreasing importance for characterization of waste streams generated. The most important waste streams were then studied to determine the minimization options and their technical feasibility.

Three different criteria were used to determine the ranking of the different types of sources. The first is the number of such sources on an installation, which can vary depending on the installation's mission. The second is the numbers and quantities of waste streams generated at each type of source, which is generally known or can be estimated. And the third is the minimization potential (including provision for cost of managing wastes) for the wastes for each type of source, which is important in developing a feasible waste minimization plan. Based on the above criteria, each source type was scored on a scale of 1 to 5. The ranking of sources, shown in Table 3, is in decreasing order of the total scores. Each source type is discussed in the same order below.

³⁴ V.J. Ciccone & Associates, Inc., p C-4.

³⁵ IDMS Database, Defense Reutilization and Marketing Service, Defense Logistics Agency, Battle Creek, Michigan.

Motor Pools and Vehicle Maintenance Facilities (MPVM)

FORSCOM installations typically have a variety of motor pools and vehicle maintenance facilities for tactical and nontactical vehicles. Nontactical vehicle motor pools are used to service and maintain all the administrative vehicles (e.g., cars, vans, trucks, etc.), engineering maintenance vehicles (e.g., trucks, bulldozers, forklifts, etc.) and grounds maintenance vehicles (e.g., tractors, mowers, etc.) on the installation. Servicing and maintenance of tactical vehicles is performed at various troop and tactical vehicle motor pools. Tactical vehicles can be divided into track-laying vehicles (e.g., self-propelled howitzers, guns, mortars, armored personnel carriers, etc.) and wheeled vehicles (e.g., cargo trucks, ambulances, truck tractors, wreckers, etc.). Fort Carson has a number of motor pools and vehicle maintenance (MVPM) facilities as shown in Table 4.

Various levels of services are performed on the vehicles at each of the motor pools and vehicle maintenance facilities. Included in the services are: periodic maintenance (e.g., fluids change, tuneup, etc.), transmission maintenance, engine repair, brake servicing, battery repair/servicing, front-end alignment, and unique repairs (as required, for different tactical vehicles). The typical repair operations that use hazardous materials and generate hazardous wastes are: oil and grease removal, engine parts and equipment cleaning, solution replacement, and paint stripping and painting (discussed later under *Paint Shops*). Among the equipment commonly used at motor pools and vehicle maintenance facilities are: solvent sinks (parts cleaning), hot tanks (for engine and radiator cleaning), and spray equipment.

Some general categories of hazardous materials used at motor pools and vehicle maintenance facilities are: batteries, oils, petroleum distillates, mineral spirits, varzol, halogenated solvents, aromatic hydrocarbons, oxygenated hydrocarbons, mixtures, acids, and alkalis. A variety of nonhazardous materials (e.g., sorbent, rags, etc.) are used in conjunction with these hazardous materials and also generate hazardous wastes.

Each motor pool generates different quantities of wastes (Table 5). For comparison, some of the hazardous and nonhazardous materials used that lead to the generation of wastes are listed in Table 6. The blanks in these tables (and similar tables throughout this report) do not represent zero generation, but rather that the data was not available.

MPVM #9 [2nd Battalion 77th Armor (HIIC, A, B, C, and D Companies), Bldg 2492] is the largest volume generator of the MPVMs on Fort Carson. Ninety two-track and 78 wheeled vehicles are repaired and maintained there. It has 5 Safety Kleen solvent tanks and generates 100,800 lb/yr of used oil, which accounts for 73 percent of its wastes. This amount is 16 percent of the total used oil (635,507 lb/yr) generated throughout the fort. MPVMs #12 and #13 [5th Bn 29th Field Artillery (HHB, A, B, C, and Service Batteries), Bldg 1682 and 1368; and 3rd Bn 29 Field Artillery (HB, A, B, C, and Service Batteries), Bldg 1392] are attached to Division Artillery (DIVARTY). They are the second and third largest generators, respectively. Antifreeze solution is generated in the largest quantities (73,920 lb/yr or 63 percent) and (68,640 lb/yr or 59 percent), respectively, followed by other wastes. They have 3 and 5 solvent tanks each. Approximately 200 vehicles (70 tracked and 130 wheeled) are serviced at MPVM #12. Four waste and 1 POL storage areas are located at the MPVM. Some operational problems concerning recycling and oil segregation have been reported. Used lead-acid batteries are directly exchanged for new ones at this and most other MPVMs. MPVM #5 [2nd Bn 8th Inf (HC, A, B, C, D, and E Companies), Bldg 1982] is the fourth largest generator that also has 5 solvent tanks. Used oil accounts for 49 percent (49,000 lb/yr), lead-acid batteries, 15 percent (15,000 lb/yr), and sorbent wastes, 13 percent (13,000 lb/yr) of the wastes.

MPVM #26 [4th Engineering Bn (HC, A, B, C, D, and E Companies), Bldg 9072] is ranked fifth among MPVMs. It has 4 solvent tanks. Approximately 43 percent (41,250 lb/yr) and 33 percent (31,500 lb/yr) of its wastes consist of batteries and used oil, respectively. The 204th and 704th Support Bns (both direct support Command [DISCOM] units) are the direct support units for MPVM #26. Many engineering and construction vehicles (e.g., combat engineering vehicle, armored vehicle launcher bridge, etc.) are maintained here. There are two 800-gal underground storage tanks, located outside the maintenance bays, for storage of waste oil. Small scale painting activities (brush painting) are also conducted at this MPVM. CARC and architectural paints are used. No significant wastes are generated from the painting activities.

MPVM #6 [4th Bn 68th Armor (HHC, A, B, C, and D Companies), Bldg 1882] is the sixth largest generator. It has 5 solvent tanks and generates 25,200 lb/yr (33 percent) of used oil, 18,000 lb/yr (23 percent) of batteries, and 10,560 lb/yr (14 percent) of caustic wash. It is one of the newer motor pools where 100 tracked and 60 wheeled vehicles are maintained. Many different types of chemical coatings are applied on vehicles.

MPVMs #5 and #6 are attached to the 2nd Brigade. The 2nd Brigade was deactivated on December 31, 1989, but the facilities could be used by other units.

With used oil and batteries generation rates of 42,000 lb/yr (57 percent) and 18,750 (25 percent), MPVM #3 [3rd Bn 68th Armor (HC, A, B, C, and D companies), Bldg 3092] is the seventh largest generator. Oil is stored in two above ground pods of 600-gal capacity each. Eighty tracked and 100 wheeled vehicles are maintained here. MPVMs #24 [52nd Engineering Bn (HSC, A, and B Companies), Bldg 3292], #1 [1st Bn 10th Inf (HC, A, B, C, D, and E Companies), Bldg 2992], and #2 [1st Bn 12th Inf, Bldg 2792] are ranked eighth, ninth, and tenth, respectively. Used oil is generated at a rate of 42,000 lb/yr (67 percent), 48,650 lb/yr (81 percent), and 14,000 lb/yr (25 percent), at the three MPVMs. MPVM #24 has 4 solvent tanks that are used for cleaning parts. MPVM #1 repairs and maintains 113 tracked and 60 wheeled vehicles and has 5 solvent tanks. If a part does not fit into the tank, it is cleaned on the ground with MOGAS. The MPVMs have had a number of waste disposal problems including: intercompany theft of drip pans; lack of space for 55-gal barrels and full pods; nonavailability of funnels for waste oil barrels; spill and slop; and no connection to an oil-water separator. About 37,268 lb/yr of antifreeze is used at MPVM #1. MPVM #2 also has 5 solvent tanks and 2 oil pods with locking oil/water separator. In addition to used oil, MPVM #2 also generates large amounts of antifreeze (17,600 lb/yr), and sorbent (10,000 lb/yr).

Ten other MPVMs (#28, #10, #20, #7, #19, #46, #47, #23, #31, and #11) generate between 35,000 and 55,000 lb/yr. Six MPVMs (#22, #32, #17, #14, #30, and #4) generate between 10,000 and 35,000 lb/yr. The remaining 18 MPVMs (#44, #8, #18, #38, #27, #41, #16, #15, #43, #45, #37, #21, #33, #40, #34, #36, #29, #35, and #39) generate less than 10,000 lb/yr.

MPVM #19 [64th Support Bn (HHC, A, and C Companies), Bldg T-1001] is under the command of the Division Support Command (DISCOM), and generates approximately 40,802 lb/yr. Fifty-eight wheeled and 3 tracked (M113 Armored) vehicles are maintained.

MPVM #46 is the maintenance section (number 1) in the DOL consolidated maintenance building (Bldg 8000). Combat (e.g., M60, M88, M113, M578, vehicles) and engineering construction equipment (e.g., bulldozers, cranes, forklifts, graders, etc.) are repaired and maintained here.

MPVM #23 (183rd Maintenance Company, Bldg 8142) is under the command of the 43rd Support Group. It has 4 solvent tanks and generates 35,647 lb/yr of wastes. This MPVM is a division direct support unit that houses a number of activities including: fuel/electrical repair, battery service/recovery, communication/electrical repair, engineering equipment repair, vehicle maintenance (organizational support), small arms cleaning, and supply warehouse. The battery service and repair shop is no longer functional because of its small size and poor ventilation. Battery acid used to be neutralized in a sump that was not connected to the sanitary sewer system. Repairs are underway to remedy the problem before resuming the neutralization practice. Currently, battery acid is drained and collected in 55-gal drums that are transported to the DOL consolidated maintenance facility (Bldg 8000) where the acid is neutralized.

MPVM #22 (DPCA Auto Skills Shop, Bldg 2427) is a relatively new MPVM that became operational in 1986. Although it has modern equipment, very little of it is used and only a small quantity of waste is generated. This MPVM is used by all the military and some civilian employees for maintenance of their privately owned vehicles (POVs). Some of the available equipment, such as hot caustic tank, radiator leak testing tank, etc., have never been used since installation. A discussion of the painting activities is in the *Paint Shops* section.

MPVM #4 is the Headquarters Company motor pool and MPVM #7 is attached to the 2nd Brigade. After deactivation of the 2nd Brigade, on December 31, 1989, the motor pool could be used by some other unit.

No information, other than the number of solvent recycling machines used, was available from MPVMs #8 [1st Bn 8th Inf, Bldg 2392] attached to 3rd Brigade, #21 [68th Transportation Bn, Bldg 8152] under the command of 43rd Support Group, #25 [19th MP Bn, Bldg 2840], attached to the 4th Inf Div HQ Command, and #27 [4th Bn 61st Air Defense Artillery, Bldg 639] attached to the 4th Inf Div Command.

Of the total wastes (1,546,200 lb/yr) generated, used oil is the largest volume (635,507 lb/yr), followed by antifreeze solution (247,501 lb/yr), lead-acid batteries (201,850 lb/yr), spent solvent (managed through Safety Kleen, 190,103 lb/yr), spent sorbent (120,680 lb/yr), and others (150,559 lb/yr).

Industrial Maintenance, Small Arms Shops (IMSS)

The DOL and DEH are usually responsible for the major IMSS on a FORSCOM installation. The DOL and DEH industrial operations shops repair and maintain everything from office machines and furniture to small arms and nuclear weapons. Tenant units may also have industrial operations shops conducting maintenance and repair on a small scale. Table 7 lists all the IMSS located at Fort Carson.

Industrial shops typically use vapor degreasers for degreasing operations, caustic dip tanks for cleaning iron and aluminum parts, battery recharging and neutralization tanks for battery repair/replacement, painting and paint-stripping equipment (see *Paint Shops* section), and phosphoric/chromic acid tanks for small arms refinishing. These operations use hazardous materials and generate hazardous wastes. Table 8 shows a list of wastes that may be generated from the industrial shops.

Many different kinds of hazardous materials are used at these IMSSs, including halogenated solvents (TCE, 1,1,1-trichloroethane), paint thinners (xylene, toluene, etc.), corrosive chemicals (alkalis, acids, etc.), and radioactive materials. Most of the hazardous and nonhazardous materials used are listed in Table 9.

All of the IMSS listed in Table 7 are located in the DOL Consolidated Maintenance Building (Bldg 8000), which has five sections. IMSS #6 [Battery Service and Repair Shop], operated by C Company of the 704th Maintenance Bn (which is under the command of the 64th Support Group), is located in Section III of the building. It is the largest waste generator; 300,000 lb/yr of lead casings and 90,000 lb/yr of battery acid. Almost all the used lead-acid batteries generated at Fort Carson are brought to IMSS #6 for draining. Some of the battery acid from DISCOM units is brought here in 55-gal drums. All the batteries (open- and closed-cell) are drained. Puncturing closed-cell batteries with a hammer prevents the recycler/distributor, at the supply warehouse, from reissuing batteries to the units.

A sump is located in IMSS #6 for neutralization of the spent acid. The batteries are drained on the floor. The acid flows into the floor drains which are connected to the sump. All the cells are rinsed with distilled water which also flows into the sump. Sodium bicarbonate (purchased in 100-lb bags) is thrown into the sump until the liquid stops effervescing. The neutralized liquid from the sump is flushed into the industrial sewer system. Approximately 200 lb of sodium bicarbonate are required to neutralize acid from 16 batteries in about 30 minutes. A recently repaired electronic pH probe connected to the sump effluent will sound an alarm when the pH drops below 6. The drained batteries are accumulated, strapped on pallets, and sent to DRMO for recycling. The spent acid (which may be EP toxic) and the neutralized water are not tested for heavy metals.

IMSS #1 (Tactical and Heavy Equipment Repair, and Steam Rack, Section II), is operated by personnel from the DOL's Maintenance Operations Branch (MOB). Approximately 92,328 lb/yr of wastes are generated. Contaminated fuel comprises almost half (46 percent) of the total wastes, followed by used oil (21 percent), spent solvent (14 percent), antifreeze (6 percent), and others (13 percent). IMSS #2 (Unit Overhaul, Fuel and Electrical Systems Repair, and Special Support, Section III) is also operated by MOB personnel. This IMSS is a large industrial-type operation consisting of a vapor degreaser, engine dynamo testing facility, etc. Used oil is the largest quantity waste, followed by spent cold-cleaning solvent, antifreeze, and spent TCA and TCA degreaser sludge. Table 9 shows that nearly 30,000 lb/year of TCA is used in the degreasing operations. Approximately 22,000 lb/yr is lost because of its volatility and poor operating practices. The degreaser (manufactured by DETREX Corp) is a large machine used to clean oversized (e.g., large engine blocks, barrels, turrets, etc.) and small parts. It was installed in late 1970's; because of its age, it is exempt from State of Colorado regulations for volatile organic carbon emissions. Three people, wearing respirators and other safety equipment, are required to clean the machine and replace the solvent, which is done for 2 days every 3 months.

Large quantities of other wastes, such as used oil (42,000 lb/yr), cleaning solvent (13,351 lb/yr), and antifreeze solution (11,440 lb/yr), are generated at IMSS #2. Several "hot tanks" are used to contain used oil generated throughout Bldg 8000. In the past, chlorinated motor oil and other solvent wastes were also mixed in this tank.

The next largest waste generator is IMSS #5 (Army Oil Analysis Program Laboratory) which is operated by a private contractor (Trowell, Inc.). An unknown amount of TCA and other halogenated solvents are used in chemical analysis of the used oil samples. A large quantity of used oil (12,580 lb/yr) and some chlorinated oil (1,600 lb/yr) is generated. In the past, all the oil and solvents were mixed to form a hazardous waste. Now the three types of wastes are segregated. IMSS #4 (Radiator Service and Machine Shop, Section V) has a hot caustic tank (257 gal) and a leak testing tank (350 gal) for cleaning and repair of radiators. The hot tank contains full strength sodium hydroxide (pH - 12 to 13) and is operated at 190 °F. It is gas-heated and has a lid to prevent evaporation. An automatic rack is used to lower radiators into the tank for approximately 1 hour. This tank is cleaned once a year and the waste

sludge is drummed and disposed of as a hazardous waste. The leak detection tank contains water and a rust inhibitor. It is operated at room temperature and emptied once a year. The wastewater is drained into the sanitary sewer. About 2,500 lb/yr of caustic waste and 3,080 lb/yr of antifreeze waste is generated at this IMSS. The waste solution from the hot caustic tank is drained periodically into the sanitary sewer without testing for pH or heavy metals.

In addition to the wastes from the radiator shop, a very small amount of water-soluble cutting oil waste is generated at the machine shop. The cutting oil is mixed with water and applied through jet nozzles on the work that is being machined. It serves to cool the cutting tool and the work piece. As it drips from the machined area, the coolant is captured in a drip reservoir, filtered, and reused. Each machine is emptied once a year and the cutting oil disposed of in a hot tank in Section III. IMSS #3 (Communication and Electronic Equipment Repair, Section IV) is the smallest of all the IMSS. A solvent tank is located in the shop for cleaning electrical and electronic parts. Small numbers of other batteries (lithium, nickel-cadmium) are discarded here.

Lead-acid battery casings (300,000 lb/yr) and spent acid (90,000 lb/yr) drained from the batteries are the largest quantity wastes generated at the IMSS. The casings, and the acid if contained within them, are not a hazardous waste because they are recycled and are exempt from regulatory requirements. However, the acid that is drained is a hazardous waste because of corrosivity and, possibly, EP toxicity for lead. Elementary neutralization of corrosive wastes only is exempt from permitting requirements. A Part B treatment permit has to be obtained for treating wastes that are both corrosive and EP toxic. Other significant wastes generated at the IMSS are: used oil (73,590 lb/yr); contaminated fuel (42,700 lb/yr); spent cleaning solvent (29,057 lb/yr); antifreeze solution (20,416 lb/yr); spent TCA and tank bottom sludge (12,980 lb/yr); and others (16,666 lb/yr).

Aviation Maintenance Facilities (AMF)

Most FORSCOM installations have aviation maintenance facilities for helicopters and airplanes. Various levels of services are performed on the aircraft at each of the facilities. Included in the services are: periodic maintenance (e.g., fluids change, tune-up, etc.), engine repair, brake servicing, battery repair/servicing, and unique repairs (if required, for different aircraft). There are six AMF at Fort Carson as shown in Table 10.

The typical repair operations that use hazardous materials and generate hazardous wastes are: oil and grease removal, engine parts and equipment cleaning, solution replacement, paint stripping, and painting (discussed later under *Paint Shops*). AMF commonly use: solvent sinks (parts cleaning), hot tanks (for engine cleaning), and spraying equipment. Table 11 lists the wastes generated at the AMF. The last column in the table contains data obtained from the IDMS data base and is provided for comparison with the numbers reported by individual AMF.

Some general categories of hazardous materials used at AMF are batteries, oils, petroleum distillates, mineral spirits, varsol, halogenated solvents, aromatic hydrocarbons, oxygenated hydrocarbons, mixtures, acids, and alkalis. A variety of nonhazardous materials (e.g., sorbent, rags, etc.) are used in conjunction with hazardous materials and also generate hazardous wastes. The hazardous and nonhazardous materials used at the AMF are listed in Table 12.

AMF #1 [1st Bn 4th Aviation Regiment (HC, A, B, C, and D Companies); Bldgs 9604, 9620, 9621, 9623, 9624, and 9628] generates more wastes (6,335 lb/yr) than any other AMF. Spent solvent accounts

for half of this amount and used oil accounts for 22 percent. Spent solvent, contaminated JP-4, and oil are the major wastes generated at AMF #2 [A Co 2-158 Avn Regiment, Bldg 9620] which is under the command of the 4th Aviation Brigade. AMF #5 [E Co 4th Avn Bdc, Bldg 9604] and AMF #3 [F Co 4th Avn Bde, Bldg 9604] are the third and fourth largest generators. The aircraft maintenance bay belonging to DOL (AMF #6) and AMF #4 [Task Force, 4th Avn Bdc] generate lesser amounts of wastes than all the other AMFs.

Paint Shops (PS)

A FORSCOM installation has painting operations ranging from spray painting with cans to painting large vehicles. DEH paint shops have the responsibility of painting buildings, preparing signs, and painting the fleet of grounds maintenance and other vehicles. DOL paint shops have large paint booths for painting tactical and nontactical vehicles. The only hazardous waste generated by spray painting with cans, which is common place throughout the installation, is the empty cans with wet/dried paint residue. Paint thinners used in large painting operations result in generation of large quantities of hazardous waste.

There are two major paint shops at Fort Carson as listed in Table 13. The quantities of wastes generated and materials procured are shown in Table 14 and 15, respectively. PS #1 [Body and Paint Shop, Bldg 8000] is operated by DOL personnel. Two large, cross-draft, dry-filter, paint booths are operated for use in enamel and CARC painting of large tactical vehicles. Of the 7650 lb/yr of wastes generated, 56 percent of it consists of paint thinner. Small amounts of other wastes are generated.

PS #2 [Auto Skills Shop] operated by DPCA personnel is a relatively small quantity generator. Two smaller, dry-filter, cross-draft paint booths are located here. The operators are dissatisfied with one of the booths. Accumulation of large quantities of overspray and inadequate air flow were noticed during the survey conducted for this study.

An old paint booth is also located at the DPTM Devices Section (Bldg 6054). There are no air filters connected to the exhaust to capture the solvent and paint aerosol; it is vented directly to the ambient air. However, it is used rarely (6 h/week/yr) and approximately 15 lb/yr of thinner waste is generated. A new paint booth, procured in 1985, is located outside the building. It was never installed because the dimensions of the new booth exceed the internal dimensions of the room. Unsuccessful efforts have been made over the past 4 years to increase the room size.

Paint thinner is the largest quantity (4720 lb/yr) waste generated from the two shops. The last column in Table 14 lists the 1987 IDMS data for comparison. The amount of paint thinner waste disposed of through the DRMO was 7040 lb. Also 19,679 lb of wet paint wastes were generated.

Photography, Printing, and Arts/Crafts Shops (PPAS)

FORSCOM installations have photography and print shops that conduct a wide range of printing operations including standard forms, brochures, pamphlets, newsletters, and circulars. The shops perform image and plate processing. Image processing is a method for preparing artwork that includes typesetting and photoprocessing. The photographic process produces a negative with the light portions of the photographed object filled with deposits of silver. Among the steps involved in a photographic process are: developing, fixing, washing, and reducing/intensifying. Wastes produced by the photographic processes include: chemical wastes, bath dumps, and wastewaters containing photoprocessing chemicals, silver, etc.

The printing process requires an image carrier (manual, mechanical, electrostatic, or photo-mechanical) that takes the ink from a roller and transfers it to a rubber blanket. The image is then transferred from the rubber blanket to a paper. Wastes produced from the printing process include: waste inks, trash, used plates, used ink containers, damaged or worn rubber blankets, waste press oils (lubricating oils), cleanup solvents, and rags.

There are six PPAS at Fort Carson (Table 16). Four of them belong to DPTM and the other two are operated by DOIM and the Directorate of Personnel and Community Affairs (DPCA). PPAS #1 (DPTM, Photography Section, Bldg 6010) generates the most wastes consisting primarily of bleach, activator, developer, cleaner, and fixer. Silver is recovered, as part of a precious metal recovery program, from all the silver-containing waste solutions. DPTM's Training and Audiovisual Center, Production Shop (PPAS #4) is the second largest generator. Wastes from printing (solvent, inks, etc.) and photography are generated here.

The DPCA Photography Skill Center (PPAS #6) is the third largest generator of photographic wastes (film/paper developers, bleach/fix solutions, and other solutions). Solutions containing recoverable silver are turned in to the Evans Army Hospital for recovery and disposal. The remaining PPAS are smaller than the three discussed above.

Small quantities of a number of different wastes are generated by the PPAS. Developer and fixer solutions are generated in the largest quantities. Fixer solutions are recycled for silver recovery. The 1987 IDMS data (last column, Table 17) indicates that a large amount of toner is also generated. Other significant wastes are: bleach, uralite, electrostatic ink and solution, and adhesive. Table 18 lists the quantities of materials procured.

Hospitals, Clinics, and Laboratories (HCL)

A typical FORSCOM installation has at least one hospital (or medical center) providing full medical and dental services for active duty and retired military personnel and dependents on the installation. Each hospital has many clinics supporting different medical departments (anesthesiology, dermatology, internal medicine, obstetrics and gynecology, pathology, radiology, surgery, urology, etc.). Each department has laboratories that use hazardous materials and generate hazardous wastes. An installation may have teaching facilities (e.g., Institute for Dental Research) and laboratories for training personnel belonging to other medical activities in the military services. Other dental and veterinary clinics and facilities may also be located on the installation. The HCL on Fort Carson are listed in Table 19.

The preventive medicine department of the hospital is primarily responsible for the safety and security of medical staff and patients that may be exposed to hazardous materials/wastes and emissions. Many hazardous chemicals and radioactive materials are used in hospitals, clinics and laboratories. The wastes include: chemical waste, infectious solid waste, noninfectious waste, pharmaceutical waste, and radioactive waste. The wastes generated and materials used by the HCLs are listed in Tables 20 and 21, respectively.

The Evans Army Community Hospital (HCL #1), located at Building 7500, generates nearly 360,000 lb/yr of infectious wastes. Other infectious wastes are generated by the dental clinics (HCL #2). Most of the pathological wastes are generated and incinerated at the veterinary hospital (HCL #3).

A double chamber, natural gas-fired pathological incinerator (100 lb/hr) is located at HCL #3. This incinerator is permitted under the State of Colorado air quality regulations. Some of the equipment operation criteria are: (1) visible emissions should not exceed 20 percent opacity, (2) particulate emissions should not exceed 0.10 grains per dry standard cubic foot corrected at 12 percent CO₂, (3) summarized monthly records of daily burning rates and hours of operation must be maintained, (4) preheating of the secondary zone is required before charging and operating the unit, (5) both the primary and secondary burners must be operated at design rate, (6) charging rate should not exceed 100 lb/hr, and (7) operation and maintenance should be performed according to the procedure prescribed by the manufacturer (Incinerator International Inc.).

HCL #1 has a silver recovery unit used to recover silver from fixer solution from throughout Fort Carson. Other precious metal wastes (e.g., gold fillings) from DENTAC are recycled through the precious metal recovery program. A number of chemicals such as xylene, formalin, etc. are used at all the HCLs. The survey data (wastes generated and materials used) were inadequate. However, the 1987 IDMS data (last column, Table 20) show the generation of various chemical wastes.

Other Source Types

Other source types at a typical FORSCOM installation include: heating and cooling plants, laundry and drycleaning facilities, sanitary landfills, wastewater treatment plants, troop units, industrial wastewater treatment plants, fire departments, hazardous waste storage facilities, POL storage yards, golf courses, grounds maintenance/garden shops, entomology shops, electrical maintenance shops, storage warehouses, water treatment plants, and other miscellaneous sources unique to each installation.

Table 22 lists the heating and cooling plants at Fort Carson. The main boiler facility (Bldg 1860) (HCP #1) is used to burn waste oil (183,890 lb/yr), which is generated throughout the fort. Table 23 and 24 list the wastes generated (boiler blowdown) and materials used, respectively. Some spent cleaning solvent is also generated at HCP #2 (Bldg 403). The amount of fuel oil and natural gas used is 289,485 and 336,167 lb/yr, respectively. A number of other chemicals (cyclohexyl, caustic soda, tripolyphosphate, tannin, sodium sulfite, and morpholine) are used in day-to-day operations as shown in Table 24.

The laundry facility at Fort Carson is located in Bldg 1510. It is a pickup point for a contracted operation. All the clothes are laundered and drycleaned offsite at the contractor's (New Method Dry Cleaning & Laundry, Inc.) shop in Canyon City, CO.

Currently, there is only one active solid waste landfill located at Fort Carson. A 1/2-acre unlined pit near the landfill is used for disposal of grit from the oil/water separators located throughout the installation. This pit contains water, oil, oily sludge, solvents, aerosol cans, empty drums, etc. Because of the solvents and heavy metal contaminants likely to be present, this pit is probably an illegal facility in violation of regulations. Additionally, the site has a very high potential for groundwater contamination. An alternate method must be developed for minimization, treatment, or disposal of the oily grit.

A wastewater analysis laboratory is located in Bldg 3387 at the wastewater treatment plant. Water is analyzed for fecal coliform bacteria, residual chlorine, 5-day biochemical oxygen demand (BOD₅), suspended solids (SS), chemical oxygen demand (COD), and alkalinity. Used reagents are discarded into the sanitary sewer system. Many nonreagent chemicals such as hexane, acetone, 1,1,2-trichloro-1,2,2-trifluoroethane (freon) etc. are also stored in the laboratory.

Pesticides are stored and used by the GE entomology section, DPCA golf course, field sanitation teams, school district, and the post exchange to prevent pest-related problems in: household, structural, health-related, and nuisance insect and rodent control programs; weed control programs; and programs involving turf areas (e.g., golf courses), trees, and shrubs. The section stores insecticides and rodenticides in Bldg 212. Herbicides and algicides are stored in Bldg T-204. Mixing of these pesticides is conducted outside the building. The empty containers are triple rinsed and buried in the landfill. The rinseate is reused as a diluent in the mixing operations. A contractor applies herbicides for broadleaf control, algicides in the ponds, and fungicides on the greens of the golf course.

PCBs are found in capacitors and transformers. All the online transformers containing PCBs have been identified by the GE exterior electrical repair shop. They are inspected periodically and the out-of-service transformers are replaced with non-PCB transformers.

The 94th Explosive Ordnance Disposal (EOD) Detachment performs OB/OD of small ammunition in the EOD ranges. Fort Carson has applied to include two ranges (1 and 121) on the RCRA Part A TSDf permit. The ammunition destroyed at these ranges includes: small arms (cartridges), artillery/mortar, grenades, rockets, pyrotechnics, and other hazardous explosive/demolition materials. Hazardous items are typically destroyed at the rate of one to two items per month by surface detonation after being covered by high explosives (e.g., C-4, TNT, etc). Some of the trenches at these ranges are used for burning excess powder bags. These propellant items are directly handled by troops and not the EOD detachment. Soil residue at these ranges must be tested for its toxic/hazardous nature.

The DRMO maintains two areas for storage of hazardous wastes/materials. A yard located to the west of Bldg 318 is used to store materials that can be stored outside such as epoxies, hydraulic fluid, and flammables. Bldg 9248, which was originally an ammunition storage bunker, is a permitted (interim status) hazardous waste management facility used to store toxic, corrosive, ignitable, reactive, and miscellaneous hazardous wastes (e.g., PCB transformers) before disposal. No wastes are actually generated here.

A miscellaneous generator at Fort Carson is the multicrafts skill development center (Bldg 2200). Very small amounts of wastes (metal plating solution, stained glass petina, ceramic slip, paint thinner, saw dust, etc.) are generated during the skill training activities.

Wastes Selected for Technical/Economic Analysis

Table 25 summarizes the data presented in the previous section that were obtained during the HAZMIN survey. Also included are the totals according to waste disposal data obtained from manifests and the IDMS data base. It is difficult to allocate the IDMS waste disposal information to each of the individual generators. However, the totals (5th column) indicate the quantities that were disposed of in 1987. The fourth column in the table presents the totals according to the survey. The suggested generation rate as determined from all the available information is provided in column 6. The 13 different waste categories considered are listed on the last page of Table 25. Table 26 presents the total wastes generation rate according to each of the waste categories and waste types. PCB-contaminated equipment has not been included in the above summaries.

Table 26 shows that motor pools and vehicle maintenance facilities generate the largest quantity (1,701,968 lb/yr) of wastes consisting primarily of used oil (635,507 lb/yr), antifreeze (247,501 lb/yr),

lead-acid batteries (201,850 lb/yr), cleaning solvents (191,861 lb/yr), spent sorbent (120,680 lb/yr), and contaminated soil (105,000 lb/yr). The industrial shops (Bldg 8000) generate the next highest quantity (585,409 lb/yr). Most of it is drained lead-acid batteries (300,000 lb/yr) and the battery acid (90,000 lb/yr) which is neutralized. The other wastes of concern are used oil (73,590 lb/yr), cleaning solvent (29,057 lb/yr), antifreeze (20,146 lb/yr), and 1,1,1 trichloroethane (7700 lb/yr), and degreaser tank-bottom sludge (5280 lb/yr). The hospital, veterinary, and dental clinics generate the next largest quantity (515,563 lb/yr), with medical infectious waste accounting for 99 percent of it. The remaining 1 percent consists of spent solvents (e.g., xylene), many other chemicals (e.g., mercury, formalin), and photographic wastes.

Boiler plants are a major generator (267,000 lb/yr) because of the boiler blowdown reported (265,600 lb/yr). This blowdown is discharged into the sanitary sewer. Occasional discharge of blowdown may not adversely affect the wastewater quality; it may still be within NPDES limits, but this can only be determined by proper testing. Aviation maintenance facilities are the next largest generator (52,809 lb/yr) of typical aircraft maintenance wastes such as spent solvent, synthetic oil, spent NICAD batteries, contaminated aircraft fuel, etc. Troop units are next, generating small quantities of expired or spoiled decontaminating agents (e.g., DS-2, STB), and batteries (e.g., lithium, mercury).

The seventh largest type of waste generator is paint shops that generate paint related materials (29,521 lb/yr) such as thinner, and unused paint. Printing, photography, and arts/crafts shops are next. They generate acids/bases, halogenated solvents, and spent photographic and printing chemicals. Some of the shops belonging to GE. Other miscellaneous sources are the smallest quantity waste generators.

In terms of total waste generation, used oil is the largest volume (797,399 lb/yr). It is followed by spent batteries (535,534 lb/yr), spent acids/bases (373,973 lb/yr), spent antifreeze solution (267,917 lb/yr), spent nonhalogenated solvents (237,071 lb/yr), contaminated fuels (77,630 lb/yr), paint related material (38,957 lb/yr), decontaminating agents (18,626 lb/yr), spent halogenated solvents (11,362 lb/yr), photographic/printing chemicals (6587 lb/yr), used alcohols (5646 lb/yr), pharmaceutical wastes (90 lb/yr), and miscellaneous wastes (862,655 lb/yr).

The wastes selected for technical and economic analysis are used oils (797,399 lb/yr), spent antifreeze solution (267,917 lb/yr), spent cleaning solvent (235,309 lb/yr), battery acid (93,744 lb/yr), TCA and TCA sludge (7700 and 5280 lb/yr), and paint thinner (7040 lb/yr).

Table 2

Hazardous Waste Generation at FORSCOM Installations³⁶

| Installation | Quantity of Waste Generated (metric tons) | | | Quantity of Waste Generated Onsite (metric tons) | | | Quantity of Waste Generated Offsite (metric tons) | | |
|----------------|---|---------------|---------------|--|---------------|---------------|---|-------------|--------------|
| | 1985 | 1986 | 1987 | 1985 | 1986 | 1987 | 1985 | 1986 | 1987 |
| A.P. Hill | n/a | 0.6 | 810.7 | n/a | 0.6 | 810.7 | 0.0 | 0.0 | 0.0 |
| Bragg | 94.5 | 246.9 | 258.2 | 94.5 | 236.3 | 242.3 | 0.0 | 10.6 | 15.9 |
| Buchanan | - | - | - | - | - | - | - | - | - |
| Campbell | 181.1 | 42.3 | 83.7 | 181.1 | 42.3 | 83.7 | 0.0 | 0.0 | 0.0 |
| Carson | 37.5 | 29.1 | 28.9 | 37.5 | 29.1 | 28.9 | 0.0 | 0.0 | 0.0 |
| Devens | 1142.6 | 359.4 | 412.4 | 1142.6 | 359.4 | 412.4 | 0.0 | 0.0 | 0.0 |
| Drum | 18.4 | 89.0 | 0.7 | 18.4 | 89.0 | 0.7 | 0.0 | 0.0 | 0.0 |
| Hood | 46.5 | 238.5 | 129.8 | 46.5 | 223.0 | 129.6 | 0.0 | 15.5 | 0.3 |
| Irwin | 2090.4 | 1019.6 | 1224.1 | 2090.4 | 1019.6 | 1224.1 | 0.0 | 0.0 | 0.0 |
| Lewis | n/a | 214.3 | 668.3 | n/a | 187.3 | 649.3 | n/a | 27.0 | 19.0 |
| McCoy | 62.6 | 35.1 | 64.0 | 23.9 | 23.5 | 26.2 | 38.7 | 11.6 | 37.8 |
| McPhearson | 0.1 | 2.4 | n/a | 0.1 | 2.4 | n/a | 0.0 | 0.0 | n/a |
| Meade | n/a | 3.1 | 3.5 | n/a | 3.1 | 3.5 | n/a | 0.0 | 0.0 |
| Ord | 190.9 | 293.9 | n/a | 190.9 | 290.8 | n/a | 0.0 | 3.1 | n/a |
| Polk | 0.1 | 20.7 | 11.5 | 0.1 | 20.7 | 11.5 | 0.0 | 0.0 | 0.0 |
| Presidio, SF | - | - | - | - | - | - | - | - | - |
| Richardson | 21.1 | 16.4 | 4.8 | 21.1 | 16.4 | 4.8 | 0.0 | 0.0 | 0.0 |
| Riley | 18.6 | 18.6 | 18.6 | 18.6 | 18.6 | 18.6 | 0.0 | 0.0 | 0.0 |
| Sam Houston | 34.7 | 33.4 | 19.8 | 34.7 | 32.7 | 18.5 | 0.0 | 0.7 | 1.3 |
| Sheridan | 4.9 | 4.9 | 4.9 | 4.9 | 4.9 | 4.9 | 0.0 | 0.0 | 0.0 |
| Stewart Hunter | 7.7 | 302.4 | 445.8 | 7.7 | 302.4 | 445.8 | 0.0 | 0.0 | 0.0 |
| Wainright | 27.2 | 16.9 | 63.6 | 19.4 | 16.1 | 29.3 | 7.8 | 0.7 | 34.3 |
| Total | 3978.9 | 2987.5 | 4253.3 | 3932.4 | 2918.2 | 4144.8 | 46.5 | 69.2 | 108.6 |

³⁶Source: V.J. Ciccone and Associates, Inc., p C-4.

Table 3
List of Sources Ranked in Order of Importance

| Rank | Source Types | Numbers | Numbers and Quantities of Waste Streams | Minimization Potential | Total |
|-------------|--|----------------|--|-------------------------------|--------------|
| I | Motor pools and vehicle maintenance facilities | 5 | 5 | 5 | 15 |
| II | Industrial maintenance, small arms shops, etc. | 4 | 5 | 5 | 14 |
| III | Aviation maintenance facilities | 4 | 4 | 5 | 13 |
| IV | Paint shops | 4 | 4 | 4 | 12 |
| V | Photography printing and arts/craft shops | 3 | 4 | 4 | 11 |
| VI | Hospitals, clinics, and laboratories | 4 | 3 | 3 | 10 |
| VII | Heating and cooling plants | 2 | 3 | 3 | 8 |
| VIII | Grounds maintenance and entomology shops | 3 | 3 | 2 | 8 |
| IX | Electrical maintenance facilities | 2 | 2 | 2 | 6 |
| X | Hazardous waste storage facilities | 1 | 2 | 1 | 4 |
| XI | Wastewater treatment facilities | 1 | 1 | 1 | 3 |
| XII | POL storage yards | 1 | 1 | 1 | 3 |

Table 4

Motor Pools and Vehicle Maintenance (MPVM) Facilities

- 1 1st Battalion 10th Infantry - Motor Pool - Building 2992
- 2 1st Battalion 12th Infantry - Motor Pool - Building 2792
- 3 3rd Battalion 68th Armor - Motor Pool - Building 3092
- 4 2nd Brigade Headquarters - Headquarters Company - Motor Pool - Building 1852
- 5 2nd Battalion 8th Infantry - Motor Pool - Building 1982
- 6 4th Battalion 68th Armor - Motor Pool - Building 1882
- 7 1st Battalion 77th Armor - Motor Pool - Building 2082
- 8 1st Battalion 8th Infantry - Motor Pool - Building 2392
- 9 2nd Battalion 77th Armor - Motor Pool - Building 2492
- 10 2nd Battalion 35th Armor - Motor Pool - Building 2692
- 11 1st Battalion 27th Field Artillery - Motor Pool - Building 1682
- 12 5th Battalion 29th Field Artillery - Motor Pool - Building 1682
- 13 3rd Battalion 29th Field Artillery - Motor Pool - Building 1392
- 14 1st Battalion 29th Field Artillery - Motor Pool - Building 1692
- 15 4th Division Support Command (DISCOM) - Headquarters Company - Motor Pool - Building 8300
- 16 4th Support Battalion - Motor Pool - Building T-800
- 17 4th Support Battalion - Motor Pool - Building T-804; DSU - Building 8030
- 18 204th Support Battalion - Motor Pool - Building 8200; DSU - Building 8030
- 19 64th Support Battalion - Motor Pool - Building 1001; DSU - Building 8030
- 20 704th Support Battalion - Motor Pool - Building 8300; DSU - Building 8030, Building 8000
- 21 68th Transportation Battalion - Motor Pool - Building 8152
- 22 73rd Maintenance Company - Motor Pool - Building 8030; DSU - Building 8142
- 23 183rd Maintenance Company - Engineer and Ground Equipment Repair, Automotive and Armament Repair, Building 8142
- 24 52nd Engineer Battalion - Motor Pool - Building 3292

Table 4 (Cont'd)

-
- 25 19th Military Police Battalion - Motor Pool - Building 2840
 - 26 4th Engineer Battalion - Motor Pool - Building 9072
 - 27 4th Battalion 61st Air Defense Artillery - Motor Pool - Building 639
 - 28 2nd Squadron 7th Cavalry - Motor Pool - Building 3192
 - 29 104th Military Intelligence Battalion - Motor Pool - Building 749
 - 30 DEH - Operations Division - Maintenance Facility - Building 1302
 - 31 Colorado National Guard - Motor Pool - Building 8110
 - 32 DPCA - Auto Crafts Shop, Skills Center - Building 2427
 - 33 4th Aviation Brigade - Headquarters Service Company - Motor Pool - Building 9628
 - 34 2-158 Aviation Regiment - Motor Pool - Building 9628
 - 35 2-58 ATC - Motor Pool - Building 9628
 - 36 4th Aviation Brigade Headquarters - Headquarters Company - Motor Pool - Building 9628
 - 37 4th Aviation Brigade - E. Company - Motor Pool - Building 9628
 - 38 4th Aviation Brigade - D. Company - Motor Pool - Building 9628
 - 39 4th Aviation Brigade - F. Company - Motor Pool - Building 9628
 - 40 571st Medical Detachment - Motor Pool - Building 8152
 - 41 517 Medical Company - Motor Pool - Building 8152
 - 42 10th MASH Headquarters - Headquarters Company - Motor Pool - Building 8162
 - 43 DOL - Transportation Motor Pool - Building 301
 - 44 DEH - Equipment Concentration Site #42 - Maintenance Facility - Building 8930
 - 45 DPTM - Range Division - Motor Pool - Building 2740
 - 46 DOL - Maintenance Operations Branch - Combat and Engineering Construction Equipment Repair - Maintenance Section I - Building 8000
 - 47 AAFES Main Service Station - Building 1515

Table 5
Quantities of Wastes Generated at MPVM Facilities*

| Wastes | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 |
|----------------------------|-------|-------|-------|-------|-------|-------|-------|------|--------|-------|-------|-------|-------|
| Spent degreasing solvent** | 7854 | 7854 | 7854 | *** | 7854 | 7854 | 7854 | 7854 | 7854 | 7854 | 3142 | 4712 | 7854 |
| Used oil | 48650 | 14000 | 42000 | 7000 | 49000 | 25200 | 24500 | | 100800 | 10800 | 8400 | 4200 | 6300 |
| Antifreeze solution | | 17600 | 2112 | 1760 | 8800 | 2112 | 6160 | | | 5280 | | 73920 | 68640 |
| Lead-acid batteries | 6000 | 18750 | 1000 | 15000 | 18000 | | | | 18000 | 3000 | 7200 | 6600 | |
| Sulfuric acid | | | | 500 | | | | | | | | | |
| Caustic wash | | | | 50 | | 10560 | | | 13728 | | 1584 | | |
| Contaminated dirt | | | | | | 600 | | | 2000 | | | | |
| Contaminated fuel | 2394 | 350 | 1680 | | 2100 | | 1400 | | | | | 5040 | 6300 |
| Oily rags | | 500 | 600 | 500 | 4300 | 1000 | | | 1000 | | 4000 | 6000 | 6120 |
| Spent sorbent | | 10000 | 1200 | 500 | 13000 | 2400 | 3000 | | 12000 | 6000 | 15000 | 16800 | 14400 |
| Transmission fluid | | 350 | | 700 | | 9240 | 350 | | | | | | 840 |
| Hydraulic fluid | | | | | | | | | | 3500 | | | |
| Brake fluid | | | | | 70 | | | | | | | | |
| Empty containers | | | | 150 | | | | | | | | | |
| Faulty Parts | | | 120 | 50 | | 120 | | | | | | | |
| Carburator Cleaner | | | | | | | | | | | | | |
| Contaminated GAA Grease | | | | | | | | | | | | | |
| Carbon remover | | | | | | | | | | | | | |
| Chlorinated motor oil | | | | | | | | | | | | | |
| Asbestos materials | | | | | | | | | | | | | |
| Mixed miscellaneous | | | | | | | | | | | | | |

*Quantities are reported in pounds per year.
 **Low flash point solvent (105 °F) - Safety Kleen Recycle
 ***A blank in this and similar tables does not mean zero generation. Where data is unavailable, Fort Carson should make every effort to locate the data and update the tables. Proper inventory control will generate data for future use in helping meet HAZMIN goals.

Table 5 (Cont'd)

| Wastes | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 |
|--------------------------|-------|------|------|-------|------|-------|-------|------|-------|-------------------|-------|------|
| MPVM # | | | | | | | | | | | | |
| Spent degreasing solvent | 7854 | 1570 | 3142 | 4712 | 1570 | 4712 | 3142 | 7854 | 6283 | 6283 | 1570 | |
| Used oil | 5040 | 1050 | 1400 | 18900 | 1400 | 21420 | 34692 | | 16800 | 6000 | 42000 | |
| Antifreeze solution | 10560 | 1320 | | 440 | 264 | 10912 | 5368 | | 2640 | 6336 | 2640 | |
| Lead-acid batteries | | | | | | 3250 | | | | 10000 | | 6000 |
| Sulfuric acid | | | 20 | 140 | | | | | | 3000 [†] | | |
| Caustic wash | | | | | | | | | | | | |
| Contaminated dirt | 1500 | | 600 | 1600 | | | 450 | | | | 105 | |
| Contaminated fuel | 3220 | | | | | 70 | | | 385 | | 1800 | |
| Oil rags | | 100 | | 1000 | 150 | 700 | 600 | | 500 | | | |
| Spent sorbent | 360 | 60 | | 900 | 500 | 1200 | 1800 | | 500 | 2400 | 4000 | |
| Transmission fluid | | 420 | | 1400 | 210 | 840 | | | 1400 | 1638 | | |
| Hydraulic fluid | 336 | | | | | 140 | | | | | | |
| Brake fluid | 336 | | | 3500 | | | | | 504 | | | |
| Empty containers | | | 90 | | | | | | 450 | | | |
| Faulty Parts | | | | | | 250 | | | 1000 | | | |
| Carburator Cleaner | | | | | | | | | | | | |
| Contaminated GAA Grease | | | | | | | | | | | | |
| Carbon remover | | | | | | | | | | | | |
| Chlorinated motor oil | | | | | | | | | | | | |
| Asbestos materials | | | | | | | | | | | | |
| Mixed miscellaneous | | | | | | | | | | | | |

[†]Drained sulfuric acid is drummed and transported to C Company, 704th MNT Bn. (Building 8000) for neutralization.

Table 5 (Cont'd)

| Wastes | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 |
|---|--------|------|-------|------|------|-------|-------|-----|-----|-----|-----|------|
| | MPVM # | | | | | | | | | | | |
| Spent degreasing solvent | 6283 | 7854 | 1570 | 3142 | 3142 | 3142 | 315 | 315 | 315 | 315 | 315 | 315 |
| Used oil | 31500 | | 25200 | | 8400 | 1 30 | 28000 | 770 | 420 | 350 | 189 | 578 |
| Antifreeze solution | 1936 | | 10560 | | | | | 968 | 616 | 44 | 493 | 132 |
| Lead-acid batteries | 41250 | | 5000 | | 1000 | 10000 | N/A | | | 400 | | 1750 |
| Sulfuric acid | N/A | | | | | | N/A | | | | | |
| Caustic wash | | | | | | | | | | | | |
| Contaminated dirt | | | | | | | | 20 | | | | |
| Contaminated fuel | 1400 | | 1400 | | | 2800 | | | | | 126 | |
| Oily rags | | | | | | 2200 | | 300 | 100 | 50 | 300 | |
| Spent sorbent | 4000 | | 2000 | | 120 | 6000 | | 400 | 300 | 25 | 240 | 600 |
| Transmission fluid | 385 | | 140 | | | | | | | 18 | | |
| Hydraulic fluid | 8400 | | 1008 | | | | | | | | | |
| Brake fluid | | | 140 | | 84 | | | 10 | | | | 35 |
| Empty containers | | | | | | | | | | | | |
| Faulty Parts | | | | | | | | | | | | |
| Carburator cleaner (methylene chloride) | | | | | | 792 | | | | | | |
| Contaminated GAA Grease | | | | | | | | | | | | |
| Carbon cleaner | | | | | | | | | | | | |
| Chlorinated motor oil | | | | | | | | | | | | |
| Asbestos materials | | | | | | | | | | | | |
| Mixed miscellaneous | | | | | | | | | | | | |

Table 5 (Cont'd)

| Wastes | 38 | 39 | 40 | 41 | 42 | 43 | 44 | 45 | 46 | 47 | Survey Total | IDMS Total |
|--------------------------|--------|-----|------|------|------|------|------|------|-------|--------------------|--------------|------------|
| | MPVM # | | | | | | | | | | | |
| Spent degreasing solvent | 315 | 315 | 196 | 1570 | 1570 | 1570 | 1570 | 1570 | 10210 | 1570 | 190103 | 137900 |
| Used oil | 420 | 11 | 1400 | 2660 | 1050 | | 5600 | 1155 | 17252 | 9800 | 635507 | 105000 |
| Antifreeze solution | 440 | 26 | 176 | 246 | 264 | | 1920 | | 2200 | 616 | 247501 | |
| Lead-acid batteries | 4000 | 100 | 150 | 500 | 500 | 2400 | | 1000 | | 21000 ¹ | 201850 | 38301 |
| Sulfuric acid | | | | 84 | | | | | | | 3744 | |
| Caustic wash | | | | | | | | | | | 25922 | |
| Contaminated dirt | | | | | | | | | | | 6770 | 105000 |
| Contaminated fuel | | 35 | 175 | 70 | 105 | | | | 3500 | | 32655 | 20487 |
| Oil rags | 375 | | 200 | 50 | 40 | | | | 2100 | 240 | 34825 | |
| Spent sorbent | 500 | 25 | 200 | | 50 | | | | 200 | | 120680 | 9500 |
| Transmission fluid | | | 28 | 196 | | | | | 686 | 4200 | 23041 | |
| Hydraulic fluid | | | 158 | | | | | | 800 | | 14342 | 4070 |
| Brake fluid | 30 | 1 | | 5 | 8 | | 10 | | 86 | 84 | 4903 | 1148 |
| Empty containers | | | | | | | | | | | 690 | |
| Faulty parts | | | | | | | | | | | 1540 | 647 |
| Carburator Cleaner | | | | | | | | | | | 792 | |
| Contaminated GAA Grease | | | | | | | | | | 300 | | |
| Carbon remover | | | | | | | | | | | | 81917 |
| Chlorinated motor oil | | | | | | | | | | | | 1160 |
| Asbestos materials | | | | | | | | | 685 | | 685 | |
| Mixed miscellaneous | 350 | | | | | | | | | | 350 | |

¹Private recycling contract (American Battery Company, Colorado Springs, CO).

Table 6
Quantities of Hazardous/Nonhazardous Materials Used at MPVM Facilities*

| Wastes | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
|----------------------|-------|------|--------|-------|---------|-------|------|------|--------|--------|------|-------|
| MPVM# | | | | | | | | | | | | |
| Degreasing solvent | 9032 | 9032 | 9032 | 9032 | 9032 | 9032 | 9032 | 9032 | 9032 | 9032 | 3613 | 5419 |
| Carburetor cleaner | | | | | | | | | | | | |
| Engine oil | 64295 | | 33600 | 10500 | 52465 | 31227 | | | 151200 | | 8400 | 5880 |
| Antifreeze | 37268 | | 2112 | 2640 | 30087 | 9838 | | | | 2640 | 528 | 36960 |
| Lead-acid batteries | | | 18750 | 1000 | 15000 | 18000 | | | | 18000 | 3000 | 7200 |
| Caustic wash | | | | | | | | | | | 24 | |
| Floor wash detergent | | | | 50 | | 350 | | | | 12 | | |
| Spent sorbent | | | 600 | 500 | 11000 | 2000 | | | | 6000 | 1500 | 16800 |
| Diesel fuel | | | 691509 | | 2000000 | | | | 49000 | 714000 | | |
| Mogas fuel | | | | 64379 | 141652 | | | | | | 4200 | 16800 |
| Dirty rags | | | 600 | 500 | 4000 | 240 | | | 1000 | | 4000 | 6000 |
| Transmission fluid | | | 700 | | 567 | | | | | | | |
| Brake fluid | | | | | 588 | 840 | | | | | | |
| Hydraulic fluid | | | | | 1568 | | | | | | | |
| De-icer | | | | | | | | | | | | |
| Lithium batteries | | | | | | | | | | | | |
| Lacquer thinner | | | | | | | | | | | | |

*Quantities are reported in pounds per year.

Table 6 (Cont'd)

| Wastes | MPVM # | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 |
|----------------------|--------|-------|--------|------|------|------|-------|-------|------|------|------|----|
| Degreasing solvent | | 9032 | 1806 | 3613 | 1806 | 5419 | 1806 | 5419 | 3613 | 9063 | 7226 | |
| Carburetor cleaner | | | | | | | | | | | | |
| Engine oil | | 6720 | 37800 | 2100 | | 700 | 16030 | 36000 | | 3500 | | |
| Antifreeze | | 36960 | 36960 | 1760 | 440 | 616 | 10560 | 8882 | | 4400 | | |
| Lead-acid batteries | | 6600 | | | | | 250 | | | | | |
| Caustic wash | | | | | | | | | | | | |
| Floor wash detergent | | | | 20 | | | 1008 | | 2016 | | | |
| Spent sorbent | | 12000 | 100 | | 900 | 500 | 1200 | | | 500 | 2400 | |
| Diesel fuel | | 78750 | 840000 | 3500 | | | | | 350 | | | |
| Mogas fuel | | | | | | | | | | | | |
| Dirty rags | | 4800 | | | | | | | | | | |
| Transmission fluid | | 1260 | 756 | | 1000 | 150 | 700 | 450 | | 500 | | |
| Brake fluid | | | | | 1400 | | | | | | | |
| Hydraulic fluid | | | | | 3500 | | | | | | | |
| De-icer | | 1008 | | | | | | | | | | |
| Lithium batteries | | 1008 | | | | | | | | | | |
| Sulfuric acid | | | | | | | | | | | | |
| Lacquer thinner | | | | | | | | | | | | |

Table 6 (Cont'd)

| Wastes | MPVM # | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 |
|----------------------|--------|------|------|-------|------|------|------|-------|--------|-------|------|-----|
| Degreasing solvent | | 7226 | 1806 | 7226 | 7226 | 9032 | 1806 | 3613 | 3613 | 3613 | 362 | 362 |
| Carburetor cleaner | | | | | | | | | | 792 | | |
| Engine oil | | | | | | | 4620 | 8400 | 11550 | | 1050 | 700 |
| Antifreeze | | 1320 | | | | | 5280 | 4224 | 5280 | | 968 | 616 |
| Lead-acid batteries | | | | 41250 | | | 5000 | | 1000 | 10000 | | |
| Caustic wash | | | | | | | | | | | | |
| Floor wash detergent | | | | | | | | 55000 | | 840 | | |
| Spent sorbent | | 4000 | | 4000 | | | | 5000 | 120 | 6020 | 400 | 300 |
| Diesel fuel | | | | | | | 1540 | 0 | 336000 | | | |
| Mogas fuel | | | | | | | | | 210000 | | | |
| Dirty rags | | | | | | | | | 2400 | | 300 | 100 |
| Transmission fluid | | | | | | | 3640 | | | | | |
| Brake fluid | | | | | | | | 84 | | | | |
| Hydraulic fluid | | | | | | | | | | | | |
| De-icer | | | | | | | | | | | | |
| Lithium batteries | | | | | | | | | 20 | | | |
| Sulfuric acid | | | | | | | | 9 | 2100 | | | |

Table 6 (Cont'd)

| Wastes | MPVM # | 35 | 36 | 37 | 38 | 39 | 40 | 41 | 42 | 43 | 44 | 45 | 46 | 47 |
|----------------------|--------|-----|-----|-------|------|-----|------|-------|------|--------|------|------|-------|------|
| Degreasing solvent | | 362 | 362 | 362 | 362 | 362 | 231 | 1806 | 1806 | 1806 | 1806 | 1806 | 12012 | 1806 |
| Carburetor cleaner | | | | | | | | | | 275 | | | | 795 |
| Engine oil | | 539 | 210 | 875 | 700 | 49 | 2744 | 2660 | 1225 | 1500 | 7000 | 1540 | 3500 | |
| Antifreeze | | 44 | 528 | 132 | 440 | 44 | 176 | 44 | 440 | 660 | | 484 | 1100 | |
| Lead-acid batteries | | 400 | | 1750 | 4000 | 100 | 150 | 500 | 500 | 2400 | | 1000 | | |
| Caustic wash | | | | | | | | | | | | | | |
| Floor wash detergent | | | | | | | 42 | | | | | | | |
| Spent sorbent | | 25 | 240 | 600 | 500 | 25 | 200 | | 150 | | | | 200 | |
| Diesel | | | | 20664 | | | 1750 | 70000 | | 350000 | | | | 3500 |
| Mogas | | | 420 | | | 35 | 3500 | | | | | | | |
| Dirty rags | | | 50 | 300 | | 375 | | 200 | 50 | 40 | | | | |
| Transmission fluid | | 18 | | | | | 105 | 196 | | | | | | |
| Brake fluid | | | | | | | | | | | | 8 | | |
| Hydraulic fluid | | | | | | | 252 | | | | | 126 | 800 | |
| De-icer | | | | | | | | | | | | | | |
| Lithium batteries | | | | | | | | | | | | | | |
| Sulfuric acid | | | | | | | 42 | 84 | | | | | | |

Table 7
Industrial Maintenance and Small Arms Shops (IMSS)

-
1. DOL - Maintenance Operations Branch - Tactical and MHE repair - Maintenance Section II - Building 8000
 2. DOL - MOB - Unit overhaul, fuel and electrical systems repair, and special support - Maintenance Section III - Building 8000
 3. DOL - MOB - Communication and electronic equipment repair - Maintenance Section IV - Building 8000
 4. DOL - MOB - Radiator service and machine shop - Maintenance Section V - Building 8000
 5. AOAP Lab - Building 8000*
 6. 704th MNT Bn C Company - Battery service and repair shop - Maintenance Section III - Building 8000**

* Private contractor operated. (Trowell Inc.)

** Charlie Company of the 704th MNT Bn is a direct support element of DISCOM which operates under the guidance of DOL - MOB, Maintenance Section III.

Table 8
Quantities of Waste Generated at IMMS*

| Materials | IMSS # | 1 | 2 | 3 | 4 | 5 | 6 |
|------------------------------------|---------------|----------|----------|----------|----------|----------|-----------|
| Spent 1,1,1 trichloroethane (TCA) | | N/A | 7700 | | N/A | | N/A |
| Spent degreasing solvent** | | 12566 | 13351 | 1570 | 1570 | | |
| Antifreeze solution | | 5896 | 11440 | N/A | 3080 | | |
| Used motor oil | | 19000 | 42000 | 10 | | 12580 | |
| Contaminated sorbent | | 540 | 300 | | | | |
| Contaminated fuel | | 42700 | | | | | |
| Oily rags | | 2100 | | | | | |
| Transmission fluid | | 686 | | | | | |
| Brake fluid | | 80 | | | | | |
| Hydraulic fluid | | 4375 | | | | | |
| Hazardous, faulty parts | | 685 | | | | | |
| Contaminated fluid filters | | 3700 | | | | | |
| TCA solvent tank bottom sludge | | | 5280 | | | | |
| Spent Li-So ₂ batteries | | | | 5 | | | |
| Spent NICAD batteries | | | | 10 | | | |
| Spent paint thinner | | | | | 15 | | |
| Contaminated cutting oil | | | | | 70 | | |
| Caustic wash (NaOH) | | | | | 2500 | | |
| Chlorinated motor oil | | | | | | 1600 | |
| Lead acid battery casings | | | | | | | 300,000 |
| Spent sulfuric acid | | | | | | | 90,000*** |

* Quantities are reported in pounds per year.

** Low flash point type solvent (105°F) - Safety Kleen recycle.

*** Drained sulfuric acid is neutralized with sodium bicarbonate and discharged to the post IWTP.

Table 9
Quantities of Hazardous/Nonhazardous Materials Used at IMSS

| Materials | IMSS # | 1 | 2 | 3 | 4 | 5 | 6 |
|-----------------------|---------------|----------|----------|----------|----------|----------|----------|
| 1,1,1 Trichloroethane | | N/A | 29722 | N/A | N/A | | |
| Degreasing solvent | | 14786 | 15709 | 1848 | 1848 | | |
| Motor oil | | 16200 | 70000 | 10 | | | |
| Antifreeze solution | | 2992 | 15840 | N/A | 1540 | | |
| Sorbent | | 1200 | 400 | | | | |
| Diesel fuel | | 31500 | | | | | |
| Mogas | | 25200 | | | | | |
| Rags | | 2100 | | | | | |
| Transmission fluid | | 686 | | | | | |
| Brake fluid | | 210 | | | | | |
| Hydraulic fluid | | 4375 | | | | | |
| Fluid filters | | 3700 | | | | | |
| Paint thinner | | | | | | 72 | |
| Cutting oil | | | | | | 70 | |
| Sodium Hydroxide | | | | | | 2288 | |
| Sodium bicarbonate | | | | | | 75000 | |
| Sulfuric acid | | | | | | | 90000 |

Table 10
Aviation Maintenance Facilities (AMF)

1. 4th Aviation Regiment - Aviation Maintenance Facility - Butts Army Airfield - Building 9620
2. 2-158 Aviation Regiment - Aviation Maintenance Facility - Butts Army Airfield - Building 9620
3. 4th Aviation Brigade - F Company Aviation Maintenance Facility - Butts Army Airfield - Building 9604
4. 4-4 Task Force - Aviation Maintenance - Butts Army Airfield
5. 4th Aviation Brigade - E Company Aviation Maintenance - Building 9604
6. DOL - Aircraft Maintenance Bay - Butts Army Airfield - Building 9604

Table 11
Quantities of Wastes Generated at AMF*

| Wastes | AMF # | 1 | 2 | 3 | 4 | 5 | 6 | Survey Total | IDMS Total |
|----------------------------|-------|------|------|------|-----|------|------|--------------|------------|
| Spent degreasing solvent** | | 3142 | 3142 | 2356 | 425 | 2356 | 1570 | | 12991 |
| MEK degreaser | | 155 | | 15 | 2 | | | 172 | 85 |
| Paint stripper | | 77 | 8 | 8 | | | 39 | 132 | |
| Paint thinner | | 77 | | | 2 | | | 79 | 135 |
| Filters (paint booth) | | 24 | | | | | | 24 | |
| Empty containers | | 10 | | 150 | 50 | 25 | | 235 | |
| Aircraft engine oil | | 1400 | 462 | 18 | 385 | 385 | 385 | 3035 | 1035 |
| De-icer solution | | | | | | | | | |
| Nickel-cadmium batteries | | | | | | | | | 20250 |
| Potassium hydroxide | | | | 2 | | | | 2 | |
| Caustics | | 485 | | 9 | | 220 | | 714 | |
| Detergent floor wash | | 465 | | 8 | | 210 | | 683 | |
| Contaminated dirt | | | | | | | | | 3500 |
| Spent sorbent | | 100 | | 100 | | 100 | 300 | 600 | |
| Contaminated JP - 4 | | | 1820 | 70 | | 385 | | 2275 | 1750 |
| Oily rags | | 400 | | 8 | | 400 | 500 | 1308 | |
| Solution sludge | | | | 8 | | | | 8 | |
| Contaminated water | | | | 400 | | | | 400 | |
| Hydraulic fluid | | | 105 | | | | 35 | 140 | 1700 |
| Carbon Remover | | | | | | | | | 171 |
| Unused Paint | | | | | | | | | 290 |
| Grease | | | | | | | | | 345 |
| Alcohol | | | | | | | | | 1031 |
| Acetone | | | | | | | | | 216 |
| Cleaning Compound, NOS | | | | | | | | | 275 |

* Quantities are reported in pounds per year.

** Low flash point type (105°F) - Safety Kleen recycle.

Table 12

Quantities of Hazardous/Nonhazardous Materials Used at AMF

| Wastes | AMF # | 1 | 2 | 3 | 4 | 5 | 6 |
|---------------------------|--------------|----------|----------|----------|----------|----------|----------|
| Degreasing solvent | | 693 | | 424 | 424 | 424 | |
| MEK degreaser and cleaner | | | | 155 | | 31 | 2 |
| Paint stripper | | 77 | 8 | 8 | | | |
| Paint thinner | | 92 | | | ? | | |
| Filters (paint booth) | | 24 | | | | | |
| Aircraft engine oil | | 1400 | 924 | 42 | 385 | 385 | |
| De-icer solution | | | 420 | | | | |
| Nickel-cadmium batteries | | | | | | | |
| Potassium hydroxide | | | | | 42 | | |
| Caustics | | 485 | 352 | 18 | | 220 | |
| Detergent solution | | 465 | | 8 | | 210 | |
| Spent sorbent | | 100 | | 100 | | 100 | |
| Contaminated JP-4 fuel | | | | | 3500 | | 385 |
| Dirty rags | | 400 | | 8 | | 400 | |
| Hydraulic fluid | | | 280 | | | | |

Table 13
Paint Shops (PS)

-
1. DOL - Maintenance Operations Branch - Body and Paint Shop - Maintenance Section II - Building 8000
 2. DPCA - Auto Skills Center - Vehicle Paint Booths - Building 2427

Table 14
Quantities of Wastes Generated at PS*

| Wastes | PS # | 1 | 2 | Survey Total | IDMS Total |
|------------------------|------|------|-----|-----------------|---------------|
| Hazardous empties | | 600 | | 600 | |
| Spoiled paint | | 600 | 50 | 650 | 19679 |
| Paint thinner | | 4290 | 430 | 4720 | 7040 |
| Paint stripper | | 90 | | 90 | |
| Caustics | | | | | |
| Detergent floor wash | | | | | |
| Contaminated dirt | | | | | |
| Spent sorbent | | 600 | | 600 | |
| Contaminated rags | | 150 | | 150 | |
| Tank sludge | | | | | |
| Contaminated water | | | | | |
| Spent paint filters | | 600 | 280 | 880 | |
| Respiratory cartridges | | 240 | | 240 | |
| Coveralls | | 480 | | 480 | |
| Methylene chloride | | | | | 65 |
| Sealant | | | | | 478 |
| Bondo | | | | | 284 |
| Rust remover | | | | | 140 |
| Adhesive | | | | | 210 |

*Quantities are reported in pounds per year.

Table 15

Quantities of Hazardous/Nonhazardous Materials Used at PS*

| Materials | PS # | 1 | 2 |
|-----------------------|-------------|----------|----------|
| Paint thinner | | 17160 | |
| Toluene | | 4290 | |
| Paint stripper | | 90 | |
| Caustics | | | |
| Detergent floor wash | | | |
| Spent sorbent | | | |
| Contaminated rags | | 75 | |
| Paint filters | | 600 | |
| Respirator cartridges | | 240 | |
| Coveralls | | 480 | |

*Quantities are reported in pounds per year.

Table 16

Photography, Printing, Arts/Crafts Shops (PPAS)

-
1. DPTM - Training and Support Center - Photographic Section - Building 6010
 2. DPTM - Training and Support Center - Graphics Section - Building 6103
 3. DPTM - Training and Support Center - Devices Section - Building 6084
 4. DPTM - Training and Support Center - Photographic section - Building 6138
 5. DOIM - USAISC - Building 6120
 6. DPCA - Photography Skill Center - Building 2200

Table 17

Quantities of Waste Generated at PPAS*

| Wastes | PPRF # | 1 | 2 | 3 | 4 | 5 | 6 | Survey Total | IDMS Total |
|------------------------|--------|------|-----|----|------|-----|------|--------------|------------|
| Bleach | | 1060 | | | 448 | | 288 | 1796 | 102 |
| Activator | | 720 | | | | | | 720 | |
| Developer | | 3632 | 192 | | 576 | 408 | 1728 | 6128 | 4945 |
| Cleaner | | 216 | | | | | | 216 | 125 |
| Fixer | | 2912 | 288 | | 448 | | 480 | 4128 | |
| Toner | | | 8 | | | | 28 | 36 | 2946 |
| Rinse | | | 4 | | | | | 4 | 215 |
| Stabilizer | | | | | | | 288 | 288 | |
| Lacquer thinner | | 215 | | 15 | | | | 230 | |
| Enamel thinner | | 72 | | | | | | 72 | |
| Turpentine | | | 14 | | | | | 14 | |
| Stencil | | | 200 | | | | | 200 | |
| Silk screen | | | 20 | | | | | 20 | |
| Hexcell uralite | | 1000 | | | | | | 1000 | |
| Photo conditioner | | | | | | 96 | | 96 | |
| Waste inks | | | | | 1 | | | 1 | |
| Solvent rags | | | | | | | | | |
| Cleaning solvent | | | | | | 96 | | 96 | |
| Wetting solution | | | | | | 96 | | 96 | |
| Blankrola | | | | | | | 739 | 739 | 863 |
| Deglazing solvent | | | | | 96 | | | 96 | |
| Electrostatic ink | | | | | 1500 | | | 1500 | |
| Electrostatic solution | | | | | 2002 | | | 2002 | |
| Hypo | | | | | | | 192 | 192 | |
| Step bath | | | | | | | 488 | 488 | |
| Conversion solution | | | | | | | | | 198 |
| Adhesive | | | | | | | | | 1071 |
| Imager | | | | | | | | | 88 |

*Quantities are in pounds per year.

Table 18
Quantities of Hazardous/Nonhazardous Materials Used at PPAS*

| Wastes | PPRF # | 1 | 2 | 3 | 4 | 5 | 6 |
|------------------------|--------|------|-----|-----|-----|-----|------|
| Bleach | | 1060 | | | 448 | | 288 |
| Activator | | 720 | | | | | |
| Developer | | 3632 | 192 | | 576 | | 1728 |
| Cleaner | | 216 | | | | | |
| Fixer | | 2912 | 288 | | 448 | | 480 |
| Toner | | | 8 | | | | 28 |
| Rinse | | | 4 | | | | |
| Stabilizer | | | | | | | 288 |
| Lacquer thinner | | | | 350 | | | |
| Enamel thinner | | | | | | | |
| Turpentine | | | | | | | |
| Stencil | | | | | | | |
| Silk screen | | | | | | | |
| Hexcelleralite | | | | | | | |
| Empty containers | | | | | | | |
| Photo conditioner | | | | | | 96 | |
| Waste inks | | | | | | | |
| Solvent rags | | | | | 100 | | |
| Cleaning solvent | | | | | | 96 | |
| Wetting solution | | | | | | 96 | |
| Blankrola | | | | | | 739 | |
| Electrostatic solution | | | | | | | 92 |
| Waste ink mix | | | | | 92 | | |
| Hype | | | | | | | 192 |
| Step bath | | | | | | | 488 |

*Quantities are reported in pounds per year.

Table 19

Hospitals, Clinics, and Laboratories (HCL)

1. DHS - Evans Army Community Hospital - Building 7500
2. DENTAC - Dental Clinic Number 3 - Building 6225
3. Veterinary Hospital - Building 6001

Table 20

Quantities of Wastes Generated at HCL*

| Wastes | HCL # | 1 | 2 | 3 | Survey Total | IDMS Total |
|---------------------|-------|--------|--------|-------|--------------|------------|
| Pathological | | 732 | | 15600 | 16332 | |
| Infectious | | 360000 | 149650 | | 509650 | |
| Pharmaceutical | | 90 | | | 90 | 90 |
| Chemical | | | | | | 492 |
| Radioactive | | | | | | |
| Silver recovery | | 19 | | | 19 | |
| Formaldehyde | | | | | | 430 |
| Alcohol | | | | | | 915 |
| Mercury | | | | | | 215 |
| Benzene | | | | | | 280 |
| Potassium phosphate | | | | | | 320 |
| Disinfectant | | | | | | 185 |
| Chloroform | | | | | | 75 |
| Photo developer | | | | | | 460 |
| Photo toner | | | | | | 216 |
| Photo wash | | | | | | 290 |
| Soda lime | | | | | | 215 |
| Toluene | | | | | | 518 |
| Xylene | | | | | 308 | 480 |

*Quantities are reported in pounds per year.

Table 21
Quantities of Hazardous/Nonhazardous Materials Used at HCL*

| Materials | HCL # | 1 | 2 | 3 |
|------------------|--------------|----------|----------|----------|
| Xylene | | 293 | | |
| Mercury | | | | |
| Photochemical | | | | |
| Acids | | | | |
| Bases | | | | |
| Alcohols | | | | |
| Formalin | | | | |
| Formaldehyde | | | | |

*Quantities are reported in pounds per year.

Table 22
Heating and Cooling Plants (HCP)

1. DEH - Boiler Plant Section - Building 1860
2. DEH - Boiler Plant Section - Building 403
3. DEH - Boiler Plant Section - Building 9609
4. DEH - Boiler Plant Section - Building 6290
5. DEH - Boiler Plant Section - Building 6290
6. DPTMSEC-Museum Div.-FSH Museum; Bldg. 123

Table 23

Quantities of Waste Generated at HCP*

| Materials | HCP # | 1 | 2 | 3 | 4 | 5 |
|--------------------------|-------|------|-------|-------|------|--------|
| Spent degreasing solvent | | | 1400 | | | |
| Contaminated fuel oil | | | | | | |
| Cyclohexyl | | | | | | |
| Caustic soda | | | | | | |
| Boiler blowdown | | 1600 | 16000 | 80000 | 8000 | 160000 |
| Toxic emissions | | | | | | |
| Ash | | | | | | |
| Miscellaneous | | | | | | |

*Quantities are reported in pounds per year.

Table 24

Quantities of Hazardous/Nonhazardous Materials Used at HCP*

| Materials | HCP # | 1 | 2 | 3 | 4 | 5 |
|--------------------|-------|--------|------|-----|----|-----|
| Degreasing solvent | | | 1400 | | | |
| Used oil | | 183890 | | | | |
| Fuel oil | | 289485 | | | | |
| Natural gas | | 336167 | | | | |
| Cyclohexyl | | | 2 | 40 | | |
| Caustic soda | | 61 | 5 | 184 | 12 | 12 |
| Tripolyphosp | | | 8 | 454 | | 52 |
| Tannin | | | 8 | 135 | | 75 |
| Sodium sulfite | | 373 | 4 | 95 | 3 | 50 |
| Morpholine | | | | | | 211 |

*Quantities are reported in pounds per year.

Table 25
Waste Generation Summary

| Waste Generating Operation, Process, or Condition | Waste Category | lb/yr | lb/yr/unit | | Waste Stream Unit | | | | | |
|--|-------------------|--------|---------------------------|--|-------------------|-------------------------------|-------------------------------|--------|------------------------------------|-----------------------------|
| | | | Survey | IDMS | | | | | | |
| Motor Pools and Vehicle Maintenance Facilities | 1 | 191861 | 190103 | | 190103 | Spent petroleum naphtha | | | | |
| | | | | 1758 | 1758 | Spent degreasing solvent, NOS | | | | |
| | 2 | 1442 | | | 647 | 647 | Carbon remover | | | |
| | | | | 795 | 795 | Carburetor cleaner | | | | |
| | 3 | 247501 | 247501 | | 247501 | 247501 | Spent antifreeze solution | | | |
| | | | | 635507 | 105000 | 635507 | Used motor oil | | | |
| | 4 | 717424 | | 81917 | 81917 | Chlorinated motor oil | | | | |
| | 8 | 3744 | 3744 | | 3744 | Spent sulfuric acid | | | | |
| | 10 | 32655 | 32655 | 20487 | 32655 | Contaminated diesel, Mogas | | | | |
| | 12 | 201850 | 201850 | 38301 | 201850 | Spent lead-acid batteries | | | | |
| | 13 | 305491 | | 4903 | 1148 | 4903 | Used brake fluid | | | |
| | | | | 23041 | | 23041 | Used transmission fluid | | | |
| | | | | 14342 | | 14342 | Used hydraulic fluid | | | |
| | | | | 120680 | 95000 | 120680 | Spent sorbent | | | |
| | | | | 34825 | | 34825 | Contaminated rags | | | |
| | | | | 6770 | 105000 | 105000 | Contaminated soil | | | |
| | | | | 1540 | | 1540 | Hazardous faulty parts | | | |
| | | | | 685 | 1160 | 1160 | Asbestos containing materials | | | |
| | | | | Industrial Maintenance Small Arms Shops | 1 | 29057 | 29057 | | 29057 | Spent degreasing solvent |
| 7700 | | | | | | | | 7700 | 7700 | Spent 1,1,1-trichloroethane |
| 20416 | 20146 | 20146 | Spent antifreeze solution | | | | | | | |
| 4 | 75190 | 73590 | | | | | | 73590 | Used motor oil | |
| | | | 1600 | | | | | 1600 | Chlorinated motor oil | |
| 7 | 15 | 15 | | | | | | 15 | Spent paint thinner | |
| 8 | 92500 | 90000 | | | | | | 90000 | Spent sulfuric acid | |
| | | | 2500 | | | | | 2500 | Spent sodium hydroxide | |
| 10 | 42700 | 42700 | | | | | | 42700 | Contaminated fuels | |
| 12 | 300015 | 300000 | | | | | | 300000 | 300000 | Lead-acid battery casings |
| | | | 5 | | | | | 5 | Spent Li-So ₂ batteries | |
| | | | 10 | | | | | 10 | Spent NICAD batteries | |
| | | | 13 | | | | | 17816 | 686 | |
| | | | | 80 | 80 | Used brake fluid | | | | |
| | | 4375 | 4375 | Used hydraulic fluid | | | | | | |
| | | 840 | 840 | Contaminated sorbent | | | | | | |
| | | 685 | 685 | Hazardous faulty parts | | | | | | |

Table 25 (Cont'd)

| Waste Generating Operation, Process, or Condition | Waste Category | lb/yr | lb/yr/unit | | | Waste Stream Unit |
|--|-------------------|-------|------------|-------|---------|------------------------------|
| | | | Survey | IDMS | Suggest | |
| | | | 3700 | | 3700 | Contaminated fluid filters |
| | | | 70 | | 70 | Contaminated cutting oil |
| | | | 2100 | | 2100 | Oily rags |
| | | | 5280 | | 5280 | TCA tank bottom sludge |
| | 1 | 13379 | 12991 | | 12991 | Spent petroleum naphtha |
| | | | 172 | 85 | 172 | Spent MEK |
| | | 446 | | 216 | 216 | Spent acetone |
| | 2 | | | 171 | 171 | Carbon remover |
| | | | | 275 | 275 | Cleaning compound, NOS |
| | 4 | 3035 | 3035 | 1035 | 3035 | Aircraft engine oil |
| | 7 | 842 | 132 | | 132 | Spent paint stripper |
| | | | 79 | 135 | 135 | Spent paint thinner |
| | | | 285 | | 285 | Spent paint filters |
| | | | | 290 | 290 | Unused, spoiled paint |
| | 3 | 716 | 714 | | 714 | Caustics |
| | | | 2 | | 2 | Potassium hydroxide |
| | 10 | 2275 | 2275 | 1750 | 2275 | Contaminated JP-4 |
| | 12 | 20250 | | 20250 | 20250 | Spent NICAD batteries |
| | 13 | 11866 | 140 | 1700 | 1700 | Contaminated hydraulic fluid |
| | | | 600 | | 600 | Spent sorbent |
| | | | | 345 | 345 | Grease, NOS |
| | | | 4375 | | 4375 | Contaminated hydraulic fluid |
| | | | 30 | | 30 | Hazardous empties |
| | | | 1308 | | 1308 | Contaminated rags |
| | | | 8 | | 8 | Solvent tank sludge |
| | | | | 3500 | 3500 | Contaminated soil, solids |
| Paint Shops | 2 | 65 | | 65 | 65 | Spent methylene chloride |
| | 4 | 1750 | 1750 | | 1750 | Used motor oil |
| | 5 | 1031 | 1031 | | 1031 | Spent alcohol, NOS |
| | 7 | 29521 | 4720 | 7040 | 7040 | Spent paint thinner |
| | | | 90 | | 90 | Spent paint stripper |
| | | | 880 | | 880 | Spent paint filters |
| | | | 240 | | 240 | Spent respirator cartridges |
| | | | | 478 | 478 | Sealant |
| | | | | 284 | 284 | Bondo |
| | | | | 140 | 140 | Rust Remover |
| | | | | 210 | 210 | Adhesive, NOS |

Table 25 (Cont'd)

| Waste Generating Process, Operation, or Condition | Waste Category | lb/yr | lb/yr/unit | | Waste Stream Unit | | | |
|--|-------------------|--------|------------|-------|-------------------|-----------------------------------|-----|-------------------------|
| | | | Survey | IDMS | | | | |
| Photography, Printing and Arts/Crafts Shops | 13 | 4115 | 480 | | 480 | Paint covered overalls | | |
| | | | 650 | 19679 | 19679 | Unused, spoiled paint | | |
| | | | 2600 | | 2600 | Spent oil, fuel filters | | |
| | | | 840 | | 840 | Spent sorbent | | |
| | | | 600 | | 600 | Hazardous empties | | |
| | | | 75 | | 75 | Contaminated rags | | |
| | | | 96 | | 96 | Spent deglazing solvent | | |
| | | | 2 | 1079 | 216 | 125 | 216 | Spent film cleaner |
| | | | | | 739 | 863 | 863 | Spent blankrola solvent |
| | | | 6 | 5621 | 288 | | 288 | Spent photo stabilizer |
| | | | 1796 | 102 | 1796 | Spent photo bleach | | |
| | | | | 215 | 215 | Spent photo rinse | | |
| | | | 36 | 2946 | 2946 | Spent offset toner solvent | | |
| | | | 92 | | 92 | Spent electrostatic solvent | | |
| | | | 92 | | 92 | Spent electrostatic ink and toner | | |
| | | | 192 | | 192 | Spent hypo. cleaning agent | | |
| | | | 720 | | 720 | Spent photo activator | | |
| | 7 | 316 | 230 | | 230 | Laquer thinner | | |
| | | | 72 | | 72 | Enamel thinner | | |
| | | | 14 | | 14 | Turpentine | | |
| | 8 | 10663 | 6128 | 4945 | 4945 | Spent photo developer | | |
| | | | 4128 | | 4128 | Spent Photo fixer | | |
| | | | 96 | | 96 | Ink roller conditioner | | |
| | | | 488 | | 488 | Acetic acid photo bath | | |
| | | | | 198 | 198 | Conversion solvent, NOS | | |
| | | | | 88 | 88 | Imager | | |
| Hospitals, Clinics, and Laboratories | 1 | 1278 | 308 | 480 | 480 | Spent xylene | | |
| | | | | 280 | 280 | Spent benzene | | |
| | | | | 518 | 518 | Spent toluene | | |
| | 2 | 505 | | 430 | 430 | Spent formaldehyde | | |
| | | | | 75 | 75 | Spent chloroform | | |
| | 5 | 915 | | 915 | 915 | Spent alcohol, NOS | | |
| | 6 | 966 | | 460 | 460 | Spent photo developer | | |
| | | | | 216 | 216 | Spent photo toner | | |
| | | | | 290 | 290 | Spent photo wash | | |
| | 9 | 185 | | 185 | 185 | Spent disinfectant, NOS | | |
| | 11 | 90 | 90 | 90 | 90 | Shelf-life pharmaceuticals | | |
| | 13 | 511624 | | 215 | 215 | Contaminated mercury | | |

Table 25 (Cont'd)

| Waste Generating Process, Operation, or Condition | Waste Category | lb/yr | lb/yr/unit | | | Waste Stream Unit |
|--|-------------------|--------|------------|-------|---------|-------------------------------|
| | | | Survey | IDMS | Suggest | |
| | 6 | | | 320 | 320 | Potassium phosphate |
| | | | | 215 | 215 | Soda lime |
| | | | 732 | | 732 | Pathological wastes |
| | | | 509650 | | 509650 | Medical infections |
| | | | | 492 | 492 | Miscellaneous chemicals |
| Heating and Cooling Plants | 1 | 1400 | 1400 | | 1400 | Spent petroleum naphtha |
| G E (formerly DEH) | 8 | 265600 | 265600 | | 265600 | Caustic boiler blowdown |
| | 7 | 8263 | | 3702 | 3702 | Unused, spoiled paint |
| | | | | 3451 | 3451 | Sealant |
| | | | | 1110 | 1110 | Polyurethane |
| Troop | 12 | 171 | | 171 | 171 | Furniture polish |
| | 9 | 18441 | | 4762 | 4762 | Shelf-life DS-2 |
| | | | | 10717 | 10717 | Shelf-life STB |
| | | | | 1854 | 1854 | Calcium hydride |
| | | | | 1108 | 1108 | Calcium hypochlorite |
| | 12 | 13248 | | 8461 | 8461 | Spent mercury batteries |
| | | | | 1019 | 1019 | Spent alkaline batteries |
| | | | | 3768 | 3768 | Spent lithium batteries |
| | 13 | 10559 | | 1210 | 1210 | Insecticides, NOS |
| Miscellaneous | | | | 9349 | 9349 | Magnesium carbon |
| | 2 | 125 | | 100 | 100 | Spent dichlorodifluoromethone |
| | | | | 25 | 25 | Spent freon |
| | 5 | 3720 | | 3720 | 3720 | Spent methanol |
| | 8 | 750 | | 750 | 750 | Spent acetic acid |
| | 13 | 1184 | | 1184 | 1184 | Detergent, NOS |

Waste Categories: 1: Spent degreasing solvents (nonhalogenated); 2: Spent degreasing solvents (halogenated); 3: Spent antifreeze solution; 4: Used motor oil; 5: Used alcohols; 6: Spent photo and print chemicals; 7: Paint related materials; 8: Spent acids and bases; 9: Decontamination agents; 10: Contaminated fuels; 11: Pharmaceutical wastes; 12: Spent batteries; 13: Miscellaneous wastes

Table 26
Total Waste Generation Rates Sorted by Waste Categories*

| Generator | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 |
|---------------|----------------|---------------|--------------|---------------|---------------|-------------|--------------|---------------|--------------|--------------|-----------|---------------|---------------|
| MPVM | 1701968 | 191861 | 1442 | 247501 | 717424 | | | 3774 | | 32655 | | 201850 | 305491 |
| IMSS | 585409 | 29057 | 7700 | 20416 | 75190 | | 15 | 92500 | | 42700 | | 300015 | 17816 |
| AMF | 52809 | 13379 | 446 | | 3035 | | 842 | 716 | | 2275 | | 20250 | 11866 |
| PS | 36482 | | 65 | | 1750 | | 29521 | | | | | | 4115 |
| PPAS | 17775 | 96 | 1079 | | | 5621 | 316 | 10663 | | | | | |
| HCL | 515563 | 1278 | 505 | | | 966 | | | 185 | | 90 | | 511624 |
| HCP | 267000 | 1400 | | | | | | 265600 | | | | | |
| DEH | 8434 | | | | | | 8263 | | | | | 171 | |
| Troop | 42248 | | | | | | | | 18441 | | | 13248 | 10559 |
| Miscellaneous | 5779 | 125 | | | 3720 | | | 750 | | | | | 1184 |
| TOTAL | 3233467 | 237071 | 11362 | 267917 | 797399 | 5646 | 38957 | 373973 | 18626 | 77630 | 90 | 535534 | 862655 |

*Quantities are reported in pounds per year.

5 WASTE MINIMIZATION FOR MOTOR POOLS AND VEHICLE MAINTENANCE FACILITIES AND AVIATION MAINTENANCE FACILITIES

The typical maintenance and repair operations conducted in a vehicle or aviation maintenance facility are: oil and grease removal; engine, parts, and equipment cleaning; rust removal; and solution replacement. Table 27 lists the operations, the corresponding materials used, and the wastes generated. Table 28 lists the process descriptions and the corresponding waste descriptions according to hazardous waste codes and Department of Transportation (DOT) classifications. These waste descriptions are used when shipping the wastes offsite. Most of the wastes generated at MPVM are: parts cleaning solutions and miscellaneous detergent solutions, oil and grease from engine cleaning, spent automotive fluids, and lead-acid batteries. AMF generated most of the above wastes (except automotive fluids and lead-acid batteries) and nickel-cadmium batteries. Paint removal and painting operations may also occur at both MPVM and AMF. The minimization of wastes from such activities is discussed in Chapter 7.

Some of the equipment used, primarily in parts cleaning operations, are solvent sinks, hot tanks, and jet spray washers. Proper operation of this equipment minimizes material use and waste generation. The solvent in the sinks is recirculated continuously from a tank to the parts wash tray. The solvent (e.g., PD680-II) is replaced periodically. Hot tanks contain aqueous detergent or caustic solutions for immersion cleaning. These tanks are equipped with air or mechanical agitation devices and electrical heating devices to heat the solution to 356 °F. The jet spray washers consist of nozzles that emit rotating water jets to clean parts immersed in an aqueous wash solution. The contaminated liquid and sludge from both the hot tanks and jet sprays are removed periodically.

Most of the minimization options discussed below have been obtained from *Waste Audit Study - Automotive Repairs*,³⁶ and other references.³⁷

Source Reduction

All Wastes - Better Operating Practices

Better housekeeping practices are necessary to minimize the quantity and toxicity of wastes or emissions generated. Some of the methods include: closing the lids of containers (e.g., solvent sinks) containing volatile substances (e.g., Stoddard solvent); conveniently locating cleaning equipment near service bays; increasing employee awareness of proper waste handling and disposal procedures; labeling hazardous waste containers properly; segregating wastes in separate containers; and separating trash/solids before waste collection for recycling or treatment.³⁸ Draining wastes to a sewer is not a good practice and may be illegal in many states. Inadvertent losses (spills) can also be minimized by using good housekeeping practices.

³⁶ W.M. Toy, *Waste Audit Study - Automotive Repairs* (Prepared for the California Department of Health Services, Sacramento, CA, 1987).

³⁷ *Hazardous Waste Reduction Checklist - Automotive Repair Shops* (California Department of Health Services, Toxic Substances Control Division, 1988); *Hazardous Waste Reduction Assessment Handbook - Automotive Repair Shops* (California Department of Health Services, Toxic Substances Control Division, 1988).

³⁸ W.M. Toy, pp 27-28.

All Wastes - Better Operating Practices - Segregation

Segregation of waste streams is a very good practice that minimizes hazardous waste generation and also increases the recyclability of wastes. It is extremely important not to mix solvents and oils. Mixing results in a liquid with very little recycle value and increases the costs of disposal.³⁹ Minimizing the quantity of contaminants in solvents improves the purity of reclaimed solvent (in onsite recycling) and its market value (in offsite recycling). Used oils, after being drained from engines are known to be contaminated with parts cleaning solvent, carburetor cleaner, fuels, rags, water, trash, etc.⁴⁰ These contaminants may make the used oil a hazardous waste due to ignitability, corrosivity, or toxicity, thereby reducing the possibility of energy recovery by burning it in boilers or reducing its market value (for offsite reclamation).

All Wastes - Better Operating Practices - Periodic Maintenance and Cleanup of Equipment

All the equipment, including solvent sinks, hot tanks, and spray washers, must be properly maintained. The tank bottoms must be cleaned frequently to reduce sludge accumulation and contamination of replacement solutions.

Solvent (PD680-I) - Material Substitution - PD680-II

Petroleum distillate Type I (PD680-I) is a flammable substance with a flash point of 102 °F, which is below the USEPA's flammability hazard limit of 140 °F. It must be substituted with petroleum distillate Type II (PD680-II) that has a flash point of 140 °F or above. Changes must be made in the local and centralized procurement processes to prevent users from obtaining PD680-I. When ordering solvent, the user must specify that substitution is not acceptable.

Solvent (PD680-II) - Better Operating Practices

A parts cleaning solvent, such as PD680-II, must not be used to clean floors or hands. It is expensive and must be dedicated to the intended purpose of parts cleaning only. Immersion and removal of parts from the solvent sinks must be done slowly to minimize splashes and rapid evaporation of solvent.

Solvent (PD680-II) - Better Operating Practices - Emissions Minimization

Among the good housekeeping practices, efforts to reduce air emissions are probably the most significant in terms of reducing hazardous wastes released to the environment. Using covers on solvent sinks (or cold cleaning tanks) can result in a 24 to 50 percent reduction in solvent losses.⁴¹ Several standard methods are available for minimizing emissions from immersion cleaning, wipe cleaning, and spray cleaning operations.⁴²

³⁹ R.H. Salvesan Associates, *Used Oil and Solvent Recycling Guide*, Final Report (Naval Energy and Environmental Support Activity, Port Hueneme, CA, June 1985).

⁴⁰ L.C. Chucine, G.L. Gerdes, and B.A. Donahue, *Reuse of Waste Oil at Army Installations*, Technical Report N-135/ADA123097 (USACERL, September, 1982).

⁴¹ ICF Associates, Inc., *Guide to Solvent Waste Reduction Alternatives: Final Report* (Prepared for the California Department of Health Services, October 1986), pp 4-11 through 4-13.

⁴² ASTM Standard D3640-80, "Standard Guidelines for Emission Control in Solvent Metal-Cleaning Systems," *Annual Book of American Society of Testing and Materials Standards*, Vol 15.05 (American Society of Testing and Materials [ASTM], 1988).

Solvent (PD680-II) - Process Change

If dip tanks or dunk buckets full of solvent are used for parts cleaning, the process must be modified. Solvent sinks clean parts more effectively and are easy to use. Spillage and evaporation is less from solvent sinks than from dip tanks or buckets. Equipment leasing services (see Table 29) lease solvent sinks. The equipment, raw materials, maintenance, and waste removal are part of the contract and are included in the service price (see Table 30). Testing of solvents (discussed below) before changing must be included in the contract.

If a leasing service is not desirable economically, a solvent sink must be purchased and the waste solvent recycled. Table 31 lists the sizes and the approximate costs of solvent parts washers. Local vendors must be contacted for exact information.

Solvent (PD680-II) - Process Change - Testing

Solvents are normally replaced periodically, based on the operator's perception of "dirtiness." Simple tests to estimate the "solvation power" of the spent solvent can be used to extend the life of the solvent before disposal. The physicochemical tests most useful for used solvent testing are: absorbance, specific gravity, viscosity, and electrical conductivity.⁴³ Testing instruments (optical probe colorimeter, electronic specific gravity meter, Ostwald viscometer, and electrical conductivity meter) are commercially available. By obtaining a measure of these properties, the usefulness of the solvent can be determined based on Table 32. If the total score (sum of the ratings for all the properties) is less than 6, the solvent is not "spent." If the score is greater than 6, the solvent should be recycled. The criteria provided in Table 32 are only recommendations; they must be revised based on site-specific use and testing. Using solvent testing will reduce raw material and waste disposal costs and minimize the wastes generated.

Solvent (PD680-II) - Process Change - Solvent Sinks (Equipment) Modifications

Solvent losses can be minimized by adding drip trays and lids to existing solvent sinks. About 25 to 40 percent of the solvent is lost because of spillage and about 20 percent because of evaporation.⁴⁴ Racks or baskets may be designed and fitted to the solvent sinks to drain parts after cleaning. Minimizing solvent losses results in cost savings for the raw material and waste handling/disposal.

Carburetor Cleaner - Product Substitution

Carburetor cleaners typically contain methylene chloride (< 47 percent), 1,1,1-trichloroethane (< 5 percent), cresylic acid (< 27 percent), and wetting agents. The automobile industry has reformulated them to exclude the use of 1,1,1-trichloroethane.⁴⁵ Substitute cleaners must be used.

Used Oil - Better Operating Practices - Selective Segregation

Segregation of used oils and related products is not a source reduction alternative in the strictest sense of the term, yet selective segregation of used oil products may ultimately reduce the large volumes of hazardous wastes⁴⁶ that could be produced by mixing used oils with radiator drainings

⁴³ B.A. Donahue, et al., *Used Solvent Testing and Reclamation, Volume I: Cold-Cleaning Solvents*, Technical Report N-89/03/ADA204731, Vol I (USACERL, December 1988).

⁴⁴ W.M. Toy, pp A-1 - A-23.

⁴⁵ W.M. Toy, p 20.

⁴⁶ D.W. Brinkman, M.L. Whisman, and C.J. Thompson, *Management of Used Lubricating Oil at Department of Defense Installations: A Guide*, NIPER B06711-2. (National Institute for Petroleum and Energy Research, 1986), p 26.

(containing oxylates, phenols, ketones, and acids) and used solvents. Product segregation is initially cost-intensive, but many factors favor selective segregation of used oils. These factors include but are not limited to: the increasing costs of hazardous waste disposal, particularly for mixed waste disposal; the fact that the British thermal unit (Btu) value of used oil for burning as a fuel is lowered by the presence of solvents; and under USEPA regulations, hazardous wastes cannot be burned except in boilers with air pollution controls and secondary burners. These factors effectively prohibit blending used oil with boiler fuel if the used oil is listed as a hazardous waste.

Used Oil - Process Change - Fast Lube Oil Change System (FLOCS)

The Fast Lube Oil Change System (FLOCS) is a quick and efficient method of draining crankcase oil from vehicles. The model 30A FLOCS oil evacuation unit is designed to evacuate oil from crankcases under a vacuum. The engines must be fitted with quick-connect couplings to provide easy access to the oil drain, eliminating the need for lifts or pits. Because the oil is evacuated under vacuum pressure, *sludge buildup in the oil pans is reduced*. Spills are virtually eliminated and a substantial savings in time, labor costs, and equipment can be realized. All FLOCS units are designed to accommodate manual draining of the oil pan when necessary.

A single FLOCS unit was tested at Peterson Air Force Base (AFB), CO, from February 1982 to April 1983 to determine if FLOCS afford sufficient advantages over the normal lube oil change methods to warrant its adoption in the Air Force. Savings during 1 year of operation totaled \$1,176.00 for 25 vehicles. A total savings of \$7,526.40 was expected based on a conservative 8-year life expectancy for the unit. A payback of 1.6 years was projected. The economic success of the FLOCS unit, along with the elimination of spills that could result in accidents to shop personnel, prompted recommendations that the FLOCS evacuation unit be adopted for Air Force use.⁴⁷

Caustic Wastes - Product Substitution

Caustic cleaning compounds are used in hot tanks and jet spray washers. Substitution of detergent compounds minimizes the amount of hazardous (corrosive) wastes produced. Caustic compounds are necessary for cleaning engines made of iron or iron alloys. With the rapid change to manufacturing engine blocks of aluminum, the use of detergent solutions for cleaning is also increasing.

Caustic Wastes - Process Change - Hot Tank (Equipment) Modifications

A major waste from hot tank operations is the tank bottom sludge containing heavy metals, oil, grease, etc. A typical practice is to dislodge the sludge from the bottom of the tank and dump it into a sump. Installing a collection tray with an overflow to the sump will allow for proper capture and disposal of the sludge. Hot tanks must also be equipped with drip trays and pans for collecting solution that drips off the parts after cleaning. The solution in the trays or pans must then be emptied back into the hot tank.

Aqueous or Caustic Wastes - Process Change - Dry Ovens

Hot tanks or spray washers are typically used for engines/parts washing. If the parts are small enough, ovens could be used to burn off the grease, oil, and particles. The dry ash can then be removed from the parts using shot blasters (preferably with plastic beads) and disposed of in a landfill. The ash must be tested for toxicity before assigning a disposal method. Testing the oven stack emis-

⁴⁷ *Management/Equipment Evaluation Program, Report H82-1B (1st Space Support Group, U.S. Air Force, Peterson Air Force Base, CO, 1983).*

sions for air pollutants may be required. However, using a dry oven will eliminate hazardous (corrosive and toxic) wastes that contain caustics, heavy metals, and oily dirt.

Aqueous Wastes - Process Change - Two-Stage Cleaning in Jet Spray Operations

Most of the parts covered with oil, grease, and heavy dirt residues are cleaned using jet spray operations. If many parts need to be cleaned, a two-stage cleaning operation might provide cleaner parts in a shorter time. Two washers can be connected in series with the first removing most of the heavier residue and the second providing the final rinse. The cleaning solution from the second tank is transferred to the first tank (countercurrent processing).

Antifreeze Solution - Better Operating Practice - No Draining

Current practice is to dispose of spent antifreeze solution from radiators by emptying it directly into either a municipal or installation sanitary sewer system. Although the solution contains primarily ethylene glycol (which is poisonous), it is biodegradable and is neither carcinogenic nor mutagenic. Therefore, disposal in a sewer system should not present a problem.⁴⁸ However, the U.S. Army Mobility Equipment Research and Development Command has documented the presence of phenols, ketones, acids, oxylates, and aldehydes in radiator drainings formed during the use of ethylene glycol as a coolant.⁴⁹ Antifreeze wastes are considered hazardous wastes in some states (e.g., California) because ethylene glycol's oral human lethal dose (LD₅₀) is 1400 mg/kg, which is far below the state toxicity limit of 5000 mg/kg. As other state and local regulations lower the levels of phenols permitted in drinking water and sewage treatment plant effluents, antifreeze waste may have to be disposed of as a hazardous waste.

Antifreeze Solution - Product Substitution

Biological treatment of the ethylene glycol waste stream is difficult and the chlorination processes (commonly used in a waste treatment plant) generate other toxic chlorinated hydrocarbons. Substituting propylene glycol for ethylene glycol in antifreeze formulas will reduce the toxicity of the waste stream. Propylene glycol is a nontoxic compound commonly used as a food additive.⁵⁰

Antifreeze Solution - Process Change - Testing

Testing the antifreeze solution, which may currently be drained into the sanitary sewers, before draining and disposal can help minimize the amount of wastes generated. Standard methodologies available for testing engine coolants in cars and light trucks⁵¹ may be adapted for other types of vehicles. Electrochemical tests based on the measurement of galvanic currents have proven useful for measuring the levels of corrosion inhibitors and corrosivity of the antifreeze solution in a radiator (or any other heat transfer device).⁵² Such test methods allow continuous monitoring of the solution to

⁴⁸ Union Carbide Corporation, *Ecological Aspects of UCAR Deicing Fluids and Ethylene Glycol* (Hazardous Materials Technical Center, Rockville, MD, 1984).

⁴⁹ J.H. Conley and R.G. Jamison, *Reclaiming Used Antifreeze*, Report 2168/ADA027100 (U.S. Army Mobility Equipment Research and Development Command [USAMERDC], Fort Belvoir, VA, 1976).

⁵⁰ F.E. Mark and W. Jetter, "Propylene Glycol, A New Base Fluid for Automotive Coolants," in *Engine Coolant Testing: Second Symposium*, R.E. Beal, Ed., ASTM STP 887 (American Society of Testing and Materials [ASTM], 1986), pp 61-77.

⁵¹ ASTM Standard D2847-85, "Standard Practice for Testing Engine Coolants in Car and Light Truck Service," *Annual Book of American Society of Testing and Materials Standards*, Vol 15.05 (ASTM, 1988).

⁵² R.L. Chance, M.S. Walker, and L.C. Rowe, "Evaluation of Engine Coolants by Electrochemical Methods," in *Engine Coolant Testing: Second Symposium*, R.E. Beal, Ed., ASTM STP 887 (ASTM, 1986), pp 99-102; C. Fiaud, et al., "Testing of Engine Coolant Inhibitors by an Electrochemical Method in the Laboratory and in Vehicles," in *Engine Coolant Testing: Second Symposium*, R.E. Beal, Ed., ASTM STP 887 (ASTM, 1986), pp 162-175.

determine the exact time of change (rather than change on a periodic basis, such as 6 months, or when the mechanic thinks it is "dirty").

Antifreeze Solution - Process Change - Extend Life

A Military Specification, MIL-A-53009⁵³, developed by the U.S. Army Research and Development Center, Fort Belvoir, VA, allows the use of antifreeze (MIL-A-46153)⁵⁴ whose inhibitor system has reached a marginal condition.⁵⁵ The military additive can extend the life of the antifreeze by more than 1 year. It was originally developed for use if new antifreeze was in short supply. During 1987 and 1988, ethylene glycol was in short supply because of the unavailability of ethylene (base stock) and the retail price doubled. In addition to environmental incentives, economic incentives to minimize the quantities of ethylene glycol wastes generated also exist.

Brake Shoes (Asbestos Waste) - Better Operating Practices

Asbestos dust, released when replacing brake shoes, is a hazardous waste. Friable (crushed under hand pressure) asbestos must be carefully collected and handled as a hazardous waste. Some equipment leasing companies may also provide asbestos collection services.

Recycling Onsite/Offsite

Solvent (PD680-II) - Onsite Recycling - Distillation

If large quantities of solvents are used (i.e., over 4000 gal/yr) they can be recycled onsite using distillation stills. These units offer a quick investment payback (i.e., less than 3 years).⁵⁶ In the distillation process, the solvent is boiled and the vapors are condensed and collected in a separate container. Substances with a higher boiling point than the solvent (e.g., oils, metal residues, etc.) remain in the bottom of the still. A smaller amount of contaminants will result in a higher purity for the reclaimed solvent. Therefore, it is very important to segregate solvent wastes from oils and other contaminants in the service bays. Table 33 lists some of the major suppliers of solvent distillation equipment. Detailed comparisons of the economics of distillation and solvent management options discussed in this chapter are available elsewhere.⁵⁷

Solvent (PD680-II) - Offsite Recycling - Contract/Leased Recycling

Solvent sinks for parts cleaning can be owned or leased. In a lease arrangement, the contractor (e.g., Safety-Kleen [SK]) replaces fresh solvent periodically (specified in the contract) and takes the spent solvent for recycling. Wastes can thus be better contained and the solvent recycled rather than

⁵³ Military Specification MIL-A-53009, *Additive, Antifreeze Extender, Liquid Cooling System* (Department of Defense [DOD], 6 August 1982).

⁵⁴ Military Specification MIL-A-46153, *Antifreeze, Ethylene Glycol, Inhibited, Heavy Duty, Single Package* (DOD, 31 July 1979).

⁵⁵ J.H. Conley and R.G. Jamison, "Additive Package for Used Antifreeze," in *Engine Coolant Testing: Second Symposium*, R.E. Beal, Ed., ASTM STP 887 (ASTM, 1986), pp 78-85.

⁵⁶ R.H. Salvesan Associates, pp 35-36.

⁵⁷ B.A. Donahue and M.B. Carmer, *Solvent "Cradle-To-Grave" Management Guidelines for Use at Army Installations*, Technical Report N-168/ADA137063 (USACERL, December 1983); *Economic Analysis of Solvent Management Options*, Technical Note 86-1 (Department of the Army, May 1986).

disposed of. Contract recycling has been accepted as a good practice by the automobile industry.⁵⁸ Table 29 lists some of the equipment leasing and service companies.

Solvent and Carburetor Cleaner - Offsite Recycling

Solvent and carburetor cleaner wastes can also be sent to a solvent contractor/recycler for offsite recycling. A number of companies (Table 29) provide this service.

Carburetor Cleaner - Offsite Recycling - Contract/Leased Recycling

Some companies distill spent carburetor cleaners and return the cleaner to the user. Equipment similar to solvent sinks are available for lease or purchase. The contract fees include the cost of periodic pickup and disposal of sink bottoms. Companies that provide equipment leasing services for carburetor cleaners are listed in Table 29.

Used Oil - Onsite Recycling - Gravity Separation/Blending

A state-of-the-art RACOR™ oil-to-fuel blending system that will help avoid the problem of disposing of used oils has been developed. The RACOR system is typically used in conjunction with a fuel reservoir or tank. The system blends waste diesel crankcase oil with diesel fuel. It also filters/recycles and transfers diesel fuel from the fuel holding tank. The system comes with a waste holding tank and oil injection system. Used oil from the system's holding tank is blended into diesel fuel (not to exceed 5 percent) and cycled through a three-stage filter to remove water and solid contaminants, resulting in a fuel that is 99.5 percent free of emulsified water and solid particulates. Use of a closed-loop system such as the RACOR system may satisfy all technical requirements and military specifications for oil/fuel blends⁵⁹ and should be tested.

Used Oil - Offsite Recycling - Closed-Loop Contract

A closed-loop re-refining contract stipulates that the re-refiner agrees to process the used oil furnished by the generator, returning it to original quality for a contracted price per gallon. The re-refiner does not take ownership of the used oil but merely assumes custody of the oil until it is returned to the generator.

Among the possible disadvantages of a closed-loop contract is that installations may wish to offer used oil, solvents, and synthetic lubricants as a package. Of more immediate and important concern, is that before re-refined oil can be used in government vehicles and engines, it requires approval for the Qualified Products List. Approval is a costly procedure but ensures that the product meets specifications. With estimates of \$50,000 for an engine sequence test (1982 dollars) to qualify used oil to meet Army requirements,⁶⁰ many re-refiners are reluctant to enter into a contractual agreement unless the cost of such tests can be included in the closed-loop contract.⁶¹ More recent studies have placed the cost of such a qualification procedure at \$75,000.⁶²

⁵⁸ W.M. Toy, pp 29-30.

⁵⁹ D.W. Brinkman, W.F. Marshall, and M.L. Whisman, *Waste Minimization Through Enhanced Waste Oil Management*, NIPER B06803-1 (National Institute for Petroleum and Energy Research, 1987); T.C. Bowen, Personal Communication, U.S. Army, Belvoir R&D Center, Materials, Fuels, and Lubricants Laboratory, Fort Belvoir, VA, 1987.

⁶⁰ Mil-L-46152, *Lubricating Oil, Internal Combustion Engine, Administrative Service, Metric* (DOD, 1 August 1988).

⁶¹ L.C. Chicoine, G.L. Gerdes, and B.A. Donahue, pp 16-19.

⁶² D.W. Brinkman, M.L. Whisman, and C.J. Thompson, p 5-3.

Used Oil - Offsite Recycling - Sale to Recyclers

Sale of used lubricating oils may be the most economical answer for an installation. Although burning and closed-loop recycling agreements offer increased economic rewards, constraints may limit the options available to an installation and make selling used oil the only feasible alternative. The cost of selling or disposing of used oil includes sampling and testing the oil, storage before the sale, 55-gal drums for sale/disposal, inventorying expenses, advertising for bid solicitations, bid evaluation, bid letting, and accounting. Draft USEPA regulations, when finalized, could increase the workload of sales personnel slightly by requiring the selling installation (or DRMO/DRMS) to notify the USEPA of the intent to market used lubricating oil and obtain an identification number. Certified analyses on each batch of used oil will also be required, and if the oil is classified as a hazardous waste, it must be manifested and transported by a licensed hazardous waste hauler and may be distributed only to an industrial user.

Antifreeze Solutions - Onsite Recycling

In addition to reducing the quantity of waste produced, there is a major economic incentive for recycling and reusing antifreeze solutions. Because of the shortage of ethylene, the price of antifreeze has more than doubled in the past 2 years (\$3 to \$8/gal) and it is in short supply. A simple recycling method is available.⁶³ This method includes mechanical filtration that removes large particles before the solution is pumped into a large tank. An antifreeze extender is added to the tank based on the measured pH. The extender neutralizes the acidic byproducts in used antifreeze. The whole recycling system is available as a skid-mounted, 100-gal batch unit.

Lead-Acid Batteries - Offsite Recycling

Because of their weight, lead-acid batteries are the largest quantity of waste generated from vehicle maintenance facilities. Battery recyclers pay between \$1.00 and \$1.50 per battery (or \$0.20 to \$0.40 per pound, wet or dry). The batteries are rebuilt or processed to recover lead. Approximately 20 percent of the batteries can be rebuilt. Table 29 lists processors and smelters of lead-acid batteries. Installation logistics personnel can transport "intact" lead-acid batteries to a recycling facility if one is located nearby. A bill of lading is required if more than 10 batteries are transported at any time. Use of a registered hazardous waste hauler is not required and the waste does not have to be manifested. However, cracked or broken batteries must be transported as hazardous waste by registered haulers.

Aqueous or Caustic Wastes - Equipment Leasing

Hot tanks and spray washers are also available from equipment leasing companies (Table 30). The leasing service fee is site-specific and usually includes the raw materials, equipment maintenance, and waste disposal costs.

Dirty Rags/Uniforms - Onsite/Offsite Recycling - Laundry Service

Rags used to wipe up spills or clean off grease must not be disposed of as trash in a solid waste container. They must be collected and sent with dirty uniforms to a laundry for cleaning.

⁶³ GLYCLEAN - *Anti-freeze Recycling System*, brochure (FPPF Chemical Co., Inc., 117 W. Tupper St., Buffalo, NY 14201, 1988).

Treatment

Used Oil - Onsite Pretreatment - Filtration

A number of filtration devices are available for removing solids from used oil. Simple screen filters must be used when draining oil into containers to prevent entry of large objects (e.g., rags, cans, trash, etc.). Other filter media ranging from sand to fibrous material are available in filtration units for removing solids and even water.

Used Oil - Onsite Pretreatment - Gravity Separation

Gravity separation units are composed of a series of tanks used to contain oil and allow for gradual sedimentation of solids and water because of gravitational force and buoyancy. These units usually include skimmers and pumps to remove the water and solids. Some of the units use heat to enhance separation. Gravity separators are effective on used oils that do not contain emulsions and when a sufficient residence time can be provided for settling to occur.⁶⁴

Used Oil - Onsite Treatment - Blending/Burning

Used oil exceeding any of the specification levels for toxic metals, flash point, or total halogen content is termed "off specification used oil" and is subject to regulatory controls. Furthermore, an installation without an industrially classified boiler and whose used oil has hazardous characteristics (heavy metals, halogens, toxics) must blend the oil to meet burning specifications. Regulations regarding used oil for burning can be found in a DOD Memorandum.⁶⁵

Classification as an industrial boiler requires that energy from the boiler be used in manufacturing operations. The manufacture of steam or heat does not satisfy this criteria.⁶⁶ The amount of used oil to be blended with the fuel is not likely to have short-term impacts on the combustion efficiency of a boiler, but long-term use will likely present a problem in repeated clogging of pipes and nozzles, accelerated corrosion of pipes and tanks, and a reduction of heat transfer efficiency.⁶⁷ Current Navy regulations limit the amount of used oil in fuel oil blends to 1 percent.⁶⁸ Mixtures up to 5 percent oil, however, appear to have no appreciable impact on the Btu value of the fuel oil mixture and result in only minor additional maintenance costs, although long-term impacts of blending/mixing on operating parameters of boilers are unknown.

Before blending and burning, used oils must be filtered to remove any large impurities. Other important characteristics of used oils as a boiler fuel are API gravity and viscosity. Viscosity will impact the flow rate of the fuel and the spray pattern from the nozzle as the fuel is introduced to the boiler. The API gravity of an oil is a function of the specific gravity and is related to the heat of the burning oil. Firing temperatures for a given viscosity and discussions of the relationships between specific gravity, API gravity, and heating value can be found in literature.⁶⁹

⁶⁴ R.H. Salvesan Associates, pp 54-57.

⁶⁵ DOD Memorandum for Deputy of Environment, Safety and Occupational Health, OASA (I&L); Deputy Director for Environment, OASN (S&L); Deputy for Environment and Safety and Occupational Health (SAF/MIQ); Director, Defense Logistics Agency (DLA-S); 28 January 1986, subject: Regulation of Used Oil for Burning.

⁶⁶ D.W. Brinkman, M.L. Whisman, and C.J. Thompson, p 34.

⁶⁷ L.C. Chicoine, G.L. Gerdes, and B.A. Donahue, pp 33-43.

⁶⁸ C.W. Anderson, *Cost Effectiveness Analysis of Lubricant Reclamation by the Navy*, Technical Note 1481 (Naval Civil Engineering Research Laboratory [NCEL], Port Hueneme, CA, 1977).

⁶⁹ T.T. Fu and R.S. Chapler, *Utilization of Navy-Generated Waste Oils as Boiler Fuel - Economic Analysis and Laboratory Tests*, Technical Note N-1570 (U.S. Navy Construction Battalion Center, 1980), pp 14-44.

Aqueous Wastes - Onsite Pretreatment - Filtration

Installing filters on aqueous waste streams to collect grit and heavy residue increases the life of the wash solution. In one case,⁷⁰ providing a pump-around loop through a 25-micron filter bag (on a slipstream from jet spray washer) extended the solution life by 2 weeks, thus minimizing the quantity requiring subsequent treatment or disposal.

Aqueous Wastes - Onsite Treatment - Evaporation

Aqueous wastes consist primarily of water with various amounts of contaminants. Evaporating the water minimizes the amount of waste requiring disposal. In an evaporation device, the water is heated away (using an electric or natural gas heating device) leaving behind a semisolid or solid residue requiring disposal. Oil, if present in the waste, could inhibit boiling. Solid residue accumulated on the inner surface of the evaporator could inhibit heat transfer and, therefore, it may have to be cleaned frequently. Table 34 is a list of suppliers of aqueous waste volume reduction equipment.

Aqueous Wastes - Onsite Treatment - Waste Treatment

Onsite batch treatment devices that neutralize and precipitate heavy metals from aqueous wastes are available.⁷¹ A pretreatment system is included to separate oil and grease. Sulfuric acid is added to reduce the pH to between 2 and 3 to reduce any hexavalent chrome to a trivalent state. Adding sulfites leads to precipitation of trivalent chrome. Sodium hydroxide is then added to raise the pH and precipitate the remaining metallic species. The precipitates settle to the bottom as a sludge and the water decanted from the top may be reused in cleaning processes. A filter press is included to reduce the water content of the sludge produced, thus also minimizing the volume to be disposed of.

Carburetor Cleaner - Offsite Treatment

Some solvent recyclers (e.g., SK, Safe-Way Chemical) send spent carburetor cleaners to another company (e.g., Solvent Services) for treatment. This treatment process produces a lacquer wash from the spent carburetor cleaner.⁷² Lacquer wash can be recycled and used in paint stripping processes.

Antifreeze Solution - Offsite Treatment

If large quantities of spent antifreeze solutions are generated at vehicle maintenance operations, the solutions can be treated at an approved treatment facility (Table 29) for recovery of ethylene glycol that may be used as waste fuel.

Lead-Acid Battery Electrolyte - Treatment

Lead-acid batteries must not be drained. These batteries are not a hazardous waste if they are sold to a recycler. Draining the batteries creates two types of wastes: lead dross, and spent sulfuric acid contaminated with lead. The electrolyte, if drained, must be neutralized and tested for lead and lead salts and neutralized before draining into the sewer.

⁷⁰ W.M. Toy, p 27.

⁷¹ W.M. Toy, p 25-27.

⁷² W.M. Toy, pp 31-32.

NICAD Battery Electrolyte - Treatment

NICAD battery cells contain a caustic potassium hydroxide solution (31 percent by weight). This electrolyte is corrosive. The electrolyte also contains cadmium and cadmium salts that are listed by the USEPA as hazardous wastes. The electrolyte must therefore be tested for cadmium and neutralized before disposal in the sewer.

Table 27

Typical MPVM and AMF Operations With Materials Used and Wastes Generated*

| Process/ operation | Materials used | Ingredients | Wastes generated |
|--|--|--|---|
| Oil and grease removal | degreasers - (gunk), carburetor cleaners, engine cleaners, varsol, solvents, acids/alkalis | petroleum distillates, aromatic hydrocarbons, mineral spirits | ignitable wastes, spent solvents, combustible solids, waste acid/alkaline solutions |
| Engine, parts, and equipment cleaning | degreasers - (gunk), carburetor cleaners, engine cleaners, solvents, acids/alkalis cleaning fluids | petroleum distillates, aromatic hydrocarbons, mineral spirits, benzene, toluene, petroleum naphtha | ignitable wastes, spent solvents, combustible solids, waste acid/alkaline solutions |
| Rust removal | naval jelly, strong acids | phosphoric acid, hydrochloric acid, hydrofluoric acid, sodium hydroxide | waste acids, waste alkalis |
| Solution replacement | antifreeze solution, petroleum oil | ethylene glycol, petroleum distillates | hazardous liquid, combustible liquid |
| Lead-acid batteries; recharging, repair, draining | automobile, truck, tracked vehicle, and other equipment batteries | lead dross, less than 3 percent free acids | used lead-acid batteries, strong acid |
| NICAD batteries; repair, draining | helicopter and airplane batteries | Battery cells containing KOH | used NICAD battery cells, strong alkali |

*Source: H. Winslow, *Hazardous Waste SQG Workbook* (Intereg Group, Inc., Chicago, IL, 1986).

Table 28

Waste Classification for MPVM and AMF*

| Process Description | | Waste Description | | | Hazard class | Number |
|---|-------------------------------------|---------------------------|---------------------------------|--------------------|--------------|--------|
| Typical process/operation | Materials used/wastes produced | HW code | DOT shipping name | | | |
| Vehicle oil changes | Used crankcase oil (not manifested) | None | Waste petroleum oil, NOS | Combustible liquid | NA1270 | |
| Oil/grease removal and equipment cleaning | Acids | D002 | Depends on type of acid | Corrosive material | Varies | |
| | Potash | D002 | Waste potassium hydroxide | Corrosive material | UN1814 | |
| | Caustic soda | D002 | Waste sodium hydroxide solution | Corrosive material | UN1824 | |
| | Carburetor cleaners | F002/F004 | Waste solvent NOS | ORM-A | UN1591/3 | |
| | Chlorinated solvents | F001 | Waste (main ingredient) | ORM-A | Varies | |
| | Ignitable (flammable) degreasers | D001 | Waste flammable liquid NOS | Flammable liquid | UN1268 | |
| | Mineral spirit solvents | D001 | Waste naphtha | Flammable liquid | UN2553 | |
| | Petroleum naphtha | D001 | Waste naphtha | Flammable liquid | UN1255 | |
| | Petroleum distillates | D001 | Waste petroleum distillate | Flammable liquid | UN1268 | |
| | 1,1,1-trichloroethane | F001 | Waste 1,1,1-trichloroethane | ORM-A | UN2831 | |
| Trichloroethylene | F001 | Waste trichloroethylene | ORM-A | UN1710 | | |
| "MEK" | F005 | Waste Methyl ethyl ketone | Flammable liquid | UN1193 | | |
| Rust removal | Acids | D002 | Depends on type of acid | Corrosive material | Varies | |
| | Naval jelly | D002 | Waste phosphoric acid | Corrosive material | UN1805 | |
| Solution replacement | Ethylene glycol | None | Waste hazardous liquid | ORM-E | UN9189 | |
| Used lead-acid batteries | Sulfuric acid | D002 | Waste sulfuric acid | Corrosive material | UN1830 | |
| | Lead dross/scrap | D008 | Hazardous waste solid NOS | ORM-C | NA9189 | |
| Used NICAD batteries | Potassium hydroxide | D002 | Waste potassium hydroxide | Corrosive material | UN1814 | |
| | Battery cells | D002/D006 | Hazardous waste solid NOS | ORM-C | NA9189 | |

*Vehicle Maintenance/Equipment Repair, Hazardous Waste Fact Sheet (Small Quantity Generators Activities Group, Minnesota Technical Assistance Program, 1986).

Table 29

**Partial Listing of Waste Recyclers, Haulers, Equipment Leasing Companies,
and Equipment Manufacturers***

| Company and address | Telephone and services | Solvent waste | Caustic waste | Waste oil | Used antifreeze | Used batteries |
|--|--|---------------|---------------|-----------|-----------------|----------------|
| Acto-Kleen P.O. Box 278 Pico Rivera, CA 90660 | (213) 723-5111 (714) 944-3330 Hauler, seller | X | | | | |
| American Labs 5701 Compton Avenue Los Angeles, CA 90011 | (213) 588-7161 Hauler, transfer facility, and recycler | X | X | | | |
| Antifreeze Environmental Svc. Corp. 2081 Bay Rd., P.O. Box 50757 Palo Alto, CA 94303 | (415) 325-2666 Recycler | | | | | X |
| Antifreeze Environmental Svc. Corp. 16031 E. Arrow Hwy, Unit H Irwindale, CA 91706 | (818) 337-3877 Recycler | | | | X | |
| Appropriate Technologies II 1700 Maxwell Road Chula Vista, CA 92011 | (619) 421-1175 Processor | X | X | | | |
| Baron Blakeslee, Inc. 3596 California Street San Diego, CA 92101 | (619) 295-0041 Hauler, processor, seller | X | | | | |
| Baron Blakeslee, Inc. 8333 Enterprise Drive Newark, CA 94560 | (415) 794-6511 Hauler, processor, seller | X | | | | |
| Battery Exchange 2195 Story Road San Jose, CA 95122 | (408) 251-3493 Lead-acid battery processor, 7,000 lb/month processed | | | | | X |
| Bayday Chemical 2096-B Walsh Avenue Santa Clara, CA 95050 | (408) 727-8634 Hauler, processor | X | | | | |
| Bud's Oil Service, Inc. 1340 West Lincoln Street Phoenix, AZ 85007 | (602) 258-6155 Processor | | | X | | |
| California Oil Recyclers, Inc. 977 Bransten Road San Carlos, CA 94070 | (415) 795-4410 Processor | | | X | X | |
| Chem-Tech Systems 3650 East 26th Street Los Angeles, CA 90023 | (213) 268-5056 Processor | | | X | | |

*Source: *Hazardous Waste Reduction Checklist - Automotive Repair Shops*, pp 17-20.

Note: Names of other companies specific to each area can be obtained from trade publications, associations, and local telephone directories.

Table 29 (Cont'd)

| Company and address | Telephone and services | Solvent waste | Caustic oil | Waste oil | Used antifreeze | Used batteries |
|---|---|---------------|-------------|-----------|-----------------|----------------|
| Chem-Tak 1719-B Marshall Court Los Altos, CA 94022 | (415) 968-1861 Equipment leasing and service company | | X | | | |
| Demunno/Kerdoon 2000 North Alameda Street Compton, CA 90222 | (213) 537-7100 Processor | | | X | | |
| Detrex Chemical Industries 3027 Fruitland Avenue Los Angeles, CA 90058 | (213) 588-9214 Hauler, processor | X | | | | |
| Environmental Pacific Corp. 5258 SW Meadows Rd, Suite 120 Lake Oswego, OR 97035 | (916) 989-5130, (503) 226-7331 Processor, recycler All lead batteries | | | | | X |
| Equipment Manufacturing Corp. 1433 Lidcombe Avenue South El Monte, CA 91733 | (818) 575-1644 Hot tank and jet spray washer manufacturer | | X | | | |
| Evergreen Oil 6880 Smith Avenue Newark, CA 94560 | (415) 795-4400 Recycler | | | X | | |
| EKOTEC 27833 Industrial Pk, Bldg 1, Unit 1 Valencia, CA 91355 | (805) 257-9390 Processor, recycler | | | X | | |
| Fuel Processors, Inc. P.O. Box 1407 Woodland, WA 98674 | (503) 286-8352 Rerefiner | | | X | | |
| Gibson Oil & Refining Co. 3121 Standard Street Bakersfield, CA 93308 | (805) 327-0413 Processor | | | X | | |
| GNB, Inc. - Metals Division 2700 South Indiana Street Los Angeles, CA 90023 | (213) 262-1101, Lead-acid battery processor, 9,000 lbs. min, non-metallic cases | | | | | X |
| Hedrick Distributors, Inc. 210 Encinal Street Santa Cruz, CA 95060 | (408) 427-3773 Hauler, storage | | | X | | |
| Holchem/Service Chemical 1341 East Maywood Santa Ana, CA 92706 | (714) 546-5890 (714) 538-4554 Processor | X | | | | |
| Hot Tank Supply 3733 E. Clinton Avenue Fresno, CA 93703 | (209) 229-0565 Equipment leasing and service | | X | | | |
| Industrial Oils, Inc. P.O. Box 1221 Klamath Falls, OR 97601 | (503) 884-4685 Rerefiner | | | X | | |
| IT Corp/Vine Hill Facility 4575 Pacheco Blvd. Martinez, CA 94553 | (415) 372-9100 Hauler, Processor | X | X | | | |

Table 29 (Cont'd)

| Company and address | Telephone and services | Solvent waste | Caustic oil | Waste oil | Used antifreeze | Used batteries |
|---|--|---------------|-------------|-----------|-----------------|----------------|
| JJS Warehouse, Inc. 1076 Park Avenue San Jose, CA | (408) 294-9717 Solvent parts washer manufacturer | X | | | | |
| Kinsbursky Bros. Supply North Lemon Street Anaheim, CA 92801 | (714) 738-8516 Recycler, Spent batteries | | | | | X |
| Lubrication Co. of America 4212 East Pacific Way Los Angeles, CA 90223 | (213) 264-1091 Hauler, processor | | | X | | |
| McKesson Chemical Co. 5353 Jillson Street Commerce, CA 90040 | (213) 269-9531 Hauler, Seller | X | | | | |
| Nelco Oil Refining Corp. 600 West 12th Street National City, CA 92050 | (619) 474-7511 Processor | | | | | |
| Oil and Solvent Process Co. 1704 West First Street Azusa, CA 91702 | (818) 334-5117 Hauler, processor, seller | X | | | | |
| Omega Chemical Company 12504 W. Whittier Blvd. Whittier, CA 90602 | (213) 698-0991 Hauler, processor, seller | X | | | | |
| Orange County Chemical Co. 425 Ancleason Drive Escondido, CA 92025 | (619) 489-0798 Hauler, seller | X | | | | |
| Orange County Chemical Co. 1230 E. Saint Gertrude Place Santa Ana, CA 92707 | (714) 546-9901 Hauler, seller, processor | X | | | | |
| Pacific Treatment Corp. 2190 Main Street San Diego, CA 92113 | (619) 233-0863 Processor | | X | X | | |
| Pepper Oil Company, Inc. 2300 Tidclands Avenue National City, CA 92050 | (619) 477-9336 Processor | | | X | | |
| Petroleum Recycling Corp. 1835 East 29th Street Signal Hill, CA 90806 | (213) 595-4731 Processor | | | X | | |
| Plastic Materials, Inc. 3033 West Mission Road Alhambra, CA 91083 | (818) 289-7979 Hauler, seller, processor | X | | | | |
| Rho-Chem Corporation 425 Iris Avenue Inglewood, CA 90301 | (213) 776-6233 Hauler, processor | X | | | | |
| Romic Chemical Corp. 2081 Bay Road East Palo Alto, CA 94303 | (415) 324-1638 Hauler, processor | X | | | | |

Table 29 (Cont'd)

| Company and address | Telephone and services | Solvent waste | Caustic oil | Waste oil | Used antifreeze | Used batteries |
|---|---|---------------|-------------|-----------|-----------------|----------------|
| RSR Quemetco, Inc. 720 South 7th Avenue City of Industry, CA 91746 | (800) 527-9452 Lead acid battery processor | | | | | X |
| Safety-Kleen Corporation 777 Big Timber Rd Elgin, IL 60120 | (800) 323-5740 Equipment leasing & service from locations throughout CA | X | | | | |
| Safe-Way Chemical 909 Stockton Avenue San Jose, CA 95110 | (408) 292-9289 Equipment leasing and service company | X | X | | | |
| SDI Company P.O. Box 835 Upland, CA 91785 | (714) 982-0553 Solvent parts washer manufacturer | X | | | | |
| Solvent Services 1021 Berryessa Road San Jose, CA 95113 | (408) 286-6446 Hauler, processor | X | | | | |
| Tanks-A-Lot 220 W. Santa Ana Anaheim, CA 92805 | (714) 778-5155 Radiator flush booth manufacturer | | | | X | |
| Triad Marine & Industrial Cleaning 1668 National Avenue San Diego, CA 92113 | (619) 239-2024 Processor | | | X | X | |
| Van Waters and Rogers 2256 Junction Avenue San Jose, CA 95131 | (408) 435-8700 Hauler, seller | X | | | | |
| Van Waters and Rogers 1363 S. Bonny Beach Place Los Angeles, CA 90023 | (213) 265-8123 Hauler, seller | X | | | | |

Table 30
Equipment Leasing Costs*

| Equipment | Size | Approximate cost (November 1986 prices) |
|--|--------------------------------------|--|
| Solvent Sink | | |
| Includes monthly leasing of solvent sink with recirculation pump, monthly maintenance service, removal of spent solvent, and replacement with fresh solvent. | 11 gal of solvent with 22-gal barrel | \$38/mon |
| | 10 gal of solvent with 16-gal barrel | \$33.75/mon |
| | 10 gal of solvent with 16-gal barrel | \$36.75/mon |
| Hot Tank | | |
| Includes monthly hot tank leasing, monthly maintenance service, removal of 10 gal of solution and sludge, and recharge of solution with caustic detergent and water. | 60 gal | \$93/mon |
| Jet Spray Washer | | |
| Includes monthly jet spray washer leasing, monthly maintenance service, removal of 10 gal of solution and sludge, and recharge with caustic detergent and water. | 90 gal | \$242/mon |

*Source: *Hazardous Waste Reduction Assessment Handbook - Automotive Repair Shops*, p 20.

Table 31
Parts Cleaning Equipment Purchase Costs*

| Equipment | Size | Approximate cost (November 1986 prices) |
|-----------------------|--|--|
| Solvents parts washer | Small: fill/capacity = 11/22 gal or 10/16 gal | \$200 - \$300 |
| | Large: fill/capacity = 15/30 gal or 20/30 gal | \$250 - \$400 |
| Jet spray washer | 45 gal | \$3,400 |
| | 85 gal | \$3,800 |
| | 100 gal | \$4,500 |
| Hot tank | 60 gal | \$300 |

*Source: *Hazardous Waste Reduction Assessment Handbook - Automotive Repair Shops*, p 20.

Table 32
Test Criteria for Used Cleaning Solvent (PD680-II)

| Rating | Absorbance (500 nm) | Specific Gravity (17°C) | Viscosity cp (18°C) | Conductivity nmho (23°C) |
|---------------|--------------------------------|--|--------------------------------|-------------------------------------|
| 0 | < 0.6 | < 0.773 | < 1.35 | < 22.5 |
| 1 | 0.6 - 0.8 | 0.773 - 0.779 | 1.35 - 1.85 | > 22.5 |
| 2 | 0.8 - 1.0 | 0.779 - 0.785 | > 1.85 | |
| 3 | 1.0 - 1.2 | > 0.785 | | |
| 4 | > 1.2 | | | |

Table 33
Solvent Recovery Equipment

| Supplier | Model | Capacity | Temperature limits | Approximate cost* |
|--|--|--|----------------------|--------------------------|
| Acra Electric Corp 3801 N. 25th Avenue Schiller Park, IL 60176 (solvent: TCE, 1,1,1-TCE,PCE,etc.) | SD-15 | 5 gal | -- | \$750 |
| Artisan Industries 73 Pond Street Waltham, MA 02154 | -- | 5-1440 gal/h | -- | \$4,000 to \$1.4 million |
| Baron Blakesless, Inc. 2001 N. Janice Avenue Melrose Park, IL 60160 (solvents: TCE, 1,1,1-TCE, PCE) | NRS-60 HRS-60 | 45-60 gal/h 45-60 gal/h | -- -- | -- -- |
| Branson Cleaning Equipment Co. Parrot Drive, P.O. Box 768 Shelton, CT 06484 (solvents: 1,1,1-TCE, Freon TF) | S111W S121W | 9-15 gal/h 21-31 gal/h | -- -- | -- -- |
| Crest Ultrasonics Corporation Scotch Road Mercer County Airport Trenton, NJ 08628 (solvents: TCE, 1,1,1-TCE, PCE) | CRS-10H CRS-10U CRS-20H CRS-20U | 10 gal/h 10 gal/h 20 gal/h 20 gal/h | -- -- -- -- | -- -- -- -- |
| DCI Corporation 5752 W. 79th Street Indianapolis, IN 46268 (solvents: chlorinated, aliphatic, aromatic fluorocarbons) | D1-DG-15 | 15 gal/h | -- | -- |
| Detrex Chemical Industries, Inc. P.O. Box 501 Detroit, MI 48232 (solvents: TCE, 1,1,1-TCE, Freon TF) | FC-6-EW FC-6-ER | 7-25 gal/h 7-25 gal/h | -- -- | -- -- |

Table 33 (Cont'd)

| Supplier | Model | Capacity | Temperature limits | Approximate cost |
|--|-----------|-----------------|--------------------|------------------|
| Finish Engineering Company 921 Greengarden Road Erie, PA 16501 (814)455-4478, (415)821-4154 (Hazardous waste solvents) | LS-Jr. | 3-5 gal/8h | <320 °F | \$2,995 |
| | LS-15 | 15 gal/8h | <320 °F | \$5,895 |
| | LS-15V | 15 gal/8h | <320 °F | \$9,390 |
| Garden Machinery Corp. 700 N. Summit Avenue Charlotte, NC 28233 (Petroleum solvents and oils) | #50 | 50-60 gal/h | -- | \$4,950 |
| Hoyt Corporation Westport, MA 02790 (Hazardous waste solvents) | EP8 | 4-8 gal/h | <330 °F | \$14,500 |
| | EP20 | <20 gal/h | <330 °F | \$26,945 |
| Interel Corporation P.O. Box 4676 Englewood, CO 80155 (solvents: chlorinated, Petroleum) | -- | 7.5 gal/h | -- | \$8,950 |
| | -- | 15 gal/h | -- | \$11,850 |
| Kontes Scientific Glassware/Instruments Spruce Street, P.O. Box 729 Vineland, NJ 08360 | K-547100 | 0.8 gallons | -- | \$1,961 |
| | K-547700 | 2.5 gallons | -- | \$2,723 |
| O-I/Shott Process Systems, Inc. 1640 SW Blvd., P.O. Box T Vineland, NJ 08360 | -- | 13.2 gallons | -- | -- |
| | -- | 26.4 gallons | -- | -- |
| Phillips Manufacturing Co. 7343 N. Clark Street Chicago, IL 60626 | RS-1 | 2-5 gal/h | -- | -- |
| | RS-3 | 4-10 gal/h | -- | -- |
| | RS-5 | 6-12 gal/h | -- | -- |
| | RS-15 | 13-28 gal/h | -- | -- |
| | RS-20 | 17-37 gal/h | -- | -- |
| Progressive Recovery, Inc. P.O. Box 521 Trumbull, CT 06611 (solvents: MEK, toluene, xylene, TCE, Freon, etc.) | SC-Jr. | 1-2 gal/h | <400 °F | \$4,795 |
| | SC-25 | 2-4 gal/h | -- | \$6,495 |
| Recyclene Product, Inc. 405 Eccles Ave. South San Francisco, CA 94080 (415)589-9600 | R-2 | 5 gal/4h | <375 °F | \$2,495 |
| | RS-20 | 5-7 gal/h (1) | <375 °F | \$11,000 |
| | RS-35AF | 6-8 gal/h (2) | <375 °F | \$21,000 |
| | RX-35AF | 12-16 gal/h (2) | <375 °F | \$25,850 |
| Unique Industries, Inc. 11544 Sheldon Street Sun Valley, CA 91353 (solvents: chlorinated and fluorinated) | 1100-10W | 12 gal/h | -- | \$5,270 |
| | 1100-10RW | 12 gal/h | -- | \$8,250 |
| | 1100-10RA | 12 gal/h | -- | \$8,600 |

Table 34
Aqueous Waste Volume Reduction Equipment Suppliers*

| Supplier | Model | Capacity | Approximate Cost |
|--|----------|-------------|---------------------|
| EMC Manufacturing 1433 Lidcombe Ave. El Monte, CA 91733 (818) 575-1644 | EVAP-85E | 85 gallons | \$ 1995 |
| Nordale Fluid Eliminator 990 Xylite Ave., N.E. Minneapolis, MN 55434 (603) 658-7111 (714) 885-0691 | FE-150 | 150 gallons | \$ 8000 - \$13,000 |
| Wastewater Treatment Systems 440 N. Central Ave. Campbell, CA 95008 (408) 374-3030 | BM-50 | 50 gallons | \$15,000 - \$18,000 |

*Source: *Hazardous Waste Reduction Assessment Handbook - Automotive Repair Shops*, p 22.

6 WASTE MINIMIZATION FOR INDUSTRIAL MAINTENANCE, SMALL ARMS SHOPS

Most of the hazardous wastes generated from IMSS operations can be categorized as corrosive wastes (acids and alkalis), spent solvents, paint stripping wastes, and wastes containing toxic metals. The operations that generate these wastes include: equipment and vehicle repair, metal cleaning, surface preparation, and metal finishing. A summary of processes, wastes generated, and DOT classifications are listed in Table 35. The minimization options for vehicle maintenance repair wastes are discussed in Chapter 5.

Chlorinated or nonchlorinated solvents are commonly used to clean or degrease parts before repair, rebuilding, or finishing. Nonchlorinated solvents (e.g., petroleum distillates) are normally used in cold cleaning operations using solvent sinks or dip tanks. Chlorinated solvents such as TCE, 1,1,1-trichloroethane, methylene chloride (MC), and perchloroethane (PC), are used in vapor degreasers, where condensing solvent vapors remove the grease, oil, or wax from the dirty parts. 1,1,1-trichloroethane is the safest of these four solvents and is the most commonly used. Of the several different vapor degreasers commercially available, the open top vapor degreasers are the most common at Army installations. In such a vapor degreaser, the heater coils at the bottom of a tank boil nonflammable solvent. The solvent vapors that are denser than air, displace the air and form a vapor zone. A condensing coil at the top of the tank prevents the vapors from escaping from the open top. The parts are lowered into the vapor zone and pure solvent vapors condense on them and solubilize the soil and grease. The solvent drips off or evaporates as the parts are removed after they are cleaned. The soil accumulates at the bottom of the tank. This contaminates the solvent which has to be changed periodically. Also, because the solvent evaporates, fresh solvent must be added frequently.

Cleaning with caustic compounds or detergents also occurs at IMSS operations. Cleaning is usually followed by surface preparation such as painting or scale stripping. Sand, glass, or shot blasting are common methods of removing paint or scale. In some cases, paint stripping is accomplished with solvent (MC) or caustic strippers.

Metal finishing operations, such as surface finishing of small arms, and metalworking, such as cutting and threading are also common at IMSS. A small arms shop conducts weapons rebuilding on many types of small arms. Chemicals such as chromic acid, phosphoric acid, etc., are used. Manganese phosphate coatings are the most common surface finishing treatments used on small arms components. The phosphate coating is dull black and provides wear resistance to the cast iron/steel surfaces. The first step in the process is to clean the parts. The methods include: vapor degreasing or alkali cleaning, blasting with sand/walnut shells, self-emulsified solvent treatment, and phosphoric acid-solvent-detergent cleaning. The parts are then rinsed in water and coated with phosphate. The parts are rinsed in water immediately after the phosphate coating. The next step is to use a hot oil conditioning rinse and then dry the coated and rinsed surfaces. Any supplementary coatings are then applied.⁷³ The typical coating time is 15 to 40 minutes. The phosphate immersion coating bath is maintained between 200 and 210 °F. The phosphate tank and heating elements are usually made of acid-resistant material. Some of the equipment used in the immersion coating process include: conveying equipment, if necessary; work-supporting equipment such as hooks, racks, baskets, and tumbling barrels; tanks associated with water and heat (steam or electricity); a drain to the sewer line; ventilation equipment; and drying equipment such as ovens, air heaters, fans, and compressors.⁷⁴ The

⁷³ A. Douty and E.A. Stockbower, "Surface Protection and Finishing Treatments - A. Phosphate Coating Processes," revised by W.C. Jones, in *Electroplating Engineering Handbook*, Fourth Edition, L.J. Durney, Ed. (Van Nostrand Reinhold Co., 1984), pp 366-390.

⁷⁴ A. Douty and E.A. Stockbower.

operator of the small arms shop must account for all materials used in the process. The potential for severe environmental hazards exists in the operation of a small arms shop.

The metalworking operations in IMSS use petroleum and synthetic oils and small quantities of solvents in cleaning, cutting, and threading metallic pipes and other surfaces. Used oil and waste solvents are commonly generated. Painting vehicles, equipment, and parts is also conducted by IMSS. The minimization options for painting and surface coating are discussed in Chapter 7.

The five major categories of processes, relevant to Fort Carson, considered for discussion in this chapter are: solvent cleaning, alkaline cleaning, dry media blasting, and cutting and threading.

Source Reduction - Solvent Cleaning

PC/MC/TCE - Product Substitution

If PC, MC, or TCE are still being used in vapor degreasing, 1,1,1-trichloroethane should be substituted. The hazards associated with it are much less than those with PC, MC, or TCE. It also has a higher threshold limit value (TLV, 350 ppm), in terms of worker safety, than PC (100 ppm) and TCE (100 ppm). Although MC has a higher TLV (500 ppm), it is a known carcinogen.⁷⁵

TCE/PC/1,1,1-Trichloroethane - Better Operating Practices - Testing

Solvents are replaced in a vapor degreasing tank based on the operator's perception of its contamination or "dirtiness." A more scientific methodology must be used to determine a solvent's "solvation" power and cleaning efficiency. Chlorinated solvents have physicochemical and electrical properties that can be used to determine this capacity.⁷⁶

A combination of tests including visible absorbance, viscosity, conductivity, and acid acceptance value (AAV), must be used to determine if a solvent is spent based on recommended scores listed in Tables 36, 37, and 38. If the solvent has a score of six or more, it is ready for reclamation disposal. Among all the tests, AAV is the most important because it determines the concentration of amine and alpha epoxide inhibitors left in the solvent. A standard titration procedure,⁷⁷ reacting the solution with excess hydrochloric acid which in turn is neutralized with sodium hydroxide, is used to measure the total AAV. Direct measurement instruments (UV/visible Spectrophotometer, Ostwald viscometer, and Conductivity meter) are available for the other tests. Eventually solvent test kits will be available for use at Army installations.⁷⁸ With continued use of the testing procedures, more accurate scores can be developed and substituted for those suggested in Tables 36, 37, and 38.

⁷⁵ Technical Note 86-2, *Solvent Minimization and Substitution Guidelines* (Facilities Engineering Division, U.S. Army, Office of the Chief of Engineers Washington, D.C., 1986), 18 pp.

⁷⁶ B.A. Donahue, et al., *Used Solvent Testing and Reclamation, Volume II: Vapor Degreasing and Precision Cleaning Solvents*, Technical Report N-89/03/ADA204732 (USACERL, December 1988).

⁷⁷ ASTM Standard D 2942-86, "Standard Test Method for Total Acid Acceptance for Halogenated Organic Solvents (Nonreflux Methods)," *Annual Book of American Society of Testing and Materials Standards*, Vol 15.05 (1988).

⁷⁸ A.R. Tarrer, Personal Communication (Auburn University Department of Chemical Engineering, Auburn, Alabama).

1,1,1-Trichloroethane - Better Operating Practices - Aluminum Scratch Test

A standard method⁷⁹ is available to qualitatively determine the amount of inhibitor present in 1,1,1-trichloroethane to prevent its degradation in the presence of aluminum or aluminum alloys. This test determines the stability of the solvent being used in a degreaser and also that of recycled material.

In this test, a cleaned/degreased aluminum coupon is immersed in inhibited 1,1,1-trichloroethane and scratched. Allowing sufficient time to elapse for a reaction to occur, the formation of dark resinous ("blood"-like) material, bubbling, and discoloration is noted. If the solvent is sufficiently inhibited, no reaction takes place. The reaction can be categorized into four groups: (1) no reaction; (2) bleeds but heals, no solvent discoloration; (3) bleeds but heals, solvent discoloration; and (4) bleeds with no healing. By continued use of this test method over a period of time, a site-specific semiquantitative procedure can be developed for determining when 1,1,1-trichloroethane is "spent" and should be recycled or disposed of.

1,1,1-Trichloroethane - Better Operating Practices - Emissions Minimization

Reducing air emissions is probably the most significant good operating practice in terms of reducing hazardous wastes released to the environment. Proper covers should be installed and used for both cold cleaning and vapor degreasing operations. The use of covers on vapor degreasing vats has been shown to result in a 24 to 50 percent reduction in solvent losses.⁸⁰ Boiling of solvent increases emissions by 81 percent as compared to covered-top vapor degreasers.⁸¹ Standard guidelines⁸² must be established to help minimize emissions from vapor degreasers that will reduce the hazards to workers, optimize system performance, and conserve material.

Other methods of reducing emissions from vapor degreasers include: increasing freeboard height (0.75 times or greater than the degreaser width); limiting hoist system speed to less than 11 ft/min; limiting the load's cross-sectional area to less than 0.5 times that of the degreaser width; installing a freeboard chiller with a minimum capacity of 100 Btu/hour/feet of perimeter coil; removing the load only when the liquid runoff has stopped; and protecting the degreaser from drafts, air currents, and excessively high velocity exhaust ducts.⁸³

1,1,1-Trichloroethane - Better Operating Practices - Material Conservation

Proper handling is required for empty containers that contain residual quantities of 1,1,1-trichloroethane. They must be triple rinsed before disposal or use. The rinsing process generates a large quantity waste stream that requires proper treatment before drainage to a treatment plant. Purchasing 1,1,1-trichloroethane in minibulk (e.g., 55-gal drums) rather than large containers (e.g., tankers) is a good practice. After purchase it must be stored in containers of 230 gallons or less. Material transfer carts specifically designed for transfer from storage tanks to vapor degreasers must be dedicated for that use only. Cross-contamination may thus be prevented.

⁷⁹ ASTM Standard D 2943-86, "Standard Method of Aluminum Scratch Test for 1,1,1-Trichloroethane," *Annual Book of American Society of Testing and Materials Standards*, Vol. 15.05 (1988).

⁸⁰ ICF Consulting Associates, Inc., *Guide to Solvent Waste Reduction Alternatives*, Final Report (Prepared for the California Department of Health Services, Sacramento, CA, 1986), pp 4-8 - 4-9.

⁸¹ *Solvent Minimization and Substitution Guidelines*.

⁸² ASTM Standard D 3640 80, "Standard Guidelines for Emission Control in Solvent Metal-Cleaning Systems," *Annual Book of American Society of Testing and Materials Standards*, Vol 15.05 (1988).

⁸³ ASTM Standard D 3640-80.

1,1,1-Trichloroethane - Better Operating Practices - Material Transfer and Storage

Sometimes stored new products may be cross-contaminated, making them unusable. This contamination is caused by using transfer equipment such as solvent pumps on drums containing several different products.

Degradable hazardous materials must not be stored in areas that are overheated. Also, contamination from the other materials present must be avoided. Hazardous material handlers must be trained in proper handling and storage of hazardous materials.

1,1,1-Trichloroethane - Better Operating Practices - Chemical Purchase

The purchase of new solvents must be controlled by proper inventory management. Overstocking must be avoided. The material safety data sheets that accompany new products must be reviewed to ensure worker safety and minimize environmental pollution.

1,1,1-Trichloroethane - Better Operating Practices - Operator Handling

The operators must be trained in the proper use of degreasers. The training must include not only the health and safety aspects, but also efficient use and proper waste handling/disposal. Training the operators in process control, proper equipment use, and handling, increases the performance efficiency and minimizes the wastes generated. Standard operating procedures must be written to include the above considerations.

1,1,1-Trichloroethane - Product Substitution - Aqueous Cleaners

Aqueous cleaners that are possible substitutes for chlorinated solvents are commercially available.⁸⁴ The advantages of substituting aqueous cleaners for solvents include minimizing the exposure of workers to solvent vapors, and reduced liability and disposal costs. Since aqueous cleaners are usually biodegradable, the wastewaters produced can be discharged directly to a wastewater treatment plant for further treatment--no disposal of used solvents is required. Substituting aqueous cleaners for solvents will require additional cleaning steps and equipment to achieve the same cleaning performance. Some of the aqueous solvents, that have been determined to be possible substitutes for chlorinated solvents, are listed in Table 39.

One disadvantage of aqueous cleaners is that they are generally more corrosive. Tanks liners must be installed to prevent excessive corrosion. This may present a problem for open top vapor degreasers with baffles and heating coils. Noncorrosive cleaners typically do not possess the necessary cleaning power required. Aqueous cleaners also require agitation to work properly; installation of a circulating pump or ultrasonic agitator is often required. Furthermore, aqueous cleaners leave metals wet after cleaning. Parts must be blow dried to guard against rust. Particular problems have been noted in cleaning galvanized metal which corroded appreciably when aqueous cleaning solutions were used. Finally, oil removed from parts during cleaning will typically float on top of aqueous cleaning solutions and must be skimmed by an internally floating oil skimming pump or a small external pump and hydrocyclone which continuously cleans the aqueous cleaner and returns it to the tank.⁸⁵

⁸⁴ J.M. Beller, et al., *Biodegradable Solvent Substitution - A Quick Look Report* (U.S. Air Force Logistics Command, 1988).

⁸⁵ ICF Consulting Associates, Inc.

1,1,1-Trichloroethane - Process Change - Ultrasonic Cleaning

Using an ultrasonic cleaning process instead of vapor degreasing will eliminate the problems associated with wastes management. Ultrasonic cleaners use high frequency sound to discharge fine particles attached to surfaces. Further treatment of the aqueous waste stream may be required, depending on the concentration of toxic contaminants in solution. Additional information about ultrasonic equipment can be obtained from manufacturers (e.g., Crest Ultrasonics Corporation, (609) 883-4000).

1,1,1-Trichloroethane - Process Change - Process Controls

Unnecessary changes of solvents from degreaser tanks must be avoided. A method of determining the need to change the solvent is to measure the vapor boiling temperature of the contaminated solvent. Solvent suppliers provide information about the boiling temperature range for all solvents. When a high temperature is reached, the cleaning efficiency of the solvent is minimum and a change is recommended. Other testing methodologies were mentioned above.

Controlling movement of parts in and out of the vapor degreaser (to less than 11 ft/min) can also be viewed as a process control technique that minimizes solvent dragout and emissions.⁸⁶ Speed control equipment (governors) must be used to allow for adequate draining time, and cooling and condensation of solvent in the chilling zone.

Vapor degreasers must not be used as drying chambers for parts that have been cleaned and rinsed with water. The wet parts introduce water into the solvent decreasing its useful life. The water may also react with 1,1,1-trichloroethane to form hydrochloric acid that corrodes equipment and contaminates the solvent. Use of water separators can extend the life of the solvent.

Recycling Onsite/Offsite - Solvent Cleaning

1,1,1-Trichloroethane - Onsite Recycling - Closed-Loop Distillation

A closed-loop distillation system must be designed and used to recover 1,1,1-trichloroethane from vapor degreasers. Solution from the vapor degreasing tank is pumped into a distillation still and the pure 1,1,1-trichloroethane is pumped back into the tank after the recovery process. Adding inhibitors will be required. The still bottoms from the distillation process have to be disposed of as a hazardous waste. A list of manufacturers of distillation equipment is provided in Table 33. In addition to recycling of solvent, this process also segregates 1,1,1-trichloroethane from other wastes, thus preventing cross-contamination with other cleaning wastes.

1,1,1-Trichloroethane - Onsite Recycling - Degreaser

In small degreasing operations, the vapor degreaser can be used part time for distillation. This is accomplished by diverting the vapor-return-to-sump line to a separate holding tank. The level of the "spent" solvent to be distilled must always exceed the level of heating coils. Usually this operation is undertaken during periods of slow workload or during off-hours.

⁸⁶ ASTM Standard D 3640-80.

Treatment - Solvent Cleaning

1,1,1-Trichloroethane - Onsite Treatment - Filtration

Filtration devices, when used in a vapor degreasing operation, remove particles and thus extend the life of the solvent and reduce cleaning frequency. Equipment suppliers (e.g., Motor Guard Corporation, 415/569-9766) must be contacted to obtain additional information about filtration equipment.

1,1,1-Trichloroethane - Onsite Treatment - Freeze Crystallization

Freeze crystallization is a treatment process that selectively crystallizes certain components from waste solvent. The crystals can then be filtered and disposed of separately. A flow rate of 0.25 gal/min is required⁸⁷ for continuous operation of freeze crystallization equipment (e.g., Heist Engineering Corporation, 415/283-8121). Dissimilar metals may thus be removed from waste solvent. This treatment process must be designed on a case-by-case basis.

1,1,1-Trichloroethane - Offsite Treatment

Methods that solvent recyclers use for recovery of solvents include: distillation, solvent extraction, and ultrafiltration. A list of solvent recyclers is provided in Table 29. Thermal destruction of contaminated solvent in a hazardous waste incinerator for energy recovery is also a common treatment technique.

Treatment - Alkaline Cleaning

Caustic Wastes - Onsite Treatment

Cleaning of metal substrate using alkaline cleaners generates a corrosive waste that must be neutralized. In addition to neutralization, removing grease and heavy metals may also be necessary. Batch treatment units are commercially available. A precipitation/neutralization system can also be designed for onsite use. Sludge collected on the bottom of the treatment tank must be tested for hazard characteristics and disposed of properly.

Source Reduction - Dry Media Blasting

Dry Wastes - Product Substitution - Plastic Media Blasting

Plastic media blasting (PMB) is a relatively new method to remove paint and rust from a variety of metallic and alloy substrates such as aluminum, steel, titanium, copper, and zinc. It is a good substitute for organic chemical stripping (using mixtures of MC and other toxic compounds) and abrasive blasting with sand, glass beads, or agricultural media (walnut shells, rice hulls, corn cobs, etc.).

Agricultural media blasting has several drawbacks such as high explosion potential, poor paint/rust removal, high contamination, low recycle rate, and generation of large quantities of wastes. Comparatively, sand and glass beads are better for blast cleaning because of good performance and low

⁸⁷ Fred C. Hart Associates, *Aerospace Waste Minimization Report* (Prepared for the California Department of Health Services and Northrop Corporation, CA, 1987).

explosion potential, however they also have a very low recycle rate. Some of the advantages of PMB are: (1) it is aggressive and requires less operating time (compared to agricultural media only); (2) the plastic maintains its size and hardness; (3) the plastic does not break up and thus can be recycled 10 to 20 times,⁸⁸ resulting in lower replacement and disposal costs; and (4) overall, the method is economically favorable.

PMB is slower than sand or glass bead blasting, however it produces a better quality finish. Also, the amount of waste produced in PMB is greatly reduced because most of the media can be recycled many times. Assuming a labor rate of \$15/h and a media recycle rate of 90 percent, the costs of sand blasting and PMB are \$0.62 and \$0.36/sq ft, respectively.⁸⁹

Suppliers of plastic media including: Aerolyte Systems, 1657 Rollins Rd., Burlingame, CA 94010, (415) 570-6000; E.I. du Pont de Nemours & Co., Inc., Fabricated Products Dept., Wilmington, DE 19898, (800) 441-7515; and U.S. Blast Cleaning Media, 328 Kennedy Drive, Putnam, CT 06260. The price of plastic media (available on a GSA contract, 1988 prices) ranges from \$1.75 to \$2.50 per pound.

Dry Wastes - Process Change - Plastic Media Blasting

Existing abrasive blasting machines can be replaced with more efficient plastic media blasting machines. A number of companies manufacture PMB machines; however, design consultants must be retained to design specific applications. Two types of PMB machines are available: cabinets and open blast systems. Cabinet systems are very similar to the conventional abrasive blasting machines. The most commonly used cabinet has an opening that measures about 5 ft by 4 ft. Small open blast systems are portable and self-contained.

Source Reduction - Cutting and Threading

Cooling/Cutting Oils - Better Operating Practices - Material Conservation

The application of cooling/cutting oils in metalworking must be limited to the area that has to be cooled without using it in excess. Efficient applicators or directional delivery systems, if used, can reduce the amount of coolant delivered to a surface. This efficient use extends the life of oils and minimizes the amount of oil purchased and wastes generated.

Cooling/Cutting Oils - Better Operating Practices - Proper Concentration Maintenance

The coolant performance depends on maintaining the proper coolant to water ratio. Accurate measurements of the concentrations can be obtained by using refractometers. Also, coolant proportioning devices are available to ensure accurate mixing. Specific information on coolant maintenance must be obtained from the manufacturer; the recommendations must be followed.

⁸⁸ J. Gardner, *Dry Paint Stripping Utilizing Plastic Media: A New Solution to an Old Problem*, Technical Bulletin (Clemco Industries, 1987).

⁸⁹ C.H. Darvin and R.C. Wilmoth, *Technical, Environmental, and Economic Evaluation of Plastic Media Blasting for Paint Stripping*, EPA/600/D-87/028 (U.S. Environmental Protection Agency [USEPA], Water Engineering Research Laboratory, 1987); J.B. Mount, et al., *Economic Analysis of Hazardous Waste Minimization Alternatives*, Draft Technical Report (USACERL, 1989).

Cooling/Cutting Oils - Better Operating Practices - Proper Storage

Water soluble oils can be stored easily. Proper storage avoids deterioration by biodegradation. The manufacturer's storage recommendations must be followed.

Cooling/Cutting Oils - Better Operating Practices - Operator Handling/Segregation

The operators of metalworking equipment must be cautioned about minimal use of coolant. They should also be trained about the hazards of mixing oils and chlorinated/nonchlorinated solvents and the associated disposal problems.

Cooling/Cutting Oils - Better Operating Practices - Chemical Purchase

When purchasing oils, screen them for undesirable hazardous components. If such information is not available in the manufacturers' Material Safety Data Sheets (MSDSs), testing may be required.

Cooling/Cutting Oils - Better Operating Practices - Metal Chips Removal

Metal chips that accumulate in a coolant must be removed frequently. They interfere with the machine's performance and serve as a site for bacterial growth. Filter screens, when placed at the entrance to the sump and at the exit from the holding trays, can prevent chips from entering the sump. The chips can then be vacuumed from the screens.

Cooling/Cutting Oils - Product Substitution

Several different brands of water soluble oils are available. Some of them contain small amounts of hazardous materials such as cresol (< 1 percent). Only those oils that do not contain hazardous materials can be purchased.

Cooling/Cutting Oils - Process Change - Equipment Modifications

Worn equipment must be repaired or replaced to optimize performance and minimize waste generation (e.g., leaks). Older models should be replaced with automated equipment.

Adding skimmers (belts or disks) to remove "tramp" petroleum oil from the cooling/cutting oils can minimize the quantities of mixed wastes produced. These skimmers must be placed near the sump containing the coolant. Timers are also available to control equipment operation and to ensure that the quantities of coolant removed with the oil are minimal.⁹⁰

Cooling/Cutting Oils - Process Change - Process Controls

The loss of cooling/cutting oils during metalworking operations must be minimized. Adding splash guards or drip trays allows the excess oils to be collected and possibly recycled/reused. Splash guards and drip trays can also be used to contain spills in the machining areas, thus reducing the use of adsorbent material (e.g., DRY-SWEEP) and wastes generated.

⁹⁰ *Prolonging Machine Coolant Life*, Fact Sheet (Minnesota Technical Assistance Program, Minneapolis, MN, 1988).

Cooling/Cutting Oils - Process Change - Control Bacterial Growth

Bacterial growth in coolants can be controlled by: cleaning the sump whenever the coolant is replaced, using biocides, adjusting the pH, and adequately circulating the coolant.⁹¹ The sump must be cleaned with steam or chemicals. In some cases, its design may have to be modified to provide sufficient access for cleaning tools.

When using biocides to control bacterial growth, it is important to realize the "ultimate" treatment or fate of the coolant. Bacterial test kits must be used to determine the exact amount of biocide to be added. The use of biocides can be minimized by proper pH control. Bacterial growth decreases the pH of the coolant. Measuring the pH (with a pH meter or litmus paper) and adjusting it (with caustic soda) to the manufacturer's recommended level can control bacterial growth. It is also necessary to maintain proper circulation of the coolant to ensure an oxygen enriched environment in the sump. A mixer or an agitator can be used for this.

Treatment - Cutting and Threading

Cooling/Cutting Oils - Onsite Treatment

Fine particles in oils, such as metal cuttings, can be removed in a pretreatment step by using a centrifuge. Batch centrifuges are available for small metalworking equipment. Large continuous centrifuges are available for removing particles from oils generated continuously in large volumes.

Mobile treatment services are provided by some companies to generators that produce large quantities of water soluble oils. The cost for such a service depends on the volume of oil and the concentration of contaminants.

Another physical treatment technique is ultrafiltration to remove fine particles. About 90 percent of the water fraction can be extracted and discharged directly to the sewer system.⁹² The oil recovered is high quality and can be recycled.

Epsom salts (magnesium sulfate) can be used to reduce volume by precipitation and separation before disposal. However, this method is less efficient than other volume reduction techniques available.

To reuse water soluble oils, it is necessary to treat them by pasteurization followed by filtration. The biological contamination accumulated during use can thus be removed. The blend ratio of recycled oil to new oil is determined before use with a refractometer.

Cooling/Cutting Oils - Offsite Treatment

Several offsite treatment and recovery techniques are available for cutting/cooling oils, including ultrafiltration, evaporation, and thermal destruction by incineration. The choice of a method depends on the volume of wastes and their physical/chemical state.

⁹¹ *Prolonging Machine Coolant Life.*

⁹² Fred C. Hart Associates, *Aerospace Waste Minimization Report* (California Department of Health Services, 1987).

Table 35

Waste Classification for IMSS

| Process Description | | Waste Description | | | Hazard class | Number |
|---|--|-------------------|---------------------------------|--|---|--|
| Process/operation | Materials used wastes produced | HW code | DOT shipping name | | | |
| Degreasing metal surfaces/parts and other metal surface preparation | Caustic soda | D002 | Waste sodium hydroxide solution | Corrosive material ORM-A ORM-A | UN1824 Varies UN9189 | |
| | Chlorinated solvents | F001 | Waste (main ingredient) | | | |
| | Freon | F001 | Hazardous waste liquid, NOS | | | |
| | Ignitable (flammable) degreasers MEK Methylene chloride Mineral spirits solvents Petroleum naphtha Petroleum distillates Petroleum distillates 1,1,1-trichloroethane Trichloroethylene | | D001 | Waste flammable liquid, NOS | Flammable liquid Flammable liquid ORM-A Flammable liquid Flammable liquid Flammable liquid ORM-A ORM-A | UN1993 UN1193 UN1593 UN2553 UN1255 UN1268 UN2831 UN1710 |
| | | | F005 | Waste methylethylketone | | |
| | | | F001 | Waste methylene chloride | | |
| | | | D001 | Waste naphtha | | |
| | | | D001 | Waste naphtha | | |
| | | | D001 | Waste petroleum distillate | | |
| | | | F001 | Waste 1,1,1-trichloroethane | | |
| | | F001 | Waste trichloroethylene | | | |
| Metal finishing (including etching) | Spent acid solutions | D002 | Waste chromic acid solution | Corrosive material Corrosive material Oxidizer Corrosive material Corrosive material Corrosive material | UN1755 NA1789 UN2031 NA1760 UN1805 UN1832 | |
| | Chromic solutions | D002 | Waste hydrochloric acid | | | |
| | Hydrochloric solutions | D002 | Waste nitric acid > 40% | | | |
| | Nitric stripping solutions | D002 | Waste nitric acid < 40% | | | |
| | Phosphoric solutions | D002 | Waste phosphoric acid | | | |
| | Sulfuric solutions | D002 | Waste sulfuric acid | | | |
| Surface preparation | Acetone | F003 | Waste acetone | Flammable liquid Flammable liquid Corrosive material ORM-A Flammable liquid Flammable liquid | UN1090 UN1987 NA1760 UN1593 UN2553 UN1263 | |
| | Alcohols | D001 | Waste alcohol, NOS | | | |
| | Caustic paint stripper | D002 | Waste paint related material | | | |
| | Methylene chloride stripper | F002 | Waste methylene chloride | | | |
| | Mineral spirits | D001 | Waste naphtha | | | |
| Metalworking | Used oils (not manifested) | None | Waste petroleum oil, NOS | Combustible liquid Varies | NA1270 Varies | |
| | Spent solvents | | Varies | | | |

* Source: *Metal Manufacturing and Finishing, Hazardous Waste Fact Sheet* (Small Quantity Generators Activity Group, Minnesota Technical Assistance Program, Minneapolis, MN, 1987).

Table 36
Test Criteria for Trichloroethylene

| Rating | Acid Acceptance Value (wt percent NaOH) | Absorbance (450 nm) | Viscosity (cp) | Conductivity (nanomho/cm) |
|---------------|--|----------------------------|-----------------------|----------------------------------|
| 0 | >0.06 | <0.50 | 0.57 | > 27.0 |
| 1 | -- | 0.50-0.67 | 0.571-0.590 | 27.0-24.0 |
| 2 | -- | 0.68-0.84 | 0.591-0.600 | 23.9-20.0 |
| 3 | -- | 0.85-1.00 | >0.600 | <20.0 |
| 4 | 0.06-0.03 | >1.00 | -- | -- |
| 6 | <0.03 | -- | -- | -- |

Table 37
Test Criteria for Perchloroethylene

| Rating | Acid Acceptance Value (wt percent NaOH) | Absorbance (500 nm) | Viscosity (cp) | Conductivity (nanomho/cm) |
|---------------|--|----------------------------|-----------------------|----------------------------------|
| 0 | >0.06 | <0.18 | 0.75 | >29.4 |
| 1 | -- | 0.18-0.42 | 0.76-0.77 | 29.4-26.7 |
| 2 | -- | 0.43-0.66 | 0.78-0.80 | 26.6-24.0 |
| 3 | -- | 0.67-0.90 | >0.80 | <24.0 |
| 4 | 0.06-0.03 | >0.90 | -- | -- |
| 6 | <0.03 | -- | -- | -- |

Table 38**Test Criteria for 1,1,1-Trichloroethane**

| Rating | Acid Acceptance Value (wt percent NaOH) | Absorbance (400 nm) | Conductivity (nanomho/cm) |
|---------------|--|--------------------------------|--------------------------------------|
| 0 | >0.06 | <0.98 | >22.7 |
| 1 | -- | 0.980-0.986 | 22.7-21.1 |
| 2 | -- | 0.987-0.994 | 21.0-19.5 |
| 3 | -- | 0.995-1.00 | <19.5 |
| 4 | 0.06-0.03 | >1.00 | -- |
| 6 | <0.03 | -- | -- |

Table 39**Aqueous Solvents and Suppliers**

| Solvent | Supplier |
|--|--------------------|
| Safety Solvent Degreaser | Bio-Tek Inc. |
| Exxate 1000, Exxate 1300, Exxate 600, Exxate 700, Exxate 800, Exxate 900 | Exxon Chemical Co. |
| Desolve-It | Orange-Sol Inc. |

7 WASTE MINIMIZATION FOR PAINT SHOPS

Paints are applied to metal or other surfaces (e.g., wood) for waterproofing, flameproofing, rustproofing, insulating, etc. There are three different categories of paints: architectural, original equipment manufacture (OEM), and special purpose. Architectural paints are used on buildings. OEM paints are used in industries that manufacture automobiles, appliances, and furniture.⁹³ Special purpose paints such as chemical agent resistant coating are used in maintenance operations in some industries, the armed services, and highways' maintenance. Forty-four percent of the special purpose coatings are used on automobiles, 18 percent in industrial maintenance, and the remaining distributed between aerosols, traffic paints, and other categories.⁹⁴

The painting process involves: paint stripping and surface preparation, application of the paint, and curing. Paint stripping (using wet or dry techniques) and surface preparation are necessary to clean the substrate and prepare it for adhesion of the paint. Paint is then applied to the surface. The method used depends on the size, shape, complexity, and number of items. After painting, the items are placed in a curing oven to remove excess solvent and make the coating uniform. Some of the common painting techniques are: dip painting, flow painting, roll painting, curtain painting, spray painting, and bulk painting. Spray painting is the most commonly used technique and can be manual or automatic. Spray painting techniques (including conventional pressure/air atomized, and electric static centrifugal/air atomized) have transfer efficiencies that range from 30 to 95 percent. The overspray from the paint application process can be as high as 50 to 70 percent, and is in most cases collected and disposed of. The method of painting may sometimes be dictated by the type of paint formulation (e.g., water-based enamels cannot be sprayed).

Most paint formulations use solvents as carriers for binders such as pigments, powders, and adhesives. The solvent content can vary from 1 to 85 percent. Typical solvents include: acetone, n-butanol, o-dichlorobenzene, diethyl ether, ethyl acetate, butanol, MEK, methyl isobutyl ketone, MC, 1,1,1-trichloroethane, trichlorofluoro-methane, tetrahydrofuran, cyclohexanone, and petroleum derivatives such as naphtha, xylene, toluene, or hexane. Powder or water-based paints do not contain solvents. Solvent-based paints (e.g., acrylic lacquers) have the advantage of durability, fast drying time, low corrosivity to substrate, and high gloss finish.⁹⁵ Some of the disadvantages include: emission control problems; worker exposure hazards; fire hazards; and waste management, disposal, and liability problems. The criteria used in choosing a solvent depends on the type of paint required, drying speed, the nature of the substrate, and the properties of the solvent.

In addition to the wastes from the painting process, large quantities of solvent wastes are generated during equipment cleaning. Table 40 describes the wastes generated from the painting process and lists the corresponding DOT classifications.

Source Reduction

Solvent-Based Paints - Product Substitution - Powder Coatings

Powder coating is an effective alternative to solvent-based paints. In a powder coating process, the paint powder is applied to a substrate with an electrostatic spray gun. The carrier is pressurized air, rather than solvents. The powder coating adheres to the surface because of electrostatic forces. Excess powder that does not cling to the surface can be recycled. Heating in the curing oven ensures

⁹³ ICF Associates, Inc.

⁹⁴ P.L. Laymar, "Paints and Coatings: the Global Challenge," *Chemical and Engineering News* (September 30, 1985), pp 27-68.

⁹⁵ ICF Associates, Inc.

that the powder fuses to the surface. Powder coatings can also be applied using a fluidized bed process where the heated objects are immersed in the fluidized bed.

Because powder coatings contain no solvents, emissions of volatile organic compounds and the related air pollution problems are eliminated. Fire hazard and insurance rates are reduced and better neighborhood relations develop as the odor associated with solvent-based application are eliminated. Preliminary toxicological studies indicate that many of the commercial powder formulations are nontoxic. Since the overspray powder can be recycled, material use is high and solid waste generation is minimal. Waste disposal and liability problems are reduced. The process also has a high transfer efficiency, resulting in a lower reject ratio of parts. Coating quality is claimed to be better than with solvent-based coating. The messy cleanup operations associated with liquid-based paints are avoided. Powder coating is easier to apply and it is easier to train people to use it. The operators' attitudes improve. The operation is less labor intensive. Maintenance is easier and the overall operating costs are lower. Powder costs are minimally affected by petroleum prices and the operation is more flexible to changing coating requirements.

However, powder application equipment is more expensive to install than solvent-based or high solids coating equipment. Another disadvantage is that powder coating must be done at elevated temperatures. It is not usable on heat sensitive substrates such as plastics, wood, and assemblies containing nonmetal parts. Formulations with lower cure temperatures (275 °F) are being developed.⁹⁶

Solvent-Based Paints - Product Substitution - Water-Based Formulations

Water-based formulations reduce the amount of solvents used and emitted in the coating process. Solvent-based paint equipment can easily be modified to apply water-based paints/coatings. The paint overspray can easily be collected with water in the spray booth and recycled. Though this can also be done in a solvent-based process, a difficult-to-treat aqueous waste stream may result due to direct contact with the solvent. Disposal and liability issues associated with wastes from the solvent-based formulation are reduced and the fire and explosion hazards present with the solvent-based process are eliminated. Concerns about worker exposure to solvents are also eliminated. Energy savings can be achieved by recirculating hot air in the ovens used to cure the paint. Similar recirculation is not possible in a solvent-based operation as the solvent levels in the recirculated air may reach explosive levels. The installed capital cost of water-based units is lower than that for high solids or powder coating.⁹⁷

A number of private companies and a naval installation (Naval Air Rework Facility, Pensacola, Florida) have successfully converted from solvent-based painting to a water-based painting operation.⁹⁸ Based on their experience, the annual cost to coat using water-based coating was higher compared to conventional solvent, high solids, or powder coating. The applied coating cost per square foot for a water-based unit is also higher and the coating may be inferior. The quality of water-based coatings varies with ambient conditions such as room temperature and humidity. The drying time is longer and could be a bottleneck in the production line. It may necessitate installing a drying unit. Surface treatment procedures may need extensive modification to convert to a water-based coating method.⁹⁹

One company that unsuccessfully tried to convert to water-based painting reported that the increased drying time led to production scheduling problems. The new system took several hours for drying, compared to the 30 minutes required for the solvent based process. It required an increased amount of surface cleaning before the water-based coating could be applied. The time and cost

⁹⁶ ICF Associates, Inc.

⁹⁷ ICF Associates, Inc.

⁹⁸ ICF Associates, Inc.

⁹⁹ ICF Associates, Inc.

involved in the extra cleaning were prohibitive. The water coating did not have the same hardness, durability, or gloss and the quality of the water-based paint varied with room temperature and humidity. The company also reported that the water environment was corrosive to galvanized steel. The existing equipment made of galvanized steel needed to be replaced with stainless steel, which involved considerable expense.¹⁰⁰

Solvent-Based Paints - Product Substitution - Two-Component Catalyzed Coatings

Two-component catalyzed coatings are comprised of isocyanates (highly toxic compounds) and hydroxyl compounds. These compounds polymerize on a surface to form a polyurethane coating. Their use has been extensively investigated by the automobile industry.¹⁰¹ Substituting two-component catalyzed coatings for solvent-based formulations is not justified because of the toxicity of the components.

Solvent-Based Paints - Product Substitution - Radiation-Curable Coatings

Radiation-curable coatings do not contain solvents and therefore could be good substitutes. A liquid prepolymer is allowed to react with a thinner under ultraviolet light to form a coating. These coatings have been found to be effective on a number of surfaces.¹⁰²

Paint Wastes - Better Operating Practices - Segregation

The current practice for disposing of residual paint left in cans is to pour it into drums containing thinner wastes. However, segregating paints from thinner wastes maintains the purity of the thinner and improves its recyclability. Thinners can be recycled onsite or offsite and reused in painting and cleaning processes.

Excess paints should be given to customers for touchup use, thus reducing the improper disposal of cans containing liquid paint with other nonhazardous wastes. (Cans containing dried paint residue can be thrown out.)

Solvent Wastes - Better Operating Practices - Adopt Good Manual Spraying Techniques

When manual spraying practices are used, the amount of waste produced can be reduced by: using a 50 percent overlap in the spray pattern, maintaining a 6- to 8-in. distance between the spray gun and the surface, maintaining a gun speed of 250 ft/min, holding the gun perpendicular to the surface, and triggering at the beginning and end of each pass.¹⁰³ In addition to reducing the amount of waste produced, an increase in the production rate and a decrease in rejection rate can be realized.

Solvent Wastes - Better Operating Practices - Avoid Adding Excess Thinner

The tendency to use excess thinners should be avoided. If the paint is difficult to apply, adding thinner may make it easy. However, adding excess thinner affects the film thickness, density, and durability.¹⁰⁴

¹⁰⁰ ICF Associates, Inc.

¹⁰¹ M.E. Campbell and W.M. Glenn, *Profit from Pollution Prevention - A Guide to Industrial Waste Reduction and Recycling* (The Pollution Probe Foundation, Toronto, Canada, 1982).

¹⁰² M.E. Campbell and W.M. Glenn.

¹⁰³ J. Kohl, P. Moses, and B. Triplett, *Managing and Recycling Solvents: North Carolina Practices, Facilities, and Regulations* (North Carolina State University, Raleigh, NC, 1984).

¹⁰⁴ L.J. Durney, "How to Improve Your Paint Stripping," *Product Finishing* (1982), pp 52-53.

Solvent Wastes - Better Operating Practices - Avoid Excessive Air Pressures for Atomization

Using excessive air pressure to atomize paint particles leads to increased emissions and overspray, and must be avoided. By adjusting the air pressure, a 30 percent decrease in overspray and therefore a savings in raw material costs could be realized.¹⁰⁵

Solvent Wastes - Better Operating Practices - Maintain Equipment Properly

Proper equipment maintenance is critical to reducing the number of reject products and improving productivity.¹⁰⁶ Proper maintenance also reduces the quantity of waste produced from paint stripping and repainting operations.

Solvent Wastes - Better Operating Practices - Lay Out Equipment Properly

Proper layout of equipment in a work area can also reduce emissions and improve the quality of the finished products. Solvent tanks must be kept away from heat sources such as curing ovens. This will help minimize evaporation of the solvents and will also prevent the solvent vapors from entering the curing oven and affecting the curing rate or decreasing the quality of the finish.¹⁰⁷

Solvent Wastes - Better Operating Practices - Isolate Solvent-Based Spray Units From Water-Based Spray Units

Isolation of solvent-based spray units from water-based spray units is a good segregation practice. The oversprays from these operations should not be allowed to mix; the mixture could be classified as a hazardous waste. If the units are segregated, the filters from the water-based paint spray booths are not classified as hazardous waste.

Solvent Wastes - Better Operating Practices - Close Floor Drains in Production Area

Closing the floor drains will reduce the amount of water used to clean up spills. This practice promotes the use of rags that must be drycleaned. Thus the generation of large quantities of rinse water containing solvents can be minimized.¹⁰⁸

Solvent Wastes - Better Operating Practices - Purchase Proper Quantities of Paints

Buying paint in large containers is preferable to buying the same quantity in smaller containers. The amount of residual materials can thus be reduced. Large containers can be returned to manufacturers for cleaning and reuse. Ordering extra paint for any given job should also be avoided. The exact amount of paint required must be calculated to reduce the number of small cans containing residues for disposal.

Solvent Wastes - Better Operating Practices - Segregate Wastes

Segregating wastes is extremely important to reducing the amount of hazardous wastes generated and to improve the recyclability of solvents. If many solvents are used, they should be segregated. Some solvents can be directly reused in equipment cleaning operations.

¹⁰⁵ICF Associates, Inc.

¹⁰⁶ICF Associates, Inc.

¹⁰⁷ICF Associates, Inc.

¹⁰⁸L.J. Dumey.

Proper labels must be attached to containers. Hazardous wastes must be segregated from nonhazardous wastes and handled and disposed of properly. Labeling a container containing non-hazardous waste as "hazardous" can result in an unnecessary increase in disposal costs.

Solvent Wastes - Better Operating Practices - Standardize Solvent Use

Standardizing solvent use will reduce the numbers of different types of thinners and solvents used in coating formulations. If fewer solvents are stocked, the possibility of mixing of the wastes is reduced. Only one type of thinner or solvent corresponding to each type of paint should be purchased.

Solvent Wastes - Product Substitution - Use High-Solids Formulations

High-solids formulations contain a reduced quantity of solvent. Using high-solids formulations will therefore reduce the amounts of wastes and emissions generated from the painting operations.

Solvent Wastes - Process Change - Choose Proper Coating Equipment

The proper choice of coating equipment can reduce the quantity of wastes produced and result in raw material savings. Overspray from painting operations generates the most waste. Equipment with high transfer efficiencies must be chosen.

Solvent Wastes - Process Change - Replace Conventional Spray Units With Electrostatic Units

Electrostatic units (either centrifugally- or air-atomized spray) have high transfer efficiencies. Converting from conventional equipment to electrostatic equipment may lead to a 40 percent reduction in overspray and considerable savings.¹⁰⁹ The overspray collects on the spray booth walls that are electrically grounded. Thus, the amount of residues in the rest of the work area is reduced. However, the complete conversion requires a lot of time and work in testing, visiting other plants, engineering, and maintenance.

Solvent Wastes - Process Change - Replace Air-Spray Guns With Pressure Atomized Spray Guns

Replacing air-spray guns with air-less spray guns increases the transfer efficiencies. A 23 percent reduction in raw material costs has been reported.¹¹⁰ Also, the cleaning frequency is increased from once every 3 weeks to once a week.

Aqueous Wastes - Process Change - Dry Paint Booths

Large volumes of wastewater are generated from "water curtain" paint booths. The water curtain is used to remove the paint overspray particulates from the exhaust system. A significant concentration of paint, solvents, and flocculating/coagulating agents accumulates in the wastewater. This wastewater must be treated to remove hazardous contaminants and the sludge must be disposed of as a hazardous waste.

Converting from a wet to a dry paint booth eliminates the problem of wastewater generation. In a dry booth, the contaminated air (laden with paint particles) is drawn through fibrous filters which must then be disposed of as hazardous waste. A much smaller volume of waste is generated. Results

¹⁰⁹ L.J. Durney.

¹¹⁰ J. Kohl, P. Moses, and B. Triplett.

of a Navy study¹¹¹ indicate that converting to dry operation is technically feasible and cost effective (payback 8 months to 2 years) for small, medium, and large painting facilities.

Recycling Onsite/Offsite

Paint Wastes - Onsite Recycling - Recycle Paint Overspray/Sludge

In water curtain spray booths, the overspray impinges on a water curtain. The paint/water mixture is then pumped to a separator. If the paints used are immiscible in water, they can be separated out and recycled. Also, the water can be recycled back into the water curtain. Recycling of the water and paint reduces the amount of wastes produced and results in a savings in raw materials costs.

Solvent Wastes - Onsite Recycling - Ultrafiltration, Distillation, or Evaporation

In ultrafiltration, the sludge containing solvents is filtered using membranes with pore sizes of 0.01 microns. Paint particles, usually larger than 1 micron, collect on the membranes and are removed continuously. A series of membranes filter the waste to produce a pure solvent that can be recycled.¹¹²

Distillation stills can be used to recover solvents. The solvent is indirectly heated and the vapors are condensed and collected. Purities of 90 to 99 percent can be obtained by this process. Table 33 lists manufacturers of distillation stills and associated costs. The concentrated still bottoms containing paint sludge must be shipped for proper disposal as a hazardous waste. Another possibility is to ship the still bottoms to a cement kiln for use as a supplemental fuel through a waste exchange program.

Evaporation, using drum-dryers or thin-film evaporators, is effective on solvents that are heat-sensitive. Large scale equipment is necessary for evaporation and, therefore, is cost effective only for large quantities of solvents. Many commercial solvent recyclers use agitated thin-film evaporators.

Solvent Wastes - Offsite Recycling - Closed-Loop Contract

Wastes consisting primarily of thinners, paint sludge, and paint can be reclaimed at an offsite facility. This closed-loop service is provided by many paint and thinner suppliers. Usually the purchase price includes delivery, waste hauling, recycling, and disposal. Such a service removes the wastes when it delivers the new product. The waste is processed at a licensed treatment, storage, and disposal (TSD) facility. Processes used for recycling thinners are well-established and widely used.¹¹³ Commercial recyclers have the versatility and have developed technologies for recycling large varieties of waste solvents. Between 70 and 80 percent of spent thinners can be recycled into a useful product.

Treatment

Solvent Waste - Onsite Pretreatment - Gravity Separation

Gravity separation is a relatively inexpensive option that is easy to implement. In this treatment process, the thinner and paint sludge mixture is allowed to separate by the force of gravity without

¹¹¹ Acurex Corporation, *Navy Paint Booth Conversion Feasibility Study*, CR 89.004 (Prepared for the Naval Civil Engineering Laboratory [NCEL], Port Hueneme, CA, 1989).

¹¹² Y. Isooka, Y. Imamura, and Y. Sakamoto, "Recovery and Reuse of Organic Solvent Solutions," *Metal Finishing* (June 1984), pp 113-118; W.H. Reay, "Solvent Recovery in the Paint Industry," *Paints & Resins* (March/April 1982), pp 41-44.

¹¹³ SCS Engineers, Inc., *Waste Audit Study - Automotive Paint Shops* (California Department of Health Services, January, 1987).

external disturbance or agitation. The heavier paint sludge particles settle to the bottom of the container and the supernatant can be decanted off. The decanted thinner can be used as a "wash thinner" for cleaning equipment or for thinning primer and base coatings.¹¹⁴

Paint/Solvent/Aqueous Wastes - Offsite Treatment

Although most waste associated with paint can be treated using a number of different physical, chemical, and biological techniques, these techniques are not feasible for most Army installations that generate small quantities. However, licensed TSD facilities can use a number of processes such as activated carbon adsorption, chemical oxidation, solvent extraction, solid/liquid separation, stabilization/solidification, thermal destruction, volume reduction, and biological treatment. The applicability of each technique will not be discussed here.

Table 40

Waste Classification for Paint Removal, Painting, and Brush Cleaning

| Waste Description | | | | |
|------------------------------------|------------|---------------------------------|--------------------|--------|
| Materials used/ wastes produced | HW code | DOT shipping name | Hazard class | Number |
| Acetone | F003 | Waste acetone | Flammable liquid | UN1090 |
| Alcohols | D001 | Waste alcohol, NOS | Flammable liquid | UN1987 |
| Caustic paint stripper | D002 | Waste paint related material | Corrosive material | NA1760 |
| Chlorobenzene | F002 | Waste chlorobenzene | Flammable liquid | UN1134 |
| Enamel liquids | D001 | Waste enamel | Combustible liquid | UN1263 |
| Ethylene dichloride | | Waste ethylene dichloride | Flammable liquid | UN1184 |
| MEK | F005 | Waste methylethylketone | Flammable liquid | UN1193 |
| Methylene chloride stripper | F002 | Waste methylene chloride | ORM-A | UN1593 |
| Mineral spirits | D001 | Waste naptha | Flammable liquid | UN2553 |
| Paint dryer | None | Waste paint dryer, liquid | Combustible liquid | UN1263 |
| Paint liquids | D001 | Waste paint | Flammable liquid | UN1263 |
| Paint solids (toxic) | Varies | Hazardous waste (solid), NOS | ORM-E (if solid) | UN9189 |
| Paint thinners, lacquers | D001 | Waste paint related material | Flammable liquid | NA1263 |
| Paint waste with heavy metals | Varies | Hazardous waste liquid, NOS | ORM-E | NA9189 |
| | | Hazardous waste solid, NOS | ORM-E | NA9189 |
| Petroleum distillates | D001 | Waste petroleum distillate | Flammable liquid | UN1268 |
| Toluene (Toluol) | F005 | Waste toluene | Flammable liquid | UN1294 |
| VM&P naphtha | D001 | Compound, paint removing liquid | Flammable liquid | NA1142 |
| Xylene (Xylol) | F003 | Waste xylene | Flammable liquid | UN1307 |

¹¹⁴SCS Engineers, Inc.

8 WASTE MINIMIZATION FOR PHOTOGRAPHY, PRINTING, AND ARTS/CRAFTS SHOPS

Photography and photoprocessing are common operations at Army installations. Among the source types that use photography are: training and audiovisual centers, hospitals, dental clinics, and research laboratories (as discussed in Chapter 4). Printing operations are limited to training and audiovisual centers. The materials used in producing a photograph are paper, plastic film, or a sheet of glass containing light-sensitive photographic emulsion. The emulsion is a gelatinous substance containing silver halides (chloride, bromide, and iodide). Some photographic films may be made of cellulose acetate. However, most are made of polyester. In photography, a negative containing different shadings is produced. The dark portions on a negative contain heavy deposits of silver. The processing that follows the exposure of a film or emulsion consists of developing, fixing, and washing. Wastewater containing photoprocessing chemicals and silver is the primary wastestream of concern.

A printing process usually follows image processing, including typesetting and the photographic processing step discussed above. However, an intermediate step to prepare plates to carry the image to paper is necessary. A roller transfers ink onto a plate or a cylinder. The image on the plate or cylinder is transferred to a rubber blanket which in turn transfers it to paper. There are four different types of image carriers: manual - in screen printing; mechanical - for relief printing; electrostatic - in offset duplicating; and photomechanical - most common method of platemaking.¹¹⁵ Preparation of plates is followed by the actual printing. Two common types of printing presses used are: sheet-fed presses that can print up to 3 impressions per second and web presses that operate at the rate of 1000 to 1600 feet per minute.¹¹⁶

In the printing process, the plate (a thin aluminum sheet) is first attached to the plate cylinder of the press. Each unit of a printing press then prints a single color. Four units (red, blue, yellow, and black) are required for a full color illustration. The raw materials typically used in a printing operation are ink, paper or other print substrate, and fountain solution. Wastes generated from a printing process include waste inks, used ink containers, used plates, damaged or worn rubber image transfer blankets, waste press oils, cleanup solvents, rags, and trash.¹¹⁷

The arts and crafts shops are educational and vocational shops that provide training in automobile maintenance/repair, metalworking, graphic arts, and woodworking. Only the minimization of wastes from the photography and printing section of arts and crafts shops is considered in this chapter. Minimization of wastes from automobile maintenance/repair and metalworking are discussed in Chapters 5 and 6, respectively. A summary of processes, corresponding waste streams, and DOT classifications is provided in Tables 41 and 42.

Most of the waste minimization options discussed in this chapter have been extracted from *Waste Audit Study - Commercial Printing Industry*.¹¹⁸

¹¹⁵ Jacobs Engineering Group, Inc., *Waste Audit Study - Commercial Printing Industry* (California Department of Health Services, Sacramento, CA, May 1988).

¹¹⁶ Jacobs Engineering Group, Inc.

¹¹⁷ Jacobs Engineering Group, Inc.

¹¹⁸ Jacobs Engineering Group, Inc.

Source Reduction - Photography and Printing Operations

All Wastes - Better Operating Practices - Proper Material Handling and Storage

Raw materials may become obsolete and get spoiled due to improper storage and handling. Therefore, proper storage and handling is a good operating practice that will reduce the amount of waste generated and result in savings in raw materials costs.

Photographic and printing chemicals require proper storage, which is usually indicated on the containers. They are sensitive to light and temperature. Proper storage under recommended conditions increases their shelf life and results in savings in raw materials costs and disposal costs.

The storage area must be kept clean. One way to keep the storage area clean is to prohibit through traffic and restrict entry to only a few persons. Traffic increases the amount of dirt and the possibility of contamination. It is easier to contain spills if the entry is restricted to only a few persons.

Proper inventory control is necessary to decrease the possibility of the material's shelf life expiring before the materials are used. The materials should be arranged and labeled on shelves so that those that were purchased first must be used first. Computerized inventory control and materials tracking will help manage the inventory.

Material with an expired shelf life should not be discarded. Tests must be used to determine the effectiveness and usability. Waste disposal may thus be minimized. Excess material should be recycled through a manufacturer or a waste exchange.

Ordering excess material should be avoided. Material ordering should be based on use. Small printing operations should purchase inks in small containers to limit the possibility of the ink spoiling in large containers that may not be properly sealed. Large printing operations should order materials in large containers that can be returned to manufacturers for cleaning and reuse.

Raw materials should be inspected when they arrive and before use. Unacceptable and/or damaged items must be returned to manufacturers to avoid disposal problems and to avoid creating defective products.

Source Reduction - Photographic Operations

Photographic Chemicals - Better Operating Practices - Proper Chemical Storage

Many of the photographic chemicals degrade in the presence of air. Small photographic operations store chemicals in plastic containers. Adding glass beads to the containers to bring the liquid level up to the brim has been found to be useful.¹¹⁹ The life of the chemicals can thus be extended.

Photographic Films - Material Substitution - Nonsilver Films

Substituting films containing silver with those containing nonhazardous chemicals reduces hazardous waste generation. The silver from silver films makes the photographic wastes (e.g., fixing

¹¹⁹ Jacobs Engineering Group, Inc.

bath solutions, rinse water, etc.) hazardous. Only very low silver concentrations are allowed in wastewaters treated at wastewater treatment plants operated by county sanitation districts.

Some substitutes to silver-halide films include vesicular (diaz), photopolymeric, and electrostatic films.¹²⁰ However the disadvantage of these films is that they are slower than silver films. Vesicular films consist of a honeycomb structure and are constructed from a polyester base coated with a thermoplastic resin. These films are also coated with a light-sensitive diazonium salt. Photopolymeric films use carbon black instead of silver. A weak alkaline solution is used to process these films. The spent bath solution is a nonhazardous waste that can be neutralized before disposal. An electrostatic charge makes electrostatic film light sensitive. The speed of this nonsilver film is comparable to silver films and it has a high resolution.

Other Photographic Wastes - Material Substitution

Other photographic wastes such as intensifiers and reducers also contain hazardous compounds (e.g., mercury, cyanide salts, etc.). Use of available nonhazardous substitutes will reduce the amount of hazardous wastes generated.

Fixing Bath Solutions - Process Change - Extended Bath Life

The life of fixing baths can be extended to reduce the quantities of wastes generated from photographic operations. Some of techniques that could be used include:¹²¹

1. Adding ammonium thiosulfate which increases the bath life by doubling the allowable silver concentration,
2. Using an acidic stop-bath before the fixing bath,
3. Adding acetic acid to the fixing bath to keep the pH low.

Photographic Wastewater - Process Change - Reduction in Water Use

Parallel rinsing is commonly used in photographic processing operations. Converting to countercurrent rinsing reduces the amount of wastewater generated. In countercurrent rinsing, the water flows in a direction that is opposite to the film movement. Thus, fresh water in the final tank is used in the final film washing stage after most of the contamination has been rinsed off. The most contaminated water is in the very first washing stage. A countercurrent system, however, requires more equipment and space.

Sponges or squeegees must be used in nonautomated operations to remove excess water from the films. Thus the dragout of chemicals from one tank to another can be reduced by almost 50 percent.¹²² Minimizing contamination of processing baths has many advantages including: increasing the recyclability of solutions, extending solution life, and reducing the quantities of raw materials (replenishments) required.

¹²⁰ Jacobs Engineering Group, Inc.

¹²¹ Jacobs Engineering Group, Inc.

¹²² Jacobs Engineering Group, Inc.

Another method of reducing waste chemicals is to add accurate amounts of replenishment chemicals and properly monitor the chemical concentrations of baths. Exposing the process baths to air must be minimized to prevent oxidation reactions.

All Photographic Wastes - Process Change

With the recent advances in desk top publishing systems and the use of personal computers, "electronic prepress photographic systems" are gaining widespread popularity. In such a system, the graphics, photographs, and layouts are scanned into the computer. Editing is accomplished on the monitor rather than on paper. Only the final version is printed on paper. Use of electronic systems will greatly reduce the quantities of wastes generated from photographic operations conducted at printing facilities.

Source Reduction - Printing Operations

Metal Etching/Plating Wastes - Process Change

If printing operations still include metal etching and plating, alternative processes (e.g., lithographic plate, hot metal, flexographic, etc.) must be examined as substitutes. These alternative processes do not present the problems associated with treatment and disposal of hazardous wastes.

Metal Etching and Plating Wastewater - Process Change - Reducing Water Use

The wastewater produced from metal etching and plating is a hazardous waste. Efforts must be made to reduce the toxicity of wastewater by reducing the dragout from process tanks and by using countercurrent rinsing. Dragout reduction can be achieved by: (1) positioning parts on racks so they drain properly, (2) using drip bars and drain boards to collect the dragged-out chemicals and returning them to the process tanks, and (3) increasing the process tank temperature to reduce surface tension of the solution thereby minimizing its tendency to cling to parts.

Countercurrent rinsing reduces the amount of wastewater leaving an operation. However, it does not reduce the hazardous material content in wastewater.

Lithographic Plate Processing Chemicals - Better Operating Practices - Reduced Chemicals Use

The use of plate processing chemicals must be reduced. One way to reduce chemical consumption is to frequently monitor the pH, temperature, and chemical concentration of the bath. Bath life can thus be extended and changing of solutions can be reduced to only a few times a year. Using automatic plate processors facilitates precise monitoring of bath conditions.

Lithographic Plate Processing Plates - Better Operating Practices - Proper Storage/Recycling

Proper storing of plates reduces the possibility of them getting spoiled and maintains their effectiveness. Used plates are not a hazardous waste and must be collected and sold to an aluminum recycler.

Lithographic Plate Processing Plates - Material Substitution

Alternative "presensitized plates" are available that can be processed with water. Other plates available include "Hydrolith" plates manufactured by 3M Corporation.¹²³ 3M has also developed a platemaking system that eliminates the need for photoprocessing, and has been found to be economical for large plating operations.¹²⁴

Web Press Wastes - Process Change - Break Detectors

Using break detectors in web presses prevents severe damage to the presses and also reduces the quantities of wastes from spillage of inks, fountain solutions, and lubricating oil. Web break detectors detect tears in a web as it passes through a high speed press. Broken webs tend to wrap around rollers and force them out of their bearings.

Waste Inks/Cleaning Solvents/Rags - Better Operating Practices

Rags dampened with cleaning solvents are used to clean presses. The amount of solvent and number of rags used can be minimized by reducing the cleaning frequency and by properly scheduling cleaning. Ink fountains must be cleaned only when a different color ink is used or if the ink has dried out. Overnight drying of ink may be reduced by using compounds that are dispensed as aerosol sprays.¹²⁵ Thus, the amount of waste ink, solvents, and rags is reduced.

Waste Inks - Better Operating Practices

The amount of waste ink generated can be reduced by implementing better operating practices. Only the required amount of ink must be put in an ink fountain before starting a print job. Resealing the ink containers after use is a good practice that prevents contamination by dust/dirt, formation of a "skin" on the ink surface, loss of solvents, and hardening. As much of the ink as possible must be scraped from the container for use.

Automatic ink levelers, when used in large presses, improve the print quality and reduce the amount of trash and the likelihood of accidental spills.

Waste (Flexographic) Inks - Product Substitution - Water-Based Inks

Substituting water-based inks for solvent-based inks in flexographic printing reduces the quantity of hazardous wastes generated. Use of water-based inks also eliminates the problems encountered with volatilization of solvents. Some of the disadvantages of water-based inks include: limited range of colors, higher energy requirement for drying because of high heat of vaporization, higher equipment operating costs, lower capacity, lower speed, and difficult cleaning requirements.¹²⁶ Water-based inks are not available for lithographic printing operations.

¹²³ M.E. Campbell and W.M. Glenn.

¹²⁴ M.E. Campbell and W.M. Glenn.

¹²⁵ Jacobs Engineering Group, Inc.

¹²⁶ Jacobs Engineering Group, Inc.

Waste Inks - Product Substitution - UV Inks

Ultraviolet (UV) inks are those that dry when exposed to UV light. UV inks contain: monomers, photosynthesizers, and pigments rather than solvents. Because they do not dry in fountains, the need for cleaning is reduced. The advantages of UV inks include:¹²⁷

1. UV inks eliminate "set-off" -- the unintentional transfer of ink from one sheet to the back of the preceding sheet after the sheets have been stacked, which occurs when the ink has not completely dried.
2. UV inks eliminate the need for anti-offset sprays that prevent set-off.
3. UV inks eliminate the need for ventilated storage of sheets when using oxidative drying processes.

Disadvantages of UV inks include:¹²⁸

1. The cost is 75 to 100 percent higher than conventional heat-set inks.
2. UV light is a hazard to plant personnel.
3. The interaction of UV light and atmospheric oxygen forms ozone.
4. Conventional paper recycling procedures will not deink paper printed by this process. This creates a waste source from an otherwise recyclable material.
5. Some of the chemicals in the inks are toxic.

Waste Inks - Product Substitution - EB Inks

Electron beam (EB) inks are those that are dried by electron beams and are similar to UV inks in operational concept. They have the same advantages as UV inks. However, operator protection from X-rays is necessary and these inks degrade the paper.

Waste Inks - Product Substitution - Heat Reactive Inks (Web Presses)

Heat reactive inks contain a prepolymer, a cross-linking resin, and a catalyst. At 350 °F, the inks are activated to polymerize and set. These inks contain much less solvent than the conventional heat-set inks.

Cleaning Solvents - Good Operating Practices - Pour Cleaning

Whenever possible "pour" cleaning with solvent followed by "wipe" cleaning with a rag could be used to clean presses. The drained solvent must be collected and recycled. Although more solvent is used in this process, less ink ends up on the rags. Cross-contamination of inks must be avoided. The used solvent can be used to clean rollers and blankets, thus reducing the amount of fresh solvent used.

¹²⁷ Jacobs Engineering Group, Inc.

¹²⁸ Jacobs Engineering Group, Inc.

Use of wipe cleaning with rags may be preferable to pour cleaning in some cases because the quantity of solvent wastes is considerably reduced.

Cleaning Solvents - Good Operating Practices

Detergents or soap solutions rather than solvents should be used for general cleaning. Use of solvents should be limited to removing inks and oils.

Cleaning Solvents - Product Substitution - Nonhazardous Formulations

Hazardous materials such as benzene, carbon tetrachloride, TCE, and methanol were previously used as cleaning solvents. Several "blanket washes" containing glycol ethers and other heavy hydrocarbons that are less toxic and flammable are now available. Using nonhazardous blanket washes is recommended for all cleaning requirements in a printing operation.

Fountain Solutions - Product Substitution

Conventional fountain solutions contain water, isopropyl alcohol, gum arabic, and phosphoric acid. These compounds are transferred to the printing paper or they evaporate causing volatile organic compounds to be released. Substitute formulations must be used to reduce the emissions.

Waste Paper - Good Operating Practices - Reduce Use

Printing operations generate a large quantity of waste paper. Although paper is not a hazardous waste, reducing paper consumption and thus the purchase of new paper is a good operating practice.

Recycling Onsite/Offsite - Photographic Operations

Spent Fixing Bath Solution - Onsite Recycling - Silver Recovery

Spent fixing bath solutions contain silver that can be recovered. Following recovery, the bath can be reused or discharged to a sewer. Some of the reasons for recovering silver from the solution include:¹²⁹ reducing the amount of hazardous silver compounds in wastewaters, extending the useful life of fixing baths, and redeeming the precious metal value of silver.

Electrolytic deposition is the most common method of recovering silver. The electrolytic recovery units have carbon anodes and steel cathodes. Applying a low voltage results in the plating of metallic silver on the cathode. The fixing bath solution, after silver removal, can be mixed with fresh solution and reused in the photographic development process.

A second method of silver recovery is the use of steel wool cartridges to replace silver in an oxidation-reduction reaction. In this process, the spent fixing bath solution is pumped through the steel wool cartridge and iron replaces silver in the solution. Silver sludge settles to the bottom of the cartridge.

A detailed discussion of methods and procedures for silver recovery including: general procedures for hypo collection and recovery, procedures for removing silver from recovery units, recommended recovery procedures for use with automatic film processors, and procedures for using the metallic

¹²⁹ Jacobs Engineering Group, Inc.

replacement recovery cartridges are outlined in the Defense Logistics Agency's *Defense Utilization and Disposal Manual*.¹³⁰

Photographic Films - Offsite Recycling - Silver Recovery

Photographic laboratories and many other facilities that use X-ray films generate used photographic films that contain 1 percent (0.15 troy ounces) of silver.¹³¹ These films must be sold to recyclers for silver recovery.

Recycling Onsite/Offsite - Printing Operations

Metal Etching and Plating Wastewater/Sludge - Onsite/Offsite Recycling - Material Recovery

The wastewater from metal etching and plating operations contains heavy metals and various quantities of process chemicals. Material recovery processes can be implemented to recover some of the process chemicals and thus reduce raw material costs.

Used Metal Wastes - Offsite Recycling

Linotype operations used for letterpress printing generate used metal wastes. The process uses an alloy with a low melting point to create the letters in lines of text. The metal must be melted in the linotype machines and/or recycled. The manufacturer or metal supplier may be willing to buy the used metal and recycle it.

Waste Inks - Onsite Recycling

A simple recycling technique is to blend all the waste inks together to form black ink. It may be necessary to add small amounts of color and toner to obtain an acceptable black color. The reformulated black ink is similar in quality to new newspaper ink. Most newspaper printing presses use recycled black ink.¹³²

Waste Inks - Offsite Recycling

Contract recycling of waste inks can be used to produce black ink. This black ink can be used to print newspapers or flyers. In such a contract, waste inks are bottled and shipped to the recycler (or manufacturer) and the reformulated black ink is shipped back. The costs of buying new black inks and disposing of waste inks can thus be reduced.

Cleaning Solvents - Onsite Recycling - Distillation

Small distillation units are available for recycling solvent used in pour cleaning. Proper segregation of solvents and trash is necessary. Still bottoms have to be disposed of as hazardous waste.

¹³⁰ *Defense Utilization and Disposal Manual*, DOD 41620.21-M (Defense Logistics Agency, Office of the Assistant Secretary of Defense, Alexandria, VA, September 1982), pp VI-42 and XVII-A-5 through XVII-A-10.

¹³¹ *Defense Utilization and Disposal Manual*.

¹³² C. Woodhouse, *Waste Ink Reclamation Project* (California Department of Health Services, Toxic Substances Control Division, August 1984).

Waste Paper - Offsite Recycling

Waste paper must be collected and recycled. Manufacturers or paper recyclers remove the ink and repulp the paper. Pulp from recycled paper adds strength and durability to many other paper products.

Treatment - Printing Operations

Wastewater from metal etching and plating operations is classified as hazardous and must be treated before discharge to a municipal sewer. If not treated, it must be put in drums and disposed of as hazardous waste. Packaged treatment units that neutralize and precipitate the heavy metals are available. The sludge generated from treatment is also a hazardous waste and is banned from land disposal.

Table 41

Typical PPAS Operations With Materials Used and Wastes Generated*

| Process/ operation | Materials used | Ingredients on labels | Wastes generated |
|-------------------------------|---|--|--|
| Apply light sensitive coating | resins, binders, emulsion, photosensitizers, gelatin, photoinitiators | PVA/ammonium dichromate, polyvinyl cinnamate, fish glue/albumin, silver halide/gelatin emulsion, gum arabic/ammonium dichromate | photographic waste |
| Develop plates | developer | lactic acid, zinc chloride, magnesium chloride | photographic waste |
| Wash/clean plates | alcohols, solvents | ethyl alcohol, isopropyl alcohol, methyl ethyl ketone, trichloroethylene, perchloroethylene | spent solvents |
| Apply lacquer | resins, solvents, vinyl lacquer | PVC, PVA, maleic acid, methyl ethyl ketone | spent solvents |
| Counter-etch to remove oxide | phosphoric acid | phosphoric acid | acid/alkaline wastes |
| Deep-etch coating of plates | deep etch bath | ammonium dichromate, ammonium hydroxide | acid/alkaline waste, heavy metal solutions, waste etch bath |
| Etch baths | etch bath for plates | ferric chloride (copper), aluminum chloride/zinc chloride/hydrochloric acid (chromium), nitric acid (zinc, magnesium) | waste etch bath, acid/alkaline waste, heavy metal solutions |
| Printing (Ink) | pigments, dyes, varnish, drier, extender, modifier | titanium oxide, iron blues, molybdated chrome orange, phthalocyanine pigments, oils, hydrocarbon solvents, waxes, cobalt/zinc, magneze oleates, plasticizers | waste ink with solvents/heavy metal, ink sludge with chromium/lead |
| Making gravure cylinders | acid plating bath | copper hydrochloric acid | spent plating waste |

*Source: H. Winslow, *Hazardous Waste SQG Workbook* (Intereg Group, Inc., Chicago, IL, 1986), pp 146-147.

Table 42

Waste Classification for PPAS

| Process Description | | Waste Description | | | |
|---|--|-------------------|---|--------------------|------------------|
| Process/ operation | Materials used/ wastes produced | HW code | DOT shipping name | Hazard class | Number |
| Photographic processing | Carbon tetrachloride Waste solutions with heavy metals (Cd, Cr, Pb, etc.) | F001 | Waste carbon tetrachloride | ORM A | UN1846 |
| | | Varies | Hazardous waste solution, NOS | ORM-E | NA9189 |
| Washing, cleaning plates; press cleanup | Ethyl alcohol | D001 | Waste ethyl alcohol | Flammable liquid | UN1170 |
| | Isopropyl alcohol | D001 | Waste isopropyl alcohol | Flammable liquid | UN1219 |
| | Methylethylketone | F005 | Waste methylethylketone | Flammable liquid | UN1193 |
| | Naptha | D001 | Waste naptha | Flammable liquid | UN2553 |
| | Perchloroethylene | F002 | Waste perchloroethylene | ORM-A | UN1897 |
| | Petroleum distillates | D001 | Waste petroleum distillates | Flammable liquid | UN1268 |
| | Press wash | D001 | Waste flammable liquid, NOS | Flammable liquid | UN1993 |
| | Trichloroethylene | F001 | Waste trichloroethylene | ORM-A | UN1710 |
| Etching, plating | Xylene | D001 | Waste xylene | Flammable liquid | UN1307 |
| | Ammonium hydroxide | D002 | Waste ammonium hydroxide | Corrosive material | NA2672 |
| | Hydrochloric acid (Cr) | D002 | Waste hydrochloric acid | Corrosive material | NA1789 |
| | Nitric acid (Zn, Mg) | D002 | Waste nitric acid | Corrosive material | NA1760 |
| Printing | Phosphoric acid | D002 | Waste phosphoric acid | Corrosive material | UN1805 |
| | Waste ink (containing various solvents and heavy metals) | D002 | Waste ink | Combustible liquid | UN2867 |
| | | | | | Flammable liquid |
| | Ink sludge (heavy metals - Cr or Pb) | D002 | Hazardous waste liquid, NOS Hazardous waste solid, NOS | ORM-E ORM-E | NA9189 NA9189 |

9 WASTE MINIMIZATION FOR HOSPITALS, CLINICS, AND LABORATORIES

Army hospitals, veterinary clinics, dental clinics, and other laboratories are usually tenants located on an installation. The types of wastes generated by these activities can be divided into infectious wastes (IW), pathological wastes (PW), sharps, pharmaceutical wastes (PhW), radioactive wastes (RW), laboratory wastes (LW), chemotherapy wastes (CW), infectious linen (IL), and general wastes (GW). Only the LW and CW are hazardous wastes by the RCRA and HSWA definition.

For this discussion, some of the definitions for hospital wastes are extracted from Army Regulation (AR) 40-5.¹³³ Detailed definitions and classifications of infectious wastes can be obtained from USEPA's *Guide to Infectious Waste Management*.¹³⁴

IW is from patients in strict or respiratory isolation, or with wound and skin precautions; wastes from microbiological laboratories; and surgical waste (at the discretion of the operating room supervisor). PW includes anatomical parts, excluding human corpses and animal carcasses. Sharps include discarded hypodermic needles, syringes, pipettes, broken glass, and scalpel blades that pose infection and physical injury hazards through cuts or puncture wounds. GW is all the waste not classified as infectious, pathological, or hazardous, for example: refuse generated from general patient units, emergency rooms, dental areas, surgical suites, administrative areas, and supply areas. PhW consists primarily of outdated medicines (drugs, vaccines, and physiological solutions). RW wastes emit ionizing radiation (such as alpha, beta, gamma, or X-rays).

The activities that generate most of the highly infectious wastes are: general surgery/recovery, vascular surgery, plastic surgery, pathology, blood bank, microbiology laboratory, labor and delivery rooms, obstetrics, emergency room isolation, and the morgue. Among the wastes generated are: (1) significant laboratory waste, including all tissue or blood elements, excreta, and secretions obtained from patients or laboratory animals and disposable fomites (items that may harbor or transmit pathogenic organisms); (2) surgical specimens and attendant disposable fomites; (3) disposable materials from outpatient areas and emergency departments; (4) equipment, instruments, utensils, and fomites of a disposable nature from isolation rooms; (5) animal feces, animal bedding, supplies, and fomites resulting from and/or exposed to infectious animal care and laboratory procedures; and (6) all disposable needles and syringes.¹³⁵

Radioactive wastes are usually generated by the radiology ward, nuclear medicine, clinical pathology, and laboratories that use radionuclides. Some of the radionuclides administered to patients during treatment include: ^{99m}Techneium, ⁵¹Chromium, ³²Phosphorus, and ¹³¹Iodine.¹³⁶ Most of the radioactive wastes that require special handling and disposal are generated by the use of radionuclides such as ¹⁴Carbon, ⁴Hydrogen, and ¹³¹Iodine, in clinical laboratories.

A number of different types of hazardous wastes are generated in HCL, although in small quantities. Table 43 lists processes and operations that generate wastes, and the corresponding DOT classifications. LW is mostly chemical wastes, including ignitable/chlorinated solvents and miscellaneous used chemicals (e.g., xylene, formalin, mercury, etc.) generated in analytical and clinical laboratories. These wastes may also be generated in maintenance, pharmacy, and nursing areas.

¹³³ Army Regulation (AR) 40-5, *Preventive Medicine* (HQDA, 30 August 1986).

¹³⁴ *Guide to Infectious Waste Management*, EPA/530-SW-86-014 (USEPA, Washington, D.C., 1986).

¹³⁵ D. Kraybill, T. Mullen, and B.A. Donahue, *Hazardous Waste Surveys of Two Army Installations and an Army Hospital*, Technical Report N-90/ADA088260 (USACERL, August 1980), pp 46-48.

¹³⁶ D. Kraybill, T. Mullen, and B.A. Donahue.

Photographic films and chemicals are used in radiology. Other toxics and corrosives are used throughout the hospitals.

CW is a large quantity HW generated by the use of antineoplastic, or cytotoxic agents in chemotherapy solutions administered to patients. The chemicals themselves are only a small volume of the waste; most of it consists of protective clothing and gauze pads that are lightly contaminated.

Most of the guidance on proper management and minimization of wastes discussed in this chapter has been obtained from *Protocol Health Care Facility Waste Management Surveys*,¹³⁷ and *Waste Audit Study - General Medical and Surgical Hospitals*.¹³⁸ The minimization of photographic wastes is discussed in Chapter 9.

Regulations

On October 21, 1988, the U.S. Congress passed the Medical Waste Sanctions Act (MWSA) which requires strict control on generation and disposal of medical wastes, and prohibits anyone from dumping the wastes in oceans and large water bodies (such as the Great Lakes).¹³⁹ MWSA was initiated as an amendment to the original Marine Protection, Research and Sanctuaries Act (MPRSA) of 1972. MPRSA and MWSA define "medical waste" to include "isolation wastes; infectious agents; human blood and blood products; pathological wastes; sharps; body parts; contaminated bedding; surgical wastes and potentially contaminated laboratory wastes; dialysis wastes; and other equipment and material that the Administrator of the USEPA determines may pose a risk to public health, welfare, or the marine or Great Lakes environment." Of the 160 million tons of waste generated in the United States each year, 3.2 million tons of them are medical wastes from hospitals.¹⁴⁰ These medical wastes do not include refuse from doctors' offices, laboratories, home health care, veterinary clinics, and blood banks. Of the 3.2 million tons of medical wastes, USEPA estimates that 10 to 15 percent are infectious.

MWSA was passed because medical wastes could be regulated under the RCRA and HSWA but are not under the USEPA rules. MWSA requires USEPA to develop rules and regulations for a cradle-to-grave manifest system to track the medical wastes from generation to disposal, and for record-keeping, reporting, and proper segregation (from ordinary refuse) and disposal requirements. The States have been given the authority to enforce MWSA more stringently than the USEPA requirements. Therefore, States such as Delaware, Louisiana, Maryland, Minnesota, New York, and Pennsylvania, have passed stricter laws for tracking and disposing of medical wastes.

In the private sector, research and testing laboratories such as those located in Army hospitals and associated research facilities would be regulated as small quantity generators of hazardous laboratory waste. All the rules of RCRA and HSWA would apply and cradle-to-grave management and development of minimization strategies would be necessary.

¹³⁷ *Protocol Health Care Facility Waste Management Surveys* (USAEHA, 1987).

¹³⁸ Ecology and Environment, Inc., *Waste Audit Study - General Medical and Surgical Hospitals* (California Department of Health Services, Sacramento, CA, 1988).

¹³⁹ *Medical Waste Sanctions Act of 1988*, Report 100-1102 (House of Representatives, 100th Congress, October 1988).

¹⁴⁰ *Medical Waste Sanctions Act of 1988*.

Source Reduction - All Wastes

IW/PW/GW/Sharps - Better Operating Practices - Segregation

IW and PW must be segregated from GW and sharps. GW such as surgical glove wrappers should not be placed in IW containers (e.g., red bags in rigid containers). Sharps must be placed in separate containers (e.g., rigid plastic boxes) in every room where they are used. Separate containers (e.g., yellow or white bags) must be used for general wastes including paper and trash.

Source Reduction - Infectious and Pathological Wastes

IW/PW - Better Operating Practices - Segregation/Labeling

All the containers must be rigid and must be lined with impervious, tear resistant, and distinctively colored bags (e.g., red bags for infectious wastes only). The same type and color bags must be used at all waste generation points and marked/labeled with the universal biohazard symbol. Standardized procedures (labeling, color, etc.) reduce confusion among personnel and improve waste management, thus, minimizing quantities of wastes generated.

IW/PW - Better Operating Practices - Collection/Transportation

Sufficient numbers of IW/PW containers must be provided and conveniently located in all rooms where the wastes are generated. They should also be located in such a way as to minimize patients/personnel exposure to the wastes. The containers must be cleaned and disinfected every time they are emptied. All the containers should have tight-fitting lids and the lids should be in place when the containers are not in use. To minimize exposure for patients and staff, IW/PW must be collected frequently from all the generation points by trained personnel only. The transport containers must have tight-fitting lids and should be used exclusively for IW/PW. The interior of the transport containers must be cleaned and disinfected regularly.

IW/PW - Better Operating Practices - Storage

All IW/PW storage areas (including access doors, containers, freezers, refrigerators, etc.) must be labeled and marked with the universal biohazard symbol.

Treatment - Infectious and Pathological Wastes

IW/PW - Treatment/Better Operating Practices - Incineration

Incineration is one of the options used to treat infectious wastes. The manufacturer's operating instructions and standard operating procedures must be posted on the incinerator. A State or local air quality permit must be obtained and the incinerator must be operated in compliance by following the manufacturer's recommended temperature to reduce emissions and opacity problems.

The incinerator ash could be a hazardous waste. It should be tested annually for hazardous characteristics. Testing of incinerator ash at Army installations¹⁴¹ has revealed that it is Extraction Procedure (EP) toxic for heavy metals.

¹⁴¹ Protocol Health Care Facility Waste Management Surveys.

The red bags used to contain IW/PW burned in incinerators are made of chlorinated plastics (PVC). Burning these red bag wastes generates a number of air pollutants of concern including: hydrochloric acid, dioxins, furans, and particles. These toxic stack emissions are a significant hazard to the community. As public concern increases (and regulations change) proper flue-gas cleanup will be required. Some of the air emission control devices that could be installed include: dry impingement separators, dry cyclonic separators, venturi scrubbers, electrostatic precipitators, fabric filters, wet acid gas scrubbing devices, and dry scrubbing systems.

IW/PW - Treatment/Better Operating Practices - Autoclaves/Retorts

Autoclaves or retorts are used in several hospitals to disinfect IW/PW before landfill disposal. All the operators should be trained in proper equipment use. The bags used in autoclaves should allow sufficient steam penetration and yet contain the wastes. Compaction of wastes must always follow the autoclaving process. Spore strips should be used to check the effectiveness of the operation.

Source Reduction - Sharps

Clipping needles after use is prohibited by AR 40-5 to prevent generation of pathogen-containing aerosols. Used syringes must be placed only in rigid impervious containers marked with the universal biohazard symbol. Adequate containers must be provided and managed by trained personnel.

Source Reduction - Hazardous Wastes

HW - Better Operating Practices - Inventory

A current and comprehensive inventory must be developed for all the hazardous materials used and hazardous wastes generated. The inventory must contain the following for each HW: a description; hazard code; USEPA (or State) number; physical form; rate of generation; method of treatment, storage, and disposal; and an indication if the waste is infectious. All HW on the inventory must be reviewed annually and reported to the installation environmental office.

Infectious hazardous wastes could be generated at the histology (waste xylene), parasitology (hazardous fluids), and radiology (waste barium) laboratories. A proper inventory must be developed for these wastes. The procedures for handling these wastes are outlined in *Infectious Hazardous Waste Handling and Disposal*.¹⁴²

HW - Better Operating Practices - Proper Storage

Proper containers must be used to store hazardous wastes; they must be properly labeled. They must contain liners compatible with the wastes. Upon exceeding the 55-gal (or 1 qt for acute HW) storage limit in the satellite accumulation areas, the 90-day temporary storage requirements¹⁴³ have to be complied with and the wastes must be turned in to the installation's hazardous wastes storage building.

¹⁴² *Infectious Hazardous Waste Handling and Disposal*, Technical Guide Number 147 (USAEHA, 1986).

¹⁴³ 40 CFR 262.34, *Onsite Accumulation Requirements*.

HW (solvents) - Better Operating Practices - Segregation

Solvent wastes must be segregated according to the recycling or treatment processes used for their recovery or disposal. Some of the criteria useful for segregation are:¹⁴⁴ flash point, Btu value, viscosity, halogen content (e.g., chlorine), and water content. Segregating wastes as individual chemicals (with minimal contamination) simplifies waste management.

HW (solvents) - Product Substitution

Nonhalogenated solvents must be substituted for halogenated solvents (e.g., TCE, 1,1,1-trichloroethane, MC, etc.). Simple alcohols and ketones are good substitutes for petroleum hydrocarbons (e.g., toluene, xylene, etc.). Aqueous reagents must be used whenever possible. The feasible substitutions have to be determined by laboratory managers on a case-by-case basis.

Xylene is commonly used as a tissue clearing agent at hospitals. Use of a nonhazardous substitute (such as HistoclearTM) must be examined to determine its effectiveness.

HW (solvents) - Process Change

Cleaning processes that use alcohol-based disinfectants must be modified to use ultrasonic or steam cleaning methods. Premixed containerized test kits must be used for solvent fixation (making slides). Calibrated solvent dispensers must be used for routine tests. Minimizing the sizes of cultures or specimens in the pathology, histology, and other laboratories, minimizes the quantities of solvent wastes produced.

Modifying laboratory methodologies to use modern technologies (e.g., monoclonal antibodies, radioisotope labeled immunoassays, and ultrasensitive analytical devices) minimizes or even eliminates the need for extractions and fixation with solvents. Sensitive analytical equipment can reduce analyte volume requirements.

LW - Better Operating Practices - Disposal

All the laboratory hazardous wastes that may be discharged into the sanitary sewer must be identified. Approval must also be obtained from local authorities. According to USEPA requirements [40 CFR 261.3(a)(2)(iv)(E)] the following conditions must be met:

1. Only low toxic hazard, and biodegradable wastes may be discharged,
2. The annualized average flow rate of laboratory wastewater must not exceed 1 percent of the total wastewater flow into the inflow of the wastewater treatment plant,
3. The combined annualized average concentration must not exceed one part per million (ppm) of the inflow to the wastewater treatment plant.

Proper standard operating procedures must be developed and used for disposal of chemicals in the sanitary sewer system.¹⁴⁵ Disposal actions must be coordinated with the installation's environmental office. Sewer disposal is an environmentally unsound practice and must be avoided.

¹⁴⁴ Ecology and Environment, Inc., pp 5-1 -- 5-3.

¹⁴⁵ National Research Council, *Prudent Practices for Disposal of Chemicals from Laboratories* (National Academy Press, Washington, DC, 1983).

HW (mercury) - Better Operating Practices

Waste mercury can be recycled and must be recovered from spills and from crevices of broken devices. All the residual mercury contained in broken thermometers, blood pressure reservoirs, or other devices should be drained. However, proper spill cleanup and handling operations have to be designed to protect the employees. Special mercury vacuums and spill absorbing kits are available.

HW (mercury) - Process Change

Many hospitals in the United States are using electronic piezometric sensing devices instead of mercury-based thermometers and blood pressure instruments. Such a substitution eliminates both the hazards and cleanup costs associated with broken glass and spilled mercury.

HW (formaldehyde) - Better Operating Practices

Reducing both the cleaning frequency of hemodialysis and reverse osmosis (RO) water supply equipment and the solution strength will minimize the quantities of waste formaldehyde generated. The membranes used in RO units have to occasionally be flushed with formalin. A laboratory standard for formalin solutions should be developed based on microbial culture studies that compare microbial residue with variations in strength, cleaning frequency, and water supply systems.¹⁴⁶

HW (formaldehyde) - Process Change

The dialysis equipment used in the hospital can be used to capture and concentrate waste formalin (containing 4 percent formaldehyde, 1 percent methanol, and 95 percent water).¹⁴⁷ Formaldehyde extracted and concentrated with the used dialysis membranes can then be sent for proper disposal (e.g., incineration) thus minimizing the waste and associated costs.

CW - Better Operating Practices - Collection/Disposal

Special dedicated containers must be used to collect antineoplastics, cytotoxins (cancer treatment agents), and other controlled drugs. Many of these drugs are listed hazardous wastes and must be managed using proper turn-in procedures.

CW - Better Operating Practices

Segregation of CW from other wastes is an effective minimization practice. Personnel must be properly trained and separate containers (with distinct labels) must be placed in all the drug handling areas.

The cleaning frequency for hoods used for compounding drugs should be reduced. According to OSHA recommendations, hoods should be wiped down daily with 70 percent alcohol and decontaminated weekly with an alkaline solution.¹⁴⁸ However, the actual cleaning frequency must be determined based on the use and amount of spillage in the hood.

¹⁴⁶ Ecology and Environment, Inc.

¹⁴⁷ Ecology and Environment, Inc.

¹⁴⁸ Ecology and Environment, Inc.

Spill cleanup kits, for small and large spills, must be readily available in the drug compounding and use areas. The garments, except gloves, worn by employees should be disposed of with non-hazardous refuse if no spills occurred.

The location of compounding and administration areas should be centralized to minimize spillage and exposure hazards. Drug purchases must be controlled such that only the appropriate container sizes are procured and no residue is left for disposal. Outdated drugs should be returned to the manufacturer.

CW - Product Substitution

Antineoplastics and cytotoxic agents are highly toxic and environmentally persistent. They must be substituted with biodegradable drugs. In some cases, the shelf life can be used as an indicator of environmental persistence. Doctors and pharmacists must be encouraged to choose less environmentally hazardous drugs of equal effectiveness.

RW - Product Substitution

A knowledge of the properties of radionuclides is required for the minimization of RW. A stable radionuclide with a short half-life, low energy, nontoxic decay product, and minimal extraneous radiation emissions must be chosen. Extraneous radiation is the radiation generated that is not required in a test or procedure. If a beta emitter is required, a radionuclide with minimal gamma emissions must be chosen. Containment of gamma rays is difficult.

A radiation safety committee should be established to advise researchers about alternative isotopes that are less environmentally hazardous than those currently in use.

RW (²²⁶Radium) - Product Substitution

²²⁶Radium is the most hazardous radionuclide used for cancer treatment in hospitals. It has a very long half-life and its decay products are unstable. ¹⁹²Iridium or ¹³⁷Cesium needles have been found to be good substitutes for ²²⁶Radium needles.¹⁴⁹

Recycling Onsite/Offsite - Hazardous Wastes

HW (xylene, other solvents) - Recycle Onsite - Distillation

All the spent solvents generated in the laboratories must be accumulated in proper segregated containers. The recyclability of solvents is greater if contamination is minimal. Small distillation stills can be used to recover solvents for reuse.

Table 33 lists manufacturers of industrial distillation equipment. For laboratories, stills made of glassware (process-spinning band distillation¹⁵⁰) may be more suitable. Appropriate manufacturers (e.g., B/R Instrument Corporation, P.O. Box 7, Pasadena, MD 21122; (301) 647-2894) must be contacted for information on technical feasibility and costs.

¹⁴⁹ Ecology and Environment, Inc.

¹⁵⁰ L.M. Gibbs, "Recovery of Waste Organic Solvents in a Health Care Institution," *American Clinical Products Review* (November/December 1983).

Xylene wastes generated at the hospitals are contaminated with paraffin and tissue samples, and their recyclability depends on the content of the contaminants. Small stills can be used to distill out pure xylene for reuse. The still bottoms must be properly disposed of as HW. The still can be used to recycle other solvents (e.g., ethanol).

HW (solvents) - Offsite Recycling

A number of commercial recyclers process solvents for reuse. Table 29 lists some of them.

HW (mercury) - Offsite Recycling

If more than 10 lb of liquid mercury is accumulated, it can be sold to a commercial reprocessor.¹⁵¹ Large quantities can be sent in standard (76-lb) flasks supplied by the reprocessor. These reprocessors are willing to purchase from institutions rather than individuals. Therefore, DRMO must pursue this option for Army installation generators such as hospitals, laboratories, etc.

HW (formaldehyde) - Onsite Recycling - Reuse

Direct reuse of formaldehyde solutions in autopsy and pathology laboratories is possible, depending on the type of specimen. Reuse is possible because the specimen holding times are short and formalin solutions retain their properties for a long time. Additionally, the desired preservative properties may be more effective at lower concentrations than the 10 percent formaldehyde solutions commonly used in pathology laboratories.¹⁵² Minimum effective strength of formalin solutions should be determined based on microbial culture studies.

HW (photographic chemicals) - Recycle Onsite/Offsite - Silver Recovery

Silver recovery methods such as those described in Chapter 7 must be used.

Treatment - Hazardous Wastes

HW (solvents) - Onsite Treatment - Incineration

If recovery by distillation is not a feasible option, onsite incineration should be considered. A permit is needed to operate an incinerator to burn solvents. Therefore, onsite incineration may not be a practical option for most Army hospitals. However, with the increase in offsite incineration costs and the ban on land disposal of liquid wastes and long-term liabilities, onsite incineration may become a feasible treatment method in the future.

Waste designated for incineration must have a high Btu content, a high flash point, low specific gravity, and a low solids content. The incinerator must be designed to achieve complete destruction while generating negligible quantities of air pollutants. Both technical and institutional problems have to be addressed before acquiring an incinerator to burn small amounts of a wide variety of chemical wastes.¹⁵³

¹⁵¹ National Research Council, pp 44-55.

¹⁵² National Research Council, Chapter 4.

¹⁵³ National Research Council, Chapter 9, pp 111-125.

HW (solvents) - Offsite Treatment - Incineration

Use of offsite facilities to incinerate solvent wastes may be a feasible option for most laboratories. Commercial incineration facilities require generators to segregate wastes and arrange for transportation.

LW (acids/alkalis) - Treatment - Neutralization

Elementary neutralization of corrosive liquids is exempt from treatment permit requirements. Acids (pH < 2) and alkalis (pH > 12.5) must be neutralized before they are allowed to flow into the drain.

Table 43
Waste Classification for HCL

| Process Description | | Waste Description | | | | |
|--|------------------------------------|---------------------------------------|---|------------------|--------------------------------|--------|
| Typical process/ operation | Materials used/ wastes produced | HW code | DOT shipping name | Hazard class | Number | |
| Analytical/clinical laboratories, Pathology, Histology, Embalmimg, Sterile processing, Facilities maintenance, Laundry | Nonhalogenated solvents: | F003 | Waste acetone | Flammable liquid | UN1090 | |
| | Acetone | D001 | Waste acetonitrile | Flammable liquid | UN1648 | |
| | Acetonitrile | F003 | Waste ethyl alcohol | Flammable liquid | UN1170 | |
| | Ethanol | F003 | Waste ethyl acetate | Flammable liquid | UN1173 | |
| | Ethyl acetate | D001 | Waste isopropyl alcohol | Flammable liquid | UN1219 | |
| | Isopropanol | F003 | Waste methanol | Flammable liquid | UN1230 | |
| | Methanol | F005 | Waste toluene | Flammable liquid | UN1294 | |
| | Toluene | F003 | Waste xylene | Flammable liquid | UN1307 | |
| | Xylene | | | | | |
| | Halogenated solvents: | | | Waste chloroform | ORM-A | UN1888 |
| | Chloroform | F001 | Hazardous waste liquid, NOS | | ORM-A | UN9189 |
| | Freon | F001 | Waste methylene chloride | | ORM-A | UN1593 |
| | Methylene chloride | F001 | Waste 1,1,1-trichloroethane | | ORM-A | UN2831 |
| | 1,1,1-trichloroethane | F001 | Waste trichloroethylene | | ORM-A | UN1710 |
| | Trichloroethylene | | | | | |
| | Acids/bases: | D002 | Waste acetic acid (solution) | | Corrosive material | UN2790 |
| | Acetic acid | D002 | Waste hydrochloric acid | | Corrosive material | UN1789 |
| | Hydrochloric acid | D002 | Waste nitric acid, > 40% | | Oxidizer | UN2031 |
| | Nitric acid | D002 | Waste Nitric Acid, ≤ 40% | | Corrosive material | NA1760 |
| | | D002 | Waste sulfuric acid | | Corrosive material | UN1830 |
| | Sulfuric acid | D002 | Waste sulfuric acid, spent | | Corrosive material | NA1831 |
| | | D002 | Waste ammonium hydroxide, < 12% | | Corrosive material | NA2672 |
| | Ammonium hydroxide | D002 | Waste ammonium hydroxide, > 12% < 44% | | ORM-A Corrosive material | NA2672 |
| | | D002 | Waste potassium hydroxide, solid | | Corrosive material | UN1813 |
| | Potassium hydroxide | D002 | Waste potassium hydroxide, liquid | | Corrosive material | UN1814 |
| | | D002 | Waste sodium hydroxide, solid | | Corrosive material | UN1823 |
| | Sodium hydroxide | D002 | Waste sodium hydroxide, liquid | | Corrosive material | UN1824 |
| | Others: | D009 | Waste mercury | | ORM-A | UN2809 |
| | Mercury | | Waste oxidizer, NOS | | Oxidizer | UN1479 |
| | Oxidizers | | Waste oxidizer, corrosive, liquid, NOS | | Oxidizer | NA9193 |
| | | | Waste oxidizer, corrosive, solid, NOS | | Oxidizer | NA9194 |
| | Poisons | | Waste poison B, liquid, NOS | | Poison B | UN2810 |
| | | | Waste poison B, solid, NOS | | Poison B | UN2811 |
| | | | Waste corrosive liquid, poisonous, NOS | | Corrosive material Poison B | UN2922 |
| | Poisonous oxidizers | | Waste poisonous solid, corrosive, NOS | | Oxidizer | UN2928 |
| | | | Waste poisonous solid, corrosive, NOS | | Oxidizer | NA9199 |
| | | | Waste oxidizer, poisonous, liquid, NOS | | ORM-E | NA9200 |
| | Nonspecific hazardous Wastes | | Waste oxidizer, poisonous, liquid, NOS | | ORM-E | NA9189 |
| | | Waste oxidizer, poisonous, solid, NOS | | | | |
| | | Hazardous waste liquid, NOS | | | | |

Table 43 (Cont'd)

| Process Description | | Waste Description | | | |
|--|---|-------------------|--|--------------|--------|
| Typical process/ operation | Materials used/ wastes produced | HW code | DOT shipping name | Hazard class | Number |
| Chemotherapy, pharmacy, clinics | Antineoplastics Cytotoxic drugs | | Hazardous waste solid, NOS | | UN2209 |
| | | | | | UN1198 |
| Radiology | Photographic chemicals: Fixer Developer | | | ORM-A | |
| | | | | ORM-A | |
| Hemodialysis, Pathology, Autopsy, Embalming, Nursing | Formaldehyde | | Waste formaldehyde solution, flash point > 141 °F Waste formaldehyde solution, flash point ≤ 141 °F | | |
| | | | | | |
| Clinical Testing | Radioisotopes | | | | |

10 WASTE MINIMIZATION FOR OTHER SOURCE TYPES

Heating and Cooling Plants

Army installations have a number of heating and cooling plants that generate power and steam. Hazardous wastes are generated by using various combustible (e.g., cyclohexylamine) and corrosive (e.g., caustic soda, caustic potash, hydrochloric acid) chemicals to adjust pH, prevent scaling or corrosion, clean the interior of the boiler, and to test feedwater. In addition, boiler blowdown liquid mixed with water is a hazardous waste generated periodically. Waste oil blended with virgin fuel oil is burned in boilers at some installations. The waste oil may be a hazardous waste, depending on the content, and should be burned only in permitted facilities.

A number of efficiency related boiler maintenance procedures can be used to minimize environmental pollution, while correcting malfunctions in boiler operation and preventing performance degradation. Component malfunction or performance degradation can cause increases in: stack gas temperature; excess air requirements; carbon monoxide, smoke, or unburned carbon in ash; convection or radiation losses from the boiler exterior, ductwork, and piping; blowdown above that required to maintain permissible water concentrations; and auxiliary power consumption by fans, pumps, or pulverizers. In addition to the normal maintenance recommended by manufacturers, efficiency-related maintenance procedures must be performed to extend equipment life and for personnel safety. These procedures include:¹⁵⁴ efficiency spotchecks of combustion conditions, establishing best achievable performance goals, monitoring performance (boiler log) to document deviations, periodic equipment inspection, and troubleshooting. Boiler tuneups also improve efficiency and fuel conservation.

Some modifications to the boiler operating practices improve boiler efficiency, save fuel, and reduce continuous blowdowns. These practices include: reducing boiler steam pressures, controlling the water quality by continuous blowdowns instead of infrequent blowdowns, and proper load management. Efficient boiler operation also minimizes the amounts of air pollutants (particulates, carbon monoxide, nitrogen oxides, sulfur dioxide, hydrocarbons, and oxidants) released to the atmosphere.

Inventory management of chemicals and reducing their use in water treatment and scale removal minimizes the amounts of wastes produced. Nonhazardous substitutes must be developed and used instead of the combustible and corrosive chemicals normally found at heating and cooling plants.

Used Oil Burning

Used lubricating oil generated by vehicle maintenance activities can be recycled as a fuel and blended and burned in boilers. Before burning, however, it is necessary to determine if the oil meets fuel specifications (Table 44). Used oil that meets the specifications can be burned in any burner

¹⁵⁴*Efficient Boiler Operations Sourcebook*, F.W. Payne, Ed. (The Fairmont Press, Inc., Atlanta, GA, 1986), pp 79-106.

(space heater, nonindustrial boiler, industrial boiler, utility boilers, and industrial furnaces),¹⁵⁵ whereas other waste oils can only be burned in high-efficiency industrial boilers, industrial process furnaces, or boilers that have demonstrated compliance with performance standards set for hazardous waste incinerators. Nonspecification used oils can be blended with virgin oil to meet specifications and burned in an industrial or nonindustrial boiler.

It is necessary to test the used oil for halogen and heavy metal content before burning. Other treatment techniques such as filtration, oil-water separation, etc. (discussed in Chapter 5), must be used to improve the quality of the oil and its heating value.

Laundry and Drycleaning Facilities

Laundry and drycleaning facilities on a Army installation are the responsibility of the DOL. Caustic soda and other corrosive chemicals are used in the laundry. Perchloroethylene (PERC) is the most common drycleaning solvent used. The two other solvents used are Valclene™ (fluorocarbon 113 or tetrachloroethylene), and petroleum solvent (Stoddard). Use of solvents and corrosive chemicals in these processes results in the generation of contaminated wastewater and dry wastes (Table 45). Table 46 lists the wastes generated and the corresponding DOT classifications.

PERC drycleaning plants generate: (1) still residues from solvent distillation (entire weight), (2) spent filter cartridges (total weight of cartridge and solvent remaining after draining), and (3) cooked filter residue (the total weight of drained powder residue from diatomaceous or other powder filter systems after heating to remove excess solvent). Valclene plants generate still residues and spent filter cartridges. Petroleum solvent plants generate still residues only. Proper disposal is required for all the hazardous wastes generated at laundry and drycleaning facilities. Among the acceptable options are recycling, incineration, or disposal in an authorized hazardous waste landfill. However, source reduction by material substitution seems to be the most effective minimization technique for drycleaning operations. The possibility of replacing PERC or Valclene with Stoddard (PD680-II) or petroleum naphtha must be explored. As is obvious from Table 45, using Stoddard produces the smallest amount of hazardous waste. If the petroleum solvent has a flash point greater than 140 °F, the wastes are not considered hazardous and are exempt from reporting requirements. Drycleaning plants generally have stills for continuous distillation of solvents, which are constantly recycled. However, the still bottoms must be disposed of properly.

Woodworking and Preserving

Table 47 lists the woodworking and preserving operations and corresponding waste classifications. Some of the wastes are generated by carpentry shops that manufacture or refinish wooden cabinets, softwood and hardwood veneer and plywood, household or office furniture, and other furniture (including reupholstery and repair). Typical wood preserving operations used to condition wood

¹⁵⁵Industrial boilers are defined as utility or power boilers used to supply heated or cooled air or steam for a manufacturing process, and are usually rated at greater than 25×10^6 Btu/hour. In addition to being located at a manufacturing facility, it must be a device using controlled flame combustion and have the following characteristics: (1) a combustion chamber and primary energy recovery section of integral design, (2) thermal energy recovery efficiency of at least 60 percent, and (3) at least 75 percent of recovered energy must be exported.

Utility boilers are boilers not located at a manufacturing facility and have the above listed characteristics. They must be used to generate electric power, steam, heated or cooled air, or other gases or fluids for sale.

Nonindustrial boilers are those that do not fall in the above two categories. They are subject to prohibition.

include: steaming, boultonizing, kiln or air drying (under pressure or vacuum), and applying agents such as creasote, pentachlorophenol (PCP), and other arsenical compounds.

Inventory control and management is an effective technique for minimizing hazardous wastes associated with woodworking and preserving. Proper disposal practices must also be used.

Pesticide Users

Army installations have a number of pesticide users including the entomology shop (pest control services), the garden shop (lawn, garden, and tree services), and the golf courses. Table 48 lists a variety of pesticides used and their waste classifications. Use of pesticides in activities ranging from protecting food and structures to pest and disease control, results in generation of hazardous rinsewater, empty containers with pesticide residue, unused pesticides, and possibly contaminated soil.

Very dilute rinsewaters or soil contaminated with very low concentrations may not be hazardous. However, chemical analysis is necessary to verify the concentrations. Pesticide containers are not a hazardous waste if they are triple rinsed. The rinsewater, however, is a hazardous waste. Some pesticides that contain flammable solvents or ignitable material are also hazardous wastes when discarded. A number of pesticides exhibit acute toxicity characteristics. Therefore, all the discarded and off-specification products, containers, and spill residues containing acute toxic species are listed as "P" hazardous wastes [40 CFR 261.33(e)]. All the hazardous material/wastes related to pesticides must be managed carefully to prevent environmental problems and to protect the health and safety of personnel.

The amounts of pesticide rinsewaters generated can be minimized by using multiple rinse tanks, installing drain boards and drip tanks, and recycling and reusing the water for rinsing.¹⁵⁶ Treatment methods include destruction with chlorine or lime, incineration, and carbon adsorption.¹⁵⁷ Minimization of empty containers and contaminated soil wastes is discussed in Chapter 11.

Open Burning/Open Detonation

Open burning/open detonation (OB/OD) is one option used to demilitarize ordnance containing propellants, explosives, and pyrotechnics (PEP). Other methods are washout/steamout/meltout and deactivation in a furnace. Ingredients of some common explosive compounds are listed in Table 49. OB/OD is the simplest and has been the primary method of demilitarization used at Army installations.¹⁵⁸ Active and inactive sites of OB/OD are commonly found. The environmental contaminants generated from OB/OD activity include gases and particles (carbon, soot, etc.) released into the atmosphere and as residues in soils. The soil residues are comprised mainly of undetonated PEP materials and combustion/detonation products. Table 50 lists the elements found in soils, including some that are regulated under RCRA and HSWA. Soils at all the active and inactive sites must be analyzed to determine the chemical content and proper disposal.

¹⁵⁶ Ventura County Environmental Health, *Hazardous Waste Reduction Guidelines for Environmental Health Programs* (California Department of Health Services, Sacramento, CA, 1987).

¹⁵⁷ *Standard Handbook of Hazardous Waste Treatment and Disposal*, H.M. Freeman, Ed. (McGraw Hill, New York, NY, 1989).

¹⁵⁸ D.W. Layton, et al., *Demilitarization of Conventional Ordnance: Priorities of Data-Base Assessments of Environmental Contaminants*, UCRL-15902 (U.S. Army Medical Research and Development Command [USAMRDC], Fort Detrick, MD, 1986).

Some of the materials in the demilitarization inventories at installations may have a recovery value in excess of the cost of the original item because of the increase in material and manufacturing costs.¹⁵⁹ Recovery and reuse of such materials before burning will reduce raw material costs and production requirements, and, thereby, minimize wastes generated. A number of processes (e.g., resolution of ground propellants, selective solvent extraction, disposal of scrap propellant, solution-pelletization, etc.) are available for recovery and reuse of propellants or their ingredients. Processing propellants by such reclamation techniques¹⁶⁰ minimizes environmental discharges, conserves strategic materials, and provides cost savings.

Under USEPA and State regulations, OB/OD is considered a treatment technique for hazardous wastes (ordnance). Therefore, installations are required to obtain a Part B permit. The generation of contaminated soil residues from OB/OD activity can be minimized by conducting the activity on steel "burn-pans" instead of on open ground. Incineration must also be explored as a possible minimization alternative. Controlled incineration allows for better control of air pollutants. However, proper disposal is required for residues generated in any of the operations.

Firefighting and Training

Aqueous film forming foam (AFFF) is considered a hazardous material in a number of states. Firefighting operations that use AFFF must be replaced with nonhazardous substitutes. All other wastes generated by maintenance of fire trucks and other equipment can be minimized by methods discussed in Chapters 5 and 6.

Another waste generated from fire training activities is contaminated soils in the training pits. Typically, contaminated fuel (e.g., JP-4, gasoline) is used to generate a fire in the pits for training exercises. The soil from the pits must be analyzed for chemical contaminants and properly disposed of.

Underground Storage Tanks (USTs)

Discovery of a number of leaking USTs throughout the United States prompted Congress to add Subtitle I to RCRA in 1984. Subtitle I requires the USEPA to develop regulations for leaking USTs to safeguard human health and environment. In September 1988, USEPA finalized the UST rules and regulations¹⁶¹ that cover the technical requirements for designing, installing, testing, and monitoring USTs, and the requirements for cleanup following releases from leaking USTs. Many USTs are located on each Army installation. They must all be tested for leaks and any leaking tanks must be managed according to the rules. Proper management of USTs will minimize the quantities of vapor emissions, soil contamination, and potential groundwater contamination.

A data base of information of Army-owned USTs was developed at USACERL.¹⁶² Many of the Army's USTs are more than 30 years old, greater than 10,000 gal, may contain hazardous substances, are made of steel, and have a high potential for leakage. A leak potential index (LPI)

¹⁵⁹D.W. Layton, et al.

¹⁶⁰F.W. Nester and L.L. Smith, *Propellant Reuse Technology Assessment*, AMXTH-TE-CR-86076 (USATHAMA, Aberdeen Proving Ground, MD, 1986).

¹⁶¹40 CFR Parts 280-281, *Underground Storage Tanks: Technical Requirements and State Program Approval; Final Rule*, pp 37081 - 37247.

¹⁶²B.A. Donahue, T.J. Hactor, and K. Piskin, *Managing Underground Storage Tank Data Using dBase III Plus*, Technical Report N-87/21/ADA182452 (USACERL, June 1987).

associated with the data base has been devised to indicate the likelihood of individual tank leakage.¹⁶³ The LPI is a tool that enables tank managers to group tanks based on the likelihood of leaks. This information indicates which tanks should be monitored more closely, which should be tested, and which should be considered for replacement.

The HAZMIN technique of inventory control is very effective in detecting tank leaks. This method requires regular measurement of the level of substances in the tanks. Records must also be maintained concerning addition and withdrawal of products. Comparison of inflow, outflow, and the inventory indicates product loss. Other leak detection methods can be grouped into volumetric methods, nonvolumetric methods, and leak effects monitoring.¹⁶⁴ Volumetric methods measure the change in volume with time and are the most fully developed and popular. Site-specific decisions have to be made regarding the use of the most appropriate leak detection method. Nonvolumetric methods measure changes in a variable, such as a tracer gas or acoustic signal, to determine changes in the level of the tank contents. Leak effects monitoring refers to methods used to determine leaks in the surrounding environment (e.g., soil vapor analysis).

Table 44
Used Oil Fuel Specifications*

| Constituent or Property | Allowable Level |
|-------------------------|--------------------------|
| Arsenic | 5 mg/kg maximum |
| Cadmium | 2 mg/kg maximum |
| Chromium | 10 mg/kg maximum |
| Lead | 100 mg/kg maximum |
| Total Halogens | 4,000 mg/kg maximum** |
| Flashpoint | 37.7 °C (100 °F) minimum |

¹⁶³ S. Dharmavaram, et al., "A Profile and Management of the U.S. Army's Underground Storage Tanks," *Environmental Management*, Vol 13 (1989), pp 333-338.

¹⁶⁴ J. Makwinski and P.N. Cheremisinoff, "Special Report: Underground Storage Tanks," *Pollution Engineering*, Vol 20 (1988), pp 60-69.

* Source: Federal Register, Vol 50, No. 23, pp 49,164 - 49,249.

** Used oil containing more than 1000 mg/kg total halogens must be shown not to have been mixed with hazardous waste. This is called the "rebuttable presumption."

Table 45

Amounts of Typical Hazardous Wastes Generated from Drycleaning Operations*

| Waste Type | Cleaning Solvent** | | |
|-------------------------|--------------------|----------|----------|
| | PERC | Valclene | Stoddard |
| Still Residues | 25 | 10 | 20 |
| Spent Cartridge Filters | | | |
| Standard (carbon core) | 20 | 15 | ... |
| Adsorptive (split) | 30 | 20 | ... |
| Cooked Powder Residue | 40 | n/a | n/a |
| Drained Filter Muck | n/a | n/a | ... |

* Source: H. Winslow, *Hazardous Waste SQG Workbook* (Intereg Group, Inc., Chicago, IL, 1986), p 144.

** In pounds per 1000 pounds of clothes cleaned.

*** Well-drained filter cartridges and filter muck are solids that do not meet the criteria for classification as an ignitable solid, and are therefore not considered hazardous wastes.

Table 46

Drycleaning and Laundry Operations and Wastes Classification*

| Process/ operation | Materials used | Waste Description | | | |
|------------------------|--------------------|-------------------|--|--------------------|--------|
| | | HW code | DOT shipping name | Hazard class | Number |
| Drycleaning | PERC | F002 | Waste perchloroethylene or waste tetrachloroethylene | ORM-A | UN1897 |
| | Valclene | F002 | Hazardous waste liquid or solid, NOS | ORM-E | UN9189 |
| | Petroleum solvents | D001 | Waste petroleum distillate | Combustible liquid | UN1268 |
| Waste petroleum naptha | | | Combustible liquid | UN1255 | |
| Laundering | Caustic soda | D002 | Waste sodium hydroxide | Corrosive material | UN1824 |
| | Cleaning compound | D001 | Hazardous waste liquid, NOS | Flammable liquid | UN9189 |

*Source: *Drycleaning and Laundry Plants*, Hazardous Waste Fact Sheet (Small Quantity Generators Activity Group, Minnesota Technical Assistance Program, University of Minnesota, Minneapolis, MN, 1988).

Table 47

Wastes Classification: Woodworking and Preserving Operations*

| Process/ operation | Materials used | Waste Description | | | |
|--|---|---|---|--|------------------|
| | | HW code | DOT shipping name | Hazard class | Number |
| Wood cleaning and wax removal | Petroleum distillates White spirits | D001 | Waste flammable liquid | Flammable liquid | UN1993 |
| | | D001 | Waste naptha Waste naptha solvent | Combustible liquid Flammable liquid | UN2553 UN2553 |
| | | | Waste naptha solvent | Combustible liquid | UN1256 |
| | | | Waste naptha solvent | Flammable liquid | UN1256 |
| Refinishing/ stripping; brush cleaning and spray gun cleaning | Paint strippers (containing methylene chloride) | F002 | Hazardous waste liquid or waste methylene chloride | ORM-E ORM-A | UN2553 UN1593 |
| | | D001 | Waste flammable liquid, NOS | Flammable liquid | UN1993 |
| | Paint removers (containing distillates, acetone, toluene) Paint removers (containing caustic) | D002 | Corrosive liquid | Corrosive material | NA1760 |
| Staining | Stains (mineral spirits, alcohols, pigments) | D001 | Waste flammable liquid | Flammable liquid | UN1993 |
| Painting | Paints (enamels, lacquers, epoxy, alkyds, acrylics) | D001 | Waste paint or enamel liquid | Flammable liquid | UN1263 |
| Finishing | Varnish, shellac, lacquer | D001 | Waste flammable liquid, NOS | Flammable liquid | UN1993 |
| Preserving | Creosote | K001 | Hazardous waste liquid or solid, NOS | ORM-E | NA9189 |
| | Pentachlorophenol Chromated copper arsenate | K001 | Waste pentachlorophenol, liquid or solid | ORM-E | NA2020 |
| | | D004/ D007 | Waste arsenical compounds, liquids | Poison B | UN1557 |
| | Ammoniacal copper arsenate | D004 | Waste arsenical compounds, solids | Poison B | UN1556 |
| | | | Waste arsenical compounds, liquids | Poison B | UN1557 |
| | | | Waste arsenical compounds, solids | Poison B | UN1556 |
| Other wood preservatives | Varies | Hazardous waste liquid or solid, NOS | ORM-E | NA9189 | |

*Source: H. Winslow, *Hazardous Waste SQG Workbook* (Intereg Group, Inc., Chicago, IL, 1986), pp 146-147.

Table 48

Waste Classification: Pesticides*

| Process/operation | Materials used | Waste Description | | |
|---------------------------------------|--|--|------------------|--------|
| | | DOT shipping name | Hazard class | Number |
| Pesticides Containing Arsenic: | | | | |
| Arsenic pentoxide | Arsenic acid anhydride Arsenic (V) oxide | Waste arsenic pentoxide, solid | Poison B | UN1559 |
| Arsenic trioxide | Arsenic sesquioxide Arsenic (III) oxide Arsenous acid (anhydride) White arsenic | Waste arsenic trioxide, solid | Poison B | UN1561 |
| Cacodylic acid | Hydroxydimethylarsine oxide Dimethylarsinic acid Phytar | Waste arsenical pesticide, solid, NOS ³ | Poison B | UN2759 |
| | | Waste arsenical pesticide, liquid, NOS | Poison B | UN2759 |
| | | Waste arsenical pesticide, liquid, NOS | Flammable liquid | UN2760 |
| Monosodium Methanearsonate | MSMA | Waste arsenical pesticide, solid, NOS | Poison B | UN2759 |
| | Ansar 170 H.C. and 529 H.C. | Waste arsenical pesticide, liquid, NOS | Poison B | UN2759 |
| | Bueno 6 | Waste arsenical pesticide, liquid, NOS | Poison B | UN2759 |
| | Daconate 6 | Waste arsenical pesticide, liquid, NOS | Flammable liquid | UN2760 |
| | Dal-E-Rad | | | |
| | Herb-All | | | |
| | Merge 823 | | | |
| | Mesamate | | | |
| | Monate | | | |
| | Trans-Vert | | | |
| Weed-E-Rad | | | | |
| Weed-Hoe | | | | |
| Disodium Monomethanearsonate | DSMA | Waste arsenical pesticide, solid, NOS | Poison B | UN2759 |
| | Ansar 8100 | Waste arsenical pesticide, liquid, NOS | Poison B | UN2759 |
| | Arrhenal | Waste arsenical pesticide, liquid, NOS | Poison B | UN2759 |
| | Arsinyl | | | |
| | Dinate | | | |
| | Di-Tac | | | |
| | DMA | | | |
| | Methar 30 | | | |
| | Sodar | | | |
| | Versar DSMA-LQ | | | |
| Weed-E-Rad | | | | |

*Source: H. Winslow, *Hazardous Waste SQG Workbook* (Intereg Group, Inc., Chicago, IL 1986), pp 150-161.

Table 48 (Cont'd)

| Process/operation | Materials used | Waste Description | | |
|--|--|--|------------------|--------|
| | | DOT shipping name | Hazard class | Number |
| Pesticides Containing Carbamates: | | | | |
| Temik | Aldicarb | Waste carbamate pesticide, solid, NOS | Poison B | UN2757 |
| | OMS 771 | Waste carbamate pesticide, liquid, NOS | Poison B | UN2757 |
| | UC 21149 | Waste carbamate pesticide, liquid, NOS | Flammable liquid | UN2758 |
| Pesticides Containing Mercury | | | | |
| 2-Methoxyethyl-mercuric Chloride | MEMC | Waste mercury based pesticide, solid, NOS | Poison B | UN2777 |
| | Agallol | Waste mercury based pesticide, liquid, NOS | Poison B | UN2777 |
| | Cekusil Universal-C Ceresan-Universal-Nassbeize Emisan 6 | Waste mercury based pesticide, liquid, NOS | Flammable liquid | UN2778 |
| Phenylmercuric acetate | PMA | Waste mercury based pesticide, solid, NOS | Poison B | UN2777 |
| | PMAS | Waste mercury based pesticide, liquid, NOS | Poison B | UN2777 |
| | Agrosan | Waste mercury based pesticide, liquid, NOS | Flammable liquid | UN2778 |
| | Cekusil | Waste mercury based pesticide, liquid, NOS | Poison B | UN2777 |
| | Celmer | Waste mercury based pesticide, liquid, NOS | Flammable liquid | UN2778 |
| | Gallotox | Waste mercury based pesticide, liquid, NOS | Poison B | UN2777 |
| | Hong Nien | Waste mercury based pesticide, liquid, NOS | Poison B | UN2777 |
| | Liquidphene | Waste mercury based pesticide, liquid, NOS | Flammable liquid | UN2778 |
| | Mersolite | Waste mercury based pesticide, liquid, NOS | Poison B | UN2777 |
| | Pamisan | Waste mercury based pesticide, liquid, NOS | Flammable liquid | UN2778 |
| Phix | Waste mercury based pesticide, liquid, NOS | Poison B | UN2777 | |
| Seedtox | Waste mercury based pesticide, liquid, NOS | Flammable liquid | UN2778 | |
| Shimmer-ex | Waste mercury based pesticide, liquid, NOS | Poison B | UN2777 | |
| Tag HL 331 | Waste mercury based pesticide, liquid, NOS | Flammable liquid | UN2778 | |
| Pesticides Containing Substituted Nitrophenols: | | | | |
| Dinitrocresol | DNC | Waste substituted nitrophenol pesticide, solid, NOS | Poison B | UN2779 |
| | DNOC | Waste substituted nitrophenol pesticide, liquid, NOS | Poison B | UN2779 |
| | Chemset | Waste substituted nitrophenol pesticide, liquid, NOS | Flammable liquid | UN2780 |
| | Detal | Waste substituted nitrophenol pesticide, liquid, NOS | Poison B | UN2779 |
| | Elgetol 30 | Waste substituted nitrophenol pesticide, liquid, NOS | Flammable liquid | UN2780 |
| | Nitrador | Waste substituted nitrophenol pesticide, liquid, NOS | Poison B | UN2779 |
| | Selinon | Waste substituted nitrophenol pesticide, liquid, NOS | Flammable liquid | UN2780 |
| Dinoseb | Sinox | Waste substituted nitrophenol pesticide, liquid, NOS | Poison B | UN2779 |
| | Trifocide | Waste substituted nitrophenol pesticide, liquid, NOS | Flammable liquid | UN2780 |
| | Trifrina | Waste substituted nitrophenol pesticide, liquid, NOS | Poison B | UN2779 |
| | DNBP | Waste substituted nitrophenol pesticide, solid, NOS | Poison B | UN2779 |
| | Basanite | Waste substituted nitrophenol pesticide, liquid, NOS | Flammable liquid | UN2780 |
| | Caldon | Waste substituted nitrophenol pesticide, liquid, NOS | Poison B | UN2779 |
| | Chemox general | Waste substituted nitrophenol pesticide, liquid, NOS | Flammable liquid | UN2780 |
| | Chemox PE | Waste substituted nitrophenol pesticide, liquid, NOS | Poison B | UN2779 |
| | Dinitro | Waste substituted nitrophenol pesticide, liquid, NOS | Flammable liquid | UN2780 |
| | Dinitro general | Waste substituted nitrophenol pesticide, liquid, NOS | Poison B | UN2779 |
| Dynamite | Waste substituted nitrophenol pesticide, liquid, NOS | Flammable liquid | UN2780 | |
| Elgetol 318 | Waste substituted nitrophenol pesticide, liquid, NOS | Poison B | UN2779 | |
| Gebutox | Waste substituted nitrophenol pesticide, liquid, NOS | Flammable liquid | UN2780 | |

Table 48 (Cont'd)

| Process/operation | Materials used | Waste Description | | |
|------------------------------------|---|--|------------------|--------|
| | | DOT shipping name | Hazard class | Number |
| Dinoseb (Cont'd) | Hel-Fire Nitropone C Premerge 3 Sinox general Subitex Vertac general weed killer Vertac selective weed killer | | | |
| Organophosphate pesticides: | | | | |
| Dimetboate | AC-12880 | Waste organophosphorous pesticide, solid, NOS | Poison B | UN2783 |
| | Bi 58 EC | Waste organophosphorous pesticide, liquid, NOS | Poison B | UN2783 |
| | Cekuthoate | Waste organophosphorous pesticide, liquid, NOS | Poison B | UN2783 |
| | Cygon | Waste organophosphorous pesticide, liquid, NOS | Flammable liquid | UN2784 |
| | Daphene | Waste organophosphorous pesticide, liquid, NOS | Flammable liquid | UN2784 |
| | De-Fend | Waste organophosphorous pesticide, liquid, NOS | Flammable liquid | UN2784 |
| | Demos-L40 | | | |
| | Devigon | | | |
| | Dimet | | | |
| | Dimethogen | | | |
| | Perfekthion | | | |
| | Rebelate | | | |
| | Rogdial | | | |
| | Rogor | | | |
| Roxion | | | | |
| Trimetion | | | | |
| Disulfoton | Bay 19639 and S276 | Waste disulfoton | Poison B | NA2783 |
| | Dithiodemeton | Waste disulfoton mixture, dry | Poison B | NA2783 |
| | Dithiosystox | Waste disulfoton mixture, liquid | Poison B | NA2783 |
| | Di-Syston | Waste organophosphorous pesticide, liquid, NOS | Flammable liquid | UN2784 |
| | Ethylthiodemeton | Waste organophosphorous pesticide, liquid, NOS | Flammable liquid | UN2784 |
| | Frumin AL | | | |
| | M-74 | | | |
| Solvirex | | | | |
| Thiodemeton | | | | |
| Famphur | Bash | Waste organophosphorous pesticide, solid, NOS | Poison B | UN2783 |
| | Bo-Ana | Waste organophosphorous pesticide, liquid, NOS | Poison B | UN2783 |
| | Dovip | Waste organophosphorous pesticide, liquid, NOS | Poison B | UN2783 |
| | Famfos | Waste organophosphorous pesticide, liquid, NOS | Flammable liquid | UN2784 |
| Warbex | Waste organophosphorous pesticide, liquid, NOS | Flammable liquid | UN2784 | |
| Methylparathion | Cekumethion | Waste methyl parathion, liquid | Poison B | NA2783 |
| | E-601 | Waste methyl parathion mixture, dry | Poison B | NA2783 |
| | Devithion | Waste methyl parathion mixture, liquid, (containing 25% or less methylparathion) | Poison B | NA2783 |
| | Folidon M | Waste methyl parathion mixture, liquid, (containing 25% or less methylparathion) | Poison B | NA2783 |
| | Fosferno M50 | Waste methyl parathion mixture, liquid, (containing more than 25% methylparathion) | Poison B | NA2783 |
| | Gearphos | Waste methyl parathion mixture, liquid, (containing more than 25% methylparathion) | Poison B | NA2783 |
| | Methacide | Waste methyl parathion mixture, liquid, (containing more than 25% methylparathion) | Poison B | NA2783 |
| | Metaphos | Waste methyl parathion mixture, liquid, (containing more than 25% methylparathion) | Poison B | NA2783 |
| | Nitrox 80 | Waste organophosphorous pesticide, liquid, NOS | Flammable liquid | UN2784 |
| | Parataf | Waste organophosphorous pesticide, liquid, NOS | Flammable liquid | UN2784 |
| Paratox | Waste organophosphorous pesticide, liquid, NOS | Flammable liquid | UN2784 | |
| Partron M | Waste organophosphorous pesticide, liquid, NOS | Flammable liquid | UN2784 | |

Table 48 (Cont'd)

| Process/operation | Materials used | Waste Description | | |
|-------------------------------------|-----------------------------|--|------------------|--------|
| | | DOT shipping name | Hazard class | Number |
| Methylparathion (Cont'd) | Penncap-M Wofatox | | | |
| Parathion | AC-3422 | Waste parathion, liquid | Poison B | NA2783 |
| | Alkron | Waste parathion mixture, dry | Poison B | NA2783 |
| | Alleron | Waste parathion mixture, liquid | Poison B | NA2783 |
| | Aphamite | Waste organophosphorous pesticide, liquid, NOS | Flammable liquid | UN2784 |
| | Bladan | | | |
| | Corothion | | | |
| | E-605 | | | |
| | ENT 15108 | | | |
| | Ethyl parathion | | | |
| | Etilon | | | |
| | Folidol F-605 | | | |
| | Fosterno 30 | | | |
| | Niran | | | |
| | Orthophos | | | |
| | Panthion | | | |
| | Paramar | | | |
| | Paraphos | | | |
| Parathene | | | | |
| Parawet | | | | |
| Phoskil | | | | |
| Rhodiatox | | | | |
| Soprathion | | | | |
| Stathion | | | | |
| Thiophos | | | | |
| Strychnine Pesticides: | | | | |
| Strychnine | Strychnine salts | Waste strychnine, solid | Poison B | UN1692 |
| | | Waste strychnine salt, solid | Poison B | UN1692 |
| Thallium Sulfate Pesticides: | | | | |
| Thallium sulfate | Thalious sulfate | Waste thallium sulfate, solid | Poison B | NA1707 |
| | Ratox | Waste flammable liquid, poisonous, NOS | Flammable liquid | UN1992 |
| | Zelio | | | |
| Triazine Pesticides: | | | | |
| Amitrole | Amerol | Waste triazine pesticide, solid, NOS | Poison B | UN2763 |
| | Amino triazol weedkiller 90 | Waste triazine pesticide, liquid, NOS | Poison B | UN2763 |
| | Amizol | Waste triazine pesticide, liquid, NOS | Flammable liquid | UN2764 |
| | AT-90 | | | |
| | AT liquid | | | |
| | Azolan | | | |
| | Azole | | | |
| | Cytrol | | | |
| | Diurool | | | |
| | Farmco | | | |
| | Herbizole | | | |
| | Simazol | | | |
| | Weedazol | | | |
| Weedazol TL | | | | |

Table 48 (Cont'd)

| Process/operation | Materials used | Waste Description | | |
|---|--|---|--|------------------|
| | | DOT shipping name | Hazard class | Number |
| Flammable Solvents Used in Pesticides: | | | | |
| Methyl alcohol | Methanol | Waste methyl alcohol | Flammable liquid | UN1230 |
| Ethyl alcohol | Ethanol Alcohol | Waste ethyl alcohol | Flammable liquid | UN1170 |
| Isopropyl alcohol | Isopropanol | Waste isopropanol | Flammable liquid | UN1219 |
| Toluene | Methyl benzene Toluol | Waste toluene (toluol) | Flammable liquid | UN1294 |
| Xylene | Dimethyl benzene Xylol | Waste xylene (xylol) | Flammable liquid | UN1307 |
| Solvent mixtures | | Waste combustible liquid, NOS Waste flammable liquid, NOS | Combustible liquid Flammable liquid | NA1993 UN1993 |
| Phenoxy Pesticides: | | | | |
| 2,4-D | Amoxone | Waste 2,4-dichlorophenoxyacetic acid | ORM-A | NA2765 |
| | Brush Killer | Waste 2,4-dichlorophenoxyacetic acid ester | ORM-E | NA2765 |
| | Brush-Rhap | Waste phenoxy pesticide, liquid, NOS | Flammable liquid | UN2766 |
| | Chloroxone | | | |
| | Crop Rider | | | |
| | D50 | | | |
| | DMA 4 | | | |
| | Dacamine | | | |
| | Ded-Weed | | | |
| | Desormone | | | |
| | Dinoxol | | | |
| | Emulsamine BK and E3 | | | |
| | Envert DT and 171 | | | |
| | Hedonal | | | |
| | Miracle | | | |
| | Pennamine D | | | |
| | Rhodia | | | |
| | Salvo | | | |
| | Super-D Weedone | | | |
| Verton | | | | |
| Visko-Rhap | | | | |
| Weed Tox | | | | |
| Weed-B-Gone | | | | |
| Weed-Rhap | | | | |
| Weedar | | | | |
| Weedone | | | | |
| Weedtrol | | | | |
| 2,4,5-T | Brush-Rhap | Waste 2,4,5-trichlorophenoxyacetic acid | ORM-A | NA2765 |
| | Dacamine | | | |
| | Ded-Weedon | Waste 2,4,5-trichlorophenoxyacetic acid (amine, ester, or salt) | ORM-E | NA2765 |
| | Esteron | | | |
| | Farmco Fence Rider Forron Inverton 245 Line Rider | Waste phenoxy pesticide, liquid, NOS | Flammable liquid | UN2766 |

Table 48 (Cont'd)

| Process/operation | Materials used | Waste Description | | |
|-----------------------------------|---|--|--------------------|--------|
| | | DOT shipping name | Hazard class | Number |
| 2,4,5-T (Cont'd) | Super D Weedone Tormona Transamine U 46 Veon 245 Weedar Weedone | | | |
| Silvex | 2,4,5-TP | Waste 2-(2,4,5-trichlorophenoxy) propionic acid | ORMA-A | NA2765 |
| | Fenoprop | Waste 2-(2,4,5-trichlorophenoxy) propionic acid ester | ORM-E | NA2765 |
| | AquaVex | Waste phenoxy pesticide, liquid, NOS | Flammable liquid | UN2766 |
| | Double Strength Fruitone T Kuron Kurosol Silver-Rhap Weed-B-Gone | | | |
| Organochlorine Pesticides: | | | | |
| Aldrin | HHDN | Waste aldrin | Poison B | NA2761 |
| | Aldrex 30 | Waste aldrin mixture, dry (with more than 65% aldrin) | Poison B | NA2761 |
| | Aldrite | Waste aldrin mixture, liquid (with or less aldrin) | ORM-A | NA2761 |
| | Aldrosol | Waste aldrin mixture, liquid (with more than 60% aldrin) | Poison B | NA2762 |
| | Aliox | Waste aldrin mixture, liquid (with 60% or less aldrin) | ORM-A | NA2762 |
| | Drinox | Waste organochlorine pesticide, liquid, NOS | Flammable liquid | UN2762 |
| | Octalene Seedrin liquid | | | |
| Chlordan | Belt | Waste chlordane, liquid | Flammable liquid | NA2762 |
| | Chlordan | Waste chlordane, liquid | Combustible liquid | NA2762 |
| | ChlorKil | | | |
| | Chlortox | | | |
| | Corodane | | | |
| | Gold Crest C-100 | | | |
| | Kypchlor | | | |
| | Vesicol 1068 | | | |
| | Topiclor 20 | | | |
| | Niran | | | |
| | Octachlor | | | |
| | Octa-Klor | | | |
| | Ortho-Klor | | | |
| Synklor | | | | |
| Termi-Ded | | | | |
| DDT | Dedelo | Waste DDT | ORM-A | NA2761 |
| | Didimac | Waste organochlorine pesticide, liquid, NOS | Flammable liquid | UN2762 |
| | Digmar | | | |
| | Genitox | | | |
| | Gyron | | | |
| | Gildit | | | |
| | Kopsol Neocid | | | |

Table 48 (Cont'd)

| Process/operation | Materials used | Waste Description | | |
|-------------------|--|--|--|----------------------------|
| | | DOT shipping name | Hazard class | Number |
| DDT (Cont'd) | Pentachlorin Rukseam Zerdand | | | |
| Dichloropropene | 1,3-dichloropropene Telone II Soil Fumigant | Waste dichloropropene | Flammable liquid | UN2047 |
| Dieldrin | Dieldrex Dieldrite Octalox Panoram D-31 | Waste dieldrin | ORM-A | NA2761 |
| | | Waste organochlorine pesticide, liquid, NOS | Flammable Liquid | UN2762 |
| Endrin | Endrex Hexadrin | Waste Endrin Waste Endrin mixture, liquid Waste organochlorine pesticide, liquid, NOS | Poison B Poison B Flammable liquid | NA2761 NA2761 UN2762 |
| Endosulfan | Beosit Chlorthiepin Crisulfan Cyclodan Endocel EnSure FMC 5462 Hildan Hoc 2671 Malix Thifor Thimul Thiodan Thiofor Thionex Tiovel | Waste Endosulfan Waste Endosulfan mixture, liquid Waste organochlorine pesticide, liquid, NOS | Poison B Poison B Flammable liquid | NA2761 NA2761 UN2762 |
| Heptachlor | Gold Crest H-60 Drinox H-34 Heptamul Heptox Chlordecone | Waste Heptachlor Waste organochlorine pesticide, liquid NOS | ORM-E Flammable liquid | NA2761 UN2762 |
| Kepone | Exagama Forlin | Waste Kepone Waste organochlorine pesticide, liquid, NOS | ORM-E Flammable liquid | NA2761 UN2762 |
| Lindane | Gallo gama Gamaphex Gammex Inexn Isotox Lindafor Lindagam Lindagrain Lindagranox Lindalo Lindamul Lindapoudre | Waste Lindane Waste organochlorine pesticide, liquid, NOS | ORM-A Flammable liquid | NA2761 UN2762 |

Table 48 (Cont'd)

| Process/operation | Materials used | Waste Description | | | | |
|--------------------------|--|--|--|-----------------------------|-------|--------|
| | | DOT shipping name | Hazard class | Number | | |
| Lindane (Cont'd) | Lindaterra Novigam Silvanol | | | | | |
| Methoxychlor | Flo Pro McSeed Protectant Marlate | Waste Methoxychlor | ORM-E | NA2761 | | |
| | | Waste organochlorine pesticide, solid, NOS | Poison B | UN2761 | | |
| | | Waste organochlorine pesticide, liquid, NOS | Poison B | UN2761 | | |
| | | Waste organochlorine pesticide, liquid, NOS | Flammable liquid | UN2762 | | |
| Propylene Dichloride | 1,2-dichloropropane | Waste propylene dichloride | Flammable liquid | UN1279 | | |
| Toxaphene | Attac 4-2, 4-4, 6, 6-3, 8 Camphochlor Motox Phenacide Phenatox Strobane T-90 Toxakil Toxon | Waste toxaphene | ORM-A | NA2761 | | |
| | | Waste organochlorine pesticide, liquid, NOS | Flammable liquid | UN2762 | | |
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| Other Pesticides: | | | | | | |
| Thiram | TMTD AAtack Arasan Aules Evershield T Seed Protectant Fermide 850 Fernasan Flo Pro T Seed Protectant Hexathir Mercuram Nomersan Pomarsolforte Polyram-Ultra Spotrete-F Tetrapom Thimer Thionock Thiotex Thiramad Thiuramin Tirampa Trametan Tripomol Thylate Tudas Vancide TM | Waste Thiram | ORM-A | NA2771 | | |
| | | Waste flammable liquid, poisonous, NOS | Flammable liquid | UN1992 | | |
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| | | Warfarin | Co-Rax Cov-R-Tox Kypfarin Liqua-Tox | Hazardous waste solid, NOS | ORM-E | NA9189 |
| | | | | Hazardous waste liquid, NOS | ORM-E | NA9189 |

Table 48 (Cont'd)

| Process/operation | Materials used | Waste Description | | |
|--------------------------------|---|-------------------------------|--------------------|--------|
| | | DOT shipping name | Hazard class | Number |
| Warfarin (Cont'd) | RAX | Waste flammable liquid, NOS | Flammable liquid | UN1993 |
| | Rodex Rodex Blax Tox Hid | Waste combustible liquid, NOS | Combustible liquid | NA1993 |
| Pentachlorophenol | PCP | Waste pentachlorophenol | ORM-E | NA2020 |
| | Penta Penchlorol | Waste flammable liquid, NOS | Flammable liquid | UN1993 |
| | Pentacon Penwar Sinitudo Santophen | Waste combustible liquid, NOS | Combustible liquid | NA1993 |
| | | | | |
| Pentachloronitrobenzene | PNCB | Hazardous waste, solid | ORM-E | NA9189 |
| | Avicol Botrilex Brassicol Earthcide Folosan Kobu Pentagen Saniclor 30 Terraclor Tilcarex Tritesan | Hazardous waste, liquid | ORM-E | NA9189 |
| | | Waste flammable liquid, NOS | Flammable liquid | UN1993 |
| | | Waste combustible liquid, NOS | Combustible liquid | NA1993 |
| | | | | |
| | | | | |
| Hexachlorobenzene | Perchlorobenzene Anticarie Ceku C.B. HCB No Bunt DBCP | Hazardous waste, solid | ORM-E | NA9189 |
| | | Hazardous waste, liquid | ORM-E | NA9189 |
| | | Waste flammable liquid, NOS | Flammable liquid | UN1993 |
| | | Waste combustible liquid, NOS | Combustible liquid | NA1993 |
| 1,2-Dibromo 3-Chloropropane | Nemafume Nemanox Nemaset Nematocide | Hazardous waste, solid, NOS | ORM-E | NA9189 |
| | | Hazardous waste, liquid, NOS | ORM-E | NA9189 |
| | | Waste flammable liquid, NOS | Flammable liquid | UN1993 |
| | | Waste combustible liquid, NOS | Combustible liquid | NA1993 |

Table 49

Ingredients Contained in Propellants, Explosives, and Pyrotechnics

| Compound | Type |
|--|------|
| 2,4,6-Trinitrotoluene (TNT) | EX* |
| Cyclotrimethylenetrinitramine (RDX) | EX |
| Pentaerythritol Tetranitrate (PETN) | EX |
| 2,4,6-Trinitrophenylmethylnitramine (Tetryl) | EX |
| Ammonium Picrate (Explosive D) | EX |
| Cyclotetramethylenetetranitramine (HMX) | EX |
| 2,4-Dinitrotoluene (DNT) | PP |
| Nitroglycerin (NG) | PP |
| Nitroguanidine (NQ) | PP |
| Dibutyl phthalate | PP |
| Diethyl phthalate | PP |
| Diphenylamine | PP |
| Benzene | EX |
| Toluene | EX |
| Sodium Nitrate | PY |
| Barium Nitrate | PY |
| Magnesium Nitrate | PY |
| Strontium Peroxide | PY |
| Strontium Oxalate | PY |
| Calcium Resinate | PY |

*EX = explosives; PP = propellants; PY = pyrotechnics.

Table 50

Common Elements Found in PEP and OB/OD Soil Residue

| Element | OB % of samples greater than EP toxic limits | OD |
|-----------|---|-----|
| Strontium | | |
| Cadmium | 2.5 | 1.3 |
| Arsenic | 0.3 | 0.0 |
| Antimony | | |
| Lead | 6.0 | 0.7 |
| Mercury | 0.6 | 0.0 |
| Barium | | |

*Source: D.W. Layton, p 29.

11 WASTE MINIMIZATION FOR MISCELLANEOUS WASTES

Polychlorinated Biphenyls

PCBs are chlorinated organic compounds with a wide range of physical properties. There are 209 possible PCBs of which tri-, tetra-, penta-, and hexachloro biphenyls are the most important. They were commonly used in coolants and insulation fluids in transformers. Some of the older products that may contain PCBs or oils with PCBs include: heat-transfer fluids, lubricants, paints, plastics, air conditioners, fluorescent lights, and televisions. PCBs were most widely used in capacitors and transformers because of their low conductivity and thermal stability.

In several cases of poisoning in Japan and Taiwan, PCBs and their secondary products such as polychlorinated dibenzofurans were found to be the major contaminants in bran oil used to cook rice. Since then, PCBs have been linked to severe health problems (e.g., gastric disorders, skin lesions, swollen limbs, cancers, tumors, eye problems, liver disorders, menstrual irregularities, etc.) and birth defects (e.g., reproductive failures, mutations, etc.). Compounding the problem of PCBs' toxicity is their bioaccumulation in cells and fatty tissues of micro-organisms and animals, which are then consumed by other animals higher in the food chain.

PCBs are regulated by the Toxic Substances Control Act (TSCA) passed in 1976. Manufacture of PCBs was banned under TSCA and deadlines were provided for removing capacitors and transformers containing PCBs. One year was allowed for storage before disposal. If regulatory agencies determine that the use of PCB transformers poses no risk, the use will be allowed to continue. All capacitors were to have been removed by October 1988, and transformers of certain size in or near commercial buildings should be removed by October 1990.

If the concentration of PCBs in a product is greater than 50 parts per million (ppm), the product is regulated as hazardous under TSCA. Some States have set limits that are stricter than Federal limits (e.g., California, 5 ppm).

PCBs in Transformers

In the United States, there are 150,000 askarel (nonflammable electrical fluid) transformers, each of which contains thousands of pounds of PCBs with a wide range of concentrations.¹⁶⁵ Many of these transformers develop leaks.

The transformers are generally classified as: PCB transformers (greater than 500 ppm), PCB-contaminated transformers (50 to 500 ppm), and Non-PCB transformers (less than 50 ppm). PCB transformers must be inspected quarterly for leaks; detailed records must be kept. No maintenance work involving removal of the coil or casing is allowed. PCB-contaminated transformers must be inspected annually. Their requirements for maintenance and recordkeeping are less restrictive than for PCB transformers. Non-PCB transformers are exempt from regulation.

The importance of analyzing all transformers for PCBs must be stressed. All the transformers on an installation must be inventoried and tested for PCBs. If the PCB levels are greater than 50 ppm, appropriate actions must be taken.

¹⁶⁵ P.N. Cheremisinoff, "High Hazard Pollutants: Asbestos, PCBs, Dioxins, Biomedical Wastes," *Pollution Engineering*, Vol 21 (1989), pp 58-65.

PCB Wastes Management

There are no minimization options available for PCB wastes. Recycling of PCBs is illegal. Nevertheless, containers and oils contaminated with PCBs may be recycled if the PCBs are removed.

Federal regulations require that PCBs be destroyed in approved high-temperature incinerators. Oils containing 50 to 500 ppm PCBs can be burned in high-efficiency boilers. Alternate technologies capable of operating at the high incinerator efficiencies, such as the molten salt processes or UV/Ozonation may also be considered for "ultimate" treatment/disposal. In addition to incineration, which is the most common, chemical dechlorination technologies have also been successful. Table 51 lists the names and addresses of incineration facilities and available chemical dechlorination services.

The most common practice at Army installations is to retain PCB transformers in service until the end of their useful life or they leak. They are then replaced with non-PCB transformers. The other possible options that may be available are decontaminating and/or retrofilling the transformers. Table 52 lists the names and addresses of companies that provide retrofilling services.

USACERL's PCB Transformer System

A computer-aided, fate-decision analysis tool was developed at USACERL to help users make decisions about transformers containing PCB levels greater than 50 ppm. The computer model is available to Army users through the Environmental Technical Information System (ETIS) on the mainframe computer at USACERL. A PC-based model is also available.*

The model provides users with information about PCBs and appropriate regulations, and allows them to input information for risk assessment, fate-decision analysis, and life cycle cost analysis. The options considered in the final economic analysis are: retaining, retrofilling, decontaminating, and replacing transformers.

Onsite Mobile Treatment Units

Mobile incineration and chemical dechlorination units can decontaminate insulating oils from transformers. One dechlorination process, the "PCBX" process developed by ENSR, is a self-contained continuous-flow unit. It is designed and equipped to destroy PCBs (up to 2600 ppm) from transformer oil without moving the transformer. The operating capacity of the unit is up to 600 gallons per hour. Exceltech, Inc., based in California, also markets mobile dechlorination units for removing PCBs from transformers.

Lithium Batteries

Lithium batteries are discarded from troop equipment that uses batteries as a reserve power source. Six types of primary lithium batteries are commonly used: Li-CuO, Li-nnO₂, Li-(CF_x)_n, Lithium Sulfur dioxide (Li-SO₂), Li-SO₂Cl₂, and Lithium thionyl chloride (Li-SOCl₂).

The U.S. Navy has proposed the development of a center of excellence to develop a fully permitted state-of-the-art, portable disposal technology for world-wide utilization.¹⁶⁶ A study conducted

* For information, contact Bernard Donahue or Keturah Reinbold at USACERL-EN, P.O. Box 4005, Champaign, IL 61824-4005, or telephone 800-USACERL (outside Illinois) 800-252-7122 (within Illinois).

¹⁶⁶ Comarco, Inc., *U.S. Navy Lithium Battery Disposal*, Report No. CESD-88-179 (Prepared for the Naval Weapons Support Center, High Energy Battery Systems Branch, Crane, IN, January 1989).

by USAEHA to evaluate the disposal of lithium batteries under RCRA regulations,¹⁶⁷ noted that fully charged and duty-cycle discharge batteries were hazardous because of reactivity and/or ignitability characteristics and must be discharged through the DRMO. Fully discharged batteries are not hazardous and could be disposed of in a permitted landfill. Assurances must be sought that the batteries have reached their fully discharged state. Manual discharging methods such as soaking in an aqueous solution are not practical and alternative approaches must be explored.

A recent review presents general information regarding lithium batteries.¹⁶⁸ It includes information about battery technology, safety aspects, purchasing, packaging, transport, storage, and disposal.

Ordnance

A number of hazardous ordnance materials are used on Army installations. Ingredients contained in some of them were listed in Table 49. Further details are available in Technical Manual (TM) 9-1300-214.¹⁶⁹ Army directives prohibit burial of ordnance materials or dumping them in waste places, pits, wells, marshes, shallow streams, rivers, inland waterways, or at sea. All existing locations of buried explosives must be identified and marked accordingly. The only means of disposal available is destruction by burning and detonation (discussed in Chapter 10). Proper operating procedures for disposal of discarded ordnance materials should be developed and updated frequently to comply with Federal, State, and local regulations.

Contaminated Soil

Contaminated soil is generated because of leaks or spills of hazardous materials. Some effective source reduction techniques include: installing splash guards and dry boards on equipment, preventing tank overflow, using bellow sealed valves, installing spill basins, using seal-less pumps, secondary containment, plant maintenance, and personnel training to develop good operating practices.

A number of nonthermal and thermal treatment techniques are available for decontamination of soil.¹⁷⁰ Nonthermal techniques include: aeration, biodegradation, carbon adsorption, chemical dechlorination, solvent extraction, stabilization/fixation, and ultraviolet photolysis. Thermal treatment techniques include: stationary rotary-kiln incineration, mobile rotary-kiln incineration, liquid injection incineration, fluidized bed incineration, high-temperature fluid-wall destruction, infrared incineration, supercritical-water oxidation, plasma-arc pyrolysis, and in situ vitrification.

Empty Containers

Containers with residual hazardous materials/wastes must also be treated as hazardous wastes. Under HSWA, if a container with hazardous residue is found in a cleanup (Superfund) site or other landfill, the generator (Army) is liable and has to pay for part of the cost of cleanup. Even "triple rinsed" containers could contain some residue. Scrap dealers and landfills are becoming reluctant to accept "clean" empty 55-gal drums or other containers.

¹⁶⁷ *Evaluation of Lithium Sulfur Dioxide Batteries, US Army Communications - Electronics Command and US Electronics Research and Development Command, Fort Monmouth, New Jersey, USAEHA-37-26-0427-85 (USAEHA, Aberdeen Proving Ground, MD, 1985).*

¹⁶⁸ W.N. Garrard, *Introduction to Lithium Batteries*, MRL-GD-0018; DODA-AR-005-652 (Materials Research Laboratory, Ascot Vale, Australia, 1988).

¹⁶⁹ Technical Manual (TM) 9-1300-214, *Military Explosives* (Headquarters, Department of the Army, 20 September 1984).

¹⁷⁰ *Standard Handbook of Hazardous Waste Treatment and Disposal.*

The problem of disposing of empty drums and containers can be minimized by giving careful consideration to the kinds and sizes of containers in which materials are originally received. When purchasing materials in bulk, the suppliers must be asked to send them in rinsable and/or recyclable containers. A number of commercial recyclers (listed in Regional Waste Exchange bulletins/newsletters or directories) accept containers less than 30 gal.¹⁷¹ Treating empty containers by triple rinsing is a good waste minimization technique. However, the rinsate, if hazardous, must be properly managed.

Some of the other options to consider when procuring materials, and in the ultimate disposal of containers, are:¹⁷² returning drums to suppliers, contracting with a drum conditioner, contracting with a scrap dealer, and, lastly, disposal in an approved landfill.

Returning Drums to Suppliers

When buying material, a purchase agreement must be established to include the option of returning empty containers to the suppliers. Cash deposits may be required and drums should be maintained in good condition. All the accessories, such as bungs, rings, and closures, must also be kept and returned with the drums.

Contracting With a Reconditioner

If the suppliers do not sell chemicals in returnable drums, ask them to send materials in heavy steel (18 to 20 gauge) drums that can be reconditioned when "empty." A typical 55-gal heavy drum should have a 20-gauge side and 18-gauge ends. A good market exists for these drums and they can be sent to reconditioning contractors for minimal or no cost. Empty heavy drums must be treated as a valuable asset and personnel should be trained in their proper handling (including keeping the bungs, rings, etc.). Another good practice is to avoid accumulating the drums for long periods of time, thus, preventing deterioration.

Contracting With a Scrap Dealer or Disposal in a Landfill

Scrap dealers and landfill operators usually require certain conditions to be met before they accept drums or other containers. Generators have to drain the drums or containers thoroughly, remove the residues by triple rinsing, certify that they do not contain hazardous materials, remove both the ends, crush them before transporting, and pay for disposal.

¹⁷¹ Ventura County Environmental Health, p 3-2.

¹⁷² *Managing Empty Containers*, Fact Sheet (Minnesota Technical Assistance Program, University of Minnesota, Minneapolis, MN, 1988).

Table 51**PCB Replacement/Treatment/Disposal Services**

| Company | Address |
|--------------------------|--|
| ENSCO | P.O. Box 1975, El Dorado, AR 71730, (501) 863-7173 |
| ENSR (formerly SunOhio) | 1700 Gateway Blvd. SE, Canton, OH 44707, (216) 452-0837 |
| USEPA Mobile Incinerator | Woodbridge Ave., Raritan Depot Bldg. 10, Edison, NJ 08837, (201) 321-6635 |
| GSX Chemical Services | 121 Executive Center Dr., Congaree Bldg. # 100, Columbia, SC 29221, (800) 845-1019 |
| Rollins | P.O. Box 609, Deer Park, TX 77536, (713) 479-6001 |
| General Electric | One River Road/Bldg 2-111B, Schenectady, NY 12345, (518) 385-9763 |
| SCA Chemical Services | 1000 E. 111th St., 10th Fl., Chicago, IL 60628, (312) 660-7200 |

Table 52**PCB Transformer Retrofilling Services**

| Company | Address |
|--------------------------------|--|
| DOW Corning Corp | P.O. Box 0994, Midland, MI 48686-0994, (517) 496-4000 |
| ENSR (formerly SunOhio) | 1700 Gateway Blvd. SE, Canton, OH 44707, (216) 452-0837 |
| General Electric | One River Road/Bldg 2-111B, Schenectady, NY 12345, (518) 385-9763 |
| Hoyt Corporation | 251 Forge Rd., Westport, MA 02790-0217, (800) 343-9411 |
| Retrotex | 1700 Gateway Blvd. SE, Canton, OH 44707, (216) 453-4677 |
| Transformer Service Inc. | 78 Regional Dr., P.O. Box 1077, Concord, NH 03301-9990, (603) 224-4006 |
| Unison Transformer Services | 1338 Hundred Oaks Dr., Charlotte, NC 28210, (800) 544-0030 |
| Westinghouse/Industry Services | 875 Greentree #8-MS 804, Pittsburgh, PA 15220, (800) 441-3134 |

12 ECONOMIC ANALYSIS FOR HAZARDOUS WASTE MINIMIZATION

HSWA requires generators of hazardous wastes to develop a waste minimization program that is economically practicable. Therefore, once the alternatives for minimization are identified, their economic feasibility must also be studied. A major source for funding for hazardous waste minimization projects has been through the Defense Environmental Restoration Account (DERA). If the pay-back from a project is expected to be 1 year or less, funding is also available from the Defense Productivity Enhancing Capital Investment (PECI) program. In many instances, minimization is a cost-effective means of conducting business. In such instances, any account may be used to finance minimization and benefit from the resultant savings. However, with the multiplicity of alternative treatment technologies available to treat various hazardous waste streams, it is imperative that installation environmental personnel use a standard methodology to evaluate hazardous waste minimization options.

In 1984, DOD initiated a Used Solvent Elimination (USE) program. In conjunction with the USE program, USACERL developed a model for performing an economic analysis on various alternatives for recycling or disposing of used solvents. Based on this earlier model, a microcomputer model has been developed for economic analysis of minimization options. (Refer to USACERL Draft Technical Report¹⁷³ for a detailed discussion of the process of economic analysis and use of the model.) A part of the model related to nonspecific or "general" waste types is used to determine the life cycle costs and comparison of alternatives for waste streams in this report. Many other publications on economic analysis are available.

The caveat of an "economically practicable" level of waste minimization, as defined in HSWA, is very important. It is not necessary (and is impossible in most cases) to completely eliminate generation of wastes. An economic analysis provides a reasonable methodology for choosing between options for waste minimization. The typical costs considered for any option are initial capital costs and operating costs such as labor, materials, transportation, and waste disposal. Benefits achieved from a waste minimization option (e.g., reduced liability) can also be quantified and given dollar values.

The costs are summed to obtain life cycle costs over the assumed economic life for each option. Net present value (NPV) of the total life cycle costs can be calculated for each option. Comparing the NPVs provides a basis for selecting a minimization technique. Results of detailed economic analysis for the selected waste streams are provided in the sections below.

Used Oil

A large quantity of used oil, primarily engine lubricating oil, is generated on Army installations. Fort Carson generates 114,000 gal/yr of used oil; 5700 gal/yr of it is chlorinated waste oil. Lubricating oil is drained from wheeled and tracked vehicles by the traditional drip-pan method and collected in 55-gal drums or larger storage tanks. Some of the contaminants found in used oil are trash/rags, solvents, hydraulic fluids, and wear metals. Oil is normally changed from vehicles based on the AOAP test.

A source reduction method for minimizing waste oil generation is a change in the process of draining the oil. A FLOC system can be implemented to replace the gravity-drain (drip-pan) method. A description of the technique is provided in Chapter 5. Adapters have to be purchased for all the

¹⁷³ J.B. Mount, et al.

different types of Army vehicles. The major savings is in the labor costs. The amount of extraneous contaminants in the used oil is considerably reduced if the procedure is implemented.

A comparison of the life cycle (10-yr) costs for the two techniques was provided for fleets ranging from 50 to 5000 vehicles.

Investment costs for the purchase of a FLOC evacuation unit and engine adapter kit are assumed to all occur in the first year. A 10-yr economic life and midyear discounting at a rate of 10 percent are assumed for both options. The model's default values retained for this analysis include: site preparation and installation - 15 percent of total equipment costs; logistics and procurement - 7 percent of installed equipment costs; contingencies - 10 percent of installed equipment costs; labor rate (manager) - \$16.00 per hour; labor rate (laborer) - \$11.00 per hour; adjustments for leave - 18 percent of total man hours; adjustments for fringe benefits - 36.2 percent of adjusted base labor cost; number of work days in a year - 247; average maintenance - 5 percent of equipment costs; transportation of hazardous waste - \$0.04 per pound; and, annual logistics and procurement - 1.6 percent of other Operational and Maintenance (O & M) costs. Other assumptions made in the analysis were:

- The average crankcase oil per vehicle is 3.25 gal.
- The average number of oil changes per year is 2.
- Liability due to spills, including labor costs for cleanup, is \$177 for the gravity drain system.
- The time required for an oil change using the gravity drain system is 15 minutes.
- The time required for an oil change using the FLOC system is 4.5 minutes.
- A labor time of 0.7 hours is assumed for removal of an accumulation of up to 50 gal in a 55-gal drum.
- The procurement cost of a small FLOC evacuation unit and engine adapter kits is approximately \$2260. An additional \$2265 is required to implement this system for costs of site preparation and personnel training. The cost of larger evacuation units increases with size.
- The system is used 260 working days per year.
- The utility cost for each FLOC unit is \$75/yr/unit.
- Costs do not escalate.
- Repair and maintenance is \$50/yr/unit.
- One FLOC unit can handle approximately 35 to 40 vehicles per day. If more than 10,000 oil changes are conducted annually, two or more units will be required.

Table 53 lists the saving to investment ratios (SIRs) and discounted payback periods (DPPs) for implementing a FLOC system to service 100, 250, 500, 1000, and 5000 vehicles twice per year. In almost every case, the SIR is 0.39 (1 = economical) and therefore provides no DPP within the expected

economic life of the equipment. Table 54 lists the computer SIRs and DPPs when the average number of oil changes per vehicle increases from two up to six times per year for 1000 vehicles. Only when the number of oil changes per vehicle each year is six or greater, which is not likely to occur, does the FLOC system become cost effective to implement.

Other options analyzed for management of used oil include: (1) minimal processing, blending, and burning (status quo); (2) minimal processing, offsite disposal; (3) comprehensive processing, blending, and burning; (4) comprehensive processing, sale to an offsite recycler; and (5) minimal processing, sale to an offsite recycler. Proper segregation of used oil from other wastes generated on Fort Carson is a prerequisite for all management options analyzed. It is particularly important for option 5. The water content in the used oil cannot exceed 5 percent for a recycler to purchase it. Five percent of all the oil generated is assumed to contain halogenated contaminants at concentrations greater than 1000 ppm and has to be disposed of as a hazardous waste.

Investment costs for a vacuum dehydrator and degasifier¹⁷⁴ used in comprehensive processing are assumed to be all incurred in the first year. A 10-year economic life and midyear discounting at a rate of 10 percent are assumed for the options. The model's default values retained for analysis include:

- Site preparation and installation - 15 percent of total equipment costs,
- Logistics and procurement - 7 percent of installed equipment costs,
- Contingencies - 10 percent of installed equipment costs,
- Labor rate (manager) - \$16.00/hr,
- Labor rate (laborer) - \$11.00/hr,
- Adjustments for leave - 18 percent of total man hours,
- Adjustments for fringe benefits - 36.2 percent of adjusted base labor cost,
- Number of work days in a year - 260,
- Average maintenance - 5.75 percent of equipment costs,
- Transportation of hazardous waste - \$0.04/lb, and,
- Annual logistics and procurement - 1.6 percent of other O&M costs.

The major assumptions made in the analysis were:

- Nonsegregated oil may be considered hazardous depending on the concentration of halogens and heavy metals.

¹⁷⁴ Baron and Associates, Inc., Cookeville, TN; (615) 528-8476.

- Hazardous oil, when burned in a boiler without permits, is subject to fines. Operating without permits or in violation of permits will cause the facility to be shut down by the regulating agency.
- Disposal cost for hazardous halogenated oil is \$4.50/gal.
- Disposal cost for nonhazardous nonhalogenated oil is \$0.75/gal.
- Disposal cost for oily sludge generated from comprehensive and minimal processing activities is \$3.25/gal.
- Transportation cost for onsite transfer and consolidation of hazardous and nonhazardous used oil and oily sludge generated from processing activities is \$0.10/gal.
- Sampling and testing costs for the oil before its transfer to the boiler facility and before burning, offsite disposal, or offsite sale are \$0.036/gal and \$0.006/gal, respectively.
- Fifty-five gallon disposal drums required for containerization of oily processing sludge are \$20.00 each.
- Liability cost for onsite transportation and transfer of nonhazardous used oil, hazardous waste oil, and processing sludge is \$0.002/gal. Liability costs associated with all offsite transportation is \$0.008/gal.
- Labor costs are assumed to accrue at the following rates: onsite transfer of waste oil and processing sludge to DRMO for disposal - 0.01 hr/gal; onsite transfer of nonhazardous oil to the boiler facility - 0.0008 hr/gal; minimal processing at the boiler facility - 0.0016 hr/gal; and drumming of processing sludge and upkeep of minimal processing equipment - 0.0002 hr/gal.
- Managerial labor is assumed to accrue at a rate of 1 hr per 5000 gal of used oil burned, disposed, or sold.
- Maintenance and repair costs for minimal processing equipment and comprehensive processing equipment are \$0.001/gal and \$0.006/gal, respectively. Maintenance costs associated with boiler equipment for blending and burning options are \$0.11/gal with minimal processing and \$0.03/gal with comprehensive processing.
- Utility costs for minimal and comprehensive processing equipment are based on default values provided in the economic analysis model. For minimal processing of used oil, a cost of \$0.005/gal is assumed; for comprehensive processing, it is \$0.013/gal. An additional cost of \$0.005/gal of used oil is assumed for wastewater treatment associated with comprehensive processing.
- Sale to an offsite recycler is applicable only to nonhazardous oil and is contingent upon proper segregation and prevention of excessive water contamination. Used oil can be sold to such a recycler for \$0.05/gal after comprehensive processing, and for \$0.015 with only minimal processing.
- Escalation rates used for some of the costs are as follows: transportation - 4 percent; liability -

4 percent; disposal - 8 percent; sampling and testing - 4 percent; other materials and supplies - 4 percent; maintenance and repair - 4 percent; and utility - 4 percent.

Figure 5 compares the NPVs of the life cycle (10-yr) costs for the five used oil management options. Oil mixed with solvents may be a hazardous waste and must be tested to prove otherwise. Burning hazardous waste in the Fort Carson boilers is prohibited. Option 2 (offsite disposal) is the most expensive option at any generation rate. The current practice (option 1) of minimal processing, blending, and burning in a boiler is the next most expensive option. Comprehensive processing requires investment in a vacuum dehydrator. Because of the reduced maintenance and repair associated with boiler and labor costs, option 3 is less expensive than option 1. The sale options (4 and 5) cost about the same. Used oil sale prices of \$0.05/gal and \$0.015/gal are used in options 4 and 5, respectively. Five percent of the oil still must be disposed of as a hazardous waste.

At the current generation rate (114,000 gal/yr), the NPV O&M cost for the status quo option is \$553,344 (\$55,334/yr). By investing \$17,855 in a vacuum dehydrator for comprehensive processing, blending, and then burning (option 3), an annual savings of \$8520 could be realized over the present operating costs. The SIR and DPP computed for this change are approximately 4.77 and 3.91 years, respectively. The sale of used oil, following comprehensive processing to lower its water content (option 4), could produce an annual savings over the status quo of \$14,541. The SIR and DPP computed for this comparison are approximately 8.14 and 2.36, respectively.

Sale of used oil following minimal processing or sale of used oil following comprehensive processing, are the lowest cost management options for Fort Carson. However, it is very difficult to find a recycler for used oil unless its water content is below 5 percent. Purchase of a vacuum dehydrator and implementation of option 3 is recommended. The proper storage and careful segregation of used oil from hazardous waste streams (i.e., solvents, hydraulic fluid, contaminated fuels, etc.) and other contaminants (i.e., rain water, dry sweep, etc.) must be strictly enforced at all the vehicle maintenance facilities.

Antifreeze Solution

MPVMs are the primary generators of waste antifreeze solution during regular maintenance of vehicles and major radiator repairs. Since the antifreeze solution is not considered a hazardous waste, it is diluted with water and drained into a sewer in most Army installations. Recycling of the waste solution is possible as discussed in Chapter 5. It was considered as a minimization alternative and the results of the economic analysis is presented below.

Investment costs for the antifreeze recycling machine are assumed to be all incurred in the first year. A 10-yr economic life and midyear discounting at a rate of 10 percent are assumed for the options. The model's default values retained for analysis include:

- Site preparation and installation - 15 percent of total equipment costs,
- Logistics and procurement - 7 percent of installed equipment costs,
- Contingencies - 10 percent of installed equipment costs,
- Labor rate (manager) - \$16.00/hr,

- Adjustments for leave - 18 percent of total man hours,
- Adjustments for fringe benefits - 36.2 percent of adjusted base labor cost,
- Number of work days in a year - 260,
- Average maintenance - 5.75 percent of equipment costs,
- Transportation of hazardous waste - \$0.04/lb, and,
- Annual logistics and procurement - 1.6 percent of other O&M costs.

Some of the assumptions made in the economic analysis are:

- Disposal cost of antifreeze is \$6.50/gal.
- Labor hours for manager (bids, etc.) - 1 hr/1000 gal; and laborers (drumming and transport) - 1 hr/100 gal.
- Cost of "Glyclean" recycling system is \$2,368. Two "Glyclean" systems are required when waste generation rates exceed 10,000 gal/yr.
- The cost of a 55-gal drum of "Glyclean" additives is \$26.65/gal. About 0.03 gal of additive is needed per 1 gal of antifreeze recycled.
- It takes about 0.5 hr to recycle 100 gal of used antifreeze.
- The purchase price of new antifreeze is \$8.45 per gallon (on GSA schedule)
- Recycled antifreeze is equivalent to a 50 percent mixture of antifreeze and water.
- Utility costs associated with "Glyclean" machine operation is \$0.02/gal of waste.
- A 50 percent dilution with water is used for the first year of purchase; no dilution is required in subsequent years.
- Repair and maintenance cost is \$0.006/gal.
- The liability cost for both disposal and reuse is \$0.01/gal.
- The industrial waste treatment cost after discharge is \$3.10/1000 gal of wastewater.
- Escalation is 8 percent for disposal and 4 percent for others.

- Onsite transport cost from point of waste generation to recycling facility and back or to DRMO for disposal is \$2.00/100 gal.

Figure 6 shows the comparison among the total life cycle (10-yr) costs for the following management options: (1) offsite disposal; (2) onsite recycling and reuse with one "Glyclean" recycling systems; (3) discharge to the IWTP (status quo); and (4) onsite recovery and reuse with two "Glyclean" systems. Recycling antifreeze solution onsite results in a considerable savings over both disposal and discharge options at any generation rate.

Fort Carson generates 30,445 gal/yr of spent antifreeze solution. The NPV of the current management practice amounts to \$979,514 per 10 years (or \$97,951/yr). Purchasing two recycling systems would require an NPV investment of \$166,481. The resultant NPV savings would be \$742,930 (or \$74,293/yr). The SIR and DPP computed for this conversion are estimated at 4.46 and 2.57 years, respectively. The purchase of two "Glyclean" reconditioning systems and the implementation of an onsite recycling program for spent antifreeze is recommended.

Cleaning Solvent Waste

Cleaning solvents such as petroleum distillates (PD680-II), petroleum naptha, varsol, etc., are used in parts cleaning operations as discussed in Chapter 5. At Fort Carson, the most widely used practice is that of contract recycling. Safety Kleen (SK) is the contractor that leases parts cleaning equipment and replaces the solvent periodically. The estimated waste generation rate is 30,610 lb/yr (5940 gal/yr).

Management options chosen for economic analysis in this section are: (1) onsite distillation and reuse through the purchase of a 55-gal batch still; (2) contract recycling with low flash point solvent and leased parts-washing equipment (LE 105); (3) contract recycling with low flash point solvent and government owned parts-washing equipment (OE 105); and (4) contract recycling with high flash point solvent and leased equipment (LE 140). Investment costs required for distillation equipment and a startup volume of fresh solvent in option 1 are assumed to be incurred in the first year. A 10-yr economic life and a midyear discounting at a rate of 10 percent are assumed for all the options. The model's default values retained for this analysis include:

- Logistics and procurement - 7 percent of installed equipment costs,
- Contingencies - 10 percent of installed equipment costs,
- Labor rate (manager) - \$16.00/hr,
- Labor rate (laborer) - \$11.00/hr,
- Adjustments for leave - 18 percent of total man hours,
- Adjustments for fringe benefits - 36.2 percent of adjusted base labor cost,
- Number of work days in a year - 260,
- Average maintenance - 5.75 percent of equipment costs,

- Transportation of hazardous waste - \$0.04/lb, and
- Annual logistics and procurement - 1.6 percent of other O&M costs.

Some of the other major assumptions applied in the calculations are listed below.

- An annual escalation rate of 4 percent was applied to raw materials, replacement materials, maintenance and repair, other materials and supplies, utilities, sampling and testing, and liability.
- Escalation rates of 8 percent and 6 percent were used for disposal and contractual costs, respectively.
- The liability costs were assumed as follows: onsite distillation and reuse, \$0.03/gal; offsite disposal/sale, \$0.03/gal; and contract recycling, \$0.01/gal;
- Twenty percent of the solvents are assumed lost because of open lids (evaporation) and other poor operating practices such as carry-off and spillage.
- Volume of the still bottoms is assumed to be 10 percent of the total waste stream.
- Fresh solvent make-up is expected to be 30 percent of the waste volume to be purchased every year.
- Repair and maintenance costs are calculated to be 5.75 percent of the original cost of the equipment (in \$/year) and are based on 2080 hours of operation per year. If the equipment is used less, the costs are adjusted.
- Laboratory analytical costs are assumed to be a minimum of \$50.00/yr.
- Transporting and warehousing costs are based on the volume of wastes generated; about \$2.00/100 gal.
- The cost of electricity is \$0.05 per kWh.
- The cost of disposal of still bottoms (assumed hazardous) is \$4.00/gal.
- Cost of new solvents (SK - flash point 105 °F, boiling point 310-400 °F) is \$1.60/gal, and PD 680-II (NSN 6850-00-285-8011) is \$2.24/gal.
- Because the boiling point of solvent is above 325 - 350 °F (PD680-II - b.p. > 350 °F), a vacuum attachment must be used in the distillation process.
- Labor cost for loading and unloading the still will be less than 2.0/hr. According to manufacturers, the loading and unloading of a 55-gal still varies from 1/4 to 1/2 hr/batch.

- Utility costs are often provided by still manufacturers. Typical utility costs range from \$0.06 to \$0.12/gal of solvent distilled (\$0.10/gal was used for a 55-gal still).
- Labor associated with the transport of spent solvent to the distillation site is 1 hr/100 gal.
- Two different size (20- and 30-gal) parts washers are used in calculations for contract recycle options.
- A one-time installation charge associated with 30-gal capacity washers is \$30.00 per washer and is considered an investment cost.
- The still prices on GSA schedule (quoted by Finish Engineering, Table 55) were used in the analysis. Recyclene and Progressive Recovery, Inc., do not have GSA contracts. Shipping costs for equipment are not included in the price. The purchase price for a 55-gal still with vacuum attachment is \$24,609.
- Seventy percent of the initial purchase of raw materials is included in the investment cost. The remaining 30 percent is included in the annual O&M costs.
- Same generation (accounting for frequency of change) is assumed for owned equipment and disposal and contract recycling at 12.5 changes (services) per year.

Figure 7 shows the comparison of the NPV total life cycle (10-yr) costs for the different management options over a waste generation range between 5000 and 40,000 gal/yr.

SK is a private vendor of cleaning and degreasing solvent recycling services (on GSA schedule through June 1991) that currently maintains a contract with Fort Carson (option 2). With few exceptions, most of the vehicle maintenance facilities on Fort Carson have been equipped with parts-washing equipment leased from SK. The cleaning equipment varies in style and capacity from 5-gallon, multi-level units up to 40-gallon stationary tanks that require special installation. Each unit is serviced monthly by SK and replenished with clean, recycled solvent. The solvent supplied by the vendor is roughly equivalent to PD680-I in flash point and chemical composition. SK assumes the responsibility for spent solvent containerization, transport to the recycling facility, and disposal of solvent tank bottom. The spent solvent and tank bottoms are manifested as hazardous waste based on the flashpoint of the fresh solvent (105 °F). Although a nonhazardous solvent with a higher flashpoint (140 °F) is available from the vendor, it has not been requested by Fort Carson because of its prohibitive cost. The annual operating costs of the current contract with SK are estimated at \$71,000. Switching to a higher flashpoint solvent (option 4) would require an addition \$29,000/yr at the current contract volume. Option 4 is the most expensive management alternative examined in this analysis.

Onsite distillation (option 1) with a 55-gal still is the most economical option. An investment of \$60,162 results in NPV savings of \$330,971 (or \$33,097/yr) when compared to the status quo (option 2). The SIR and DPP are 5.50 and 2.73, respectively. Although onsite distillation is an economical option, switching to it would cause a number of logistics and other problems in procurement of new solvent, transport of solvent, full-time operation of a still, etc.

Contract offsite recycling (with leased equipment) is an effective waste minimization option. Its continuation with a higher flash point solvent (option 4) is therefore recommended.

Lead-Acid Batteries/Battery Acid

An estimated 6300 nonserviceable lead-acid vehicle batteries were generated on Fort Carson in FY 1988-1989. The acid from all nonserviceable batteries is drained and neutralized with sodium bicarbonate. At the time of this investigation, only one of the installation's three lead-acid battery shops was functioning as a neutralization point (DOL - Bldg 8000). Neutralization at the other two shops had been halted due to problems with inadequate ventilation and space (Bldg 8030) and with the neutralization sump drainage connect at Bldg 8142. The acid from batteries brought to Bldg 8142 is still drained, but into 55-gal plastic drums for transport to Bldg 8000 for neutralization. All empty battery casings are inverted, deliberately punctured, and strapped to wooden pallets for shipment to a contractor of the Department of Energy (DoE) in Idaho Falls, ID, for lead recovery.

An economic analysis was performed to compare the costs and benefits of four different management options for nonserviceable lead-acid batteries. Options formulated for comparison are: (1) draining batteries for casing transfer to DoE and disposal of acid as hazardous waste; (2) no draining by recycling the batteries with their acid through a local contractor (assuming no cracked batteries are generated); (3) recycling noncracked batteries with their acid through a local contractor and then draining and neutralizing the acid from cracked batteries (assuming 10 percent of the nonserviceable batteries are cracked); and (4) draining and neutralizing acid from all nonserviceable batteries and transfer of the dry casings to DoE (status quo).

Investment costs for neutralization in options 3 and 4 are assumed to be incurred in the first year. A 10-yr economic life and midyear discounting at a rate of 10 percent are assumed for the options. The model's default values retained for analysis include:

- Site preparation and installation - 15 percent of total equipment costs,
- Logistics and procurement - 7 percent of installed equipment costs,
- Contingencies - 10 percent of installed equipment costs,
- Labor rate (manager) - \$16.00/hr,
- Labor rate (laborer) - \$11.00/hr,
- Adjustments for leave - 18 percent of total man hours,
- Adjustments for fringe benefits - 36.2 percent of adjusted base labor cost,
- Number of work days in a year - 260,
- Average maintenance - 5.75 percent of equipment costs,
- Transportation of hazardous waste - \$0.04/lb,
- Annual logistics and procurement - 1.6 percent of other O&M costs.

Some of the other assumptions used in the calculations are:

- Weight of a typical battery without electrolyte is 50 lb.
- Volume of electrolyte per battery is 1.5 gal. (@ 9.99 lb/gal).
- Weight of electrolyte per battery is 15 lb (density - 10 lb/gal).
- Sale price of casings through DRMO is \$0.0214/lb as scrap.
- The cost of disposal of drummed electrolyte is \$6.00/gal.
- Cost escalation factors: disposal, 8 percent; liability, 4 percent; raw materials, 4 percent; other materials/supplies, 4 percent; sampling/testing, 4 percent; maintenance and repair, 4 percent; and IWTP costs, 4 percent.
- Transportation and storage cost is \$0.07/battery and \$0.04/gal of electrolyte.
- Transportation cost of sump sludge to DRMO is \$0.02/gal of treated electrolyte.
- Liability costs for disposal, \$0.013; transport, \$0.002/lb of casings, and draining, \$0.001; or precipitation, \$0.001/lb of electrolyte.
- Cost of sodium bicarbonate is \$0.13/gal of electrolyte neutralized;
- The quantity of neutralized sludge produced is 0.05 lb/lb of electrolyte.
- Neutralized sludge disposal cost (including labor) is \$0.05/lb.
- Wastewater treatment cost is \$3.10/1000 gal.
- Labor hours in bringing batteries to DRMO is 1 hr/150 units.
- Labor hours for bringing drummed electrolyte to DRMO is 0.5 hr/55 gal drum.
- The purchase price of a 55-gal plastic disposal drum is \$20.00.
- Battery salvage value is \$0.0214/lb.
- The labor hours for draining and drumming of electrolyte is 0.04 hr/gal.
- The labor hours for monthly neutralization sump maintenance (cleaning, drum, and transport to DRMO) is assumed to be 2 hr.
- Costs associated with neutralization sump and pH meter upkeep are \$10.00/1000 gal of electrolyte treated (\$0.01/gal).
- Labor hours required for neutralization is 0.02 hr/gal of electrolyte.

- Labor hours for manager (for bid preparation, etc.) is 1 hr/500 batteries.
- Batteries are sold to a recycler (American Battery Company, Colorado Springs, CO) at \$2.25/65 lb.
- No site preparation costs.
- Sampling and testing costs are \$0.05/gal.

Figure 8 shows a comparison of the total life cycle (10-yr) costs of options 1 through 4. Option 1 is always more expensive than options 2, 3, and 4 over the range of 1000 to 200,000 gal/yr. Wet recycling (option 2) results in net earnings rather than costs and is therefore the best option. Assuming that 10 percent of the batteries are cracked, disposal of spent electrolyte from them and the wet recycle of uncracked batteries (option 3) is less expensive than draining and neutralization (option 4). The actual number of cracked batteries may be a lot smaller than the assumed 10 percent and will lower the slope of the line corresponding to option 3 in Figure 7.

Fort Carson generates 9500 gal/yr of spent electrolyte. At this rate, switching to wet recycling will result in NPV savings of \$87,615 (or \$8615 per year) and additional revenue of \$26,740 in 10 years (or \$2674 per year). Assuming that 10 percent of the batteries get cracked, wet recycling of uncracked batteries and disposal of acid would result in a net savings of \$52,813 (or \$5281 per year). Disposal of all the acid as a hazardous waste can be done at an annual operating costs of \$64,691.

The onsite neutralization of battery acid with sodium bicarbonate on Fort Carson constitutes elementary treatment and is permissible under State and Federal regulations provided the discharged effluent is not laden with lead or other EP Toxic heavy metals. The only effluent parameter regularly tested has been pH. In June 1990, grab samples were collected from the neutralization sump in Bldg 8000 for heavy metal analysis. Should the sump samples test positive for EP Toxicity, a strong possibility exists that discharged effluent could also be toxic. In terms of regulatory compliance and future liability associated with environmental contamination, the continued practice of draining and neutralizing the acid from all the nonserviceable lead-acid batteries generated on Fort Carson is not sound. Private battery recyclers, as well as the contractor currently employed through the DoE, are willing to accept nonleaking batteries with their acid. From legal, waste minimization, and economic perspectives, wet recycling through a local contractor is the best management option for nonserviceable lead-acid vehicle batteries generated on Fort Carson, and is strongly recommended.

Spent 1,1,1-Trichloroethane/Degreaser Tank Bottoms

A 250-gal capacity, vapor spray degreaser that uses 1,1,1-trichloroethane is regularly used at Bldg 8000 (DOL - Maintenance Operations Branch - Consolidated Maintenance Building) for the rapid degreasing of large vehicle assemblies and related components. The degreaser is set into the floor of the maintenance bay and is as old as the building (1973). Because of its age, the degreaser is exempt from current air pollution emission standards enforced by the State for this type of equipment. Because of its older design, with hinged, gull-winged door covers and low freeboard height, and from impatient operating practices involving rapid equipment drag out, a large quantity of solvent is lost to drippage outside the confines of the tank and to evaporation during its operation. Hazardous waste streams generated from its operation include spent 1,1,1-trichloroethane and degreaser tank bottoms; which contain solvent residues, grease and dirt, and trash (torn gaskets and other small items loosened

from parts during cleaning). Fifty-five gallons of fresh solvent is added to the tank's sump weekly to replenish losses to evaporation and carry-off. The degreaser is shut down approximately four times each year for cleaning and maintenance. During each cleaning, the sump is completely drained and refilled with 250 gallons of fresh solvent. Approximately 5280 pounds of degreaser tank bottoms and fallen debris are removed from the degreaser annually. An economic analysis was performed to determine the practicality of retrofitting the existing degreaser with new equipment to improve its operating efficiency and to achieve a reduction in generated wastes. Technologies considered in this analysis include: online and batch-type solvent distillation equipment; a motorized, biparting, horizontal power cover; and increasing the freeboard height. The substitution of different cleaning agents for 1,1,1-trichloroethane or replacing the process altogether with high pressure jet washers were not considered practical options given the variability in size and desired cleaning precision of equipment used in the degreaser, the frequency of its use, and the increased drying times associated with aqueous or caustic based cleaners.

Investment costs for the equipment modifications are assumed to be all incurred in the first year. A 10-yr economic life and midyear discounting at a rate of 10 percent are assumed for the options. The model's default values retained for analysis include:

- Site preparation and installation - 15 percent of total equipment costs,
- Logistics and procurement - 7 percent of installed equipment costs,
- Contingencies - 10 percent of installed equipment costs,
- Labor rate (manager) - \$16.00/hr,
- Labor rate (laborer) - \$11.00/hr,
- Adjustments for leave - 18 percent of total man hours,
- Adjustments for fringe benefits - 36.2 percent of adjusted base labor cost,
- Number of work days in a year - 260,
- Average maintenance - 5.75 percent of equipment costs,
- Transportation of hazardous waste - \$0.04/lb,
- Annual logistics and procurement - 1.6 percent of other O&M costs.

Some of the other assumptions made in this economic analysis are given below.

- An escalation rate of 4 percent was applied to the recurring costs of raw replacement materials, replacement materials, liability, utilities, other materials and supplies, maintenance and repair, and sampling and testing.
- An escalation rate of 8 percent was assumed for offsite disposal costs.

- Liability costs were assumed as follows: onsite distillation and reuse - \$0.03/gal, vapor degreaser operation - \$0.01/gal, and offsite disposal - \$0.08/gal.
- During the batch recycling process, it was assumed that 20 percent of the waste stream was lost with each distillation cycle. Ten percent of the waste was assumed to have evaporated and 10 percent was lost to still bottom residue.
- With the closed-loop (continuous) recycling process (in-line, continuous flow distillation unit) 10 percent of the waste stream was assumed lost to still bottoms, with no evaporative loss.
- Evaporative loss from operating the vapor degreaser as it is presently equipped was assumed to be 55 gal/week. Thirty seven percent less evaporative loss was estimated to result from the implementation of a motorized power cover and a 15 in. increase in freeboard height.
- During 1 year, 660 gal of degreaser tank sludge were generated and required disposal as a hazardous waste.
- Repair and maintenance costs for major equipment were based on use rates and 5.75 percent of the original purchase prices. If equipment was used less than 2080 hr/yr, costs were adjusted.
- Fifty-gal drums needed for disposal of vapor degreaser tank bottoms, distillation residue, and spent solvent were estimated to cost \$20.00 per drum.
- Disposal costs for solvent tank bottoms, and distillation residue are \$3.00/gal.
- The purchase cost for fresh solvent is \$6.75/gal.
- Transportation costs for solvent still residue, and tank sludge from point of generation to DRMO for disposal are \$2.00/gal.
- Costs of cooling water and electricity were assumed to be \$0.70/1000 gal and \$0.05 per kWh, respectively. Annual utility costs for vapor degreaser operation (which requires steam, cooling water, and electricity) were approximately \$2288/yr. Utility costs for batch and online distillation units are \$0.10/gal of recycled 1,1,1-trichloroethane.
- Sampling and testing costs are \$50/yr.
- Labor costs associated with the vapor degreaser cleaning, maintenance, and solvent replenishment (status quo) were estimated from a requirement of 109 hr/yr. This estimate was held constant for options using batch distillation units. A 37 percent reduction in replenishment time and a 50 percent reduction in cleaning and replacement time were predicted with the implementation of an on-line distillation unit and a motorized power cover with increased freeboard height.
- Labor hours associated with the transport of spent solvent tank bottoms and distillation residue were held constant for all options at 1 hr/100 gal.

- Labor hours associated with the operation of batch distillation units (loading and unloading) were based on manufacturer estimates of 3/4 hr/batch for a 15-gal still and 1-1/2-hr/batch for a 55-gal still. Similar labor costs were not associated with the in-line unit.
- Managerial labor costs were assumed to accrue in a supervisory capacity at a rate of 1 hr for every 24 laborer hours.
- Major equipment costs used in this analysis were as follows: 15-gal batch still - \$10,128, 55-gal batch still - \$24,609, 40 gal/hr in-line distillation unit (Detrex Model FC-15-SW) - \$15,500 (including installation), and motorized bi-parting power cover (from Detrex) with a 15 in. increase in freeboard height - \$20,000 (including installation).
- Startup expenses for all options included initial purchase of 80 percent of the 1,1,1-trichloroethane normally used.

With the above assumptions, life cycle (10-yr) costs were calculated for: (1) offsite disposal and purchase of fresh solvent (status quo), (2) onsite distillation with a 15-gal still, (3) onsite distillation with a 55-gal still, and (4) onsite, in-line distillation with a 40 gal/hr distillation unit with the addition of 15 in. to the freeboard height and a motorized, bi-parting power cover.

Table 56 shows the detailed comparison of all the options at the current waste generation and material usage rates. The NPV O&M costs for the current practice is \$295,122 (\$29,512 per year). Investing \$44,767 in the equipment modifications will result in an annual savings of \$13,956. The SIR and DPP are 3.12 and 4.22, respectively. Therefore, such an investment is recommended for Fort Carson. The investment will lead to both waste minimization and economic payoff (i.e., payback in 4.22 years).

Paint Thinner Waste

Paint thinner waste is generated from the cleaning of painting equipment as discussed in Chapter 7. Onsite distillation (with a 5-gal batch still) and contract recycling were the two options examined and compared with the current practice of purchasing fresh thinner and offsite disposal (1004 gal/yr).

Investment costs for onsite distillation are assumed to be all incurred in the first year. A 10-yr economic life and mid-year discounting at a rate of 10 percent were assumed for all the options. The model's default values retained for analysis include:

- Site preparation and installation - 15 percent of total equipment costs,
- Logistics and procurement - 7 percent of installed equipment costs,
- Contingencies - 10 percent of installed equipment costs,
- Labor rate (manager) - \$16.00/hr,
- Labor rate (laborer) - \$11.00/hr,
- Adjustments for leave - 18 percent of total man hours,

- Adjustments for fringe benefits - 36.2 percent of adjusted base labor cost,
- Number of work days in a year - 260,
- Average maintenance - 5.75 percent of equipment costs,
- Transportation of hazardous waste - \$0.04/lb,
- Annual logistics and procurement - 1.6 percent of other O&M costs.

Some of the other assumptions made in this economic analysis are given below.

- An escalation of 4 percent was applied to raw materials and replacement materials, maintenance and repair, other materials and supplies, liability, sampling and testing, and utilities.
- An escalation rate of 8 percent was assumed for offsite disposal costs, and 6 percent for contract recycling costs.
- Liability costs were assumed as follows: onsite distillation and reuse, \$0.03/gal; offsite disposal, \$0.08/gal; and contract recycle, \$0.01/gal.
- In the recycling process, it is assumed that 20 percent of the material is replaced with new material in each cycle. Ten percent of the material is assumed to evaporate and 10 percent is disposed of with residue. Residue and thinner make up 20 percent of the original volume for disposal purposes.
- Repair and maintenance is an annual cost that is 5.75 percent of the original cost of the equipment and is based on a continual use of 2080 hr/yr. If the equipment is not used for the total time, the costs are adjusted accordingly.
- Laboratory analytical costs are estimated to be a certain percentage of labor costs. However, the minimum laboratory cost per sample may be substantially higher than the computed value for wastes generated in small volumes. A minimum of \$50.00 is assumed.
- Transportation and warehousing costs depend on the volume of waste handled and the distance between points of waste generation and distillation based on cost of \$0.50/mi.
- Costs of cooling water and electricity are assumed to be \$0.70/1000 gal and \$0.05/kWh, respectively.
- Disposal cost of thinner waste is \$3.00/gal (1989 price - DRMO).
- Distillation stills are available with and without vacuum attachments. If the boiling point of the solvent is below 300 or 350 °F, a still without vacuum attachment is considered. For recovery of solvents with boiling points between 300 and 500 °F, a vacuum attachment is necessary.

- Most of the dope, lacquer thinners (NSN 8010-00-160-5787) have a boiling point of less than 300 °F. Therefore, vacuum attachments are not required.
- GSA price for 5-gal size paint thinner is \$3.65/gal. If available in a 55-gal drum, the price could be even lower. For purpose of this analysis a price \$3.65/gal is assumed.
- Labor costs for loading and unloading of the still, especially for batch 5-gal or 15-gal sizes, will be less than 2 hr (default value in the model). The labor requirement for operating 5-gal and 15-gal stills are 1/2 and 3/4 hr/batch, respectively.
- Utility costs (electricity and water) for still operation can be determined from the power input to the still and the rate of cooling water used. Currently, it is estimated that the cost of power per gallon of solvent distilled is \$0.10.
- Equipment manufacturers such as Finish Engineering, Recyclene, and Progressive Recovery, Inc., were contacted for the price of distillation equipment. The price of one manufacturer was competitive with the price of similar equipment of another manufacturer (Table 55). Since Finish Engineering currently has a GSA contract, the corresponding GSA prices (5-gal, \$2770; 15-gal, \$10,128) for stills with no vacuum attachment were used.
- Eighty percent of the cost of initial purchase of raw materials is included with the initial cost of equipment. The remaining 20 percent was included as an annual operations and maintenance cost.
- Cost of leasing equipment and supply/recycle of thinner obtained from SK is \$75 per batch. The volume of each batch is 7.5 gal. Liability costs associated with the contract, transportation, and ultimate disposal in this arrangement is assumed to be \$0.01/gal.

With the above assumptions, life cycle costs were calculated for: (1) offsite disposal and purchase of fresh thinner (status quo or current practice), (2) contract closed-loop recycling or disposal, (3) onsite distillation with a 5-gal still, and (4) onsite distillation with a 15-gal still. Net present value of total 10-yr costs were calculated for the above options for a number of annual generation rates ranging from 100 to 2000 gal/yr. Figure 9 shows the comparison between the NPVs for all the options.

There are no investment costs associated with options 1 and 2. A 5-gal still (option 3) is cost effective beyond 150 gal/yr when compared to offsite disposal. It is more cost effective than contract recycling (option 2) from volumes as low as 50 gal/yr. Option 2 is, therefore, the most expensive option for generation rates beyond 50 gal/yr.

Fort Carson generates about 1004 gallons per year of paint thinner waste which is disposed of through DRMO. The NPV operating costs for the current practice are \$114,933 (\$11,493/yr). Investing \$18,568 for a 15-gal still will result in an annual savings of \$7260. The SIR and DPP are 3.91 and 3.53, respectively. The purchase of a 15-gal still is therefore recommended. In addition to minimizing wastes, a payback can be expected in less than 4 years.

Table 53

**SIRs and DPPs From a Comparison of the
Costs of Gravity Drain With FLOCS**

| Number of Vehicles | SIR | DPP |
|---------------------------|------------|------------|
| 100 | 0.38 | > 10 |
| 250 | 0.39 | > 10 |
| 500 | 0.39 | > 10 |
| 1000 | 0.39 | > 10 |
| 5000 | 0.39 | > 10 |

Table 54

**SIRs and DPPs From a Comparison of the
Costs of Gravity Drain With FLOCS
for 1000 Vehicles**

| Number of Oil Changes | SIR | DPP |
|------------------------------|------------|------------|
| 2 | 0.39 | > 10 |
| 4 | 0.79 | > 10 |
| 5 | 0.98 | > 10 |
| 6 | 1.17 | 9.99 |

Table 55
Purchase Cost (1989) of Distillation Stills

| Manufacturer | Model | Capacity (gal) | Price (\$) | |
|----------------------------|----------|-------------------|-------------------------|----------------------|
| | | | no vacuum attachment | vacuum attachment |
| Finish Engineering | LS-Jr | 5 | \$ 2770 | \$ 4338 |
| | LS-15IID | 15 | \$ 10,128 | \$ 13,361 |
| | LS-55IID | 55 | \$ 20,123 | \$ 24,609 |
| Recyclene | R-2 | 5 | \$ 2995 | |
| | RS-20 | 20-25 | \$ 11,900 | |
| Progressive Recovery, Inc. | SC-25 | 15 | \$ 7290 | \$ 12,865 |
| | SC-50 | 35 | \$ 11,300 | \$ 16,895 |

Table 56
Comparison of Minimization Options for 1,1,1-Trichloroethane Wastes

| Option Name | Inv. Costs. (\$) | O&M Costs | Total | SIR | DPP |
|---|------------------|------------------|---------|------|------|
| Offsite disposal (current practice) | 0 | 295,122 (29,512) | 295,122 | - | - |
| 15-gal Batch Still | \$16,453 | 220,631 (22,063) | 237,084 | 4.53 | 3.51 |
| 55-gal Batch Still | \$32,613 | 218,170 (21,817) | 250,783 | 2.36 | 5.99 |
| 40 gal/h In-line Still with power cover and 15 in. freeboard increase | \$44,767 | 155,565 (15,557) | 200,332 | 3.12 | 4.22 |

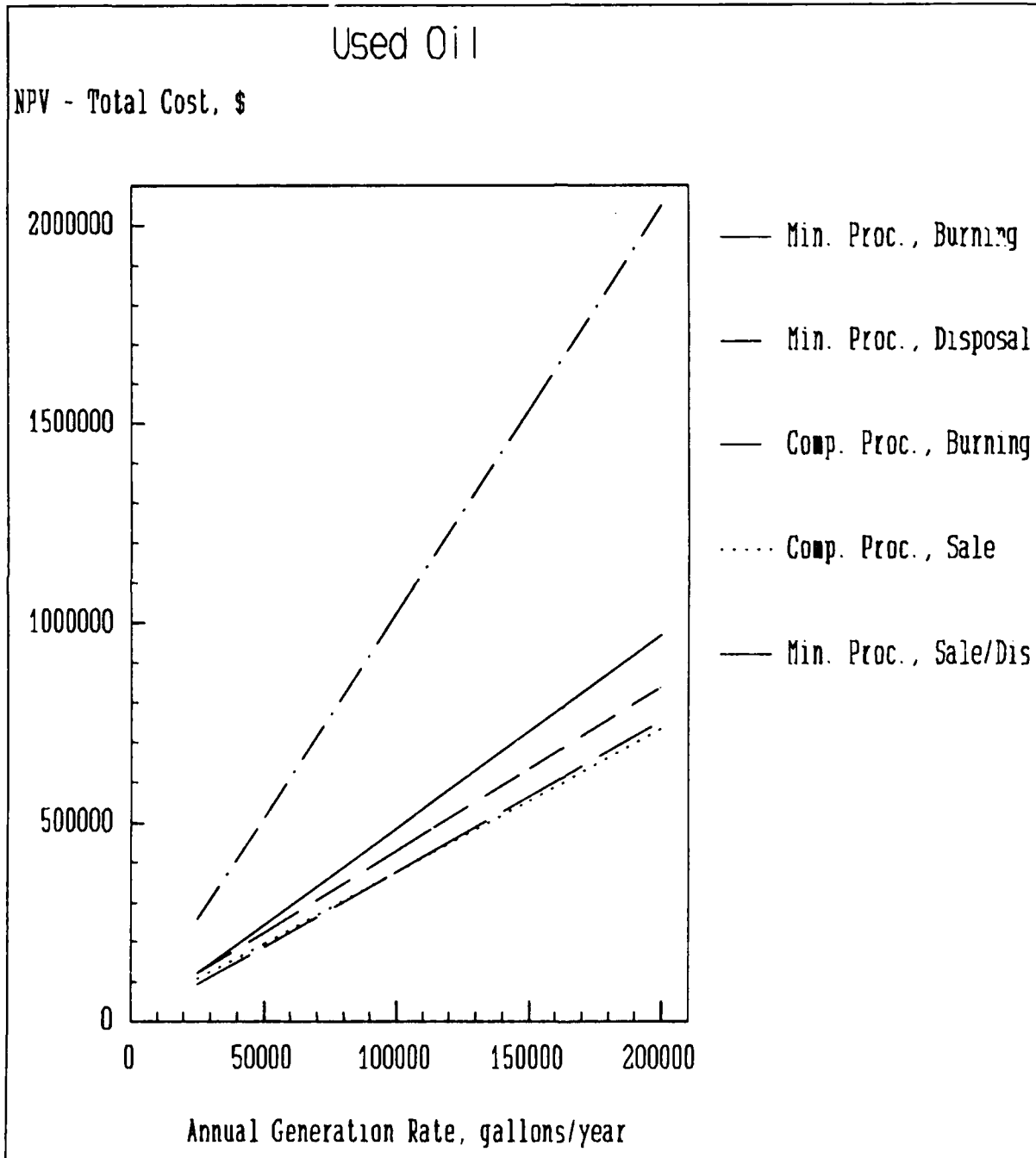


Figure 5. Comparison of the NPVs of the total 10-yr costs of implementing options for the minimization of used oil. Minimal processing and then burning defines the status quo.

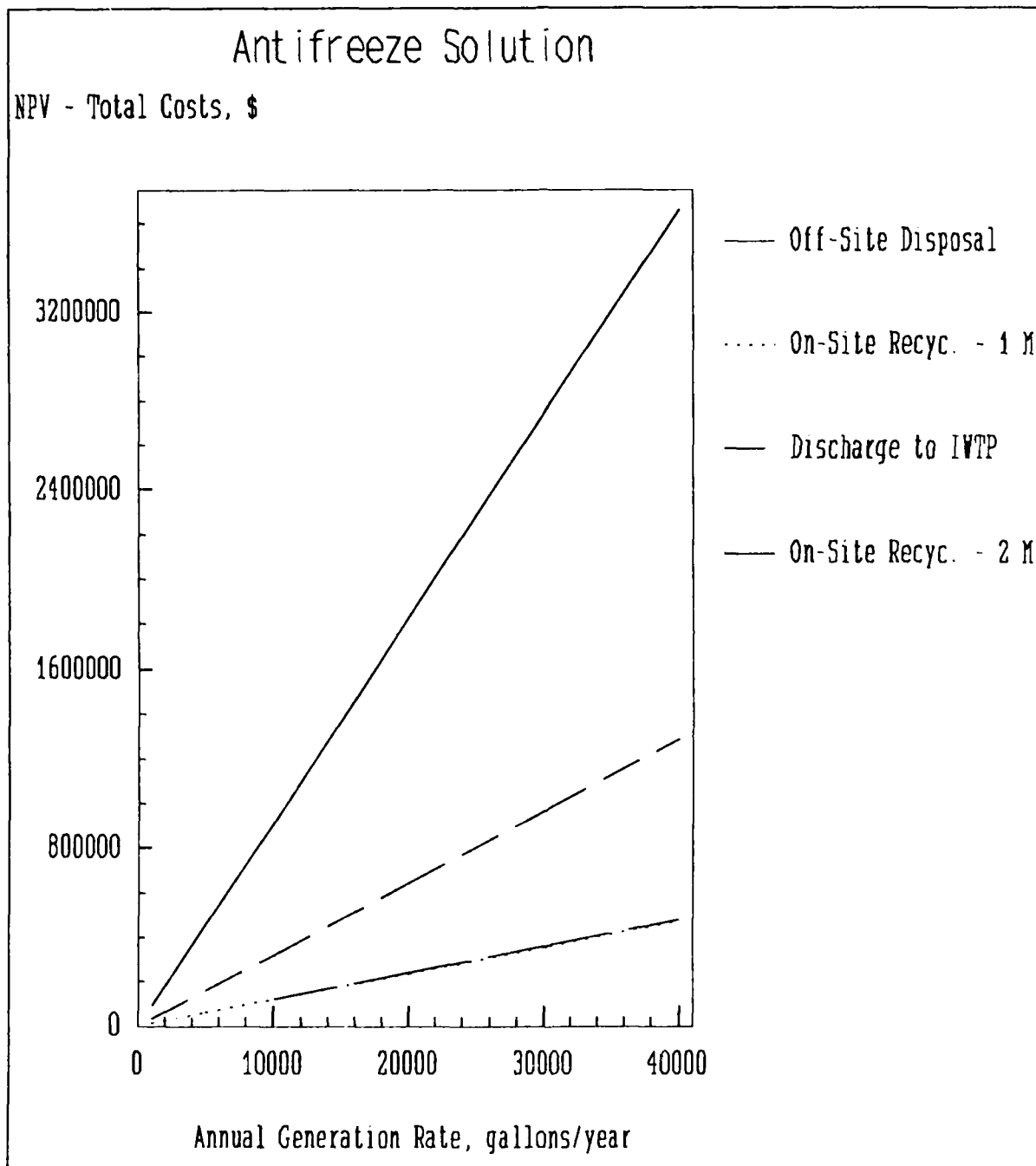


Figure 6. Comparison of the NPVs of the total 10-yr costs for implementing options for the minimization of spent antifreeze. Discharge to the IWTP defines the status quo.

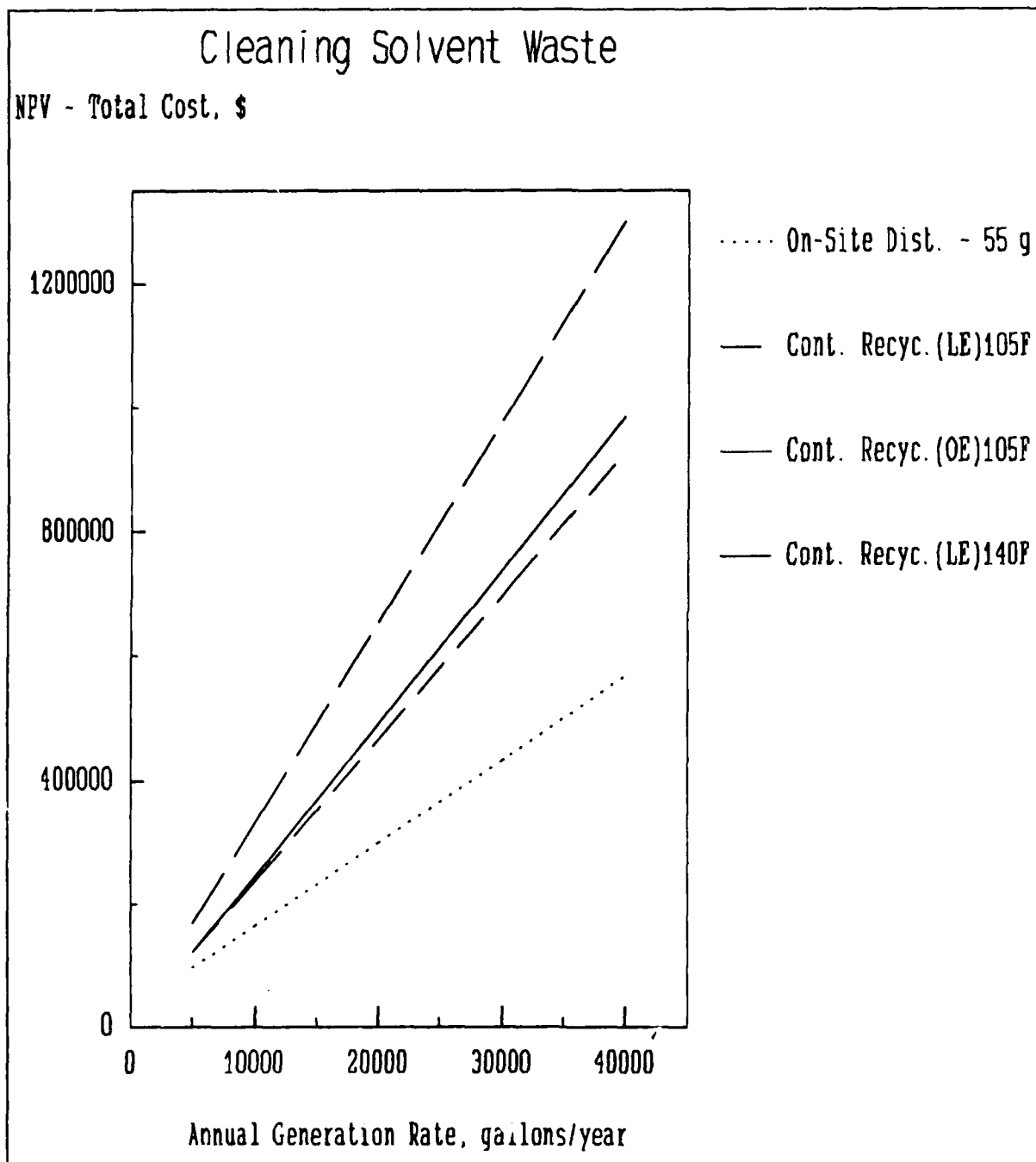


Figure 7. Comparison of the NPVs of the total 10-yr costs for implementing options for the minimization of cleaning solvent waste. Contract recycle (LE 105 F) defines the status quo.

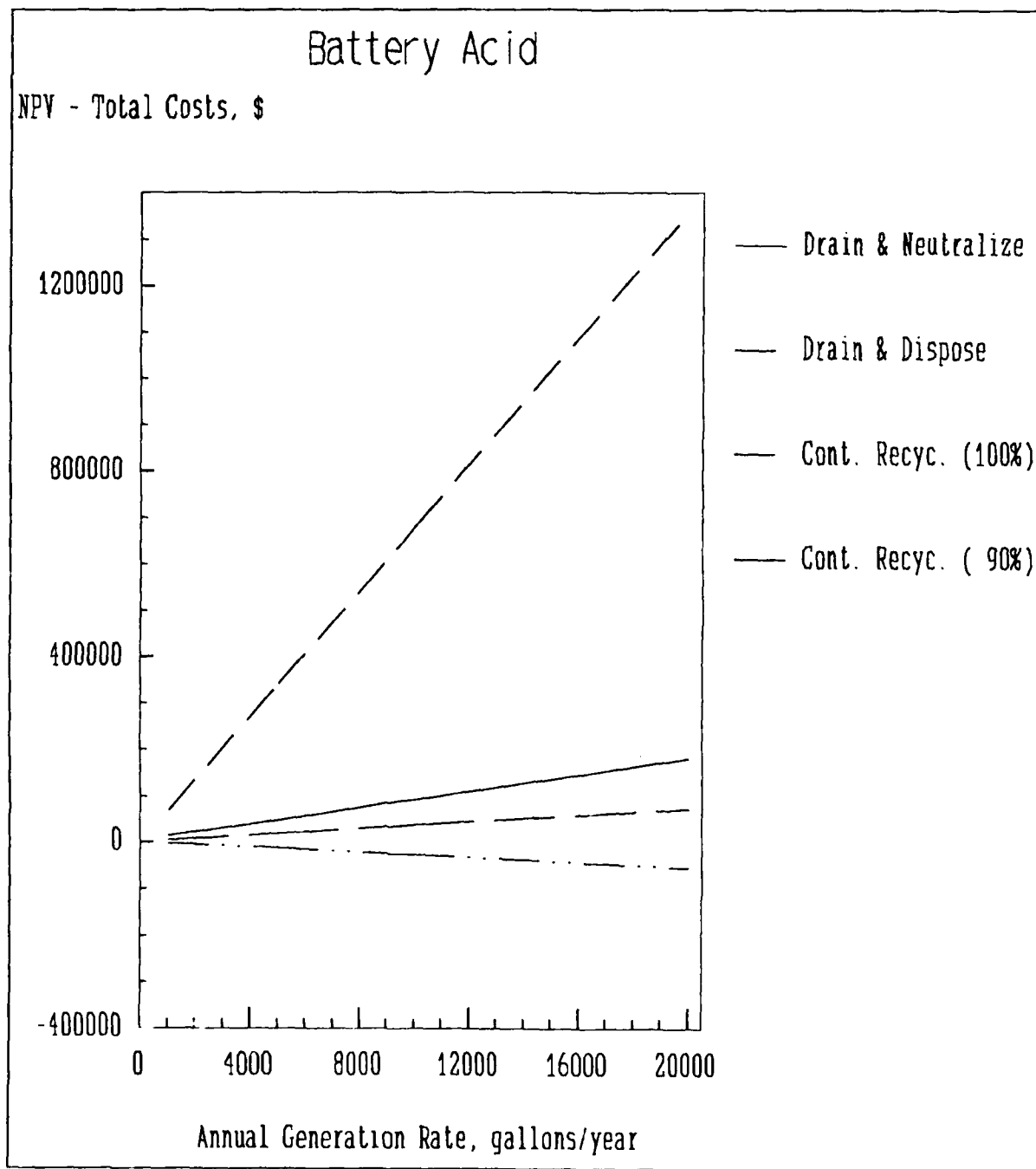


Figure 8. Comparison of the NPVs of the total 10-yr costs for implementing options for the minimization of spent battery acid. Draining and neutralization define the status quo.

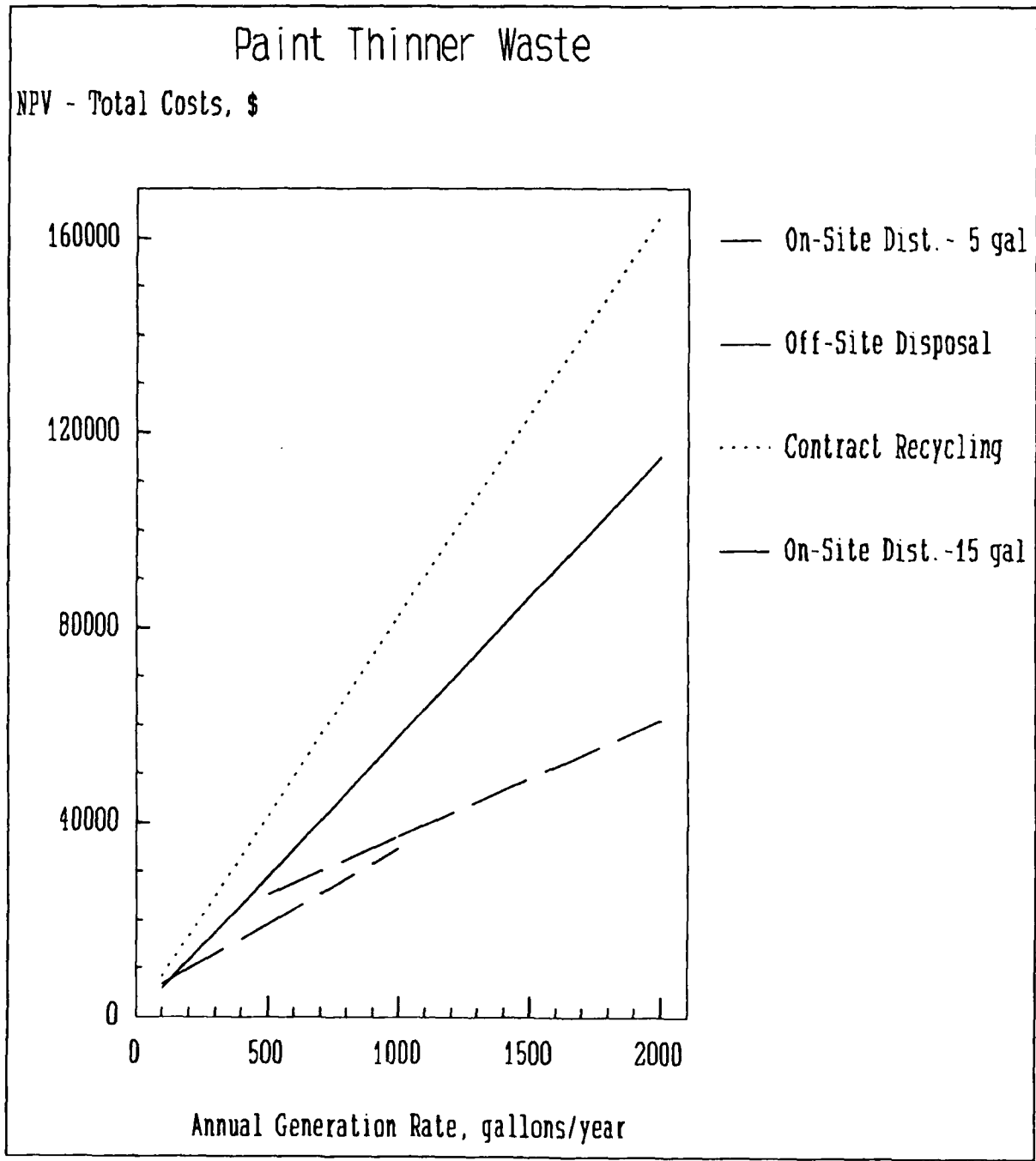


Figure 9. Comparison of the NPVs of the total 10-yr costs for implementing options for the minimization of paint thinner waste. Offsite disposal defines the status quo.

13 SUMMARY AND RECOMMENDATIONS

Summary

All Army installations that are generators or small quantity generators (according to RCRA definitions) are required to implement programs to reduce hazardous waste generation. Waste minimization is a method of preventing pollution with the primary focus on reducing waste generation. A number of benefits are accrued by implementing a waste minimization program. The benefits can be classified into the following four categories: economic, regulatory compliance, reduced liability, and positive public image/community relations.

Minimization of a particular waste can best be achieved by an appropriate combination of source reduction, recycling onsite/offsite, and treatment techniques. Source reduction is on the top of USEPA's hierarchy of waste management priorities. It is followed by recycling, waste separation and concentration, waste exchange, energy/material recovery, waste incineration/treatment, and, finally, ultimate disposal. A number of waste minimization techniques have been discussed in this report pertaining to wastes generated from: motor pools/vehicle maintenance facilities; aviation maintenance facilities; industrial maintenance, small arms shops; paint shops; printing, photography, arts/crafts shops; hospitals, clinics, and laboratories; and other miscellaneous sources on an Army installation.

Fort Carson is a troop installation with few tenants. It is regulated by the USEPA and the State of Colorado as a generator of hazardous waste and owner of treatment, storage, and disposal facilities.

A good HW management program has been established. A HW inventory was developed according to AR 420-47, however it is not comprehensive and should be updated.

The HW management plan is not up-to-date.

Used oil is the largest quantity waste generated at the rate of 797,399 lb/yr. Used solvents and other HW are occasionally mixed with used oil at many of the individual activities, creating large quantities of "hazardous" waste oil. Mixing of water from floor washing with oil in underground storage tanks results in a liquid with very little recycle value. Following minimal processing (oil/water separation), the used oil is currently blended with natural gas and burned in one of the boilers in Bldg 1860.

Spent lead-acid battery acid is generated at the rate of 93,744 lb/yr and neutralized with sodium bicarbonate in Bldg 8000. The neutralized acid is released into the sanitary sewer system; drained batteries are strapped to wooden pallets and turned in to DRMO for recycling. The acid is likely to be EP toxic for lead. Therefore, the practice of neutralization and draining into the sewer may be illegal.

A closed-loop (Safety Kleen [SK]) contract has been established for recycling parts cleaning solvent used (235,309 lb/yr) by all the vehicle maintenance facilities. However, a hazardous (ignitable) solvent (flash point 105 °F) is being used. It should be replaced with a nonhazardous solvent (flash point \geq 140 °F).

Some of the other wastes generated are: battery casings (535,534 lb/yr), other corrosives (280,229 lb/yr), spent antifreeze solution (267,917 lb/yr), contaminated fuels (77,630 lb/yr), paint related material (38,957 lb/yr), decontaminating agents (18,626 lb/yr), spent halogenated solvents (11,362 lb/yr),

photographic/printing chemicals (6587 lb/yr), used alcohols (5646 lb/yr), other nonhalogenated solvents (1762 lb/yr), pharmaceutical wastes (90 lb/yr), and miscellaneous wastes (862,655/yr).

An estimated total of 1646 tons/yr of wastes are generated. This estimate does not include PCB transformers. Half of it consists of lead-acid battery casings, medical infectious wastes, and boiler blowdown. Only 448 tons/yr of "potentially" hazardous wastes are generated.

The wastes selected for technical economic analysis are used oils, spent antifreeze solution, spent cleaning solvent, battery acid, 1,1,1-trichloroethane and its sludge, and paint thinner. The options examined include current practices (offsite disposal, burning, etc.), onsite recycling (distillation, filtration, etc.), contract recycling, segregation/processing, and process equipment modification. Most of the other wastes (e.g., contaminated fuels) can be minimized by implementing simple source reduction techniques ("better operating practices").

Recommendations

A training program was established in 1988 by the EENR office to train personnel from each of the individual units. It concentrates on POL management and should be updated to include proper HW management (including packaging, labeling, storing, transport, etc.) and minimization.

The training program for handling hazardous material and management of hazardous wastes must be improved to ensure compliance with 40 CFR 264.16 and enhance minimization.

The waste analysis plan to characterize and define all (air, water, liquid, and solid) wastes from all the generators should be revised to include frequency of analysis, etc., to ensure compliance with Federal and State of Colorado laws.

The EENR Office personnel must conduct monthly inspections, minimization audits, and periodic training classes in recognition/handling/storage of hazardous materials and wastes. A comprehensive survey of waste generation and management helps in the development of inventories of quantities of hazardous materials used and wastes generated. These inventories must be updated periodically to reflect changes and disbanding of certain activities.

A HM and HW tracking (manifest) system should be implemented. Tracking HM from the supply warehouse to generators and HW from the generators to final storage before disposal, will provide a mass balance and improve minimization opportunities.

All generators must develop an inventory system and maintain proper records of materials procured and wastes generated from each of the activities. These records must be inspected regularly by the supervisors and EENR office personnel.

The hazardous waste management plan must be updated.

Implementation of the HAZMIN plan (Appendix A) must begin immediately; the plan should be updated annually.

Plan Implementation

Careful planning and a systematic approach are required to implement a successful waste minimization program. Three key elements (policy, commitment, and responsibility) are necessary for a strong program foundation.

The Commander must prepare a formal, written policy on waste minimization and pollution control, including its philosophy, objectives, and proper practices. Such a policy must be publicized in the installation newsletters and distributed to all military and civilian employees.

The installation command hierarchy and the commanders of tenant activities must adopt and support the policy statement. They should also willingly commit resources necessary to launch and support the waste minimization program.

A leader (such as the Chief, EECO) should be appointed to oversee, direct, and assume all responsibility for the program. Supervisors and other employees of waste generating activities must be committed to the program for it to be effective. To encourage such a commitment, the Commanders and supervisors must implement motivational techniques. They must set goals for achieving waste/emissions reduction and provide incentives and awards for implementation of waste minimization ideas.

All waste generators must immediately implement HAZMIN options that require little or no capital investment (e.g., procedural or administrative changes) as discussed in Chapters 5 through 11. These options are generally characterized as "better operating practices," a subcategory of source reduction that does not require detailed technical and economic evaluation. Better operating practices are methods that achieve source reduction by:¹⁷⁵ (1) segregation (e.g., eliminate mixing of hazardous and nonhazardous wastes to improve their recyclability); (2) improved material handling and inventory practices (e.g., avoid accumulation of expired shelf-life materials, avoid spills, etc.); (3) preventive maintenance (e.g., prevent leaks and spills); (4) production scheduling (e.g., minimize quantities of unused raw materials and batch-generated wastes); and (5) minor operational changes. Implementation of "better operating practices" usually requires only minimal employee training and changes to standing operating procedures/practices (SOPs).

The feasible options, discussed in Chapter 12, for minimization of used oil, antifreeze solution, cleaning solvent waste, batteries/battery acid, spent 1,1,1-trichloroethane and its sludge, and paint thinner waste must be funded and implemented. The practice of burning used oil must be modified to include a preprocessing step using a vacuum dehydrator and degasifier (investment cost - \$17,855). Implementation of proper segregation practices, and periodic testing with test kits and by laboratory analyses must be implemented. An annual savings of \$8520 can be expected.

Contract recycling of cleaning solvent through SK must be continued. However, a modification of the contract to require supply of a higher flash point solvent is recommended. The additional annual cost is estimated to be \$28,664.

A large quantity of antifreeze solution is drained into the sanitary sewer system at Fort Carson. Spent antifreeze can be recycled as discussed in Chapter 5. An investment of \$166,481 is required to

¹⁷⁵ National Association of Manufacturers, *Waste Minimization: Manufacturers' Strategies for Success* (ENSR Consulting and Engineering, 1989).

purchase two Glyclean recycling machines. With an annual savings of \$74,293 when compared to wastewater treatment and discharge losses, a payback period of 2.57 years is expected.

Wet recycling of lead-acid batteries is recommended in place of the current practice of draining and neutralizing spent electrolyte. A savings of \$8762/yr and an additional revenue of \$2674 can be expected when sold to a battery recycler.

For paint thinner waste, it is recommended that a small, 15-gal batch still be purchased at a total investment cost of \$15,783. The annual operating cost is \$2116 and payback can be expected in 5.41 years.

Equipment modifications to include an on-line distillation unit, motorized power cover, and increase in freeboard height, are required to reduce the wastes and emissions generated from the vapor degreaser located in Bldg 8000. A total investment cost of \$44,767 and an annual operating cost \$15,557 is anticipated. These modifications will result in an annual savings of \$12,437, with payback in 4.22 years.

Generation of all other wastes can be reduced by more than 30 percent by managerial changes, training, and implementation of "better operating practices" and other appropriate minimization techniques as discussed in Chapters 5 through 11.

The Fort Carson Hazardous Waste Management Board, chaired by the Installation Commander, must adopt the HAZMIN plan and establish policies and procedures required for its implementation. The expected implementation date is 31 September 1990.

After implementing HAZMIN techniques at the generating activities, progress must be monitored and results recorded. The quantities of wastes generated before and after implementation of the techniques must be monitored and the achievements in waste minimization (e.g., percent minimized) documented. Waste minimization of 37 percent and "hazardous" waste minimization of 54 percent (see Appendix A, and Table A3) are to be expected upon proper implementation.

A waste minimization program never ends. Preventing waste generation and thereby reducing the pollution of air, land, and water, must be a continuous quest. The goal of such a program must be to reduce wastes to the maximum extent possible. All waste generating processes must be continuously assessed and reassessed to account for changes in economic status (e.g., increase in disposal costs), changes in design of production processes, maintenance procedures, and/or technical/technological breakthroughs.

METRIC CONVERSION TABLE

| | | |
|-------|---|---------------|
| 1 Btu | = | 0.293 W |
| 1 gal | = | 3.785 L |
| 1 in. | = | 25.4 mm |
| 1 mi | = | 1.6 km |
| 1 lb | = | 0.37 kg |
| 1 psi | = | 6.89 kPa |
| 1 ton | = | 0.9 MT |
| °C | = | 5 (°F - 32)/9 |

CITED REFERENCES

- 40 CFR 261, *Identification and Listing of Hazardous Waste* (1985).
- 40 CFR 262, *Standards Applicable to Generators of Hazardous Waste* (1985).
- 40 CFR 280-281, *Underground Storage Tanks: Technical Requirements and State Program Approval; Final Rule*, pp 37081 - 37247.
- Acurex Corporation, *Navy Paint Booth Conversion Feasibility Study*, CR 89.004 (Prepared for the Naval Civil Engineering Laboratory [NCEL], Port Hueneme, CA, 1989).
- Alternative Technology for Recycling and Treatment of Hazardous Wastes*, Third Biennial Report (California Department of Health Services, Alternative Technology and Policy Development Section, 1986).
- Anderson, C.W., *Cost-Effectiveness Analysis of Lubricant Reclamation by the Navy*, Technical Note 1481 (NCEL, Port Hueneme, CA, 1977).
- Army Regulation (AR) 40-5, *Preventive Medicine* (Headquarters, Department of the Army [HQDA], 30 August 1986).
- AR 200-1, *Environmental Protection and Enhancement* (HQDA, 15 June 1982).
- ASTM Standard D 2847-85, "Standard Practice for Testing Engine Coolants in Car and Light Truck Service," *Annual Book of American Society of Testing and Materials Standards*, Vol 15.05 (American Society of Testing and Materials [ASTM], Philadelphia, PA, 1988).
- ASTM Standard D 3640-80, "Standard Guidelines for Emission Control in Solvent Metal-Cleaning Systems," *Annual Book of American Society of Testing and Materials Standards*, Vol 15.05 (ASTM, 1988).
- Beller, J.M., et al., *Biodegradable Solvent Substitution - A Quick Look Report* (U.S. Air Force Logistics Commands, Tyndall Air Force Base, FL, 1988).
- Brinkman, D.W., W.F. Marshall, and M.L. Whisman, *Waste Minimization through Enhanced Waste Oil Management*, NIPER B06803-1 (National Institute for Petroleum and Energy Research, 1987).
- Brinkman, D.W., M.L. Whisman, and C.J. Thompson, *Management of Used Lubricating Oil at Department of Defense Installations: A Guide*, NIPER B06711-1 (National Institute for Petroleum and Energy Research, 1986).
- Campbell, M.E. and W.M. Glenn, *Profit from Pollution Prevention - A Guide to Industrial Waste Reduction and Recycling* (The Pollution Probe Foundation, Toronto, Canada, 1982).
- Chicoine, L.C., G.L. Gerdes, and B.A. Donahue, *Reuse of Waste Oil at Army Installations*, Technical Report N-135/ADA123097 (U.S. Army Construction Engineering Research Laboratory [USACERL], September 1982).
- Ciccione, V.J. and Associates, Inc., *Program Status Report: Department of the Army Hazardous Waste Minimization* (U.S. Army Environmental Office, August 1988).
- Conley, J.H. and R.G. Jamison, "Additive Package for Used Antifreeze," in *Engine Coolant Testing: Second Symposium*, R.E. Beal, Ed., ASTM STP 887 (ASTM, Philadelphia, PA, 1986).
- Conley, J.H. and R.G. Jamison, *Reclaiming Used Antifreeze*, Report 2168/ADA027100 (U.S. Army Mobility Equipment Research and Development Command [USAMERDC], Fort Belvoir, VA, 1976).

Darvin, C.H. and R.C. Wilmoth, *Technical, Environmental, and Economic Evaluation of Plastic Media Blasting for Paint Stripping*, USEPA/600/D-87/028 (U.S. Environmental Protection Agency [USEPA], Water Engineering Research Laboratory, 1987).

Defense Utilization and Disposal Manual, DOD 41620.21-M (Defense Logistics Agency, Office of the Assistant Secretary of Defense, Alexandria, VA, September 1982), pp VI-42 and XVII-A-5 to XVII-A-10.

Department of Defense Memorandum for Deputy of Environment, Safety and Occupational Health, OASA (I&L); Deputy Director for Environment, OASN (S&L); Deputy for Environment and Safety and Occupational Health (SAP/MIQ); Director, Defense Logistics Agency (DLA-S); 28 January 1986, subject: Regulation of Used Oil for Burning.

Dharmavaram, S., et al., "A Profile and Management of the U.S. Army's Underground Storage Tanks," *Environmental Management*, Vol 13 (1989), pp 333-338.

Donahue, B.A. and M.B. Carner, *Solvent "Cradle-To-Grave" Management Guidelines for Use at Army Installations*, Technical Report N-168/ADA137063 (USACERL, December 1983).

Donahue, B.A., T.J. Hoctor, and K. Piskin, *Managing Underground Storage Tank Data Using dBase III Plus*, Technical Report N-87/21/ADA182452 (USACERL, June 1987).

Donahue, B.A., et al., *Used Solvent Testing and Reclamation, Volume I: Cold-Cleaning Solvents*, Technical Report N-89/03/ADA204731, Vol I (USACERL, December 1988).

Donahue, B.A., et al., *Used Solvent Testing and Reclamation, Volume II: Vapor Degreasing and Precision Cleaning Solvents*, Technical Report N-89/03/ADA204731, Vol II (USACERL, December 1988).

Drabkin, M., C. Fromm, and H.M. Freeman, "Development of Options for Minimizing Hazardous Waste Generation," *Environmental Progress*, Vol 7 (1988), pp 167-173.

Drycleaning and Laundry Plants, Hazardous Waste Fact Sheet (Small Quantity Generators Activity Group, Minnesota Technical Assistance Program, University of Minnesota, Minneapolis, MN, 1988).

Durney, L.J., "How to Improve Your Paint Stripping," *Product Finishing* (December 1982), pp 52-53.

Ecology and Environment, Inc., *Waste Audit Study - General Medical and Surgical Hospitals* (California Department of Health Services, Sacramento, CA, 1988).

Economic Analysis of Solvent Management Options, Technical Note 86-1, (Department of the Army, May 1986).

Efficient Boiler Operations Sourcebook, F.W. Payne, Ed. (The Fairmont Press, Inc. Atlanta, GA, 1986), pp 79-106.

Electroplating Engineering Handbook, Fourth Edition, L.J. Durney, Ed. (Van Nostrand Reinhold Company, 1984).

Environmental Operations Review - 4th Infantry Division (Mechanized) and Fort Carson, Colorado Springs, Colorado, Study No. 37-26-1385-87 (U.S. Army Environmental Hygiene Agency, Aberdeen Proving Ground, MD, 1987).

Environmental Protection and Enhancement, Revised FC and 4D Reg 200-1 (Headquarters, Fort Carson and Headquarters, 4th Infantry Division (Mechanized), Fort Carson, CO, 1989).

The EPA Manual for Waste Minimization Opportunity Assessment, EPA/600/2-88-025 (USEPA, Hazardous Waste Engineering Research Laboratory, Cincinnati, OH, 1988).

Federal Register, Vol 50, No. 23, pp 49164-49249.

Federal Register, Vol 51, No. 190 (October 1986), pp 35190-35194.

- Fu, T.T. and R.S. Chapler, *Utilization of Navy-Generated Waste Oils as Boiler Fuel - Economic Analysis and Laboratory Tests*, Technical Note N-1570 (U.S. Navy Construction Battalion Center, 1980).
- Gardner, J., *Dry Paint Stripping Utilizing Plastic Media: A New Solution to an Old Problem*, Technical Bulletin (Clemco Industries, 1987).
- Gibbs, L.M., "Recovery of Waste Organic Solvents in a Health Care Institution," *American Clinical Products Review* (November/December 1983).
- GLYCLEAN - Antifreeze Recycling System*, brochure (FPP Chemical Co., Inc., Buffalo, NY, 1988).
- Guide to Infectious Waste Management*, EPA/530-SW-86-014 (USEPA, Washington, DC, 1986).
- Hart Associates, Fred C., *Aerospace Waste Minimization Report* (California Department of Health Services and Northrop Corporation, 1987).
- Hazardous Waste Reduction Assessment Handbook - Automotive Repair Shops* (California Department of Health Services, Toxic Substances Control Division, 1988), 24 pp.
- Hazardous Waste Reduction Checklist - Automotive Repair Shops* (California Department of Health Services, Toxic Substances Control Division, 1988).
- Hemstreet, R.H., "How to Conduct Your Waste Minimization Audit," in *Waste Minimization Manual* (Government Institutes, Inc., Rockville, MD, 1987), pp 61-75.
- Huisigh, D., *Profits of Pollution Prevention: A Compendium of North Carolina Case Studies* (North Carolina Board of Science and Technology, Raleigh, NC, 1985).
- Hunt, G.E., and R.N. Schecter, "Minimization of Hazardous-Waste Generation," in *Standard Handbook of Hazardous Waste Treatment and Disposal*, H. M. Freeman, Ed. (McGraw Hill, New York, NY, 1988), pp 5.3-5.27.
- ICF Associates, Inc., *Guide to Solvent Waste Reduction Alternatives: Final Report* (Prepared for California Department of Health Services, October 1986).
- Infectious Hazardous Waste Handling and Disposal*, Technical Guide Number 147 (USAEHA, MD, 1986).
- Isooka, Y., Y. Imamura, and Y. Sakamoto, "Recovery and Reuse of Organic Solvent Solutions," *Metal Finishing* (June 1984), pp 113-118.
- Jacobs Engineering Group, Inc., *Waste Audit Study - Commercial Printing Industry* (California Department of Health Services, Sacramento, CA, May 1988).
- Jones, E.B., W. Banning, and R.C. Herndon, "Waste Exchanges and Waste Minimization and Reclamation Efforts," in *Waste Minimization Manual* (Government Institutes, Inc., Rockville, MD, 1987), pp 78-85.
- Kohl, J., P. Moses, and B. Triplett, *Managing and Recycling Solvents: North Carolina Practices, Facilities, and Regulations* (North Carolina State University, Raleigh, NC, 1984).
- Kraybill, D., T. Mullen, and B.A. Donahue, *Hazardous Waste Surveys of Two Army Installations and an Army Hospital*, Technical Report N-90/ADA088260 (USACERL, August 1980).
- Layman, P.L., "Paints and Coatings: the Global Challenge," *Chemical and Engineering News* (September 30, 1985), pp 27-68.

- Layton, D.W., et al., *Demilitarization of Conventional Ordnance: Priorities of Data-Base Assessments of Environmental Contaminants*, UCRL-15902 (USAMRDC, Fort Detrick, MD, 1986).
- Ludemann, W.D., et al., *Installation Assessment of Fort George G. Meade (Including Gaithersburg Research Facility), Maryland*, Report No. DRXTH-ES-IA-81187 (USATHAMA, Aberdeen Proving Ground, MD, 1982).
- Makwinski, J. and P.N. Cheremisinoff, "Special Report: Underground Storage Tanks," *Pollution Engineering*, Vol 20 (1988), pp 60-69.
- Management/Equipment Evaluation Program*, Report H82-1B (1st Space Support Group, U.S. Air Force, Peterson Air Force Base, CO, 1983).
- Managing Empty Containers*, Fact Sheet (Minnesota Technical Assistance Program, University of Minnesota, Minneapolis, MN, 1988).
- McMaster, B.N., et al. *Installation Assessment of the Headquarters, Fort Carson and 4th Infantry Division (Mechanized), Fort Carson, Colo., and its Subinstallations Headquarters, Fort Douglas and U.S. Army Support Detachment, Fort Douglas, Utah, and Headquarters, Fort Missoula, Fort Missoula, Mont.*, DRXTH-AS-IA-82330 (Prepared for the Commander, Headquarters, Fort Carson and 4th Infantry Division (Mechanized), Colorado Springs, CO, and the U.S. Army Toxic and Hazardous Materials Agency, Aberdeen Proving Ground, MD, 1983).
- Medical Waste Sanctions Act of 1988*, Report 100-1102 (House of Representatives, 100th Congress, October 1988).
- Minimization of Hazardous Waste. Executive Summary and Fact Sheet*, EPA/530/SW-86/033A (USEPA, Office of Solid Waste, 1986).
- Mount, J.B., et al., *Economic Analysis of Hazardous Waste Minimization Alternatives*, Draft Technical Report (USACERL, 1989).
- National Association of Manufacturers, *Waste Minimization: Manufacturers' Strategies for Success* (ENSR Consulting and Engineering, 1989).
- National Research Council, *Prudent Practices for Disposal of Chemicals from Laboratories* (National Academy Press, Washington, DC, 1983).
- Nester, F.W. and L.L. Smith, *Propellant Reuse Technology Assessment*, AMXTH-TE-CR-86076 (USATHAMA, Aberdeen Proving Ground, MD, 1986).
- Prolonging Machine Coolant Life*, Fact Sheet (Minnesota Technical Assistance Program, Minneapolis, MN, 1988).
- Protocol Health Care Facility Waste Management Surveys* (USAEHA, Aberdeen Proving Ground, MD, 1987).
- Public Law 94-480, *Resource Conservation and Recovery Act* (1976).
- Public Law 98-616, *Hazardous and Solid Waste Amendments* (1984).
- Public Law 99-499, *Title III, Superfund Amendments and Reauthorization Act* (1986).
- Reay, W.H., "Solvent Recovery in the Paint Industry," *Paint & Resins* (March/April 1982), pp 41-44.
- Resch, M.E., "Hazardous Waste Minimization Audits Using a Two-tiered Approach," *Environmental Progress*, Vol 7 (1988), pp 162-166.
- Salvesan, R.H., Associates, *Used Oil and Solvent Recycling Guide*, Final Report (Naval Energy and Environmental Support Activity, Port Hueneme, CA, June 1985).

- SCS Engineers Inc., *Waste Audit Study - Automotive Paint Shops* (California Department of Health Services, Sacramento, CA, January 1987).
- Standard Handbook of Hazardous Waste Treatment and Disposal*, Freeman, H.M., Ed. (McGraw Hill, New York, NY, 1989).
- Technical Manual (TM) 9-1300-214, *Military Explosives* (HQDA, 20 September 1984).
- Technical Note 86-2, *Solvent Minimization and Substitution Guidelines* (Department of the Army, Office of the Chief of Engineers, Washington, DC, 1986), 18 pp.
- Toy, W.M., *Waste Audit Study - Automotive Repairs* (Prepared for the California Department of Health Services, Sacramento, CA, 1987).
- Union Carbide Corporation, *Ecological Aspects of UCAR Deicing Fluids and Ethylene Glycol* (Hazardous Materials Technical Center, Rockville, MD, 1984).
- Ventura County Environmental Health, *Hazardous Waste Reduction Guidelines for Environmental Health Programs* (California Department of Health Services, Sacramento, CA, 1987).
- Winslow, H., *Hazardous Waste SQG Workbook* (Intereg Group, Inc., Chicago, IL, 1986).
- Woodhouse, C., *Waste Ink Reclamation Project* (California Department of Health Services, Toxic Substances Control Division, August 1984).

UNCITED REFERENCES

- Dharmavaram, S., et al., "Hazardous Waste Minimization at Army Installations," Paper No. 88-11.4 (Presented at the 81st Annual Meeting of Air and Waste Management Association, Dallas, TX, 1988).
- Economic Implications of Waste Reduction, Recycling, Treatment and Disposal of Hazardous Wastes*, The Fourth Biennial Report (California Department of Health Services, Sacramento, CA, July 1988).
- Fortuna, R.C. and D.J. Lennett, *Hazardous Waste Regulation - The New Era* (McGraw Hill, New York, NY, 1987).
- Hazardous Waste Minimization: Corporate Strategies and Federal/State Initiatives* (Government Institutes, Inc., Rockville, MD, 1988).
- Higgins, T.E., *Hazardous Waste Minimization Handbook* (Lewis Publishers, Inc., Chelsea, MI, 1989).
- Jacobs Engineering Group, *Hazardous Waste Minimization Potential Workbook* (Prepared for the California Department of Health Services, Sacramento, CA), 65 pp, 1987.

APPENDIX A:

FORT CARSON - HAZMIN PLAN

1. BACKGROUND

The Hazardous and Solid Waste Amendments (HSWA)¹ to the Resource Conservation and Recovery Act (RCRA),² passed in 1984, require the generators of hazardous wastes to certify that they have a waste minimization program. Every waste shipment manifest is accompanied with the following declaration, in compliance with Section 3002 (b) of HSWA:

The generator of the hazardous waste has a program in place to reduce the volume and toxicity of such waste to the degree determined by the generator to be economically practicable;...

Therefore, all facilities that meet the RCRA definitions of Generator (more than 1000 kg or 2205 lb/month) and Small Quantity Generator (100 to 1000 kg or 220 to 2205 lb/month) of HW have to implement waste minimization programs.

HSWA [Section 3002(a)] also requires the generators of hazardous wastes to submit a biennial report, including documentation on efforts to reduce the volume and toxicity of wastes generated. Facilities that treat, store, or dispose of hazardous wastes are required [HSWA, Section 3005(h)] to submit annual reports accompanied with similar declarations on waste minimization.

In the broadest sense, HAZMIN may be defined as the process of reducing the net outflow of hazardous waste effluents from a given source (or generating process). Minimization would include any source reductions in the generation of hazardous wastes as well as any recycling activities that would result in either a reduction in the total volume or quantity of hazardous wastes, or a reduction in the toxicity of hazardous wastes produced or both as long as it is consistent with the national goal of minimizing present and future threats to the environment.³ HAZMIN, therefore, can be achieved by:

Source Reduction - which refers to reduction or elimination of waste generation at the source, usually within a process. It also implies any action taken to reduce the amount of waste leaving a process;

Recycling Onsite/Offsite - which is the use or reuse of a waste as an effective substitute for a commercial product, or as an ingredient or feedstock in a process. Recycling also implies the reclamation of useful constituent fractions from within a waste or removal of contaminants allowing it to be reused; and/or

¹Public Law 98-616, *Hazardous and Solid Waste Amendments*, 1984.

²Public Law 94-480, *Resource Conservation and Recovery Act*, 1976.

³*Minimization of Hazardous Waste. Executive Summary and Fact Sheet*, EPA/530/SW-86/033A (EPA, Office of Solid Waste, Washington, D.C., 1986).

Treatment - eliminating hazardous characteristics of a waste making it nonhazardous to human health and environment.

For any particular waste, the minimization options must be evaluated in the hierarchy of source reduction first, followed by recycling (including, recovery and reuse), and, finally, treatment. There may always remain some small amount of residue (e.g., ash) which will require "ultimate" disposal (e.g., landfill burial). Although attempts have been made to clearly define the three HAZMIN categories, there may be overlap for certain specific techniques. Maximum waste reduction is usually achieved by using the best combination of suitable techniques from all three categories.

Recognizing the liabilities of improper disposal and the advantages of waste minimization, the Joint Logistics Commanders set a DOD-wide goal of 50 percent reduction in hazardous waste generation by 1992, based on the baseline generation in 1985. The Department of Army has adopted this DOD goal and established a policy⁴ applicable to all Active Army, Reserve, and National Guard installations.

2. PURPOSE

The purpose of the Fort Carson Installation Hazardous Waste Minimization (HAZMIN) plan is to provide a specific plan of action to reduce the quantities and toxicities of hazardous wastes (HW) generated within the installation boundaries.

3. SCOPE

The scope of the plan extends to all the HW regulated under the Resource Conservation and Recovery Act (RCRA), the Hazardous and Solid Wastes Amendments (HSWA), and the State of Colorado Hazardous Waste Regulations.

4. GOALS

4.1 Department of Army (DA) HAZMIN Goals

| <u>Process, Operation, or Condition</u> | <u>Percent HW Reduction Desired by 1992</u> |
|---|---|
| Cleaning/degreasing | 40 |
| Transportation vehicle maintenance | 0 |
| Fueling operations | 30 |
| Battery shop operations | 50 |
| Painting | 50 |

⁴Office of the Assistant Chief of Engineers, "Hazardous Waste Minimization (HAZMIN) Policy," Department of the Army, 1989, 15 pages.

| | |
|------------------------|----|
| Sand blasting | 60 |
| Metalworking | 15 |
| Graphic Arts | 40 |
| Electrical maintenance | 60 |
| Waste treatment sludge | 60 |

4.2 **Fort Carson HAZMIN Goals**

Same as DA goals.

4.3 **HAZMIN Reduction Estimation**

Percent HW reduction for any calender year (CY) =

$$\frac{(\text{Baseline Year HW Generation} - \text{CY HW Generation}) * 100}{\text{Baseline Year HW Generation}}$$

5. **PROGRAM MANAGEMENT**

5.1 Fort Carson will manage the HAZMIN program according to AR 200-1 and AR 420-47. The installation's Hazardous Waste Management Board (HWMB) shall review and adopt this plan, and establish other policies and procedures for implementation. The HWMB is to be chaired by the Assistant Division Commander (Support) and consists of the following members:

- Assistant Division Commander (Support) (ADC/S)
- Garrison Commander (GS)
- Director of Engineering and Housing (DEH)
- Director, Environment, Energy, and Natural Resources (EENR)
- Director of Logistics (DOL)
- Director of Personnel and Community Activities (DPCA)
- Director of Reserve Component Support (DRCS)
- Director of Plans, Training, and Mobilization (DPTM)
- Assistant Chief of Staff (ACofS, G1/AG)
- Assistant Chief of Staff (ACofS, G2)
- Assistant Chief of Staff (ACofS, G3)
- Assistant Chief of Staff (ACofS, G4)
- Assistant Chief of Staff (ACofS, G5)
- Deputy Chief of Staff (DC/S)
- Inspector General (IG)
- Director, Defense Reutilization and Marketing Office (DRMO)
- Installation Safety and Occupational Health Manager
- Public Affairs Officer (PAO)
- Staff Judge Advocate (SJA)

Director of Resource Management (DRM)
 Director of Health Services (DHS)
 Director of Dental Services (DDS)
 Commander, 1st Brigade
 Commander, 2nd Brigade
 Commander, 3rd Brigade
 Commander, Division Artillery
 Commander, Division Support Command
 Commander, 43rd Support Group
 Commander, 4th Battalion, 61st Air Defense Artillery
 Commander, 4th Engineering Battalion
 Commander, 124th Signal Battalion
 Commander, 104th Military Intelligence Battalion
 Commander, 4th Aviation Brigade (Combat)
 Commander, Headquarters Command

5.2 The activities at Fort Carson that are generators of hazardous waste, used oil, and miscellaneous toxic wastes; and references to the appropriate chapter (in the assessment technical report) are:

| | <u>Chapter Number</u> |
|--|-----------------------|
| Motor Pools/Vehicle Maintenance Facilities | 4, 5 |
| Aviation Maintenance Facilities | 4, 5 |
| Industrial Maintenance, Small Arms Shops, etc. | 4, 6 |
| Paint Shops | 4, 7 |
| Photography, and Printing Operations | 4, 8 |
| Hospitals, Clinics, and Laboratories | 4, 9 |
| Other Generators | 4, 10 |

6. TRAINING

6.1 Personnel Training

A training program will be developed, by the Director, EENR for personnel involved in handling of hazardous materials and management of hazardous wastes to ensure compliance with 40 CFR 264.16.

6.2 Training Content, Schedules, and Techniques

Personnel from HW generating activities must be given supervised on-the-job training as well as formal courses. The formal courses must be designed similar to the program offered by the U.S. Army Environmental Hygiene Agency, or the U.S. Army Logistics Management Center. Refresher courses must be taught by the Environmental Personnel from the DEH Environment, Energy, and Natural Resources division.

The objective of a formal (or refresher) course must be to provide each student with the abilities to:⁵

1. Recognize, identify, and classify hazardous materials.
2. Take actions necessary to prevent hazardous chemical incidents, protect personnel health, and prevent damage to the environment.
3. Properly package, label, store, handle, and transport hazardous materials and hazardous waste.
4. Take immediate action in response to hazardous materials spills or other emergencies.
5. Implement appropriate HAZMIN techniques.
6. Properly manage the resources under his/her control to prevent violation of applicable laws, regulations, and policies.

6.3 Implementation of Training Program

The Chief of the Training Division (DPTM) will direct a training program designed by the Director, EENR. All new and/or reassigned personnel will not work in positions dealing with hazardous materials/wastes unless they have completed the appropriate program within 6 months of the date of employment or reassignment. All supervisors will, annually, review the training status of their personnel.

6.4 Records

- a. The Personnel Directorate (Fort Carson and tenant activities) will maintain records pertaining to job experience and the training completion requirements. The records must include description of the type/nature of initial and continuing training each person receives.
- b. Fort Carson will maintain records of all current personnel until deactivation of a particular unit/organization or the entire base. Training records of past employees must be kept for at least 3 years after the date of last employment.

7. HAZMIN ACTIONS

7.1 General Actions

- 7.1.1 Command Initiatives: For the HAZMIN program to be successful, the Commander and the chain of command for all the troops and tenants must make a commitment to all the goals (section 2) and establish specific goals at the generator (or activity) level.

The Installation Commander will develop an environmental policy statement emphasizing pollution minimization and assign direct responsibility to all personnel as protectors of the

⁵Defense Hazardous Materials Handling Course (DHMHC), U.S. Army Logistics Management Center (ALMC), Fort Lee, Virginia.

environment in their day-to-day work. All personnel will be notified (through the *Mountaineer* and inter-office memorandums) regarding the command commitment and goals.

Personnel incentives (such as awards, commendation, etc.) must be provided to encourage new HAZMIN ideas and to reward implementation of successful HAZMIN projects.

- 7.1.2 The installation must solicit cooperation with the host community (Colorado Springs) for success of HAZMIN projects.
- 7.1.3 Participation is required among appropriate personnel from: Directorate of Logistics (DOL) - responsible for supply/procurement, transportation; Directorate of Engineering and Housing (DEH) - responsible for interim and long term storage, compliance with federal/state environmental laws, and pollution control guidance; and Defense Reutilization and Marketing Office (DRMO) - responsible for proper disposal; in implementation, programming, and budgeting HAZMIN programs.
- 7.1.4 A hazardous material (HM) and hazardous waste (HW) tracking (manifest) program will be implemented at Fort Carson (including all the tenants). Tracking HM from the supply warehouse to generators and HW from the generators to final storage before disposal, will provide a mass balance and improve minimization opportunities.
- 7.1.5 HAZMIN programs will be incorporated into the agenda of the Environmental (and Hazardous Waste) Management Board Meetings. Proper coverage must be provided in the installation newspaper (*Mountaineer*) to ensure wide acceptance among personnel.
- 7.1.6 Director, EENR, and the Installation Safety and Occupational Health Manager will combine resources to develop a training program for personnel in hazardous materials/waste handling and emergency response (according to Section 6) which is required by law.
- 7.1.7 Director, EENR, will develop a waste analysis program to characterize and define all (air, water, liquid, and solid) waste streams from all the generators to ensure compliance with Federal and State laws.
- 7.1.8 Director, DRMO, and the Director, EENR, will examine the use of waste exchange programs as a proper recycle methodology for some of the hazardous wastes.
- 7.1.9 The EENR Hazardous Waste Program Manager will conduct monthly inspections, minimization audits, and periodic training classes in recognition/handling/storage of hazardous materials and wastes.

7.2 Generator Actions

- 7.2.1 All generators must program for disposal of hazardous wastes following the decentralization of funding beginning in Fiscal 1990.
- 7.2.2 All generators will appoint environmental (hazardous waste) coordinators who would be responsible for minimizing generation (of air emissions, water pollution and solid wastes), proper interim storage, and turn-in of hazardous wastes.
- 7.2.3 The environmental (or hazardous waste) manager should interface with the EENR Hazardous Waste Program Manager in all matters pertaining to waste management and minimization.

Individuals appointed to this duty will devote more time than is customary for a typical "extra duty."

- 7.2.4 All environmental managers will maintain proper records (logbooks) of materials procured and wastes generated from each activity and report on a monthly basis to the EENR.
- 7.2.5 All generators must, with the help of EENR, completely characterize (in terms of composition, periodicity of generation, why and how generated, etc.) all the waste streams, document and provide relevant data when requested by the EENR.
- 7.2.6 All generators will include HAZMIN requirements ("Better Operating Practices" as outlined in Chapters 5 through 11) and specified by the EENR in their standing operating procedures (SOPs).

7.3 Current HAZMIN Projects

7.3.1 Cleaning Solvent - Recycle Onsite/Offsite - Contract Recycling

A used solvent recycling program has been designed to collect and recycle used cleaning solvent (Petroleum Naphtha) used in motor pools, vehicle/aviation maintenance facilities, and other parts cleaning activities. Source reduction (e.g., better operating practices, testing, etc.) must be implemented by all generators to reduce the quantities used. Use of a substitute (e.g., Citrikleen) must also be explored.

From the economics of solvent use (at a total rate of 30,160 gal/yr) it is determined that onsite distillation (using a 55-gal batch still) is more economical than the current closed-loop (Safety Kleen [SK])⁶ contract recycling for minimizing cleaning solvent wastes.

Estimated Cost: Investment - \$60,162; Annual O&M - \$38,105

Estimated Annual Savings: \$33,100

Estimated Payback Period: 2.73 years

However, some of the practical aspects of disbanding current operations, purchase of new equipment, logistics of setting-up, operating a recycling center, and transporting spent solvent to the central location and recycled solvent back to the users, etc., makes the change to on-site distillation undesirable. The current practice of SK contract recycling should be continued and extended to include other generators who have government-owned solvent cleaning tanks.

The existing SK contract should be modified to substitute the solvent (flash point 105 °F) being delivered with a nonignitable solvent (flash point > 140 °F). The solvent waste in such a case is a nonhazardous waste and is exempt from reporting requirements.

Estimated Cost: Annual O&M - \$99,866

Estimated "Additional" Annual Cost: \$28,664

Estimated Waste Reduction (Recycling Alone): 0 percent

⁶Safety Kleen, Inc., is a commercial solvent recycling contractor.

Estimated Waste Reduction (Source Reduction and Recycling): 40 percent

Estimated "Hazardous" Waste Reduction: 100 percent

7.3.2 Used Oil - Treatment - Burning

Used oil is currently accumulated by all the generators and a contractor transports it to a tank farm located near the main boiler house. About 114,000 gal/yr of used oil is generated. Five percent of it is contaminated with halogenated solvents and has to be treated as a hazardous waste.

Comprehensive processing followed by continued burning of used oil at one of the boilers is recommended. Proper segregation of waste oil is required at all the generators. Chlorine detection kits (e.g., CLOR-D-TECT™1000 and CLOR-D-TECT™Q4000)⁷ must be used to detect the level of chlorinated solvent contamination of oil at the generators before the oil is transported to the boiler for burning. If oil samples are found to contain chloride, a complete laboratory analysis is required to determine flash point, and the total halogens, sulfur, and heavy metals (As, Cd, Cr, Pb) content. If the halogen content is less than 1000 ppm and the heavy metals are within specifications, the oil can be blended and burned. An air pollution permit has to be obtained.

Estimated Cost: Investment - \$17,855; Annual O&M - \$46,815

Estimated Annual Savings: \$8,520

Estimated Payback Period: 3.91 years

Estimated Waste Reduction (Treatment Alone): 0 percent

Estimated Waste Reduction (Source Reduction and Treatment): 30 percent

Estimated "Hazardous" Waste Reduction: 0 percent

7.4 **Future HAZMIN Projects**

7.4.1 Spent Lead-Acid Batteries/Battery Acid - Source Reduction - No Draining/Sale

The current practice at Fort Carson is to drain the lead-acid batteries and neutralize the spent acid. About 9500 gal/yr of acid is generated.

Lead-acid batteries (sealed and unsealed) must be accumulated at the generators (e.g., motor pools) on pallets. These batteries, when bound securely to the pallets, can be recycled through a recycler. If the batteries are being recycled, they are exempt from RCRA reporting requirements and, therefore, do not require reporting and manifesting paperwork necessary for other hazardous wastes.

⁷CLOR-D-TECT is a trademark of the Dexsil Corporation [1 Hamden Park Drive, Hamden, CT 06517, (203) 288-3509]. CLOR-D-TECT 1000 is a go-no-go kit for determining if used oil is contaminated with chlorinated solvents. CLOR-D-TECT Q4000 is a quantitative test for determination of chloride (0 to 4000 ppm) in used oil.

Estimated Price: Annual O&M - \$2674 (revenue)

Estimated Annual Savings: \$8762

Estimated Waste Reduction (Source Reduction/Recycling): 100 percent

Estimated "Hazardous" Waste Reduction: 100 percent

7.4.2 Used Antifreeze Solution - Onsite Recycling

Used antifreeze solution is generated at the rate of 30,445 gal/yr by the vehicle maintenance facilities at Fort Carson. It is drained into the industrial sewer. Although antifreeze is not a hazardous waste, it is difficult to treat and can cause an upset at the sewage treatment plant. In addition, the price of new antifreeze has more than doubled in the past two years (\$4.00 to \$8.45/gal). A technology (Glyclean filtration system - unit price: \$2,400) exists for recycling the 50 percent antifreeze solution.

Use of the Glyclean system is recommended.

Estimated Cost: Investment - \$166,481; Annual O&M - \$9795

Estimated Annual Savings: \$74,293

Estimated Payback Period: 2.57 years

Estimated Waste Reduction (Recycling Alone): 100 percent

Estimated Waste Reduction (Source Reduction and Recycling): 100 percent

Estimated "Hazardous" Waste Reduction: 0 percent

7.4.3 Paint Thinner/Residue - Recycle Onsite/Offsite - Distillation

The Paint Shop belonging to the DOL Operations Maintenance Branch (Bldg 8000) will purchase a 15-gal distillation still for recycling paint thinner wastes. Thinner wastes generated elsewhere on Fort Carson will be brought to the DOL shop and distilled. The still bottoms have to be disposed of as hazardous waste. Permit requirements, if any, will be reviewed by the environmental office before the installation and operation of the still.

Estimated Price: Investment - \$15,783; Annual O&M - \$2116

Estimated Annual Savings: \$3630

Estimated Payback Period: 5.41 years

Estimated Waste Reduction (Recycling Alone): 80 percent

Estimated Waste Reduction (Source Reduction and Recycling): 90 percent

Estimated "Hazardous" Waste Reduction: 90 percent

7.4.4 1,1,1-Trichloroethane/Degreaser Tank Bottoms - Source Reduction and Recycle Onsite/Offsite - Equipment Modifications and Continuous Recycling

The Maintenance Operations Branch of the DOL owns an old (i.e., 1975) vapor-spray-vapor degreaser (VS 800-S-H, manufactured by DETREX Chemical Industries, Inc.) which is located in Maintenance Section III of the DOL Consolidated Maintenance Building (Bldg 8000). It is a large machine (≈ 500 cu ft) used to clean oversize (e.g., engine blocks, canon barrels, etc.) and small parts.

The vapor degreasing operations use nearly 3860 gal/yr of 1,1,1-trichloroethane. Approximately, 2860 gal/yr of it is lost because of its volatility and poor operating practices of the personnel. The total hazardous waste generated includes spent solvent (250 gal/3 months), and tank bottoms (5280 lb/yr). An investment in a biparting motorized cover, a 40 gal/hr inline distillation unit, and an increase in freeboard height to 15 in. is recommended. Better operating practices and process controls (as discussed in Chapter 5) must also be implemented.

Estimated Cost: Investment - \$44,767; Annual O&M - \$15,557

Estimated Annual Savings: \$12,437

Estimated Payback Period: 4.22 years

Estimated Waste Reduction (Source Reduction and Recycling): 54 percent

Estimated Emissions Reduction (Source Reduction): 37 percent

Estimated "Hazardous" Waste Reduction: 54 percent

7.4.5 Other Wastes - Source Reduction

Implement "better operating practices" and other appropriate minimization techniques according to references in Section 5.2.

Estimated Waste Reduction: 30 percent

Estimated "Hazardous" Waste Reduction: 20 percent

7.5 **Overall Estimate of Expected Waste Reduction**

Expected Waste Reduction: 37 percent

Expected "Hazardous" Waste Reduction: 54 percent

8. **REFERENCES**

8.1 Fort Carson installation waste generation data is given in Tables A1 and A2.

8.2 The calculations for the "overall" estimated waste reduction (in Section 7.5) are presented in Table A3.

8.3 This plan is in Appendix A of the *Hazardous Waste Minimization Assessment: Fort Carson, Colorado Springs, Colorado*.

9. **IMPLEMENTATION**

Estimated Implementation Date: September 31, 1990.

10. **RESPONSIBILITIES**

10.1 The duties and responsibilities of persons directly responsible for implementation of this plan and success of the HAZMIN program are described in this section. The following personnel will form the Fort Carson HAZMIN committee that will oversee the implementation of this plan and keep it revised and updated in the future.

| <u>Job Title</u> | <u>Name</u> | <u>HAZMIN Activity</u> |
|--|---------------|---|
| Director, Environmental, Energy and Natural Resources Office | T. Warren | Overview of the entire program; chair the committee; and others as noted in section 10.3. |
| Deputy Director, EENR, Environmental Program | M. Barber | Vicechair of the committee. Help the Director, EENR and coordinate implementation with the hazardous waste program manager and other committee members. |
| Hazardous Waste Program Manager, EENR | T. Tjerandsen | Establish a hazardous materials/waste training program; establish waste inventory and inspection program; establish a HW/HM tracking program; coordinate with Safety Officer, Fire Director, DRMO and all the environmental coordinators. |
| Installation Safety and Occupational Health Manager | R. Whitmore | Establish a chemical inventory program; flag and control purchase of hazardous materials; coordinate with the environmental engineer regarding maintaining and updating inventory. |
| Director, Defense Reutilization and Marketing Office | W. Tilley | Establish proper waste turn-in procedures; waste contract management; explore offsite reclamation and waste exchange options. |

| | | |
|---|-----------------|---|
| Project Manager, GE Operations | J. McDavid | Inventory control of materials and wastes; vehicle/equipment maintenance, painting and laboratory wastes minimization; pesticides management; PCB transformer inventory management. |
| Chief, DEH Fire Department | V. Witham | Coordinate with safety office; inventory flammable/toxic materials; SARA Title III compliance. |
| Chief, DOL Transportation Management Branch | E. Mestas | Inventory control of materials and wastes; vehicle maintenance wastes minimization. |
| Chief, DOL Maintenance Operations Branch | D. Ganshow | Inventory control of materials and wastes; painting, machining, and weapons cleaning wastes minimization. |
| Chief, DOL Aircraft Maintenance Branch | E. Mestas | Inventory control of materials and wastes; aviation maintenance wastes minimization. |
| Chief, DOL Supply Activity | M. Olliver | Flag and control procurement of hazardous materials; coordinate with Safety and EENR; establish chemical usage inventory and demand history by each generator. |
| Manager, GE Supplies Division | R. Rosemark | Flag and control procurement of hazardous materials; coordinate with Safety and EENR; establish chemical usage inventory and demand history by each generator. |
| Chief, MEDDAC Logistics Materiel Branch | CPT K. LaFrance | Flag and control procurement of hazardous materials; coordinate with Safety and EENR; establish chemical usage inventory and demand history by each laboratory and generator. |
| Chief, DPCA Education Center | W. Ensminger | Inventory control of materials and wastes; vehicle maintenance wastes minimization. |
| Chief, DPTM Training and Audiovisual Support Center | N. Amodco | Inventory control of materials and wastes; photographic and printing wastes minimization. |

| | | |
|---|-----------------------|--|
| Chief, Preventive Medicine Evans Army Community Hospital | CPT E. Selzer | Establish inventory of hazardous materials/wastes; establish waste generators monitoring program; coordinate minimization and proper disposal practices (infectious, hazardous, and radioactive wastes) with environmental office. |
| XO, 1st Brigade | LTC C.G. Bailey | Inventory control of materials and wastes; vehicle maintenance wastes minimization. |
| XO, 2nd Brigade | LTC D.M. Harris | Inventory control of materials and wastes; vehicle maintenance wastes minimization. |
| XO, 3rd Brigade | LTC L.L. Harrold | Inventory control of materials and wastes; vehicle maintenance wastes minimization. |
| XO, 4th Aviation Brigade | LTC F.A. Treyz | Inventory control of materials and wastes; aviation and vehicle maintenance wastes minimization. |
| XO, Division Artillery | LTC W.J. Carden | Inventory control of materials and wastes; vehicle maintenance wastes minimization. |
| XO, Division Support Command | LTC J.H. Lantz | Inventory control of materials and wastes; vehicle maintenance, and industrial maintenance wastes minimization. |
| XO, 43rd Support Group | LTC C.R. Coffey, Jr. | Inventory control of materials and wastes; vehicle maintenance wastes minimization. |
| CO, 4th Battalion, 61st Air Defense Artillery | LTC O.A. Nagel | Inventory control of materials and wastes; vehicle maintenance wastes minimization. |
| CO, 4th Engineering Battalion | LTC P.K. Bailey | Inventory control of materials and wastes; vehicle maintenance wastes minimization. |
| CO, 124th Signal Bn. | LTC W.E. Francis, Jr. | Inventory control of materials and wastes; vehicle maintenance wastes minimization. |
| CO, 104th MI Battalion | MAJ K.A. Dickinson | Inventory control of materials and wastes; vehicle maintenance wastes minimization. |

| | | |
|---|------------------|---|
| XO, Headquarters Command | MAJ M.L. Magrini | Inventory control of materials and wastes; vehicle maintenance wastes minimization. |
| CO, Naval Reserve Center | LCDR T.E. McKee | Inventory control of materials and wastes; vehicle maintenance wastes minimization. |
| CO, 3rd Battalion 87th Infantry (USAR) | LTC F.H. Mann | Inventory control of materials and wastes; vehicle maintenance wastes minimization. |
| Environmental (or Hazardous Waste) Managers | | As discussed in Section 10.4. |

10.2 Responsibilities of all HAZMIN Committee Members (except Director, EENR)

- 10.2.1 Identify and prioritize activities required to achieve the goals outlined in this plan.
- 10.2.2 Provide information on HAZMIN techniques to the actual generators of hazardous waste.
- 10.2.3 Organize a team to conduct annual HAZMIN assessments (or audits) to determine sources, types, and quantities of hazardous materials used and hazardous wastes generated.
- 10.2.4 Report on the status of the HAZMIN program to the Director, EENR regularly.
- 10.2.5 Assist the Director, EENR, in preparing an Annual HAZMIN status report.

10.3 Responsibilities of the Director, Environment, Energy and Natural Resources Office

- 10.3.1 Oversee and provide resources (including technological assistance) for conducting the annual HAZMIN assessments. Report the state of the HAZMIN program to the commander.
- 10.3.2 Revise and update this plan annually.
- 10.3.3 Prepare a HAZMIN status report when requested by HQFORSCOM or HQDA.
- 10.3.4 Program funds necessary to accomplish HAZMIN goals.
- 10.3.5 Chair the HAZMIN Committee.
- 10.3.6 Conceive, develop, and implement HAZMIN techniques consistent with this plan.

10.4 Responsibilities of Environmental (or Hazardous Waste) Managers

- 10.4.1 Establish goals for minimizing all forms of environmental pollution (air, water, solid, and hazardous waste).
- 10.4.2 Obtain training (organized by EENR) on all the applicable environmental laws and train all subordinate personnel.
- 10.4.3 Implement "better operating practices" through: inventory control (maintaining logbooks for materials procured and pollution generated); segregation of wastes; spill and leak prevention; and scheduling frequent preventive maintenance of equipment.
- 10.4.4 Examine and implement the use of substitute nonhazardous or less hazardous materials in place of hazardous materials.
- 10.4.5 Examine and implement "process changes" such as: process modifications; equipment modifications; and changes in operation settings, to reduce the quantities of pollution generated.
- 10.4.6 Examine and implement technologies for recycling, reuse, or treatment of wastes. Information about technologies and equipment suppliers can be obtained from environmental personnel at EENR.

Table A1
Summary of Fort Carson Waste Generation

| Waste Generating Operation Process, or Condition | Waste Category* | lb/yr | Survey | lb/yr/unit IDMS | Suggest | Waste Stream Unit |
|---|--------------------|--------|--------|--------------------|---------|-------------------------------|
| Motor Pools and Vehicle Maintenance Facilities | 1 | 191861 | 190103 | | 190103 | Spent Petroleum Naphtha |
| | | | | 1758 | 1758 | Spent Degreasing Solvent, NOS |
| | 2 | 1442 | | 647 | 647 | Carbon Remover |
| | | | | 795 | 795 | Carburetor Cleaner |
| | 3 | 247501 | 247501 | | 247501 | Spent Antifreeze Solution |
| | 4 | 717424 | 635507 | 105000 | 635507 | Used Motor Oil |
| | | | | 81917 | 81917 | Chlorinated Motor Oil |
| | 8 | 3744 | 3744 | | 3744 | Spent Sulfuric Acid |
| | 10 | 32655 | 32655 | 20487 | 32655 | Contaminated Diesel, Mogas |
| | 12 | 201850 | 201850 | 38301 | 201850 | Spent Lead Acid Batteries |
| | 13 | 305491 | 4903 | 1148 | 4903 | Used Brake, Fluid |
| | | | | 23041 | 23041 | Used Transmission Fluid |
| | | | | 14342 | 14342 | Used Hydraulic Fluid |
| | | | 120680 | 95000 | 120680 | Spent Solvent |
| | | | 34825 | | 34825 | Contaminated Rags |
| | | | 6770 | 105000 | 105000 | Contaminated Soil |
| | | | 1540 | | 1540 | Hazardous Faulty Parts |
| | | | 685 | 1160 | 1160 | Asbestos Containing Materials |
| Industrial Maintenance Arms Shops | Small | | | | | |
| | 1 | 29057 | 29057 | | 29057 | Spent Degreasing Solvent |
| | 2 | 7700 | 7700 | | 7700 | Spent 1,1,1 Trichloroethane |
| | 3 | 20416 | 20146 | | 20146 | Spent Antifreeze Solution |
| | 4 | 75190 | 73590 | | 73590 | Used Motor Oil |
| | | | 1600 | | 1600 | Chlorinated Motor Oil |
| | 7 | 15 | 15 | | 15 | Spent Paint Thinner |

* 1: spent degreasing solvents (nonhalogenated), 2: spent degreasing solvents (halogenated), 3: spent antifreeze solution, 4: used motor oil, 5: used alcohols, 6: spent photo and print chemicals, 7: paint related materials, 8: spent acids and bases, 9: decontamination agents, 10: contaminated fuels, 11: pharmaceutical wastes, 12: spent batteries, and 13: miscellaneous wastes.

Table A1 (Cont'd)

| Waste Generating Operation, Process, or Condition | Waste Category | lb/yr | lb/yr/unit | | Waste Stream Unit | | | |
|--|-------------------|--------|------------|-------|-----------------------|------------------------------------|-----------------------|-------------------------|
| | | | Survey | IDMS | | | | |
| Aviation Maintenance Facility | 8 | 92500 | 90000 | | 90000 | Spent Sulfuric Acid | | |
| | | | 2500 | | 2500 | Spent Sodium Hydroxide | | |
| | 10 | 42700 | 42700 | | 42700 | Contaminated Fuels | | |
| | 12 | 300015 | 300000 | | 300000 | Lead-acid Battery Casings | | |
| | | | 5 | | 5 | Spent Li-So ₂ Batteries | | |
| | | | 10 | | 10 | Spent NICAD Batteries | | |
| | 13 | 17816 | 686 | | 686 | Used Transmission Fluid | | |
| | | | 80 | | 80 | Used Brake Fluid | | |
| | | | 4375 | | 4375 | Used Hydraulic Fluid | | |
| | | | 840 | | 840 | Contaminated Sorbent | | |
| | | | 685 | | 685 | Hazardous Faulty Parts | | |
| | | | 3700 | | 3700 | Contaminated Fluid Filters | | |
| | | | 70 | | 70 | Contaminated Cutting Oil | | |
| | | | 2100 | | 2100 | Oily Rags | | |
| | | | 5280 | | 5280 | TCA Tank Bottom Sludge | | |
| | | | 1 | 13379 | 12991 | | 12991 | Spent Petroleum Naphtha |
| | 172 | 85 | | | 172 | Spent MEK | | |
| | | 216 | | | 216 | Spent Acetone | | |
| | 2 | 446 | | | | 171 | 171 | Carbon Remover |
| | | | | | | 275 | 275 | Cleaning Compound, NOS |
| 4 | 3035 | 3035 | | | 1035 | 3035 | Aircraft Engine Oil | |
| 7 | 842 | 132 | | | | 132 | Spent Paint Stripper | |
| | | 79 | | | 135 | 135 | Spent Paint Thinner | |
| | | 285 | | | | 285 | Spent Paint Filters | |
| | | | | | 290 | 290 | Unused, Spoiled Paint | |
| 3 | 716 | 714 | | 714 | Caustics | | | |
| | | 2 | | 2 | Potassium Hydroxide | | | |
| 10 | 2275 | 2275 | 1750 | 2275 | Contaminated JP-4 | | | |
| 12 | 20250 | | 20250 | 20250 | Spent NICAD Batteries | | | |

Table A1 (Cont'd)

| Waste Generating Operation, Process, or Condition | Waste Category | lb/yr | Survey | lb/yr/unit IDMS | Suggest | Waste Stream Unit |
|--|---|-------|--------|------------------------|---------------------------|------------------------------|
| Paint Shops | 13 | 11866 | 140 | 1700 | 1700 | Contaminated Hydraulic Fluid |
| | | | 600 | | 600 | Spent Sorbent |
| | | | | 345 | 345 | Grease, NOS |
| | | | 4375 | | 4375 | Contaminated Hydraulic Fluid |
| | | | 30 | | 30 | Hazardous Empties |
| | | | 1308 | | 1308 | Contaminated Rags |
| | | | 8 | | 8 | Solvent Tank Sludge |
| | | | 3500 | 3500 | Contaminated Soil, Solids | |
| | 2 | 65 | | 65 | 65 | Spent Methylene Chloride |
| | 4 | 1750 | 1750 | | 1750 | Used Motor Oil |
| | 5 | 1031 | 1031 | | 1031 | Spent Alcohol, NOS |
| | 7 | 29521 | 4720 | 7040 | 7040 | Spent Paint Thinner |
| | Photography, Printing, and Arts/Crafts Shops | 13 | 4115 | 90 | | 90 |
| 880 | | | | | 880 | Spent Paint Filters |
| 240 | | | | | 240 | Spent Respirator Cartridges |
| | | | | 478 | 478 | Sealant |
| | | | | 284 | 284 | Bondo |
| | | | | 140 | 140 | Rust Remover |
| | | | | 210 | 210 | Adhesive, NOS |
| | | 480 | 480 | Paint Covered Overalls | | |
| | | 650 | 19679 | 19679 | Unused, Spoiled Paint | |
| | | 2600 | 2600 | 2600 | Spent Oil, Fuel Filters | |
| | | 840 | 840 | 840 | Spent Sorbent | |
| | | 600 | 600 | 600 | Hazardous Empties | |
| 1 | | 96 | 96 | | 96 | Spent Deglazing Solvent |
| 2 | 1079 | 216 | 125 | 216 | Spent Film Cleaner | |
| | | 739 | 863 | 863 | Spent Blankroll Solvent | |

Table A1 (Cont'd)

| Waste Generating Operation, Process, or Condition | Waste Category | lb/yr | Survey | lb/yr/unit IDMS | Suggest | Waste Stream Unit | | |
|--|-------------------|-------|--------|--------------------|-------------------------|--------------------------------------|-----|----------------|
| Hospitals, Clinics, and Laboratories | 3 | 5621 | 288 | | 288 | Spent Photo Stabilizer | | |
| | | | 1796 | 102 | 1796 | Spent Photo Bleach | | |
| | | | | 215 | 215 | Spent Photo Rinse | | |
| | | | 36 | 2946 | 2946 | Spent Offset Toner Solvent | | |
| | | | 92 | | 92 | Spent Electrostatic Solvent | | |
| | | | 92 | | 92 | Spent Electrostatic Ink and Toner | | |
| | | | 192 | | 192 | Spent Hypo. Cleaning Agent | | |
| | | | 720 | | 720 | Spent Photo Activator | | |
| | | | 7 | 316 | 230 | | 230 | Laquer Thinner |
| | | | | | 72 | | 72 | Enamel Thinner |
| | 14 | | | | 14 | Turpentine | | |
| | 8 | 10663 | 6128 | 4945 | 4945 | Spent Photo Developer | | |
| | | | 4128 | | 4128 | Spent Photo Fixer | | |
| | | | 96 | | 96 | Ink Roller Conditioner | | |
| | | | 488 | | 488 | Acetic Acid Photo Bath | | |
| | | | | 198 | 198 | Conversion Solvent, NOS | | |
| | | | | 88 | 88 | Imager | | |
| | 1 | 1278 | 308 | 480 | 480 | Spent Xylene | | |
| | | | | 280 | 280 | Spent Benzene | | |
| | | | | 518 | 518 | Spent Toluene | | |
| 2 | | | 505 | 430 | 430 | Spent Formaldehyde | | |
| | 75 | 75 | | Spent Chloroform | | | | |
| 5 | 915 | | 915 | 915 | Spent Alcohol, NOS | | | |
| 6 | 960 | | 460 | 460 | Spent Photo Developer | | | |
| | | | 216 | 216 | Spent Photo Toner | | | |
| | | | 290 | 290 | Spent Photo Wash | | | |
| 9 | 185 | | 185 | 185 | Spent Disinfectant, NOS | | | |

Table A1 (Cont'd)

| Waste Generating Operation, Process, or Condition | Waste Category | lb/yr | Survey | lb/yr/unit IDMS | Suggest | Waste Stream Unit |
|--|-------------------|--------|--------|--------------------|---------|-------------------------------|
| | 11 | 90 | 90 | 90 | 90 | Shelf-Life Pharmaceuticals |
| | 13 | 511624 | | 215 | 215 | Contaminated Mercury |
| | | | | 320 | 320 | Potassium Phosphate |
| | | | | 215 | 215 | Soda Lime |
| | | | 732 | | 732 | Pathological Wastes |
| | | | 509650 | | 509650 | Medical Infections |
| | | | | 492 | 492 | Miscellaneous Chemicals |
| Heating and Cooling Plants | 1 | 1400 | 1400 | | 1400 | Spent Petroleum Naptha |
| | 8 | 265600 | 265600 | | 265600 | Caustic Boiler Blowdown |
| G E (formerly DEH) | 7 | 8263 | | 3702 | 3702 | Unused, Spoiled Paint |
| | | | | 3451 | 3451 | Sealant |
| | | | | 1110 | 1110 | Polyurethane |
| | 12 | 171 | | 171 | 171 | Furniture Polish |
| Troop | 9 | 18441 | | 4762 | 4762 | Shelf-Life DS-2 |
| | | | | 10717 | 10717 | Shelf-Life STB |
| | | | | 1854 | 1854 | Calcium Hydride |
| | | | | 1108 | 1108 | Calcium Hypochlorite |
| | 12 | 13248 | | 8461 | 8461 | Spent Mercury Batteries |
| | | | | 1019 | 1019 | Spent Alkaline Batteries |
| | | | | 3768 | 3768 | Spent Lithium Batteries |
| | 13 | 10559 | | 1210 | 1210 | Insecticides, NOS |
| | | | | 9349 | 9349 | Magnesium Carbon |
| Miscellaneous | 2 | 125 | | 100 | 100 | Spent Dichlorodifluoromethone |
| | | | | 25 | 25 | Spent Freon |
| | 5 | 3720 | | 3720 | 3720 | Spent Methonol |
| | 8 | 750 | | 750 | 750 | Spent Acetic Acid |
| | 13 | 1184 | | 1184 | 1184 | Detergent, NOS |

Table A2

Total Waste Generation Rates by Waste Categories*

| Generator | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 |
|---------------|---------|--------|-------|--------|--------|------|-------|--------|-------|-------|----|--------|--------|
| MPVM | 1701968 | 191861 | 1442 | 247501 | 717424 | | | 3774 | | 32655 | | 201850 | 305491 |
| LMSS | 585409 | 29057 | 7700 | 20416 | 75190 | | 15 | 92500 | | 42700 | | 300015 | 17816 |
| AMF | 52809 | 13379 | 446 | 3035 | | | 842 | 716 | | 2275 | | 20250 | 11866 |
| PS | 36482 | | 65 | 1750 | 1031 | | 29521 | | | | | | 4115 |
| PPAS | 17775 | 96 | 1079 | | | 5621 | 316 | 10663 | | | | | |
| HCL | 515563 | 1278 | 505 | | 915 | 966 | | | 185 | | 90 | | 511624 |
| HCP | 267000 | 1400 | | | | | | 265600 | | | | | |
| GE (DEH) | 8434 | | | | | | 8263 | | | | | 171 | |
| Troop | 42248 | | | | | | | | 18441 | | | 13248 | 10559 |
| Miscellaneous | 5779 | 125 | | | 3720 | | | 750 | | | | | 1184 |
| TOTAL | 3233467 | 237071 | 11362 | 267917 | 797399 | 5646 | 38957 | 373973 | 18626 | 77630 | 90 | 535534 | 862655 |

*Quantities are reported in pounds per year.

Table A3

Calculation of the Overall Waste Reduction Factors

| Waste | Quantity lb/yr (gal/yr) | Estimated Reduction | Estimated "HW" Reduction |
|------------------------|----------------------------|------------------------|-----------------------------|
| Cleaning Solvent | 235,309 (30,610) | 0.00 | 1.00 |
| Used Oil | 797,399 (114,000) | 0.30 | 0.10 |
| Battery Acid | 93,744 (9500) | 1.00 | 1.00 |
| Antifreeze | 267,917 (30,445) | 1.00 | 0.00 |
| Paint Thinner | 7040 (1000) | 0.80 | 0.90 |
| TCA | 7700 (1000) | 0.80 | 0.90 |
| Degreaser Tank Bottoms | 5280 | 0.00 | 0.00 |
| Other Wastes | 530,034* | 0.30 | 0.20 |
| Weighted Average | | 0.37 | 0.54** |

* Does not include: boiler blowdown - 265,500 lb/yr; infectious wastes - 509,650 lb/yr; lead-acid batteries/casings - 501,850.

**Since (nonchlorinated) used oil and antifreeze are not "hazardous wastes" they have been excluded from this calculation.

APPENDIX B:

HAZMIN PROTOCOL AND SURVEY FORMS

HAZMIN Protocol

Goals

1. Define current status of waste generation and management practices.
2. Identify and evaluate new waste minimization alternatives.
3. Identify support for existing alternatives/activities.
4. Identify areas/activities requiring further research and development.

Approach

- I. Review information available at the installation.
- II. Talk to several groups of individuals.
- III. Develop a list of waste streams and rank them.
- IV. Develop information on each waste stream.
- V. Identify minimization options for each waste stream.
- VI. Evaluate and rate options (preliminary or first screen) for each waste stream.
- VII. Conduct detailed technical and economic feasibility analysis of select minimization options for high priority waste streams.

HAZMIN Protocol

I. Review information available at the installation.

The information reviewed by the survey team includes:

1. Installation policies/programs on waste minimization, if any.
2. Hazardous waste manifests, annual (and biennial) reports, and other RCRA information since 1985.
3. State and local regulations that are more stringent than federal regulations.
4. Environmental audit/review reports.
5. Emission inventories.
6. Permit and/or permit applications, and any regulatory violations.
7. Contracts with waste management firms.
8. Waste assays and/or tests.
9. Materials purchase orders, purchase records.
10. Maps, organizational charts, list of activities associated with different buildings.
11. Production/maintenance schedules.
12. Operator data logs, batch sheets.
13. Operation manuals, process descriptions, standard operating procedures (SOPs).
14. Process flow diagrams (PFDs) and facilities layout.
15. Heat and material balances for production processes and pollution control systems.
16. Safety procedures for handling hazardous materials.

Products:

1. List of information sources.
2. Waste stream list.
3. Survey agenda or checklist detailing what is to be accomplished.
4. List of questions that need to be resolved.
5. List of information that needs to be gathered.

HAZMIN Protocol

II. Talk to several groups of individuals.

Identify appropriate individuals to interview among:

1. Environmental personnel
 - who compile USEPA/State reports
 - who compile DRMO reports
2. Waste generators
 - supervisors
 - shop foremen and production employees
3. Hazardous waste managers
 - operators of on-site treatment, storage, and disposal (TSD) facilities
 - transporters of waste from generation points to TSD facilities
4. Individuals responsible for purchasing/acquisition of hazardous materials (for possible substitution alternatives, costs of purchase, etc.)
5. Individuals with broad HAZMIN responsibilities
 - finance and accounting
 - construction/renovation of facilities
 - higher levels of management
 - legal advisors

HAZMIN Protocol

III. Develop a list of waste streams and rank them.

Develop a waste generation inventory based on reports, permits, and observation. Inventory must be representative of "normal" operations.

Ranking criteria:

1. Composition
2. Quantity (volume or mass generated per year and unit of production)
3. Degree of hazard (toxicity, flammability, corrosivity, etc.)
4. Method and cost of disposal
5. Potential for minimization and recycling
6. Compliance status (in or out)
7. Potential liability (past spills or accidents; proximity to water)
8. Degree of acceptability of changes at the installation
9. Installation personnel preference for options

Products:

1. Waste description with rationale for selection
2. Description of facilities, processes, and waste streams

HAZMIN Protocol

IV. Develop information on each waste stream.

The following information must be developed on each waste stream based on observation and available reports:

1. Waste characterization
 - chemical/physical analysis
 - reason for hazardous nature
2. Waste source
3. Baseline generation
4. Present method of TSD and associated costs
5. Past/present minimization efforts and associated costs

Some points to be reviewed in the above determination are:

- actual point of generation
- details about subsequent handling/mixing
- "hazardous" versus nonhazardous
- physical and chemical characteristics
- quantities by waste treatability category
- potential variations in the rate of production, maintenance, etc.
- potential for contamination or upset
- true costs for management, onsite and offsite including tax, fringe, and overhead for labor; cost of space; vehicle insurance, maintenance, fuel, etc.

HAZMIN Protocol

V. Identify minimization options for each waste stream.

Follow USEPA guidelines on waste minimization. The categories arranged in a hierarchical order are:

1. Source reduction
 - a. product/material substitution
 - b. source control
 - i. input material changes (e.g., dilution, purification)
 - ii. technology changes (e.g., process changes, layout changes, etc.)
 - iii. procedural/institutional changes
2. Recycle/reuse
 - a. onsite
 - b. offsite
3. Waste separation and concentration
4. Waste exchange
5. Energy/material recovery
6. Waste incineration/treatment
7. Treatment
8. Ultimate disposal

HAZMIN Protocol

VI. Evaluate and rate options (preliminary or first screen) for each waste stream.

Some considerations for a preliminary evaluation and rating of minimization options for each waste stream are:

1. Waste reduction effectiveness (i.e., reduction of waste quantity and/or toxicity)
2. Extent of current use in the facility
3. Industrial precedent
4. Technical soundness
5. Cost (preliminary capital and operating cost evaluation)
6. Effect on product quality
7. Effect on operations
8. Implementation period
9. Resources availability and requirement

HAZMIN Protocol

VII. Detailed technical and economic feasibility analysis of select minimization options for high priority waste streams.

The following aspects must be considered in the final detailed analysis:

1. Technical soundness and commercial availability
2. Evaluation of detailed life cycle costs of all the options for each waste stream
3. Detailed comparison of costs of the current practices with alternative options to obtain savings to investment ratios and discounted payback periods
4. Implementation period

HAZMIN Survey Forms

Installation _____ Date _____ POC _____
 Phone _____

WASTE STREAM/MATERIALS USAGE: Motor Pools & Vehicle Maintenance Facilities

Generator (Unit Name) _____ Building _____ DODAAC _____ UIC _____

| <u>Waste Stream</u> | <u>Generation Rate</u> (indicate units: gal/yr lb/yr, pints/mo, etc.) | <u>Material Input</u> | <u>Usage Rate</u> (indicate units: gal/yr lb/yr, pints/mo, etc.) |
|--|---|--|--|
| Spent cleaning solvent | | Cleaning solvent | |
| Carburetor cleaner | | Carburetor cleaner | |
| Waste oil | | Engine oil | |
| Antifreeze solution | | Antifreeze | |
| Lead-acid batteries | | Lead-acid batteries | |
| Battery acid | | Battery acid | |
| Aqueous detergent or caustic wastes (engine/radiator washing) | | Caustic/detergent | |
| Detergent solution from floor wash | | Detergent floor wash | |
| Oily dirt with heavy metals | | | |
| Spent sorbent (Dry-Sweep) | | Sorbent | |
| Contaminated fuel (mogas/diesel) | | Fuel: diesel mogas | |
| Dirty rags | | Rags | |
| Solvent tank-bottom sludges | | | |
| Contaminated water | | | |
| Other fluids (transmission, brake, etc.) | | Other fluids (transmission, brake, etc.) | |
| Mixed wastes | | | |
| Hazardous faulty parts (e.g., brake pads) | | | |
| Miscellaneous (specify) | | Miscellaneous (specify) | |

Installation _____ Date _____ POC _____
 Phone _____

WASTE STREAM/MATERIALS USAGE: Aviation Maintenance Facilities

Generator (Unit Name) _____ Building _____ DODAAC _____ UIC _____

| <u>Waste Stream</u> | <u>Generation Rate</u> (indicate units: gal/yr lb/yr, pints/mo, etc.) | <u>Material Input</u> | <u>Usage Rate</u> (indicate units: gal/yr lb/yr, pints/mo, etc.) |
|---|---|---|--|
| Spent cleaning solvent | | Cleaning solvent | |
| MEK degreaser & cleaner | | Methyl ethyl ketone | |
| Calibrating fluid (specify) | | Calibrating fluid (specify) | |
| Paint stripper (specify) | | Paint stripper (specify) | |
| Paint thinner (specify) | | Paint thinner (specify) | |
| Filters (paint booth) | | Filters (paint booth) | |
| Used paint cans | | | |
| Waste engine oil | | Engine oil | |
| Deicer solution | | Deicer | |
| Nickel-cadmium batteries | | Nickel-cadmium batteries | |
| NICAD battery electrolyte | | Battery electrolyte (pottasium hydroxide) | |
| Aqueous detergent or caustic wastes (engine washing) | | Caustic/detergent (engine washing) | |
| Detergent solution from floor wash | | Detergent floor wash | |
| Oily dirt with heavy metals | | | |
| Spent sorbent (Dry-Sweep) | | Sorbent | |
| Contaminated fuel (Avgas) | | Fuel (Avgas) | |
| Dirty rags | | Rags | |
| Solvent tank-bottom sludges | | | |
| Contaminated water | | | |
| Miscellaneous (specify) | | Miscellaneous (specify) | |

Installation _____ Date _____ POC _____
 Phone _____

WASTE STREAM/MATERIALS USAGE: Industrial Maintenance, Small Arms Shops, etc.

Generator (Unit Name) _____ Building _____ DODAAC _____ UTC _____

| <u>Waste Stream</u> | <u>Generation Rate</u> (indicate units: gal/yr lb/yr, pints/mo, etc.) | <u>Material Input</u> | <u>Usage Rate</u> (indicate units: gal/yr lb/yr, pints/mo, etc.) |
|--|---|--|--|
| Degreasing solvent (trichloroethylene) | | Trichloroethylene | |
| Degreasing solvent (1,1,1-trichloroethane) | | 1,1,1-trichloroethane | |
| Degreasing solvent (others) | | Degreasing solvent (others, specify) | |
| Paint thinners (specify) | | Paint thinners (specify) | |
| Surface cleaners (specify) | | Surface cleaners (specify) | |
| Paint wastes | | | |
| Waste oil | | Lubricating oil | |
| Hydraulic/cutting fluids | | Hydraulic & cutting fluids | |
| Corrosive chemicals (caustic soda) | | Caustic soda | |
| Corrosive chemicals (phosphoric acid) | | Phosphoric acid | |
| Corrosive chemicals (chromic acid) | | Chromic acid | |
| Corrosive chemicals (phosphate solution) | | Phosphate | |
| Corrosive chemicals (others, specify) | | Corrosive chemicals (others, specify) | |
| Tank bottoms (specify) | | | |
| Paint/sand blasting wastes | | | |
| Steam cleaning compound (alkali wastes) | | Alkali | |
| Radioactive wastes | | Radioactive sources | |
| Batteries (lead-acid, NICAD) | | Batteries: Lead-acid Nickel-cadmium | |
| Battery electrolyte (specify) | | Battery electrolyte (specify) | |
| Miscellaneous (specify) | | Miscellaneous (specify) | |

Installation _____ Date _____ POC _____
 Phone _____

WASTE STREAM/MATERIALS USAGE: Paint Shops

Generator (Unit Name) _____ Building _____ DODAAC _____ UIC _____

| <u>Waste Stream</u> | <u>Generation Rate</u> (indicate units: gal/yr lb/yr, pints/mo, etc.) | <u>Material Input</u> | <u>Usage Rate</u> (indicate units: gal/yr lb/yr, pints/mo, etc.) |
|------------------------------------|---|---------------------------|--|
| Old/used paint cans | | | |
| Old/used paint | | | |
| Paint thinners (specify) | | Paint thinners (specify) | |
| Paint strippers (specify) | | Paint strippers (specify) | |
| Caustic wastes | | Caustic soda | |
| Detergent solution from floor wash | | Detergent floor wash | |
| Oily dirt with heavy metals | | | |
| Spent sorbent (Dry-Sweep) | | Sorbent | |
| Dirty rags | | Rags | |
| Solvent tank-bottom sludges | | | |
| Contaminated water | | | |
| Filters from paint booths | | Filters (paint booths) | |
| Sludges from water-wall booths | | | |
| Miscellaneous (specify) | | Miscellaneous (specify) | |

Installation _____ Date _____ POC _____
 Phone _____

WASTE STREAM/MATERIALS USAGE: Hospitals, Clinics, and Laboratories

Generator (Unit Name) _____ Building _____ DODAAC _____ UIC _____

| <u>Waste Stream</u> | <u>Generation Rate</u> (indicate units: gal/yr lb/yr, pints/mo, etc.) | <u>Material Input</u> | <u>Usage Rate</u> (indicate units: gal/yr lb/yr, pints/mo, etc.) |
|-------------------------------------|---|---|--|
| Pathological wastes (specify) | | | |
| Medical infectious wastes (specify) | | | |
| Pharmaceutical wastes (specify) | | | |
| Chemical wastes (specify) | | Laboratory chemicals (xylene) Laboratory chemicals (mercury) Laboratory chemicals (others, specify) | |
| Radioactive wastes (specify) | | | |
| Photographic wastes (specify) | | Photographic chemicals (specify) | |
| Miscellaneous (specify) | | Miscellaneous (specify) | |

Installation _____ Date _____ POC _____
 Phone _____

WASTE STREAM/MATERIALS USAGE: Photography, Printing, Arts/Crafts Shops, etc.

Generator (Unit Name) _____ Building _____ DODAAC _____ UIC _____

| <u>Waste Stream</u> | <u>Generation Rate</u> (indicate units: gal/yr lb/yr, pints/mo, etc.) | <u>Material Input</u> | <u>Usage Rate</u> (indicate units: gal/yr lb/yr, pints/mo, etc.) |
|--|---|----------------------------------|--|
| Solvents (specify) | | Solvents (specify) | |
| Inks (specify) | | Inks (specify) | |
| Photographic chemical wastes (specify) | | Photographic chemicals (specify) | |
| Printing chemical wastes (specify) | | Printing chemicals (specify) | |
| Bath dumps | | | |
| Paint wastes | | | |
| Paint/sand blasting wastes | | | |
| Other dry wastes | | | |
| Miscellaneous (specify) | | Miscellaneous (specify) | |

Installation _____ Date _____ POC _____
 Phone _____

WASTE STREAM/MATERIALS USAGE: Heating and Cooling Plants

Generator (Unit Name) _____ Building _____ DODAAC _____ UIC _____

| <u>Waste Stream</u> | <u>Generation Rate</u> (indicate units: gal/yr lb/yr, pints/mo, etc.) | <u>Material Input</u> | <u>Usage Rate</u> (indicate units: gal/yr lb/yr, pints/mo, etc.) |
|---|---|---|--|
| Contaminated fuel oil | | Waste oil | |
| | | Fuel oil | |
| | | Natural gas | |
| Combustible chemicals (cyclohexylamine) | | Combustible chemicals (cyclohexylamine) | |
| Combustible chemicals (other, specify) | | Combustible chemicals (others, specify) | |
| Corrosive chemicals (caustic soda/potash) | | Corrosive chemicals (caustic soda/potash) | |
| Corrosive chemicals (other, specify) | | Corrosive chemicals (other, specify) | |
| Boiler blowdown | | | |
| Toxic emissions | | | |
| Ash | | | |
| Miscellaneous (specify) | | Miscellaneous (specify) | |

Installation _____ Date _____ POC _____
 Phone _____

WASTE STREAM/MATERIALS USAGE: Laundry and Drycleaning Facilities

Generator (Unit Name) _____ Building _____ DODAAC _____ UIC _____

| <u>Waste Stream</u> | <u>Generation Rate</u> (indicate units: gal/yr lb/yr, pints/mo, etc.) | <u>Material Input</u> | <u>Usage Rate</u> (indicate units: gal/yr lb/yr, pints/mo, etc.) |
|--|---|--|--|
| Corrosive chemicals (caustic soda) | | Corrosive chemicals (caustic soda) | |
| Corrosive chemicals (others, specify) | | Corrosive chemicals (others, specify) | |
| Drycleaning compound (perchloroethylene) | | Perchloroethylene | |
| Drycleaning compound (others, specify) | | Drycleaning compound (others, specify) | |
| Equipment filters | | Filters | |
| Contaminated water | | | |
| Other dry wastes (specify) | | | |
| Miscellaneous (specify) | | Miscellaneous (specify) | |

Installation _____ Date _____ POC _____
 Phone _____

WASTE STREAM/MATERIALS USAGE: Miscellaneous Generators

Generator (Unit Name) _____ Building _____ DODAAC _____ UIC _____

| <u>Waste Stream</u> | <u>Generation Rate</u> (indicate units: gal/yr lb/yr, pints/mo, etc.) | <u>Material Input</u> | <u>Usage Rate</u> (indicate units: gal/yr lb/yr, pints/mo, etc.) |
|--|---|-------------------------------|--|
| Wet chemical wastes (specify) | | Wet Chemicals (specify) | |
| Dry chemical wastes (specify) | | Dry Chemicals (specify) | |
| Off-shelf life chemicals | | | |
| Used chemicals (pesticides, etc.) | | | |
| Batteries (specify) | | Batteries (specify) | |
| Battery electrolyte (specify) | | Battery electrolyte (specify) | |
| Contaminated soil | | | |
| Demilitarized ammunition | | | |
| Decontaminating agents (STB, DS2, etc.) | | | |
| Hazardous empty containers (drums etc.) | | | |
| Contaminated equipment (PCB transformers etc.) | | | |
| Contaminated water | | Water | |
| Sludge from water treatment | | Water treated | |
| Leachate into groundwater | | | |
| Infectious wastes | | | |
| Ordnance | | | |
| Fire-fighting foam | | Fire fighting foam | |
| Miscellaneous (specify) | | Miscellaneous (specify) | |

Installation _____ Date _____ POC _____
 Phone _____

WASTE STREAM/MATERIALS USAGE: Motor Pools & Vehicle Maintenance Facilities

Generator (Unit Name) _____ Building _____ DODAAC _____ UIC _____

| <u>Waste Stream</u> | <u>Generation Rate</u> (indicate units: gallons/yr pounds/yr, pints/mo, etc.) | <u>Material Input</u> | <u>Usage Rate</u> (indicate units: gallons/yr pounds/yr, pints/mo, etc.) |
|--|---|--|--|
| Spent cleaning solvent | | Cleaning solvent | |
| Carburetor cleaner | | Carburetor cleaner | |
| Waste oil | | Engine oil | |
| Antifreeze solution | | Antifreeze | |
| Lead-acid batteries | | Lead-acid batteries | |
| Battery acid | | Battery acid | |
| Aqueous detergent or caustic wastes (engine/radiator washing) | | Caustic/detergent | |
| Detergent solution from floor wash | | Detergent floor wash | |
| Oily dirt with heavy metals | | | |
| Spent sorbent (Dry-Sweep) | | Sorbent | |
| Contaminated fuel (mogas/diesel) | | Fuel: diesel mogas | |
| Dirty rags | | Rags | |
| Solvent tank-bottom sludges | | | |
| Contaminated water | | | |
| Other fluids (transmission, brake, etc.) | | Other fluids (transmission, brake, etc.) | |
| Mixed wastes | | | |
| Hazardous faulty parts (e.g. brake pads) | | | |
| Miscellaneous (specify) | | Miscellaneous (specify) | |

Installation _____ Date _____ POC _____
 Phone _____

WASTE STREAM/MATERIALS USAGE: Aviation Maintenance Facilities

Generator (Unit Name) _____ Building _____ DODAAC _____ UIC _____

| <u>Waste Stream</u> | <u>Generation Rate</u> (indicate units: gallons/yr pounds/yr, pints/mo, etc.) | <u>Material Input</u> | <u>Usage Rate</u> (indicate units: gallons/yr pounds/yr, pints/mo, etc.) |
|---|---|---|--|
| Spent cleaning solvent | | Cleaning solvent | |
| MEK degreaser & cleaner | | Methyl ethyl ketone | |
| Calibrating fluid (specify) | | Calibrating fluid (specify) | |
| Paint stripper (specify) | | Paint stripper (specify) | |
| Paint thinner (specify) | | Paint thinner (specify) | |
| Filters (paint booth) | | Filters (paint booth) | |
| Used paint cans | | | |
| Waste engine oil | | Engine oil | |
| Deicer solution | | Deicer | |
| Nickel-cadmium batteries | | Nickel-cadmium batteries | |
| NICAD battery electrolyte | | Battery electrolyte (potassium hydroxide) | |
| Aqueous detergent or caustic wastes (engine washing) | | Caustic/detergent (engine washing) | |
| Detergent solution from floor wash | | Detergent floor wash | |
| Oily dirt with heavy metals | | | |
| Spent sorbent (Dry-Sweep) | | Sorbent | |
| Contaminated fuel (Avgas) | | Fuel (Avgas) | |
| Dirty rags | | Rags | |
| Solvent tank-bottom sludges | | | |
| Contaminated water | | | |
| Miscellaneous (specify) | | Miscellaneous (specify) | |

Installation _____ Date _____ POC _____
 Phone _____

WASTE STREAM/MATERIALS USAGE: Industrial Maintenance, Small Arms Shops, etc.

Generator (Unit Name) _____ Building _____ DODAAC _____ UIC _____

| <u>Waste Stream</u> | <u>Generation Rate</u> (indicate units: gallons/yr pounds/yr, pints/mo, etc.) | <u>Material Input</u> | <u>Usage Rate</u> (indicate units: gallons/yr pounds/yr, pints/mo, etc.) |
|--|---|--|--|
| Degreasing solvent (trichloroethylene) | | Trichloroethylene | |
| Degreasing solvent (1,1,1-trichloroethane) | | 1,1,1-trichloroethane | |
| Degreasing solvent (others) | | Degreasing solvent (others, specify) | |
| Paint thinners (specify) | | Paint thinners (specify) | |
| Surface cleaners (specify) | | Surface cleaners (specify) | |
| Paint wastes | | | |
| Waste oil | | Lubricating oil | |
| Hydraulic/cutting fluids | | Hydraulic & cutting fluids | |
| Corrosive chemicals (caustic soda) | | Caustic soda | |
| Corrosive chemicals (phosphoric acid) | | Phosphoric acid | |
| Corrosive chemicals (chromic acid) | | Chromic acid | |
| Corrosive chemicals (phosphate solution) | | Phosphate | |
| Corrosive chemicals (others, specify) | | Corrosive chemicals (others, specify) | |
| Tank bottoms (specify) | | | |
| Paint/sand blasting wastes | | | |
| Steam cleaning compound (alkali wastes) | | Alkali | |
| Radioactive wastes | | Radioactive sources | |
| Batteries (lead-acid, NICAD) | | Batteries: Lead-acid Nickel-cadmium | |
| Battery electrolyte (specify) | | Battery electrolyte (specify) | |
| Miscellaneous (specify) | | Miscellaneous (specify) | |

Installation _____ Date _____ POC _____
 Phone _____

WASTE STREAM/MATERIALS USAGE: Paint Shops

Generator (Unit Name) _____ Building _____ DODAAC _____ UIC _____

| <u>Waste Stream</u> | <u>Generation Rate</u> (indicate units: gallons/yr pounds/yr, pints/mo, etc.) | <u>Material Input</u> | <u>Usage Rate</u> (indicate units: gallons/yr pounds/yr, pints/mo, etc.) |
|------------------------------------|---|---------------------------|--|
| Old/used paint cans | | | |
| Old/used paint | | | |
| Paint thinners (specify) | | Paint thinners (specify) | |
| Paint strippers (specify) | | Paint strippers (specify) | |
| Caustic wastes | | Caustic soda | |
| Detergent solution from floor wash | | Detergent floor wash | |
| Oily dirt with heavy metals | | | |
| Spent sorbent (Dry-Sweep) | | Sorbent | |
| Dirty rags | | Rags | |
| Solvent tank-bottom sludges | | | |
| Contaminated water | | | |
| Filters from paint booths | | Filters (paint booths) | |
| Sludges from water-wall booths | | | |
| Miscellaneous (specify) | | Miscellaneous (specify) | |

Installation _____ Date _____ POC _____
Phone _____

WASTE STREAM/MATERIALS USAGE: Hospitals, Clinics, and Laboratories

Generator (Unit Name) _____ Building _____ DODAAC _____ UIC _____

| <u>Waste Stream</u> | <u>Generation Rate</u> (indicate units: gallons/yr pounds/yr, pints/mo, etc.) | <u>Material Input</u> | <u>Usage Rate</u> (indicate units: gallons/yr pounds/yr, pints/mo, etc.) |
|-------------------------------------|---|---|--|
| Pathological wastes (specify) | | | |
| Medical infectious wastes (specify) | | | |
| Pharmaceutical wastes (specify) | | | |
| Chemical wastes (specify) | | Laboratory chemicals (xylene) Laboratory chemicals (mercury) Laboratory chemicals (others, specify) | |
| Radioactive wastes (specify) | | | |
| Photographic wastes (specify) | | Photographic chemicals (specify) | |
| Miscellaneous (specify) | | Miscellaneous (specify) | |

Installation _____ Date _____ POC _____
Phone _____

WASTE STREAM/MATERIALS USAGE: Photography, Printing, Arts/Crafts Shops, etc.

Generator (Unit Name) _____ Building _____ DODAAC _____ UIC _____

Waste Stream

Generation Rate

Material Input

Usage Rate

(indicate units: gallons/yr
pounds/yr, pints/mo, etc.)

(indicate units: gallons/yr
pounds/yr, pints/mo, etc.)

Solvents (specify)

Solvents (specify)

Inks (specify)

Inks (specify)

Photographic chemical wastes (specify)

Photographic chemicals (specify)

Printing chemical wastes (specify)

Printing chemicals (specify)

Bath dumps

Paint wastes

Paint/sand blasting wastes

Other dry wastes

Miscellaneous (specify)

Miscellaneous (specify)

Installation _____ Date _____ POC _____
 Phone _____

WASTE STREAM/MATERIALS USAGE: Heating and Cooling Plants

Generator (Unit Name) _____ Building DODAAC UIC _____

| <u>Waste Stream</u> | <u>Generation Rate</u> (indicate units: gallons/yr pounds/yr, pints/mo, etc.) | <u>Material Input</u> | <u>Usage Rate</u> (indicate units: gallons/yr pounds/yr, pints/mo, etc.) |
|---|---|---|--|
| Contaminated fuel oil | | Waste oil | |
| | | Fuel oil | |
| | | Natural gas | |
| Combustible chemicals (cyclohexylamine) | | Combustible chemicals (cyclohexylamine) | |
| Combustible chemicals (other, specify) | | Combustible chemicals (others, specify) | |
| | | | |
| Corrosive chemicals (caustic soda/potash) | | Corrosive chemicals (caustic soda/potash) | |
| Corrosive chemicals (other, specify) | | Corrosive chemicals (other, specify) | |
| | | | |
| Boiler blowdown | | | |
| Toxic emissions | | | |
| Ash | | | |
| | | | |
| Miscellaneous (specify) | | Miscellaneous (specify) | |

Installation _____ Date _____ POC _____
Phone _____

WASTE STREAM/MATERIALS USAGE: Laundry and Drycleaning Facilities

Generator (Unit Name) _____ Building _____ DODAAC _____ UIC _____

Waste Stream

Generation Rate

Material Input

Usage Rate

(indicate units: gallons/yr
pounds/yr, pints/mo, etc.)

(indicate units: gallons/yr
pounds/yr, pints/mo, etc.)

Corrosive chemicals (caustic soda)
Corrosive chemicals (others, specify)

Corrosive chemicals (caustic soda)
Corrosive chemicals (others, specify)

Drycleaning compound (perchloroethylene)
Drycleaning compound (others, specify)

Perchloroethylene
Drycleaning compound (others, specify)

Equipment filters
Contaminated water
Other dry wastes (specify)

Filters

Miscellaneous (specify)

Miscellaneous (specify)

Installation _____ Date _____ POC _____
 Phone _____

WASTE STREAM/MATERIALS USAGE: Miscellaneous Generators

Generator (Unit Name) _____ Building DODAAC UIC _____

| <u>Waste Stream</u> | <u>Generation Rate</u> (indicate units: gallons/yr pounds/yr, pints/mo, etc.) | <u>Material Input</u> | <u>Usage Rate</u> (indicate units: gallons/yr pounds/yr, pints/mo, etc.) |
|--|---|-------------------------------|--|
| Wet chemical wastes (specify) | | Wet Chemicals (specify) | |
| Dry chemical wastes (specify) | | Dry Chemicals (specify) | |
| Off-shelf life chemicals | | | |
| Used chemicals (pesticides, etc.) | | | |
| Batteries (specify) | | Batteries (specify) | |
| Battery electrolyte (specify) | | Battery electrolyte (specify) | |
| Contaminated soil | | | |
| Demilitarized ammunition | | | |
| Decontaminating agents (STB, DS2, etc.) | | | |
| Hazardous empty containers (drums etc.) | | | |
| Contaminated equipment (PCB transformers etc.) | | | |
| Contaminated water | | Water | |
| Sludge from water treatment | | Water treated | |
| Leachate into groundwater | | | |
| Infectious wastes | | | |
| Ordnance | | | |
| Fire-fighting foam | | Fire fighting foam | |
| Miscellaneous (specify) | | Miscellaneous (specify) | |

LIST OF ABBREVIATIONS AND ACRONYMS

| | |
|--------|--|
| AAFES | Army Air Force Exchange Service |
| AFPMB | Armed Forces Pest Management Board |
| AHS | Academy of Health Sciences |
| AMF | Aviation Maintenance Facility |
| AOAP | Army Oil Analysis Program |
| APCD | Air Pollution Control Division |
| APEN | Air Pollution Emissions Notice |
| AQCR | Air Quality Control Region |
| AR | Army Regulation |
| ARCOM | U.S. Army Reserve Command |
| BMO | Battalion Maintenance Officer |
| BOD | Biochemical Oxygen Demand |
| Btu | British thermal unit |
| CARC | Chemical Agent Resistant Coating |
| CCR | Colorado Code of Regulations |
| CDH | Colorado Department of Health |
| CE | Corps of Engineers |
| CEWI | Combat Electronic Warfare Intelligence |
| CFR | Code of Federal Regulations |
| COD | chemical oxygen demand |
| DA | Department of the Army |
| DEH | Directorate of Engineering and Housing |
| DENTAC | U.S. Army Dental Activity |
| DESR | Defense Environmental Status Report |
| DLA | Defense Logistics Agency |

| | |
|---------|---|
| DOD | Department of Defense |
| DOL | Directorate of Logistics |
| DOT | Department of Transportation |
| DPCA | Directorate of Personnel and Community Affairs |
| DPTM | Directorate of Plans, Training, and Mobilization |
| DRMO | Defense Reutilization and Marketing Office |
| DRMS | Defense Reutilization and Marketing Service |
| EA | Environmental Assessment |
| EENR | Energy, Environment, and Natural Resources Division |
| EOD | Explosive Ordnance Disposal |
| EOR | Environmental Operations Review |
| FLOCS | Fast Lubricating Oil Change System |
| FORSCOM | U.S. Army Forces Command |
| FR | Federal Register |
| FY | Fiscal Year |
| GE | General Electric |
| HAZMIN | Hazardous Waste Minimization |
| HCL | Hospitals, Clinics, and Laboratories |
| HMTC | Hazardous Materials Technical Center |
| HSC | Health Services Command |
| HSWA | Hazardous and Solid Waste Amendments |
| HW | Hazardous Waste |
| HWMB | Hazardous Waste Management Board |
| IDMS | Integrated Database Management System |
| IMSS | Industrial Maintenance, Small Arms Shops |
| INSCOM | U.S. Army Intelligence and Security Command |
| ISC | U.S. Army Information Systems Command |

| | |
|--------|--|
| ISCP | Installation Spill Contingency Plan |
| IWTP | Industrial Wastewater Treatment Plant |
| JAG | Judge Advocate General |
| JLC | Joint Logistics Commanders |
| LAO | Logistics Assistance Office |
| MACOM | Major Command |
| MAIT | Maintenance Assistance and Instruction Team |
| MEDDAC | Medical Department Activity |
| MGD | Million Gallons Per Day |
| MI | Military Intelligence |
| MPVM | Motor Pools and Vehicle Maintenance |
| MSB | Main Support Battalion |
| MSDS | Material Safety Data Sheet |
| NAAQS | National Ambient Air Quality Standard |
| NIPDWR | National Interim Primary Drinking Water Regulations |
| NIPER | National Institute for Petroleum and Energy Research |
| NPDES | National Pollutant Discharge Elimination System |
| NSDWR | National Secondary Drinking Water Regulations |
| NSN | National Stock Number |
| OB/OD | Open Burning/Open Detonation |
| OSHA | Occupational Safety and Health Administration |
| PCB | Polychlorinated Biphenyl |
| PCMS | Pinon Canyon Maneuver Site |
| PL | Public Law |
| PMB | Plastic Media Blasting |
| POL | Petroleum, Oils, and Lubricants |
| PPAS | Photography, Printing, and Arts/Crafts Shops |

| | |
|----------|---|
| PS | Paint Shops |
| RCRA | Resource Conservation and Recovery Act |
| SIP | State Implementation Plan |
| SOP | Standing Operating Procedure |
| SPCCP | Spill Prevention Control and Countermeasures Plan |
| SQG | Small Quantity Generator |
| SS | Suspended Solids |
| TASC | Training and Audiovisual Support Activity |
| TMP | Transportation Motor Pool |
| TOPO | Defense Mapping Agency, Hydrographic/Topographic Center |
| TSDF | Treatment, Storage, or Disposal Facility |
| TSP | Total Suspended Particulates |
| TSS | Total Suspended Solids |
| USACERL | U.S. Army Construction Engineering Research Laboratory |
| USACIC | U.S. Army Criminal Investigation Command |
| USAEHA | U.S. Army Environmental Hygiene Agency |
| USEPA | U.S. Environmental Protection Agency |
| USATHAMA | U.S. Army Toxic and Hazardous Materials Agency |
| USE | Used Solvent Elimination |
| UST | Underground Storage Tank |
| VOC | Volatile Organic Compounds |
| WWII | World War II |
| WWTP | Wastewater Treatment Plant |
| XO | Executive Officer |

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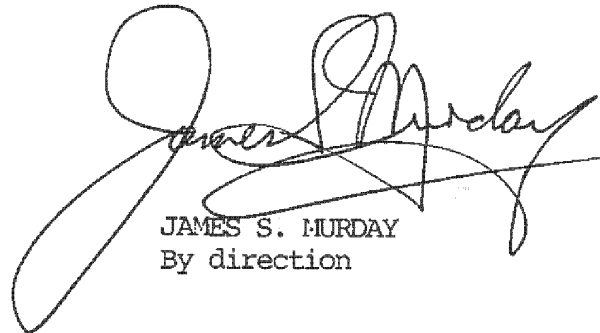
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From: Commanding Officer, Naval Research Laboratory
To: Distribution

Subj: DOD AFFF ENVIRONMENTAL MEETING

Encl: (1) Minutes of subject meeting

1. The Navy Technology Center for Safety and Survivability of the Naval Research Laboratory hosted the DOD AFFF Environmental Meeting on 2-3 August 2000. The meeting was held to exchange information on environmental issues surrounding AFFF. The meeting was sponsored jointly by The Naval Facilities Engineering Command and the Naval Air Systems Command.
2. Enclosure (1) is a copy of the minutes of the meeting.
3. The NRL point of contact for this program is Dr. Frederick W. Williams, Code 6180, (202) 767-2476, email: fwilliam@ccs.nrl.navy.mil.



JAMES S. MURDAY
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6180/0394A:FWW
September 12, 2000

Minutes Of the DOD AFFF Environmental Meeting

Held at the Naval Research Laboratory
Navy Technology Center for Safety and Survivability
Washington, D.C.
On
2-3 August 2000

Encl (1) to NRL Ltr
9555
6180/0394:FWW

Minutes of
DOD AFFF Environmental Meeting
Naval Research Laboratory
2-3 August 2000

Summary

A meeting to discuss AFFF environmental issues within the Department of Defense (DoD) was held at the Naval Research Laboratory (NRL), Washington, D.C., on 2-3 August 2000. The meeting was hosted by Dr. Fred Williams, NRL, Director, Navy Technology Center for Safety and Survivability. The meeting was jointly sponsored by the Naval Facilities Engineering Command (NAVFAC) and the Naval Air Systems Command (NAVAIR). The agenda for the meeting is shown in Appendix (1). A list of attendees is provided in Appendix (2), along with a photo of attendees present at the opening general session on 2 August 2000. To facilitate future exchanges of information on this subject, Appendix (2) includes mailing addresses, phone numbers and E-Mail addresses for each attendee.

Objective

The overall objective of the meeting was to provide a forum for open discussion on AFFF environmental issues within DoD. Additionally, the meeting was called to address three specific objectives:

- (1) Assist NAVFAC in the development of a DoD design policy for AFFF systems in aircraft hangars and other shore facilities to minimize adverse environmental impact.
- (2) Obtain information to assist NAVAIR in finalizing their AFFF Environmental Safety and Health Need Assessment Summary (ESH NAS) and in preparing the follow-on Development Plan.
- (3) Provide information for attendees on the relevant issues surrounding the decision by the 3M Company to phase-out production of AFFF and other products containing perfluorooctyl sulfonate (PFOS).

Background

There has been growing concern in the past few years about the potential adverse environmental impact of AFFF. This concern has been spawned by a number of factors:

- The establishment by EPA in 1994 of threshold quantities for reporting spills of AFFF due to the butyl carbitol commonly used as a solvent in AFFF
- Inadvertent activations of AFFF systems in hangars and the resultant clean-up and disposal
- Reports of problems created by the discharge of AFFF to waste water treatment facilities

- Limitations on overboard discharges of AFFF by ships under the Uniform National Discharge Standards (UNDS) of the Clean Water Act
- Anecdotal reports of damage to aquatic life by discharge of AFFF to streams and waterways
- Various designations of AFFF waste, necessitating expensive disposal by specialty contractors
- Recognition of the persistence and limited biodegradability of the fluorocarbon surfactants in AFFF
- Publicity surrounding 3M's decision to phase-out production of AFFF and other chemicals containing perfluorooctyl sulfonate (PFOS)
- Claims by vendors of so-called "environmentally-friendly" AFFF alternatives

As a result of these concerns, the affected Navy Systems Commands have undertaken various actions:

- NAVFAC, under the auspices of the DoD Fire Protection Coordinating Committee, has started the development of design policy for shore facility AFFF systems to minimize discharges and to address environmental issues.
- NAVAIR has funded Concurrent Technologies Corporation to draft an ESH Need Assessment Study on AFFF, to be followed by a Development Plan that will recommend future action to alleviate identified problems.
- NAVSEA has reduced the frequency of testing of shipboard AFFF systems to minimize overboard AFFF discharge in compliance with the UNDS regulations.

The meeting was called to share recent information and discuss issues relevant to the above concerns and on-going actions.

Meeting Scope/Presentations

The meeting consisted of general session discussions and presentations as well as two specifically focused breakout sessions. Copies of the general session presentations are provided as Appendices (3) – (10). Presentations given at the Hangar Facility breakout session are contained in Appendices (11) and (12). Overall summaries of each breakout session are provided in Appendices (13) and (14).

Significant Discussion and Presentation Points

There were many important points raised during discussion sessions or contained in formal presentations. Those considered to be the most significant are summarized below (additional details are contained in the appendices):

- AFFF is a vital fire fighting agent for controlling and extinguishing flammable liquid fires. Within DoD, it is especially critical for fire scenarios where life safety is paramount, where ordnance is exposed or high value assets are threatened.

- The AFFF military specification (Mil Spec) is considerably more demanding than the applicable UL standard relative to speed of extinguishment of a flammable liquid pool fire.
- The AFFF Mil Spec is widely cited in procurement specifications in the civil sector, especially at municipal airports.
- There are currently 5 manufacturers that have AFFFs on the Mil Spec Qualified Products List.
- There are many fire fighting foams that are commercially available. However, no non-AFFFs have been able to match the rapid fire extinguishment performance of AFFF.
- At present there is no regulation or directive to modify the AFFF Mil Spec.
- There is no recognized or universally accepted definition of “environmentally friendly” fire fighting foam.
- NAVSEA is the designated DoD technical custodian of the existing AFFF Mil Spec. Only NAVSEA can formally change the Mil Spec, though it may be possible to develop a separate specification just for shore-based applications.
- Inconsistent policy and guidance have led to expensive and questionable secondary containment designs in recent shore facility projects.
- 3M is voluntarily phasing-out production of AFFF because the fluorocarbon surfactant in their AFFF biodegrades to perfluorooctyl sulfonate (PFOS). PFOS has been identified by EPA as environmentally persistent, bio-accumulative in blood, and toxic to aquatic life and laboratory animals (the degree varies by species).
- Levels of PFOS measured in humans and found in blood banks is not considered to present a health hazard at present levels. Concern is the potential for build-up over time.
- Other AFFF manufacturers do not produce AFFF that is currently believed to biodegrade to PFOS.
- It is not known if other AFFFs have a similar problem. EPA is currently in a fact-finding mode relative to other AFFFs.
- At present the EPA does not prohibit or limit specifically the manufacturing of AFFF.
- A comprehensive review of federal and local environmental regulations applicable to AFFF (and other foam agents) has just been completed (see Appendix (8)).
- All fire fighting foams have environmental properties and/or constituents that are regulated.
- Adverse impact on waste water treatment facilities is a major concern, primarily due to foaming.
- A “risk based” approach, using the Frequency Vs Severity concepts in Military Standard 882C, has been shown to be feasible for managing AFFF environmental issues in shore facilities. Such an approach may be applicable to other AFFF applications as well.
- The NAVFAC Facility AFFF Management Working Group will continue development of policy, with a completion goal of approximately 6 months.

The next meeting of the NAVFAC Working Group is scheduled for October 12, 2000.

- NAVAIR will complete the AFFF Need Assessment Study and prepare the Development Plan to recommend a future course of action.
- There was a general consensus that a second follow-on DoD meeting should be held (host, location, dates – TBD). Depending on developments between now and the next meeting, a decision could be made to establish a governing charter for a DoD AFFF Environmental Steering Group and perhaps to designate a formal DoD “advocate” for the effort.

List of Appendices

- (1) Meeting Agenda
- (2) List of attendees and photo
- (3) Presentation: "AFFF Performance Perspective," R. Darwin, Hughes Associates
- (4) Presentation: "NAVSEA Comments on the AFFF Mil Spec", R. Williams, NAVSEA
- (5) Presentation: "Hangar Facility AFFF Management Breakout Session Introduction", J. Gott, NAVFAC
- (6) Presentation: "AFFF Environmental Impact Breakout Session Introduction", J. Hoover, NAWCWD China Lake
- (7) Presentation: "Issues With 3M's Withdrawal from the Market", C. Hanauska, Hughes Associates
- (8) Presentation: "AFFF Environmental Impact Review", W. Ruppert, Hughes Associates
- (9) Presentation: "AFFF Management – Risk Based Approach", D. Verdonik, Hughes Associates
- (10) Presentation: "Phasing out a Problem: Perfluorooctyl Sulfonate", M. Dominiak, EPA
- (11) Presentation: Facilities Background and AFFF Issues", J. Simone, NAVFAC
- (12) Presentation: "AFFF Risk Assessment", A. Wakelin, Hughes Associates
- (13) Presentation: "Summary of Shore Facility AFFF Management Breakout Session", D. Verdonik, Hughes Associates
- (14) Presentation: "Summary of AFFF Environmental Breakout Session", J. Hoover NAWCWD China Lake and R. Darwin, Hughes Associates

APPENDIX (1)

Meeting Agenda

DOD AFFF Environmental Meeting

Location:

Building 207 (Chemistry Building)
Naval Research Laboratory,
4555 Overlook Ave,
Washington DC, 20735

Agenda:

Wednesday August 2nd

- 0830 – 0845 Welcome and Introduction – Dr Fredrick Williams, NRL, Director, Navy Technology Center for Safety and Survivability.
- 0845 – 0915 AFFF Performance Perspective – Robert Darwin, Senior Engineer, Hughes Associates, Inc.
- 0915 – 0925 NAVSEA Comments on the AFFF Military Specification - Robert Williams, NAVSEA Fire Protection and Damage Control Division
- 0925 – 0935 Hangar Facility AFFF Management Breakout Session Introduction – Joseph Gott, NAVFAC, Director, Navy Facilities Safety and Health Office
- 0935 – 0945 AFFF Environmental Impact Breakout Session Introduction – Dr. Jim Hoover, NAWCWD, Head, Combustion Research Branch
- 0945 – 1000 Break
- 1000 – 1015 Issues Surrounding 3M Withdrawal from the Market – Chris Hanauska, Senior Engineer, Hughes Associates, Inc.
- 1015 – 1100 Presentation of AFFF Environmental Regulatory Aspects – Bill Ruppert, Senior Environmental Engineer, Hughes Associates, Inc.
- 1100 – 1130 Summary Presentation on Risk Assessment for Hangar Facilities – Dr. Dan Verdonik, Hughes Associates, Inc.
- 1130 – 1230 Lunch
- 1230 – 1600 Breakout sessions

Thursday August 3rd

- 0830 – 0930 3M Withdrawal from Market – Mary Dominiak, EPA, Chemical Control Division, Office of Prevention, Pesticides & Toxic Substances.
- 0930 – 1230 Presentation of Breakout Session Conclusions. Discussion of any further requirements to complete breakout session action items.

Hangar Facility AFFF Management Breakout Session

Session Objectives and Details:

The objectives of the Naval Facility Engineering Command (NAVFAC) hangar facility AFFF Management breakout session are:

- To begin efforts toward developing a policy that details requirements for hangar facilities that will provide “adequate measures” to:
 - (a) prevent an accidental AFFF discharge,
 - (b) limit any adverse environmental impacts from a release.
- To achieve an agreement on the definition of “adequate measures” and to begin to establish design criteria to meet them.

Initial draft design criteria and costs of specific engineering solutions will be presented and discussed as a starting point.

Agenda

- 1230 – 1315 Facility Background and Issues – Joe Simone, Head Fire Protection Engineer, Naval Facilities Engineering Command
- 1315 – 1430 Risk Assessment for Hangar Facilities – Alison Wakelin, Fire Protection Engineer, Hughes Associates, Inc.
- 1430 – 1600 Design Criteria Discussion and Development

List of Breakout Session Attendees:

| | |
|---------------------|-------------|
| D. Verdonik (Chair) | L. Wolf |
| J. Gott | K. Ellis |
| W. Ruppert | M. Doherty |
| A. Wakelin | K. Kochar |
| J. Simone | B. Scott |
| V. Donnally | R. Talbot |
| T. Ruffini | R. Hansen |
| D. Roderique | J. Shah |
| G. Sadler | F. Williams |

AFFF Environmental Impact Breakout Session

Session Objectives and Details:

The objective of this meeting is to share the technical data related to the environmental impact, status and the planned future use of AFFF. NAVAIR will use output from this session to ensure their Environmental Safety and Health (ESH) Need Assessment Summary (the where we are today) is accurate and complete, and to ensure their Development Plan (the where we go from here) is consistent with the need to provide sound fire protection in an environmentally responsible manner.

The AFFF Environmental Impact working group will address the following questions:

- What current and future environmental regulations impact AFFF use and why (data and politics)?
- What data do we have (or lack) on the environmental impact of AFFF?
- What technology or products exist that could help reduce AFFF releases into our environment or mitigate the impact of those releases?
- What technology or products could be applied to recycle or reuse AFFF?
- What alternatives to AFFF currently exist and how do they compare in effectiveness, cost, environmental impact, availability, etc?

List of Breakout Session Attendees:

| | |
|-------------------|-------------|
| J. Hoover (Chair) | R. Morris |
| R. Darwin | B. Parks |
| J. Scheffey | S. Johnson |
| C. Hanauska | P. Bungcayo |
| W. Leach | R. Lee |
| D. McCrory | R. DiAngelo |
| R. Williams | D. Dierdorf |
| S. Wade | J. LaPoint |
| M. Wade | I. Young |
| K. Bagot | |

APPENDIX (2)

List of Attendees and Photo

| | |
|---|--|
| <p>Keith Bagot FAA FAA Technical Center AAR-411, Bldg. 296 Atlantic City International Ai Atlantic City, NJ 08405</p> <p>bagot: keith.bagot@tc.faa.gov</p> | <p>Kathy Ellis Air & Wastewater Program Manager OPNAV (N45) Chief of Naval Operations, N457C 2211 South Clark Place Rm 644 Arlington, VA 22206</p> <p>ellis: Ellis.Kathy@HQ.NAVY.MIL</p> |
| <p>Les Bowman NAWCWD China Lake Weapons Division Code 4T310D China Lake, CA 93555-6100</p> | <p>Joseph E. Gott Director, Safety & Occupational Health NAVFAC Naval Facilities Engineering Command Code SF 1322 Patterson Avenue, SE Suite 1000 Washington Navy Yard, DC 20374-5065</p> <p>gott: GottJE@navfac.navy.mil</p> |
| <p>Paul G Bungcayao Jr USMC HQMC-ASL-38 2 Navy Annex Washington DC, DC 20380 United States</p> <p>bungcayao: bungcayaoJRP@hqmc.usmc.mil</p> | <p>Christopher P. Hanauska Senior Engineer Hughes Associates, Inc. 3610 Commerce Drive Suite 817 Baltimore, MD 21227-1652</p> <p>hanauska: hanauska@haifire.com</p> |
| <p>Robert L. Darwin Senior Engineer Hughes Associates, Inc. 3610 Commerce Drive Suite 817 Baltimore, MD 21227-1652</p> <p>darwin: bdarwin@haifire.com</p> | <p>Raymond Hansen Fire Protection Engineer USAF HQ AFCEA/CESM 139 Barnes Drive Suite 1 Tyndall AFB, FL 32403-5319 United States</p> <p>Hansen, Ray: Ray.Hansen@AFCEA.AF.MIL</p> |
| <p>Robert M. DiAngelo CECEW-ETE Army Headquarters U.S. Army Corps of Engineers 20 Massachusetts Avenue, NW Washington DC, MD 20314-1000</p> <p>diangelo: Robert.M.DiAngelo@HQ02.USACE.ARMY.MIL</p> | <p>James M. Hoover Commander NAWCWD China Lake Naval Air Warfare Center Weapons Division 1 Administration Circle Attn: Code 4T4310D, J.M. Hoover China Lake, CA 93555-6100</p> <p>hoover: HooverJM@navair.navy.mil</p> |
| <p>Douglas S. Dierdorf Principle Scientist USAF (ARA) 139 Barnes Drive Applied Research Associates Suite 2 Tyndall AFB, FL 32403</p> <p>dierdorf: Doug.Dierdorf@tyndall.af.mil</p> | <p>Samuel R. Johnson Environmental Engineer MSC MSC code N72PC1 Washington Navy Yard Bldg 914 Charles Morris Ct, S.E. Washington DC, MD 20375</p> |
| <p>Michael C. Doherty Water Program Manager USMC Headquarters, U.S. Marine Corps (LFL-6) 2 Navy Annex Washington DC, MD 20380-1775</p> <p>doherty: dohertymc@hqmc.usmc.mil</p> | <p>Kiran C. Kochhar Fire Protection Engineer Army P. O. Box 2250 201 Prince Frederick Drive Winchester, VA 22604-1450</p> <p>kochhar: Kiran.C.Kochhar@tac01.usace.army.mil</p> |
| <p>Mary F. Dominiak EPA U.S. Environmental Protection Agency 1200 Pennsylvania Avenue, NW Washington DC, MD 20460</p> <p>dominiak: Dominiak.Mary@epamail.epa.gov</p> | <p>John LaPoint Manager Environmental Processes Concurrent Technologies Corp. 9570 Regency Square Blvd. Suite 400 Jacksonville, FL 32225</p> <p>lapoint: lapointj@ctc.com</p> |
| <p>Vincent R. Donnally Design Criteria Manager NAVFAC 1510 Gilbert Street Norfolk, VA 23511-2699</p> <p>donnally: DonnallyVR@efdlant.navfac.mil</p> | |

| | |
|---|--|
| <p>William B. Leach Fire Protection Team Leader NAVAIR Naval Air Warfare Center Aircraft Division Attn: Bill Leach, Code 4.3.5.1 Bldg 562-3 Highway 547 Lakehurst, NJ 08777-5049</p> <p>leach: LeachWB@navair.navy.mil</p> | <p>William H. Ruppert Senior Engineer Hughes Associates, Inc. 3610 Commerce Drive Suite 817 Baltimore, MD 21227-1652</p> <p>ruppert: wruppert@haifire.com</p> |
| <p>Dr. Richard Lee Project Manager NFESC Code ESC421 Naval Facilities Engineering 1100 23rd Avenue Port Hueneme, CA 93043</p> <p>lee: leert@nfesc.navy.mil</p> | <p>George O. Sadler Principal Glenn & Sadler 150 Boush Street Suite 1000 Norfolk, VA 23510</p> <p>sadler: gosadler@transystems.com</p> |
| <p>Dennis McCrory NAVSEA Naval Sea Systems Command Attn: Code OSL4 2531 Jefferson Davis Hwy. Arlington, VA 22242-5160</p> <p>mccrory: McCroryDM@NAVSEA.NAVY.MIL</p> | <p>Joseph L. Scheffey Director Hughes Associates, Inc. 3610 Commerce Drive Suite 817 Baltimore, MD 21227-1652</p> <p>scheffey: joe@haifire.com</p> |
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| <p>Dawn Roderique TAMS Consultants, Inc. 2101 Wilson Blvd Suite 300 Arlington, VA 22201</p> <p>roderique: Droderique@TAMSCONSULTANTS.COM</p> | <p>Joseph A. Simone Chief Fire Protection Engineer NAVFAC Naval Facilities Engineering Command 1322 Patterson Avenue SE Suite 1000 Washington DC, MD 20374-5065</p> <p>simone: SimoneJA@navfac.navy.mil</p> |
| <p>R Rubenstein EPA Code 6205 J U.S. EPA 1200 Pennsylvania Ave, NW Washington DC, MD 20460</p> <p>rubenstein: rubenstein.reve@epa.gov</p> | <p>Robert Talbot SVERDRUP 234 South Fraley Blvd. Suite 100 Dumfries, VA 22026</p> <p>talbot: 9talborp@sverdrup.com</p> |
| <p>T Ruffini NAVFAC c/o Chief Fire Protection Engineer 1322 Patterson Ave, SE Suite 1000 Washington DC, MD 20374-5065</p> | <p>Daniel P. Verdonik Director, Environmental & Pollution Prevention Prog Hughes Associates, Inc. 3610 Commerce Drive Suite 817 Baltimore, MD 21227-1652</p> <p>verdonik: danv@haifire.com</p> |

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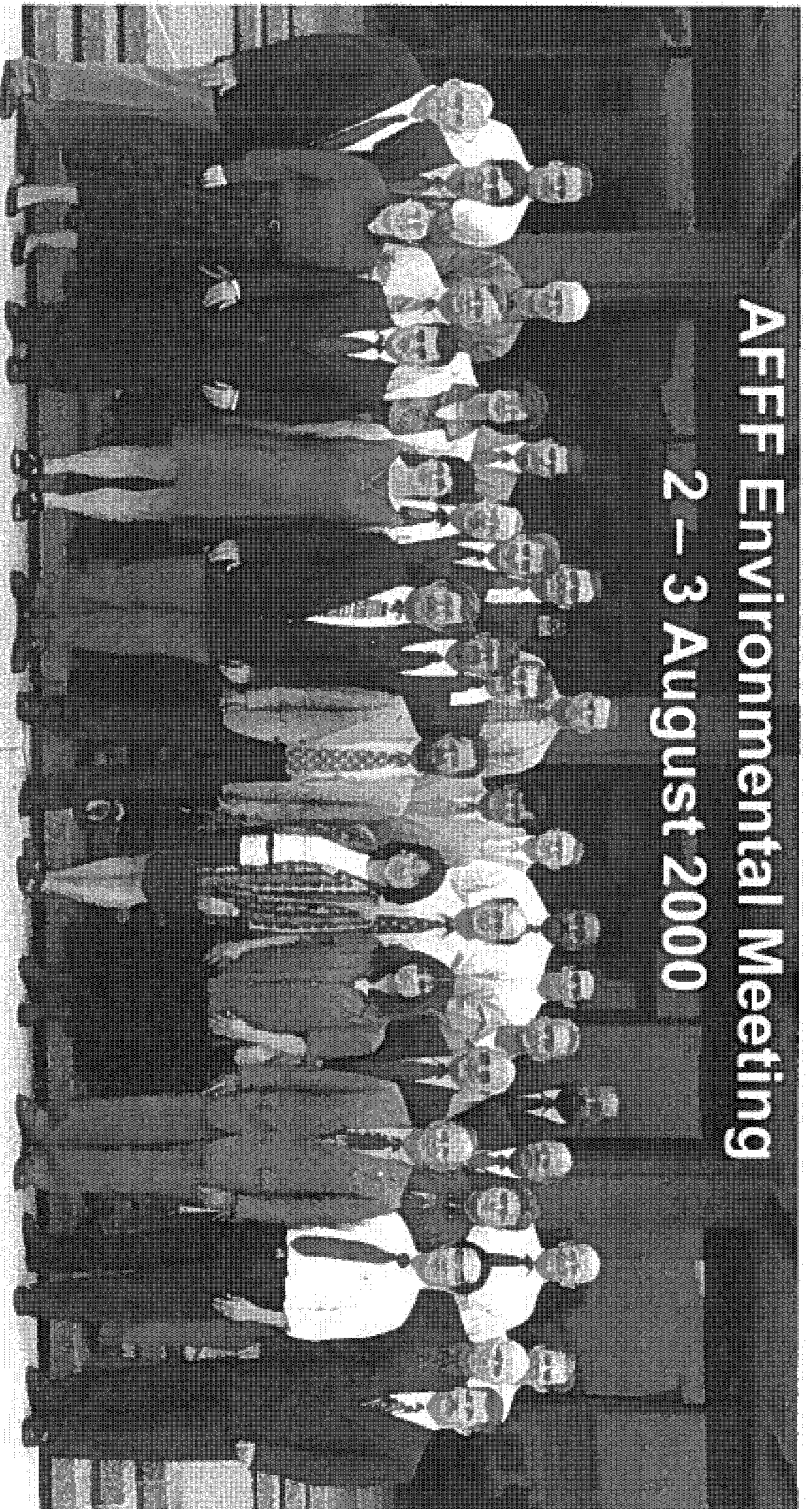
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AFFF Environmental Meeting 2 - 3 August 2000



Top Row: C. Hanauska, D. McCroly, J. Simone, L. Wolf, K. Bagot, M. Doherty, B. Parks, J. LaPoint, S. Johnson, R. Hansen, R. DiAngelo

Middle Row: W. Ruppert, B. Williams, D. Roderique, J. Hoover, J. Gott, J. Scheffey, D. Verdonik, J. Shah, W. Leach, P. Bungcayo, R. Darwin, K. Kochar, R. Talbot, S. Wade

Bottom Row: F. Williams, R. Morris, T. Ruffini, A. Wakelin, D. Dierdorf, B.R. Scott, I. Young, K. Ellis, G. Sandler, R. Lee, M. Wade

APPENDIX (3)

Presentation: "AFFF Performance Perspective"

**R. Darwin,
Hughes Associates, Inc.
Baltimore MD**

AFFF

Performance Perspective

Robert L. Darwin, PE

Senior Engineer

Hughes Associates, Inc.

2 August 2000

History of Foam

1920-40 Chemical Foam

1940-70 Protein Foam (Air Foam)

1970- 2000 AFFF

AFFF Key Events:

1961 First experiments with fluorocarbon surfactants at NRL

1962 First Mil-Spec (Mil-F-23905, 1 Nov 63)
 25 % concentration (fresh water only)
 Emphasis on twin agent application

1963 Large scale tests at NAS pensacola
 Led to procurement of 100 twin agent units

1964 Helo air borne TAU tests at NAS Miramar

- 1965 6 % concentration developed by 3M (FC-194)
- 1966 Testing of FC-194 in airfield crash trucks
Selective conversion of some crash trucks
- 1967 Flight deck conflagration on USS Forrestal
TAUs to aircraft carriers
Push to develop seawater-compatible AFFF
- 1967 Seawater –compatible AFFF developed by 3M/NRL
- 1968 Additional crash truck tests at NAS Miramar
- 1968 Shipboard equipment tests w/ seawater at NAS Jacksonville
First edition of seawater/AFFF mil spec (Mill-F-24385)
- 1969 Flight deck conflagration on USS Enterprise
Push to convert ships to AFFF
- 1970 Navy starts comprehensive conversion of ship systems and crash trucks
- 1973 USAF starts converting all USAF crash trucks

UL Listed Foams

(Per UL 162-“Foam Equipment & Liquid Concentrates”)

AFFF – Aqueous Film Forming Foam

FFFP – Film Forming Fluoroprotein

FP – Fluoroprotein

PF – Protein Foam

| | <u>Manufacturers</u> | <u>Concentrates</u> |
|------|----------------------|---------------------|
| AFFF | 24 | 110 |
| FFFP | 5 | 16 |
| FP | 12 | 26 |
| PF | 5 | 6 |

Mil Spec Qualified Product List (QPL)

Ansul

| | |
|-----------------------|--------|
| Ansulite 3 (AFC-5A) * | Type 3 |
| Ansulite 6 (AFC-5) * | Type 6 |

3M

| | |
|------------|--------|
| FC-203C | Type 3 |
| FC-203CE * | |
| FC-203CF * | |
| FC-206C | Type 6 |
| FC-206CE | |
| FC-206CF * | |

Chemguard

| | |
|-----------|--------|
| C-301MS * | Type 3 |
|-----------|--------|

National Foam

| | |
|--------------------|--------|
| Aer-O-Water 3-EM * | Type 3 |
| Aer-O-Water 6-EM * | Type 6 |

Angus

| | |
|----------|--------|
| Tridol M | Type 3 |
|----------|--------|

* Also UL Listed

“Application Density” (Defined as the Gallons of Agent Per Unit Area of Pool Fire Size) is the best measure of effectiveness for a flammable liquid pool fire

Application Rate = GPM/Sq Ft of fire area

Application Rate x Ext Time = Application Density

GPM/Sq Ft x Minutes = Gals/Sq Ft

Example

Fire Area = 1000 Sq Ft

Appl Rate of Agent = 200 GPM

Ext Time = 0.5 minutes

Appl Rate = 200 GPM/1000 Sq Ft = 0.2 GPM/Sq Ft

Appl Density = Appl Rate x Time
= 0.2 GPM/SqFt x 0.5 minutes
= 0.1 Gals/SqFt

AFFF Performance Requirements

Mil Spec (Mil-F-24385):

Max Appl Density

2 gpm/28 sq ft x 30/60 minutes = .036 gal/sq ft

2 gpm/50 sq ft x 50/60 minutes = .033 gal/sq ft

Underwriters Laboratory:

2 gpm/50 sq ft x 3 minutes = .12 gal/sq ft

(Maximum extinguishment time is 5 minutes for fluoroprotein and protein foam)

Rapid Extinguishment of Pool Fires is Critical When:

- Pool fire threatens high value assets (such as an aircraft hangar)
- Pool fire under an occupied aircraft (must maintain fuselage integrity and rescue occupants)
- Pool fire exposes weapons to potential “cook off”

Relative Performance of Foam Agents on Pool Fires

(Best)

AFFF (Mil-Spec)

AFFF (UL listed, non Mil-Spec)

AFFF (non UL, non Mil-Spec)

FFFP

FP

PF

(Worse)

Wetting Agents

UL Listed Wetting Agents
(Based on NFPA 18)

“ A liquid concentrate for addition to water to produce a solution having a greater fire extinguishing efficiency than plain water”

Manufacturers: 11
Agents: 13

If Use Non-Film Formers:

- Extinguishment time will be slower, unless application rate is increased

- Higher application rate causes

Greater system cost

Greater quantity of agent emitted

- Must consider possible need for “air aspiration”

Replace nozzles

Less reach than “non air aspirated”

AFFF Environmental Issue - 1994

Glycol Ethers (Butyl Carbitol), solvent in most AFFFs, placed on EPA list of hazardous air pollutants.

Since no reporting threshold had been established, a default quantity of one pound per day was established for required reporting under CERCLA.

Because Diethylene Glycol Butyl Ether (DGBE) typically comprises about 20 % of AFFF, spills of just a few gallons of AFFF had to be reported to the National Response Center and to State and local officials.

One pound per day reporting requirement dropped in 1996.

Some manufacturers substituted Propylene Glycol for Ethylene Glycol and declared their foam to be “environmentally friendly”.

DOD Uses of AFFF

- Shipboard Foam Systems
- CFR Vehicles at Airfields
- Aircraft Hangar Foam Systems
- Misc Shore Facilities
 - Hush Houses
 - Jet Engine Test Facilities
 - Hardened Aircraft Shelters
 - Aircraft Fueling Stations
 - Fuel Farms
- Foam Systems on Structural Pumpers

DOD AFFF Discharges

- Fires
- Training Evolutions
- System Tests and Maintenance
- Accidental/Malicious Discharges
- Research and Development

There is a Need to Quantify and Characterize:

- **All DOD AFFF applications (What precisely do we use it for ?)**
- **Precise quantities in service and in reserve stocks (How much do we have ?)**
- **Annual emmissions (type and quantity) (How much do we discharge ?)**

APPENDIX (4)

Presentation: 'NAVSEA Comments on the AFFF Mil Spec'

**R. Williams,
Naval Sea Systems Command**

NAVSEA Comments
On the
AFFF Military Specification
Mil-F-24385F
(Amendment 1 of 8/94)

(Talking Points)

Presentation to DOD AFFF Environmental Meeting
2 August 2000

Robert B. Williams
Fire Protection & Damage Control Division
Naval Sea Systems Command
(Technical Custodian of the AFFF Mil-Spec)

1. I would like to express appreciation to NAVFAC and NAVAIR for sponsorship of this Conference. Also, I appreciate the opportunity to establish the NAVSEA perspective up front.

2. This conference is important and timely:

Recently there has been a proliferation of Navy groups active in AFFF; usually with no focus, some scattered and uncoordinated EPA contacts.

Recently there has been aggressive commercial marketing of so-called "environmentally friendly foams"; yet there is no established definition of "environmentally friendly foam".

AFFF is subject of considerable hype: effect on sewage plants, danger to aquatic life, exposure results in mutant first born, etc.

AFFF spills are media friendly- very visible, makes for good "films at 11", photos provide permanent record, helps stir up environmental activists

Real issues from my perspective:

3M withdrawal and fall out relative to other QPL AFFFs

Restrictions by AHJs; technical basis or not

Unknown forthcoming EPA activity

All are on agenda to be addressed

3. The product I personally desire of this conference is to specifically identify what the problems are regarding MILSPEC AFFF, and problems that are inherent to any foam alternative (visible, wastewater treatment plants).

Appears money is & will be directed at AFFF.

My concern is that funding needs to be attached to a focus on specifics that are documented as requiring resolution.

Navy labs and contractors see a golden egg out there on this topic; I personally don't want to see them going off into the sunset with a generic task to find an environmentally friendly firefighting agent. (whatever friendly means).

The specific problems to be resolved require documentation before charging onto a search for solutions; doesn't always happen in correct order.

The agenda appears to support what I hope is the conference objective.

4. A few quick comments about the MILSPEC and shipboard applications:

NAVSEA is custodian; only NAVSEA can revise. Self appointed cannot.

However, an alternate extinguishing agent specification under someone else's cognizance could be created.

For example, it might be feasible to develop a separate specification just for shore facility use (fresh water only, one percent, universal foam, no refractive index requirement, etc).

NAVSEA goal regarding the spec: Satisfy environmental requirements without degradation of firefighting effectiveness. If maintaining performance requirements is not possible, then where do we draw the trade-off line in the sand? (fish vs. sailors; national defense vs. environment)

MILSPEC contents - shipboard oriented, even though it is essentially the national standard ashore and afloat:

AFFF is for two dimensional shallow spill fires, rapid control and extinguishment are essential. No "foam-of-the-month" has matched the performance of mil-spec AFFF.

Environmental provisions in spec; fish kill, BOD/COD limits, chemical restrictions.

Compatibility: seawater effectiveness, intermixing of products from different manufacturers on QPL.

It is an integrated match with our capital investment in hardware: viscosity, corrosion, pipe & tank materials, effect on seals/gaskets, a refractive index, container size & strength.

5. Our primary environmental involvement has been with the Uniform National Discharge Standards (UNDS) program which is relative to overboard discharge of liquids; basically a Clean Water Act action item.

Our input to EPA, which has been accepted thus far, is discharge management:

New construction/alterations - no repeat testing, at sea

Preventative Maintenance - reliable hardware, reduced testing periodicity

Fewer ships

Geographic restrictions: no discharges within 3 miles of coast, must be making at least 10 knots for discharges within 3-12 miles, preference for only discharging when greater than 12 miles out

6. In closing, I pass along that as custodian of the MILSPEC, I have no direction, pressure, or formal or informal tasking to conduct an environmental review of MILSPEC AFFF aside from the UNS. At NFPA aviation committee meetings I have queried major airport fire chiefs, all of whom stated no direction to pursue an alternative to MILSPEC AFFF. However, we at NAVSEA know whether politically, technically, or regulatory driven, environmental restrictions on AFFF may be coming. We fully support this conference, identification of problems & potential problems, and initiation of remedial research/actions.

APPENDIX (5)

Presentation: "Hangar Facility AFFF Management Breakout Session Introduction"

**J. Gott,
Naval Facilities Engineering Command**

Hangar Facility AFFF Management Breakout Session Introduction (Talking Points)

Presentation to AFFF Environmental Meeting
2 August 2000

Joseph Gott
Director, Navy Facilities Safety and Health Office
Naval Facilities Engineering Command

AFFF DOD Meeting Talking Points

- Need a consistent DOD position on AFFF management
- If we are not proactive, AFFF will become our next halon 1301
- AFFF is only product on market right now that meets our needs
- Time for the design engineers, and environmental engineers to come together
- The services have already done this with the Unified Design Guidance Group
- As past chair of DOD FPE committee, we wrote the first tri-service design criteria
- Fixed containment systems are affecting our mission because they have already caused the omission of AFFF from some hangars resulting in the air wings inability to perform their mission
- This is the beginning of a working group to address this important issue
- Need to get all the right players
- Need to address AFFF management from a risk assessment approach
- Need to dismiss all the myths and fears and address the facts
- Need to give the local regulators something to reference as adequate protection
- Need to determine if additional research is needed to produce a different AFFF
- Discuss changes to NFPA 409 - mandatory drains, reduced AFFF, various protection options
- NAVFAC has long history in fixed AFFF systems, their behavior, problems, and design characteristics

APPENDIX (6)

Presentation: "AFFF Environmental Impact Breakout Session Introduction"

**J. Hoover,
Naval Air Warfare Center
China Lake CA**

AFFF Environmental Impact Breakout Session Introduction (Talking Points)

Presentation to DOD AFFF Environmental Meeting
2 August 2000

Dr. Jim Hoover
Head, Combustion Research Branch
NAWCWD China Lake

The purpose of the AFFF Environmental Impact Breakout Session will be to share technical information within the DoD on AFFF use and environmental impact. This information will be used to assist the completion of two environmental planning documents used by the Naval Air Systems Command (NAVAIR) - an Environmental Safety and Health Needs Assessment Summary (NAS) and a Development Plan. The NAS will provide a "snap-shot" of technical issues surrounding AFFF use and environmental impact, and the Development Plan will recommend a strategy for future efforts within NAVAIR.

Background: The importance of AFFF in protecting Navy personnel and assets must not be understated. Likewise, public safety and commercial assets are highly dependent on AFFF for fire protection. Its firefighting performance remains unmatched and much remains unknown about its human health and environmental effects.

Other services and agencies have data and experiences with AFFF that could assist the Navy in future decision making, so a forum for technical information exchange is needed. In planning for the future, all aspects of technical knowledge about AFFF (and all of its formulated components) should be considered. These should include costs, performance/function, human health and environmental effects, availability, inventory, alternatives, etc.

Break-out Session Format:

The following questions will be asked of the participants to promote discussion and information exchange. Participants will be invited to provide other questions.

1. What current and future environmental regulations impact AFFF use and why (data and politics)?
2. What data do we have (or lack) on the environmental impact of AFFF?

3. What technology or products exist that could help reduce AFFF releases into our environment or mitigate the impact of those releases?
4. What technology or products could be applied to recycle or reuse AFFF?
5. What alternatives to AFFF currently exist and how do they compare in effectiveness, cost, environmental impact, availability, etc?
6. What related planning documents exist with other services or agencies?
7. What follow-on strategies should be considered?

APPENDIX (7)

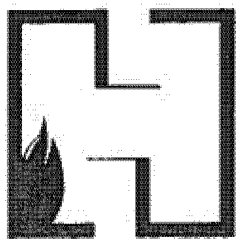
“Issues With 3M’s Withdrawal From the Market”

**C. Hanauska
Hughes Associates, Inc.
Baltimore MD**

Issues with 3M's Withdrawal from the Market

AFFF DoD Meeting

Christopher Hanauska



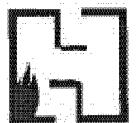
HUGHES ASSOCIATES, INC.

FIRE SCIENCE & ENGINEERING

August 2, 2000

Purpose of this Presentation

- Mary Dominiak of EPA will provide more detailed information tomorrow
- Provide some background for her presentation
- Frame the issue relative to the subjects of this meeting
- *This presentation is only an executive summary*



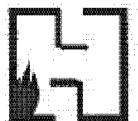
Fluorochemical Surfactants (FC's)

- FC's are a component of AFFF
 - One of several components in AFFF
 - FC's are difficult and expensive to make
 - Formulators have minimized (and attempted to eliminate) the FC content for 30 years
 - Necessary for performance (especially for CFR)
 - rapid fire knockdown
 - relatively low application rates



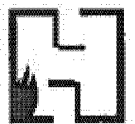
What is an FC?

- C8F17-functional group
- Length of carbon chain varies
- Fluorinated carbon chain is very stable
- Functional group gives different properties



FC's for AFFF Do Not Fully Biodegrade

- 3M's FC's => PFOS
(Perfluorooctyl Sulfonate)
- Other FC's => ?
- Functional group may
biodegrade, but something is
always left
- Ultimate fate unknown
- "Persistent"



3M Performed Testing (Last 2 Years)

- Found PFOS
 - in blood banks around the US
 - in fish and birds
- Discovered toxicity issues
 - reproductive sub-chronic studies
- “Bioaccumulative” and “Toxic”



3M Voluntarily Phasing Out PFOS Related Chemicals

- Scotchguard, Scotchban, industrial uses, AFFF
- About 2 years for complete halt of production
- Decision made at highest level of 3M
 - were in discussion with EPA at the time
- An unexpected and extreme action



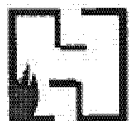
If Only 3M PFOS FC's are a Problem

- Other non-PFOS FC based
AFFF's are on the QPL
- Possibly a short term supply
issue
- Should not be a major fire
protection/environmental
concern



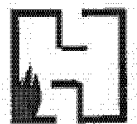
Do Non-PFOS FC's Have a Problem?

- EPA has asked manufacturers to examine and test
- What constitutes a “problem” uncertain
 - “Bioaccumulative” “Toxic”
- EPA will do risk/benefit and risk/risk analysis
 - Understanding of importance of AFFF to fire protection



Conclusions

- No FC specific regulations exist
- No apparent short term (1 year) problems
- Mid-term (2-3 years) problems related to supply only
 - as 3M withdraws from market
- Potentially no long term problems (3+ years)
- *Unless other FC's have significant problems*



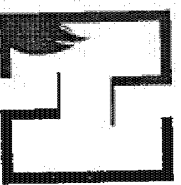
APPENDIX (8)

Presentation: "AFFE Environmental Impact Review"

**W. Ruppert
Hughes Associates, Inc.
Baltimore MD**

**Aqueous Film Forming Foam
(AFFF)
ENVIRONMENTAL IMPACT
REVIEW**

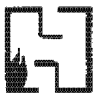
Bill Ruppert



HUGHES ASSOCIATES, INC.
FIRE SCIENCE & ENGINEERING

Background: AFFF Constituents

- MILSPEC based on Performance, not Constituents
- Must be on Qualified Products List - QPL
- Main Ingredients in Firefighting Strength Foam:
 - WATER = 98%-99%
 - Butyl Carbitol (Glycol Ether) = 0.5%–1.1%
 - Fluorosurfactants & Hydrocarbon Surfactants = 0.03%–0.45%
 - Ethylene Glycol (Not in all formulations) = 0.34%–0.60%
 - Urea (Not in all formulations) = 0.2–0.4%



Background:

AFFF 'Environmental' Properties

■ MIL-F-24385F Requirements

- Chemical Oxygen Demand
 - 3% Concentrate - 1,000,000 mg/L Max
 - 6% Concentrate - 500,000 mg/L Max
 - Calculated Firefighting Strength ~ 30,000 mg/L Max
- Biochemical Oxygen Demand (20 Day)
 - $= (0.65 \times \text{COD})$ or greater
- Aquatic Toxicity (LC50, Killiefish)
 - 3% Concentrate - 500 mg/L Min
 - 6% Concentrate - 1000 mg/L Min
 - Calculated Firefighting Strength ~ 16,667 mg/L Min

■ Persistence and Bioaccumulation

- Only Fluorosurfactants - Not in other constituents
- example: Butyl Carbitol $\log \text{BCF} = 0.46$

■ Foams



Background: AFFF Properties

MILSPEC vs. Typical QPL Product

| Property | MIL-F-24385F Requirements | | | Typical QPL Product | | |
|--------------------------------------|--------------------------------|-------------|------------|---------------------|--------------------|--------------------|
| | | | | | | |
| Chemical Oxygen Demand (mg/L) | 1,000,000 Max | 500,000 Max | 30,000 Max | 750,000 | 341,000 | 22,500 |
| | | | | | | |
| Biochemical Oxygen Demand (mg/L) | BOD ₂₀ > 0.65 x COD | | | 720,000 (0.96*COD) | 274,000 (0.80*COD) | 21,600 |
| | | | | | | |
| Aquatic Toxicity (Killiefish) (mg/L) | 500 Min | 1000 Min | 16,667 | >1000 | >1000 | >16,777 or >33,333 |
| | | | | | | |



Codes and Standards Survey Approach

- Electronic Review
- Federal Environmental Regulations
 - “AFFF”
 - MILSPEC AFFF Constituents (19)
 - Surfactants
 - Fluorosurfactants
 - Glycol Ethers
 - Urea, etc.
 - AFFF “Environmental” Properties
 - Biochemical And Chemical Oxygen Demands
 - Aquatic Toxicity
 - Foaming
- DOD, State And Local Regulations
 - “AFFF”
 - MILSPEC AFFF Constituents



Codes and Standards Survey

Federal Environmental Regulations

- Clean Air Act (CAA)
 - Air Emissions
 - Air Discharge Permits
- Emergency Planning and Community Right-to-Know Act (EPCRA)
 - Toxics Release Inventory (TRI)
 - Chemical Storage and Use
- Comprehensive Environmental Response, Compensation, & Liability Act (CERCLA)
 - Superfund Amendments and Re-authorization Act (SARA)
 - Spills and Clean-up Of Spills
- Resource Conservation and Recovery Act (RCRA)
 - Hazardous Waste
- Safe Drinking Water Act (SDWA)
 - Regulates Contaminants in Treated Drinking Water
- Clean Water Act (CWA)
 - Water Discharges
 - Water Discharge Permits



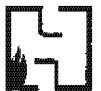
Federal Environmental Regulations Results

■ Clean Air Act (CAA)

- Glycol Ethers In AFFF Are Hazardous Air Pollutants (HAPs)
- HAP Releases Are Regulated by the Installation Air Permit
 - Major Sources for HAPs Might Have Potential Permit Issue

■ EPCRA and TRI

- Glycol Ethers are Covered Because CAA Defines them as HAPs
- Chemicals Released Above a Reportable Quantity (RQ) Must Be Reported
 - Default RQ was One (1) Pound
 - EPA Established a No RQ
- AFFF Discharges Do Not Currently Need to Be Reported Under EPCRA and TRI
- Ethylene Glycol Specifically Listed
- No Other Constituent is Currently Regulated by EPCRA and TRI



Federal Environmental Regulations Results

■ CERCLA and SARA

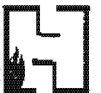
- Glycol Ethers are Covered Because CAA Defines them as HAPs
- Glycol Ethers May Need to Be “Cleaned Up” After a Spill
 - Air Pollutants So Expected to be Volatile
 - Are not volatile when mixed with water
 - Biodegradable So Might Be “Cleaned Up” Naturally

■ Resource Conservation And Recovery Act (RCRA)

- AFFF and Its Constituents are Not Classified as Hazardous Waste
- RCRA Does Not Apply

■ Safe Drinking Water Act:

- Primary Drinking Water Regulations (Health Properties)
 - Does not regulate AFFF or its constituents
- Secondary Drinking Water Regulations (Aesthetic Properties):
 - Foaming Agents <0.5 mg/L in drinking water
 - Do not regulate foaming agents in source water
 - Guideline for State Regulations Only (Not Federally Enforceable)

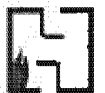


Federal Environmental Regulations

Results (Continued)

■ Clean Water Act (CWA)

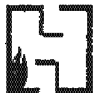
- Installations Require Discharge Permits
 - Storm Water
 - Treated Sewage from Installation Wastewater Treatment Plant
 - Raw Sewage to Public Wastewater Treatment Plant (Locale Specific)
- Regulates Wastewater that:
 - Foam
 - Remove Oxygen From Water
 - Disrupt Wastewater Treatment Plants, etc.
- AFFF
 - Persistent Foam
 - Removes High Amounts of Oxygen From Water (High BOD and/or COD)
 - Untreated, Undiluted AFFF Will Disrupt Wastewater Treatment Plant
 - (Even Diluted AFFF Can Disrupt Wastewater Treatment Plant) SDWA



Codes and Standards Survey

State/Local Environmental Regulations

- State Regulations Can be More Strict Than Federal
 - No Specific Instances Found for AFFF
 - Storm Sewer Regulations Emphasized
- Nothing Additional in County and City Regulations
- Representative Jurisdictions
 - Telephone Surveys
 - Focused on Jurisdictions In:
 - Virginia
 - Hawaii
 - Florida
 - California
- Local Anecdotal AFFF ‘Problems’
 - Sewage Treatment Plants Becoming ‘Bubble Baths’
 - Pump Stations ‘Burned-up’
 - Storm Sewer Overflowing With Foam



State/Local Environmental Regulations

(Continued)

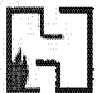
■ Foaming the Greatest Concern

■ Perception:

- Foam Is Highly Toxic to Everything
- No Concentration is Okay for a WWTP

■ Results

- Local Jurisdictions **CAN** and **DO** Regulate AFFF by Name
- Have Water Discharge Permit Authority
- Local Waste Water Treatment Plants Often Ban AFFF
 - Based on Direct Experience with a Disruption
 - High Oxygen Demand
 - Foaming



Environmental Consequences

■ Media Considered

- Air
- Groundwater
- Soil
- Surface Water
 - Via storm water
 - Via wastewater treatment plant

■ Both Constituent Characteristics and AFFF Solution Properties



Environmental Consequences

Media: Air

- HAPS: Butyl Carbitol, Ethylene Glycol
- Low Migration Potential (All Constituents)
 - Highly Soluble in Water
 - Tends to stay with liquid water
 - Not very volatile
 - If Volatilized, Half-lives in Air 4 Hr - 3.5 Days



Environmental Consequences

Media: Groundwater

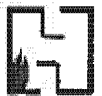
- **Consequence Varies Depending on Subsurface Conditions**
- **Fluorosurfactants: Not Mobile**
- **All Other Constituents:**
 - **Highly Soluble, Highly Mobile**
 - **Degrades Rapidly in Soil**
 - **30% Degradation Over 24 Hour Period**
- **Drinking Water Wells ‘Under the Influence of Surface Water’ Could Receive Undegraded AFFF Constituents**



Environmental Consequences

Media: Soil

- Consequence varies depending on soil type
- Fluorosurfactants and break-down products
 - Persistent in soil
 - No quantified environmental impact
 - EPA will discuss further tomorrow
- Other constituents highly mobile in water, will not adsorb to soil



Environmental Consequences

Media: Surface Water Via Storm Water

- Foaming:
 - Aesthetic Concern
- Oxygen Demand
 - Robs Oxygen from Water
 - Usually near water's surface
- Aquatic Toxicity
 - Considered 'Practically Nontoxic' by the US Fish and Wildlife Service.
 - Lowest toxicity value in 40 CFR 300
 - $LC_{50} > 1000$ mg/L in concentrate
 - ~160 mg/L in most sensitive species
 - Much Lower Toxicity in Firefighting Strength
 - Anecdotal Reports of Higher Toxicity
- Surface Water May influence Groundwater
- 'Environmental' Threat
 - Depends on Sensitivity of Receiving Water: Worst Cases
 - Kaneohe Bay, HI Risk Analysis - "Potential for significant ecological damage ... relatively small"
 - Wetlands
 - Waterfowl-Fluorosurfactant Interaction being studied in St. Johns River Basin in Florida.



Environmental Consequences

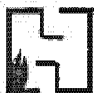
Media: Surface Water Via Direct Discharge to WWTP

■ Disrupts plant through:

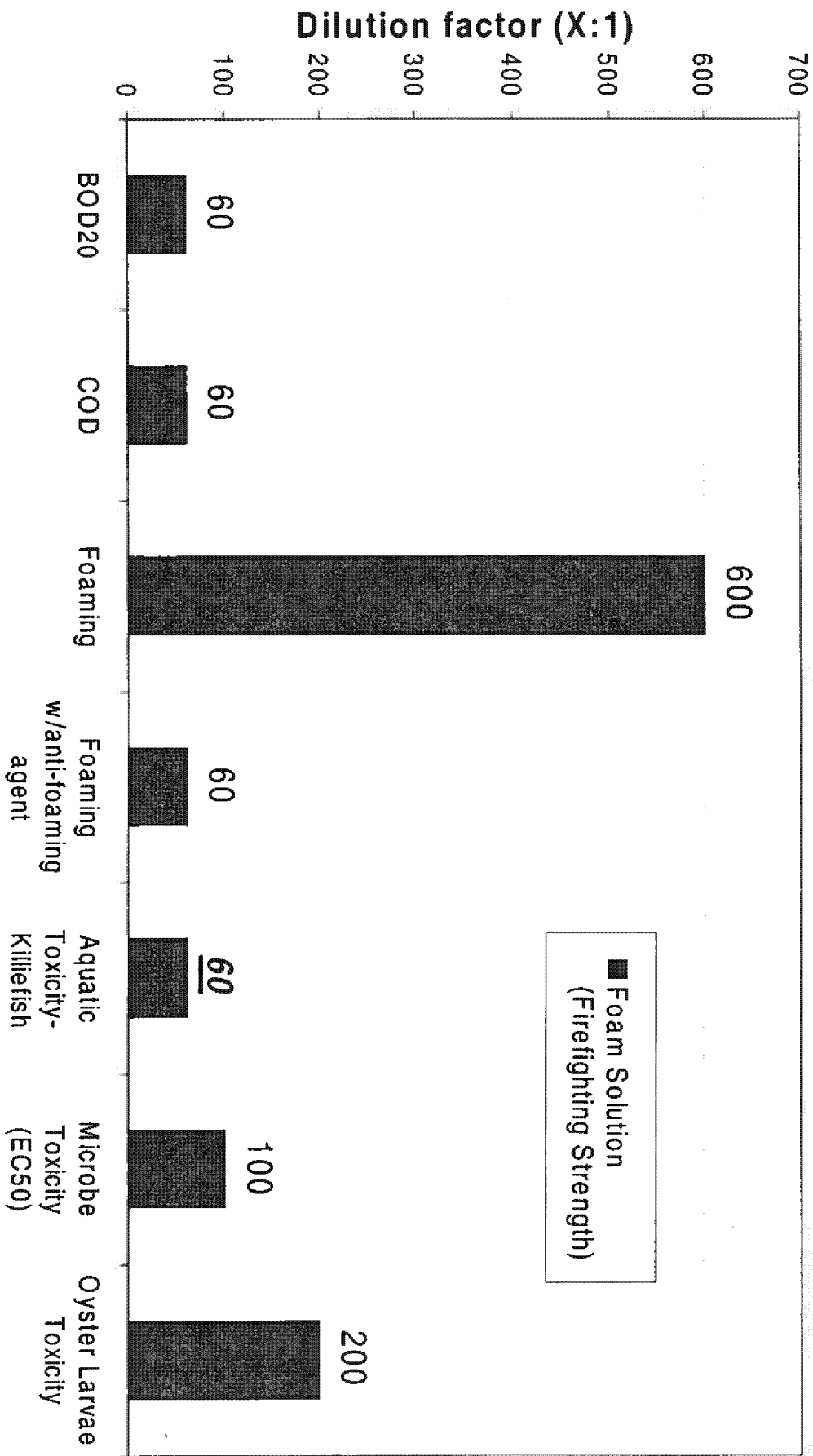
- Foaming
 - Disrupts mechanical devices
 - Causes 'sludge bulking'
 - Causes Froth
- High Oxygen Demand
 - Removes all oxygen - killing microorganisms used to treat sewage
 - Causes 'sludge bulking'.
- Aquatic Toxicity
 - Of lower concern than Foaming and Oxygen Demand
 - May cause 'sloughing' of organisms from certain processes

■ Disrupted plant:

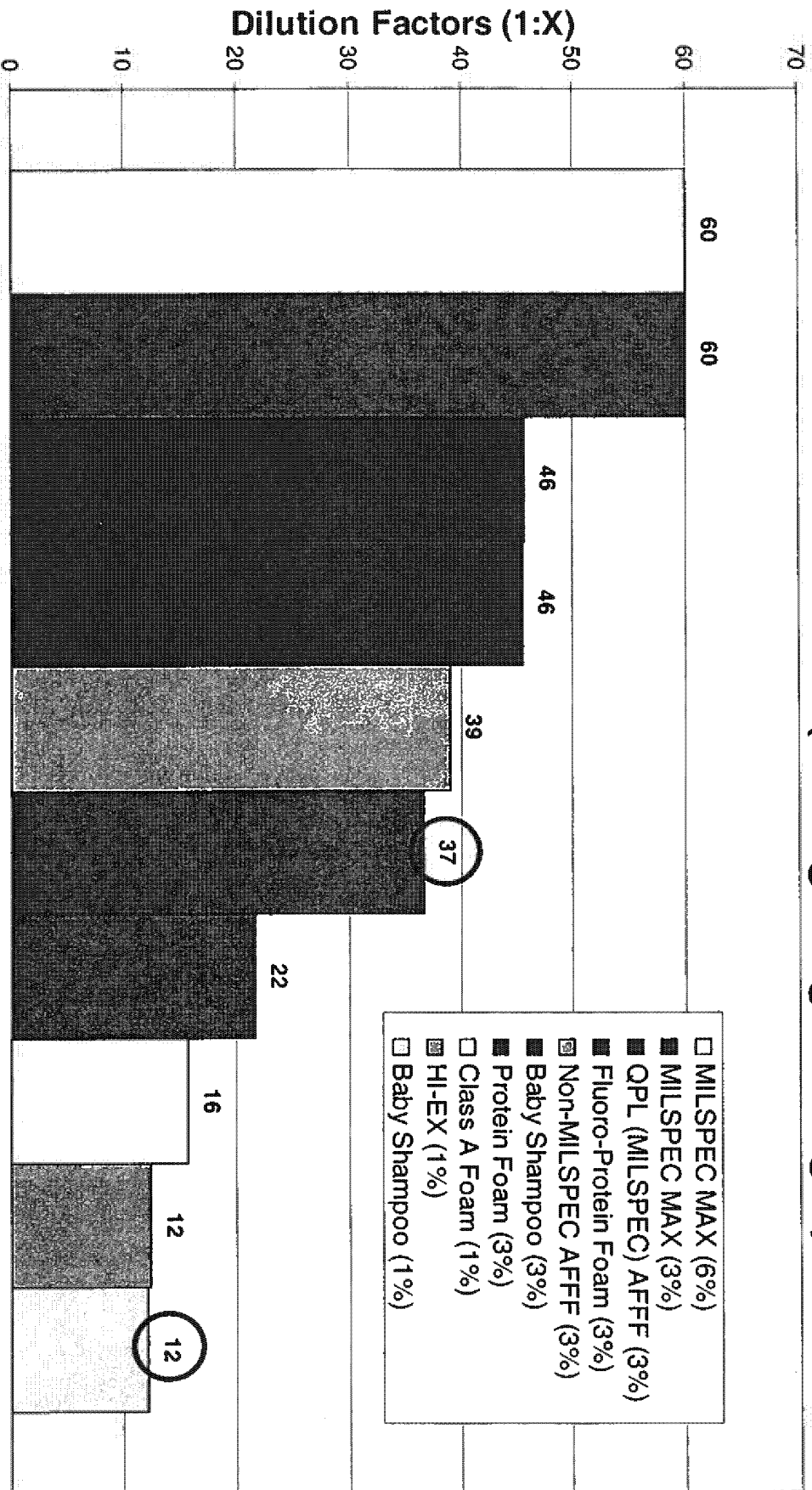
- Contaminates receiving water
- Could cause fish kill
- Makes water unfit for:
 - Drinking
 - Recreation, etc.



Representative Dilution Factors for Treatment of MAX MILSPEC AFFF at a WWTP

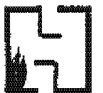


Representative Dilution Factors for COD of Foam Solution (Firefighting Strength)



Summary

- Under Context of Current Laws/Regulations, AFFF and all other Foams Regulated Based On:
 - Properties
 - BOD, COD, Foaming and Aquatic Toxicity
 - “Listed” Chemical Constituents
 - Butyl Carbitol, Surfactants, Ethylene Glycol, Urea, etc.
 - Water Issues are Most Prevalent
 - Foaming is Major Issue for WWTP
- Potential Environmental Impacts Generally Low
 - Impacts Consequence of
 - Foaming
 - O₂ Demand
 - Aquatic Toxicity
 - Upset of WWTP Creates Greatest Impact



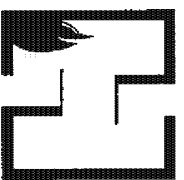
APPENDIX (9)

Presentation: AFFF Management – Risk Based Approach”

D. Verdonik
Hughes Associates, Inc.
Baltimore MD

AFFF Management Risk Based Approach

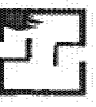
Dr. Dan Verdonik



HUGHES ASSOCIATES, INC.
FIRE SCIENCE & ENGINEERING

Why a Risk Based Approach?

- From Environmental Review
 - AFFF / Foams have Similar Environmental Impacts
 - Based on the Properties of Foams in General
 - Worst Impact for WWTP
 - Hazard Exists
 - Cannot Alter What Would Happen IF Released
- Can Reduce the IF or Likelihood of Release
 - Example - Double Hulled Oil Tankers
 - Hazard Exists from Potential Oil Spill
 - Double Hull Reduces Probability of Having the Oil Spill
 - Double Hull Does Not Reduce Environmental Impact IF Have Oil Spill
 - Reducing Probability Reduces the Risk to the Environment
- Need to Evaluate Probability of Foam Release
- Probability + Severity = Risk



Risk and Risk Assessments

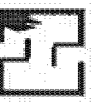
- Military Standard 882C: System Safety Program Requirements
 - Define Terms
 - Risk - Combination of hazard severity AND hazard probability
 - Hazard Probability: Aggregate probability of the individual events
 - Hazard Severity: Consequences of worst credible mishap
 - Control: Action to Eliminate Hazard or Reduce Risk
 - Applicable to All DOD Systems and Facilities
 - Identify the Hazards and Impose Design Requirements and Management Controls to Prevent Mishaps
 - Tailor to Application
 - AFFF/Foam Discharge from Facility Fixed Fire Suppression System
 - Accidental Discharge
 - Pre-planned testing
- Have Hazard Severity, Need Hazard Probability
 - Determine Risk
 - Risk Decision



MIL-STD-882C

4.5.2 Hazard Probability

- Potential occurrences per unit of time, events, population, items, or activity
 - Quantitative probability for potential design generally not possible
 - Qualitative probability
 - Derived from research, analysis, and evaluation of historical data
- Given for Specific Individual Item or Fleet / Inventory
- Assign Probability of Having Environmental Consequence



Qualitative Probability Levels

Specific Individual Item

FREQUENT

(A)

Likely to occur frequently

PROBABLE

(B)

Will occur several times in the life of an item

OCCASIONAL

(C)

Likely to occur some time in the life of an item

REMOTE

(D)

Unlikely but possible to occur in the life of an item

IMPROBABLE

(E)

So unlikely, it can be assumed occurrence may not be experienced



MIL-STD-882C

4.5.1 Hazard Severity

- Hazard Severity Category Definition
 - Provide Qualitative Measure of Worst Credible Mishap
 - Result of:
 - Personnel Error
 - Environmental Conditions
 - Design Inadequacies
 - Procedural Deficiencies
 - System, Subsystem or Component Failure or Malfunction



Qualitative Hazard Severity Categories

- CATASTROPHIC (1) Death, System Loss, or Severe Environmental Damage
- CRITICAL (2) Severe Injury, Severe Occupational Illness, Major System or Environmental Damage
- MARGINAL (3) Minor Injury, Minor Occupational Illness, Minor System or Environmental Damage
- NEGLECTIBLE (4) Less Than Minor Injury, Occupational Illness, Less Than Minor System or Environmental Damage



Risk Assessment and Acceptance

| FREQUENCY | CATEGORY | 1 CATASTROPHIC | 2 CRITICAL | 3 MARGINAL | 4 NEGIGIBLE |
|----------------|----------|-------------------|---------------|---------------|----------------|
| A - FREQUENT | | 1A | 2A | 3A | 4A |
| B - PROBABLE | | 1B | 2B | 3B | 4B |
| C - OCCASIONAL | | 1C | 2C | 3C | 4C |
| D - REMOTE | | 1D | 2D | 3D | 4D |
| E - IMPROBABLE | | 1E | 2E | 3E | 4E |

■ Risk Index - Suggested Acceptance Criteria in MIL-STD-882C

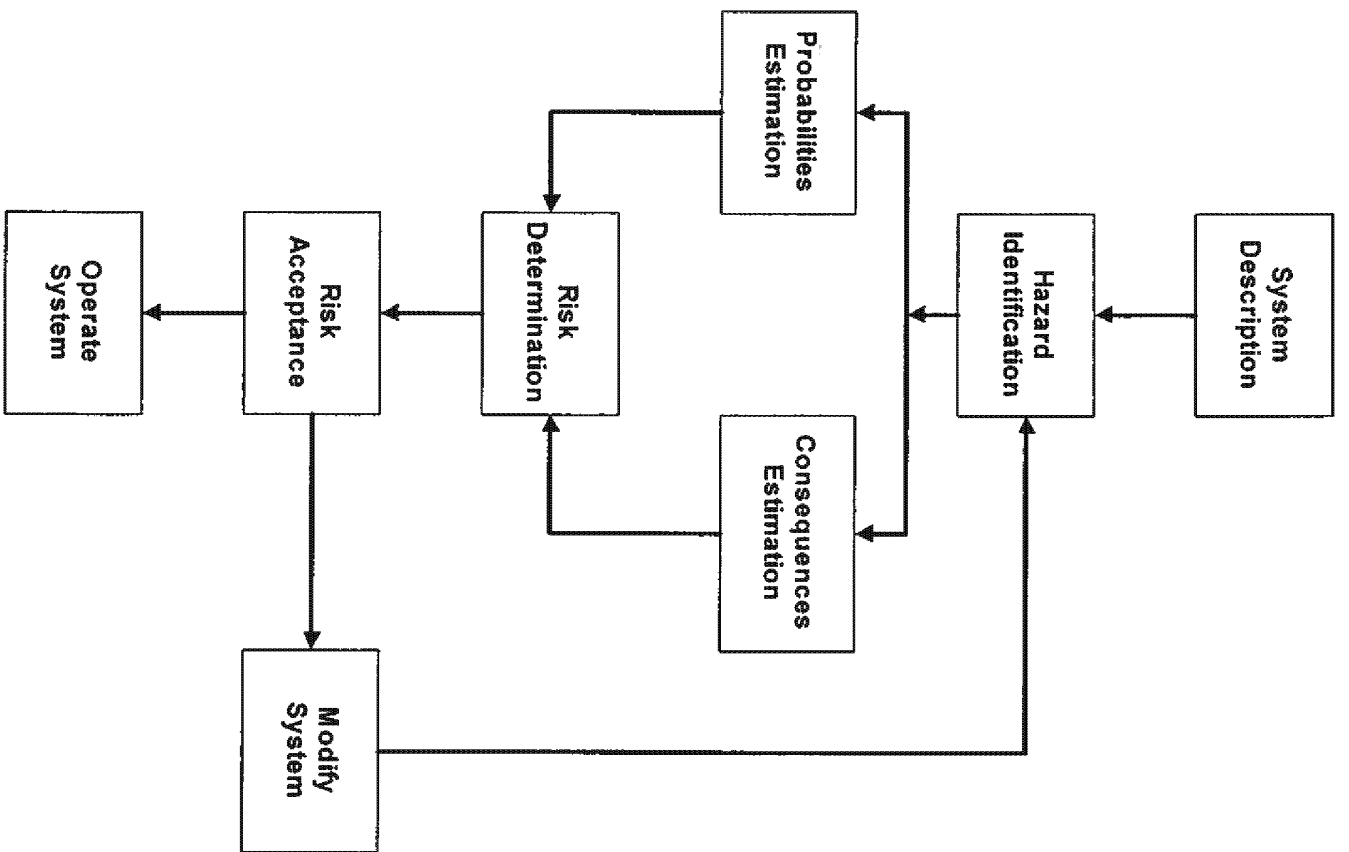
| | |
|--------------------------|------------------------|
| Unacceptable: | 1A, 1B, 1C, 2A, 2B, 3A |
| Undesirable: | 1D, 2C, 2D, 3B, 3C |
| Acceptable w/ Review | |
| by Managing Activity: | 1E, 2E, 3D, 3E, 4A, 4B |
| Acceptable w/out Review: | 4C, 4D, 4E |



Design Criteria

- Design for minimum risk
 - Review design criteria for inadequate or overly restrictive requirements
 - Design to eliminate hazards
 - If hazard cannot be eliminated
 - Reduce risk to an acceptable level through design selection
 - Interlocks, redundancy, fail safe design, system protection, fire suppression, and protective clothing, equipment, devices, and procedures
- Recommend new design criteria supported by study, analyses, or test data





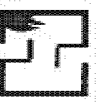
Probability Estimation

3 Parts to Probability Estimation

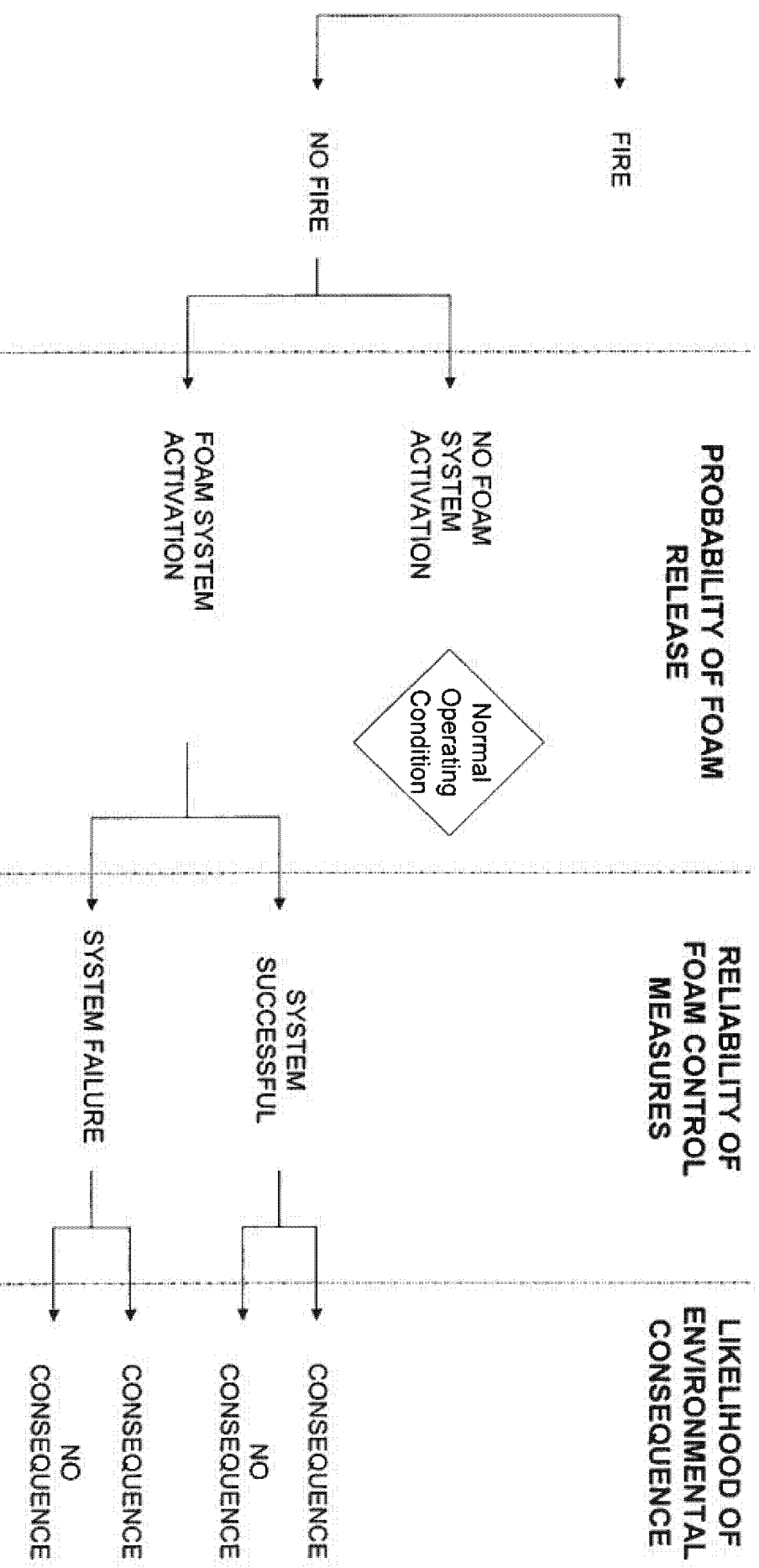
**Probability of
foam release**

**Reliability of
system
controlling
foam
movement**

**Likelihood of
environmental
consequence**



Probability Estimation



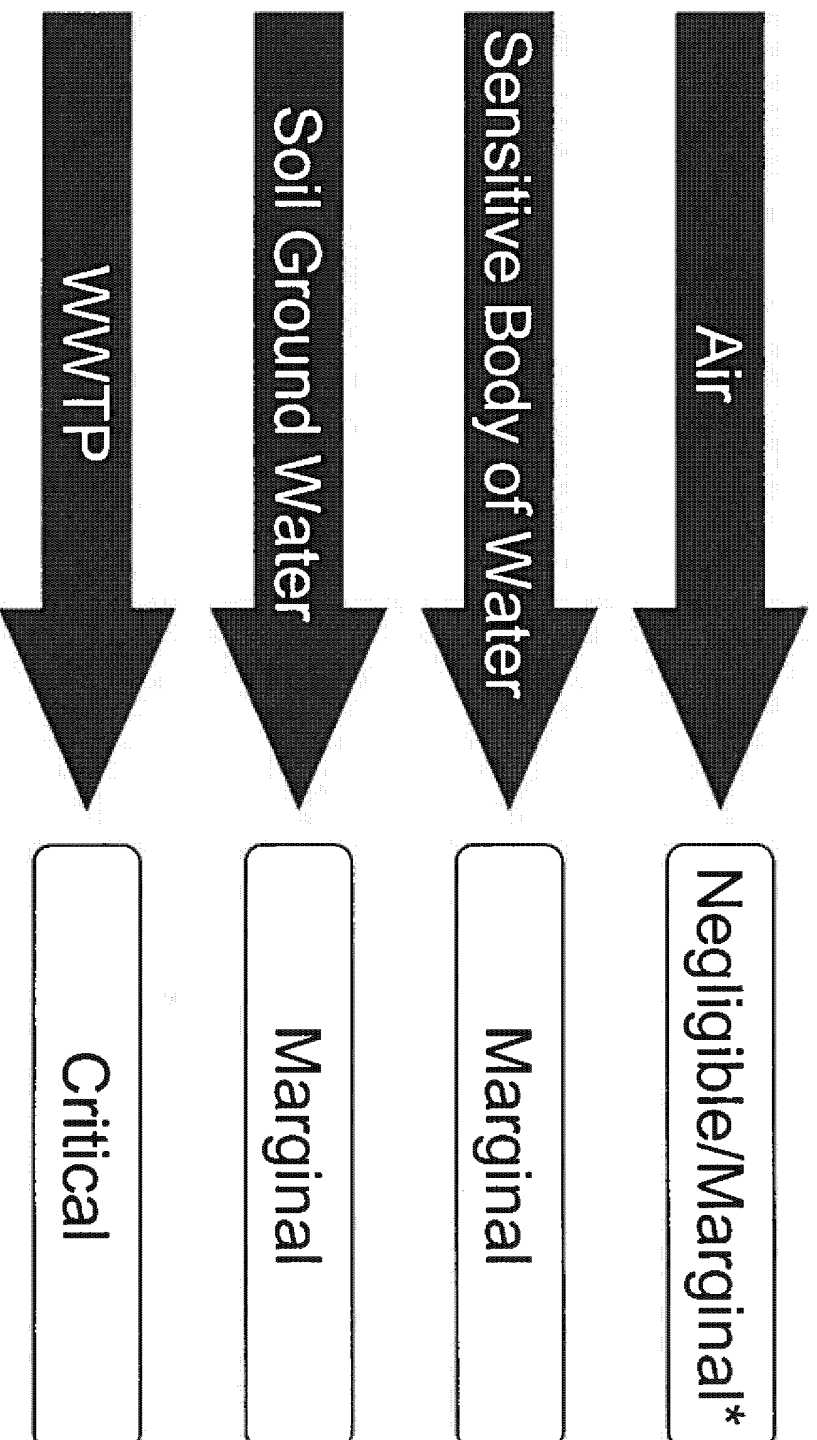
Accident Probability Estimation Of Environmental Consequence

| | AIR | Sensitive Body of Water | Soil Ground Water | Wastewater Treatment Plant |
|--|-----|-------------------------|-------------------|----------------------------|
| 1. Sanitary sewer, WWTP | E | C | E | C |
| 2. Segregated Storm Sewer | E | C | E | E |
| 3. Plugged, Storm Sewer | E | D | E | D |
| 4. Pavement, Plugged Storm Sewer/drains | E | D | E | E |
| 5. Pavement, Plugged Combined Sewer/drains | E | D | E | D |
| 6. Pavement, Combined Sewer WWTP | E | C | E | C |
| 7. Pavement, Storm Sewer | E | C | E | E |
| 8. Unlined Pond, Percolates | E | E | E | E |
| 9. Lined Pond, Pump Off-Site | E | E | E | E |
| 10 Lined Pond, evaporate | E | E | E | E |
| 11. Lined Pond, Meter WWTP | E | D | E | D |
| 12. Lined Pond, Meter Storm Sewer | E | C | E | D |
| 13. Lined Pond, Degrade WWTP | E | D | E | D |
| 14. Lined Pond, Degrade Storm Sewer | E | D | E | D |
| 15. Tank, Pump Off-Site | E | E | E | E |
| 16. Tank, Meter WWTP | E | D | E | D |
| 17. Tank Meter Storm Sewer | E | C | E | D |
| 18. Tank, Degrade WWTP | E | D | E | D |
| 19. Tank, Degrade Storm Sewer | E | D | E | D |

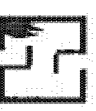


Consequence Estimation

Severity of Environmental Impact



*Air becomes marginal if foam in WWTP



Risk Assessment and Acceptance

| | AIR | Sensitive Body of Water | Soil Ground Water | Wastewater Treatment Plant |
|--|-----|-------------------------|-------------------|----------------------------|
| 1. Sanitary sewer, WWTP | 3E | 3C | 3E | 2C |
| 2. Segregated Storm Sewer | 4E | 3C | 3E | 2E |
| 3. Plugged, Storm Sewer | 4E | 3D | 3E | 2D |
| 4. Pavement, Plugged Storm Sewer/drains | 4E | 3D | 3E | 2E |
| 5. Pavement, Plugged Combined Sewer/drains | 4E | 3D | 3E | 2D |
| 6. Pavement, Combined Sewer WWTP | 3E | 3C | 3E | 2C |
| 7. Pavement, Storm Sewer | 4E | 3C | 3E | 2E |
| 8. Unlined Pond, Percolates | 4E | 3E | 3E | 2E |
| 9. Lined Pond, Pump Off-Site | 4E | 3E | 3E | 2E |
| 10. Lined Pond, evaporate | 4E | 3E | 3E | 2E |
| 11. Lined Pond, Meter WWTP | 3E | 3D | 3E | 2D |
| 12. Lined Pond, Meter Storm Sewer | 4E | 3C | 3E | 2D |
| 13. Lined Pond, Degrade WWTP | 3E | 3D | 3E | 2D |
| 14. Lined Pond, Degrade Storm Sewer | 4E | 3D | 3E | 2D |
| 15. Tank, Pump Off-Site | 4E | 3E | 3E | 2E |
| 16. Tank, Meter WWTP | 3E | 3D | 3E | 2D |
| 17. Tank Meter Storm Sewer | 4E | 3C | 3E | 2D |
| 18. Tank, Degrade WWTP | 3E | 3D | 3E | 2D |
| 19. Tank, Degrade Storm Sewer | 4E | 3D | 3E | 2D |



Summary

- **Control and Management of AFFF Solutions**
 - Based on Risk of Environmental Consequence
 - Risk Decision
 - Probability AND Severity
 - No “Unacceptable” Risks from Accidental Discharge
 - “Undesirable” Risks Avoidable through Design
 - Remaining Options All have Equivocal Residual Risk
- **Basis for Design Criteria**
 - Ensure Risk is “Acceptable w/ Review by Managing Activity” Category
 - Minimizes Risk to the Environment
 - Does Not Increase Risk to Life-Safety/ Fire Loss



APPENDIX (10)

Presentation: "Phasing Out a Problem: Perfluorooctyl Sulfonate"

**M. Dominiak
Environmental Protection Agency**

*Phasing Out a Problem:
Perfluorooctyl Sulfonate (PFOS)*

Mary F. Dominiak

U.S. Environmental Protection Agency

Naval Research Laboratory

3 August 2000

What is PFOS?

- Perfluorooctyl sulfonates; *acids, salts, halides, etc.*
- Man-made: do not occur in nature
- Produced since 1950's for use in surface treatment, paper protection, and performance chemical (surfactant and insecticide) products
- Also produced by breakdown/degradation of other sulfonyl-based fluorochemicals
- Made mostly by 3M Company

What is PFOS used for?

- Soil and stain resistant coatings on textiles, carpets, leather (2.3 million lbs/year)
- Oil, grease, and water resistance on paper products, including paperboard and food contact papers (2.6 million lbs/year)
- Performance chemicals: fire fighting foams, industrial surfactants, acid mist suppression, etc. (1.5 million lbs/year)

Why is PFOS a problem?

- PFOS is a PBT chemical:
 - Persistent
 - Bioaccumulative
 - Toxic
- PFOS has been found in the blood of the general US population, in wildlife, and in people overseas

Why is PFOS a problem?

- Persistent:
 - PFOS is a very stable chemical that does not break down or degrade in the environment;
once it's there, it stays
- Bioaccumulative:
 - PFOS can build up over time; *its half-life in human blood is about 4 years*
 - Higher-ups in the food chain are exposed to the full dose of what has built up in their food

Why is PFOS a problem?

- Toxicity:
 - PFOS is only moderately toxic via acute oral exposure; *rat LD₅₀ of 251 mg/kg*
 - In repeat oral dose subchronic and reproductive toxicity studies, however, serious effects seen
 - *Post-natal deaths in rats at 3.2 and 1.6 mg/kg/day*
 - *In repeat-dose treated Rhesus monkeys, death within 3 weeks at 10 mg/kg/day; within 7 weeks at 4.5 mg/kg/day. Adverse effects in cynomolgus monkeys at 0.75 mg/kg/day*

Why is PFOS a problem?

- Detected in blood not only in workers handling the chemical, but in the general US population and in wildlife
 - *High as 12.83 ppm in manufacturing workers*
 - *In pooled serum from general population, 30-40 ppb; small sample of children, mean 54 ppb*
 - *In eagles, wild birds, and fish, in ppb range*

How did PFOS get in people?

- We don't know the precise exposure route, but studies are underway
- Possibilities include:
 - Dietary intake from food wrapped in papers treated with PFOS derivatives
 - Inhalation from aerosol applications
 - Inhalation, dietary, or dermal exposures during manufacturing, use, or disposal of chemicals and treated products

Why haven't PFOS problems been addressed before?

- PFOS was always known to be persistent, but much information on bioaccumulation and toxicity is recent
 - Improved detection technologies find PFOS at much lower levels in humans, wildlife
 - PFOS doesn't fit normal bioaccumulation model; *partitions to blood, not fat*
 - Newest toxicity tests raise greatest concerns

How big a risk is PFOS?

- EPA does not believe that the current situation presents an imminent health risk to the general US population; *blood levels low, concentration in surface-treated products (carpets/textiles) low*
- However, serious concern for potential future risk to humans and wildlife if PFOS continues to be produced, released, built up in the environment
- Studies underway to determine relationship of current blood levels to potential for adverse effects
- Questions/concerns on occupational exposures

What is being done about PFOS?

- 3M conducted studies, shared results with EPA, and discussed concerns
- On 5/16/2000, 3M publicly announced voluntary phase-out of perfluorooctanyl chemistries, most by end of 2000
- 3M submitted phase-out plan to EPA on 6/16/2000, amended on 7/7/2000
- 3M continues aggressive research program

What does the 3M PFOS phaseout plan involve?

- 3M will stop manufacture of PFOS for surface treatment products by 12/31/2000; *includes fabric/carpet/leather soil and stain resistance and paper coating products, including food contact*
- 3M will phase out manufacture of PFOS for performance products by 12/31/2002
- *Caveat:* May request permission for extended production for specific performance uses for which adequate substitutes do not exist or can't be qualified in time; *risk/risk tradeoffs, national security, technical performance issues*

What does EPA think of 3M's PFOS phaseout plan?

- EPA agrees that continued manufacture and use of PFOS represents an unacceptable technology that should be eliminated to protect human health and the environment from long term consequences
- 3M's voluntary phaseout will accomplish this goal more quickly than regulation could
- EPA may use regulation to "close the door" on PFOS after 3M's exit; *concerned parties will be able to comment and to dialogue with EPA*

What does this mean for fire fighters using PFOS foams?

- Fire fighting foams are in the performance category of products; continue through 2002
- 3M and EPA will be assessing health, safety and environmental implications of possible substitutes; *will welcome dialogue!*
- If qualified substitutes not available by end of 2002, 3M may request continued PFOS production for specific uses

What about using chemicals other than PFOS?

- Initial actions and phaseout apply to PFOS chemicals only
- EPA will be expanding review to assess other perfluorinated chemicals and related chemistries; *PFOA, telomers*
- Assessment activities will be international
- Industry group already proposing voluntary two-year research effort on some major telomers to begin 9/2000
- Too early to anticipate outcomes

How will EPA make decisions on PFOS issues?

- Toxic Substances Control Act (TSCA)
- Risk/benefit balancing requirements allow flexibility; *TSCA lets EPA take risk/risk tradeoffs, economic issues into account*
- Possible actions include:
 - Bans
 - Restrictions on uses
 - Production volume limits
 - Data collection and new testing requirements
 - Labeling, hazard communication

Where can I find information on PFOS and EPA actions?

- All documents on PFOS in public EPA Administrative Record, File AR-226
 - Includes all health studies submitted on PFOS
 - Available in hard copy or on CD-ROM
 - 401 M St, SW, Room NE B-607, Wash., DC, noon to 4 PM Eastern, Monday-Friday; telephone 202-260-7099
- Working on website; *not up yet, stay tuned*
- Interim EPA “Voice of PFOS:” Mary Dominiak, phone 202-260-7768; *dominiak.mary@epa.gov*

APPENDIX (11)

Presentation: "Facilities Background and AFFF Issues"

J. Simone
Naval Facilities Engineering Command

Facilities Background And AFFF Issues

**Presentation to Hangar Facilities Breakout Session
DOD AFFF Environmental Meeting
2 August 2000**

**Joe Simone
Naval Facilities Engineering Command**

FACILITIES BACKGROUND

- **Facilities that use AFFF - Aircraft Hangars, HAZ/FLAM Buildings, Fire Fighters Test Facilities, Hush Houses, and others**
- **Variety of Fire Protection Criteria in the Last 10 Years**
- **Variety of Containment Requirements**
- **No Risk Analysis with respect to Environmental**
- **Budget Proposals Guess or Don't Address Funding**

1

NAVAIR/NAVFAC HANGAR PROJECTS

- **Evaluated Detector & Sprinkler Response Time in Hangars**
- **Evaluated Removing AFFF from Overhead Sprinkler Systems**
 - **Evaluated Using Lower AFFF Application Rate**
- **Evaluated New Low Level AFFF Distribution Systems**
- **Evaluated Variety of Optical Flame Detectors**
- **Developed New Fire Protection Criteria**

2

DESIGN

PREVIOUS DESIGNS

- Deluge AFFF Sprinklers
- High Volume AFFF System (20,000 sq.ft. => 5,000 gpm AFFF)
- AFFF is used in the Ceiling and Low Level Systems
- Full Discharge Testing
- May or May not have Drainage System

CURRENT DESIGNS

- Closed Head, Water only Sprinklers
- Low Volume AFFF System (20,000 sq.ft. => 2,000 gpm AFFF & 3,000 gpm water)
- AFFF is used in the Low Level System only
- Test Ports for Discharge Testing
- Drainage
- Detection Technology
- Can Include Abort Switches ₃

AFFF MANAGEMENT ISSUES

- Environmental Hazard is Not Quantified
 - Toxicity?, Air?, Water?
- No Uniform Criteria for AFFF Management (site specific)
- Current Containment Requirements are Based on Worst Case
- Cost of Containment Exceeds Project Funding
- Exceeding Project Funding Results in Removal of Fire Protection Systems from Hangars - Impaired Mission

4

CONTAINMENT ISSUES

If Containment is Required:

- Manual Intervention or Fixed Containment?
- How Do You Size Containment (10 minutes of AFFF supply)?
- Disposal - Is it necessary?

5

APPENDIX (12)

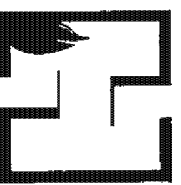
Presentation: "AFFF Risk Assessment"

**A. Wakelin
Hughes Associates, Inc.
Baltimore MD**

Aqueous Film Forming Foam (AFFF) Risk Assessment

**For discharges of AFFF from fixed
fire protection systems in shore
facilities**

Alison Wakelin



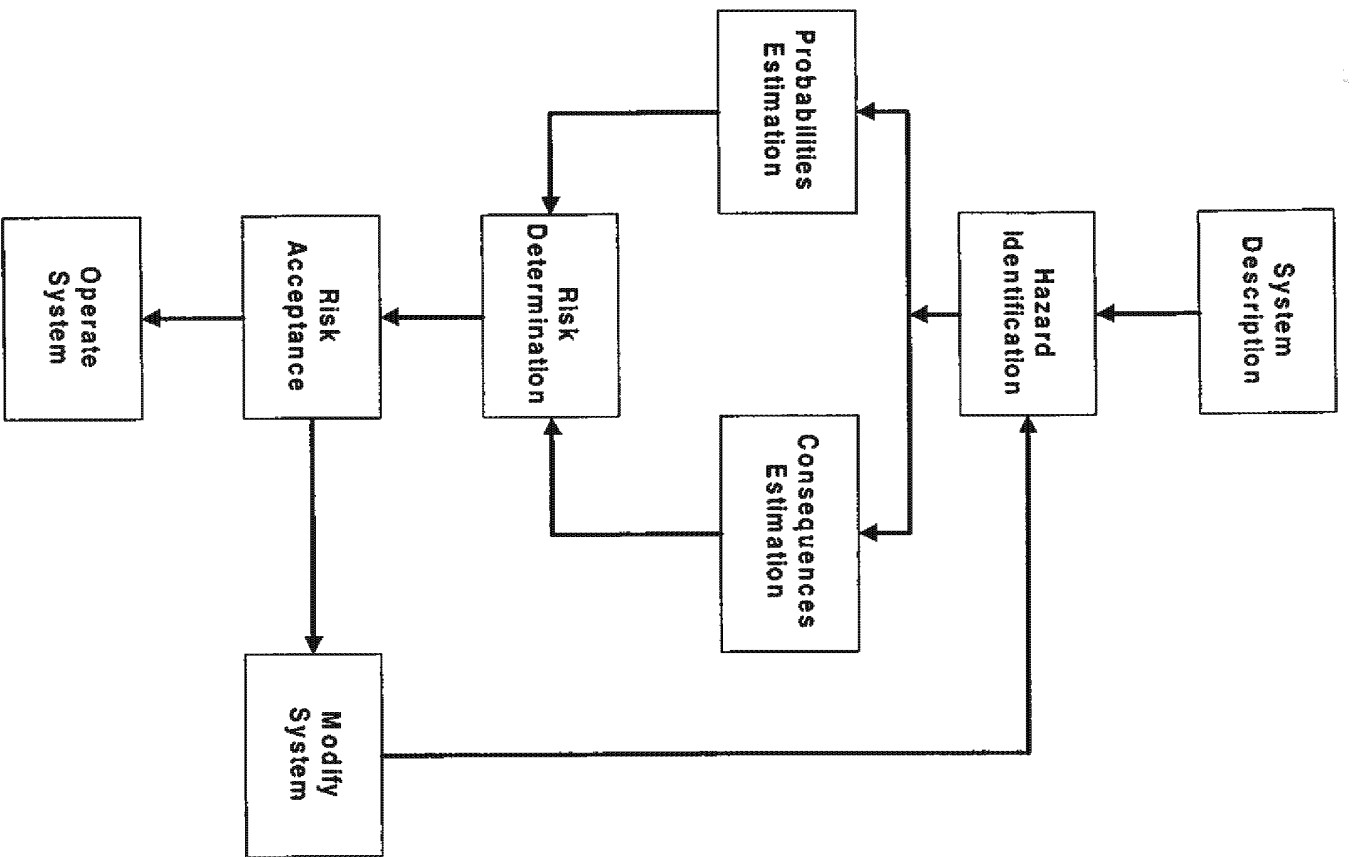
HUGHES ASSOCIATES, INC.
FIRE SCIENCE & ENGINEERING

August 2, 2000

Overview

- Develop physical control options
 - Performance Criteria
- Probability Estimation
- Consequence Estimation
- Risk Assessment

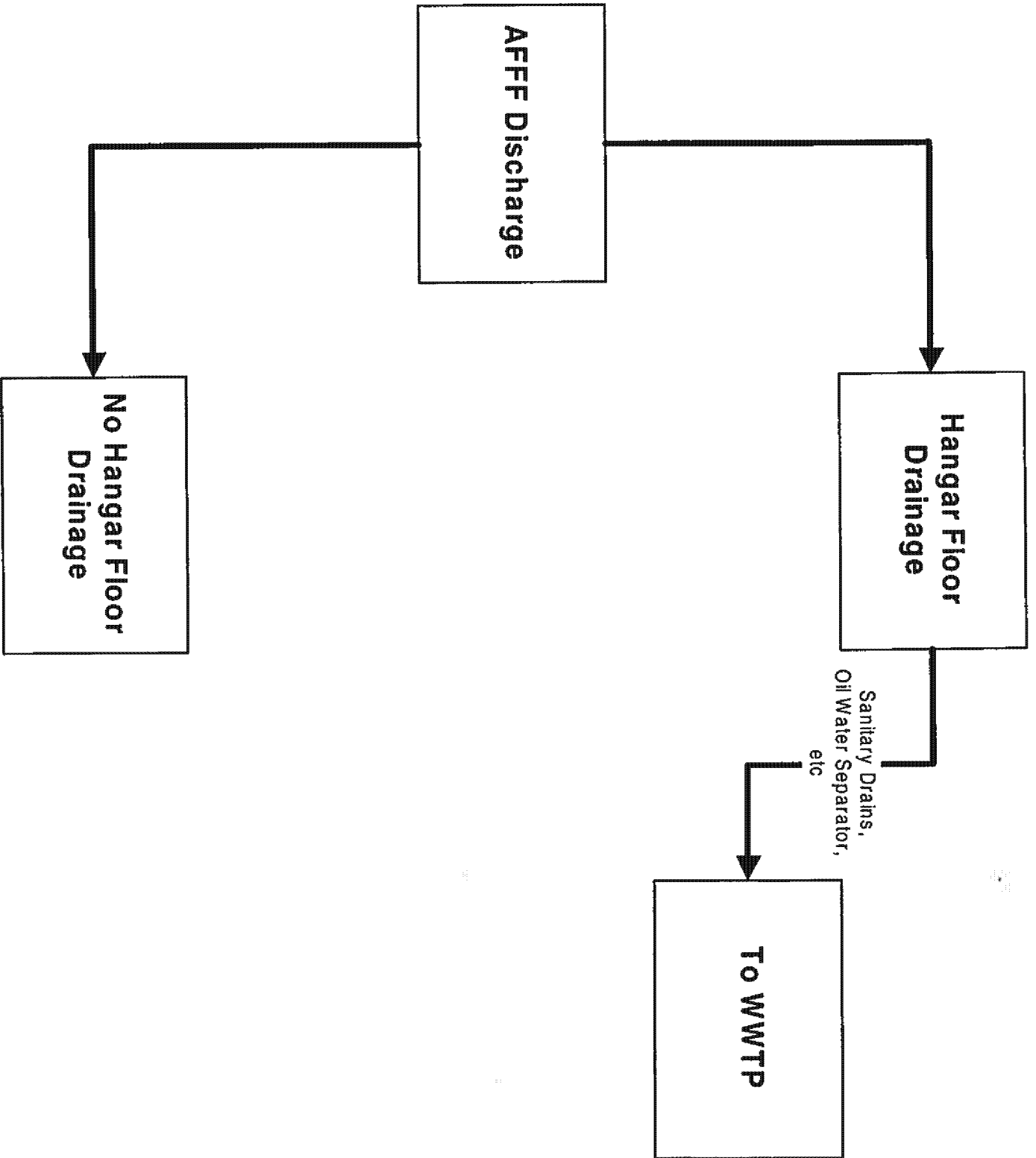


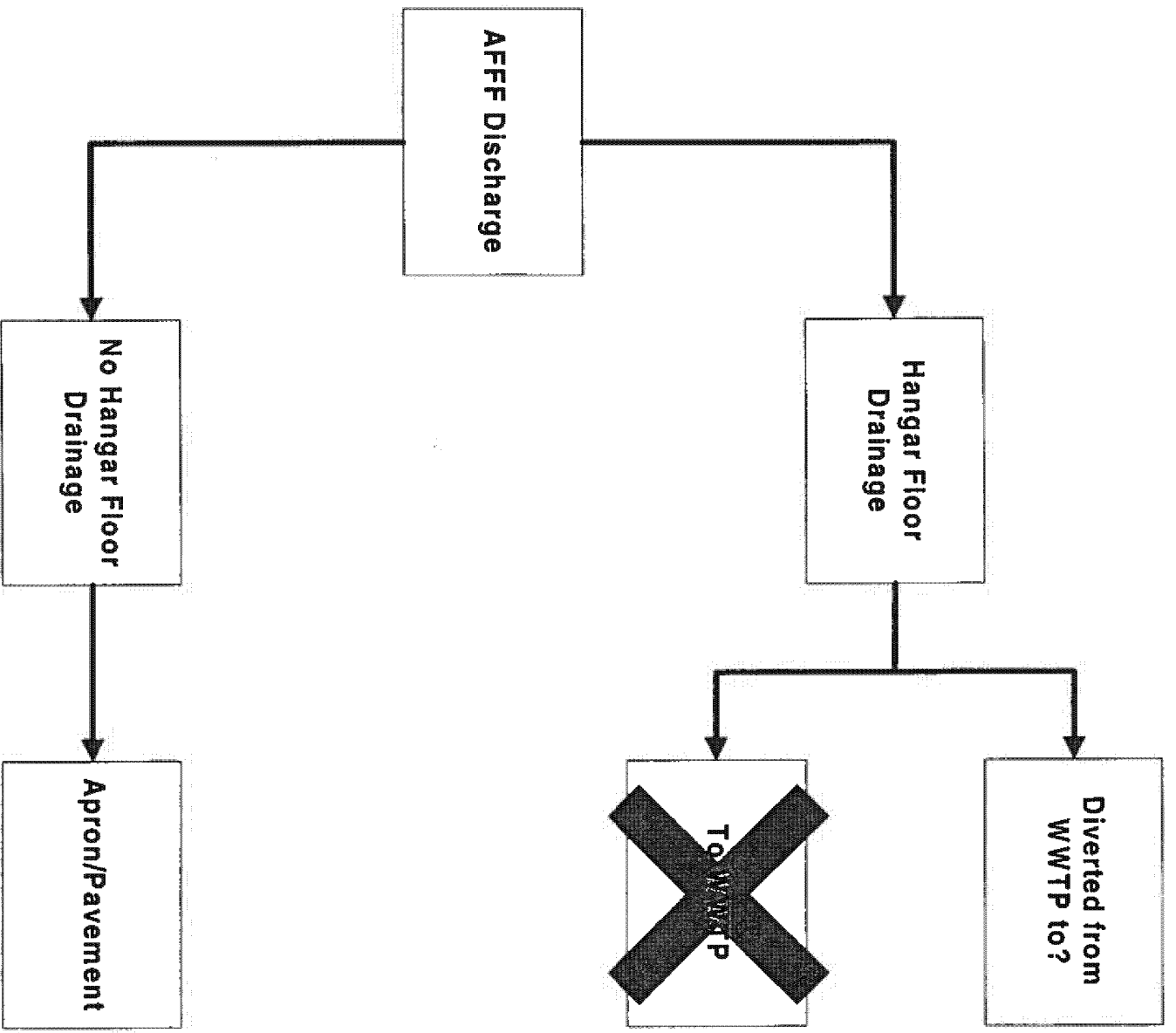


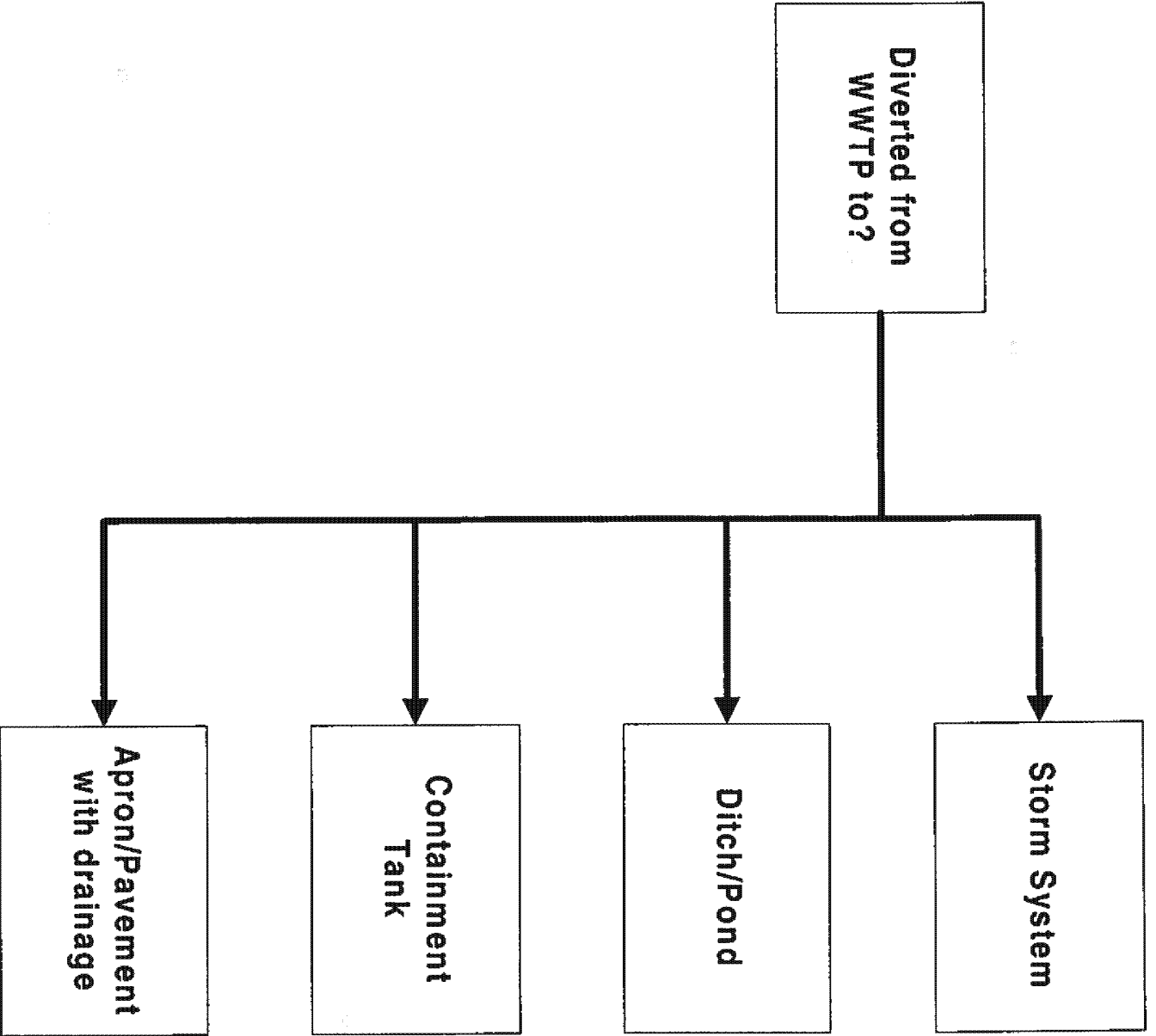
Develop Physical Control Options

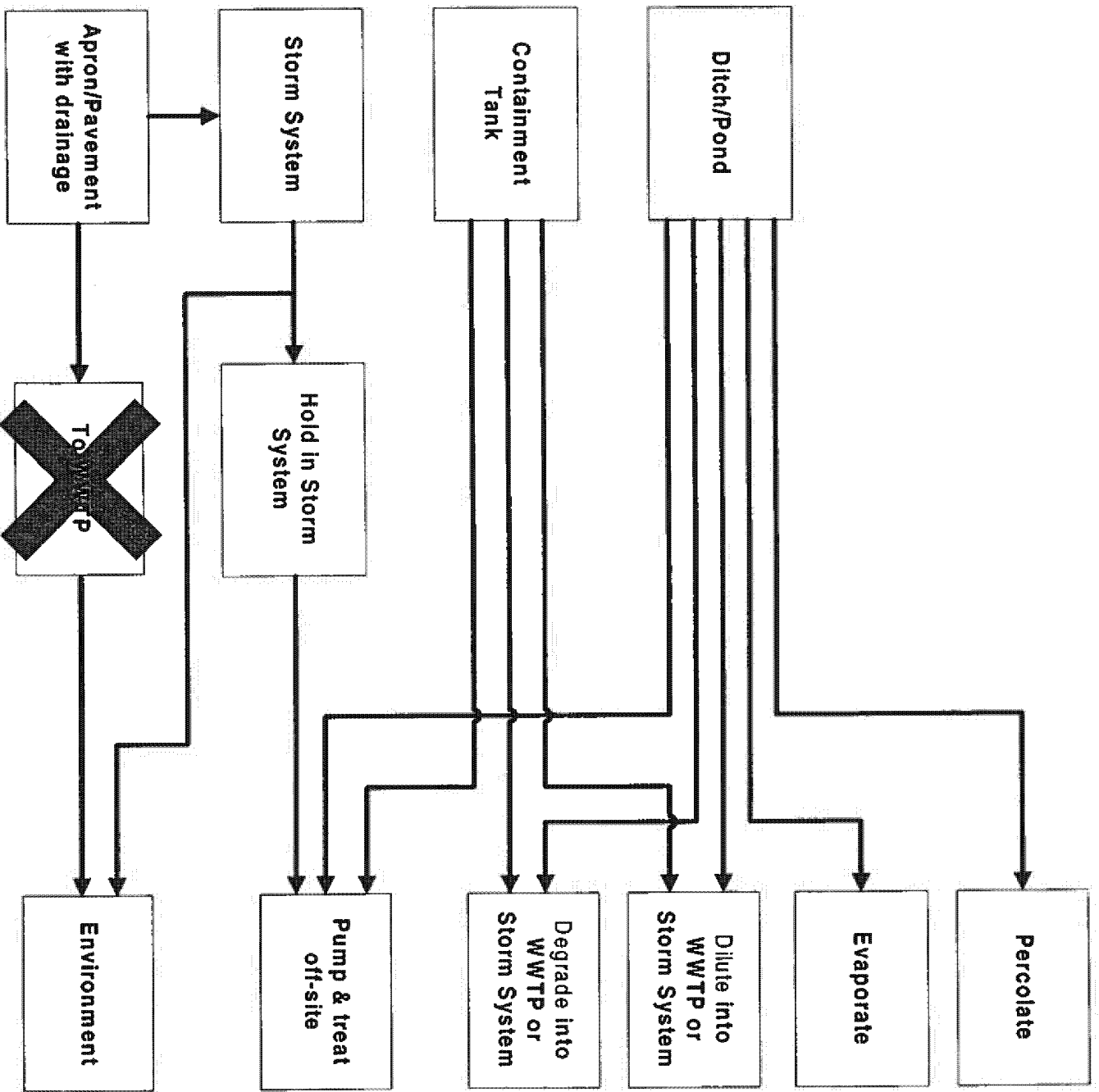
- Hangar drainage requirements (NFPA 409)
- Foam to the WWTP?
- Other options for maintaining positive control of foam











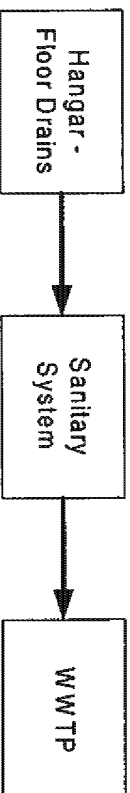
Physical Control Options

- 19 different control options
- Sufficient number to show range of risks
- Three options will be presented
 - data from all available on request

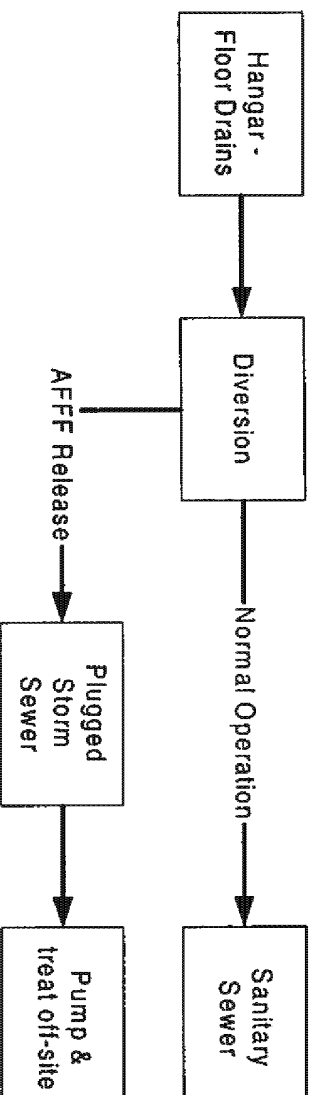


Example Physical Control Options

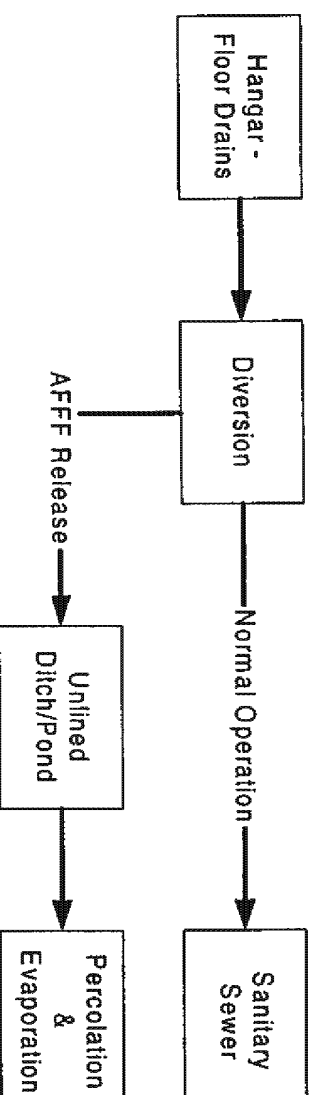
1. Sanitary sewer with direct access to WWTP



2. Plugged, totally segregated storm sewer



3. Pond, Percolate (drains into soil)



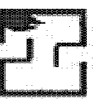
Performance Criteria

- Detailed investigation of control options
- What are performance goals of control options?
 - How much of a discharge needs to be controlled?
- Accidental discharge shut-off in 3 mins?
- Accidental discharge of all foam?

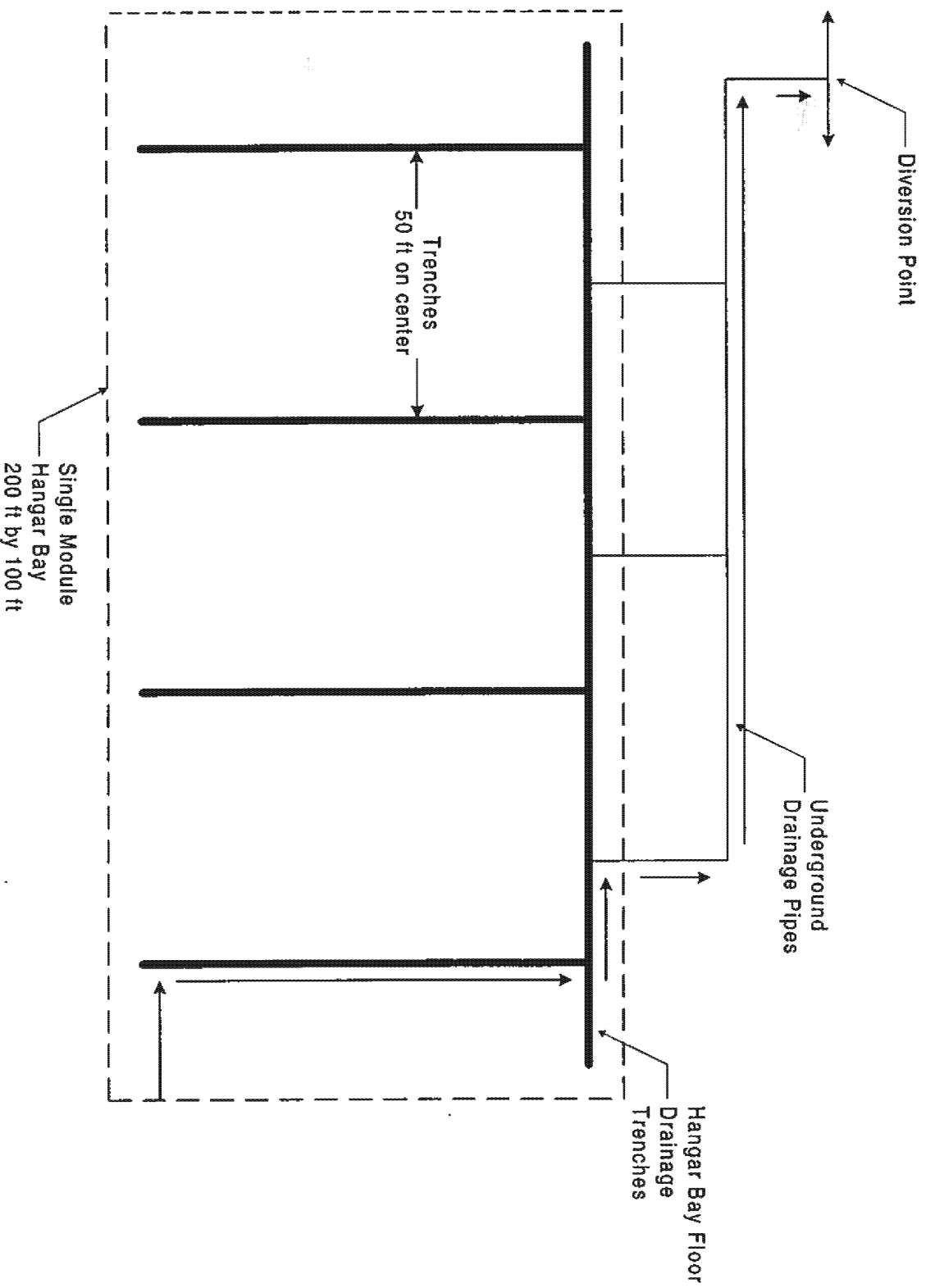


Proposed Foam Control Criteria

- Conservative approach all foam has drained to beyond diversion point
- No emergency shut-off
- 6 min drainage time
- Single “module” hangar 100 ft by 200 ft
- Total flow
 - 16 min @ 2000 gpm = 32,000 gal



Proposed Foam Control Criteria Drainage



Probability Estimation

3 Parts to Probability Estimation

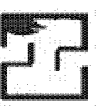
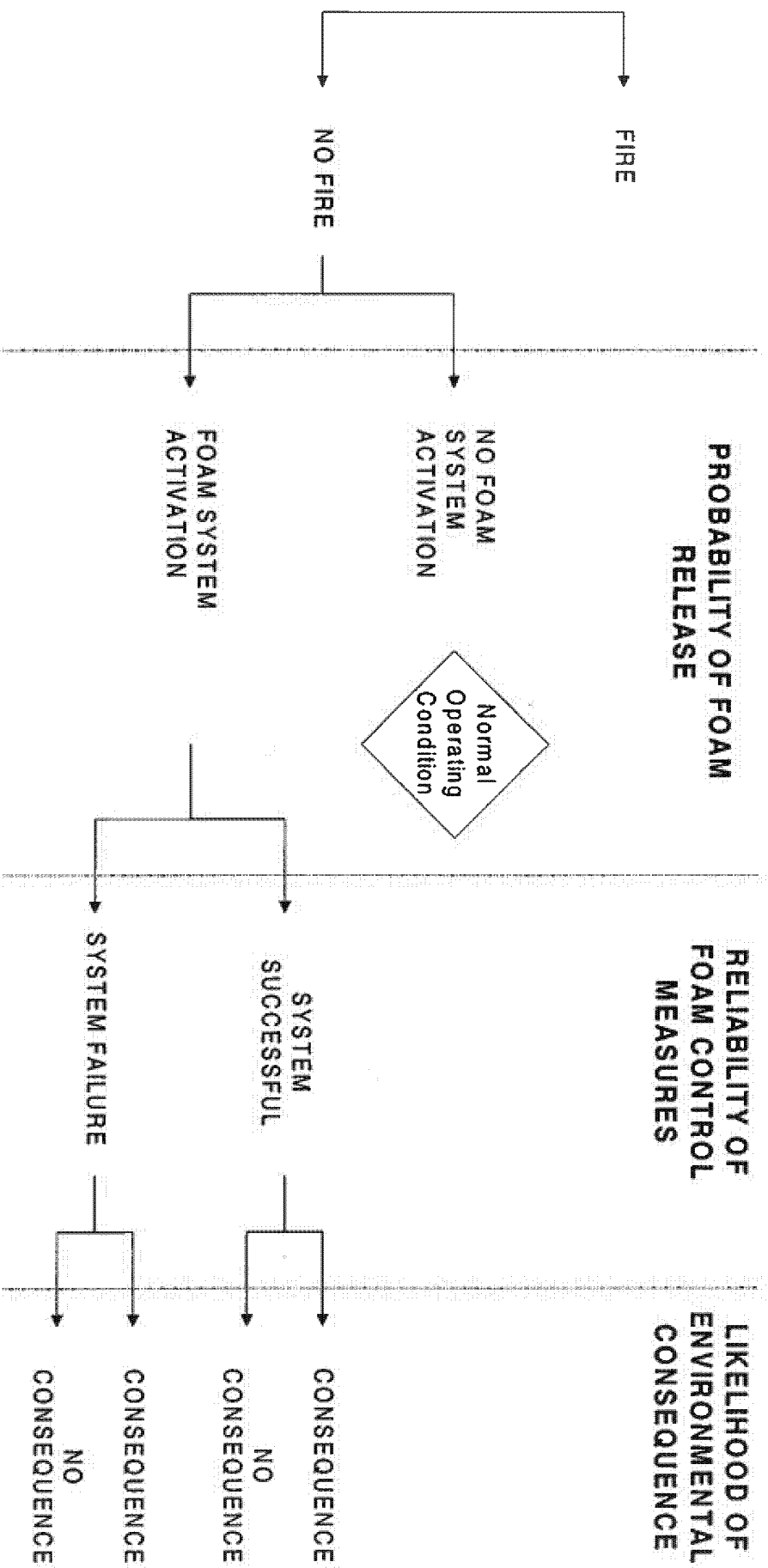
**Probability of
foam release**

**Reliability of
system
controlling
foam
movement**

**Likelihood of
environmental
consequence**



Probability Estimation



Probability Estimation

A FREQUENT

Likely to occur frequently

B PROBABLE

Will occur several times in the life of an item

C OCCASIONAL

Likely to occur some time in the life of an item

D REMOTE

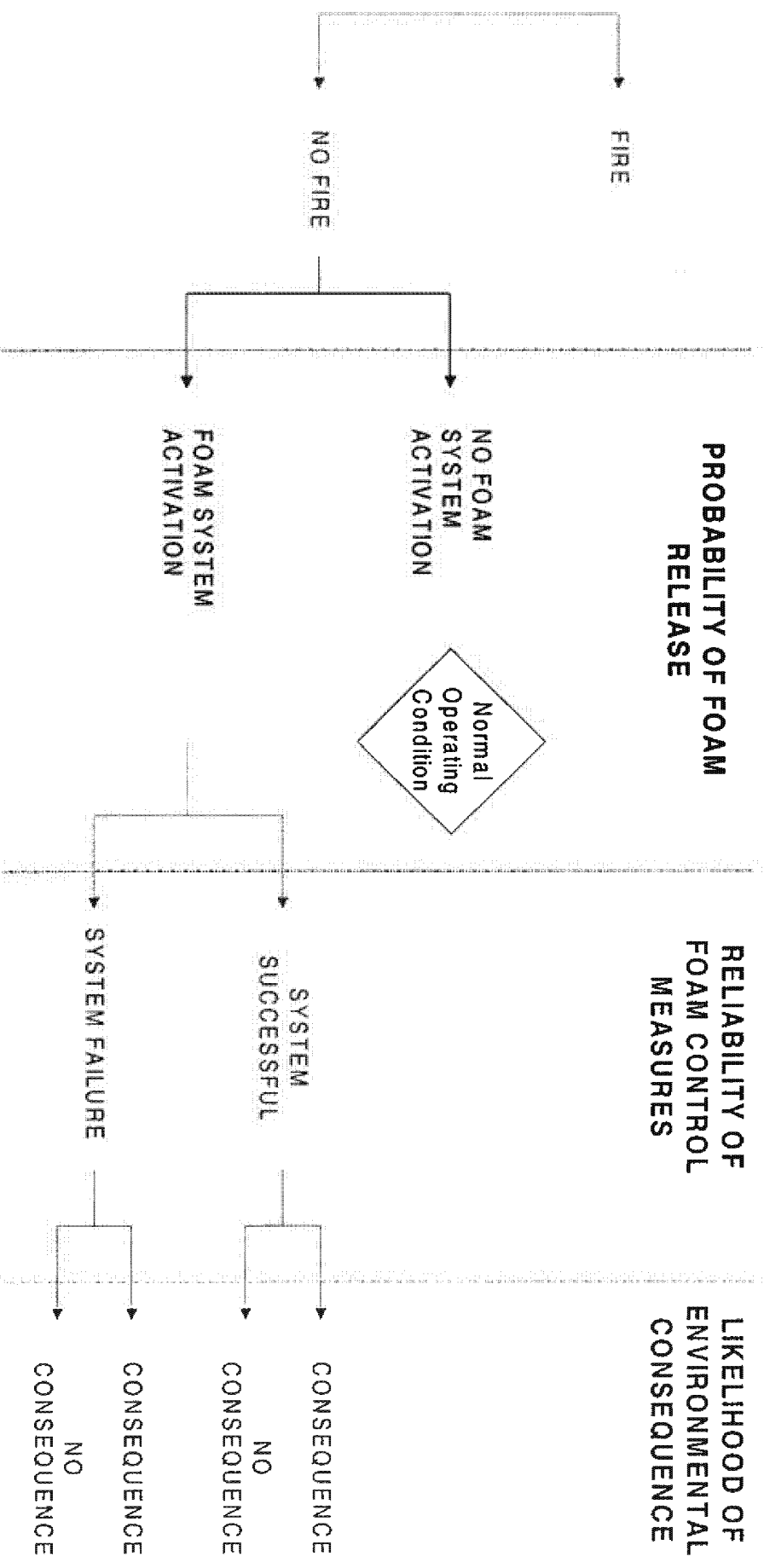
Unlikely but possible to occur in the life of an item

E IMPROBABLE

So unlikely, it can be assumed occurrence may not be experienced



Probability Estimation Foam System Activation



Probability Estimation

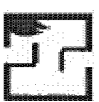
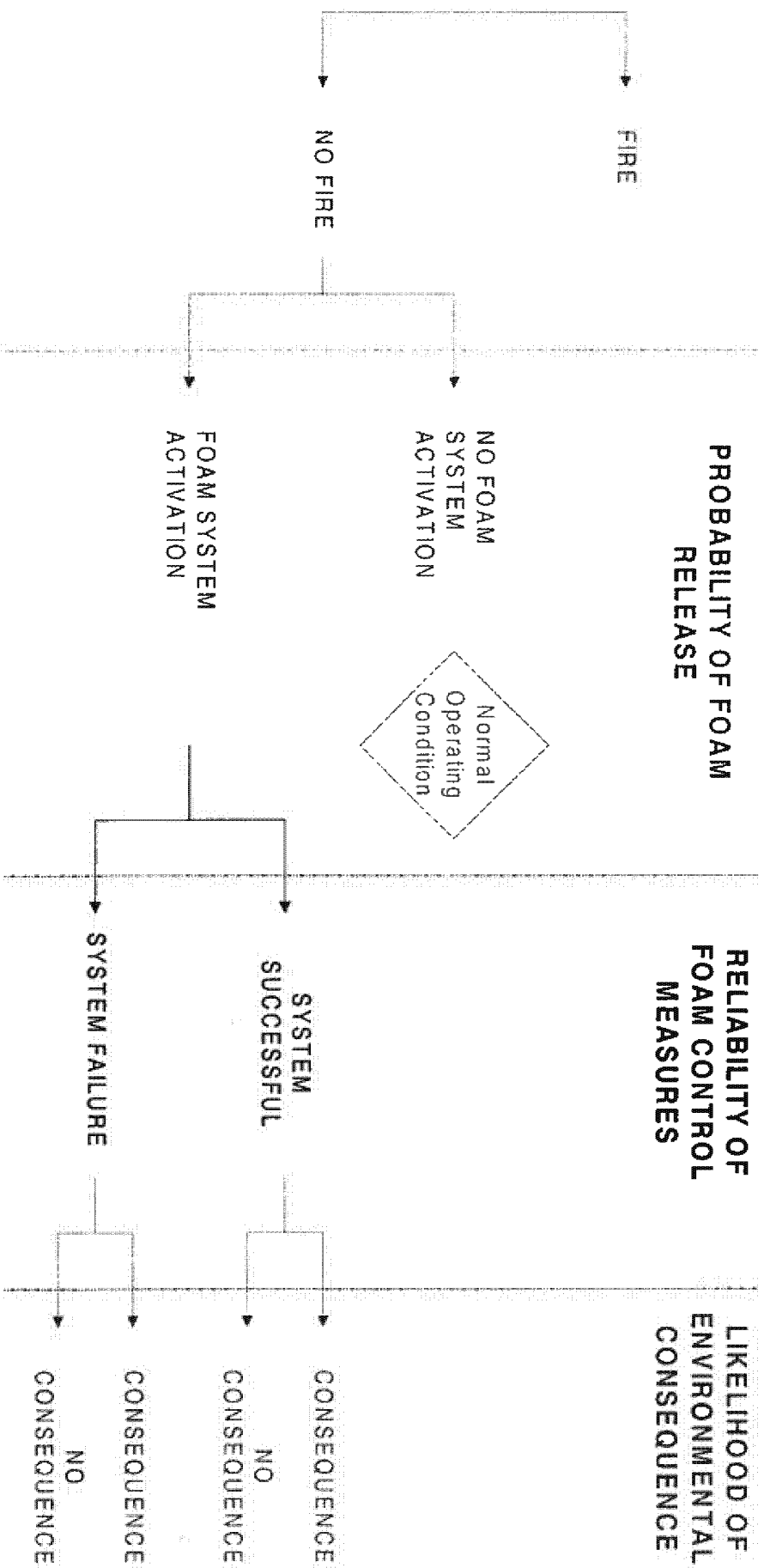
Foam System Activation

- Accidental activation of a low level foam system
 - Likely to occur some time in the life of an item
- ⇒ Occasional C



Probability Estimation

Foam Control Measures



Probability Estimation

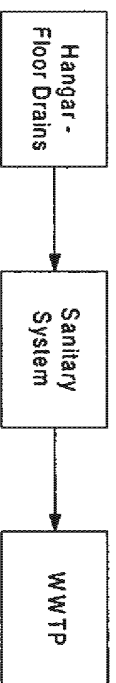
Foam Control Measures

- An engineered design of each control measure is evaluated for:
 - Reliability
 - Likelihood of Control System Failure is Established
 - Failure based on complexity of system



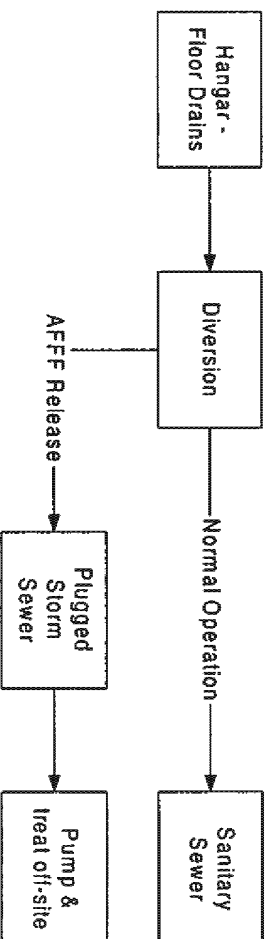
Probability Estimation Likelihood of system failure

1. Sanitary sewer with direct access to WWTTP



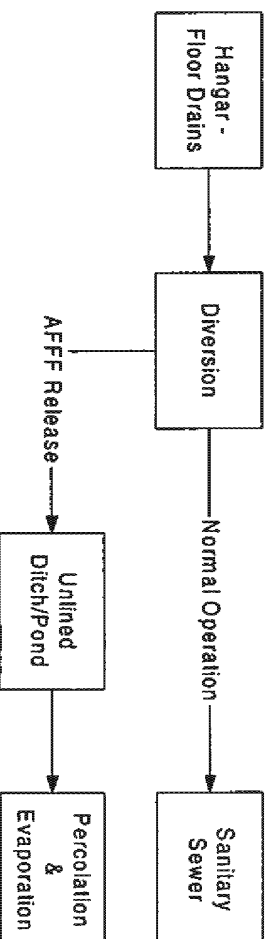
Improbable E

2. Plugged, totally segregated storm sewer



Probable B

3. Pond, Percolate (drains into soil)

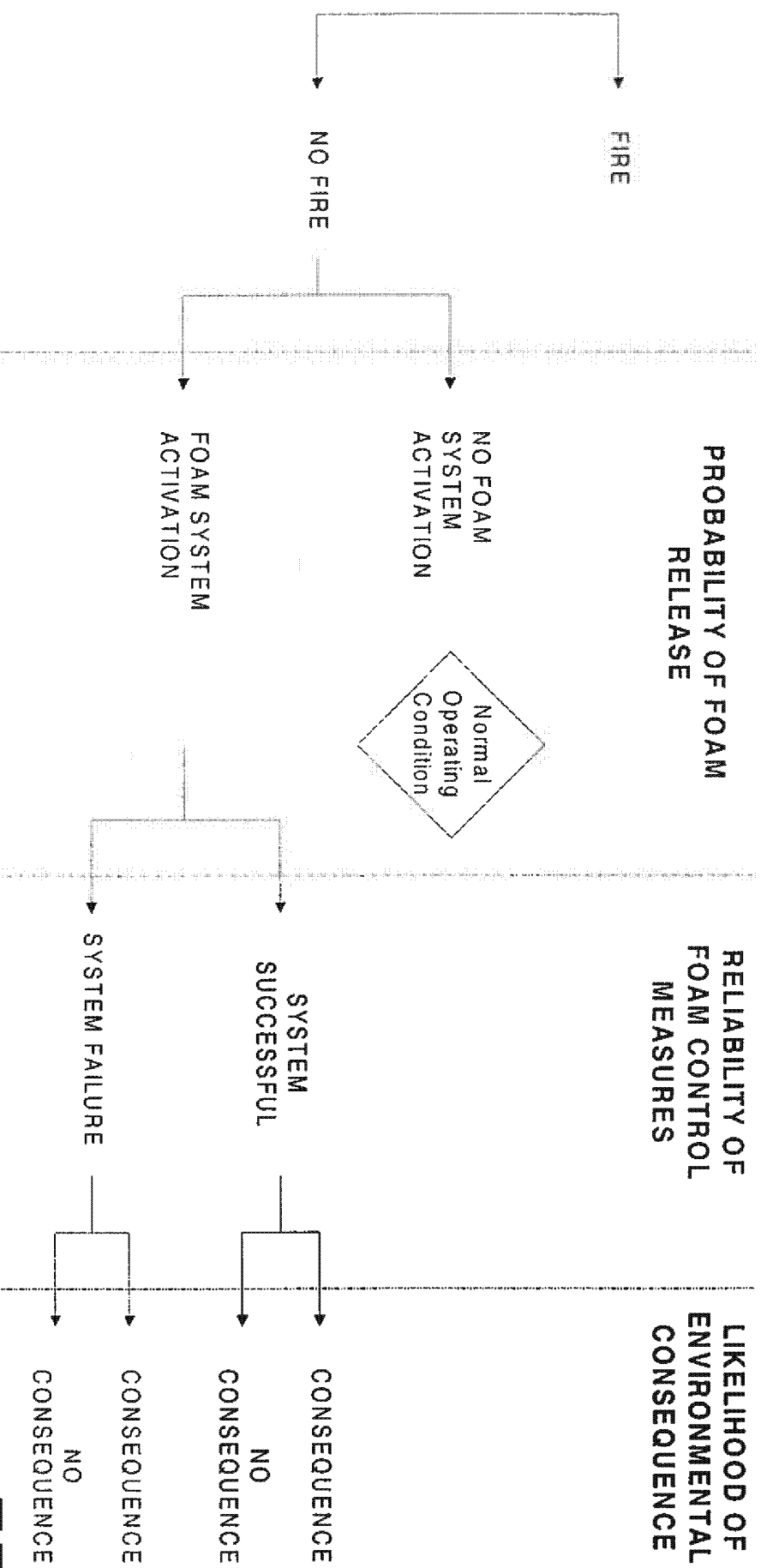


Occasional C



Probability Estimation

Environmental Consequence



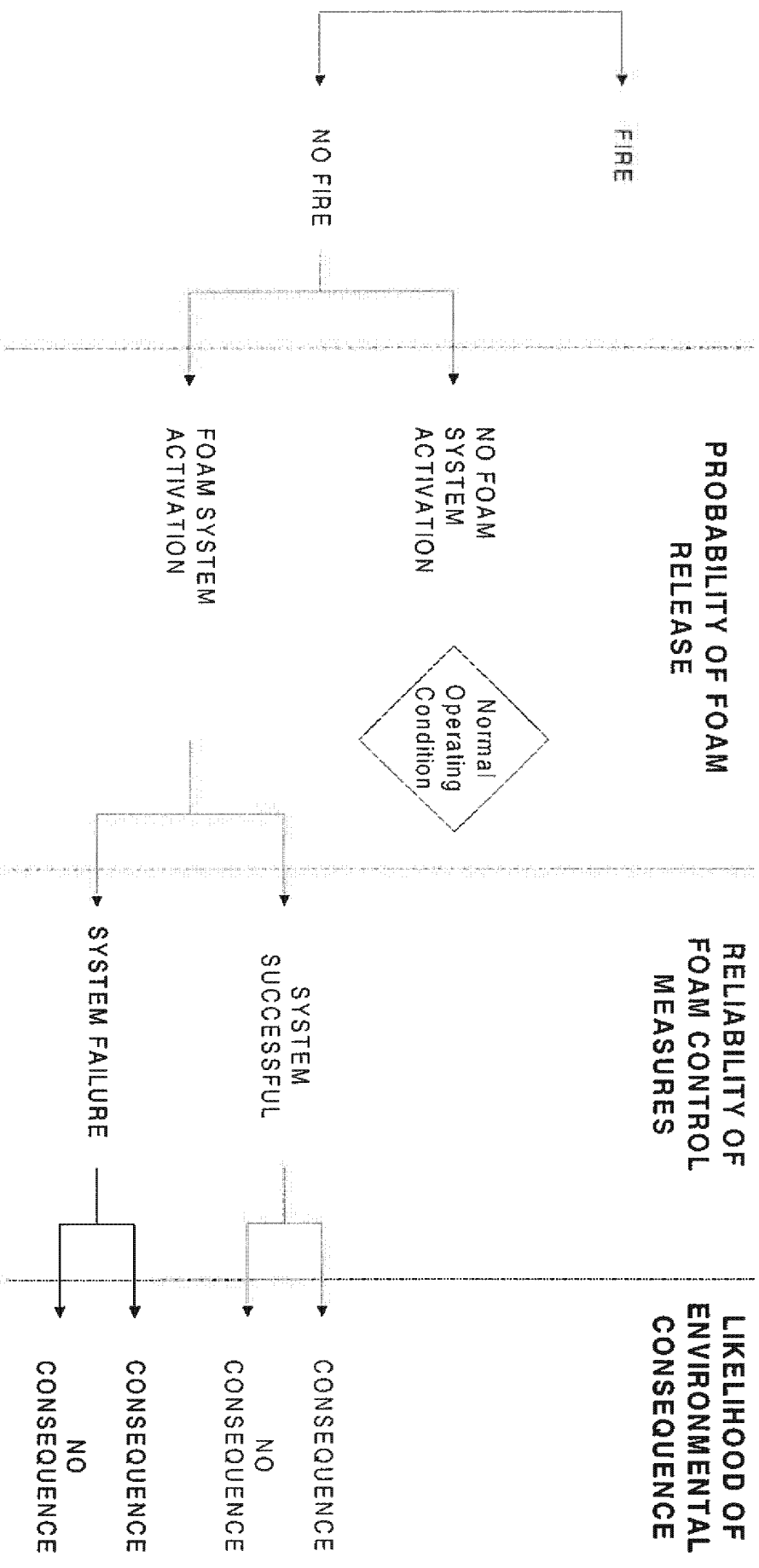
Probability Estimation

Environmental Consequence

| Successful Foam Control (Risk By Media) | | | | |
|---|--------|-------------------------|-------------------|----------------------------|
| | AIR | Sensitive Body of Water | Soil Ground Water | Wastewater Treatment Plant |
| 1. Sanitary sewer, WWTP | Remote | Frequent | Improbable | Frequent |
| 2. Plugged, Storm Sewer | Remote | Improbable | Improbable | Improbable |
| 3. Unlined Pond, Percolates | Remote | Remote | Remote | Improbable |
| Unsuccessful Foam Control (Risk By Media) | | | | |
| | AIR | Sensitive Body of Water | Soil Ground Water | Wastewater Treatment Plant |
| 1. Sanitary sewer, WWTP | Remote | Frequent | Remote | Frequent |
| 2. Plugged, Storm Sewer | Remote | Occasional | Remote | Occasional |
| 3. Unlined Pond, Percolates | Remote | Occasional | Occasional | Occasional |

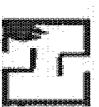
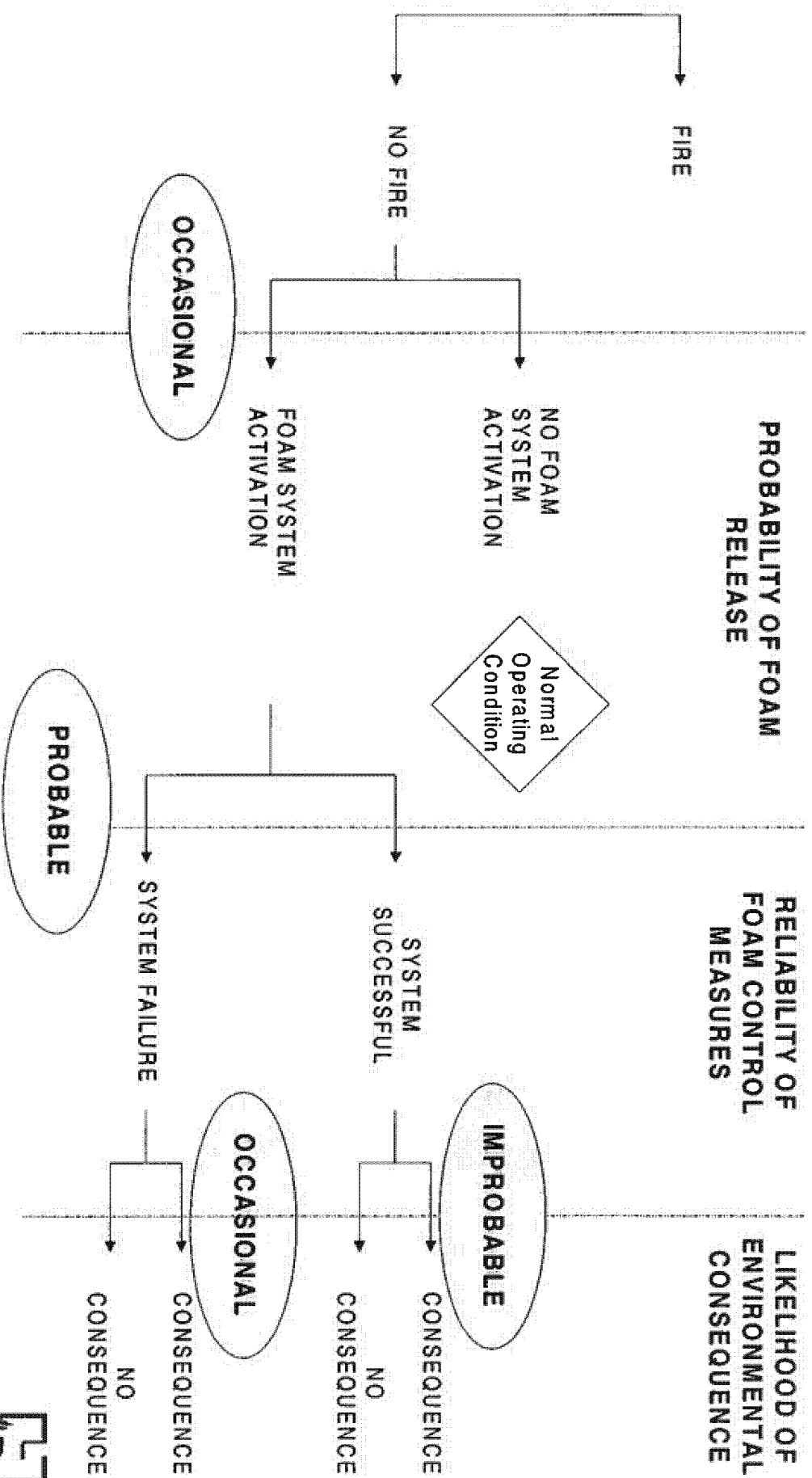


Probability Estimation Environmental Consequence



Probability Estimation Environmental Consequences

Option 2: Plugged storm sewer Sensitive body of water



Probability Estimation

| Frequency Estimation | Suggested Range |
|----------------------|-------------------------|
| A FREQUENT | $X > 10^{-1}$ |
| B PROBABLE | $10^{-1} > X > 10^{-2}$ |
| C OCCASIONAL | $10^{-2} > X > 10^{-3}$ |
| D REMOTE | $10^{-3} > X > 10^{-6}$ |
| E IMPROBABLE | $10^{-6} > X$ |



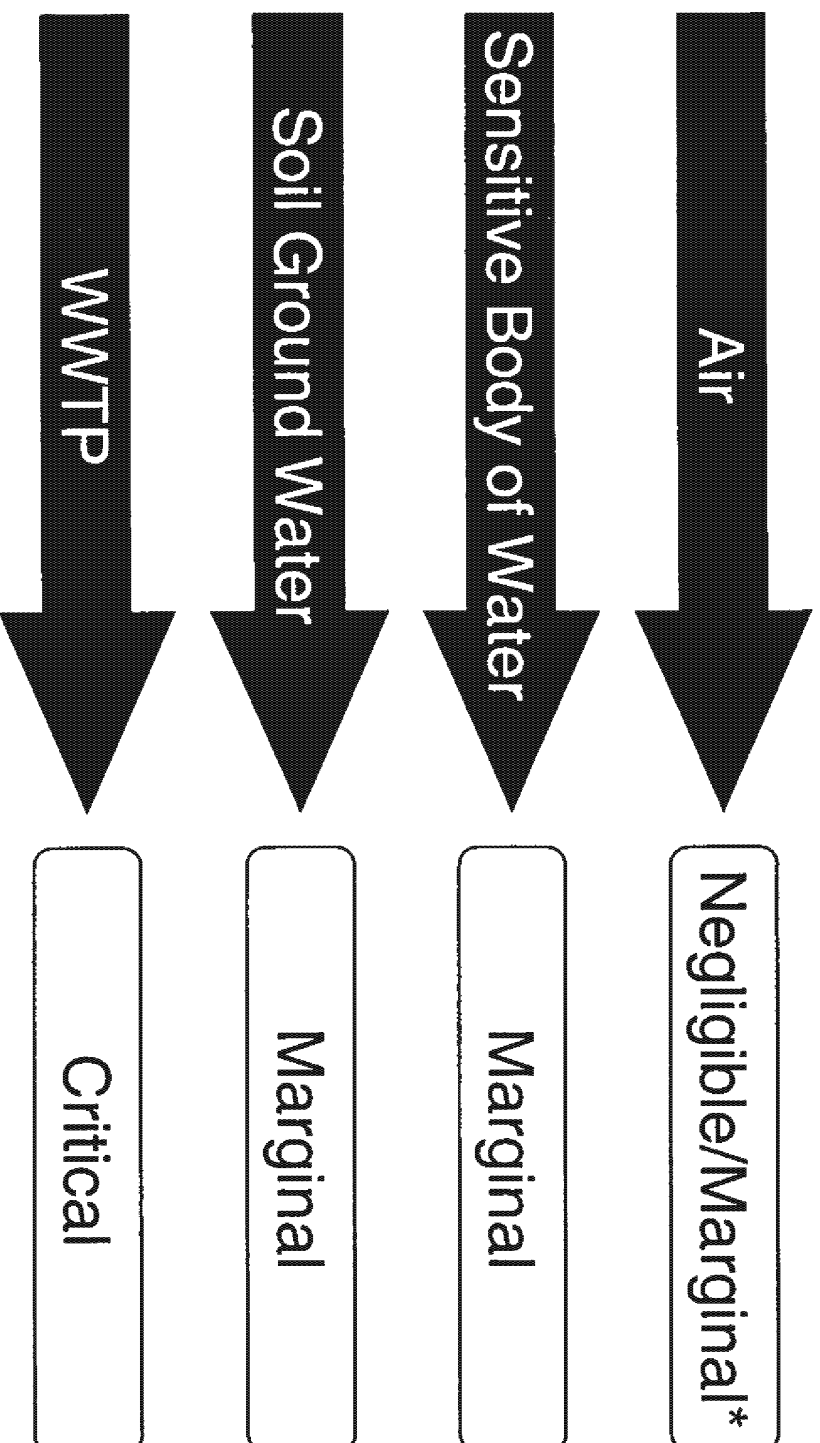
Probability Estimation Environmental Consequence

| | AIR | Sensitive Body of Water | Soil Ground Water | Wastewater Treatment Plant |
|-----------------------------|-----|-------------------------|-------------------|----------------------------|
| 1. Sanitary sewer, WWTP | E | C | E | C |
| 2. Plugged, Storm Sewer | E | D | E | D |
| 3. Unlined Pond, Percolates | E | E | E | E |



Consequence Estimation

Severity of Environmental Impact



*Air becomes marginal if foam in WWTP



Risk Assessment & Acceptance

| FREQUENCY | CATEGORY | 1 CATASTROPHIC | 2 CRITICAL | 3 MARGINAL | 4 NEGLECTIBLE |
|----------------|----------|-------------------|---------------|---------------|------------------|
| A – FREQUENT | | 1A | 2A | 3A | |
| B – PROBABLE | | 1B | 2B | 3B | |
| C – OCCASIONAL | | 1C | 2C | 3C | 4C |
| D – REMOTE | | 1D | 2D | | 4D |
| E - IMPROBABLE | | | | | 4E |

| | |
|----------------------------|------------------------|
| UNACCEPTABLE: | 1A, 1B, 1C, 2A, 2B, 3A |
| UNDESIRABLE: | 1D, 2C, 2D, 3B, 3C |
| ACCEPTABLE WITH REVIEW: | |
| ACCEPTABLE WITHOUT REVIEW: | 4C, 4D, 4E |



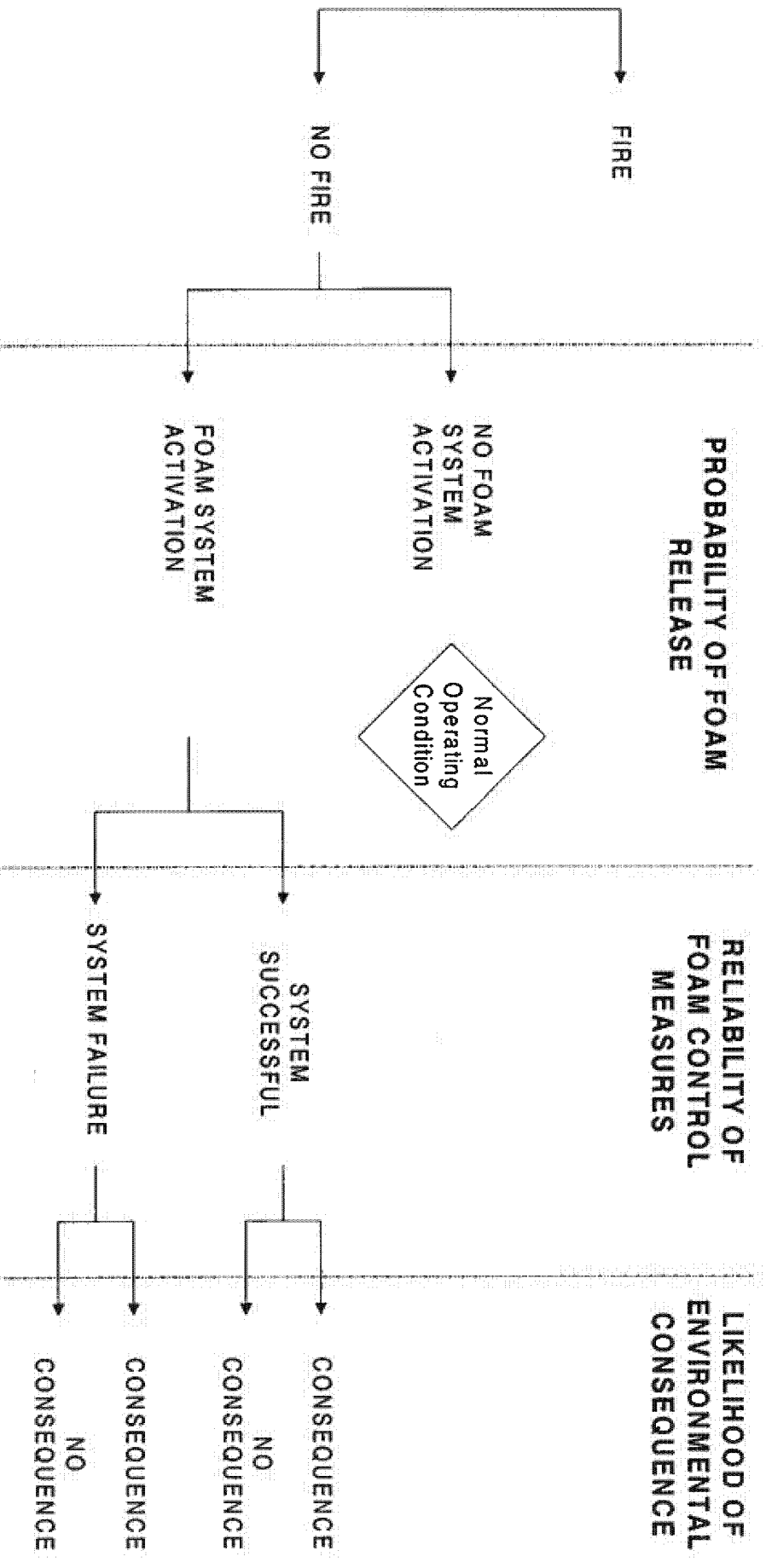
Risk Assessment

Environmental Consequence

| | AIR | Sensitive Body of Water | Soil Ground Water | Wastewater Treatment Plant |
|-----------------------------|-----|-------------------------|-------------------|----------------------------|
| 1. Sanitary sewer, WWTP | | 3C | | 2C |
| 2. Plugged, Storm Sewer | 4E | | | 2D |
| 3. Unlined Pond, Percolates | 4E | | | |



Probability Estimation Foam System Activation



Probability Estimation

Foam System Testing

- Should foam control systems be used for testing?
- Foam system activation becomes probable
- Reliability improved as testing supervised



Risk Assessment

Environmental Consequence

| For Foam Testing | | | | |
|-----------------------------|-----|-------------------------|-------------------|----------------------------|
| | AIR | Sensitive Body of Water | Soil Ground Water | Wastewater Treatment Plant |
| 1. Sanitary sewer, WWTP | | 3B | | 2B |
| 2. Plugged, Storm Sewer | 4D | | | 2D |
| 3. Unlined Pond, Percolates | 4D | | | |
| For Accidental Release | | | | |
| | AIR | Sensitive Body of Water | Soil Ground Water | Wastewater Treatment Plant |
| 1. Sanitary sewer, WWTP | | 3C | | 2C |
| 2. Plugged, Storm Sewer | 4E | | | 2D |
| 3. Unlined Pond, Percolates | 4E | | | |



Risk Assessment

Environmental Consequence

| | AIR | Sensitive Body of Water | Soil Ground Water | Wastewater Treatment Plant |
|--|-----|-------------------------|-------------------|----------------------------|
| 1. Sanitary sewer, WWTP | | 3C | | 2C |
| 2. Segregated Storm Sewer | 4E | 3C | | |
| 3. Plugged, Storm Sewer | 4E | | | 2D |
| 4. Pavement, Plugged Storm Sewer/drains | 4E | | | |
| 5. Pavement, Plugged Combined Sewer/drains | 4E | | | 2D |
| 6. Pavement, Combined Sewer WWTP | | 3C | | 2C |
| 7. Pavement, Storm Sewer | 4E | 3C | | |
| 8. Unlined Pond, Percolates | 4E | | | |
| 9. Lined Pond, Pump Off-Site | 4E | | | |
| 10 Lined Pond, evaporate | 4E | | | |
| 11. Lined Pond, Meter WWTP | | | | 2D |
| 12. Lined Pond, Meter Storm Sewer | 4E | 3C | | 2D |
| 13. Lined Pond, Degrade WWTP | | | | 2D |
| 14. Lined Pond, Degrade Storm Sewer | 4E | | | 2D |
| 15. Tank, Pump Off-Site | 4E | | | |
| 16. Tank, Meter WWTP | | | | 2D |
| 17. Tank Meter Storm Sewer | 4E | 3C | | 2D |
| 18. Tank, Degrade WWTP | | | | 2D |
| 19. Tank, Degrade Storm Sewer | 4E | | | 2D |

Costs

- Single module, 16 minutes of foam discharge
- Costs options we have identified are in the \$0–200K range
- More stringent control criteria can lead to much greater costs
- However risk of an environmental consequence is not reduced



APPENDIX (13)

Presentation: "Summary of Shore Facility AFFF Management Breakout Session"

**D. Verdonik
Hughes Associates, Inc.
Baltimore MD**

**Summary of Shore Facility
AFFF Management
Break-Out Session**

Dan Verdonik

3 August 2000

Facility AFFF Management Working Group

- Decision to ‘formalize’ a Working Group
 - Develop Facility Policy for AFFF Management
 - Changed name from “Hangar” to “Facility” to reflect broader scope
 - Target for Completion: Approximately 6 months
 - Develop a draft DoDI
 - Staff Through Environmental Side of Services
 - Present to OSD
 - Next Meeting Scheduled for October 12
- Accepted-in-Principle the Risk Based Approach
 - Use as the Basis for the Policy
 - Need to Review Details and Back-up Information
 - Report will be Provided Prior to Next Meeting

Facility AFFE Management Working Group - Membership

| Service | Office | Name |
|---------|--|------------------------------|
| Navy | HQ NAVFAC | Joe Gott |
| Navy | HQ NAVFAC | Joe Simone |
| Navy | NAVFAC | Vincent Donnelly |
| Navy | CNO N457C | Ms. Kathy Ellis |
| Navy | NAVVAIR | Larry Wolf |
| Navy | HQ NAVFAC (Contractor Representative) | Kim DePaul Dawn Roderique |
| Army | USACE | Bob DiAngelo |
| Army | USACE | K.C. Kochhar |
| Army | ACCSIM F&H | Bruce Park |
| Army | USACE/ACE | Billy Ray Scott |
| USAF | AFCESA | Fred Walker |
| USAF | HQ USAF ILEV | Jayant Shah |
| USMC | HQUSMC DCS/I&LFL | Michael Doherty |
| USMC | HQUSMC DCS/I&LFF | Kevin King |

- Additional Members To Be Identified Prior to Next Meeting

APPENDIX (14)

Presentation: Summary of AFFF Environmental Breakout Session”

J. Hoover
Naval Air Warfare Center
China Lake CA

R. Darwin
Hughes Associates, Inc.
Baltimore MD

**Summary
Of
AFFE Environmental Impact
Breakout Session**

Naval Research Laboratory
3 August 2000

Dr. Jim Hoover
Head, Combustion Research Branch
NAWCWD China Lake

Robert Darwin
Senior Engineer
Hughes Associates, Inc.

Purpose of Breakout Session

Share Information on AFFF

History, performance, chemical composition

Environmental and human health impacts

Regulations – current and future

Replacement activity and status

Future management strategy

(1) What current and future environmental regulations impact AFFF and why (data and policies)?

Current:

Different regulations affect different components of AFFF

Presentation by Bill Ruppert yesterday provided good summary

Except for UNDS, there are no definitive restrictions at present and no identified directives for change

Future:

Depends on future EPA assessment of AFFF as data is reviewed

(2) What data do we have (or lack) on the environmental impact of AFFF?

Lacking:

Component toxicity/BOD/Persistence (Fate)/Bio-accumulation

Accurate and appropriate dilution factors when AFFF discharged in open bodies of water

Predictive capability/data regarding releases for estimating potential environmental damage. Must consider where the release occurs (shore hangars, runways, unpaved ground, ship bilges, at sea, etc)

(3) What technology or products exist that could help reduce AFFF releases into our environment or mitigate the impact of those releases?

Depends on the type and location of the release

Reducing releases:

Reduction in system tests, efficiency improvements

Spill response/advance planning/preparedness

Mitigation:

ASH (Air-sparged hydrocyclone)

RO (Reverse osmosis)

Biological/microbial systems

Education and Planning:

DOD guidance/standards on prevention, clean-up and disposal, training, intentional discharges

(4) What technology or products could be applied to recycle or reuse AFFF?

Not considered to be feasible or cost effective (reformulation, losses, contamination)

(5) What alternatives to AFFF currently exist and how do they compare in effectiveness, cost, environmental impact, availability, etc ?

None meet performance specification (mil spec)

Development of an AFFF alternative was proposed as project under ONR Future Naval Capability Platform Protection Program

Potential SERDP statement of need

Some UK effort on environmentally friendly foam

(6) What related planning documents exist with other services or agencies?

UK is reportedly working on a standard definition of “biodegradability”

EPA presentation mentioned international dialog on AFFF PFOS issue

USAF needs included in draft NAVAIR ESH-Needs Assessment

(7) What follow-on strategies should be considered ?

Need accurate quantitative definition of the problem

DOD inventory status

How much AFFF in DOD/where used/in-service and reserve
stocks/concentrate types

DOD AFFF discharges

How much released/consumed annually (training, system testing
and maintenance, accidental discharges, research, fires)

Review current DOD regs and policy

Need a definition of “environmentally friendly” (need “green” definition—what
are acceptable thresholds from an environmental standpoint)

Biodegradability

Persistence

BOD/COD

Bio-accumulation

Toxicity

Follow-On Strategies (con't)

Need for future research

SBIR

Goals for Universities

ONR

Need to develop small scale screening tests

Develop “SNAP-equivalent” guidance

Need for “worst case” transition plan (short/mid/long term)

Information distribution to all levels (users, requirers, trainers, regulators, etc)

Develop AFFF detection capability (learn method used by 3M)

Define hazard protocols and appropriateness of AFFF (use and response)

Follow-On strategies (con't)

Assess commercial state-of-the-art

CBD announcement

“Turkey shoot” of all available AFFF alternatives

Quantify performance, chemical and physical properties

Obtain EPA endorsement of screening tests

Consider future mods to AFFF mil spec

Prioritize requirements

Consider trade-offs

Establish formal AFFF working group

Info sharing

Formal charter

DOD primary advocate?

Future meetings/host/agenda topics

**Summary
Of
AFFF Environmental Impact
Breakout Session**

Naval Research Laboratory
3 August 2000

Dr. Jim Hoover
Head, Combustion Research Branch
NAWCWD China Lake

Robert Darwin
Senior Engineer
Hughes Associates, Inc.

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How much released/consumed annually (training, system testing
and maintenance, accidental discharges, research, fires)

Review current DOD regs and policy

Need a definition of “environmentally friendly” (need “green” definition—what
are acceptable thresholds from an environmental standpoint)

Biodegradability

Persistence

BOD/COD

Bio-accumulation

Toxicity

Follow-On Strategies (con't)

Need for future research

SBIR

Goals for Universities

ONR

Need to develop small scale screening tests

Develop “SNAP-equivalent” guidance

Need for “worst case” transition plan (short/mid/long term)

Information distribution to all levels (users, requirers, trainers, regulators, etc)

Develop AFFF detection capability (learn method used by 3M)

Define hazard protocols and appropriateness of AFFF (use and response)



Follow-On strategies (con't)

Assess commercial state-of-the-art

CBD announcement

“Turkey shoot” of all available AFFF alternatives

Quantify performance, chemical and physical properties

Obtain EPA endorsement of screening tests

Consider future mods to AFFF mil spec

Prioritize requirements

Consider trade-offs

Establish formal AFFF working group

Info sharing

Formal charter

DOD primary advocate?

Future meetings/host/agenda topics



MEMORANDUM FOR SEE DISTRIBUTION

SUBJECT: Aqueous Film Forming (AFFF) Workshop

We would like you to attend a one day workshop to discuss the impact of the U.S. Environmental Protection Agency's (U.S.EPA) proposed rule which has the potential to ban future production and import of perfluorooctyl sulfonates (PFOS) chemicals to the Department of Defense. The Mil Spec for AFFF allows the use of PFOS, perfluorooctanoic acid (PFOA), and telomers as foaming agents. The U.S.EPA released data this past year that indicates PFOS chemicals are persistent, bioaccumulating and toxic. PFOS has been found in the blood of the general US population, in wildlife, and in people overseas. The 3M Company, the sole United States producer of ninety PFOS chemicals, has chosen to discontinue their manufacture and sale of all uses globally by December 31, 2002, and substantially reduce their manufacture for the most widespread uses of these chemicals by December 31, 2000.

The U.S. EPA is evaluating PFOA and telomer chemicals as a substitute for PFOS. PFOA and telomer are also persistence in the environment and more toxic than PFOS. Because of this, they also may be subject to manufacturers' withdrawal from the market place (similar to 3M's action for PFOS) or future EPA rule making. AFFF is used in a number of critical life saving situations in DoD. Currently, there are no known substitutes that are as effective as the materials in the Mil Spec. We've asked the Air Force Research Laboratory, Materials and Manufacturing Directorate to present recommendations and discuss potential substitutes. We plan to discuss "high-risk" uses of PFOS and what should be done to reduce or eliminate environmental releases of PFOS. We will also determine if DoD should switched to PFOA or telomer instead of PFOS. We need a multi-disciplinary team to conduct this review and develop an AFFF replacement strategy.

The workshop will be held on March 16, 2001, from 0800hrs - 1630hrs, in the OSD Conference Center, 1E801, Room 4, Pentagon. We also requested the Defense Logistic Agency to brief DoD's uses of PFOS. Attached is the meeting agenda. My POC for this Workshop is Lt Col Isaac Atkins, Director Occupational Health Policy, ODUSD (ES)/FP. He can be reached at (703) 604-1628, if you have any questions.

Curtis Bowling
Assistant Deputy Under Secretary of Defense
Force Protection

Attachment:
As stated

Aqueous Film Forming (AFFF) Workshop

Agenda

| | |
|--|---|
| Introduction (Overview) | Mr. Curtis Bowling |
| AFFF Environmental Issues | Dr. Doug Dierdorf, AFRL |
| Toxicity of PFOS, PFOA, Telomer | TBD, USEPA |
| Impact of AFFF Voluntary Production Ban on Army | TBD, DASA(ESOH) |
| Impact of AFFF Voluntary Production Ban on Navy | TBD, (E&S) |
| Impact of AFFF Voluntary Production Ban On AF | TBD, DASAF(ESOH) |
| Overview of AFFF Uses and Impact to Fire-fighting Operations | TBD, National Fire Protection Association |
| Impact AFFF Voluntary Production Ban On FAA | TBD, Federal Aviation Administration |
| PFOS Uses | TBD, Defense Logistics Agency |
| The Way Ahead | Workshop Members |

Distribution

DASAF(ESOH)

DASN(E&S)

DASA(ESOH)

Defense Logistics Agency

AFRL/MMD

USEPA

Federal Aviation Administration

National Fire Protection Association

From: Toncray Bradley A NNVA
To: Bennett David C NNVA; Chapman Keith D NNVA; Hancock Donald L NNVA; Lowe Donald J NNVA; Geithmann Gary R CONT NNVA; Carty Jeffrey L NNVA; Earehart James NNVA; Korzun Joel A NNVA; Kelly Art G NNVA; Yarashus Thomas R NNVA; Wood Leesa M NNVA
Sent: 3/9/2001 2:20:08 PM
Subject: FW: Ban on AFFF
Attachments: Jeff_F-1.TIF

-----Original Message-----

From: Parish Benjamin A NNVA
Sent: Friday, March 09, 2001 8:53 AM
To: Toncray Bradley A NNVA; Michael A Turner (CNAP N4342P) (E-mail)
Subject: FW: Ban on AFFF

Just thought you would like to know.

Ben

-----Original Message-----

From: Lewis Edward A NSSC [mailto:LewisEA@NAVSEA.NAVY.MIL]
Sent: Friday, March 09, 2001 8:41 AM
To: Corley Wesley S NSSC
Cc: Plunkett R Bryan CONT NSSC; Ngo Tien M NSSC; Parish Benjamin A NNVA; Specca Aaron M NNVA; Wujick Christine A NSSC; Montgomery Mike L CONT NSSC; 'Mike Turner'
Subject: FW: Ban on AFFF

Wes,

FYI. We will continue to monitor this situation and it's potential impact to the CVN 70 RCOH.

V/R,

Ed Lewis

PEO Aircraft Carriers

RCOH Ship Design Manager

(703) 607-1818 x 331 (Voice)

(703) 607-2495 (Fax)

(703) 505-6728 (Cell)

LewisEA@navsea.navy.mil

-----Original Message-----

From: Fink Jeff E NSSC
Sent: Friday, March 09, 2001 8:05 AM
To: Raber James D NSSC; Snyder CF (Charles) NSSC; Bergner Richard L NSSC; Wujick Christine A NSSC; McAllister Keith R NSSC; Lewis Edward A NSSC; Gimbel Weldon K NSSC; Orski Gary A NSSC; Ngo Tien M NSSC; Waldman Jack S NSSC; Plunkett R Bryan CONT NSSC; Bob Morris (E-mail); Jim Counts (E-mail); Sean Kiely (E-mail)
Subject: Ban on AFFF

Just wanted to keep everyone up to date on the AFFF issue. For those of you who do not know EPA has proposed a rule which has the potential to ban future production and import of chemicals that are integral to the production of AFFF.

Background AFFF was developed by the Navy Labs in the 1960s to provide better fire protection than the older protein foam. AFFF is used in machinery rooms, flight decks and hangar bays on most Navy ships. Mil-Std AFFF is used at most airports throughout the world and is considered by the insurance industry as the premier fire fighting agent.

Some of the chemical components of AFFF are categorized as Perfluorocetyl Sulfonates (PFOS) which can potentially degrade into PFOSA (acid). PFOSA is highly persistent in the environment and has a strong tendency to bioaccumulate. (which means, like lead, the body absorbs this chemical, but does not get rid of it. Over time the body can accumulate this chemical to toxic levels) Studies indicate that exposure to PFOSA is widespread and recent tests have raised concerns about long term effects in people and wildlife.

There are four manufacturers on the QPL for AFFF. 3M won the current contract to supply AFFF to DOD. This contract expires in Dec '02. 3M, worried about the potential future problems, has decided to get out of the market as soon as the contract is over. They have already stopped their production of things like ScotchGuard that have the same PFOS. James Rudroff of N452C wrote a point paper on this issue. (see attachment)

I have been told by NAVSEA 05L4 that there is a question as to whether the other manufacturers will stay in the market knowing

US00002942

that 3M got out and why they got out. There is an AFFF Workshop being held on March 16th at the Pentagon sponsored by the Assistant Deputy Under Secretary of Defense Force Protection in which NAVSEA 05L4, EPA, DLA will be in attendance. If production of AFFF is discontinued there will certainly be a major impact to Carriers as well as the rest of the Navy. The scope of effort to replace AFFF will be larger than the Freon elimination program. The effort could be on the magnitude of Asbestos elimination. However it is to early to panic and to discuss corrective action. We need to let the tech community and industry experts have a chance to assess the total picture and develop a POA. The Aux and Crew Team here at PEO Carrier will be closely monitoring the situation.



Jeff_F-1.TIF

Jeff Fink

PEO - E

DSEM Aux & Crew

(703) 607-1701 x343

From: Bowling, Curtis, Mr, OSD-ATL
To: <Atkins>;<Isaac>;<LtCol>;<OSD-ATL>
Sent: 3/31/2001 6:24:00 PM
Subject: FW: Fluorotelomer Chemicals and Related Fluoroorganics

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>[mailto:Doug.Dierdorf@tyndall.af.mil]
>Sent: Friday, March 30, 2001 2:08 PM
>To: Curtis Bowling (E-mail)
>Cc: Carr Virgil J Contr AFRL/MLQD; Vickers Dick N Civ
>AFRL/MLQD; Galindo
>Bob Contr AFRL/MLQD
>Subject: FW: Fluorotelomer Chemicals and Related Fluoroorganics

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>perfluorocarboxylic acids
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>From: Stephen H Korzeniowski
>[mailto:Stephen.H.Korzeniowski@USA.dupont.com]
>Sent: Friday, March 30, 2001 12:11 PM
>To: doug.dierdorf@tyndall.af.mil
>Subject: Fluorotelomer Chemicals and Related Fluoroorganics

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>Doug, I obtained your name from Mary Dominiak of the US EPA.
>We met and
>spoke again on Tuesday at the public hearing held by the US
>EPA on Tuesday
>this week in Arlington, VA.
>I have a dual role in DuPont. One is as a business manager for a
>fluorosurfactants and additives business. And the other is an external
>company role in working with the global regulatory agencies and Telomer
>consortium (see below).

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>You were copied on an E-mail note to Mary written by Lt. Col.
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>Jr on February 13, 2001referencing a AFFF Workshop held on 16
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>In addition, most of the global telomer manufacturers have
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>further study our products. I can also describe this in
>detail for you.
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>Please let me know how you would like to proceed.
>I can be reached by E-mail by just responding to this note or using
>stephen.h.korzeniowski@usa.dupont.com. This is usually the
>easiest way to
>reach me due to my travel schedule. I can also be reached by phone on
>302-992-3672 and fax - 302-892-1135.
>
>I look forward to discussing these matters with you.
>
>Thank you in advance for your consideration.
>
>Steve
>

From: Phull, Kotu K COL ASA-I&E
To: <Atkins>;<Isaac>;<LtCol>;<OSD/ATL>
Sent: 3/28/2001 10:48:00 AM
Subject: FW: AFFF

Ike: Per conversation this morning.

Please call me if you have any questions.

Regards,

KOTU K (KK) PHULL
COL, MS
Office of the Deputy Assistant Secretary of the Army
for Environment, Safety, and Occupational Health
110 Army Pentagon, Room 2E577
Washington, DC 20310-0110
(703) 697-0440, DSN 227
FAX - (703) 693-8149

-----Original Message-----

From: Bowling, Curtis, Mr, OSD-ATL [mailto:Curtis.Bowling@osd.mil]
Sent: Wednesday, March 28, 2001 6:28 AM
To: Phull, Kotu K COL ASA-I&E
Subject: RE: AFFF

Thanks

>-----Original Message-----

>From: Phull, Kotu K COL ASA-I&E
>Sent: Tuesday, March 27, 2001 4:17 PM
>To: Bowling, Curtis, Mr, OSD/ATL
>Cc: Fatz, Raymond J Mr ASA-I&E
>Subject: AFFF
>
>
>Curtis:
>
>As requested at the 16 March AFFF Workshop, we feel that the
>DOD/users would
>need to answer the following questions to minimize the impact
>of a future
>AFFF ban by the EPA. I have also included a list of the potential Army
>organizations that should be considered for membership on the DOD AFFF
>Steering Group. Our response is based on limited
>coordination, due to the
>short time available. We will ensure a wider Army-wide
>coordination upon
>receiving further instructions/tasking from your Office.
>Please call me, if
>you have any questions. AFFF = All PFOS's, PFOAs, and telomers.
>
>A. QUESTIONS:
>
>
>1. Quantity of these substances used in the Army
>
>2. Quantity of AFFF that the Army can afford to store as the
>Reserves for
>continued, critical uses past the phase out
>
>3. Operations where these substances are used. Although the
>discussion at

US00003051-D

>the Workshop focused primarily on the use of AFFF in
>firefighting, we would
>need to determine other operations/products related to the use of AFFF,
>e.g., aviation hydraulic fluids, semiconductors, etc.
>
> - Need to identify all MILSPECS/STDs, NSNs, and/or commercial
>/industry specs that define these materials.
>
>4. Critical uses. We would need to define "critical uses" to ensure
>consistency in responses received from the field.
>
>5. Areas where uses can be eliminated, e.g., training
>
>6. Quantity of AFFF that the Army can afford to store
>(COST)/must store
>(CRITICAL USES) as reserves for continued use past the phase-out
>
>7. Impact of the use of non-Aqueous Film Forming Foams -
>Operational, e.g.,
>process modifications for fire-fighting; Cost
>
>8. Environmental Impact of potential releases of AFFF into
>the environment
>
>9. Current and projected research, in-house and in partnership with
>Industry - ASA(ALT)
>Development of AFFF substitutes with AFFF-like performance;
>Technology enhancements to improve the performance of non-AFFF products
>
>10. Procurement strategies, i.e., availability and production
>capabilities
>for alternatives; how to budget and POM for increased
>reserves, if the DOD
>decides to continue the use of AFFF past the EPA ban, for
>increased costs
>associated with use of AFFF substitutes, e.g., system
>retrofitting, need for
>additional equipment, etc.; cost of disposal of excess stored
>materials that
>may have to be disposed of as "hazardous material"
>
>11. Need for occupational assessments and medical monitoring
>based on the
>review of available data
>- Exposure monitoring
>- Medical monitoring
>- Population to be monitored
>- Cost
>
>12. Environmental, Safety, and health considerations for AFFF
>substitutes
>
>B. DOD STEERING GROUP MEMBERSHIP. Some of the following
>offices/organizations should be considered for membership:
>ACSIM (Assistant
>Chief of Staff for Installation Management, ODCSLOG (Deputy
>Chief of Staff
>for Logistics, APPSO (Army Acquisition Pollution Prevention
>Support Office
>(to represent AMC (Army Materiel Command and ASA/ALT
>(Assistant Secretary of
>the Army for Acquisition, Logistics, and Technology), OTSG
>(Office of the
>Surgeon General), and this Office. ODCSLOG would appear to be
>ideal Army
>Lead.
>
>Regards,

>
>KOTU K (KK) PHULL
>COL, MS
>Office of the Deputy Assistant Secretary of the Army
> for Environment, Safety, and Occupational Health
>110 Army Pentagon, Room 2E577
>Washington, DC 20310-0110
>(703) 697-0440, DSN 227
>FAX - (703) 693-8149
>
>

MEMORANDUM FOR SEE DISTRIBUTION

SUBJECT: Request Information on Usage of Perfluorooctyl Sulfonates Containing Materials

We would like you to provide information on the impact of the U.S. Environmental Protection Agency's (U.S.EPA) proposed rule that calls for the phase-out of 90 perfluorooctyl sulfonate (PFOS) chemicals (See attachment). The Mil Spec for Aqueous Film Forming (AFFF) allows the use of PFOS, perfluorooctanoic acid (PFOA), and telomers to produce fluorochemical surfactants which are key to helping other AFFF's agents meet low fire-fighting surface tension requirements. AFFF is used in a number of critical life saving situations in DoD and currently, there are no known substitutes that are as effective as the materials in the Mil Spec. The U.S. EPA released data this past year that indicates PFOS chemicals are persistent, bioaccumulating and toxic. PFOS has been found in the blood of the general US population, in wildlife, and in people overseas.

The U.S.EPA will prevent manufacture or import of PFOS after the phase-out period, including PFOS-based AFFF, unless a 90-day notice is filed and approved. They are also evaluating PFOA and telomer chemicals. PFOA and telomer are also persistence in the environment and may pose significant health risks. Because of this, PFOA and telomer may also be subject to manufacturers' withdrawal from the market place (similar to 3M's action for PFOS) or future EPA rule making.

Request you perform an assessment of the impact of EPA's phase-out of PFOS to your organization and provide a copy to my office **by 08 Jul 01**. This assessment should include the quantity (in lbs.) and type of materials that contain PFOS. Include the amount of AFFF or PFOS-containing material in stock, number of systems and the amount (in lbs.) used per year. Also list the operations where AFFF or PFOS-containing materials are used and identify all mission critical uses, amounts, usage rate, stockpile, and potential substitutes, if any. Mission critical uses are uses where there are no available substitutes and phase-out of PFOS will negatively impact operational effectiveness and operational suitability of combat missions or contribute significantly to the degradation of combat capability.

In addition, please explain the mission impacts if a fire suppression system is not replaced, cost of replacement options and estimate quantities needed for stockpiling for mission critical uses. Identify any operations that release PFOS-containing materials to the environment and take appropriate steps to prevent or stop these releases. We will use this information to develop a DoD AFFF and PFOS-containing material replacement strategy. My POC is Mr. Gary Hamilton.

He can be reached at (703) 604-1820, email: gary.hamilton@osd.mil. If you have any questions, please contact him

Curtis M. Bowling
Assistant Deputy Under Secretary of Defense
(Force Protection)

Attachment:
As stated

DISTRIBUTION

DASA (ESOH)

DASN (E&S)

DASAF (ESOH)

DEFENSE LOGISTICS AGENCY

DEFENSE AGENCIES' DESIGNATED AGENCY

SAFETY AND HEALTH OFFICIAL

From: Bowling, Curtis, Mr, OSD-ATL
To: <Atkins>;<Isaac>;<LtCol>;<OSD-ATL>
Sent: 3/31/2001 6:24:00 PM
Subject: FW: Fluorotelomer Chemicals and Related Fluoroorganics

We need to talk about the occupational exposure of telomers.

>-----Original Message-----

>From: Dierdorf Doug S Contr AFRL/MLQD
>[mailto:Doug.Dierdorf@tyndall.af.mil]
>Sent: Friday, March 30, 2001 2:08 PM
>To: Curtis Bowling (E-mail)
>Cc: Carr Virgil J Contr AFRL/MLQD; Vickers Dick N Civ
>AFRL/MLQD; Galindo
>Bob Contr AFRL/MLQD
>Subject: FW: Fluorotelomer Chemicals and Related Fluoroorganics

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>Thank you in advance for your consideration.
>
>Steve
>

Mr. Stephen H. Korzeniowski
Business Manager
Fluorosurfactants and Additives

E. I. Dupont de Nemours & Co., Inc

Dear Mr. Korzeniowski:

Thank you for your letter to Dr. Dierdorf expressing your interest in our Aqueous Film Forming (AFFF) Workshop of March 16, 2001. The purpose of the workshop was to provide a forum for discussion of the Environmental Protection Agency's (EPA) proposed rule that calls for the voluntary phase-out of perfluorooctyl sulfonate (PFOS) chemicals to the Department of Defense by 2003. DoD is concerned about the availability of PFOS for use in AFFF and the pending phase-out rule's impact on military fire-fighting capabilities. Dr. Dierdorf asked me to respond to you because I am the author of the letter mentioned in your correspondence.

The application of AFFF in firefighting is inherently dispersive and results in the distribution of AFFF's chemical components on the surface and in the groundwater. Concern about this distribution prompted Military Service Departments to investigate the biodegradation, possible remediation, toxicity, fate and transport of many of AFFF's components. These studies date back to 1983 or earlier and are on going. Based on these studies and published literature, the "Lowest Observed Adverse Effect Level" (LOAEL) for perfluorinated carboxylic acids is 0.1 mg/kg/day for mice.¹ The LOAEL for perfluorooctanyl sulfonates is 0.4 mg/kg/day.² My assertion that PFOA is more toxic than PFOS is based on these data. The association of this result with telomer is based on the below unpublished Air Force tests.

Several weeks after a large-scale fire-fighting operation using AFFF in Jacksonville Bay, Florida, allegations of surfactant related bird kill caused the Air Force to screen AFFF's components to determine if they were non-persistent. The perfluorinated carboxylic and sulfonic acid surfactants were known to be persistent, leaving telomer surfactants as the only potentially non-persistent, commercially available, fluorosurfactant candidates. During 1998, the Air Force Research Laboratory, Fire Technology Group at Tyndall Air Force Base, Florida conducted the screening by monitoring the changes in "Soluble Chemical Oxygen Demand" (COD) and surface tension during biodegradation. Standard procedures for measuring "Biological Oxygen Demand" over a period of 28 days were used. Purely by coincidence, the telomer-tested surfactant samples were identified as "Zonyl" branded surfactants, which were supplied by your company.

Results indicated that the telomer fluorosurfactant did biodegrade as shown by decreased soluble COD, however, the surface tension remained essentially unchanged. Control samples of hydrocarbon

¹ **Developmental toxicity of perfluorodecanoic acid in C57BL/6N mice.** Harris MW, Birnbaum LS, Fundam Appl Toxicol, 1989, 442-8 (1989).

² **3M Submissions in EPA Docket AR-226.**

surfactants showed decreased soluble COD indicating biodegradation and as expected an increase in surface tension to that of water. The research staff involved in this work found the results consistent with the degradation of telomer surfactants to perfluorocarboxylic acids. In the case of Zonyl TBS, the only biodegradable segment is the 1,1,2,2 tetrahydro segment, which can only result in formation of perfluorononanoic acid. They considered this information insignificant at the time with the required documentation being extensive research notes.

I'm sure industry efforts in this area are being revived in light of the EPA's pending regulatory action. Dr. Dierdorf has been collaborating with manufacturers of fluorosurfactants to ensure non-persistent surfactants are developed and commercially available. These chemicals provide the properties essential to effective AFFF fire fighting. If you want a copy of the Air Force's unpublished experimental data, please contact Mr. Dick Vickers at (850) 283-3707, Dick.Vickers@tyndall.af.mil.


Curtis M. Bowling
Assistant Deputy Under Secretary of Defense
(Force Protection)

AN ABSTRACT OF THE THESIS OF

Cheryl Moody Bartel for the degree of Doctor of Philosophy in Chemistry
presented on November 23, 1999. Title: Occurrence and Distribution of Perfluorinated
Surfactants in Groundwater Contaminated by Fire-Fighting Activity

Redacted for privacy

Abstract approved: _____

 Jennifer A. Field

Aqueous film forming foams (AFFFs) are used to extinguish hydrocarbon-fuel fires and repetitive use, particularly at military sites, has led to AFFF-laden wastewater and subsequent groundwater contamination. Perfluorinated surfactants are an important class of specialty chemicals that are used in AFFF agents and have physio-chemical properties that differentiate them from hydrocarbon surfactants. In the past, the environmental behavior of perfluorinated surfactants has received little attention, and how the unique properties affect the behavior of perfluorinated surfactants in the environment and their potential impact on co-contaminant transport and biodegradation are unknown. An analytical method was developed to determine perfluorocarboxylates in groundwater. Solid-phase extraction and in-vial derivatization techniques were used to form the methyl esters of perfluorocarboxylates that were then analyzed by gas chromatography/mass spectrometry. Perfluorocarboxylates containing 6 to 8 carbons were detected in groundwater samples collected from Naval Air Station Fallon, NV, Tyndall Air Force Base, FL, and Wurtsmith Air Force Base, MI, with total concentrations

ranging from 3 to 7,090 $\mu\text{g/L}$. The homologous series of perfluorocarboxylates observed in groundwater from the three military sites as well as in commercial AFFF mixtures consisted of even and odd number perfluorinated carboxylates, which is indicative of the electrochemical fluorination synthesis process. At Wurtsmith Air Force Base, MI, perfluorocarboxylates detected 500 m from the source area were estimated to have a minimum residence time of 5 to 15 years. Additionally, the perfluorocarboxylate concentrations observed in groundwater are significantly lower than the corresponding methylene blue active substances concentrations, which indicates that there are additional anionic surfactant species present in the groundwater. Perfluorinated carboxylates measured at Naval Air Station Fallon, NV, Tyndall Air Force Base, FL, and Wurtsmith Air Force Base, MI, which have not been used since 1988, 1992, and 1986, respectively, provide direct field evidence that this class of perfluorinated surfactants persist under prevailing groundwater conditions and potentially could be used as unique tracers of groundwater impacted by repetitive fire-training exercises.

Occurrence and Distribution of Perfluorinated Surfactants in Groundwater Contaminated
by Fire-Fighting Activity

by

Cheryl Moody Bartel

A THESIS

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in partial fulfillment of
the requirements for the
degree of

Doctor of Philosophy

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Doctor of Philosophy thesis of Cheryl Moody Bartel presented on November 23, 1999.

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Cheryl Moody Bartel, Author

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PREFACE

Chapter 1 provides an introduction to aqueous film forming foams (AFFFs), which are used to extinguish hydrocarbon-fuel fires. Their repetitive use, particularly at military sites, has led to AFFF-laden wastewater and subsequent groundwater contamination. Perfluorinated surfactants are an important class of specialty chemicals that are used in AFFF agents and in the past, the environmental behavior of perfluorinated surfactants has received little attention.

The second chapter of this study describes the isolation, identification and quantification of perfluorinated carboxylates in groundwater impacted by fire-training activities at Naval Air Station Fallon, NV and Tyndall Air Force Base, FL. Strong anion exchange disks were used to extract perfluorocarboxylates from groundwater collected from fire-training sites located at the two military facilities. The developed method is the primary tool that was then used to quantitatively determine perfluorocarboxylates in groundwater samples collected for a more extensive groundwater study described in Chapter 3.

The work presented in Chapter 3 aids in the understanding of the environmental behavior of one class of perfluorinated surfactants, perfluorocarboxylates, since virtually no information exists on their occurrence, transport, and biodegradability in the environment. Commercial AFFF mixtures containing perfluorinated surfactants were applied at Wurtsmith Air Force Base, Oscoda, MI, including the Fire-Training Area 2 and a site where an airplane crashed. Comparison of the perfluorocarboxylate concentrations to other bulk chemical indicators such as specific conductance, total organic carbon, and

methylene blue active substances, add context to the environmental occurrence and distribution of perfluorocarboxylate surfactants.

**Occurrence and Distribution of Perfluorinated Surfactants in Groundwater
Contaminated by Fire-Fighting Activity**

Chapter 1

**Introduction: Perfluorinated Surfactants
and the Environmental Implications of their Use in Fire-Fighting Foams**

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Abstract

The recent identification of one class of fluorinated surfactants in groundwater impacted by fire-fighting activity has created an awareness of the potential environmental issues resulting from the use of aqueous film forming foam (AFFF) agents. Aqueous film forming foams are used to extinguish hydrocarbon-fuel fires and their repeated usage particularly at military sites has led to AFFF-contaminated groundwater. Formulations of AFFF agents include fluorinated surfactants, which are an important class of specialty chemicals that have physio-chemical properties that differentiate them from hydrocarbon surfactants. Little is known about the occurrence, transport, biodegradation and toxicity of fluorinated surfactants in the environment. The fact that fluorinated surfactants as well as other AFFF components co-occur with priority pollutants (e.g., jet fuel components and chlorinated solvents) complicates studies on their fate and effect in the environment. Research is needed to sufficiently characterize the structures and environmental properties of fluorinated surfactants. Additionally, the environmental behavior of the AFFF mixtures and complex AFFF-wastewaters needs to be investigated.

Introduction

Fluorinated surfactants constitute an important class of fluorinated compounds that are utilized in fire-fighting applications, herbicide and insecticide formulations, cosmetics, greases and lubricants, paints, polishes, and adhesives (1-4). For example, perfluorooctane sulfonate is an important surfactant itself as well as a precursor to other fluorinated surfactants and pesticides (5). The Organization for Economic Cooperation and Development (OECD) lists perfluorinated C5-C18 compounds, which includes most perfluorinated surfactants, as high-production-volume (HPV) chemicals. High-production volume chemicals are those chemicals manufactured or imported in the U.S. in volumes exceeding 1 million pounds (6).

Fluorinated surfactants are distinctly different from hydrocarbon surfactants. Although the polar head groups may be similar between hydrocarbon and fluorocarbon surfactants, the non-polar perfluorocarbon tail is both *hydrophobic* and *oleophobic* (oil-repelling), which is in contrast to the tail group of hydrocarbon surfactants, which are only considered hydrophobic in nature. For this reason, fluorinated surfactants exhibit both hydrophobic and oleophobic characteristics, which accounts for their unique physiochemical properties as will later be addressed (1). Fluorinated surfactants may be classified as either perfluorinated, in which all hydrogen atoms are substituted by fluorine atoms, or as partially-fluorinated where some carbons contain hydrogen atoms. Like other surfactant classes, fluorinated surfactants generally are classified into one of four categories: nonionic, anionic, cationic, and amphoteric, with anionic fluorinated surfactants being the most important class (1).

Fluorinated surfactants comprise a unique class of specialty chemicals whose environmental behavior has received little attention. Consequently little information is available to permit a complete life-cycle analysis. The focus of this review is to 1) characterize the unique properties of fluorinated surfactants, 2) describe how the unique properties are utilized for the purpose of fighting fires, and 3) evaluate how the unique properties might affect the behavior of perfluorinated surfactants in the environment and their potential impact on co-contaminant transport and biodegradation. Finally, the need for new analytical methods to measure perfluorinated surfactants is highlighted as a requirement for addressing questions about the occurrence, behavior, and impact of this specialty chemical class in the environment.

Perfluorinated Surfactant Synthesis and Properties

Two principal processes used in the manufacturing of fluorinated surfactants are electrochemical fluorination and telomerization (1). With electrochemical fluorination, the substance to be fluorinated is dissolved in hydrofluoric acid and an electric current is passed through the media (1, 7). All hydrogen molecules are replaced by fluorine and perfluorinated molecules result. Despite low to moderate yields of perfluorinated compounds and many side products, electrochemical fluorination is economically attractive because of the relatively low cost of electricity as well as that of the hydrogen fluoride reagent (7). With the electrochemical fluorination process, perfluorinated compounds with homologous series of even and odd number perfluorocarbons are generated (1, 8). In contrast, the telomerization process reacts a molecule called a telogen, with two or more unsaturated molecules called taxogens, which creates a telomer

that contains only an even number of carbon atoms (1). Because odd and even number perfluorocarbons result from electrochemical fluorination, the occurrence of odd *and* even carbon perfluorinated surfactants in the environment can potentially be traced to manufacturers that use the electrochemical fluorination process (9).

When fluorine is a substituent in organic compounds, unique chemical properties are observed due to the electronegativity of fluorine as well as the overlap between the 2s and 2p orbitals of fluorine and the corresponding orbitals of carbon (1, 7). The presence of fluorine atoms contributes to the rigidity of perfluorocarbon chains (2,3) relative to hydrocarbon chains. The highly polarized carbon fluorine bond is the strongest of known covalent bonds (1) with the average C-F bond approximately 25 kcal/mole stronger than the corresponding C-Cl bond in monochloroalkanes (7). Additionally, fluorination usually strengthens the adjacent C-C bonds (7).

The properties of hydrocarbons and, therefore, surfactants, are altered significantly when fluorine atoms are substituted for hydrogen atoms (1). Perfluorinated surfactants are more thermally-stable than their corresponding hydrocarbon analogues. In particular, perfluorocarboxylic acids and perfluoroalkanesulfonic acids are considered the most thermally-stable fluorinated surfactants (1). In addition to thermal stability, perfluorinated surfactants are stable to acids, bases, oxidants and reductants (1). This stability allows fluorinated surfactants to remain intact in environments where hydrocarbon surfactants are degraded.

Perfluorinated anionic surfactants have high-acid strength relative to their hydrocarbon analogs due to the electron-withdrawing effects of fluorine substitution. For example, the replacement of hydrogen atoms by fluorine atoms on octanoic acid to form

perfluorooctanoic acid decreases the pKa from 4.89 to 2.80 (Table 1.1) (1, 7).

Perfluorinated surfactants are much more surface active than hydrocarbon surfactants (1, 10). The substitution of fluorine atoms for hydrogen atoms decreases their surface activity for aqueous solutions, which promotes micellization at lower concentrations (i.e., the critical micelle concentration (CMC)) and lowers the surface tension relative to that of other hydrocarbon analogs (1). For example, the surface tension of perfluorooctanoic acid has been reported as 15.2 dynes/cm (1). The CMC values for C7 and C8 fluorinated surfactants (i.e., perfluorocarboxylates and perfluoroalkane sulfonates) are approximately equal to those of C11 and C12 hydrocarbon surfactants (1).

The cost of fluorinated surfactants is higher relative to that of hydrocarbon surfactants. Because of the high prices of fluorinated surfactants, fluorosurfactant applications are limited to problems that conventional, lower-priced surfactants can not address (4, 11). Within a specific application, fluorinated surfactants are typically cost effective because their relatively high price is offset by the low concentrations needed to achieve the reduction in interfacial tension or to form micellar solutions (1). In some applications such as AFFF, a mixture of a fluorinated surfactant and a hydrocarbon-based surfactant are more cost effective and/or perform better than either surfactant separately (1).

Perfluorinated Surfactants in Aqueous Film Forming Foams

Hydrocarbon-fuel fires pose a serious threat to life and property, and require immediate response. To enable a quick response to hydrocarbon-fuel fires, effective and

Table 1.1. Properties of perfluorooctanoic acid.

| Property | Perfluorooctanoic acid |
|---|------------------------|
| pKa ¹ | 2.80 |
| Critical micelle concentration ² | 8.7-9.0 |
| Interfacial tension ³ | 15.2 |

¹(1).

²Units for critical micelle concentrations are mMoles/L (1).

³Units for surface tension are dynes/cm (10).

efficient fire-extinguishing agents are needed to prevent damage and re-ignition of the fires. Aqueous film forming foams (AFFFs) were developed in the 1960s as important tools for extinguishing fires involving flammable liquid fuels (i.e., gasoline, kerosene) (12).

Due to the presence of large quantities of flammable liquids, municipal (i.e., fire departments), hydrocarbon-processing industry (i.e., oil refineries), and military sectors utilize AFFFs (Figure 1.1), with the military comprising 75% of the total market, while the municipal and hydrocarbon-processing industry represents 13% and 5%, respectively (13). In 1985, the United States market for AFFF products (i.e., 3% and 6% concentrates) was 6.8 million L with a total revenue of 10 million dollars in U. S. sales (13). The military was the single largest consumer of AFFF agents in 1985, with consumption totaling 5.1 million L (13). For historical reasons, the U. S. Department of Defense Military Specifications Regulations have driven the requirements for AFFF performance by establishing performance criteria.

Commercial AFFF formulations are complex proprietary mixtures whose major components include a solvent, which is typically butyl carbitol; fluorocarbon (perfluorinated anionic and partially-fluorinated amphoteric) surfactants; and hydrocarbon-based surfactants (Table 1.2). Fluorinated surfactants in AFFF mixtures contribute to the performance of foams as the primary fire extinguishing chemical and as vapor sealants that prevent re-ignition of fuel and solvents (1, 14, 15). To evaluate the spreading of AFFFs and the spontaneous formation of films, a spreading coefficient can be calculated. The spreading coefficient (SC) (16) evaluates the reduction in surface and

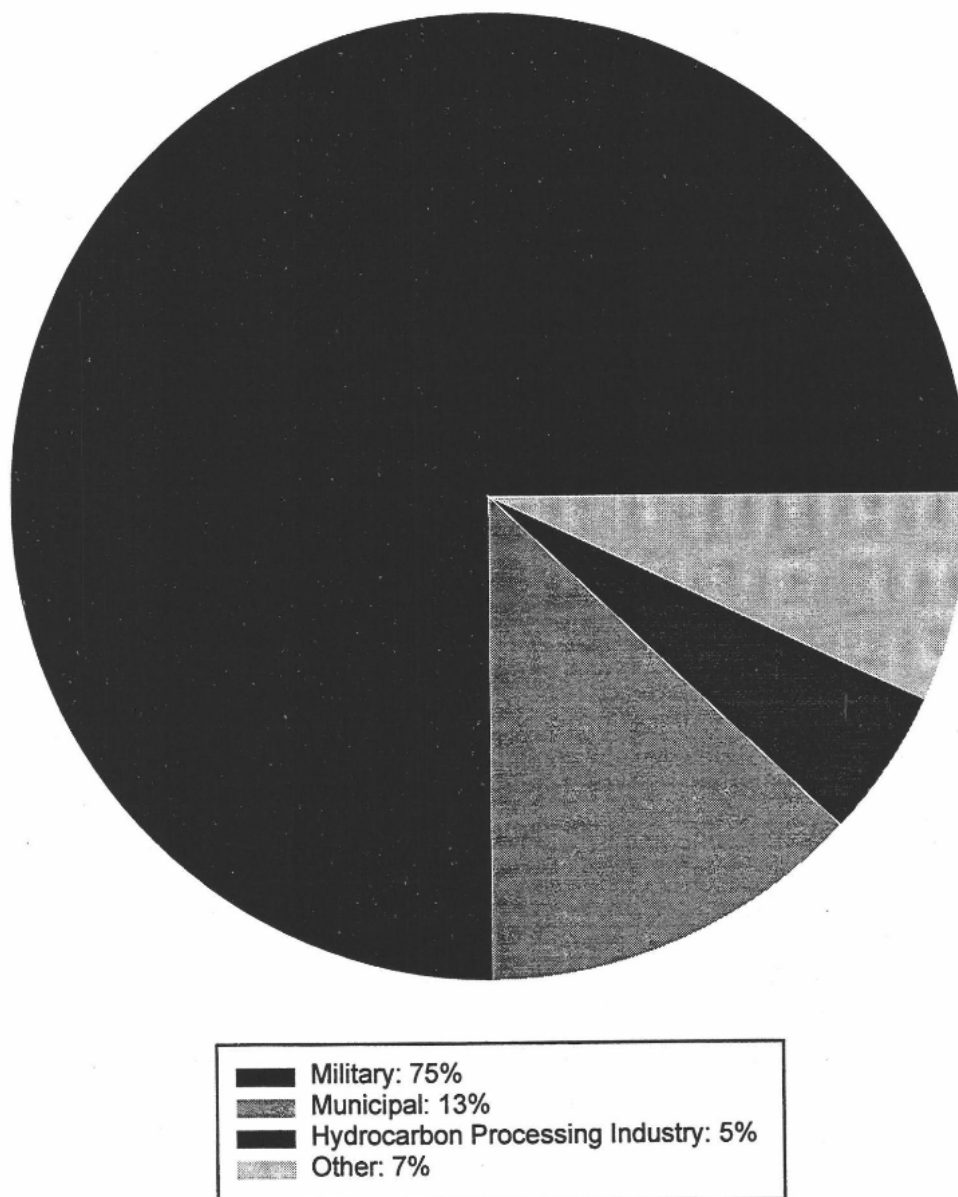


Figure 1.1. Percentage breakdown of United States consumers of AFFF products, where the hydrocarbon processing industry and municipal represent entities such as oil refineries and fire departments, respectively (13).

interfacial tension and is defined as the difference between the surface tension of a model hydrocarbon phase ($\gamma_{\text{cyclohexane}}$) (such as cyclohexane at 25 dynes/cm), the surface tension of the aqueous solution (γ_{aqueous}), and the interfacial tension between the aqueous solution and hydrocarbon phase ($\gamma_{\text{interfacial}}$) (17).

$$SC_{(\text{aqueous/cyclohexane})} = \gamma_{\text{cyclohexane}} - \gamma_{\text{aqueous}} - \gamma_{\text{interfacial}} \quad (1)$$

For military specifications the spreading coefficient of the mixture calculated from Equation (1) must be positive (18). For example, the fluorinated surfactant components in AFFFs lower the surface tension of the aqueous solution to 15-20 dynes/cm while hydrocarbon surfactants lower the interfacial tension between the aqueous solution and the hydrocarbon phase (i.e., burning fuel) to 0-2 dynes/cm (19). Thus, the films formed by fluorocarbon and hydrocarbon solutions consist of two-mixed monolayers of surfactants where the air-aqueous phase monolayer is dominated by the fluorocarbon surfactant and the aqueous-hydrocarbon phase monolayer is dominated by the hydrocarbon surfactant (Figure 1.2) (19).

AFFF Wastewater and its Impact on Wastewater Treatment Facilities

At installations, such as military bases, fire-training exercises are part of emergency preparedness plans and therefore are conducted with some frequency. A fire-training exercise typically consists of flooding a fire pit with flammable liquids (e.g., off-

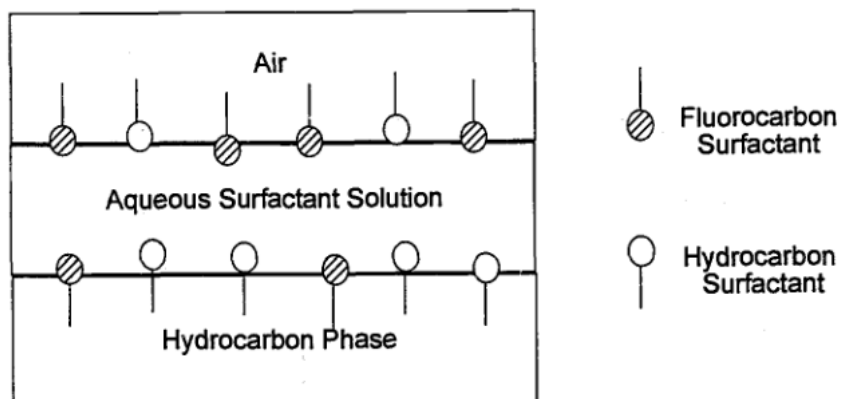


Figure 1.2. Mixed monolayers at the air-aqueous and aqueous-hydrocarbon phase interfaces. Adapted from Reference (19).

specification jet fuel and waste solvents such as chlorinated solvents (20-22)), igniting the fluids, and subsequently extinguishing the fire with fire-fighting agents (21). For example, training exercises occurred on a weekly to monthly basis (9) at Naval Air Station (NAS) Fallon, NV, and consisted of igniting fuel (average 3000 L/week) (21) and extinguishing the fire with 1200-3200 L (3%-6%) of aqueous AFFF solutions. Typically, at this site and others, disposal options for AFFF wastewater included discharge into a wastewater treatment facility and/or directly onto the ground adjacent to the training facilities.

If too much fire-fighting foam is discharged to a wastewater treatment facility at one time, excess foaming may occur, which results in aesthetic and operational problems in sewers and wastewater treatment facilities. Another concern for wastewater treatment facilities is that in-coming AFFF wastewaters have high biological (BOD) and chemical oxygen demands (COD) (23). For example, for 3M Light Water™ AFFF product FC-203 as a 3% solution, the BOD₅ (5 day biological oxygen demand), BOD₂₀ (20 day biological oxygen demand) and COD are 1.7×10^4 mg/L, 3.2×10^4 mg/L, and 3.2×10^4 mg/L, respectively, and can lead to significantly higher values than those normally found at treatment plants (100-400 mg/L BOD₅ (23)) (23, 24). One of the principle contributors to the high BOD and COD of AFFF is the organic solvent component, butyl carbitol (Table 1.2).

In addition to the foaming BOD and COD problems associated with AFFF, residual fuel is part of AFFF wastewater (12, 25). Residual fuel in combination with AFFF components and potential combustion products complicates the characterization of AFFF wastewater and thus its disposal in an economically-and environmentally-

Table 1.2. Chemical Composition of 3M FC-203CF Light Water™ Aqueous Film Forming Foam Concentrate (St. Paul, MN) (73).

| Chemical Name | Percent of Total Composition |
|--|------------------------------|
| Water | 69.0-71.0 |
| Diethylene glycol butyl ether (butyl carbitol) | 20.0 |
| Amphoteric fluoroalkylamide derivative | 1-5 |
| Alkylsulfate salts | 1.0-5.0 |
| Perfluoroalkyl sulfonate salts | 0.5-1.5 |
| Triethanolamine | 0.5-1.5 |
| Tolyltriazole (corrosion inhibitor) | 0.05 |

acceptable manner (26). Solutions containing free and emulsified oil, fuel, and AFFF components were shown to adversely affect activated sludge processes (12, 25) and the performance of anaerobic sludge digestors (27) in wastewater treatment facilities. Because of the potential problems at wastewater treatment facilities, characterization of AFFF wastewater is required in some instances prior to gaining approval to discharge the waste to a wastewater treatment facility. Characterization methods generally are lacking, and thus some fire-training facilities have had to impound AFFF wastewater over extended periods of time.

Aqueous film forming foam wastewater and its treatment have been the focus of investigative studies by the U. S. Department of Defense (26). Several pre-treatments such as precipitation, coagulation, adsorption on activated carbon and ultrafiltration (12, 26) are being evaluated for the treatment of AFFF wastewater before dispensing it to a wastewater treatment facility (23, 25, 28-30); however, few pre-treatment strategies are being implemented. Currently, treatment efficiency is judged using only general, non-specific parameters such as methylene blue active substances (MBAS) and total organic carbon. Unfortunately, analytical methods are not yet widely available that permit the specific assessment of the effectiveness of treatment technology efficiency on fluorinated surfactant removal.

Perfluorinated Surfactants in Groundwater

Plumes of contaminated groundwater are associated with past fire-training sites at several military bases in the United States (20-22, 31-33) including NAS Fallon, NV, Tyndall Air Force Base, FL, and Wurtsmith Air Force Base, MI, where AFFF wastewater

has entered groundwater without prior treatment. Most of these plumes have been characterized with respect to fuel and solvent components unlike the surfactant components, which have received little attention primarily due to the lack of appropriate analytical techniques.

A few early reports tentatively identified the presence of fluorinated surfactants in groundwater impacted by fire-fighting activities at Tyndall Air Force Base, FL (31, 34). A recent report described the development of an analytical method that permitted the definitive identification of perfluorocarboxylates surfactants in groundwater at NAS Fallon, NV, and Tyndall Air Force Base, FL, at concentrations ranging from 125 to 7090 $\mu\text{g/L}$ (9). A current study at Wurtsmith Air Force Base, MI, has revealed a plume of perfluorocarboxylates 500 m in length with concentrations ranging from 3 to 110 $\mu\text{g/L}$ (35, 36).

At each field site both even- and odd-numbered carbon perfluorocarboxylates were identified, which is indicative of product formulations manufactured by the electrochemical fluorination process (9). This finding is consistent with the fact that the 3M Co., a company that uses electrochemical fluorination to manufacture perfluorinated surfactants, has held the military contract to supply AFFF for the last 25 years.

Laboratory and field data regarding the transport of fluorinated surfactants in groundwater are virtually nonexistent. In an attempt to address this data gap, we performed a single-well push-pull test (37) using perfluorooctane sulfonate in order to obtain *in-situ* transport information. The push-pull test consisted of the injection of a prepared test solution into the saturated zone of an aquifer using an existing monitoring

well, followed by the extraction of the test solution/groundwater mixture from the same location. For this experiment, 50 L of injectate containing 97 mg/L bromide (non-reactive tracer) and 26 mg/L potassium perfluorooctane sulfonate, which is one of the major perfluorinated surfactants present in some AFFF mixtures, was injected into a well over a period of 4 hr. Immediately after injection, a total of 98 L was extracted from the well over a 9-hr period. Samples were taken during the extraction phase and analyzed for bromide and perfluorooctane sulfonate by ion chromatography and MBAS, respectively. It should be noted that the MBAS test is non-specific and does not allow for the detection and quantitation of individual anionic surfactant classes. However, for this field study where only a single perfluorinated surfactant was present in the injectate solution and none was present in the background groundwater, the limitations of MBAS did not hinder its application as the analytical method for perfluorooctane sulfonate.

Breakthrough curves were constructed for bromide and perfluorooctane sulfonate (Figure 1.3) by plotting the relative concentration C/C_0 for each solute, where C is the measured concentration and C_0 is the injected concentration, versus the cumulative extracted volume divided by the total injected volume of the test solution. Identical breakthrough curves for bromide and perfluorooctane sulfonate were observed indicating that perfluorooctane sulfonate was transported conservatively in this aquifer. In contrast, breakthrough curves for a mixture C10-C13 linear alkylbenzene sulfonate (LAS) obtained from a separate single-well push-pull test conducted in the same aquifer (data not shown) indicates the retardation of C10-C13 LAS relative to that of bromide (38). Preliminary data indicates for a given site, perfluorooctane sulfonate (C8) is conservatively transported while its hydrocarbon surfactant analog of 2 to 5 more carbon atoms is

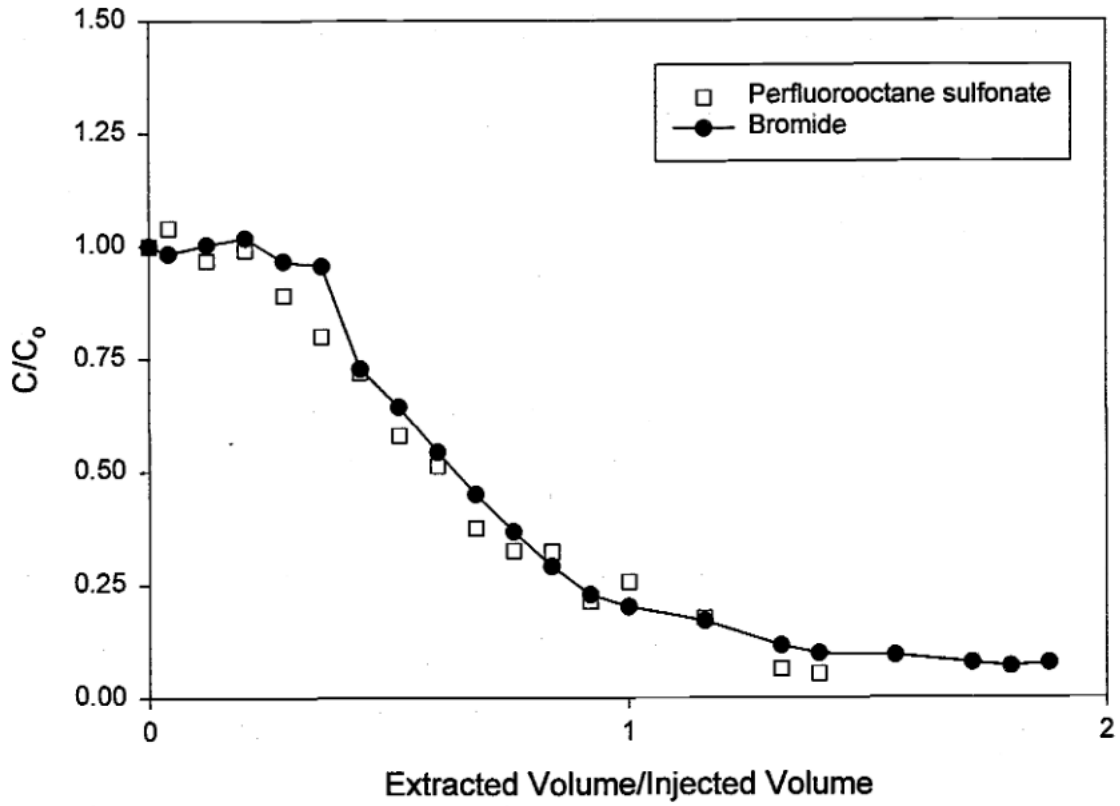


Figure 1.3. Breakthrough curves for bromide and perfluorooctane sulfonate obtained from a push-pull field test.

retarded. Because perfluorocarboxylates are weaker acids, their transport may be affected by pH and ionic strength. Therefore, research is required to fully investigate the transport behavior of the perfluorinated surfactants present in AFFF. However, the conservative transport perfluorooctane sulfonate observed in the field study indicates that perfluorinated surfactants may be good tracers for AFFF-contaminated groundwater.

Biodegradation

The extent to which AFFF components and priority pollutants in AFFF wastewater biodegrade is quite varied. A material safety data sheet for a current AFFF product states that the product contains one or more organic fluorochemicals that have the potential to resist degradation and persist in the environment (39). The detection of perfluorocarboxylates in groundwater at NAS Fallon, NV, and Tyndall Air Force Base, FL, which have not been used for 7-11 years (9) is consistent with both AFFF product labeling and the widely-held view that perfluorinated surfactants are not biodegradable.

Few studies have been conducted to investigate the biodegradability of perfluorinated or partially-fluorinated surfactants (2, 3, 12, 40). Perfluorooctane sulfonic acid was not degraded under aerobic or anaerobic conditions (27), while a partially-fluorinated surfactant, 1H, 1H, 2H, 2H-perfluorooctane sulfonic acid, was partially degraded both aerobically and under sulfur-limiting conditions (2, 3, 5). Biodegradation of partially-fluorinated surfactants appears to be limited to the non-fluorinated portion of the molecule (2, 5, 41). For example, 1H, 1H, 2H, 2H-perfluorodecanol was biotransformed to perfluorooctanoate (41). The recalcitrant nature of perfluorinated

compounds is attributed, in part, to the strength of the carbon-fluorine bond (1, 2, 42) as well as the rigidity of the perfluorocarbon chain (2, 43).

In contrast to the recalcitrant nature of the fluorinated surfactant components present in AFFF mixtures, the alkyl sulfate hydrocarbon surfactants (Table 1.2) (26) present in some AFFF formulations is considered biodegradable under aerobic and anaerobic conditions (44). As mentioned previously, the solvent component of AFFF formulations is also biodegradable as indicated by high BOD values. As a result, the high BOD of butyl carbitol may influence the biogeochemical conditions of groundwater by consuming oxygen and thus driving systems anaerobic. Corrosion inhibitors (i.e., tolyltriazole) are a component found in AFFF formulations that have been shown to persist in the environment (45, 46). While some information is available on individual AFFF components, virtually nothing is known about the biodegradation of this complex mixture and any synergistic effects of AFFF components upon priority pollutants biodegradation under actual subsurface conditions. Additional research is required to understand the biodegradation of AFFF components.

Co-Contaminant Transport and Degradation

Because some perfluorinated surfactants appear to persist in groundwater they may affect the environmental fate and transport of other co-contaminants (i.e., jet fuel and trichloroethylene) that are present in AFFF wastewater. Unfortunately, the physical character (e.g., number of liquid phases) and chemical composition of AFFF wastewaters have not been widely characterized. However, it is likely that AFFF wastewaters resulting from the application of AFFF on burning solvents, some of which form dense

non-aqueous phase liquids or DNAPLs, are multi-phased systems. Due to the complex nature of AFFF wastewater there are a number of potential interactions between AFFF components and co-contaminants that can affect co-contaminant transport and biodegradation. For example, some hydrocarbon surfactants above their CMC are known to enhance the apparent solubility and/or the mobility of DNAPL in contaminated aquifers (47-49). Because surfactants can cause large reductions in water-DNAPL interfacial tension, surfactants may promote the displacement of residual DNAPL and hence its more rapid migration in the subsurface. The ability of hydrocarbon surfactants to increase the solubility or mobility of DNAPLs is dependent on the physical properties of the particular surfactant. Given the oleophobic nature of the perfluorocarbon chain, it is likely that on a per carbon basis, perfluorocarbon surfactants are less effective in increasing the solubility of DNAPL than hydrocarbon surfactants as well as less effective in lowering aqueous-DNAPL interfacial tensions (1). However, to date studies have not been conducted to determine the extent to which fluorinated surfactants can increase the solubility and/or mobility of DNAPL in the subsurface.

By analogy to wastewater treatment systems where AFFF wastewater adversely affected the performance, perfluorinated surfactants may have an effect on groundwater microbial populations and their ability to degrade co-contaminants (12, 25, 27). No information exists on the potential impact of perfluorinated surfactants on microbial populations. Recent studies with hydrocarbon surfactants have indicated either inhibition (50-52) or promotion (53-55) of organic contaminant degradation (47). The ability of a surfactant to promote or inhibit co-contaminant biodegradation also appears structure specific. Unfortunately, structure-activity relations have not been established for

fluorinated surfactants. Therefore, it is not yet possible to predict *a priori* the effect that perfluorinated surfactants will have upon the biodegradation of other contaminants in AFFF-contaminated groundwater.

Toxicity

The toxicity of AFFF formulations to marine and freshwater organisms has been tested in laboratory studies (24). Various diluted AFFF agents were considered mildly toxic to marine life at concentrations near 6.0 g/L (24). Additional components of interest found in AFFF concentrate formulations are the corrosion inhibitors such as tolyltriazone. Recent toxicological studies on tolyltriazone have shown that these compounds have moderate to high toxicity (45, 46). However, realistic toxicity evaluations of AFFF mixtures and AFFF wastewater in the environment are difficult because AFFF wastewaters are complex mixtures that contain AFFF components, primary pollutants, as well as toxic burn products. In addition, differential degradation during transport of AFFF wastewater components will change the mixtures composition and toxicity over distance and time. Finally, the toxicity of these types of complex mixtures is difficult to assess because of the potential synergistic effects between mixture components, making it difficult to predict *a priori* the toxicity of these mixtures in the environment.

Release of fluorinated surfactants to surface waters is not recommended by AFFF manufacturers as a route of disposal for AFFF wastewater (56). Fortunately, reports of AFFF wastewater discharge to surface waters are limited. However, AFFF wastewater released to a Florida river in 1993 has been the subject of investigation as a possible cause of sea bird illnesses and deaths in the region (57, 58). By analogy to

hydrocarbon surfactants, perfluorinated surfactants in AFFF wastewater can potentially cause birds to lose their natural oils, thus causing birds to die from hypothermia (59).

Analytical Considerations

The determination of perfluorinated surfactants is problematic (12), in part, because the surfactants are nonvolatile and generally do not contain chromophores, which limits their detection using commonly available analytical detectors. The scarcity of analytical methods for fluorinated surfactants is in sharp contrast to numerous methods available on hydrocarbon surfactant analysis (11, 60-62). Creating an analytical method to isolate perfluorinated surfactants from environmental samples is complicated due to the proprietary nature of AFFF formulations and therefore, the lack of knowledge regarding the specific structure of perfluorinated surfactants. Furthermore, the isolation of perfluorinated surfactants from water is complicated by their high water solubility.

The non-specific determination of the total organofluorine content of a water sample may be obtained using the oxyhydrogen combustion method (1, 63). A water sample (e.g., 10 mL) introduced into the oxyhydrogen torch for combustion is completely mineralized to the fluoride ion, which is then trapped in an aqueous solution (1, 64, 65). The fluoride ion is then measured by an ion selective electrode (1, 64, 66). As little as 20-40 $\mu\text{g/L}$ fluorinated surfactant can be detected without the need to concentrate the water sample before combustion (1). Although this method determines the total organofluorine content of a water sample, it does not provide structure-specific

information. In addition, the mixtures of oxygen and hydrogen present a potentially significant safety hazard.

The methylene blue active substances test was used to detect the presence of anionic surfactants in groundwater at a fire-training area at Tyndall Air Force Base (31). With the MBAS test, anionic surfactants form ion pairs with the methylene blue cation, which then are extracted into chloroform and determined spectrophotometrically (67). However, the use of MBAS as a reliable means of detecting fluorinated surfactants in environmental wastewaters is limited because the MBAS test is non-specific and does not allow for the individual identification of anionic surfactants nor for the differentiation between anionic hydrocarbon and fluorocarbon surfactants.

When structural information is required to obtain definite identification of fluorinated surfactants in environmental samples, mass spectrometry is the method of choice. Chemical derivatization was combined with gas chromatography/mass spectrometry (GC/MS) for the determination of perfluorinated surfactants in groundwater at Tyndall Air Force Base, FL (9, 34). Perfluorocarboxylates were quantitatively determined in groundwater by derivatizing the carboxylates to their methyl esters, which were detected and quantified by electron impact GC/MS and electron capture negative chemical ionization GC/MS. Perfluorooctane sulfonate, which is present in AFFF formulations, was not detected by this method. Although perfluoroalkanesulfonate esters may have been formed during the derivatization step, the esters are unstable due to excellent leaving group properties of the perfluoroalkanesulfonic group (7, 68). In fact, perfluorooctane sulfonate esters are sold as *alkylating* reagents for the derivatization of

other analytes. Therefore, derivatization with gas chromatography has limited utility for determining a broad range of perfluorinated surfactants.

Liquid chromatography/mass spectrometry (LC/MS) is an attractive option for the sensitive and quantitative analysis of non-volatile analytes such as perfluorinated surfactants. Liquid chromatography/mass spectrometry was used to qualitatively identify perfluorooctane sulfonate in groundwater from Tyndall Air Force Base, FL, NAS Fallon, NV, and Wurtsmith Air Force Base, MI (35). To the best of our knowledge, only one other report characterizes the determination of fluorinated surfactants in water and wastewater by high performance liquid chromatography (HPLC) together with a thermospray interface and a tandem mass spectrometer (69). Liquid chromatography/mass spectrometry will most likely prove to be the most useful tool for characterizing the compositions and concentrations of a range of perfluorinated surfactants in environmental samples.

Future Challenges

Hydrocarbon-fuel fires pose a serious threat to life and property and therefore the issue of fire safety must be balanced against the risks that AFFF and their perfluorinated surfactants potentially pose to the environment. Fluorinated surfactants are a unique class of chemicals that are directly discharged to natural and engineered aquatic systems. The variety of applications for these types of surfactants is increasing yet little information on the environmental behavior is available. Fluorinated surfactants differ significantly from hydrocarbon surfactants such that direct analogies can not be drawn between the two

types of surfactants. Therefore, the environmental behavior of fluorinated surfactants is worthy of independent investigation.

Because commercial formulations of AFFF are complex mixtures, the employment of these mixtures in fire-training situations introduces both priority and non-priority pollutants into the environment. There are significant gaps in the knowledge of how chromatographic separation during transport affects these complicated mixtures. Because perfluorinated surfactants persist in the environment, they may impact the biogeochemical processes affecting the distribution and bioavailability of co-contaminants. The effect that AFFF components has upon subsurface microbial ecology and activity is unknown.

Several different technologies are being evaluated to solve current problems resulting from AFFF usage, including the development of products to replace AFFF. The 1998 Presidential Green Chemistry Challenge Award was recently presented to a company for the development of a biodegradable fire-extinguishing agent that does not contain glycol ethers or fluorinated surfactants (70, 71). Another approach to addressing the problems associated with fluorinated surfactants is to discontinue their use in AFFF agents and to return to prior technology such as protein-based foams.

In a related issue, advances in fire-fighting product development includes the development and marketing of training foams that are designed to be used during training exercises in lieu of AFFF products that contain fluorinated surfactants. Training products are attractive for their cost savings due to the absence of expensive fluorinated surfactant components. Training products have the added benefit of being readily treated by conventional wastewater treatment facilities due to the increased biodegradability of the

non-perfluorinated surfactant mixture and its reduced foaming properties. Such training foams eliminate the common environmental concern associated with AFFF and reduce training costs while still allowing for actual practice with fire-training equipment (72). While training foams are designed to provide expansion characteristics similar to AFFF, they are inadequate fire extinguishing materials if used in an actual hydrocarbon-fuel fire. Because the possibility exists that training foams may be mistaken in an emergency for AFFF, some AFFF users do not employ training foams.

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Literature Cited

- (1) Kissa, E. *Fluorinated Surfactants: Synthesis, Properties, and Applications*; Marcel Dekker: New York, 1994.
- (2) Key, B. D.; Howell, R. D.; Criddle, C. S. *Environ. Sci. Technol.* **1997**, *31*, 2445-2454.
- (3) Key, B. D. Ph.D. Dissertation, Michigan State University, East Lansing, MI, 1996.
- (4) Porter, M. R. *Handbook of Surfactants*, Second ed.; Blackie Academic & Professional: London, 1994.
- (5) Key, B. D.; Howell, R. D.; Criddle, C. S. *Environ. Sci. Technol.* **1998**, *32*, 2283-2287.
- (6) Rogers, R. S. *Chem. Eng. News* **1999**, *April 12*, 30-32.
- (7) Hudlicky, M.; Pavlath, A. E.; *Chemistry of Organic Fluorine Compounds II*; American Chemical Society: Washington, DC, 1995.
- (8) Kauck, E. A.; Diesslin, A. R. *Ind. Eng. Chem.* **1951**, *43*, 2332-2334.
- (9) Moody, C. A.; Field, J. A. *Environ. Sci. Technol.* **1999**, *33*, 2800-2806.
- (10) Shinoda, K.; Hato, M.; Hayashi, T. *J. Phys. Chem.* **1972**, *76*, 909-914.
- (11) Cross, J. *Anionic Surfactants: Analytical Chemistry*; Marcel Dekker: New York, 1998.
- (12) Darwin, R. L.; Ottman, R. E.; Norman, E. C.; Gott, J. E.; Hanauska, C. P. *Natl. Fire Protect. Assoc.* **1995**, *May/June Issue*, 67-73.
- (13) IMR International. "Fire Fighting Foam Concentrates"; San Diego, CA, 1986, pp 2/1-2/36.
- (14) Falk, R. A.; "Aqueous Wetting and Film Forming Compositions"; United States Patent 4090967, 1978.
- (15) Alm, R. R.; Stern, R. M.; "Aqueous Film-Forming Foamable Solution Useful as Fire Extinguishing Concentrate"; United States Patent 5085786, 1992.
- (16) Harkins, W. D.; Feldman, A. *J. Am. Chem. Soc.* **1922**, *44*, 2665-2685.

- (17) Military Specification: Fire Extinguishing Agent, Aqueous Film Forming Foam (AFFF) Liquid Concentrate for Fresh And Sea Water; Report No. MIL-F-24385F; U. S. Department of the Navy: Washington DC, 1992.
- (18) Scheffey, J. L.; Wright, J. A.; *Analysis of test criteria for specifying foam fire-fighting agents for aircraft rescue and fire-fighting*; Report No. DOT/FAA/CT-94-04; Hughes Associates, Inc.: Columbia, MD, 1994.
- (19) Shinoda, K.; Nomura, T. *J. Phys. Chem.* **1980**, *84*, 365-369.
- (20) Barcelona, M. J. Presented at the Symposium on Natural Attenuation of Chlorinated Organics in Groundwater, Dallas, TX, September 1996.
- (21) Work Plan for Assessing the Feasibility of Intrinsic Remediation at Installation Restoration Program Sites; Oak Ridge National Laboratory: Oak Ridge, TN, October 1996.
- (22) Contamination Assessment Report Active Fire Training Area FT-23 Tyndall Air Force Base Panama City, FL, FDER Facility No. United States Army Corps of Engineers: Washington DC, February 1994.
- (23) O'Brien, A. F. M.S. Thesis, University of Maryland, College Park, MD, 1994.
- (24) Salazar, S. M. Technical Report 825, Naval Ocean Systems Center: San Diego, CA, 1985.
- (25) Chan, D. B.; Chian, E. S. K. *Environ. Progr.* **1986**, *5*, 104-109.
- (26) Howell, R. D.; Tucker, E. E. *Am. Environ. Lab.* **1996**, *12*, 10-11.
- (27) Remde, A.; Debus, R. *Chemosphere* **1996**, *52*, 1563-1574.
- (28) Bass, C. M. Ph.D. Dissertation, University of Oklahoma, Norman, OK, 1982.
- (29) Chan, D. B.; Technical Report TM-54-79-19, Civil Engineering Laboratory, Naval Construction Battalion Center: Port Hueneme, CA, 1979.
- (30) Chan, D. B.; Technical Report M-54-78-06, Civil Engineering Laboratory, Naval Construction Battalion Center: Port Hueneme, CA, 1978.
- (31) Levine, A. D.; Libelo, E. L.; Bugna, G.; Shelley, T.; Mayfield, H.; Stauffer, T. B. *Sci. Total Environ.* **1997**, *208*, 179-195.
- (32) Chappelle, F. H.; Haack, S. K.; Adriaens, P.; Henry, M. A.; Bradley, P. M. *Environ. Sci. Technol.* **1996**, *30*, 3565-3569.

- (33) Bermejo, J. L.; Sauck, W. A.; Atekwana, E. A. *GWMMR* **1997**, 131-137.
- (34) Henley, M.; Mayfield, H.; Shelley, T. *Abstract of Papers*, Pittsburgh Conference, Atlanta, GA, American Chemical Society: Washington DC, 1997; Abstract 519.
- (35) Moody, C. A.; Furlong, E. T.; Hebert, G. N.; Odom, M. A.; Strauss, S. H.; Field, J. A. *Abstract of Papers*, Society of Environmental Toxicology and Chemistry Conference, Philadelphia, PA, 1999; PTA-123.
- (36) Moody, C. A.; Field, J. A. in preparation.
- (37) Istok, J. D.; Humphrey, M. D.; Schroth, M. H.; Hyman, M. R.; O'Reilly, K. T. *Ground Water* **1997**, *35*, 619-631.
- (38) Istok, J. D.; Field, J. A.; Schroth, M. H.; Sawyer, T. E.; Humphrey, M. D. *Ground Water* **1999**, *37*, 590-598.
- (39) Material Safety Data Sheet for ATC-603 Light Water ATC 3 AR-AFFF 3%, 3M Company, St. Paul, MN, 1998.
- (40) Rosen, M. J. *Surfactants and Interfacial Phenomena*, Second ed.; John Wiley & Sons: New York, 1989.
- (41) Hagen, D. F.; Belisle, J.; Johnson, J. D.; Venkateswarlu, P. *Anal. Biochem.* **1981**, *118*, 336-343.
- (42) Smart, B. E. In *Molecular Structure and Energetics*; Liebman, J. F., Greenberg, A., Eds.; VCH Publishers: Deerfield Beach, FL, 1986; Vol. 3, 141-191.
- (43) Asakawa, T.; Mouri, M.; Miyagishi, S.; Nishida, M. *Langmuir* **1989**, *5*, 343-348.
- (44) Swisher, R. D. *Surfactant Biodegradation*; Marcel Dekker, Inc.: New York, 1987.
- (45) Cancilla, D. A.; Martinez, J.; Van Aggelen, G. C. *Environ. Sci. Technol.* **1998**, *32*, 3834-3835.
- (46) Lewis, Sr., R. J. *Hazardous Chemicals Desk Reference*, Third ed.; Van Nostrand Reinhold: New York, 1993.
- (47) Guha, S.; Jaffe, P. R.; Peters, C. A. *Environ. Sci. Technol.* **1998**, *32*, 930-935.
- (48) West, C. C.; Harwell, J. H. *Environ. Sci. Technol.* **1992**, *26*, 2324-2329.

- (49) Abriola, L. M.; Pennell, K. D.; Pope, G. A.; Dekker, T. J.; Luning-Prak, D. J. In *Surfactant-Enhanced Subsurface Remediation*; Sabatini, D. A., Knox, R. C., Harwell, J. H., Eds.; American Chemical Society: Washington, DC, 1995; Vol. 594, pp 10-23.
- (50) Guha, S.; Jaffe, P. R. *Environ. Sci. Technol.* **1996**, *30*, 1382-1391.
- (51) Guha, S.; Jaffe, P. R. *Environ. Sci. Technol.* **1996**, *30*, 605-611.
- (52) Liu, Z.; Jacobson, A. M.; Luthy, R. G. *Appl. Environ. Microbiol.* **1995**, *61*, 145-151.
- (53) Laha, S.; Luthy, R. G. *Environ. Sci. Technol.* **1991**, *25*, 1920-1930.
- (54) Roch, F.; Alexander, M. *Environ. Toxicol. Chem.* **1995**, *14*, 1151-1158.
- (55) Tsomides, H. J.; Hughes, J. B.; Thomas, J. M.; Ward, C. H. *Environ. Toxicol. Chem.* **1995**, *14*, 953-959.
- (56) Material Data Safety Sheet for FC-95 Fluorad Brand Fluorochemical Surfactant, 3M Company, St. Paul, MN, 1999.
- (57) Halton, B. In *The Florida Times-Union*: Jacksonville, FL, 1998, pp A-5.
- (58) Kinner, D. L. In *The Florida Times-Union*: Jacksonville, FL, 1998, pp B-1.
- (59) A. R. Stickley, J.; Twedt, D. J.; Heisterberg, J. F.; Mott, D. F.; Glahn, J. F. *Wild. Soc. Bull.* **1986**, *14*, 412-418.
- (60) Fendinger, N. J.; Begley, W. M.; McAvoy, D. C.; Eckhoff, W. S. *Environ. Sci. Technol.* **1992**, *26*, 2493-2498.
- (61) Popenoe, D. D.; Morris, III, S. J.; Horn, P. S.; Norwood, K. T. *Anal. Chem.* **1994**, *66*, 1620-1629.
- (62) Schmitt, T. M. *Analysis of Surfactants*; Marcel Dekker: New York, 1992.
- (63) Sweetser, P. B. *Anal. Chem.* **1965**, *28*, 1766-1768.
- (64) Kissa, E. *Anal. Chem.* **1983**, *55*, 1445-1448.
- (65) Kissa, E. *Environ. Sci. Technol.* **1986**, *20*, 1254-1257.
- (66) Kissa, E. In *Anionic Surfactants: Analytical Chemistry*; Cross, J., Ed.; Marcel Dekker: New York, 1998; Vol. 73.

- (67) Anionic Surfactants as MBAS; In *Standard Methods for the Examination of Water and Wastewater*; Association of American Public Health, Association of American Water Works, Water Environment Federation, Eds.; American Public Health Association: Washington DC, 1998, (5-47)-(5-49).
- (68) March, J. *Advanced Organic Chemistry*, Third ed.; John Wiley & Sons: New York, 1985.
- (69) Schröder, H. F. *Vom Wasser* **1991**, *77*, 277-290.
- (70) Betts, K. S. *Environ. Sci. Technol.* **1998**, *32*, 351A.
- (71) Raber, L. R. *Chem. Eng. News* **1998**, *July 6*, 25-26.
- (72) Material Safety Data Sheet for FC-3155 Training Foam, 3M Company, St. Paul, MN, 1999.
- (73) Material Safety Data Sheet for FC-203CF Light Water Brand Aqueous Film Forming Foam, 3M Company, St. Paul, MN, 1997.

Chapter 2

**Analytical Method for the Determination of Perfluorocarboxylates in
Groundwater Impacted by Fire-Fighting Activity**Cheryl A. Moody¹ and Jennifer A. Field²¹Department of Chemistry and ²Department of Environmental and Molecular Toxicology,

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Abstract

Perfluorinated surfactants are used in aqueous film forming foam (AFFF) formulations, which are used to extinguish hydrocarbon-fuel fires. Virtually nothing is known about the occurrence of perfluorinated surfactants in the environment, in particular, at fire-training areas and emergency response sites where AFFF entered groundwater without prior treatment. Strong anion exchange Empore disks were used to extract perfluorocarboxylates from groundwater collected from fire-training facilities located on Naval Air Station Fallon, NV, and Tyndall Air Force Base, FL. The carboxylates were simultaneously eluted from the disks and derivatized to their methyl esters for direct analysis by gas chromatography/mass spectrometry.

Perfluorocarboxylates containing 6-8 carbons were detected in groundwater collected from the two field sites with total concentrations ranging from 125 to 7,090 $\mu\text{g/L}$. The detection of perfluorocarboxylates at field sites after 7 to 10 years of inactivity indicates their potential utility as markers for delineating groundwater impacted by fire-fighting activity.

Introduction

Aqueous film forming foams (AFFF) are complex mixtures of surfactants and other components used to extinguish hydrocarbon-fuel fires that occur at fire-training sites as well as in emergency situations. Aqueous film forming foams have been commercially available for fire-fighting applications since their development by the United States Navy and 3M Co. in the mid-1960s (1). At fire-training areas that routinely used AFFF mixtures and military emergency response sites, AFFF-laden wastewater that entered surface water and groundwater without treatment has led to groundwater and soil contamination. For example, perfluorinated compounds were tentatively identified in groundwater impacted by fire-training activities at Tyndall Air Force Base (2). Unfortunately, definitive identifications of the perfluorinated compounds were not reported.

Commercial AFFF mixtures are proprietary in nature and typically contain fluorinated and non-fluorinated surfactants (1, 3-5). Due to the proprietary nature of AFFF formulations, the chemical structures of the actual perfluorinated surfactants used in commercial AFFFs are not known outside the companies that manufacture them (5). Moreover, the analysis of anionic perfluorinated surfactants that are known to occur in AFFF formulations (6) is problematic because the surfactants are non-volatile and may not contain chromophores. As a result, analytical methods for AFFF formulation components are lacking and therefore it is difficult to assess their occurrence, fate, and transport in AFFF-contaminated groundwater. Because perfluorinated surfactants co-occur with other pollutants (e.g. fuel components, solvents, etc.) in groundwater, it is important to determine if perfluorinated surfactants affect the transport and

biodegradation of other contaminants. Free and emulsified oil, fuel, and AFFF components were shown to adversely affect activated sludge processes (6, 7) and the performance of anaerobic sludge digestors (8) in wastewater treatment facilities. For this reason, perfluorinated surfactants may have an adverse affect on groundwater microbial populations and their ability to degrade co-contaminants present in AFFF-contaminated groundwater.

In addition to fluorinated surfactants use in fire-fighting foams, they are also utilized in herbicides and insecticides, cosmetics, greases and lubricants, and adhesives (3). Fluorinated carboxylic acids of industrial significance include perfluorooctanoic acid (PFC8) and perfluorodecanoic acid (PFC10) (9). There is concern regarding the potential toxicity of perfluorinated carboxylic acids. An *in vivo* study of rat liver response to PFC10 indicated the rapid onset of a low-level heptatotoxicity but no detectable damage to the DNA (10). Perfluorodecanoic acid and PFC8 have been found to inhibit gap junction intercellular communication in rat liver epithelial cells (11) and may be involved in tumor promotion (9).

In this paper, we describe the isolation, identification and quantification of perfluorinated carboxylates in groundwater impacted by fire-training activities at Naval Air Station (NAS) Fallon, NV, and Tyndall Air Force Base, FL. The development of analytical methods is necessary before investigating the occurrence and distribution of perfluorinated surfactants in AFFF-contaminated groundwater and their effect on co-contaminant transport and biodegradation.

Experimental Section

Standards and Reagents. Standards of PFC8 (98%), perfluorododecanoic acid (PFC12) (95%), and the internal standard, 2-chlorolepidine (99%) were purchased from Aldrich Chemical (Milwaukee, WI). Methyl iodide (neat) was used as purchased from Aldrich Chemical.

Field Sites and Sample Collection. From the mid-1950s to 1988, the crash crew training area at NAS Fallon, NV, (Figure 2.1a) was used to conduct fire-training activities, which consisted of flooding a fire pit with flammable liquids, igniting the fluids, and subsequently extinguishing the fire with fire-fighting agents including AFFF (12). For a typical training exercise, approximately 75-100 L of AFFF concentrate were diluted with 1200-3200 L of water according to specifications (3% or 6% solution) and subsequently employed. During the years of activity at the NAS Fallon site, training exercises occurred on a weekly to monthly basis. At the NAS Fallon site, groundwater samples were collected from four monitoring wells located within a 120 m radius of the fire pit where the water table is located between 2 to 3 m below the land surface.

The Tyndall Air Force Base Fire-training Area FT-23 was used from 1980 to 1992 for similar activities (Figure 2.1b) (13). Four groundwater samples were obtained from wells surrounding the fire-training area; the water table is located between 1 and 2 m below the land surface. All samples were collected in high density polyethylene brown bottles because perfluorinated carboxylates adsorb to glass (14). Samples were shipped on ice without preservation and stored at 4 °C prior to analysis.

Solid-Phase Extraction and Derivatization. Samples (55-200 mL) were extracted through 25 mm strong anion exchange (SAX) disks in a manner similar to that

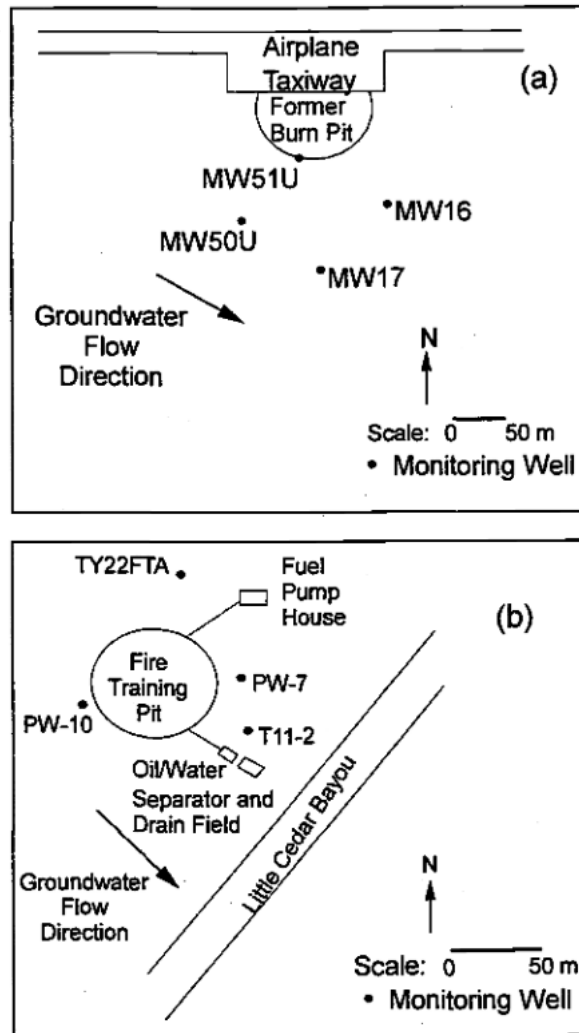


Figure 2.1. Map of (a) Naval Air Station Fallon, NV, and (b) Tyndall Air Force Base, FL, field sites indicating location of groundwater wells and direction of regional groundwater flow.

described by Field and Reed (15) with the exception that the SAX disks were pre-treated prior to use to remove interfering disk impurities. Pre-treatment consisted of soaking the disks in 12 mM HCl/acetonitrile for 2 days after which the disks soaked in pure acetonitrile for several hours. Just prior to use the disks were rinsed with a minimum of 350 mL of deionized water in order to sufficiently rinse the HCl from the disks and wet them prior to passing groundwater samples through them. Samples (55-200 mL) were passed through the disks under full vacuum and the disks were then allowed to dry. The disks containing the exchanged analytes were placed in a 2 mL autosampler vial together with 1 mL of acetonitrile, 51.2 µg of internal standard, and 100 µL of methyl iodide. When heated at 80 °C for 1 h, the acids were simultaneously eluted from the disk and derivatized to their methyl esters.

Spike and Recovery. Spike and recovery experiments were performed to determine the precision and accuracy of the SAX disk extraction and in-vial elution method. A set of experiments was performed on groundwater samples from NAS Fallon MW 50U and MW 17 that had been previously determined to contain neither PFC8 nor PFC12 above detection. Duplicate groundwater samples from wells MW 50U and MW 17 were spiked to contain a final concentration of 1,240 µg/L of PFC8 and 560 µg/L of PFC12.

Standard addition analyses were performed with NAS Fallon groundwater samples that contained measurable quantities of PFC8; the samples did not contain PFC12 above detection. Known amounts of PFC8 were added to samples to give a final concentration twice that of the background concentration. For example, groundwater

from MW 51U and MW 16, which contained background concentrations of 6,570 $\mu\text{g/L}$ and 460 $\mu\text{g/L}$, respectively, were spiked to give a final concentration of 12,900 $\mu\text{g/L}$ and 1,000 $\mu\text{g/L}$ of PFC8, respectively. Each sample also was spiked with 56.4 μg of PFC12. To determine the detection limit of the method, single samples of groundwater that contained no perfluorinated carboxylates above detection were spiked to give a range of final PFC8 concentrations from 18 to 54 $\mu\text{g/L}$.

Gas Chromatography/ Mass Spectrometry. Extracts were analyzed using a Hewlett Packard Model 5890 Series II Plus gas chromatograph (GC) equipped with a 30 m x 0.32 mm x 4.00 μm SPB-1 SULFUR column (Supelco Inc., Bellefonte, PA). An injection volume of 1 μL was used under splitless conditions with an injector temperature of 200 $^{\circ}\text{C}$. The GC oven temperature was initially held for 6 min at 60 $^{\circ}\text{C}$, increased by 6 $^{\circ}\text{C}/\text{min}$ to 190 $^{\circ}\text{C}$, increased further by 30 $^{\circ}\text{C}/\text{min}$ to 270 $^{\circ}\text{C}$, and then held for 5 min.

Quantification of perfluorocarboxylate methyl esters was performed using a Hewlett Packard Model 5972 mass selective detector operated in electron impact (EI) mode (70 eV). The mass selective detector was operated in full scan (50-450 amu) mode and in selected ion monitoring (SIM) mode using a dwell time of 100 ms for each ion. The scanning mode was used for qualitative identification while SIM mode was used for quantification. The ions of m/z 131 [C_3F_5] $^+$, m/z 169 [C_3F_7] $^+$, and m/z 219 [C_4F_9] $^+$, which are characteristic fragments of perfluorocarbons (16-18), were used to identify and quantify the methyl esters of perfluorohexanoic acid (PFC6), perfluoroheptanoic acid (PFC7), PFC8 and PFC12. The internal standard, 2-chlorolepidine, was quantified with the ions m/z 177 and 115.

The identification of perfluorocarboxylate methyl esters was confirmed by electron capture negative ionization (ECNI) GC/MS, which gave unique molecular ions for each of the perfluorinated carboxylate methyl esters (e.g. m/z 328 for PFC6, m/z 378 for PFC7, m/z 428 for PFC8, and m/z 628 for PFC12). These measurements were performed with a Varian 3400 gas chromatograph interfaced with a Finnigan Model 4023 mass spectrometer. Methane was used as the reagent gas and the mass spectrometer was operated in full scan mode (100-650 amu). The gas chromatograph was operated with a column and temperature program identical to that used for the EI GC/MS.

Initially, samples prepared in deionized water were used as the matrix for constructing calibration curves and standard recoveries were low. However, when samples prepared in tap water, which contains inorganic cations and anions, were used as the matrix for constructing calibration curves quantitative recovery of standards was obtained. It is proposed that the 350 mL of deionized water does not sufficiently rinse the disks of residual HCl and tap water is required to completely rinse the disks and obtain quantitative recovery of standards. Therefore, calibration curves for quantification of PFC8 were constructed by passing 100 mL tap water samples that had been spiked with 3.6 μg to 1,080 μg PFC8 through 25 mm SAX disks and derivatizing the acids to their methyl esters using the in-vial elution and derivatization technique. The calibration curve for PFC12 was constructed in a similar manner by adding 7.5 μg to 113 μg of PFC12 standard to 100 mL tap water. For all quantitation standards, a total of 51.2 μg of the 2-chlorolepidine internal standard was added to the autosampler vial just prior to the addition of methyl iodide. Both calibration curves were linear with r^2 typically greater

than 0.99. Quantification of PFC6 and PFC7 was performed assuming a response factor equal to an equimolar amount of PFC8.

Results and Discussion

Gas Chromatography/Mass Spectrometry. A film thickness of 4 μm (30 m x 0.32 mm SPB-1 SULFUR; Supelco, Bellefonte, PA) was necessary to obtain sufficient retention times for the methyl esters of PFC8 and PFC12 to allow for the separation and quantification (Figure 2.2a). Initial attempts to separate and quantify the perfluorinated carboxylate methyl esters on a thin film (0.25 μm), 30 m x 0.25 mm DB-1 (J&W Scientific, Folsom, CA) column were unsuccessful regardless of the initial column temperature. Note that the stationary phases in the SPB-1 SULFUR and DB-1 columns are comparable. A standard of perfluorobutyric acid was not observed under any of the described GC conditions; it is most likely that an initial oven temperature less than 40 °C would be required.

The EI mass spectra of methyl PFC8 (Figure 2.3a) and PFC12 indicate characteristic perfluorocarbon fragmentation (16, 17) in which the major ions (e.g., 69, 119, 169, 219, etc.) differ by 50 amu, which corresponds to the mass of CF_2 . Molecular ions were not observed for any of the perfluorinated carboxylate methyl esters under EI conditions; however, molecular ions $[\text{M}]^+$ were observed under ECNI conditions. For example m/z 428 (in Figure 2.3b) corresponds to the molecular ion of methyl PFC8.

Solid-Phase Extraction. Prior to developing a solid-phase extraction method, initial experiments were conducted using diazomethane as the derivatization reagent.

When perfluorinated carboxylates were derivatized using ethanol-based diazomethane, multiple peaks corresponding to methyl and ethyl esters were detected (unpublished data). Because EI GC/MS did not produce molecular ions, ECNI GC/MS was used to verify the formation of both methyl and ethyl esters. Consequently, if ethanol-based diazomethane was used for derivatization in conjunction with EI GC/MS, multiple peaks in a chromatogram could be erroneously interpreted as a greater number of perfluorinated compounds than are actually present. In contrast, only the methyl ester was obtained when butyl carbitol (2-(2-butoxyethoxy)ethanol) was used to prepare the diazomethane reagent. However, because of the hazards associated with the use of diazomethane and the time-consuming nature of diazomethane derivatization, an alternative method was desired.

Derivatization of the perfluorocarboxylates by the solid-phase extraction and the in-vial elution and derivatization technique gave only a single peak that corresponded to the methyl ester of each perfluorinated carboxylate standard; the identification of each methyl ester was confirmed by ECNI GC/MS. In addition, the solid-phase extraction approach combined the steps of isolation and derivatization, which greatly simplified the procedure and eliminated the use of diazomethane. Six replicate analyses of blank 25 mm SAX disks that had not been pre-rinsed with 12 mM HCl/acetonitrile prior to use, yielded an average of 21 ± 1 μg (4.8% relative standard deviation (RSD)) of PFC8 per disk. No other perfluorinated carboxylates were present in the disks above the detection limit. The PFC8 is associated with the Teflon matrix and not the embedded anion exchange particles (unpublished data). The background PFC8 was successfully removed

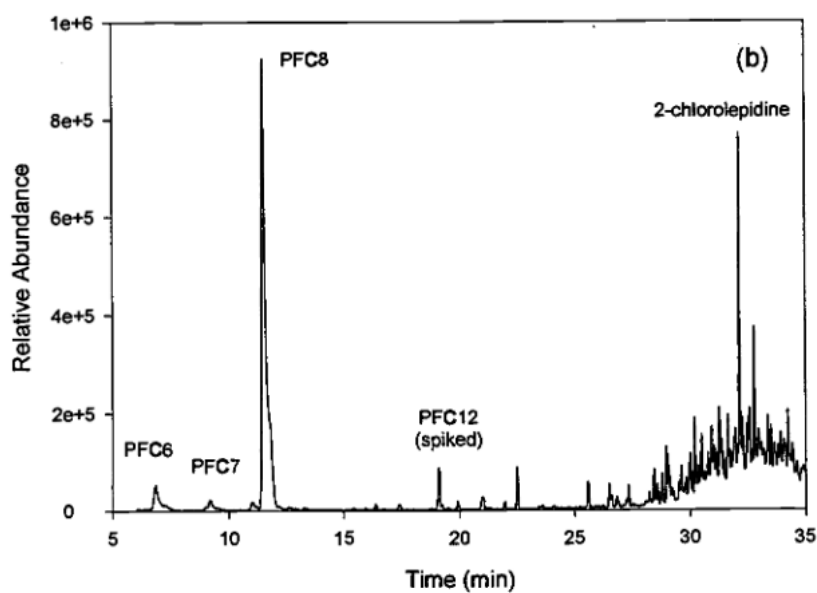
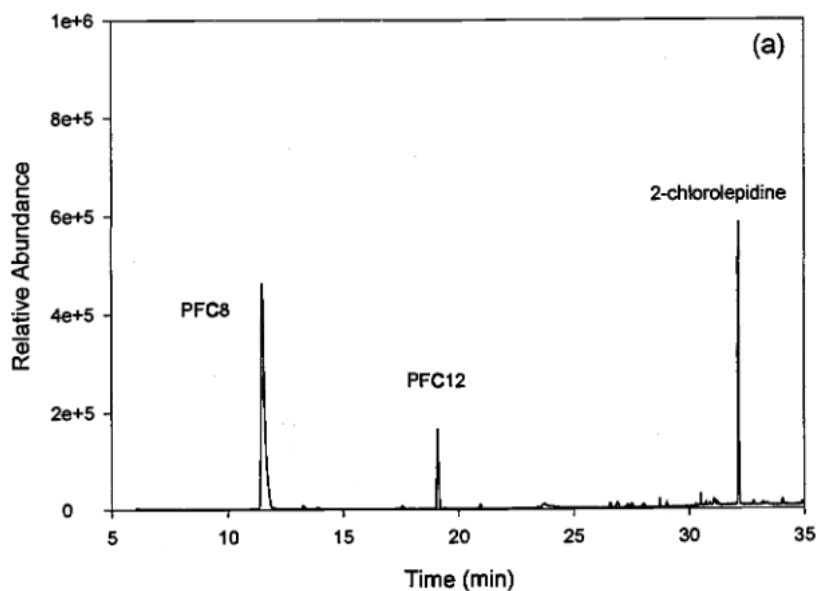


Figure 2.2. (a) Typical EI GC/MS chromatogram of PFC8 and PFC12 standards and (b) perfluorinated carboxylates, including PFC6, PFC7, PFC8 and PFC12 (spiked) in Naval Air Station Fallon, NV, groundwater.

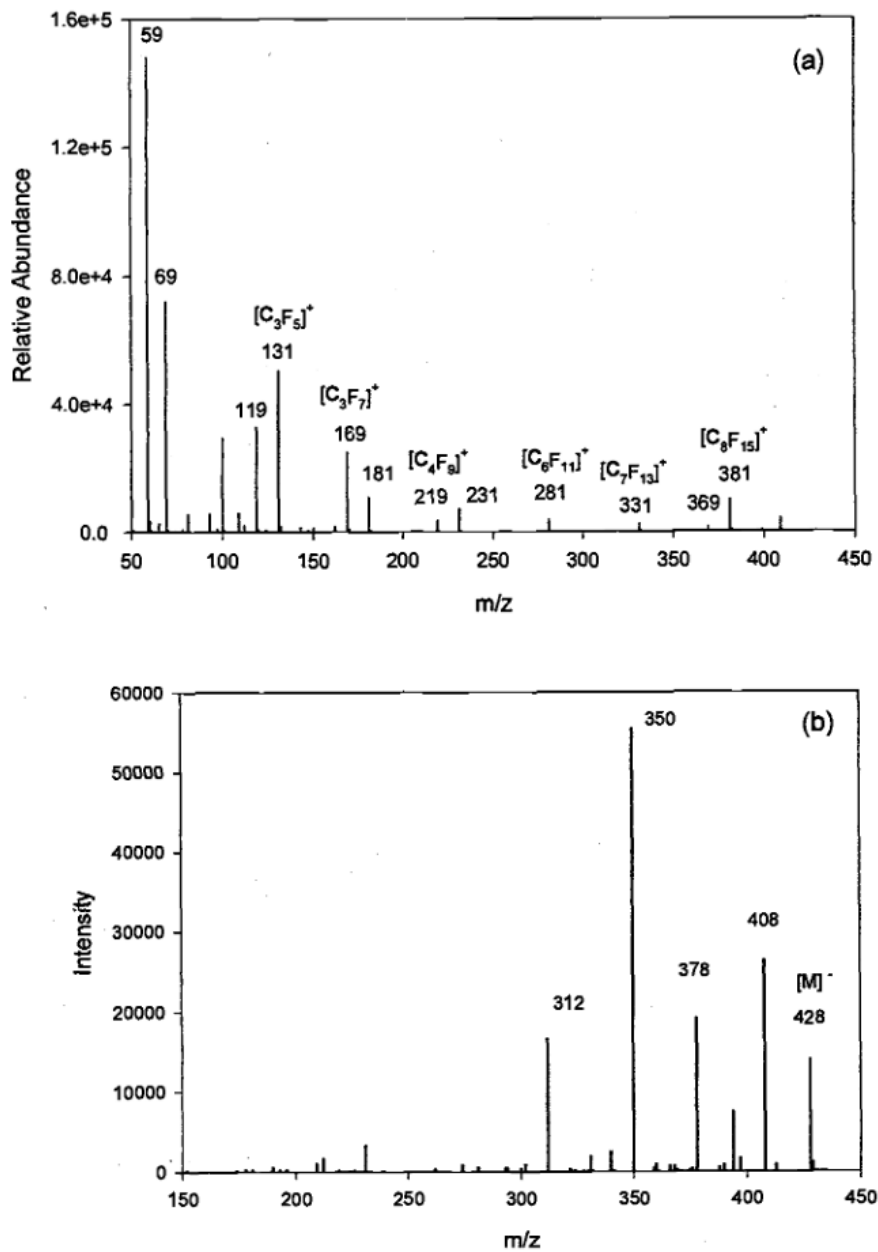


Figure 2.3. (a) EI mass spectrum of methyl PFC8 and (b) an ECNI mass spectrum of methyl PFC8.

by rinsing the disks prior to use with 12 mM HCl/acetonitrile followed by 350 mL of deionized water. It should be noted that benzoic acid and ethylhexylphthalic acid are also present in the disks as artifacts and are removed by the HCl/acetonitrile pre-rinse step.

Accuracy, Precision and Detection Limits. The recoveries of PFC8 from blank groundwater samples obtained from NAS Fallon wells MW 50U and MW 17 were 73 and 74%, respectively, while the recoveries of PFC12 were 77 and 88%, respectively (Table 2.1). Because detectable levels of PFC8 occurred in groundwater from MW 51U and MW 16, standard addition experiments were performed to determine the recoveries of PFC8. The recoveries of the PFC8 spiked into MW 51U and MW 16 groundwater to give a final concentration double that of the background concentration were 83 and 90%, respectively (Table 2.1). The recoveries of PFC12 from MW 51U and MW 16 groundwater, which did not contain background concentrations of PFC12, were 35 and 85%, respectively (Table 1). Although the recovery of PFC8 (83%) differs significantly from that of PFC12 (35%) in groundwater from MW 51U, the recoveries of PFC8 and PFC12 were nearly equivalent for the other groundwater samples. Monitoring well 51U is located closest to the fire pit where AFFF agents were applied to burning mixtures of fuels and solvents. Due to its proximity to the fire pit, the groundwater from MW 51U most likely contains the greatest diversity of inorganic and organic constituents, which may adversely affect PFC12 recoveries relative to that of PFC8. Therefore, although the original intent was to use the PFC12 as a surrogate standard because it did not occur in the groundwater samples, PFC12 appears more sensitive to matrix interferences

Table 2.1. Recovery of PFC8 and PFC12 spiked into groundwater samples from Naval Air Station Fallon, NV.^a

| Sample | PFC8 | PFC12 |
|--------------------------------|-----------------|------------|
| | % recovery | % recovery |
| NAS Fallon MW 51U ^b | 83 ^c | 35 |
| NAS Fallon MW 16 | 90 ^d | 85 |
| NAS Fallon MW 50U | 73 | 77 |
| NAS Fallon MW 17 | 74 | 88 |

^aDuplicate samples were analyzed. Sample volume was 100 mL unless otherwise noted.

^bSample volume was 55 mL.

^cCalculated as the final measured concentration divided by background concentration plus spike concentration and multiplied by 100. The background concentration was 6,570 µg/L.

^dCalculated as the final measured concentration divided by background concentration plus spike concentration and multiplied by 100. The background concentration was 460 µg/L.

compared to PFC8 so that it is an inappropriate choice for a surrogate standard. For this reason, all subsequent quantification was based on the 2-chlorolepidine internal standard.

The precision, indicated by the RSD, calculated from five replicate analyses each of groundwater from NAS Fallon MW 16 and Tyndall AFB T11-2 ranged from 3.7 to 14% (Table 2.2). The detection and quantitation limit of the method was defined as those concentrations of PFC8 needed to produce a signal to noise (S/N) of 3:1 and 10:1, respectively. The detection and quantitation limits for PFC8 were 18 $\mu\text{g/L}$ and 36 $\mu\text{g/L}$, respectively.

Application to Groundwater Samples. Four groundwater samples from both NAS Fallon and Tyndall AFB were analyzed for perfluorinated carboxylates. Chromatograms obtained by EI GC/MS indicated the presence of multiple perfluorinated compounds all having characteristic perfluorocarbon fragmentation (Figure 2.2b). Analysis by ECNI GC/MS established the identification of PFC6, PFC7 and PFC8 in groundwater obtained from wells MW 51U and MW 16 from NAS Fallon. The molecular ions [M]⁻ for methyl PFC6 (m/z 328) and methyl PFC7 (m/z 378) were observed for peaks eluting 4.7 and 2.3 min before that of PFC8 (Figure 2.4a and 2.4b). The ECNI mass spectrum for methyl PFC8 in MW 51U was similar to that of the PFC8 standard (Figure 2.2b).

The groundwater samples from NAS Fallon MW 51U and MW 16 had total perfluorinated carboxylate concentrations of 7,090 $\mu\text{g/L}$ and 540 $\mu\text{g/L}$, respectively (Table 2). The PFC6 detected in NAS Fallon groundwater samples from MW 51U and MW 16 comprised 5.2% and 11%, respectively, of the total perfluorocarboxylates

Table 2.2. Concentrations of perfluorinated carboxylates in groundwater samples from Naval Air Station Fallon, NV, and Tyndall Air Force Base, FL.^{a,b}

| Sample | n | PFC6 ($\mu\text{g/L}$) | PFC7 ($\mu\text{g/L}$) | PFC8 ($\mu\text{g/L}$) | Total ($\mu\text{g/L}$) |
|---------------------|---|-----------------------------|-----------------------------------|-----------------------------|------------------------------|
| NAS Fallon MW 51U | 3 | 372 \pm 4 (1.1%) | 149 \pm 5 (3.4%) | 6,570 \pm 150 (2.3%) | 7,090 \pm 160 (2.3%) |
| NAS Fallon MW 16 | 5 | 57 \pm 8 (14%) | 18 \pm 2 (11%) ^c | 460 \pm 20 (4.3%) | 540 \pm 20 (3.7%) |
| NAS Fallon MW 50U | 3 | nd | nd | nd | nd |
| NAS Fallon MW 17 | 3 | nd | nd | nd | nd |
| Tyndall AFB PW-10 | 2 | 144 | 38 | 116 | 298 |
| Tyndall AFB PW-07 | 2 | 73 | 22 ^c | 64 | 159 |
| Tyndall AFB T11-2 | 5 | 64 \pm 4 (6.3%) | 19 \pm 1 (5.3%) ^c | 42 \pm 2 (4.8%) | 124 \pm 8 (6.5%) |
| Tyndall AFB TY22FTA | 2 | nd | nd | nd | nd |

^aThe relative standard deviation is given in parentheses.

^bnd, not detected above the detection limit.

^cThe reported value is near the detection limit ($S/N \leq 3$) and less than the quantitation limit ($S/N \leq 10$). The value has been included in the reported total concentration.

detected. The PFC7 was 2.1% and 3.3% respectively, of the total perfluorinated carboxylates detected in these wells. The dominant perfluorinated carboxylate, PFC8, accounted for 93% and 85%, respectively, of the total perfluorocarboxylate concentration.

The highest concentrations of perfluorocarboxylates were observed in groundwater collected from NAS Fallon MW 51U, which is the well located closest to the fire-training pit (Figure 2.1a). Monitoring well 16, which is located downgradient of MW 51U and the fire-training pit, had lower but detectable concentrations of perfluorocarboxylates. Groundwater from MW 50U and MW 17, which are located off gradient from the fire-training pit, contained no detectable perfluorinated carboxylates. Over the approximate 100 m distance between MW 51U and MW 16, the concentrations of the perfluorinated carboxylates decreased with increasing number of carbons. For example, the concentration of PFC6 decreased 85% over the 100 m compared to decreases of 88% and 93% for PFC7 and PFC8, respectively.

The groundwater samples from Tyndall AFB PW-10, PW-07 and T11-2 contained total perfluorinated carboxylate concentrations of 298 $\mu\text{g/L}$, 159 $\mu\text{g/L}$ and 124 $\mu\text{g/L}$, respectively (Table 2.2). The compositions of Tyndall AFB groundwater collected from the three wells ranged from 46 to 52% for PFC6, 13 to 15% for PFC7 and 34 to 40% for PFC8. In contrast to the groundwater samples from NAS Fallon, the dominant perfluorinated carboxylate in Tyndall AFB groundwater was PFC6.

The highest concentrations of perfluorocarboxylates among the groundwater samples from Tyndall AFB were observed in PW-10 and PW-07, which are the two wells located closest to the fire-training pit (Figure 2.1b). Monitoring well T11-2, which is

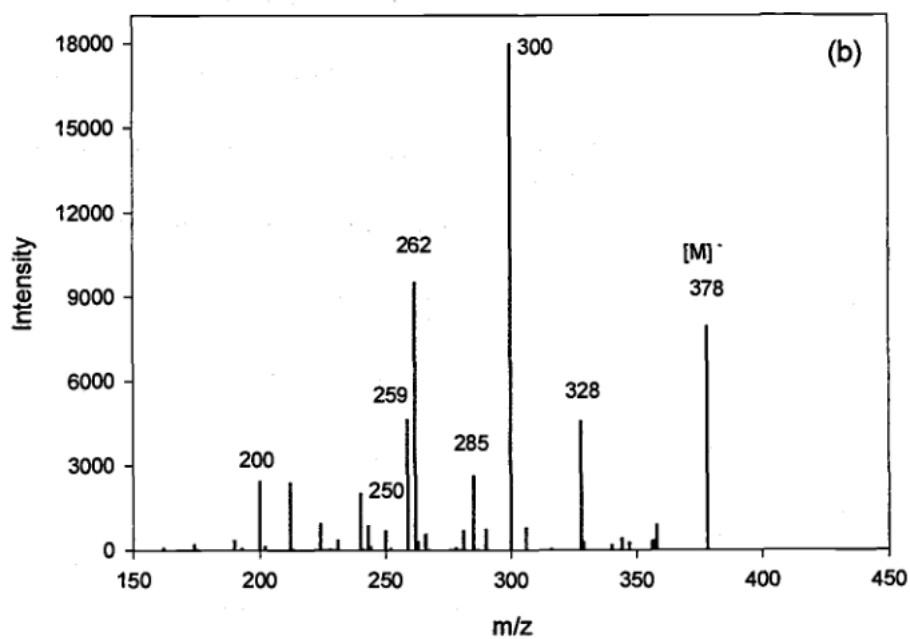
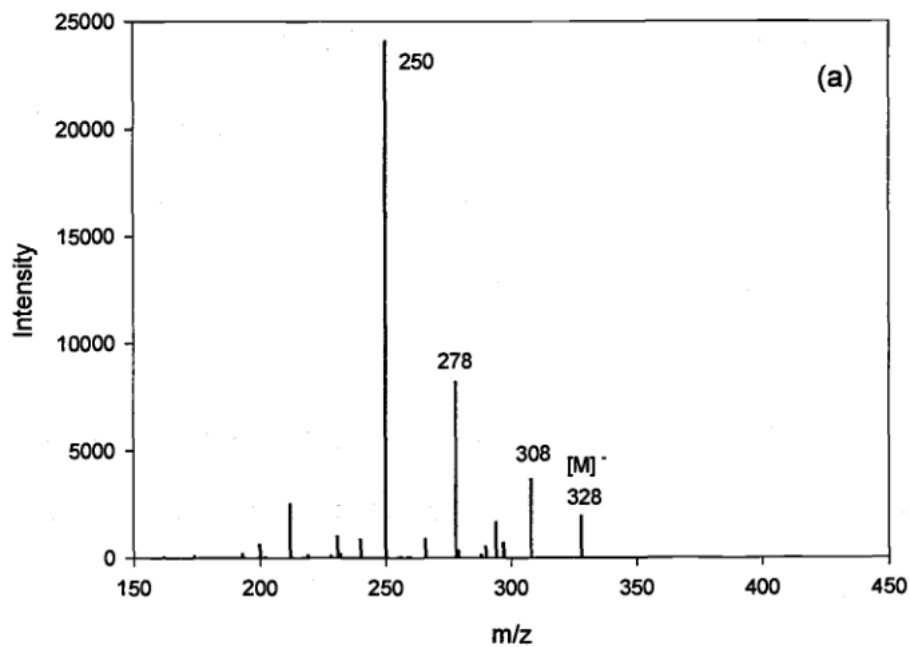


Figure 2.4. (a) ECNI mass spectrum of methyl PFC6 and (b) methyl PFC7.

located downgradient of the fire-training pit, had lower but detectable groundwater concentrations of perfluorocarboxylates. The groundwater collected from a well located north of the fire-training pit, TY22FTA, contained no perfluorinated carboxylates above the detection limit (18 µg/L).

It is not surprising to observe a suite of perfluorinated carboxylates since the raw materials used in the synthesis of perfluorinated organic compounds are mixtures (3, 19). Different ratios of PFC6, PFC7 and PFC8 may result from the use of different AFFF formulations at the two fire-training areas. The observed homologous series consisting of even and odd number perfluorinated carboxylates is indicative of the electrochemical fluorination process used by 3M Co. (3). Other fluorination processes, such as telomerization, produce only even number homologues (3). Because of the proprietary nature of AFFFs, it is not known if perfluorinated carboxylates are present as one of the major surface active agents in AFFF formulations or as unreacted starting materials used in the synthesis of the principal perfluorinated surfactants used in AFFF formulations. In addition, the carboxylates may be combustion, biological or non-biological degradation products of the principal perfluorinated components in AFFF mixtures. Unfortunately, the exact source and history of AFFF applications at the two field sites are unknown, and, therefore, the relationship between the observed perfluorocarboxylate ratios and that of the original AFFF mixtures is unknown.

To the best of our knowledge, very little is known regarding the transport and fate of perfluorocarboxylates in groundwater. Adsorption to sludge at wastewater treatment facilities is considered a significant process for the removal of perfluorinated surfactants

during treatment (3). However, detection of perfluorinated carboxylates at the NAS Fallon and Tyndall AFB sites, which have not been used since 1988 and 1992, respectively, is consistent with the view that biodegradation of the long chain perfluorocarbon hydrophobe is unlikely (6, 9, 19). The recalcitrant nature of perfluorinated compounds is attributed in part to the rigidity of the perfluorocarbon chain (9, 20) as well as the strength of the carbon – fluorine bond (3, 9, 21).

To the best of our knowledge this is the first definitive identification of perfluorinated carboxylates in groundwater impacted by fire-fighting activity. Further work is needed to determine if additional perfluorinated components are present, such as perfluorooctane sulfonic acid, which is thought to be one of the principle components in some commercial AFFF formulations. In addition, it is of interest to relate the occurrence and distribution of perfluorinated compounds to other site characterization parameters such as dissolved organic carbon, inorganic constituents, and the distribution of co-contaminants and to understand the potential influence of perfluorinated compounds on the biotransformation and transport of other co-contaminants.

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Literature Cited

- (1) O'Brien, A. F. M.S. Thesis, University of Maryland, College Park, MD, 1994.
- (2) Henley, M.; Mayfield, H.; Shelley, T. *Abstracts of Papers*, Pittsburgh Conference, Atlanta, GA, American Chemical Society: Washington, DC, 1997; Abstract 519.
- (3) Kissa, E. *Fluorinated Surfactants: Synthesis, Properties, and Applications*; Marcel Dekker: New York, 1994.
- (4) Bass, C. M. Ph.D. Dissertation, University of Oklahoma, Norman, OK, 1982.
- (5) Howell, R. D.; Tucker, E. E. *Am. Environ. Lab.* **1996**, *12*, 10.
- (6) Darwin, R. L.; Ottman, R. E.; Norman, E. C.; Gott, J. E.; Hanauska, C. P. *Natl. Fire Protect. Assoc.* **1995**, *67*.
- (7) Chan, D. B.; Chian, E. S. K. *Environ. Progr.* **1986**, *5*, 104.
- (8) Remde, A.; Debus, R. *Chemosphere* **1996**, *52*, 1563.
- (9) Key, B. D.; Howell, R. D.; Criddle, C. S. *Environ. Sci. Technol.* **1997**, *31*, 2445.
- (10) Godin, C. S.; Myhr, B. C.; Lawlor, T. E.; Young, R. R.; Murli, H.; Cifone, M. A. Genotoxicity Assessment of Perfluorodecanoic Acid using a Battery of *in vitro* and *in vivo/in vitro* Assays; Harry G. Armstrong Aerospace Medical Research Laboratory: Kensington, MD, December 1990.
- (11) Deocampo, N. D.; Upham, B. L.; Trosko, J. E. *Fundam. Appl. Toxicol. (Suppl.)* **1996**, *30*, 208.
- (12) Work Plan for Assessing the Feasibility of Intrinsic Remediation at Installation Restoration Program Sites, Naval Air Station, Fallon, NV; Oak Ridge National Laboratory, October 1996.
- (13) Contamination Assessment Report Active Fire-training Area FT-23 Tyndall Air Force Base Panama City, FL, FDER Facility No.; United States Army Corps of Engineers, February 1994.
- (14) Belisle, J.; Hagen, D. F. *Anal. Biochem.* **1980**, *101*, 369.
- (15) Field, J. A.; Reed, R. L. *Environ. Sci. Technol.* **1996**, *30*, 3544.
- (16) McLafferty, F. W.; Turecek, F. *Interpretation of Mass Spectra*, 4 ed.; University Science Books: Sausalito, CA, 1993.

- (17) Lyon, P. A.; Tomer, K. B.; Gross, M. L. *Anal. Chem.* **1985**, *57*, 2984.
- (18) Hudlicky, M.; Pavlath, A. E. *Chemistry of Organic Fluorine Compounds II: A Critical Review*; American Chemical Society: Washington, DC, 1995.
- (19) Key, B. D. Ph.D. Dissertation, Michigan State University, East Lansing, MI, 1996.
- (20) Asakawa, T.; Mouri, M.; Miyagishi, S.; Nishida, M. *Langmuir* **1989**, *5*, 343.
- (21) Smart, B. E. In *Molecular Structure and Energetics*; Liebman, J. F., Greenberg, A., Eds.; VCH Publishers: Deerfield Beach, FL, 1986; Vol. 3.

Chapter 3

**Occurrence and Distribution of Perfluorinated Surfactants in Groundwater at the
Wurtsmith Air Force Base Fire-Training Area Two and KC-135 Crash Site**Cheryl A. Moody¹ and Jennifer A. Field²¹Department of Chemistry, and ²Department of Environmental and Molecular Toxicology

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Environmental Science and Technology, manuscript in preparation.

Abstract

Perfluorinated surfactants are a major component in aqueous film forming foam (AFFF) formulations, which are used to extinguish hydrocarbon-fuel fires. As a result of past fire-training exercises, as well as response to emergency situations, AFFF-laden wastewater containing fuels, solvents, and other materials directly entered groundwater without prior treatment. Historically, AFFF mixtures containing perfluorinated surfactants were applied at Wurtsmith Air Force Base, MI, including at Fire-Training Area Two and a location where a KC-135 airplane crashed. Perfluorocarboxylate (containing 6 to 8 carbons) concentrations ranging from the detection limit (3 $\mu\text{g/L}$) to 110 $\mu\text{g/L}$ were measured in groundwater sampled over an extensive well array at Fire-Training Area Two where as none were detected at the airplane crash site. Perfluorocarboxylates detected over 500 m from the source area have an approximate minimum residence time of 5 to 15 years, and provide direct field evidence that this class of perfluorinated surfactants persists under prevailing groundwater conditions. Significantly higher concentrations (e.g., 400-3600 $\mu\text{g/L}$) of methylene blue active substances which is an indirect measurement of anionic surfactants, indicates that the perfluorocarboxylates are only a small fraction of the anionic surfactant species present in the groundwater. The transport of perfluorocarboxylates in groundwater was not fully characterized such that additional research is needed to characterize the transport of perfluorocarboxylates in groundwater.

Introduction

In fluorinated surfactants, the hydrophobic portion of the surfactant molecule contains fluorine. To classify a surfactant as perfluorinated, all hydrogen atoms in the hydrophobic segment are replaced by fluorine atoms. The substitution of fluorine for hydrogen in fluorinated surfactants differentiates these surfactants from hydrocarbon surfactants. For example, fluorinated surfactants have unique wetting and spreading characteristics that make them better suited than hydrocarbon surfactants in coating, paint, ink, and polish applications (1, 2). Because of the fluorocarbon hydrophobe, fluorinated surfactants are usually more physically, chemically, and biologically stable than hydrocarbon surfactants (2).

Hydrocarbon-fuel fires pose serious threats to life and property, and aqueous film forming foams (AFFFs) are employed to extinguish these types of fires. Fluorinated surfactants are a major component in AFFF formulations (3). Physical characteristics, such as the ability to lower surface tension, aid in the formation of a water film that forms over the surface of a hydrocarbon (e.g., fuel), which makes fluorinated surfactants well-suited for AFFF applications. While the stability of perfluorinated surfactants make them suitable for applications that involve extreme environments, it also leads to their apparent persistence in the environment (4).

Due to the presence of large quantities of flammable liquids, municipal (i.e., fire departments), hydrocarbon-processing industry (i.e., oil refineries), and military sectors utilize AFFFs, with the military comprising 75% of the total market, while the municipal and hydrocarbon-processing industry represents 13% and 5%, respectively (5). In 1985, the United States market for AFFF products (i.e., 3% and 6% concentrates) was 6.8

million L with a total revenue of 10 million dollars in U. S. sales (5). The military was the single largest consumer of AFFF agents in 1985, with consumption totaling 5.1 million L (5).

Currently, the Organization for Economic Cooperation and Development (OECD) classifies perfluorinated C5 to C18 compounds as high-production-volume (HPV) chemicals, where HPV chemicals are those chemicals manufactured or imported in the U.S. in quantities exceeding 1 million pounds (6). This class of chemicals encompasses the perfluorinated and partially-fluorinated surfactants used in AFFF. Data is needed for an environmental and toxicological database that will be developed for HPV chemicals under a voluntary program led by the U.S. Environmental Protection Agency and the Chemical Manufacturer's Association. Planned database entries for the HPV chemical testing program include physical and chemical properties, environmental fate and pathways, fate and environmental distribution assessment, and mammalian toxicity (7); currently much of this information for perfluorinated surfactants is either unknown or unavailable.

In preparation for hydrocarbon-fuel fires, training exercises at military bases often are conducted. As a result, at military emergency response sites and fire-training areas, the repetitive use of AFFF and release of AFFF-laden wastewater to the environment has led to groundwater contamination. Positive identification of one class of perfluorinated surfactants, perfluorocarboxylates, was reported for a limited number of groundwater samples obtained from Naval Air Station (NAS) Fallon, NV, and Tyndall Air Force Base, FL (4). Although not listed as a component in material safety data sheets from AFFF manufacturers, the perfluorocarboxylates were found in some commercially-available

AFFF products (unpublished data). An additional report tentatively identifies perfluorinated compounds in groundwater impacted by fire-training activities at Tyndall Air Force Base (8).

Few publications report the occurrence of perfluorinated surfactants in the environment, primarily due to the lack of sensitive and specific analytical methods. The methylene blue active substances (MBAS) test has been used as an indicator of hydrocarbon anionic surfactants in soils (9) and groundwater (10-14). A study at Tyndall Air Force Base used MBAS to qualitatively identify the presence of anionic surfactants in groundwater (15). With the MBAS test, anionic surfactants form ion pairs with the methylene blue cation, which then are extracted into chloroform and determined spectrophotometrically. Reasons for employing the MBAS test include that it is inexpensive, relatively simple, and field-ready. However, the MBAS method is non-specific and does not allow for the detection and quantitation of the individual surfactants present. In the case of AFFF-contaminated groundwater, a number of anionic surfactants could be present including perfluorinated and non-fluorinated surfactants (16-18). For these reasons, the use of MBAS should be limited to that of a screening tool for environmental samples (13).

This field study addresses the gap in information concerning the occurrence, distribution, and transport of perfluorinated surfactants in the environment, specifically in AFFF-contaminated groundwater at Wurtsmith Air Force Base (WAFB) in Oscoda, MI. The concentrations of perfluorinated carboxylates detected in groundwater impacted by fire-training activities at WAFB provide information regarding the movement and persistence of perfluorinated surfactants in groundwater at Fire-Training Area Two.

Additionally, general chemical indicators, such as specific conductance, total organic carbon (TOC) and MBAS were measured for the study to further delineate the distribution of perfluorinated surfactants in groundwater contaminated by fire-training activities at this site.

Experimental Section

Field Site Descriptions. Wurtsmith Air Force Base is located in northeast Michigan and was decommissioned in June of 1993. Historically, Fire-Training Area Two (FTA-02) (Figure 3.1) at WAFB was used for U. S. military personnel training in fire-fighting procedures. The site was used from 1952-1986 for training exercises that consisted of flooding a fire pad with flammable liquids, igniting the fluids, and subsequently extinguishing the fire with fire-fighting agents including AFFF (19, 20). Before the concrete pad was installed in 1982, as well as an oil/water separator, fuel was dumped directly onto a gravel area and ignited for each fire-training exercise (19).

The aquifer at WAFB is comprised of alternating eolian sands and glacial out wash material that is highly permeable and exhibits hydraulic conductivities on the order of 30 m/day (21-23). The water table is located between 5 and 8 m below land surface. Aquifer solids are comprised of greater than 85% quartz minerals, with organic carbon and inorganic carbon contents below 0.1% and approximately 6.0%, respectively (21, 22). Flow in the sand and gravel upper aquifer is generally eastward towards Lake Van Etten and south-southeast to the Au Sable River discharge areas at average rates of 0.1 to 0.3 m/day (22-24). Direction of groundwater flow at WAFB does not change significantly from season to season (23).

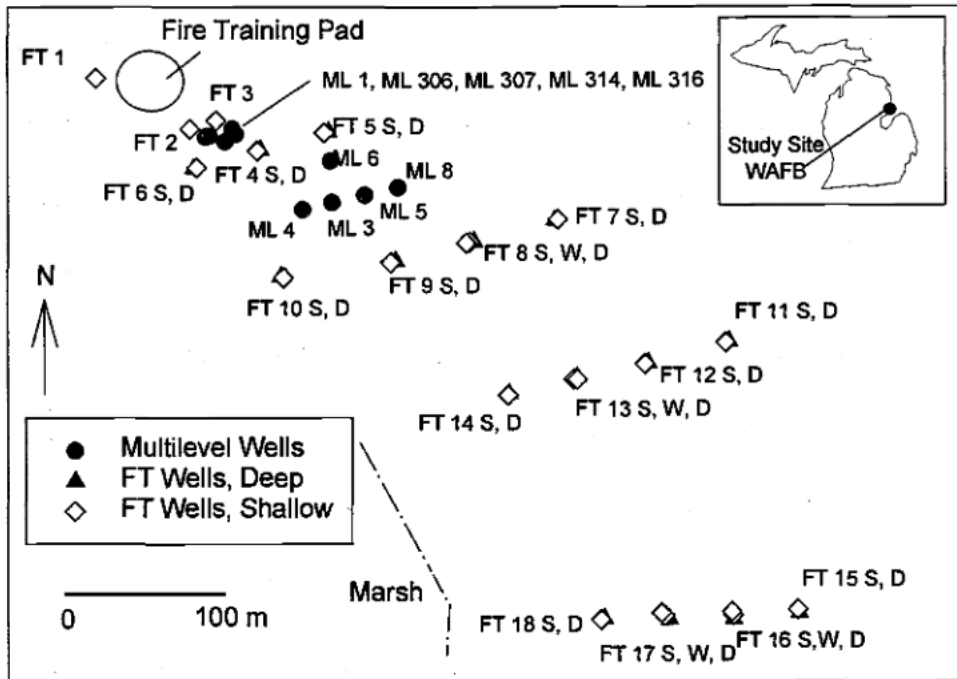


Figure 3.1. Map of Wurtsmith Air Force Base field site Fire-Training Area Two indicating locations of groundwater wells and direction of regional groundwater flow. The study site location is highlighted on the map of Michigan (inset).

At FTA-02, two types of monitoring wells have been installed over time.

Monitoring wells with the identifier FT denote iron-cased 10 cm inner diameter wells with 1 to 6 m screened intervals. These wells consist of shallow wells with a screen set 3 to 6 m below the water table, and deep wells with screens set near the base of the aquifer (23). Wells with ML notation describe multilevel sampling wells constructed from 2.5 cm inner diameter PVC casing with 0.3 m screened intervals that are vertically spaced from 0.5 to 2 m (21).

Contaminants detected in WAFB groundwater include petroleum hydrocarbon-fuels, oils, and lubricants; chlorinated solvents (e.g., trichloroethylene and dichloroethylene); combustion products (e.g., naphthalene and phenanthrene); and chlorinated aromatic compounds (22). At FTA-02, concentrations of benzene, toluene, ethylbenzene and xylenes (BTEX) range from about 20 to 1000 $\mu\text{g/L}$ in the contaminated plume (21).

A second field site, the KC-135 Crash Site, is located near the main runway at WAFB. Contamination by JP-4 fuel resulted from the crash of a KC-135 fuel tanker in October 1988. The crash site had one-time application of AFFFs, which is in contrast to the repeated applications of fire-fighting materials associated with fire-training exercises at FTA-02. Several multilevel sampling wells (2.5 cm inner diameter, 0.3 m screen intervals) have been installed at this site (25, 26).

Sample Collection. Groundwater was sampled from monitoring wells from FTA-02 and the KC-135 Crash Site in November 1998 and June 1999, and February 1998, respectively. As groundwater was removed from the monitoring well it was

circulated through a closed cell and continuously monitored for pH and specific conductance (Purge Saver Model FC 2000, QED Environmental Systems, Inc. Ann Arbor, MI). Samples for MBAS and perfluorocarboxylate determinations were collected in high-density polyethylene bottles. Polyethylene was used due to a report that indicated perfluorinated carboxylates adsorb to glass (27). For the FT wells at FTA-02, an additional sample from each well was collected in glass for TOC analysis. Samples were shipped on ice without preservation and stored at 4 °C prior to analysis.

Standards and Reagents for Laboratory Analyses. Standards of perfluorobutyric acid (PFC4) (99%), perfluorooctanoic acid (PFC8) (98%), and the internal standard, 2-chlorolepidine (99%) were purchased from Aldrich Chemical (Milwaukee, WI). Methyl iodide (neat) was used as purchased from Aldrich Chemical. Methylene blue was purchased from Mallinckrodt Chemical (Paris, KY). Standards for pH measurements were purchased from Micro Essential Laboratory (Brooklyn, NY).

Laboratory Analyses. Quantitative perfluorocarboxylate concentrations were measured by the method of Moody and Field (4). Strong anion exchange Empore disks were used to extract perfluorocarboxylates from groundwater. The perfluorocarboxylates were simultaneously eluted from the disks and derivatized to their methyl esters for direct analysis by electron impact (EI) and electron capture negative ionization (ECNI) gas chromatography/mass spectrometry (GC/MS). The detection limit (defined as signal to noise greater than 3) and quantitation limit (defined as signal to noise greater than 10) for perfluorocarboxylates were 3 and 13 µg/L, respectively. Quantification of

perfluorohexanoic acid (PFC6) was performed assuming a response factor equal to an equimolar amount of PFC8.

To semi-quantitatively determine MBAS present in groundwater, a 10 mL groundwater sample aliquot was placed in a 50 mL plastic centrifuge tube with 4 mL of chloroform and 0.5 mL of 3mM methylene blue. The mixture was shaken vigorously for 1 min and the aqueous phase removed. The chloroform layer was rinsed by adding 5 mL of deionized water to the tube containing the chloroform and shaking again for 1 min. After removing the wash-aqueous phase, the chloroform layer was measured spectrophotometrically at 652 nm (28-30). Calibration standards were made using PFC8 and MBAS values are reported as $\mu\text{g/L}$ (calculated as PFC8, molecular weight 414). The detection limit of the MBAS analysis was 200 $\mu\text{g/L}$. Unlike with more conventional MBAS methods, groundwater samples were not acidified to prevent underestimation of perfluorocarboxylates. For example, acidification protonates PFC8, which has a pK_a of 2.8; the free acid partitions into the chloroform layer without the MBAS cation and therefore goes undetected. At the pH of the groundwater at FTA-02 which ranged from 5.5 to 8.6 (Table 3.1). MBAS concentrations measured potentially represent the cumulative concentration of all anionic surfactant species present. The response of amphoteric surfactants, which are known to occur in some AFFF formulations, to MBAS is not well understood.

Samples were analyzed for non-volatile total organic carbon using a TOC analyzer (Model Dohrman DC-190, Rosemount Analytical, Santa Clara, CA). The TOC analyzer separately measures total carbon (TC) and inorganic carbon (IC); the TOC

concentration is obtained as the difference between TC and IC. The detection limit of the TOC method was 1.0 mg/L. Because perfluorinated surfactants are reportedly stable to oxidants (2), standards of PFC4 and PFC8 were analyzed for TOC, where PFC4 was completely oxidized and PFC8 gave 85% of the expected response (unpublished data).

Results and Discussion

Fire-Training Area Two Groundwater Samples. At FTA-02, thirty groundwater samples collected from ML wells (multilevel wells screened over 0.3 m interval made of PVC materials) and thirty-eight groundwater samples collected from FT wells (single depth iron-cased wells screened over a 1 to 6 m interval) were evaluated. The data collected for some of the multilevel monitoring wells, ML 306, ML 307, ML 314, and ML 316 (Figure 3.1), were omitted for this study because these wells are thought to be influenced by a bioreactor-remediation process ongoing at FTA-02, which re-injects treated water near these ML wells. The ML samples were collected in November 1998 and the FT samples were collected in June 1999. Although the wells were sampled several months apart, the groundwater velocity was used to calculate travel distance over that elapsed time period. The small distance (approximately 20 m) indicates that combining the data from the two different sampling times does not affect interpolation of the data.

Because one class of perfluorinated surfactants, perfluorocarboxylates, was detected in a limited number of groundwater samples from two other U. S. military fire-training areas (4) as well as in commercial AFFF mixtures (unpublished data), the groundwater from FTA-02 was analyzed for these specific compounds. The groundwater

samples from FTA-02 had total perfluorinated carboxylate concentrations ranging from below the detection limit ($3 \mu\text{g/L}$) to $110 \mu\text{g/L}$ (Table 3.1). Perfluorocarboxylates containing 6 (PFC6), 7 (PFC7) and 8 (PFC8) carbons in the perfluorocarbon chain were observed in 38 of the 68 groundwater samples analyzed.

The highest concentrations of perfluorocarboxylates were observed in groundwater collected from FT 2 and FT 3 which are two monitoring wells located close to the fire-training pad (Figure 3.2a), an established source point for jet fuel components, chlorinated solvents, and AFFF (22). Groundwater collected from wells located down gradient of FT 2 and FT 3 wells (and the fire-training pad), had lower concentrations of perfluorocarboxylates (less than the detection limit to $26 \mu\text{g/L}$). Groundwater collected from FT 18, which is 500 m from the fire-training pad, had total perfluorocarboxylate concentrations of $10 \mu\text{g/L}$. Groundwater from a background well at WAFB contained no detectable perfluorinated carboxylates (less than $3 \mu\text{g/L}$), indicating that the occurrence of perfluorocarboxylates in groundwater downgradient from the fire-training pad at FTA-02 is the result of AFFF applications and discharge during fire-training exercises.

In comparison, the total perfluorocarboxylate concentrations measured at FTA-02 are generally lower than those previously observed at Tyndall Air Force Base and NAS Fallon (124 to $298 \mu\text{g/L}$ and 54 to $7090 \mu\text{g/L}$, respectively) (4). The differences in total concentrations of perfluorocarboxylates observed in groundwater are apparent when comparing the concentrations observed near the source at three military sites. For example, the total perfluorocarboxylate concentration in groundwater sampled near the source at NAS Fallon was $7090 \mu\text{g/L}$ where groundwater concentrations observed near

the source at Tyndall Air Force Base and WAFB were 298 and 110 $\mu\text{g/L}$, respectively (4). Additionally, the frequency with which fire-training tests were conducted at the individual sites undoubtedly varied and is poorly documented. Over several years, testing conducted on a weekly basis versus a monthly basis could cause the observed differences in groundwater perfluorocarboxylate concentrations.

The dominant perfluorocarboxylate detected in the FTA-02 groundwater, PFC8, generally accounted for greater than 90% of the total perfluorocarboxylate concentration and is consistent with the relative abundance of PFC8 (93%) observed at the NAS Fallon fire-training facility (4). Qualitative results from the analysis of commercial AFFF products indicate that PFC8 is the dominant perfluorocarboxylate homologue (65%) where PFC7 and PFC6 comprise 10% and 25%, respectively, of total perfluorocarboxylates (unpublished data). Perfluoroheptanoic acid (PFC7) was observed in a few of the FTA-02 groundwater samples and only at the detection limit (3 $\mu\text{g/L}$). Perfluorohexanoic acid concentrations represented less than 10% of the total perfluorocarboxylate concentration. This is in contrast to Tyndall AFB groundwater where PFC6 was the most abundant perfluorocarboxylate. Electron capture negative ionization GC/MS was used to confirm the identity of PFC6, PFC7 and PFC8. The presence of PFC6 to PFC8 homologues of perfluorocarboxylates in groundwater from three U. S. military sites indicates the potential for using these unique chemicals as markers of AFFF-contaminated groundwater.

Table 3.1. Summary of groundwater data from FTA-02 sampled wells in November 1998 and June 1999.

| Parameter (units) | Range |
|---|-----------|
| pH | 5.5-8.6 |
| Total Perfluorocarboxylates ($\mu\text{g/L}$) ³ | d. l.-110 |
| Methylene Blue Active Substances ($\mu\text{g/L}$) ² | 400-3600 |
| Total Organic Carbon (mg/L) ¹ | d. l.-69 |
| Specific Conductance ($\mu\text{S/cm}$) | 110-810 |

¹Total organic carbon detection limit is 1 mg/L.

²MBAS detection limit is 200 $\mu\text{g/L}$ and is reported as equivalent to PFC8.

³Total perfluorocarboxylate concentrations reported represent the summation of PFC6 and PFC8 concentrations. The detection limit is 3 $\mu\text{g/L}$.

The observation of a suite of perfluorocarboxylates was expected since the raw materials (i.e., carboxylates) used in the synthesis of perfluorinated organic compounds are mixtures (2, 31). The homologous (even and odd number) series of perfluorinated carboxylates is indicative of the electrochemical fluorination synthesis process (4, 32). Furthermore, the electrochemical fluorination technique is employed by the 3M Company, which has supplied AFFF agents to the U. S. military for the past two decades (3, 4). In contrast, telomerization, one alternative technique for fluorocarbon synthesis, produces only even-numbered carbon perfluorocarbons.

In addition to perfluorocarboxylates, other anionic surfactants such as alkylsulfates and perfluoroalkylsulfonates are present in commercial AFFF formulations (16-18). Because our GC/MS method does not detect additional anionic species, we used MBAS as a semi-quantitative tool to detect all anionic surfactants (of which perfluorocarboxylates are one component) present in FTA-02 groundwater. The MBAS concentrations measured in groundwater from FTA-02 ranged from 400-3600 $\mu\text{g/L}$ for all wells (Table 3.1). As was the case with perfluorocarboxylates, high MBAS concentrations were predominantly centered around the fire-training pad area (Figure 3.2b) while lower MBAS concentrations extended downgradient from the source. The MBAS concentrations above background (400 $\mu\text{g/L}$) indicate the presence of additional anionic surfactant components associated with past AFFF applications at FTA-02. The observation of anionic surfactant species in groundwater several hundred meters downgradient from the fire-training pad area indicates that the unidentified anionic

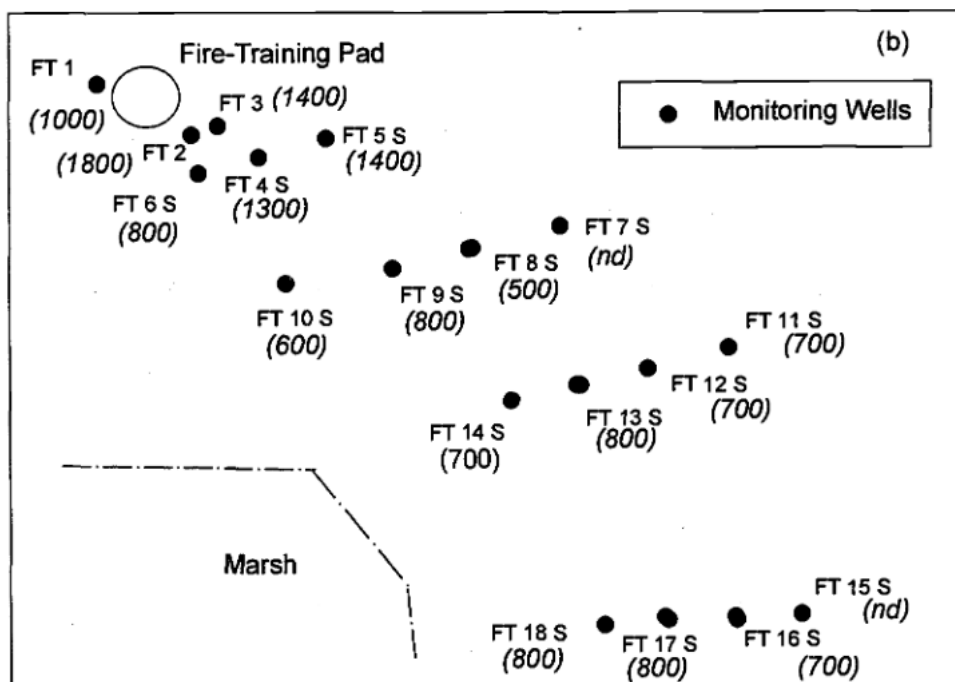
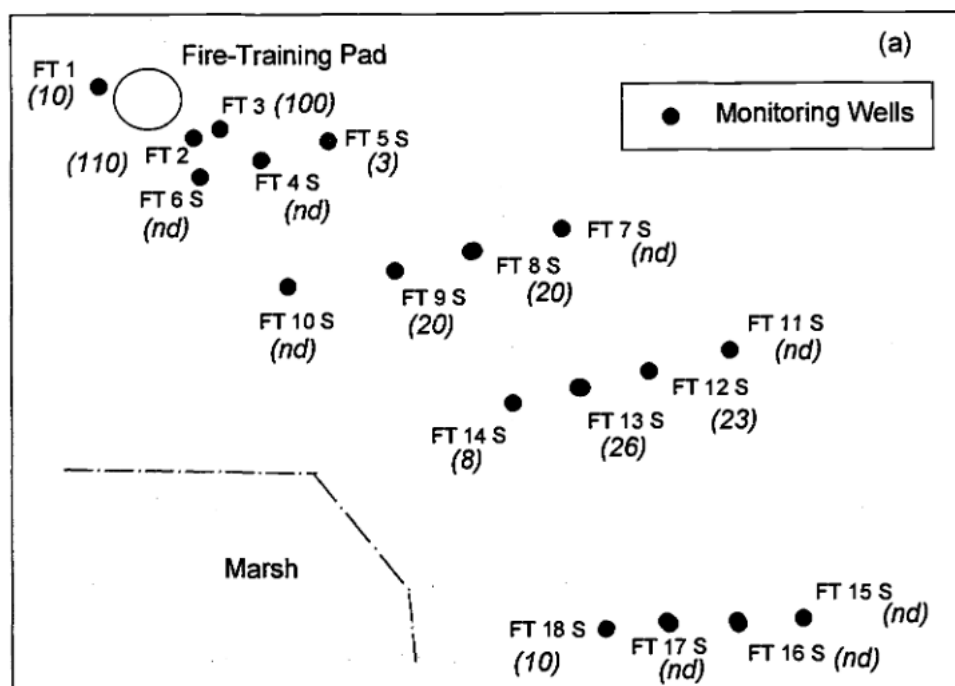


Figure 3.2. Distribution of (a) perfluorocarboxylate concentrations ($\mu\text{g/L}$) and (b) methylene blue active substances concentrations ($\mu\text{g/L}$) in shallow FT monitoring wells.

surfactants are transported by WAFB groundwater. The MBAS concentrations measured in groundwater at FTA-02 are of similar magnitude in concentration to those reported for sewage contaminated groundwater, which ranged from 300 to 2300 $\mu\text{g/L}$ (13).

The perfluorocarboxylate concentrations observed in groundwater from FTA-02 are significantly lower than the MBAS concentrations indicating that perfluorocarboxylate concentrations account for only a fraction of the anionic surfactants present in the groundwater at FTA-02. For example, the perfluorocarboxylates account for 6.1% and 1.3% of the MBAS concentrations measured in groundwater from FT 2 and FT 18, respectively. Liquid chromatography/mass spectrometry (LC/MS) was used to tentatively identify an additional class of perfluorinated surfactants, perfluorooctane sulfonate, in groundwater from FTA-02 (33). Perfluoroalkylsulfonates are one of the major perfluorinated surfactant classes present in commercial AFFF formulations, which is indicated in product material safety data sheets. Additional method development is necessary to quantify perfluorooctane sulfonate and to identify other classes of fluorinated surfactants (such as amphoteric) potentially present in AFFF-contaminated groundwater.

Total organic carbon measurements were made to quantify all carbon containing compounds in the groundwater water at this site, which includes volatile contaminants (e.g., fuel components and chlorinated solvents) and non-volatile contaminants (e.g., AFFF components, including fluorocarbon- and hydrocarbon-based surfactants). The TOC values for the groundwater sampled from the wells sampled at FTA-02 ranged from

the detection limit (1 mg/L) to 69 mg/L (Table 3.1) with high TOC values (i.e., 69 mg/L and 55 mg/L) close to the fire-training pad. The groundwater from the background well had a TOC value of 2 mg/L. Interestingly, perfluorocarboxylate and MBAS concentrations comprised only a small fraction of the measured TOC values. For example, near the fire-training pad perfluorocarboxylate and MBAS concentrations represent 0.2% and 2%, respectively, of the TOC concentration measured in monitoring well FT 2.

Despite a minimum of 13 years of inactivity at this site, significant concentrations of perfluorocarboxylates, MBAS, and TOC are still detected near the source. The soils in the vicinity of the fire-training pad could have a sorbed organic solid phase or a separate liquid phase. For example, FTA-02 sediments have total petroleum hydrocarbon concentrations of 13,650 mg/kg between 4.5 and 5.7 m below the ground surface (34). This is likely a result of fire-training exercises at FTA-02 where unburned fuel and other priority pollutants as well as AFFF entered the subsurface. In addition, at several locations near the pad, a discontinuous layer of black, tar-like substance was observed at 0.3 to 0.9 m below the land surface. This layer is approximately 0.1 m thick, and is detected downgradient as far as monitoring well FT 4 (Figure 3.1) (19), which is approximately 50 meters from the fire-training pad. A free/residual non-aqueous phase liquid (NAPL) plume comprised of jet fuel components and/or chlorinated solvents has been suggested by others to be present in the fire-training pad area (24). The association, if any, between the perfluorinated and non-perfluorinated surfactants with NAPL is unknown.

In order to make a judgment about the transport of perfluorocarboxylates as well as other anionic perfluorinated surfactants in groundwater at FTA-02, a commonly used approach is to compare the distribution of perfluorinated compounds to that of a conservative plume component such as those that are measured by specific conductance. Specific conductance measurements at FTA-02 ranged from 110 to 810 $\mu\text{S}/\text{cm}$ (Table 3.1) with the highest values measured near the fire-training pad area. The specific conductance of groundwater sampled from a well representing background conditions was 250 $\mu\text{S}/\text{cm}$. The distribution of specific conductance at FTA-02 (Figure 3.3) is consistent with previous reports of groundwater contamination at this site (19, 21, 22, 34) and indicates that the plume of contaminants may be turning to the southwest direction, away from FT wells 15-18 (Figure 3.1), and discharging into a marshy area. Unfortunately, no groundwater or surface water samples were collected from the marsh area for this investigation.

Because the terminus of the contaminant plume is undefined at this field site, the spatial relationship of perfluorocarboxylates to specific conductance can not be evaluated and therefore it is difficult to estimate perfluorocarboxylate transport relative to conservative components of the plume. If a well-defined terminus of the plume had been present, the transport distance of measured parameters combined with the time of operation of activities at the training area could be used to estimate flow rates as well as retardation factors for perfluorocarboxylates (and MBAS). It is known that perfluorocarboxylates present in groundwater 500 m from the fire-training area is approximately 5-15 years old assuming a 0.1-0.3 m/day groundwater velocity (22-24).

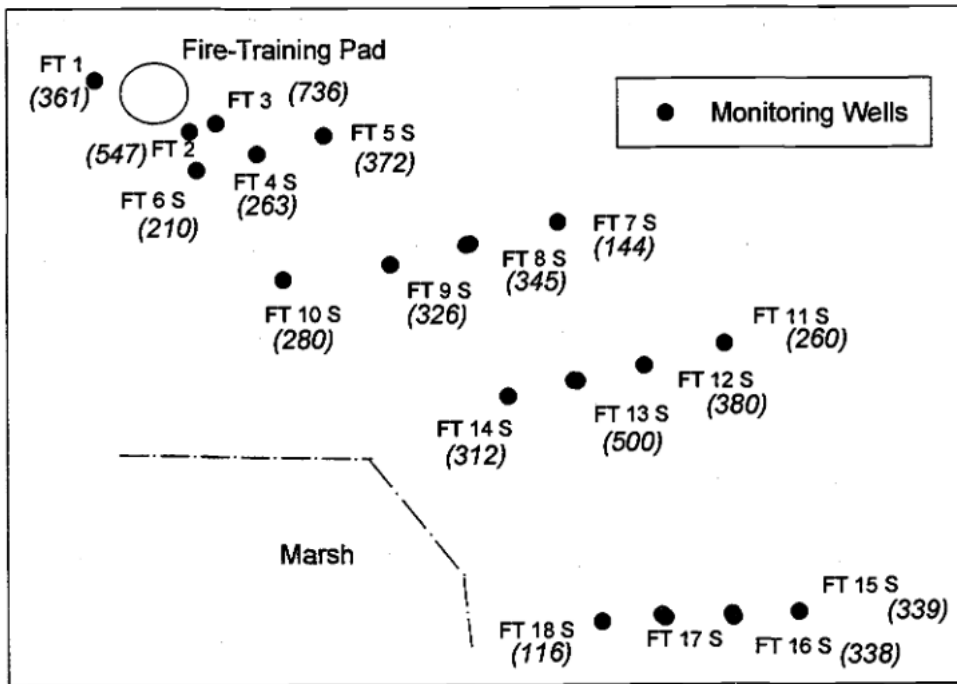


Figure 3.3. Distribution of specific conductance measurements ($\mu\text{S}/\text{cm}$) in shallow FT monitoring wells.

A minimum residence time of 5 years for perfluorocarboxylates in groundwater indicates the resistance of perfluorinated compounds to degradation under the prevailing groundwater conditions at this site. If perfluorocarboxylates moved conservatively away from the source, the edge of the contaminant plume should be 475-1425 m downgradient. However, the groundwater discharges to a marshy area at approximately 500 m from the fire-training pad area.

To accurately describe the transport of perfluorinated surfactants in groundwater at FTA-02 an independent measure of retardation such as an *in-situ* tracer test could be performed at this site. A single-well push-pull test can provide *in-situ* transport information (35). At a different field site located in Corvallis, OR, a single-well push-pull test was performed with perfluorooctane sulfonate and bromide as the conservative tracer. Identical breakthrough curves for bromide and perfluorooctane sulfonate were obtained indicating that perfluorooctane sulfonate was conservatively transported (3). Because conservative transport of perfluorooctane sulfonate was observed in that field study, perfluorinated surfactants also may be conservative tracers for AFFF-contaminated groundwater. Clearly more research is required to fully investigate the transport behavior of perfluorinated surfactants.

Implications. Perfluorocarboxylate concentrations measured at FTA-02 as well as at other U. S. military sites, indicate that this class of specialty chemicals is a potentially unique tracer for groundwater impacted by repetitive fire-training exercises. The detection of perfluorocarboxylates at the NAS Fallon and Tyndall Air Force Base military sites, which have not been used since 1988 and 1992, respectively, (4) as well as the detection of perfluorocarboxylates at FTA-02 after 13 years of fire-training inactivity

is consistent with the widely-held AFFF-industry view that biodegradation of the long-chain perfluorocarbon hydrophobe does not occur (31, 36-39). The strength of the carbon-fluorine bond (2, 37, 40) as well as the rigidity of the perfluorocarbon chain (37, 41) are thought to contribute to the recalcitrant nature of perfluorinated compounds.

In contrast to repetitive application of AFFF at fire-training areas such as FTA-02, the site of a KC-135 airplane crash at WAFB had a one-time application of fire-fighting agents. High TOC values were observed in groundwater from monitoring wells located closest to the crash site/point source, and are attributed to the estimated 3,000 gallons of JP-4 fuel (25, 26) spilled at the site as a result of the crash. Alternatively, perfluorocarboxylates as well as MBAS-responsive components were not detected in the sampled groundwater; this is not surprising since the impacted area had a one-time application of fire-fighting materials over ten years ago. By evaluating groundwater from these two different field sites, there appears to be little impact from a single application of AFFF (i.e., an emergency response situation) relative to long-term repetitive applications for training purposes at FTA-02. Because hydrocarbon-fuel fires pose a serious threat to life and property, the issue of fire safety must be balanced against the risks that these products, particularly perfluorinated surfactants, potentially pose to the environment.

Three U. S. military sites (4) have been identified to have the presence of what appears to be a biologically-stable specialty chemical. The occurrence of perfluorocarboxylates, and potentially other perfluorinated surfactants raises issues for military bases and other facilities where fire-training exercises are conducted routinely and wastewater is disposed of improperly. Because perfluorinated surfactants co-occur with other pollutants (e.g., fuel components, solvents, etc.) in groundwater, it is important

to determine if perfluorinated surfactants affect the transport and biodegradation of other contaminants. Additionally, research is needed to further examine the possible presence of NAPLs and their influence of AFFF components on the solubility and transport of NAPLs in the subsurface at WAFB.

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Literature Cited

- (1) Porter, M. R. *Handbook of Surfactants*, Second ed.; Blackie Academic & Professional: London, 1994.
- (2) Kissa, E. *Fluorinated Surfactants: Synthesis, Properties, and Applications*; Marcel Dekker: New York, 1994.
- (3) Moody, C. A.; Field, J. A. *Environ. Sci. Technol.* **199x**, submitted for publication.
- (4) Moody, C. A.; Field, J. A. *Environ. Sci. Technol.* **1999**, *33*, 2800-2806.
- (5) IMR International. "Fire Fighting Foam Concentrates"; San Diego, CA, 1986, pp 2/1-2/36.
- (6) Rogers, R. S. *Chem. Eng. News* **1999**, *April 12*, 30-32.
- (7) Johnson, J. *Chem. Eng. News* **1999**, *May 10*, 23-26.
- (8) Henley, M.; Mayfield, H.; Shelley, T. *Abstract of Papers*, Pittsburgh Conference, Atlanta, GA, American Chemical Society: Washington DC, 1997; Abstract 519.
- (9) R. B. Reneau, J.; Pettry, D. E. *J. Environ. Qual.* **1975**, *4*, 350-375.
- (10) Thurman, E. M.; Barber, Jr., L. B.; LeBlanc, D. *J. Contam. Hydrol.* **1986**, *1*, 143-161.
- (11) Krueger, C. J.; Barber, Jr., L. B.; Metge, D. W.; Field, J. A. *Environ. Sci. Technol.* **1998**, *32*, 1134-1142.
- (12) Krueger, C. J., Ph.D. Dissertation, Oregon State University, Corvallis, OR, 1996.
- (13) Field, J. A.; Barber, Jr., L. B.; Thurman, E. M.; Moore, B. L.; Lawrence, D. L.; Peake, D. A. *Environ. Sci. Technol.* **1992**, *26*, 1140-1148.
- (14) Field, J. A.; Leenheer, J. A.; Thorn, K. A.; II, L. B. B.; Rostad, C.; Macalady, D. L.; Daniel, S. R. *J. Contam. Hydrol.* **1992**, *9*, 55-78.
- (15) Levine, A. D.; Libelo, E. L.; Bugna, G.; Shelley, T.; Mayfield, H.; Stauffer, T. B. *Sci. Total Environ.* **1997**, *208*, 179-195.
- (16) Howell, R. D.; Tucker, E. E. *Am. Environ. Lab.* **1996**, *12*, 10-11.
- (17) Material Safety Data Sheet for ATC-603 Light Water ATC 3 AR-AFFF 3%, 3M Company, St. Paul, MN, 1998.

- (18) Material Safety Data Sheet for FC-203CF Light Water Brand Aqueous Film Forming Foam, 3M Company, St. Paul, MN, 1997.
- (19) Phase II-Confirmation/Quantification Stage 2: Wurtsmith Air Force Base, MI, Investigation of Soil and Groundwater Contamination at Selected Sites, Vol. I, United States Geological Survey, Lansing, MI, 1995.
- (20) Phase II-Confirmation/Quantification Stage 1: Wurtsmith Air Force Base, MI: Investigations of Groundwater and Soil Contamination at Selected Sites, United States Geological Survey, Lansing, MI, 1991.
- (21) Chapelle, F. H.; Haack, S. K.; Adriaens, P.; Henry, M. A.; Bradley, P. M. *Environ. Sci. Technol.* **1996**, *30*, 3565-3569.
- (22) Barcelona, M. J. Presented at the Symposium on Natural Attenuation of Chlorinated Organics in Groundwater, Dallas, TX, September 1996.
- (23) Gillespie, J. L.; United States Geological Survey, Lansing, MI, 1990.
- (24) Bermejo, J. L.; Sauck, W. A.; Atekwana, E. A. *GWMR* **1997**, 131-137.
- (25) Fang, J.; Barcelona, M. J.; West, C. In *Molecular Markers in Environmental Geochemistry*; Eganhouse, R. P., Ed.; American Chemical Society, 1997, pp 65-76.
- (26) Fang, J.; Barcelona, M. J. *Org. Geochem.* **1998**, *29*, 899-907.
- (27) Belisle, J.; Hagen, D. F. *Anal. Biochem.* **1980**, *101*, 369-376.
- (28) Degens, P. N.; Evans, H. C.; Kommer, J. D.; Winsor, P. A. *J. Appl. Chem.* **1953**, *3*, 54-61.
- (29) Anionic Surfactants as MBAS; In *Standard Methods for the Examination of Water and Wastewater*; Association of American Public Health, Association of American Water Works, Water Environment Federation, Eds.; American Public Health Association: Washington DC, 1998, (5-47)-(5-49).
- (30) Fairing, J. D.; Short, F. R. *Anal. Chem.* **1956**, *28*, 1827-1834.
- (31) Key, B. D. Ph.D. Dissertation, Michigan State University, East Lansing, MI, 1996.
- (32) Kauck, E. A.; Diesslin, A. R. *Ind. Eng. Chem.* **1951**, *43*, 2332-2334.

- (33) Moody, C. A.; Furlong, E. T.; Hebert, G. N.; Odom, M. A.; Strauss, S. H.; Field, J. A. *Abstract of Papers*, Society of Environmental Toxicology and Chemistry: Sustaining Global Environmental Integrity Conference, Philadelphia, PA, PTA-123.
- (34) Dojka, M. A.; Hugenholtz, P.; Haack, S. K.; Pace, N. R. *Appl. Environ. Microbiol.* **1998**, *64*, 3869-3877.
- (35) Istok, J. D.; Humphrey, M. D.; Schroth, M. H.; Hyman, M. R.; O'Reilly, K. T. *Ground Water* **1997**, *35*, 619-631.
- (36) Darwin, R. L.; Ottman, R. E.; Norman, E. C.; Gott, J. E.; Hanauska, C. P. *Natl. Fire Protect. Assoc.* **1995**, 67-73.
- (37) Key, B. D.; Howell, R. D.; Criddle, C. S. *Environ. Sci. Technol.* **1997**, *31*, 2445-2454.
- (38) Zoller, U. *Handbook of detergents: Part A, properties*; Marcel Dekker: New York, 1999.
- (39) Rosen, M. J. *Surfactants and Interfacial Phenomena*, Second ed.; John Wiley & Sons: New York, 1989.
- (40) Smart, B. E. In *Molecular Structure and Energetics*; Liebman, J. F., Greenberg, A., Eds.; VCH Publishers: Deerfield Beach, FL, 1986; Vol. 3.
- (41) Asakawa, T.; Mouri, M.; Miyagishi, S.; Nishida, M. *Langmuir* **1989**, *5*, 343-348.

Chapter 4

Summary

Aqueous film forming foam formulations are used to extinguish hydrocarbon-fuel fires that pose a serious threat to life and property. In preparation for such fires, training exercises are often conducted. Because of past fire-training exercises at military bases, as well as response to emergency situations, AFFF-laden wastewater containing fuels, solvents, and other materials directly entered groundwater without prior treatment, and has led to groundwater contamination. Fluorinated surfactants are a unique class of chemicals present in AFFFs that are directly discharged to the environment. Fluorinated surfactants differ significantly from hydrocarbon surfactants such that direct analogies can not be drawn between the two types of surfactants. The information contained in this thesis addresses the gap in knowledge regarding the occurrence, distribution, and transport of perfluorinated surfactants in the subsurface.

An analytical method based on the use of solid-phase extraction and followed by an in-vial elution and derivatization was used to quantitatively determine a suite of perfluorinated carboxylates (PFC6 to PFC8) in groundwater. Concentrations of perfluorocarboxylates ranged from 125 to 7,090 $\mu\text{g/L}$ in a limited number of groundwater samples collected from NAS Fallon, NV, and Tyndall AFB, FL.

Historically, AFFF mixtures were applied at Wurtsmith Air Force Base (Oscoda, MI), at various locations including the Fire-Training Area Two and at the site of an

airplane crash. Total perfluorocarboxylate concentrations (PFC6 to PFC8) ranging from near the detection limit (3 $\mu\text{g/L}$) to 110 $\mu\text{g/L}$ were measured in groundwater sampled from an extensive well array at Fire-Training Area Two. Perfluorocarboxylate concentrations detected over 500 m from the source area have an approximate minimum residence time of 5 to 15 years. The observed methylene blue active substances concentrations indicate that perfluorocarboxylates are only a small fraction of the anionic surfactants present in the groundwater. This finding highlights the need for further analytical method development in order to fully characterize the contaminated groundwater.

In contrast to the repetitive application of AFFF at fire-training areas such as Fire-Training Area Two, the airplane crash site at Wurtsmith Air Force Base had a one-time application of fire-fighting agents. Not surprisingly, the MBAS concentrations were below the detection limit (0.2 mg/L) and total perfluorocarboxylate concentrations also were below the detection limit (0.3 $\mu\text{g/L}$). The analysis of groundwater from two sites with different AFFF application histories indicates a disparity between a single deployment of AFFFs (i.e., an emergency response situation) and repetitive applications for fire-training purposes.

The observed suites of perfluorocarboxylates containing 6 to 8 carbons in groundwater from the three military sites is consistent with the manufacture of these specialty chemicals, since the raw materials used in the synthesis of perfluorinated organic compounds are themselves mixtures. The specific ratios of perfluorohexanoic, perfluoroheptanoic, and perfluorooctanoic acids observed at the three military sites may

be the result of different AFFF formulations used at each of the sites. The observed homologous series consisting of even and odd number perfluorinated carboxylates is indicative of the electrochemical fluorination process. In contrast, other fluorination processes, such as telomerization, produce only even-numbered homologues. The detection of perfluorinated carboxylates at NAS Fallon, NV, Tyndall Air Force Base, FL, and Wurtsmith Air Force Base, MI, military sites that have not been used since 1988, 1992, and 1986, respectively, is consistent with the view that long chain perfluorocarbon hydrophobes do not biodegrade. Because perfluorocarboxylates persist in the environment, they may serve as unique tracers of groundwater impacted by repetitive fire-training exercises.

Because commercial formulations of AFFF are complex mixtures, the employment of these mixtures in fire-training situations introduces both priority and non-priority pollutants into the environment. Questions remain regarding how chromatographic separation during transport affects these complicated mixtures. Because perfluorinated surfactants persist in the environment, they may impact the biogeochemical processes that affect the distribution and bioavailability of co-contaminants. Moreover, the effect, if any, that biodegradation of AFFF components has upon the microbial ecology and activity of the subsurface is unexplored. Finally, the need for additional analytical methods to measure perfluorinated surfactants is necessary to address questions about the occurrence, environmental behavior, and impact of these classes of specialty chemicals.

Bibliography

- Abriola, L. M.; Pennell, K. D.; Pope, G. A.; Dekker, T.J.; Luning-Prak, D. J., 1995. Impact of surfactant flushing on the solubilization and mobilization of dense non-aqueous phase liquids. In: D. A. Sabatini, R. C. Knox and J. H. Harwell (Editors), *Surfactant-Enhanced Subsurface Remediation*. American Chemical Society, Washington, DC, Vol. 594, 10-23.
- Alm, R.R.; Stern, R.M., 1992. Aqueous film-forming foamable solution useful as fire extinguishing concentrate. United States Patent 5085786.
- Anionic Surfactants as MBAS; In *Standard Methods for the Examination of Water and Wastewater*; Association of American Public Health, Association of American Water Works, Water Environment Federation, Eds.; American Public Health Association: Washington DC, 1998, (5-47)-(5-49).
- Asakawa, T.; Mouri, M.; Miyagishi, S.; Nishida, M. *Langmuir*, **1989**, 5, 343-348.
- Barcelona, M. J. Presented at the Symposium on Natural Attenuation of Chlorinated Organics in Groundwater, Dallas, TX, September 1996.
- Bass, C. M., 1982. Ph.D. Thesis, University of Oklahoma, Norman, OK, 153.
- Belisle, J.; Hagen, D. F. *Anal. Biochem.*, **1980**, 101, 369-376.
- Bernejo, J. L.; Sauck, W. A.; Atekwana, E. A. *GWRM*, **1997**, 131-137.
- Betts, K. S. *Environ. Sci. Technol.*, **1998**, 32, 351A.
- Cancilla, D. A.; Martinez, J.; Van Aggelen, G. C. *Environ. Sci. Technol.*, **1998**, 32, 3834-3835.
- Chan, D. B., 1978. Disposal of waste water containing aqueous film forming foam (AFFF). Technical Report TM No. M-54-78-06, Civil Engineering Laboratory, Naval Construction Battalion Center, Port Hueneme, CA.
- Chan, D. B., 1979. Disposal of wastewater containing aqueous film forming foam (AFFF) by physico-chemical properties. Technical Report TM-54-79-19, Civil Engineering Laboratory, Naval Construction Battalion Center, Port Hueneme, CA.
- Chan, D. B.; Chian, E. S. K. *Environ. Progr.*, **1986**, 5, 104-109.

- Chapelle, F. H.; Haack, S. K.; Adriaens, P.; Henry, M. A.; Bradley, P. M. *Environ. Sci. Technol.*, **1996**, *30*, 3565-3569.
- Contamination Assessment Report Active Fire Training Area FT-23 Tyndall Air Force Base Panama City, FL, FDER Facility United States Army Corps of Engineers: Washington DC, February 1994.
- Cross, J., 1998. *Anionic Surfactants: Analytical Chemistry*. Surfactant science series, Vol. 73. Marcel Dekker, New York.
- Darwin, R.L.; Ottman, R.E.; Norman, E.C.; Gott, J.E.; Hanauska, C.P. *Natl. Fire Protect. Assoc.*, **1995**, *May/June*, 67-73.
- Degens, P. N.; Evans, H. C.; Kommer, J. D.; Winsor, P. A. *J. Appl. Chem.*, **1953**, *3*, 54-61.
- Deocampo, N. D.; Upham, B. L.; Trosko, J. E. *Fundam. Appl. Toxicol. (Suppl.)*, **1996**, *30*, 208.
- Dojka, M. A.; Hugenholtz, P.; Haack, S. K.; Pace, N. R. *Appl. Environ. Microbiol.*, **1998**, *64*, 3869-3877.
- Fairing, J. D.; Short, F. R. *Anal. Chem.*, **1956**, *28*, 1827-1834.
- Falk, R. A., 1978. Aqueous wetting and film forming compositions, United States Patent 4090967.
- Fang, J.; Barcelona, M. J. *Org. Geochem.*, **1998**, *29*, 899-907.
- Fang, J.; Barcelona, M. J.; West, C., 1997. The use of aromatic acids and phospholipid-ester-linked fatty acids for delineation of processes affecting an aquifer contaminated with JP-4 fuel. In: R.P. Eganhouse (Editor), *Molecular Markers in Environmental Geochemistry*. American Chemical Society Symposium Series Vol. 671. American Chemical Society, pp. 65-76.
- Fendinger, N. J.; Begley, W. M.; McAvoy, D. C.; Eckhoff, W. S. *Environ. Sci. Technol.*, **1992**, *26*, 2493-2498.
- Field, J. A. et al. *Environ. Sci. Technol.*, **1992**, *26*, 1140-1148.
- Field, J. A. et al. *J. Contam. Hydrol.*, **1992**, *9*, 55-78.
- Field, J. A.; Reed, R. L. *Environ. Sci. Technol.*, **1996**, *30*, 3544-3550.

- Gillespie, J. L., 1990. Installation Restoration Program: Phase II-Confirmation / Quantification Stage 2, United States Geological Survey, Lansing, MI.
- Godin, C. S. et al., 1990. Genotoxicity assessment of perfluorodecanoic acid using a battery of in vitro and in vivo/in vitro assays. Technical Report AAMRL-TR-90-070, Harry G. Armstrong Aerospace Medical Research Laboratory, Kensington, MD.
- Guha, S.; Jaffe, P. R. *Environ. Sci. Technol.*, **1996**, *30*, 1382-1391.
- Guha, S.; Jaffe, P. R. *Environ. Sci. Technol.*, **1996**, *30*, 605-611.
- Guha, S.; Jaffe, P. R.; Peters, C. A. *Environ. Sci. Technol.*, **1998**, *32*, 930-935.
- Hagen, D. F.; Belisle, J.; Johnson, J. D.; Venkateswarlu, P. *Anal. Biochem.*, **1981**, *118*, 336-343.
- Halton, B., 1998. In *The Florida Times-Union*, Jacksonville, FL, pp. A-5.
- Harkins, W. D.; Feldman, A. *J. Am. Chem. Soc.*, **1922**, *44*, 2665-2685.
- Henley, M.; Mayfield, H.; Shelley, T. *Abstracts of Papers*, Pittsburgh Conference, Atlanta, GA, American Chemical Society: Washington, DC, 1997; Abstract 519.
- Howell, R. D.; Tucker, E. E. *Am. Environ. Lab.*, **1996**, *12*, 10-11.
- Hudlicky, M.; Pavlath, A. E. (Editors), 1995. *Chemistry of Organic Fluorine Compounds II: A Critical Review*. American Chemical Society, Washington, DC.
- IMR International, 1986. Fire Fighting Foam Concentrates, San Diego, CA, 2/1-2/36.
- Istok, J. D.; Field, J. A.; Schroth, M. H.; Sawyer, T. E.; Humphrey, M. D. *Ground Water*, **1999**, *37*, 590-598.
- Istok, J. D.; Humphrey, M. D.; Schroth, M. H.; Hyman, M. R.; O'Reilly, K. T. *Ground Water*, **1997**, *35*, 619-631.
- Johnson, J. *Chem. Eng. News*, **1999**, *May 10*, 23-26.
- Kauck, E. A.; Diesslin, A. R. *Ind. Eng. Chem.*, **1951**, *43*, 2332-2334.
- Key, B. D., 1996. Ph.D. Thesis, Michigan State University, East Lansing, MI.
- Key, B. D.; Howell, R. D.; Criddle, C. S. *Environ. Sci. Technol.*, **1997**, *31*, 2445-2454.

- Key, B. D.; Howell, R. D.; Criddle, C. S. *Environ. Sci. Technol.*, **1998**, *32*, 2283-2287.
- Kinner, D. L., 1998. In *The Florida Times-Union*, Jacksonville, FL, pp. B-1.
- Kissa, E. *Anal. Chem.*, **1983**, *55*, 1445-1448.
- Kissa, E. *Environ. Sci. Technol.*, **1986**, *20*, 1254-1257.
- Kissa, E., 1994. *Fluorinated Surfactants: Synthesis, Properties, and Applications*. Surfactant Science Series, Vol. 50. Marcel Dekker, New York.
- Kissa, E., 1998. Analysis of anionic fluorinated surfactants. In: J. Cross (Editor), *Anionic Surfactants: Analytical Chemistry*. Marcel Dekker, New York.
- Krueger, C. J., 1996. Ph. D. Thesis, Oregon State University, Corvallis, OR.
- Krueger, C. J.; Barber, Jr., L. B.; Metge, D. W.; Field, J. A. *Environ. Sci. Technol.*, **1998**, *32*, 1134-1142.
- Laha, S.; Luthy, R. G. *Environ. Sci. Technol.*, **1991**, *25*, 1920-1930.
- Levine, A. D. et al. *Sci. Total Environ.*, **1997**, *208*, 179-195.
- Lewis, Sr., R. J. 1993. *Hazardous Chemicals Desk Reference*, Third ed.; Van Nostrand Reinhold, New York.
- Liu, Z.; Jacobson, A. M.; Luthy, R. G. *Appl. Environ. Microbiol.*, **1995**, *61*, 145-151.
- Lyon, P. A.; Tomer, K. B.; Gross, M. L. *Anal. Chem.*, **1985**, *57*, 2984-2989.
- March, J., 1985. *Advanced Organic Chemistry*. John Wiley & Sons, New York.
- Material Safety Data Sheet for FC-3155 Training Foam, 3M Company, St. Paul, MN, 1999.
- Material Data Safety Sheet for FC-95 Fluorad Brand Fluorochemical Surfactant, 3M Company, St. Paul, MN, 1999.
- Material Safety Data Sheet for ATC-603 Light Water ATC 3 AR-AFFF 3%, 3M Company, St. Paul, MN, 1998.
- Material Safety Data Sheet for FC-203CF Light Water Brand Aqueous Film Forming Foam, 3M Company, St. Paul, MN, 1997.

- McLafferty, F. W.; Turecek, F., 1993. *Interpretation of Mass Spectra*. University Science Books, Sausalito, CA.
- Military Specification: Fire Extinguishing Agent, Aqueous Film Forming Foam (AFFF) Liquid Concentrate for Fresh And Sea Water; Report No. MIL-F-24385F; U. S. Department of the Navy: Washington DC, 1992.
- Moody, C. A.; Field, J. A. *Environ. Sci. Technol.*, **199x**, submitted for publication.
- Moody, C. A.; Field, J. A. *Environ. Sci. Technol.*, **1999**, *33*, 2800-2806.
- Moody, C. A. et al., 1999. *Abstract of Papers*, Society of Environmental Toxicology and Chemistry: Sustaining Global Environmental Integrity Conference, Philadelphia, PA, PTA-123.
- O'Brien, A. F., 1994. M.S. Thesis, University of Maryland, College Park, MD.
- Phase II-Confirmation/Quantification Stage 2: Wurtsmith Air Force Base, Michigan, Investigation of Soil and Groundwater Contamination at Selected Sites, Vol. I, United States Geological Survey, Lansing, MI, 1995.
- Phase II-Confirmation/Quantification Stage 1: Wurtsmith Air Force Base, Michigan: Investigations of Groundwater and Soil Contamination at Selected Sites, United States Geological Survey, Lansing, Michigan, 1991.
- Popenoe, D. D.; Morris, III, S. J.; Horn, P. S.; Norwood, K. T. *Anal. Chem.*, **1994**, *66*, 1620-1629.
- Porter, M. R., 1994. *Handbook of Surfactants*. Blackie Academic & Professional, London.
- Raber, L. R. *Chem. Eng. News*, **1998**, *July 6*, 25-26.
- Remde, A.; Debus, R. *Chemosphere*, **1996**, *52*, 1563-1574.
- Reneau, Jr., R. B.; Pettry, D. E. *J. Environ. Qual.* **1975**, *4*, 350-375.
- Roch, F.; Alexander, M. *Environ. Toxicol. Chem.*, **1995**, *14*, 1151-1158.
- Rogers, R. S. *Chem. Eng. News*, **1999**, *April 12*, 30-32.
- Rosen, M. J., 1989. *Surfactants and Interfacial Phenomena*. John Wiley & Sons, New York.

- Salazar, S. M., 1985. Toxicity of aqueous film forming foams to marine organisms: Literature review and biological assessment. Technical Document 825, Naval Ocean Systems Center, San Diego, CA.
- Scheffey, J. L.; Wright, J. A., 1994. Analysis of test criteria for specifying foam fire-fighting agents for aircraft rescue and fire-fighting. Technical Report DOT/FAA/CT-94-04, Hughes Associates, Inc., Columbia, MD.
- Schmitt, T. M., 1992. *Analysis of Surfactants*. Surfactant Science Series, Vol. 40. Marcel Dekker, New York.
- Schröder, H. F. *Vom Wasser*, **1991**, 77, 277-290.
- Shinoda, K.; Hato, M.; Hayashi, T. *J. Phys. Chem.*, **1972**, 76, 909-914.
- Shinoda, K.; Nomura, T. *J. Phys. Chem.*, **1980**, 84, 365-369.
- Smart, B.E., 1986. Fluorinated Organic Molecules. In: J.F. Liebman and A. Greenberg (Editors), *Molecular Structure and Energetics*. VCH Publishers, Deerfield Beach, FL.
- Stickley, Jr., A. R.; Twedt, D. J.; Heisterberg, J. F.; Mott, D. F.; Glahn, J. F. *Wild. Soc. Bull.*, **1986**, 14, 412-418.
- Sweetser, P. B. *Anal. Chem.*, **1965**, 28, 1766-1768.
- Swisher, R. D., 1987. *Surfactant Biodegradation*. Surfactant Science Series, Vol. 18. Marcel Dekker, Inc., New York.
- Tchobanoglous, G.; Schroeder, E. D., 1987. *Water Quality*. Addison-Wesley Publishing Company, Reading, MA.
- Thurman, E. M.; Barber, Jr., L. B.; LeBlanc, D. *J. Contam. Hydrol.*, **1986**, 1, 143-161.
- Tsomides, H. J.; Hughes, J. B.; Thomas, J. M.; Ward, C. H. *Environ. Toxicol. Chem.*, **1995**, 14, 953-959.
- West, C. C.; Harwell, J. H. *Environ. Sci. Technol.*, **1992**, 26, 2324-2329.
- Work Plan for Assessing the Feasibility of Intrinsic Remediation at Installation Restoration Program Sites, Naval Air Station, Fallon, NV; Oak Ridge National Laboratory, October 1996.
- Zoller, U., 1999. *Handbook of Detergents: Part A, Properties*. Surfactant Science Series, Vol. 82. Marcel Drekker, New York.



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Determination of Perfluorocarboxylates in Groundwater Impacted by Fire-Fighting Activity

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Abstract:

Perfluorinated surfactants are used in aqueous film forming foam (AFFF) formulations, which are used to extinguish hydrocarbon-fuel fires. Virtually nothing is known about the occurrence of perfluorinated surfactants in the environment, in particular, at fire-training areas and emergency response sites where AFFF entered groundwater without prior treatment. Strong anion exchange Empore disks were used to extract perfluorocarboxylates from groundwater collected from fire-training facilities located on Naval Air Station Fallon, NV, and Tyndall Air Force Base, FL. The carboxylates were simultaneously eluted from the disks and derivatized to their methyl esters for direct analysis by gas chromatography/mass spectrometry. Perfluorocarboxylates containing six to eight carbons were detected in groundwater collected from the two field sites with total concentrations ranging from 125 to 7090 $\mu\text{g/L}$. The detection of perfluorocarboxylates at field sites after 7-10 years of inactivity indicates their potential utility as markers for delineating groundwater impacted by fire-fighting activity.

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What is significance of findings?
is this a bad thing?

Test site is trg ground.

Significance is it was funded
by EPA. Indicates their
getting interested in AFFF.

Determination of Perfluorocarboxylates in Groundwater Impacted by Fire-Fighting Activity

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Perfluorinated surfactants are used in aqueous film forming foam (AFFF) formulations, which are used to extinguish hydrocarbon-fuel fires. Virtually nothing is known about the occurrence of perfluorinated surfactants in the environment, in particular, at fire-training areas and emergency response sites where AFFF entered groundwater without prior treatment. Strong anion exchange Empore disks were used to extract perfluorocarboxylates from groundwater collected from fire-training facilities located on Naval Air Station Fallon, NV, and Tyndall Air Force Base, FL. The carboxylates were simultaneously eluted from the disks and derivatized to their methyl esters for direct analysis by gas chromatography/mass spectrometry. Perfluorocarboxylates containing six to eight carbons were detected in groundwater collected from the two field sites with total concentrations ranging from 125 to 7090 $\mu\text{g/L}$. The detection of perfluorocarboxylates at field sites after 7–10 years of inactivity indicates their potential utility as markers for delineating groundwater impacted by fire-fighting activity.

Introduction

Aqueous film forming foams (AFFF) are complex mixtures of surfactants and other components used to extinguish hydrocarbon-fuel fires that occur at fire-training sites as well as in emergency situations. Aqueous film forming foams have been commercially available for fire-fighting applications since their development by the United States Navy and 3M Co. in the mid-1960s (1). At fire-training areas that routinely used AFFF mixtures and military emergency response sites, AFFF-laden wastewater that entered surface water and groundwater without treatment has led to groundwater and soil contamination. For example, perfluorinated compounds were tentatively identified in groundwater impacted by fire-training activities at Tyndall Air Force Base (2). Unfortunately, definitive identifications of the perfluorinated compounds were not reported.

Commercial AFFF mixtures are proprietary in nature and typically contain fluorinated and nonfluorinated surfactants (1, 3–5). Due to the proprietary nature of AFFF formulations, the chemical structures of the actual perfluorinated surfactants used in commercial AFFFs are not known outside the companies that manufacture them (5). Moreover, the analysis of anionic perfluorinated surfactants that are known to occur

in AFFF formulations (6) is problematic because the surfactants are nonvolatile and may not contain chromophores. As a result, analytical methods for AFFF formulation components are lacking, and therefore it is difficult to assess their occurrence, fate, and transport in AFFF-contaminated groundwater. Because perfluorinated surfactants co-occur with other pollutants (e.g. fuel components, solvents, etc.) in groundwater, it is important to determine if perfluorinated surfactants affect the transport and biodegradation of other contaminants. Free and emulsified oil, fuel, and AFFF components were shown to adversely affect activated sludge processes (6, 7) and the performance of anaerobic sludge digestors (8) in wastewater treatment facilities. For this reason, perfluorinated surfactants may have an adverse effect on groundwater microbial populations and their ability to degrade co-contaminants present in AFFF-contaminated groundwater.

In addition to fluorinated surfactants use in fire-fighting foams, they are also utilized in herbicides and insecticides, cosmetics, greases and lubricants, and adhesives (3). Fluorinated carboxylic acids of industrial significance include perfluorooctanoic acid (PFC8) and perfluorodecanoic acid (PFC10) (9). There is concern regarding the potential toxicity of perfluorinated carboxylic acids. An *in vivo* study of rat liver response to PFC10 indicated the rapid onset of a low-level hepatotoxicity but no detectable damage to the DNA (10). Perfluorodecanoic acid and PFC8 have been found to inhibit gap junction intercellular communication in rat liver epithelial cells (11) and may be involved in tumor promotion (9).

In this paper, we describe the isolation, identification and quantification of perfluorinated carboxylates in groundwater impacted by fire-training activities at Naval Air Station (NAS) Fallon, NV, and Tyndall Air Force Base, FL. The development of analytical methods is necessary before investigating the occurrence and distribution of perfluorinated surfactants in AFFF-contaminated groundwater and their effect on co-contaminant transport and biodegradation.

Experimental Section

Standards and Reagents. Standards of PFC8 (98%), perfluorododecanoic acid (PFC12) (95%), and the internal standard, 2-chlorolepidine (99%), were purchased from Aldrich Chemical (Milwaukee, WI). Methyl iodide (neat) was used as purchased from Aldrich Chemical.

Field Sites and Sample Collection. From the mid-1950s to 1988, the crash crew training area at NAS Fallon, NV (Figure 1a), was used to conduct fire-training activities, which consisted of flooding a fire pit with flammable liquids, igniting the fluids, and subsequently extinguishing the fire with fire-fighting agents including AFFF (12). For a typical training exercise, approximately 75–100 L of AFFF concentrate were diluted with 1200–3200 L of water according to specifications (3% or 6% solution) and subsequently employed. During the years of activity at the NAS Fallon site, training exercises occurred on a weekly to monthly basis. At the NAS Fallon site, groundwater samples were collected from four monitoring wells located within a 120 m radius of the fire pit where the water table is located between 2 and 3 m below the land surface.

The Tyndall Air Force Base Fire-Training Area FT-23 was used from 1980 to 1992 for similar activities (Figure 1b) (13). Four groundwater samples were obtained from wells surrounding the fire-training area; the water table is located between 1 and 2 m below the land surface. All samples were collected in high-density polyethylene brown bottles because

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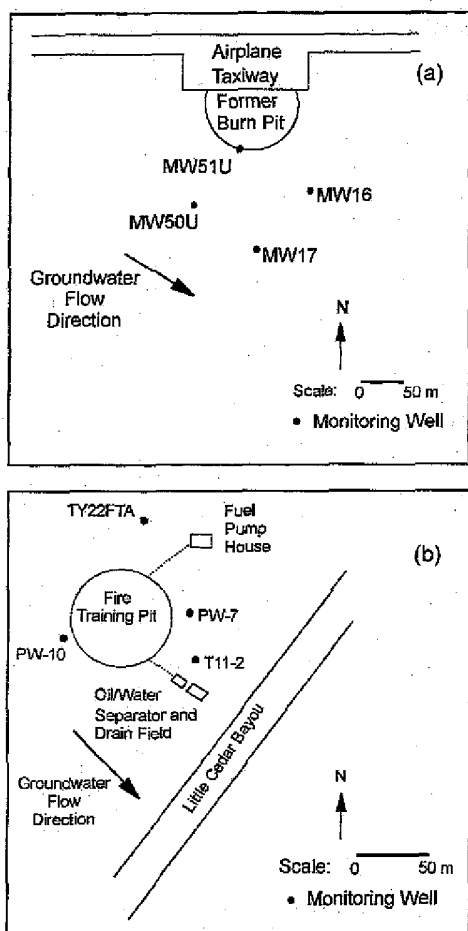


FIGURE 1. Map of (a) Naval Air Station Fallon and (b) Tyndall Air Force Base field sites indicating location of groundwater wells and direction of regional groundwater flow.

perfluorinated carboxylates adsorb to glass (14). Samples were shipped on ice without preservation and stored at 4 °C prior to analysis.

Solid-Phase Extraction and Derivatization. Samples (55–200 mL) were extracted through 25 mm strong anion exchange (SAX) disks in a manner similar to that described by Field and Reed (15) with the exception that the SAX disks were pretreated prior to use to remove interfering disk impurities. Pretreatment consisted of soaking the disks in 12 mM HCl/acetonitrile for 2 days after which the disks were soaked in pure acetonitrile for several hours. Just prior to use, the disks were rinsed with a minimum of 350 mL of deionized water in order to sufficiently rinse the HCl from the disks and wet them prior to passing groundwater samples through them. Samples (55–200 mL) were passed through the disks under full vacuum, and the disks were then allowed to dry. The disks containing the exchanged analytes were placed in a 2 mL autosampler vial together with 1 mL of acetonitrile, 51.2 µg of internal standard, and 100 µL of methyl iodide. When heated at 80 °C for 1 h, the acids were simultaneously eluted from the disk and derivatized to their methyl esters.

Spike and Recovery. Spike and recovery experiments were performed to determine the precision and accuracy of the SAX disk extraction and in-vial elution method. A set of experiments was performed on groundwater samples from NAS Fallon MW 50U and MW 17 that had been previously

determined to contain neither PFC8 nor PFC12 above detection. Duplicate groundwater samples from wells MW 50U and MW 17 were spiked to contain a final concentration of 1240 µg/L of PFC8 and 560 µg/L of PFC12.

Standard addition analyses were performed with NAS Fallon groundwater samples that contained measurable quantities of PFC8; the samples did not contain PFC12 above detection. Known amounts of PFC8 were added to samples to give a final concentration twice that of the background concentration. For example, groundwater from MW 51U and MW 16, which contained background concentrations of 6570 and 460 µg/L, respectively, were spiked to give final concentrations of 12900 and 1000 µg/L of PFC8, respectively. Each sample also was spiked with 56.4 µg of PFC12. To determine the detection limit of the method, single samples of groundwater that contained no perfluorinated carboxylates above detection were given a range of final PFC8 concentrations from 18 to 54 µg/L.

Gas Chromatography/Mass Spectrometry. Extracts were analyzed using a Hewlett-Packard Model 5890 Series II Plus gas chromatograph (GC) equipped with a 30 m × 0.32 mm × 4.00 µm SPB-1 SULFUR column (Supelco Inc., Bellefonte, PA). An injection volume of 1 µL was used under splitless conditions with an injector temperature of 200 °C. The GC oven temperature was initially held for 6 min at 60 °C, increased by 6 °C/min to 190 °C, increased further by 30 °C/min to 270 °C, and then held for 5 min.

Quantification of perfluorocarboxylate methyl esters was performed using a Hewlett-Packard Model 5972 mass selective detector operated in electron impact (EI) mode (70 eV). The mass selective detector was operated in full scan (50–450 amu) mode and in selected ion monitoring (SIM) mode using a dwell time of 100 ms for each ion. The scanning mode was used for qualitative identification while SIM mode was used for quantification. The ions of m/z 131 [C₃F₅]⁺, m/z 169 [C₃F₇]⁺, and m/z 219 [C₄F₉]⁺, which are characteristic fragments of perfluorocarbons (16–18), were used to identify and quantify the methyl esters of perfluorohexanoic acid (PFC6), perfluoroheptanoic acid (PFC7), PFC8, and PFC12. The internal standard, 2-chlorolepidine, was quantified with the ions at m/z 177 and m/z 115.

The identification of perfluorocarboxylate methyl esters was confirmed by electron capture negative ionization (ECNI) GC/MS, which gave unique molecular ions for each of the perfluorinated carboxylate methyl esters (e.g. m/z 328 for PFC6, m/z 378 for PFC7, m/z 428 for PFC8, and m/z 628 for PFC12). These measurements were performed with a Varian 3400 gas chromatograph interfaced with a Finnigan Model 4023 mass spectrometer. Methane was used as the reagent gas, and the mass spectrometer was operated in full scan mode (100–650 amu). The gas chromatograph was operated with a column and temperature program identical to that used for the EI GC/MS.

Initially, samples prepared in deionized water were used as the matrix for constructing calibration curves, and standard recoveries were low. However, when samples prepared in tap water, which contains inorganic cations and anions, were used as the matrix for constructing calibration curves, quantitative recovery of standards was obtained. It is proposed that the 350 mL of deionized water does not sufficiently rinse the disks of residual HCl and tap water is required to completely rinse the disks and obtain quantitative recovery of standards. Therefore, calibration curves for quantification of PFC8 were constructed by passing 100 mL of tap water samples that had been spiked with 3.6–1080 µg of PFC8 through 25 mm SAX disks and derivatizing the acids to their methyl esters using the in-vial elution and derivatization technique. The calibration curve for PFC12 was constructed in a similar manner by adding 7.5–113 µg of PFC12 standard to 100 mL of tap water. For all quantitation

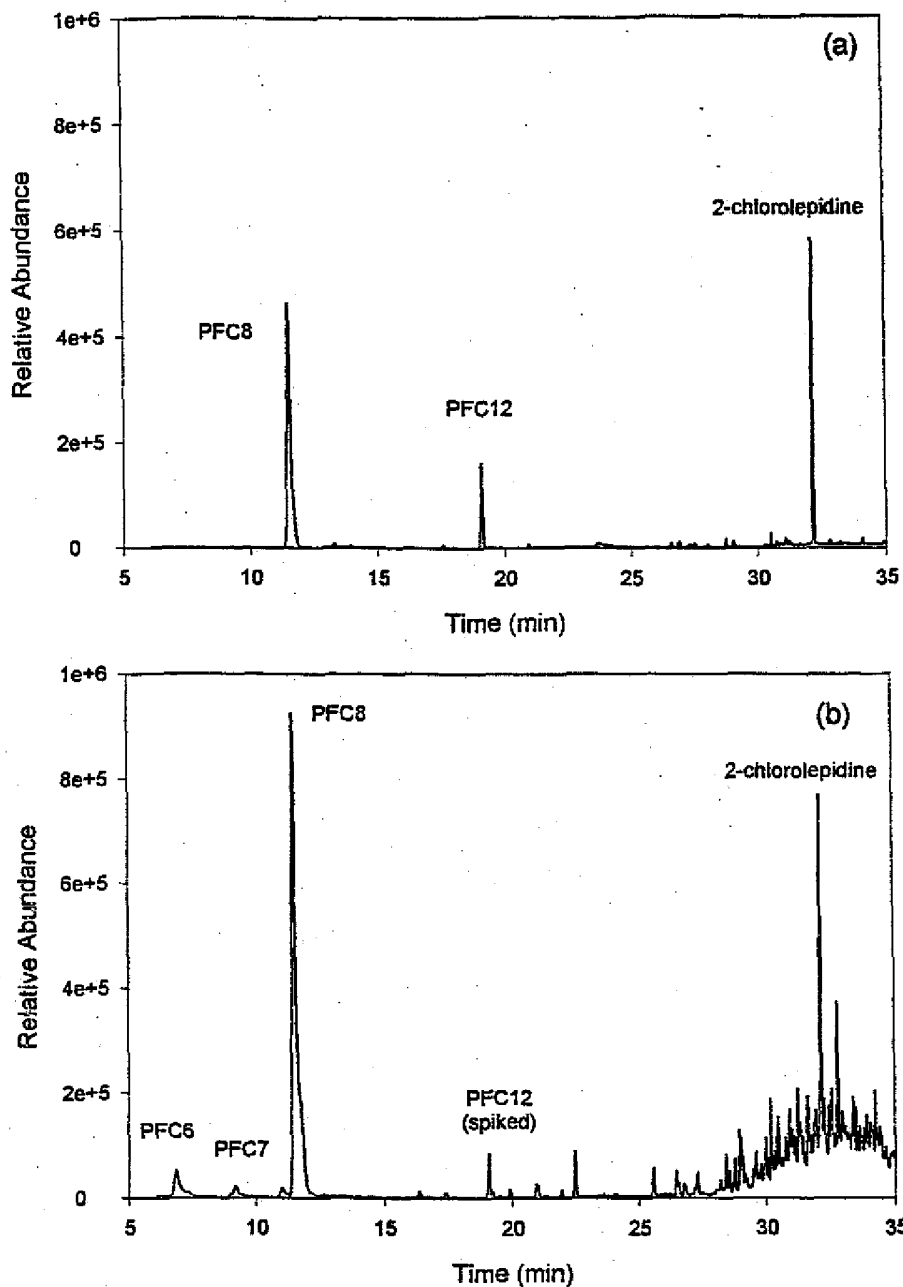


FIGURE 2. (a) Typical EI GC/MS chromatogram of PFC8 and PFC12 standards and (b) perfluorinated carboxylates, including PFC6, PFC7, PFC8, and PFC12 (spiked) in Naval Air Station Fallon groundwater.

standards, a total of 51.2 μg of the 2-chlorolepidine internal standard was added to the autosampler vial just prior to the addition of methyl iodide. Both calibration curves were linear with r^2 typically greater than 0.99. Quantification of PFC6 and PFC7 was performed assuming a response factor equal to an equimolar amount of PFC8.

Results and Discussion

Gas Chromatography/Mass Spectrometry. A film thickness of 4 μm (30 m \times 0.32 mm SPB-1 SULFUR; Supelco, Bellefonte, PA) was necessary to obtain sufficient retention times for the methyl esters of PFC8 and PFC12 to allow for the separation and quantification (Figure 2a). Initial attempts to separate and quantify the perfluorinated carboxylate methyl esters on a thin film (0.25 μm), 30 m \times 0.25 mm DB-1 (J&W Scientific,

Folsom, CA) column were unsuccessful regardless of the initial column temperature. Note that the stationary phases in the SPB-1 SULFUR and DB-1 columns are comparable. A standard of perfluorobutyric acid was not observed under any of the described GC conditions; it is most likely that an initial oven temperature less than 40 $^{\circ}\text{C}$ would be required.

The EI mass spectra of methyl PFC8 (Figure 3a) and PFC12 indicate characteristic perfluorocarbon fragmentation (16, 17) in which the major ions (e.g., 69, 119, 169, 219, etc.) differ by 50 amu, which corresponds to the mass of CF_2 . Molecular ions were not observed for any of the perfluorinated carboxylate methyl esters under EI conditions; however, molecular ions $[\text{M}]^-$ were observed under ECNI conditions. For example m/z 428 (in Figure 3b) corresponds to the molecular ion of methyl PFC8.

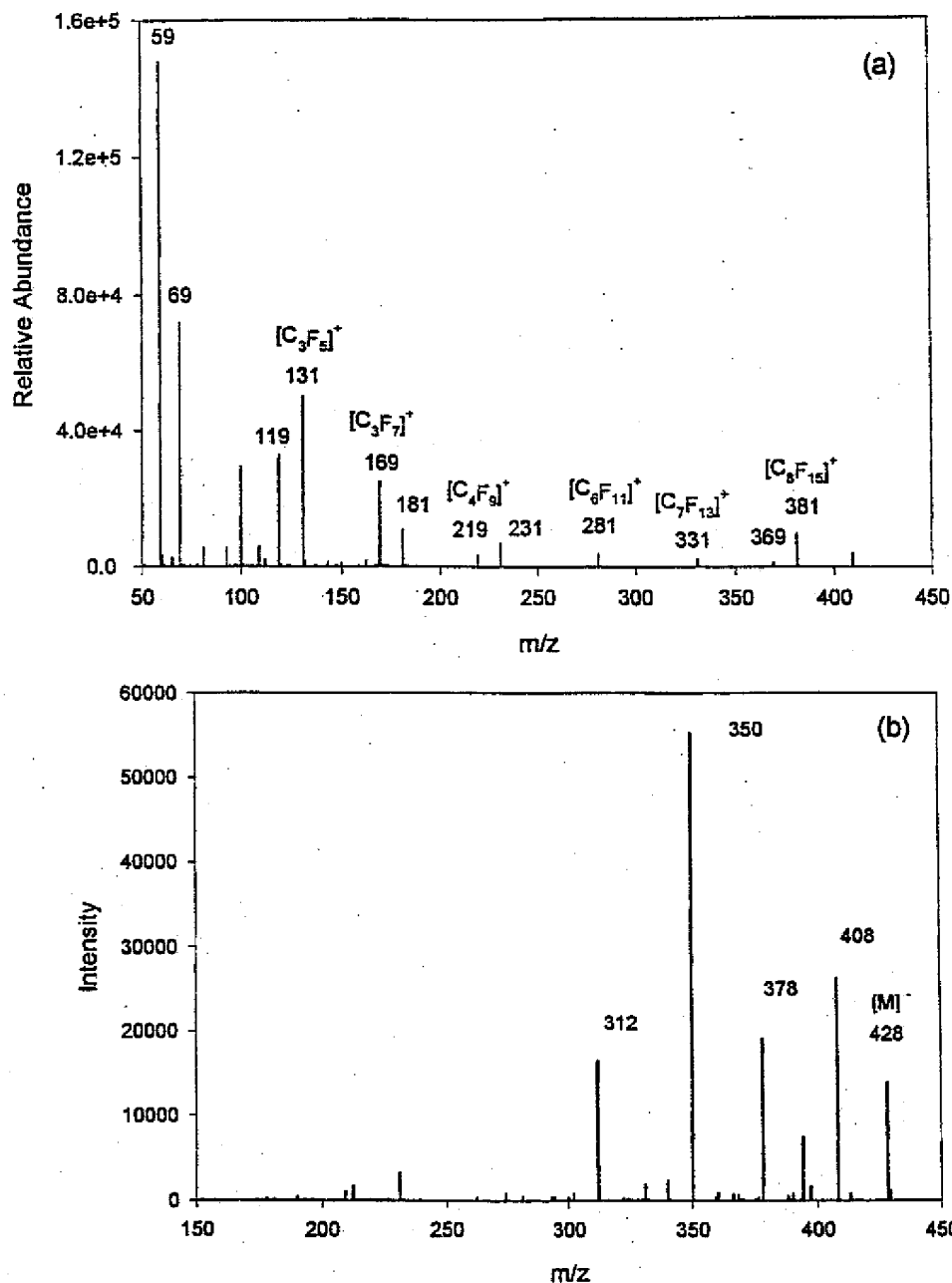


FIGURE 3. (a) EI mass spectrum of methyl PFC8. (b) ECNI mass spectrum of methyl PFC8.

Solid-Phase Extraction. Prior to developing a solid-phase extraction method, initial experiments were conducted using diazomethane as the derivatization reagent. When perfluorinated carboxylates were derivatized using ethanol-based diazomethane, multiple peaks corresponding to methyl and ethyl esters were detected (unpublished data). Because EI GC/MS did not produce molecular ions, ECNI GC/MS was used to verify the formation of both methyl and ethyl esters. Consequently, if ethanol-based diazomethane was used for derivatization in conjunction with EI GC/MS, multiple peaks in a chromatogram could be erroneously interpreted as a greater number of perfluorinated compounds than are actually present. In contrast, only the methyl ester was obtained when butyl carbitol (2-(2-butoxyethoxy)ethanol) was used to prepare the diazomethane reagent. However, because of the hazards associated with the use of diazo-

methane and the time-consuming nature of diazomethane derivatization, an alternative method was desired.

Derivatization of the perfluorocarboxylates by solid-phase extraction and the in-vial elution and derivatization technique gave only a single peak that corresponded to the methyl ester of each perfluorinated carboxylate standard; the identification of each methyl ester was confirmed by ECNI GC/MS. In addition, the solid-phase extraction approach combined the steps of isolation and derivatization, which greatly simplified the procedure and eliminated the use of diazomethane.

Six replicate analyses of blank 25 mm SAX disks that had not been prerinsed with 12 mM HCl/acetonitrile prior to use, yielded an average of $21 \pm 1 \mu\text{g}$ (4.8% relative standard deviation (RSD)) of PFC8 per disk. No other perfluorinated carboxylates were present in the disks above the detection limit. The PFC8 is associated with the Teflon matrix and not

TABLE 1. Recovery of PFC8 and PFC12 Spiked into Groundwater Samples from Naval Air Station Fallon^a

| sample | % recovery | |
|--------------------------------|-----------------|-------|
| | PFC8 | PFC12 |
| NAS Fallon MW 51U ^b | 83 ^c | 35 |
| NAS Fallon MW 16 | 90 ^d | 85 |
| NAS Fallon MW 50U | 73 | 77 |
| NAS Fallon MW 17 | 74 | 88 |

^a Duplicate samples were analyzed. Sample volume was 100 mL unless otherwise noted. ^b Sample volume was 55 mL. ^c Calculated as the final measured concentration divided by background concentration plus spike concentration and multiplied by 100. The background concentration was 6,570 µg/L. ^d Calculated as the final measured concentration divided by background concentration plus spike concentration and multiplied by 100. The background concentration was 460 µg/L.

the embedded anion exchange particles (unpublished data). The background PFC8 was successfully removed by rinsing the disks prior to use with 12 mM HCl/acetonitrile followed by 350 mL of deionized water. It should be noted that benzoic acid and ethylhexylphthalic acid are also present in the disks as artifacts and are removed by the HCl/acetonitrile pre-rinse step.

Accuracy, Precision, and Detection Limits. The recoveries of PFC8 from blank groundwater samples obtained from NAS Fallon wells MW 50U and MW 17 were 73 and 74%, respectively, while the recoveries of PFC12 were 77 and 88%, respectively (Table 1). Because detectable levels of PFC8 occurred in groundwater from MW 51U and MW 16, standard addition experiments were performed to determine the recoveries of PFC8. The recoveries of the PFC8 spiked into MW 51U and MW 16 groundwater to give a final concentration double that of the background concentration were 83 and 90%, respectively (Table 1). The recoveries of PFC12 from MW 51U and MW 16 groundwater, which did not contain background concentrations of PFC12, were 35 and 85%, respectively (Table 1). Although the recovery of PFC8 (83%) differs significantly from that of PFC12 (35%) in groundwater from MW 51U, the recoveries of PFC8 and PFC12 were nearly equivalent for the other groundwater samples. Monitoring well 51U is located closest to the fire pit where AFFF agents were applied to burning mixtures of fuels and solvents. Due to its proximity to the fire pit, the groundwater from MW 51U most likely contains the greatest diversity of inorganic and organic constituents, which may adversely affect PFC12 recoveries relative to that of PFC8. Therefore, although the original intent was to use the PFC12 as a surrogate standard because it did not occur in the groundwater samples, PFC12 appears more sensitive to matrix interferences compared to PFC8 so that it is an inappropriate choice for a surrogate standard. For this reason, all subsequent quantification was based on the 2-chlorolepidine internal standard.

The precision, indicated by the RSD, calculated from five replicate analyses each of groundwater from NAS Fallon MW 16 and Tyndall AFB T11-2 ranged from 3.7 to 14% (Table 2). The detection and quantitation limit of the method was defined as those concentrations of PFC8 needed to produce a signal-to-noise (S/N) of 3:1 and 10:1, respectively. The detection and quantitation limits for PFC8 were 18 and 36 µg/L, respectively.

Application to Groundwater Samples. Four groundwater samples from both NAS Fallon and Tyndall AFB were analyzed for perfluorinated carboxylates. Chromatograms obtained by EI GC/MS indicated the presence of multiple perfluorinated compounds all having characteristic perfluorocarbon fragmentation (Figure 2b). Analysis by ECNI GC/MS established the identification of PFC6, PFC7 and PFC8 in groundwater obtained from wells MW 51U and MW 16 from NAS Fallon. The molecular ions [M]⁻ for methyl PFC6 (*m/z* 328) and methyl PFC7 (*m/z* 378) were observed for peaks eluting 4.7 and 2.3 min before that of PFC8 (Figure 4a,b). The ECNI mass spectrum for methyl PFC8 in MW 51U was similar to that of the PFC8 standard (Figure 2b).

The groundwater samples from NAS Fallon MW 51U and MW 16 had total perfluorinated carboxylate concentrations of 7090 and 540 µg/L, respectively (Table 2). The PFC6 detected in NAS Fallon groundwater samples from MW 51U and MW 16 comprised 5.2% and 11%, respectively, of the total perfluorocarboxylates detected. The PFC7 was 2.1% and 3.3% respectively, of the total perfluorinated carboxylates detected in these wells. The dominant perfluorinated carboxylate, PFC8, accounted for 93% and 85%, respectively, of the total perfluorocarboxylate concentration.

The highest concentrations of perfluorocarboxylates were observed in groundwater collected from NAS Fallon MW 51U, which is the well located closest to the fire-training pit (Figure 1a). Monitoring well 16, which is located downgradient of MW 51U and the fire-training pit, had lower but detectable concentrations of perfluorocarboxylates. Groundwater from MW 50U and MW 17, which are located off gradient from the fire-training pit, contained no detectable perfluorinated carboxylates. Over the approximate 100 m distance between MW 51U and MW 16, the concentrations of the perfluorinated carboxylates decreased with increasing number of carbons. For example, the concentration of PFC6 decreased 85% over the 100 m compared to decreases of 88% and 93% for PFC7 and PFC8, respectively.

The groundwater samples from Tyndall AFB PW-10, PW-07, and T11-2 contained total perfluorinated carboxylate concentrations of 298, 159, and 124 µg/L, respectively (Table 2). The compositions of Tyndall AFB groundwater collected from the three wells ranged from 46 to 52% for PFC6, from 13 to 15% for PFC7 and from 34 to 40% for PFC8. In contrast to the groundwater samples from NAS Fallon, the dominant perfluorinated carboxylate in Tyndall AFB groundwater was PFC6.

TABLE 2. Concentrations of Perfluorinated Carboxylates in Groundwater Samples from Naval Air Station Fallon and Tyndall Air Force Base^{a,b}

| sample | n | PFC6 (µg/L) | PFC7 (µg/L) | PFC8 (µg/L) | total (µg/L) |
|---------------------|---|----------------|----------------------------|-------------------|-------------------|
| NAS Fallon MW 51U | 3 | 372 ± 4 (1.1%) | 149 ± 5 (3.4%) | 6570 ± 150 (2.3%) | 7090 ± 160 (2.3%) |
| NAS Fallon MW 16 | 5 | 57 ± 8 (14%) | 18 ± 2 (11%) ^c | 460 ± 20 (4.3%) | 540 ± 20 (3.7%) |
| NAS Fallon MW 50U | 3 | nd | nd | nd | nd |
| NAS Fallon MW 17 | 3 | nd | nd | nd | nd |
| Tyndall AFB PW-10 | 2 | 144 | 38 | 116 | 298 |
| Tyndall AFB PW-07 | 2 | 73 | 22 ^c | 64 | 159 |
| Tyndall AFB T11-2 | 5 | 64 ± 4 (6.3%) | 19 ± 1 (5.3%) ^c | 42 ± 2 (4.8%) | 124 ± 8 (6.5%) |
| Tyndall AFB TY22FTA | 2 | nd | nd | nd | nd |

^a The relative standard deviation is given in parentheses. ^b nd: not detected above the detection limit. ^c The reported value is near the detection limit (S/N ≤ 3) and less than the quantitation limit (S/N ≤ 10). The value has been included in the reported total concentration.

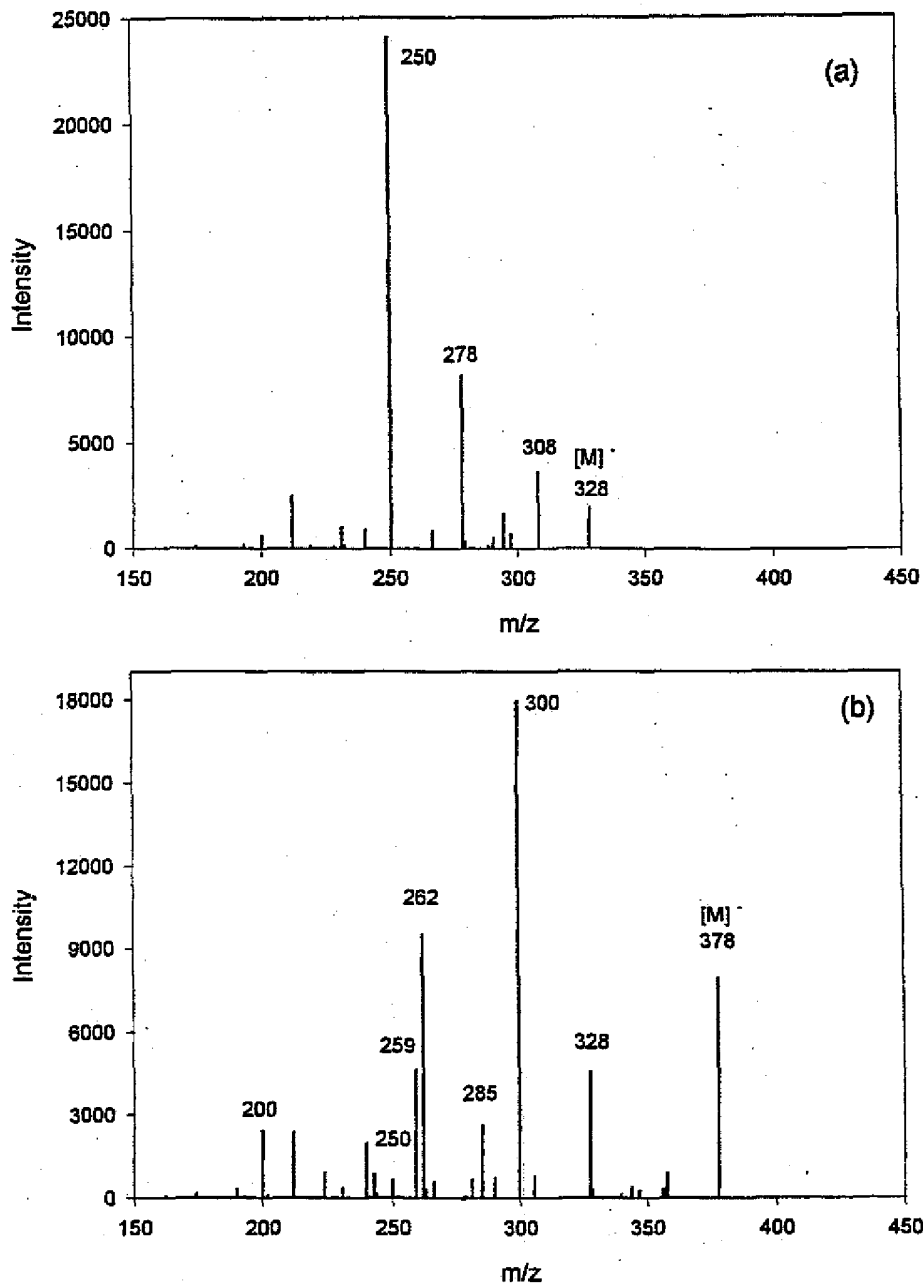


FIGURE 4. ECNI mass spectra of (a) methyl PFC6 and (b) methyl PFC7.

The highest concentrations of perfluorocarboxylates among the groundwater samples from Tyndall AFB were observed in PW-10 and PW-07, which are the two wells located closest to the fire-training pit (Figure 1b). Monitoring well T11-2, which is located downgradient of the fire-training pit, had lower but detectable groundwater concentrations of perfluorocarboxylates. The groundwater collected from a well located north of the fire-training pit, TY22FTA, contained no perfluorinated carboxylates above the detection limit (18 $\mu\text{g/L}$).

It is not surprising to observe a suite of perfluorinated carboxylates since the raw materials used in the synthesis of perfluorinated organic compounds are mixtures (3, 19). Different ratios of PFC6, PFC7, and PFC8 may result from the use of different AFFF formulations at the two fire-training areas. The observed homologous series consisting of even and odd number perfluorinated carboxylates is indicative of

the electrochemical fluorination process used by 3M Co. (3). Other fluorination processes, such as telomerization, produce only even number homologues (3). Because of the proprietary nature of AFFFs, it is not known if perfluorinated carboxylates are present as one of the major surface active agents in AFFF formulations or as unreacted starting materials used in the synthesis of the principal perfluorinated surfactants used in AFFF formulations. In addition, the carboxylates may be combustion, biological, or nonbiological degradation products of the principal perfluorinated components in AFFF mixtures. Unfortunately, the exact source and history of AFFF applications at the two field sites are unknown, and therefore, the relationship between the observed perfluorocarboxylate ratios and that of the original AFFF mixtures is unknown.

To the best of our knowledge, very little is known regarding the transport and fate of perfluorocarboxylates in groundwater. Adsorption to sludge at wastewater treatment facilities

is considered a significant process for the removal of perfluorinated surfactants during treatment (3). However, detection of perfluorinated carboxylates at the NAS Fallon and Tyndall AFB sites, which have not been used since 1988 and 1992, respectively, is consistent with the view that biodegradation of the long chain perfluorocarbon hydrophobe is unlikely (6, 9, 19). The recalcitrant nature of perfluorinated compounds is attributed in part to the rigidity of the perfluorocarbon chain (9, 20) as well as the strength of the carbon-fluorine bond (3, 9, 21).

To the best of our knowledge this is the first definitive identification of perfluorinated carboxylates in groundwater impacted by fire-fighting activity. Further work is needed to determine if additional perfluorinated components are present, such as perfluorooctane sulfonic acid, which is thought to be one of the principle components in some commercial AFFF formulations. In addition, it is of interest to relate the occurrence and distribution of perfluorinated compounds to other site characterization parameters such as dissolved organic carbon, inorganic constituents, and the distribution of co-contaminants and to understand the potential influence of perfluorinated compounds on the biotransformation and transport of other co-contaminants.

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Literature Cited

- (1) O'Brien, A. F. M.S. Thesis, University of Maryland, College Park, Maryland, 1994.

- (2) Henley, M.; Mayfield, H.; Shelley, T. *Abstracts of Papers*, Pittsburgh Conference, Atlanta, GA, American Chemical Society: Washington, DC, 1997; Abstract 519.
- (3) Kissa, E. *Fluorinated Surfactants: Synthesis, Properties, and Applications*; Marcel Dekker: New York, 1994.
- (4) Bass, C. M. Ph.D. Dissertation, University of Oklahoma, Norman, OK, 1982.
- (5) Howell, R. D.; Tucker, E. E. *Am. Environ. Lab.* 1996, 12, 10.
- (6) Darwin, R. L.; Ottman, R. E.; Norman, E. C.; Gott, J. E.; Hanauska, C. P. *Natl. Fire Protect. Assoc.* 1995, 67.
- (7) Chan, D. B.; Chian, E. S. K. *Environ. Prog.* 1986, 5, 104.
- (8) Remde, A.; Debus, R. *Chemosphere* 1996, 52, 1563.
- (9) Key, B. D.; Howell, R. D.; Criddle, C. S. *Environ. Sci. Technol.* 1997, 31, 2445.
- (10) Godin, C. S.; Myhr, B. C.; Lawlor, T. E.; Young, R. R.; Muri, H.; Cifone, M. A. Genotoxicity Assessment of Perfluorodecanoic Acid using a Battery of In vitro and in vivo/in vitro Assays; Harry G. Armstrong Aerospace Medical Research Laboratory: Kensington, MD, December 1990.
- (11) Deocampo, N. D.; Upham, B. L.; Trosko, J. E. *Fundam. Appl. Toxicol. (Suppl.)* 1996, 30, 208.
- (12) Work Plan for Assessing the Feasibility of Intrinsic Remediation at Installation Restoration Program Sites: Oak Ridge National Laboratory: Oak Ridge, TN, October 1996.
- (13) Contamination Assessment Report Active Fire-Training Area FT-23 Tyndall Air Force Base Panama City, FL, FDER Facility No. United States Army Corps of Engineers: Washington, DC, February 1994.
- (14) Belisle, J.; Hagen, D. F. *Anal. Biochem.* 1980, 101, 369.
- (15) Field, J. A.; Reed, R. L. *Environ. Sci. Technol.* 1996, 30, 3544.
- (16) McLafferty, F. W.; Turecek, F. *Interpretation of Mass Spectra*, 4th ed.; University Science Books: Sausalito, CA, 1993.
- (17) Lyon, P. A.; Tomer, K. B.; Gross, M. L. *Anal. Chem.* 1985, 57, 2984.
- (18) Hudlicky, M.; Pavlath, A. E. *Chemistry of Organic Fluorine Compounds II: A Critical Review*; American Chemical Society: Washington, DC, 1995.
- (19) Key, B. D. Ph.D. Dissertation, Michigan State University, East Lansing, MI, 1996.
- (20) Asakawa, T.; Mourl, M.; Miyagishi, S.; Nishida, M. *Langmuir* 1989, 5, 343.
- (21) Smart, B. E. In *Molecular Structure and Energetics*; Liebman, J. F., Greenberg, A., Eds.; VCH Publishers: Deerfield Beach, FL, 1986; Vol. 3.

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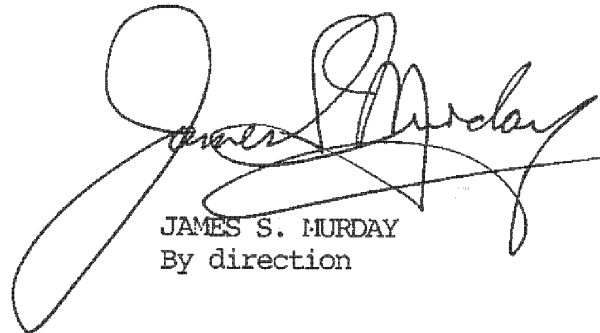
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From: Commanding Officer, Naval Research Laboratory
To: Distribution

Subj: DOD AFFF ENVIRONMENTAL MEETING

Encl: (1) Minutes of subject meeting

1. The Navy Technology Center for Safety and Survivability of the Naval Research Laboratory hosted the DOD AFFF Environmental Meeting on 2-3 August 2000. The meeting was held to exchange information on environmental issues surrounding AFFF. The meeting was sponsored jointly by The Naval Facilities Engineering Command and the Naval Air Systems Command.
2. Enclosure (1) is a copy of the minutes of the meeting.
3. The NRL point of contact for this program is Dr. Frederick W. Williams, Code 6180, (202) 767-2476, email: fwilliam@ccs.nrl.navy.mil.



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(Code 8.1 Wolfe)
NADEP (Code 4.3.4.7 Whitfield)
DSC (Code IDA Klein)

6180/0394A:FWW
September 12, 2000

Minutes Of the DOD AFFF Environmental Meeting

Held at the Naval Research Laboratory
Navy Technology Center for Safety and Survivability
Washington, D.C.
On
2-3 August 2000

Encl (1) to NRL Ltr
9555
6180/0394:FWW

Minutes of
DOD AFFF Environmental Meeting
Naval Research Laboratory
2-3 August 2000

Summary

A meeting to discuss AFFF environmental issues within the Department of Defense (DoD) was held at the Naval Research Laboratory (NRL), Washington, D.C., on 2-3 August 2000. The meeting was hosted by Dr. Fred Williams, NRL, Director, Navy Technology Center for Safety and Survivability. The meeting was jointly sponsored by the Naval Facilities Engineering Command (NAVFAC) and the Naval Air Systems Command (NAVAIR). The agenda for the meeting is shown in Appendix (1). A list of attendees is provided in Appendix (2), along with a photo of attendees present at the opening general session on 2 August 2000. To facilitate future exchanges of information on this subject, Appendix (2) includes mailing addresses, phone numbers and E-Mail addresses for each attendee.

Objective

The overall objective of the meeting was to provide a forum for open discussion on AFFF environmental issues within DoD. Additionally, the meeting was called to address three specific objectives:

- (1) Assist NAVFAC in the development of a DoD design policy for AFFF systems in aircraft hangars and other shore facilities to minimize adverse environmental impact.
- (2) Obtain information to assist NAVAIR in finalizing their AFFF Environmental Safety and Health Need Assessment Summary (ESH NAS) and in preparing the follow-on Development Plan.
- (3) Provide information for attendees on the relevant issues surrounding the decision by the 3M Company to phase-out production of AFFF and other products containing perfluorooctyl sulfonate (PFOS).

Background

There has been growing concern in the past few years about the potential adverse environmental impact of AFFF. This concern has been spawned by a number of factors:

- The establishment by EPA in 1994 of threshold quantities for reporting spills of AFFF due to the butyl carbitol commonly used as a solvent in AFFF
- Inadvertent activations of AFFF systems in hangars and the resultant clean-up and disposal
- Reports of problems created by the discharge of AFFF to waste water treatment facilities

- Limitations on overboard discharges of AFFF by ships under the Uniform National Discharge Standards (UNDS) of the Clean Water Act
- Anecdotal reports of damage to aquatic life by discharge of AFFF to streams and waterways
- Various designations of AFFF waste, necessitating expensive disposal by specialty contractors
- Recognition of the persistence and limited biodegradability of the fluorocarbon surfactants in AFFF
- Publicity surrounding 3M's decision to phase-out production of AFFF and other chemicals containing perfluorooctyl sulfonate (PFOS)
- Claims by vendors of so-called "environmentally-friendly" AFFF alternatives

As a result of these concerns, the affected Navy Systems Commands have undertaken various actions:

- NAVFAC, under the auspices of the DoD Fire Protection Coordinating Committee, has started the development of design policy for shore facility AFFF systems to minimize discharges and to address environmental issues.
- NAVAIR has funded Concurrent Technologies Corporation to draft an ESH Need Assessment Study on AFFF, to be followed by a Development Plan that will recommend future action to alleviate identified problems.
- NAVSEA has reduced the frequency of testing of shipboard AFFF systems to minimize overboard AFFF discharge in compliance with the UNDS regulations.

The meeting was called to share recent information and discuss issues relevant to the above concerns and on-going actions.

Meeting Scope/Presentations

The meeting consisted of general session discussions and presentations as well as two specifically focused breakout sessions. Copies of the general session presentations are provided as Appendices (3) – (10). Presentations given at the Hangar Facility breakout session are contained in Appendices (11) and (12). Overall summaries of each breakout session are provided in Appendices (13) and (14).

Significant Discussion and Presentation Points

There were many important points raised during discussion sessions or contained in formal presentations. Those considered to be the most significant are summarized below (additional details are contained in the appendices):

- AFFF is a vital fire fighting agent for controlling and extinguishing flammable liquid fires. Within DoD, it is especially critical for fire scenarios where life safety is paramount, where ordnance is exposed or high value assets are threatened.

- The AFFF military specification (Mil Spec) is considerably more demanding than the applicable UL standard relative to speed of extinguishment of a flammable liquid pool fire.
- The AFFF Mil Spec is widely cited in procurement specifications in the civil sector, especially at municipal airports.
- There are currently 5 manufacturers that have AFFFs on the Mil Spec Qualified Products List.
- There are many fire fighting foams that are commercially available. However, no non-AFFFs have been able to match the rapid fire extinguishment performance of AFFF.
- At present there is no regulation or directive to modify the AFFF Mil Spec.
- There is no recognized or universally accepted definition of “environmentally friendly” fire fighting foam.
- NAVSEA is the designated DoD technical custodian of the existing AFFF Mil Spec. Only NAVSEA can formally change the Mil Spec, though it may be possible to develop a separate specification just for shore-based applications.
- Inconsistent policy and guidance have led to expensive and questionable secondary containment designs in recent shore facility projects.
- 3M is voluntarily phasing-out production of AFFF because the fluorocarbon surfactant in their AFFF biodegrades to perfluorooctyl sulfonate (PFOS). PFOS has been identified by EPA as environmentally persistent, bio-accumulative in blood, and toxic to aquatic life and laboratory animals (the degree varies by species).
- Levels of PFOS measured in humans and found in blood banks is not considered to present a health hazard at present levels. Concern is the potential for build-up over time.
- Other AFFF manufacturers do not produce AFFF that is currently believed to biodegrade to PFOS.
- It is not known if other AFFFs have a similar problem. EPA is currently in a fact-finding mode relative to other AFFFs.
- At present the EPA does not prohibit or limit specifically the manufacturing of AFFF.
- A comprehensive review of federal and local environmental regulations applicable to AFFF (and other foam agents) has just been completed (see Appendix (8)).
- All fire fighting foams have environmental properties and/or constituents that are regulated.
- Adverse impact on waste water treatment facilities is a major concern, primarily due to foaming.
- A “risk based” approach, using the Frequency Vs Severity concepts in Military Standard 882C, has been shown to be feasible for managing AFFF environmental issues in shore facilities. Such an approach may be applicable to other AFFF applications as well.
- The NAVFAC Facility AFFF Management Working Group will continue development of policy, with a completion goal of approximately 6 months.

The next meeting of the NAVFAC Working Group is scheduled for October 12, 2000.

- NAVAIR will complete the AFFF Need Assessment Study and prepare the Development Plan to recommend a future course of action.
- There was a general consensus that a second follow-on DoD meeting should be held (host, location, dates – TBD). Depending on developments between now and the next meeting, a decision could be made to establish a governing charter for a DoD AFFF Environmental Steering Group and perhaps to designate a formal DoD “advocate” for the effort.

List of Appendices

- (1) Meeting Agenda
- (2) List of attendees and photo
- (3) Presentation: "AFFF Performance Perspective," R. Darwin, Hughes Associates
- (4) Presentation: "NAVSEA Comments on the AFFF Mil Spec", R. Williams, NAVSEA
- (5) Presentation: "Hangar Facility AFFF Management Breakout Session Introduction", J. Gott, NAVFAC
- (6) Presentation: "AFFF Environmental Impact Breakout Session Introduction", J. Hoover, NAWCWD China Lake
- (7) Presentation: "Issues With 3M's Withdrawal from the Market", C. Hanauska, Hughes Associates
- (8) Presentation: "AFFF Environmental Impact Review", W. Ruppert, Hughes Associates
- (9) Presentation: "AFFF Management – Risk Based Approach", D. Verdonik, Hughes Associates
- (10) Presentation: "Phasing out a Problem: Perfluorooctyl Sulfonate", M. Dominiak, EPA
- (11) Presentation: Facilities Background and AFFF Issues", J. Simone, NAVFAC
- (12) Presentation: "AFFF Risk Assessment", A. Wakelin, Hughes Associates
- (13) Presentation: "Summary of Shore Facility AFFF Management Breakout Session", D. Verdonik, Hughes Associates
- (14) Presentation: "Summary of AFFF Environmental Breakout Session", J. Hoover NAWCWD China Lake and R. Darwin, Hughes Associates

APPENDIX (1)

Meeting Agenda

DOD AFFF Environmental Meeting

Location:

Building 207 (Chemistry Building)
Naval Research Laboratory,
4555 Overlook Ave,
Washington DC, 20735

Agenda:

Wednesday August 2nd

- 0830 – 0845 Welcome and Introduction – Dr Fredrick Williams, NRL, Director, Navy Technology Center for Safety and Survivability.
- 0845 – 0915 AFFF Performance Perspective – Robert Darwin, Senior Engineer, Hughes Associates, Inc.
- 0915 – 0925 NAVSEA Comments on the AFFF Military Specification - Robert Williams, NAVSEA Fire Protection and Damage Control Division
- 0925 – 0935 Hangar Facility AFFF Management Breakout Session Introduction – Joseph Gott, NAVFAC, Director, Navy Facilities Safety and Health Office
- 0935 – 0945 AFFF Environmental Impact Breakout Session Introduction – Dr. Jim Hoover, NAWCWD, Head, Combustion Research Branch
- 0945 – 1000 Break
- 1000 – 1015 Issues Surrounding 3M Withdrawal from the Market – Chris Hanauska, Senior Engineer, Hughes Associates, Inc.
- 1015 – 1100 Presentation of AFFF Environmental Regulatory Aspects – Bill Ruppert, Senior Environmental Engineer, Hughes Associates, Inc.
- 1100 – 1130 Summary Presentation on Risk Assessment for Hangar Facilities – Dr. Dan Verdonik, Hughes Associates, Inc.
- 1130 – 1230 Lunch
- 1230 – 1600 Breakout sessions

Thursday August 3rd

- 0830 – 0930 3M Withdrawal from Market – Mary Dominiak, EPA, Chemical Control Division, Office of Prevention, Pesticides & Toxic Substances.
- 0930 – 1230 Presentation of Breakout Session Conclusions. Discussion of any further requirements to complete breakout session action items.

Hangar Facility AFFF Management Breakout Session

Session Objectives and Details:

The objectives of the Naval Facility Engineering Command (NAVFAC) hangar facility AFFF Management breakout session are:

- To begin efforts toward developing a policy that details requirements for hangar facilities that will provide “adequate measures” to:
 - (a) prevent an accidental AFFF discharge,
 - (b) limit any adverse environmental impacts from a release.
- To achieve an agreement on the definition of “adequate measures” and to begin to establish design criteria to meet them.

Initial draft design criteria and costs of specific engineering solutions will be presented and discussed as a starting point.

Agenda

- 1230 – 1315 Facility Background and Issues – Joe Simone, Head Fire Protection Engineer, Naval Facilities Engineering Command
- 1315 – 1430 Risk Assessment for Hangar Facilities – Alison Wakelin, Fire Protection Engineer, Hughes Associates, Inc.
- 1430 – 1600 Design Criteria Discussion and Development

List of Breakout Session Attendees:

| | |
|---------------------|-------------|
| D. Verdonik (Chair) | L. Wolf |
| J. Gott | K. Ellis |
| W. Ruppert | M. Doherty |
| A. Wakelin | K. Kochar |
| J. Simone | B. Scott |
| V. Donnally | R. Talbot |
| T. Ruffini | R. Hansen |
| D. Roderique | J. Shah |
| G. Sadler | F. Williams |

AFFF Environmental Impact Breakout Session

Session Objectives and Details:

The objective of this meeting is to share the technical data related to the environmental impact, status and the planned future use of AFFF. NAVAIR will use output from this session to ensure their Environmental Safety and Health (ESH) Need Assessment Summary (the where we are today) is accurate and complete, and to ensure their Development Plan (the where we go from here) is consistent with the need to provide sound fire protection in an environmentally responsible manner.

The AFFF Environmental Impact working group will address the following questions:

- What current and future environmental regulations impact AFFF use and why (data and politics)?
- What data do we have (or lack) on the environmental impact of AFFF?
- What technology or products exist that could help reduce AFFF releases into our environment or mitigate the impact of those releases?
- What technology or products could be applied to recycle or reuse AFFF?
- What alternatives to AFFF currently exist and how do they compare in effectiveness, cost, environmental impact, availability, etc?

List of Breakout Session Attendees:

| | |
|-------------------|-------------|
| J. Hoover (Chair) | R. Morris |
| R. Darwin | B. Parks |
| J. Scheffey | S. Johnson |
| C. Hanauska | P. Bungcayo |
| W. Leach | R. Lee |
| D. McCrory | R. DiAngelo |
| R. Williams | D. Dierdorf |
| S. Wade | J. LaPoint |
| M. Wade | I. Young |
| K. Bagot | |

APPENDIX (2)

List of Attendees and Photo

| | |
|--|--|
| <p>Keith Bagot FAA FAA Technical Center AAR-411, Bldg. 296 Atlantic City International Ai Atlantic City, NJ 08405</p> <p>Phone: 609-485-6383</p> <p>bagot: keith.bagot@tc.faa.gov</p> | <p>Kathy Ellis Air & Wastewater Program Manager OPNAV (N45) Chief of Naval Operations, N457C 2211 South Clark Place Rm 644 Arlington, VA 22206</p> <p>Phone: 703-602-2568</p> <p>ellis: Ellis.Kathy@HQ.NAVY.MIL</p> |
| <p>Les Bowman NAWCWD China Lake Weapons Division Code 4T310D China Lake, CA 93555-6100</p> <p>Phone: 760-939-8813</p> | <p>Joseph E. Gott Director, Safety & Occupational Health NAVFAC Naval Facilities Engineering Command Code SF 1322 Patterson Avenue, SE Suite 1000 Washington Navy Yard, DC 20374-5065</p> <p>Phone: 202-685-9323</p> <p>gott: GottJE@navfac.navy.mil</p> |
| <p>Paul G Bungcayao Jr USMC HQMC-ASL-38 2 Navy Annex Washington DC, DC 20380 United States</p> <p>Phone: 703-614-1835 Fax: 703-697-7343</p> <p>bungcayao: bungcayaoJRP@hqmc.usmc.mil</p> | <p>Christopher P. Hanauska Senior Engineer Hughes Associates, Inc. 3610 Commerce Drive Suite 817 Baltimore, MD 21227-1652</p> <p>Phone: 410-737-8677 Phone Ext.: 242 Fax: 410-737-8688</p> <p>hanauska: hanauska@haifire.com</p> |
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| <p>Robert M. DiAngelo CECEW-ETE Army Headquarters U.S. Army Corps of Engineers 20 Massachusetts Avenue, NW Washington DC, MD 20314-1000</p> <p>Phone: 202-761-4803</p> <p>diangelo: Robert.M.DiAngelo@HQ02.USACE.ARMY.MIL</p> | <p>James M. Hoover Commander NAWCWD China Lake Naval Air Warfare Center Weapons Division 1 Administration Circle Attn: Code 4T4310D, J.M. Hoover China Lake, CA 93555-6100</p> <p>Phone: 760-939-1645 Phone Ext.: 473 Fax: 760-939-2597</p> <p>hoover: HooverJM@navair.navy.mil</p> |
| <p>Douglas S. Dierdorf Principle Scientist USAF (ARA) 139 Barnes Drive Applied Research Associates Suite 2 Tyndall AFB, FL 32403</p> <p>Phone: 850-283-3734 Fax: 850-283-9797</p> <p>dierdorf: Doug.Dierdorf@tyndall.af.mil</p> | <p>Samuel R. Johnson Environmental Engineer MSC MSC code N72PC1 Washington Navy Yard Bldg 914 Charles Morris Ct, S.E. Washington DC, MD 20375</p> <p>Phone: 202-685-5765</p> |
| <p>Michael C. Doherty Water Program Manager USMC Headquarters, U.S. Marine Corps (LFL-6) 2 Navy Annex Washington DC, MD 20380-1775</p> <p>Phone: 703-695-8541 Fax: 703-695-8550</p> <p>doherty: dohertymc@hqmc.usmc.mil</p> | <p>Kiran C. Kochhar Fire Protection Engineer Army P. O. Box 2250 201 Prince Frederick Drive Winchester, VA 22604-1450</p> <p>Phone: 540-665-3907</p> <p>kochhar: Kiran.C.Kochhar@tac01.usace.army.mil</p> |
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| | |
|---|--|
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| <p>Dawn Roderique TAMS Consultants, Inc. 2101 Wilson Blvd Suite 300 Arlington, VA 22201</p> <p>roderique: Droderique@TAMSCONSULTANTS.COM</p> | <p>Joseph A. Simone Chief Fire Protection Engineer NAVFAC Naval Facilities Engineering Command 1322 Patterson Avenue SE Suite 1000 Washington DC, MD 20374-5065</p> <p>simone: SimoneJA@navfac.navy.mil</p> |
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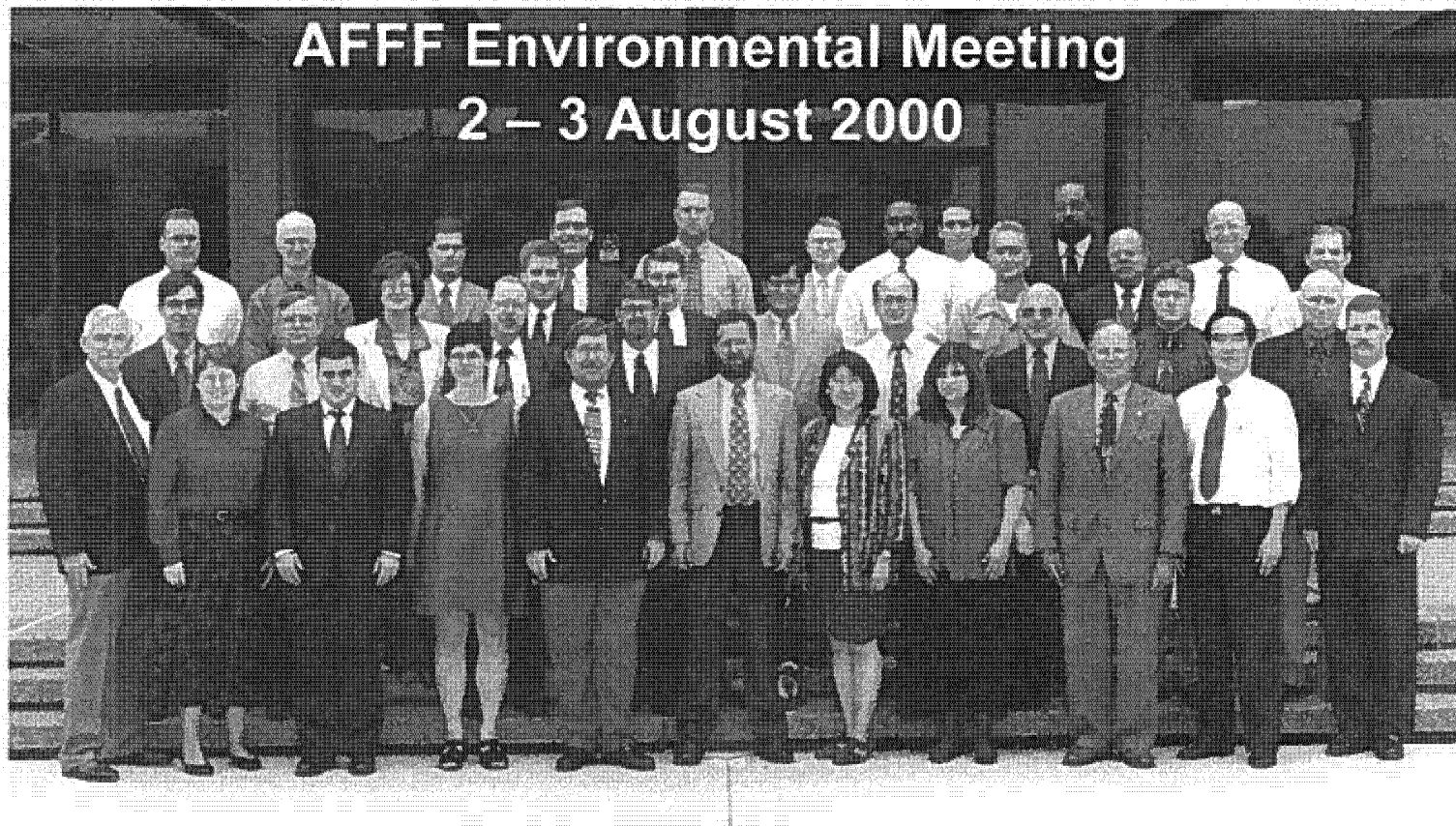
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Bottom Row: F. Williams, R. Morris, T. Ruffini, A. Wakelin, D. Dierdorf, B.R. Scott, I. Young, K. Ellis, G. Sandler, R. Lee, M. Wade

APPENDIX (3)

Presentation: "AFFF Performance Perspective"

**R. Darwin,
Hughes Associates, Inc.
Baltimore MD**

AFFF

Performance Perspective

Robert L. Darwin, PE

Senior Engineer

Hughes Associates, Inc.

2 August 2000

History of Foam

1920-40 Chemical Foam

1940-70 Protein Foam (Air Foam)

1970- 2000 AFFF

AFFF Key Events:

1961 First experiments with fluorocarbon surfactants at NRL

1962 First Mil-Spec (Mil-F-23905, 1 Nov 63)
 25 % concentration (fresh water only)
 Emphasis on twin agent application

1963 Large scale tests at NAS pensacola
 Led to procurement of 100 twin agent units

1964 Helo air borne TAU tests at NAS Miramar

- 1965 6 % concentration developed by 3M (FC-194)
- 1966 Testing of FC-194 in airfield crash trucks
Selective conversion of some crash trucks
- 1967 Flight deck conflagration on USS Forrestal
TAUs to aircraft carriers
Push to develop seawater-compatible AFFF
- 1967 Seawater –compatible AFFF developed by 3M/NRL
- 1968 Additional crash truck tests at NAS Miramar
- 1968 Shipboard equipment tests w/ seawater at NAS Jacksonville
First edition of seawater/AFFF mil spec (Mill-F-24385)
- 1969 Flight deck conflagration on USS Enterprise
Push to convert ships to AFFF
- 1970 Navy starts comprehensive conversion of ship systems and crash trucks
- 1973 USAF starts converting all USAF crash trucks

UL Listed Foams

(Per UL 162-“Foam Equipment & Liquid Concentrates”)

AFFF – Aqueous Film Forming Foam

FFFP – Film Forming Fluoroprotein

FP – Fluoroprotein

PF – Protein Foam

| | <u>Manufacturers</u> | <u>Concentrates</u> |
|------|----------------------|---------------------|
| AFFF | 24 | 110 |
| FFFP | 5 | 16 |
| FP | 12 | 26 |
| PF | 5 | 6 |

Mil Spec Qualified Product List (QPL)

Ansul

| | |
|-----------------------|--------|
| Ansulite 3 (AFC-5A) * | Type 3 |
| Ansulite 6 (AFC-5) * | Type 6 |

3M

| | |
|------------|--------|
| FC-203C | Type 3 |
| FC-203CE * | |
| FC-203CF * | |
| FC-206C | Type 6 |
| FC-206CE | |
| FC-206CF * | |

Chemguard

| | |
|-----------|--------|
| C-301MS * | Type 3 |
|-----------|--------|

National Foam

| | |
|--------------------|--------|
| Aer-O-Water 3-EM * | Type 3 |
| Aer-O-Water 6-EM * | Type 6 |

Angus

| | |
|----------|--------|
| Tridol M | Type 3 |
|----------|--------|

* Also UL Listed

“Application Density” (Defined as the Gallons of Agent Per Unit Area of Pool Fire Size) is the best measure of effectiveness for a flammable liquid pool fire

Application Rate = GPM/Sq Ft of fire area

Application Rate x Ext Time = Application Density

GPM/Sq Ft x Minutes = Gals/Sq Ft

Example

Fire Area = 1000 Sq Ft

Appl Rate of Agent = 200 GPM

Ext Time = 0.5 minutes

Appl Rate = 200 GPM/1000 Sq Ft = 0.2 GPM/Sq Ft

Appl Density = Appl Rate x Time
= 0.2 GPM/SqFt x 0.5 minutes
= 0.1 Gals/SqFt

AFFF Performance Requirements

Mil Spec (Mil-F-24385):

Max Appl Density

$$2 \text{ gpm}/28 \text{ sq ft} \times 30/60 \text{ minutes} = .036 \text{ gal/sq ft}$$

$$2 \text{ gpm}/50 \text{ sq ft} \times 50/60 \text{ minutes} = .033 \text{ gal/sq ft}$$

Underwriters Laboratory:

$$2 \text{ gpm}/50 \text{ sq ft} \times 3 \text{ minutes} = .12 \text{ gal/sq ft}$$

(Maximum extinguishment time is 5 minutes for fluoroprotein and protein foam)

Rapid Extinguishment of Pool Fires is Critical When:

- Pool fire threatens high value assets (such as an aircraft hangar)
- Pool fire under an occupied aircraft (must maintain fuselage integrity and rescue occupants)
- Pool fire exposes weapons to potential “cook off”

Relative Performance of Foam Agents on Pool Fires

(Best)

AFFF (Mil-Spec)

AFFF (UL listed, non Mil-Spec)

AFFF (non UL, non Mil-Spec)

FFFP

FP

PF

(Worse)

Wetting Agents

UL Listed Wetting Agents SM (Based on NFPA 18)

“ A liquid concentrate for addition to water to produce a solution having a greater fire extinguishing efficiency than plain water”

Manufacturers: 11

Agents: 13

If Use Non-Film Formers:

- Extinguishment time will be slower, unless application rate is increased

- Higher application rate causes

Greater system cost

Greater quantity of agent emitted

- Must consider possible need for “air aspiration”

Replace nozzles

Less reach than “non air aspirated”

AFFF Environmental Issue - 1994

Glycol Ethers (Butyl Carbitol), solvent in most AFFFs, placed on EPA list of hazardous air pollutants.

Since no reporting threshold had been established, a default quantity of one pound per day was established for required reporting under CERCLA.

Because Diethylene Glycol Butyl Ether (DGBE) typically comprises about 20 % of AFFF, spills of just a few gallons of AFFF had to be reported to the National Response Center and to State and local officials.

One pound per day reporting requirement dropped in 1996.

Some manufacturers substituted Propylene Glycol for Ethylene Glycol and declared their foam to be “environmentally friendly”.

DOD Uses of AFFF

- Shipboard Foam Systems
- CFR Vehicles at Airfields
- Aircraft Hangar Foam Systems
- Misc Shore Facilities
 - Hush Houses
 - Jet Engine Test Facilities
 - Hardened Aircraft Shelters
 - Aircraft Fueling Stations
 - Fuel Farms
- Foam Systems on Structural Pumpers

DOD AFFF Discharges

- Fires
- Training Evolutions
- System Tests and Maintenance
- Accidental/Malicious Discharges
- Research and Development

There is a Need to Quantify and Characterize:

- All DOD AFFF applications (What precisely do we use it for ?)
- Precise quantities in service and in reserve stocks (How much do we have ?)
- Annual emissions (type and quantity) (How much do we discharge ?)

APPENDIX (4)

Presentation: 'NAVSEA Comments on the AFFF Mil Spec'

**R. Williams,
Naval Sea Systems Command**

NAVSEA Comments
On the
AFFF Military Specification
Mil-F-24385F
(Amendment 1 of 8/94)

(Talking Points)

Presentation to DOD AFFF Environmental Meeting
2 August 2000

Robert B. Williams
Fire Protection & Damage Control Division
Naval Sea Systems Command
(Technical Custodian of the AFFF Mil-Spec)

1. I would like to express appreciation to NAVFAC and NAVAIR for sponsorship of this Conference. Also, I appreciate the opportunity to establish the NAVSEA perspective up front.

2. This conference is important and timely:

Recently there has been a proliferation of Navy groups active in AFFF; usually with no focus, some scattered and uncoordinated EPA contacts.

Recently there has been aggressive commercial marketing of so-called "environmentally friendly foams"; yet there is no established definition of "environmentally friendly foam".

AFFF is subject of considerable hype: effect on sewage plants, danger to aquatic life, exposure results in mutant first born, etc.

AFFF spills are media friendly- very visible, makes for good "films at 11", photos provide permanent record, helps stir up environmental activists

Real issues from my perspective:

3M withdrawal and fall out relative to other QPL AFFFs

Restrictions by AHJs; technical basis or not

Unknown forthcoming EPA activity

All are on agenda to be addressed

3. The product I personally desire of this conference is to specifically identify what the problems are regarding MILSPEC AFFF, and problems that are inherent to any foam alternative (visible, wastewater treatment plants).

Appears money is & will be directed at AFFF.

My concern is that funding needs to be attached to a focus on specifics that are documented as requiring resolution.

Navy labs and contractors see a golden egg out there on this topic; I personally don't want to see them going off into the sunset with a generic task to find an environmentally friendly firefighting agent. (whatever friendly means).

The specific problems to be resolved require documentation before charging onto a search for solutions; doesn't always happen in correct order.

The agenda appears to support what I hope is the conference objective.

4. A few quick comments about the MILSPEC and shipboard applications:

NAVSEA is custodian; only NAVSEA can revise. Self appointed cannot.

However, an alternate extinguishing agent specification under someone else's cognizance could be created.

For example, it might be feasible to develop a separate specification just for shore facility use (fresh water only, one percent, universal foam, no refractive index requirement, etc).

NAVSEA goal regarding the spec: Satisfy environmental requirements without degradation of firefighting effectiveness. If maintaining performance requirements is not possible, then where do we draw the trade-off line in the sand? (fish vs. sailors; national defense vs. environment)

MILSPEC contents - shipboard oriented, even though it is essentially the national standard ashore and afloat:

AFFF is for two dimensional shallow spill fires, rapid control and extinguishment are essential. No "foam-of-the-month" has matched the performance of mil-spec AFFF.

Environmental provisions in spec; fish kill, BOD/COD limits, chemical restrictions.

Compatibility: seawater effectiveness, intermixing of products from different manufacturers on QPL.

It is an integrated match with our capital investment in hardware: viscosity, corrosion, pipe & tank materials, effect on seals/gaskets, a refractive index, container size & strength.

5. Our primary environmental involvement has been with the Uniform National Discharge Standards (UNDS) program which is relative to overboard discharge of liquids; basically a Clean Water Act action item.

Our input to EPA, which has been accepted thus far, is discharge management:

New construction/alterations - no repeat testing, at sea

Preventative Maintenance - reliable hardware, reduced testing periodicity

Fewer ships

Geographic restrictions: no discharges within 3 miles of coast, must be making at least 10 knots for discharges within 3-12 miles, preference for only discharging when greater than 12 miles out

6. In closing, I pass along that as custodian of the MILSPEC, I have no direction, pressure, or formal or informal tasking to conduct an environmental review of MILSPEC AFFF aside from the UNS. At NFPA aviation committee meetings I have queried major airport fire chiefs, all of whom stated no direction to pursue an alternative to MILSPEC AFFF. However, we at NAVSEA know whether politically, technically, or regulatory driven, environmental restrictions on AFFF may be coming. We fully support this conference, identification of problems & potential problems, and initiation of remedial research/actions.

APPENDIX (5)

Presentation: "Hangar Facility AFFF Management Breakout Session Introduction"

**J. Gott,
Naval Facilities Engineering Command**

Hangar Facility AFFF Management Breakout Session Introduction (Talking Points)

Presentation to AFFF Environmental Meeting
2 August 2000

Joseph Gott
Director, Navy Facilities Safety and Health Office
Naval Facilities Engineering Command

AFFF DOD Meeting Talking Points

- Need a consistent DOD position on AFFF management
- If we are not proactive, AFFF will become our next halon 1301
- AFFF is only product on market right now that meets our needs
- Time for the design engineers, and environmental engineers to come together
- The services have already done this with the Unified Design Guidance Group
- As past chair of DOD FPE committee, we wrote the first tri-service design criteria
- Fixed containment systems are affecting our mission because they have already caused the omission of AFFF from some hangars resulting in the air wings inability to perform their mission
- This is the beginning of a working group to address this important issue
- Need to get all the right players
- Need to address AFFF management from a risk assessment approach
- Need to dismiss all the myths and fears and address the facts
- Need to give the local regulators something to reference as adequate protection
- Need to determine if additional research is needed to produce a different AFFF
- Discuss changes to NFPA 409 - mandatory drains, reduced AFFF, various protection options
- NAVFAC has long history in fixed AFFF systems, their behavior, problems, and design characteristics

APPENDIX (6)

Presentation: "AFFF Environmental Impact Breakout Session Introduction"

**J. Hoover,
Naval Air Warfare Center
China Lake CA**

AFFF Environmental Impact Breakout Session Introduction (Talking Points)

Presentation to DOD AFFF Environmental Meeting
2 August 2000

Dr. Jim Hoover
Head, Combustion Research Branch
NAWCWD China Lake

The purpose of the AFFF Environmental Impact Breakout Session will be to share technical information within the DoD on AFFF use and environmental impact. This information will be used to assist the completion of two environmental planning documents used by the Naval Air Systems Command (NAVAIR) - an Environmental Safety and Health Needs Assessment Summary (NAS) and a Development Plan. The NAS will provide a "snap-shot" of technical issues surrounding AFFF use and environmental impact, and the Development Plan will recommend a strategy for future efforts within NAVAIR.

Background: The importance of AFFF in protecting Navy personnel and assets must not be understated. Likewise, public safety and commercial assets are highly dependent on AFFF for fire protection. Its firefighting performance remains unmatched and much remains unknown about its human health and environmental effects.

Other services and agencies have data and experiences with AFFF that could assist the Navy in future decision making, so a forum for technical information exchange is needed. In planning for the future, all aspects of technical knowledge about AFFF (and all of its formulated components) should be considered. These should include costs, performance/function, human health and environmental effects, availability, inventory, alternatives, etc.

Break-out Session Format:

The following questions will be asked of the participants to promote discussion and information exchange. Participants will be invited to provide other questions.

1. What current and future environmental regulations impact AFFF use and why (data and politics)?
2. What data do we have (or lack) on the environmental impact of AFFF?

3. What technology or products exist that could help reduce AFFF releases into our environment or mitigate the impact of those releases?
4. What technology or products could be applied to recycle or reuse AFFF?
5. What alternatives to AFFF currently exist and how do they compare in effectiveness, cost, environmental impact, availability, etc?
6. What related planning documents exist with other services or agencies?
7. What follow-on strategies should be considered?

APPENDIX (7)

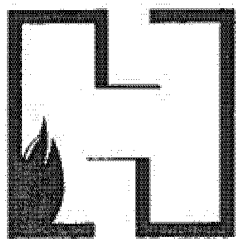
“Issues With 3M’s Withdrawal From the Market”

**C. Hanauska
Hughes Associates, Inc.
Baltimore MD**

Issues with 3M's Withdrawal from the Market

AFFF DoD Meeting

Christopher Hanauska



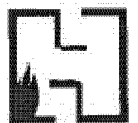
HUGHES ASSOCIATES, INC.

FIRE SCIENCE & ENGINEERING

August 2, 2000

Purpose of this Presentation

- Mary Dominiak of EPA will provide more detailed information tomorrow
- Provide some background for her presentation
- Frame the issue relative to the subjects of this meeting
- *This presentation is only an executive summary*



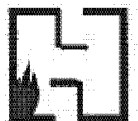
Fluorochemical Surfactants (FC's)

- FC's are a component of AFFF
 - One of several components in AFFF
 - FC's are difficult and expensive to make
 - Formulators have minimized (and attempted to eliminate) the FC content for 30 years
 - Necessary for performance (especially for CFR)
 - rapid fire knockdown
 - relatively low application rates



What is an FC?

- C8F17-functional group
- Length of carbon chain varies
- Fluorinated carbon chain is very stable
- Functional group gives different properties



FC's for AFFF Do Not Fully Biodegrade

- 3M's FC's => PFOS
(Perfluorooctyl Sulfonate)
- Other FC's => ?
- Functional group may
biodegrade, but something is
always left
- Ultimate fate unknown
- "Persistent"



3M Performed Testing (Last 2 Years)

■ Found PFOS

- in blood banks around the US
- in fish and birds

■ Discovered toxicity issues

- reproductive sub-chronic studies

■ “Bioaccumulative” and “Toxic”



3M Voluntarily Phasing Out PFOS Related Chemicals

- Scotchguard, Scotchban, industrial uses, AFFF
- About 2 years for complete halt of production
- Decision made at highest level of 3M
 - were in discussion with EPA at the time
- An unexpected and extreme action



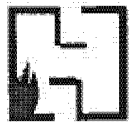
If Only 3M PFOS FC's are a Problem

- Other non-PFOS FC based AFFF's are on the QPL
- Possibly a short term supply issue
- Should not be a major fire protection/environmental concern



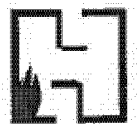
Do Non-PFOS FC's Have a Problem?

- EPA has asked manufacturers to examine and test
- What constitutes a “problem” uncertain
 - “Bioaccumulative” “Toxic”
- EPA will do risk/benefit and risk/risk analysis
 - Understanding of importance of AFFF to fire protection



Conclusions

- No FC specific regulations exist
- No apparent short term (1 year) problems
- Mid-term (2-3 years) problems related to supply only
 - as 3M withdraws from market
- Potentially no long term problems (3+ years)
- *Unless other FC's have significant problems*



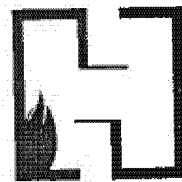
APPENDIX (8)

Presentation: "AFFE Environmental Impact Review"

**W. Ruppert
Hughes Associates, Inc.
Baltimore MD**

Aqueous Film Forming Foam (AFFF) ENVIRONMENTAL IMPACT REVIEW

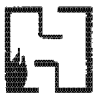
Bill Ruppert



HUGHES ASSOCIATES, INC.
FIRE SCIENCE & ENGINEERING

Background: AFFF Constituents

- MILSPEC based on Performance, not Constituents
- Must be on Qualified Products List - QPL
- Main Ingredients in Firefighting Strength Foam:
 - WATER = 98%-99%
 - Butyl Carbitol (Glycol Ether) = 0.5%–1.1%
 - Fluorosurfactants & Hydrocarbon Surfactants = 0.03%–0.45%
 - Ethylene Glycol (Not in all formulations) = 0.34%–0.60%
 - Urea (Not in all formulations) = 0.2–0.4%



Background:

AFFF 'Environmental' Properties

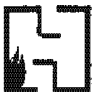
■ MIL-F-24385F Requirements

- Chemical Oxygen Demand
 - 3% Concentrate - 1,000,000 mg/L Max
 - 6% Concentrate - 500,000 mg/L Max
 - Calculated Firefighting Strength ~ 30,000 mg/L Max
- Biochemical Oxygen Demand (20 Day)
 - $= (0.65 \times \text{COD})$ or greater
- Aquatic Toxicity (LC50, Killiefish)
 - 3% Concentrate - 500 mg/L Min
 - 6% Concentrate - 1000 mg/L Min
 - Calculated Firefighting Strength ~ 16,667 mg/L Min

■ Persistence and Bioaccumulation

- Only Fluorosurfactants - Not in other constituents
- example: Butyl Carbitol $\log \text{BCF} = 0.46$

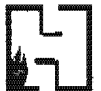
■ Foams



Background: AFFF Properties

MILSPEC vs. Typical QPL Product

| Property | MIL-F-24385F Requirements | | | Typical QPL Product | | |
|--------------------------------------|--------------------------------|----------------|---------------|-----------------------|-----------------------|-----------------------|
| | 3% | 6% | FF | 3% | 6% | FF |
| Chemical Oxygen Demand (mg/L) | 1,000,000 Max | 500,000 Max | 30,000 Max | 750,000 | 341,000 | 22,500 |
| Biochemical Oxygen Demand (mg/L) | BOD ₂₀ > 0.65 x COD | | | 720,000 (0.96*COD) | 274,000 (0.80*COD) | 21,600 |
| Aquatic Toxicity (Killiefish) (mg/L) | 500 Min | 1000 Min | 16,667 | >1000 | >1000 | >16,777 or >33,333 |



Codes and Standards Survey Approach

- Electronic Review
- Federal Environmental Regulations
 - “AFFF”
 - MILSPEC AFFF Constituents (19)
 - Surfactants
 - Fluorosurfactants
 - Glycol Ethers
 - Urea, etc.
 - AFFF “Environmental” Properties
 - Biochemical And Chemical Oxygen Demands
 - Aquatic Toxicity
 - Foaming
- DOD, State And Local Regulations
 - “AFFF”
 - MILSPEC AFFF Constituents



Codes and Standards Survey

Federal Environmental Regulations

- Clean Air Act (CAA)
 - Air Emissions
 - Air Discharge Permits
- Emergency Planning and Community Right-to-Know Act (EPCRA)
 - Toxics Release Inventory (TRI)
 - Chemical Storage and Use
- Comprehensive Environmental Response, Compensation, & Liability Act (CERCLA)
 - Superfund Amendments and Re-authorization Act (SARA)
 - Spills and Clean-up Of Spills
- Resource Conservation and Recovery Act (RCRA)
 - Hazardous Waste
- Safe Drinking Water Act (SDWA)
 - Regulates Contaminants in Treated Drinking Water
- Clean Water Act (CWA)
 - Water Discharges
 - Water Discharge Permits



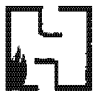
Federal Environmental Regulations Results

■ Clean Air Act (CAA)

- Glycol Ethers In AFFF Are Hazardous Air Pollutants (HAPs)
- HAP Releases Are Regulated by the Installation Air Permit
 - Major Sources for HAPs Might Have Potential Permit Issue

■ EPCRA and TRI

- Glycol Ethers are Covered Because CAA Defines them as HAPs
- Chemicals Released Above a Reportable Quantity (RQ) Must Be Reported
 - Default RQ was One (1) Pound
 - EPA Established a No RQ
- AFFF Discharges Do Not Currently Need to Be Reported Under EPCRA and TRI
- Ethylene Glycol Specifically Listed
- No Other Constituent is Currently Regulated by EPCRA and TRI



Federal Environmental Regulations Results

■ CERCLA and SARA

- Glycol Ethers are Covered Because CAA Defines them as HAPs
- Glycol Ethers May Need to Be “Cleaned Up” After a Spill
 - Air Pollutants So Expected to be Volatile
 - Are not volatile when mixed with water
 - Biodegradable So Might Be “Cleaned Up” Naturally

■ Resource Conservation And Recovery Act (RCRA)

- AFFF and Its Constituents are Not Classified as Hazardous Waste
- RCRA Does Not Apply

■ Safe Drinking Water Act:

- Primary Drinking Water Regulations (Health Properties)
 - Does not regulate AFFF or its constituents
- Secondary Drinking Water Regulations (Aesthetic Properties):
 - Foaming Agents <0.5 mg/L in drinking water
 - Do not regulate foaming agents in source water
 - Guideline for State Regulations Only (Not Federally Enforceable)

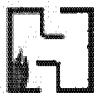


Federal Environmental Regulations

Results (Continued)

■ Clean Water Act (CWA)

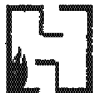
- Installations Require Discharge Permits
 - Storm Water
 - Treated Sewage from Installation Wastewater Treatment Plant
 - Raw Sewage to Public Wastewater Treatment Plant (Locale Specific)
- Regulates Wastewater that:
 - Foam
 - Remove Oxygen From Water
 - Disrupt Wastewater Treatment Plants, etc.
- AFFF
 - Persistent Foam
 - Removes High Amounts of Oxygen From Water (High BOD and/or COD)
 - Untreated, Undiluted AFFF Will Disrupt Wastewater Treatment Plant
 - (Even Diluted AFFF Can Disrupt Wastewater Treatment Plant) SDWA



Codes and Standards Survey

State/Local Environmental Regulations

- State Regulations Can be More Strict Than Federal
 - No Specific Instances Found for AFFF
 - Storm Sewer Regulations Emphasized
- Nothing Additional in County and City Regulations
- Representative Jurisdictions
 - Telephone Surveys
 - Focused on Jurisdictions In:
 - Virginia
 - Hawaii
 - Florida
 - California
- Local Anecdotal AFFF ‘Problems’
 - Sewage Treatment Plants Becoming ‘Bubble Baths’
 - Pump Stations ‘Burned-up’
 - Storm Sewer Overflowing With Foam



State/Local Environmental Regulations

(Continued)

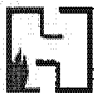
■ Foaming the Greatest Concern

■ Perception:

- Foam Is Highly Toxic to Everything
- No Concentration is Okay for a WWTP

■ Results

- Local Jurisdictions **CAN** and **DO** Regulate AFFF by Name
- Have Water Discharge Permit Authority
- Local Waste Water Treatment Plants Often Ban AFFF
 - Based on Direct Experience with a Disruption
 - High Oxygen Demand
 - Foaming

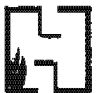


Environmental Consequences

■ Media Considered

- Air
- Groundwater
- Soil
- Surface Water
 - Via storm water
 - Via wastewater treatment plant

■ Both Constituent Characteristics and AFFF Solution Properties



Environmental Consequences

Media: Air

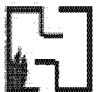
- HAPS: Butyl Carbitol, Ethylene Glycol
- Low Migration Potential (All Constituents)
 - Highly Soluble in Water
 - Tends to stay with liquid water
 - Not very volatile
 - If Volatilized, Half-lives in Air 4 Hr - 3.5 Days



Environmental Consequences

Media: Groundwater

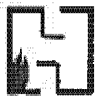
- Consequence Varies Depending on Subsurface Conditions
- Fluorosurfactants: Not Mobile
- All Other Constituents:
 - Highly Soluble, Highly Mobile
 - Degrades Rapidly in Soil
 - 30% Degradation Over 24 Hour Period
- Drinking Water Wells ‘Under the Influence of Surface Water’ Could Receive Undegraded AFFF Constituents



Environmental Consequences

Media: Soil

- Consequence varies depending on soil type
- Fluorosurfactants and break-down products
 - Persistent in soil
 - No quantified environmental impact
 - EPA will discuss further tomorrow
- Other constituents highly mobile in water, will not adsorb to soil



Environmental Consequences

Media: Surface Water Via Storm Water

- Foaming:
 - Aesthetic Concern
- Oxygen Demand
 - Robs Oxygen from Water
 - Usually near water's surface
- Aquatic Toxicity
 - Considered 'Practically Nontoxic' by the US Fish and Wildlife Service.
 - Lowest toxicity value in 40 CFR 300
 - $LC_{50} > 1000$ mg/L in concentrate
 - ~160 mg/L in most sensitive species
 - Much Lower Toxicity in Firefighting Strength
 - Anecdotal Reports of Higher Toxicity
- Surface Water May influence Groundwater
- 'Environmental' Threat
 - Depends on Sensitivity of Receiving Water: Worst Cases
 - Kaneohe Bay, HI Risk Analysis - "Potential for significant ecological damage ... relatively small"
 - Wetlands
 - Waterfowl-Fluorosurfactant Interaction being studied in St. Johns River Basin in Florida.



Environmental Consequences

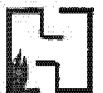
Media: Surface Water Via Direct Discharge to WWTP

■ Disrupts plant through:

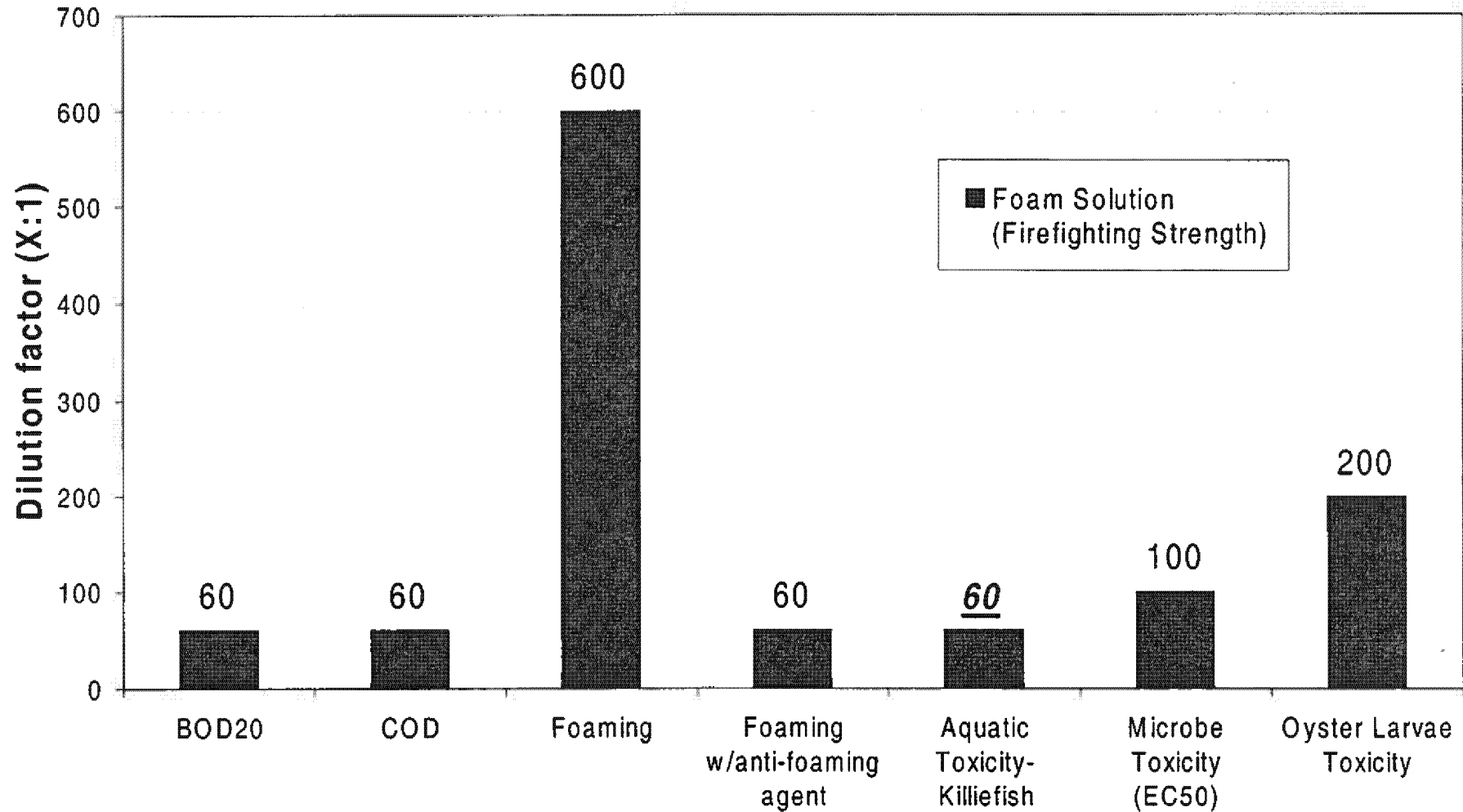
- Foaming
 - Disrupts mechanical devices
 - Causes 'sludge bulking'
 - Causes Froth
- High Oxygen Demand
 - Removes all oxygen - killing microorganisms used to treat sewage
 - Causes 'sludge bulking'.
- Aquatic Toxicity
 - Of lower concern than Foaming and Oxygen Demand
 - May cause 'sloughing' of organisms from certain processes

■ Disrupted plant:

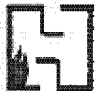
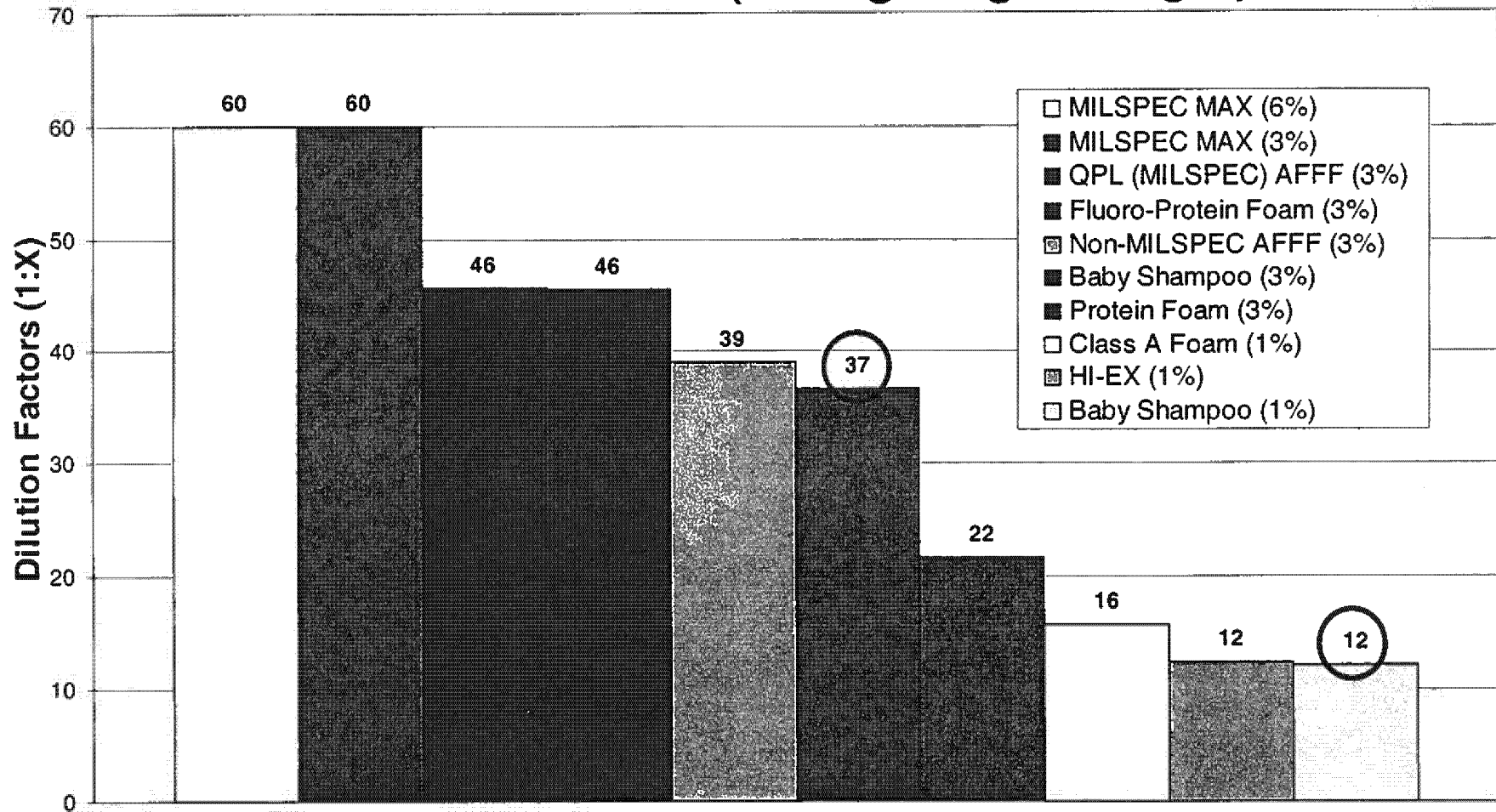
- Contaminates receiving water
- Could cause fish kill
- Makes water unfit for:
 - Drinking
 - Recreation, etc.



Representative Dilution Factors for Treatment of MAX MILSPEC AFFF at a WWTP



Representative Dilution Factors for COD of Foam Solution (Firefighting Strength)



Summary

- Under Context of Current Laws/Regulations, AFFF and all other Foams Regulated Based On:
 - Properties
 - BOD, COD, Foaming and Aquatic Toxicity
 - “Listed” Chemical Constituents
 - Butyl Carbitol, Surfactants, Ethylene Glycol, Urea, etc.
 - Water Issues are Most Prevalent
 - Foaming is Major Issue for WWTP
- Potential Environmental Impacts Generally Low
 - Impacts Consequence of
 - Foaming
 - O₂ Demand
 - Aquatic Toxicity
 - Upset of WWTP Creates Greatest Impact



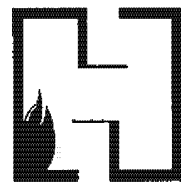
APPENDIX (9)

Presentation: AFFF Management – Risk Based Approach”

D. Verdonik
Hughes Associates, Inc.
Baltimore MD

AFFF Management Risk Based Approach

Dr. Dan Verdonik



HUGHES ASSOCIATES, INC.
FIRE SCIENCE & ENGINEERING

Why a Risk Based Approach?

■ From Environmental Review

- AFFF / Foams have Similar Environmental Impacts
 - Based on the Properties of Foams in General
 - Worst Impact for WWTP
- Hazard Exists
- Cannot Alter What Would Happen IF Released

■ Can Reduce the If or Likelihood of Release

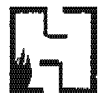
- Example - Double Hulled Oil Tankers
 - Hazard Exists from Potential Oil Spill
 - Double Hull Reduces Probability of Having the Oil Spill
 - Double Hull Does Not Reduce Environmental Impact IF Have Oil Spill
 - Reducing Probability Reduces the Risk to the Environment

■ Need to Evaluate Probability of Foam Release

■ Probability + Severity = Risk

Risk and Risk Assessments

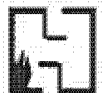
- Military Standard 882C: System Safety Program Requirements
 - Define Terms
 - Risk - Combination of hazard severity AND hazard probability
 - Hazard Probability: Aggregate probability of the individual events
 - Hazard Severity: Consequences of worst credible mishap
 - Control: Action to Eliminate Hazard or Reduce Risk
 - Applicable to All DOD Systems and Facilities
 - Identify the Hazards and Impose Design Requirements and Management Controls to Prevent Mishaps
 - Tailor to Application
 - AFFF/Foam Discharge from Facility Fixed Fire Suppression System
 - Accidental Discharge
 - Pre-planned testing
- Have Hazard Severity, Need Hazard Probability
 - Determine Risk
 - Risk Decision



MIL-STD-882C

4.5.2 Hazard Probability

- Potential occurrences per unit of time, events, population, items, or activity
 - Quantitative probability for potential design generally not possible
 - Qualitative probability
 - Derived from research, analysis, and evaluation of historical data
- Given for Specific Individual Item or Fleet / Inventory
- Assign Probability of Having Environmental Consequence



Qualitative Probability Levels Specific Individual Item

| | | |
|------------|-----|--|
| FREQUENT | (A) | Likely to occur frequently |
| PROBABLE | (B) | Will occur several times in the life of an item |
| OCCASIONAL | (C) | Likely to occur some time in the life of an item |
| REMOTE | (D) | Unlikely but possible to occur in the life of an item |
| IMPROBABLE | (E) | So unlikely, it can be assumed occurrence may not be experienced |



MIL-STD-882C

4.5.1 Hazard Severity

- Hazard Severity Category Definition
 - Provide Qualitative Measure of Worst Credible Mishap
 - Result of:
 - Personnel Error
 - Environmental Conditions
 - Design Inadequacies
 - Procedural Deficiencies
 - System, Subsystem or Component Failure or Malfunction



Qualitative Hazard Severity Categories

| | | |
|--------------|-----|--|
| CATASTROPHIC | (1) | Death, System Loss, or <u>Severe Environmental Damage</u> |
| CRITICAL | (2) | Severe Injury, Severe Occupational Illness, <u>Major System</u> or <u>Environmental Damage</u> |
| MARGINAL | (3) | Minor Injury, Minor Occupational Illness, <u>Minor System</u> or <u>Environmental Damage</u> |
| NEGLIGIBLE | (4) | Less Than Minor Injury, Occupational Illness, <u>Less Than Minor System</u> or <u>Environmental Damage</u> |

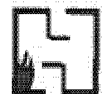


Risk Assessment and Acceptance

| CATEGORY | 1 CATASTROPHIC | 2 CRITICAL | 3 MARGINAL | 4 NEGLIGIBLE |
|------------------|-------------------|---------------|---------------|-----------------|
| FREQUENCY | | | | |
| A – FREQUENT | 1A | 2A | 3A | 4A |
| B – PROBABLE | 1B | 2B | 3B | 4B |
| C – OCCASIONAL | 1C | 2C | 3C | 4C |
| D – REMOTE | 1D | 2D | 3D | 4D |
| E - IMPROBABLE | 1E | 2E | 3E | 4E |

■ Risk Index - Suggested Acceptance Criteria in MIL-STD-882C

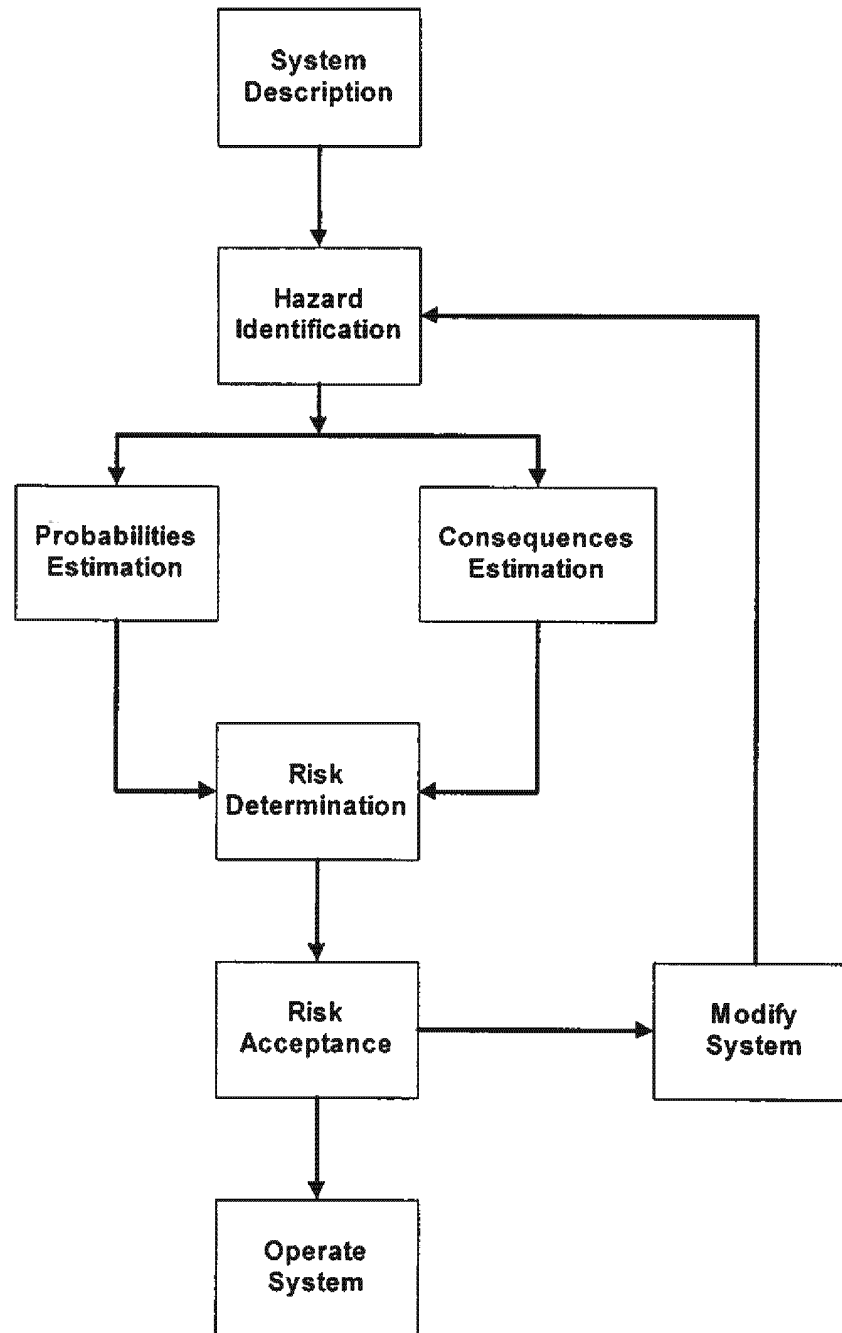
| | |
|---|------------------------|
| Unacceptable: | 1A, 1B, 1C, 2A, 2B, 3A |
| Undesirable: | 1D, 2C, 2D, 3B, 3C |
| Acceptable w/ Review by Managing Activity: | 1E, 2E, 3D, 3E, 4A, 4B |
| Acceptable w/out Review: | 4C, 4D, 4E |



Design Criteria

- Design for minimum risk
 - Review design criteria for inadequate or overly restrictive requirements
 - Design to eliminate hazards
 - If hazard cannot be eliminated
 - Reduce risk to an acceptable level through design selection
 - Interlocks, redundancy, fail safe design, system protection, fire suppression, and protective clothing, equipment, devices, and procedures
- Recommend new design criteria supported by study, analyses, or test data





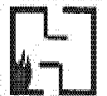
Probability Estimation

3 Parts to Probability Estimation

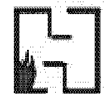
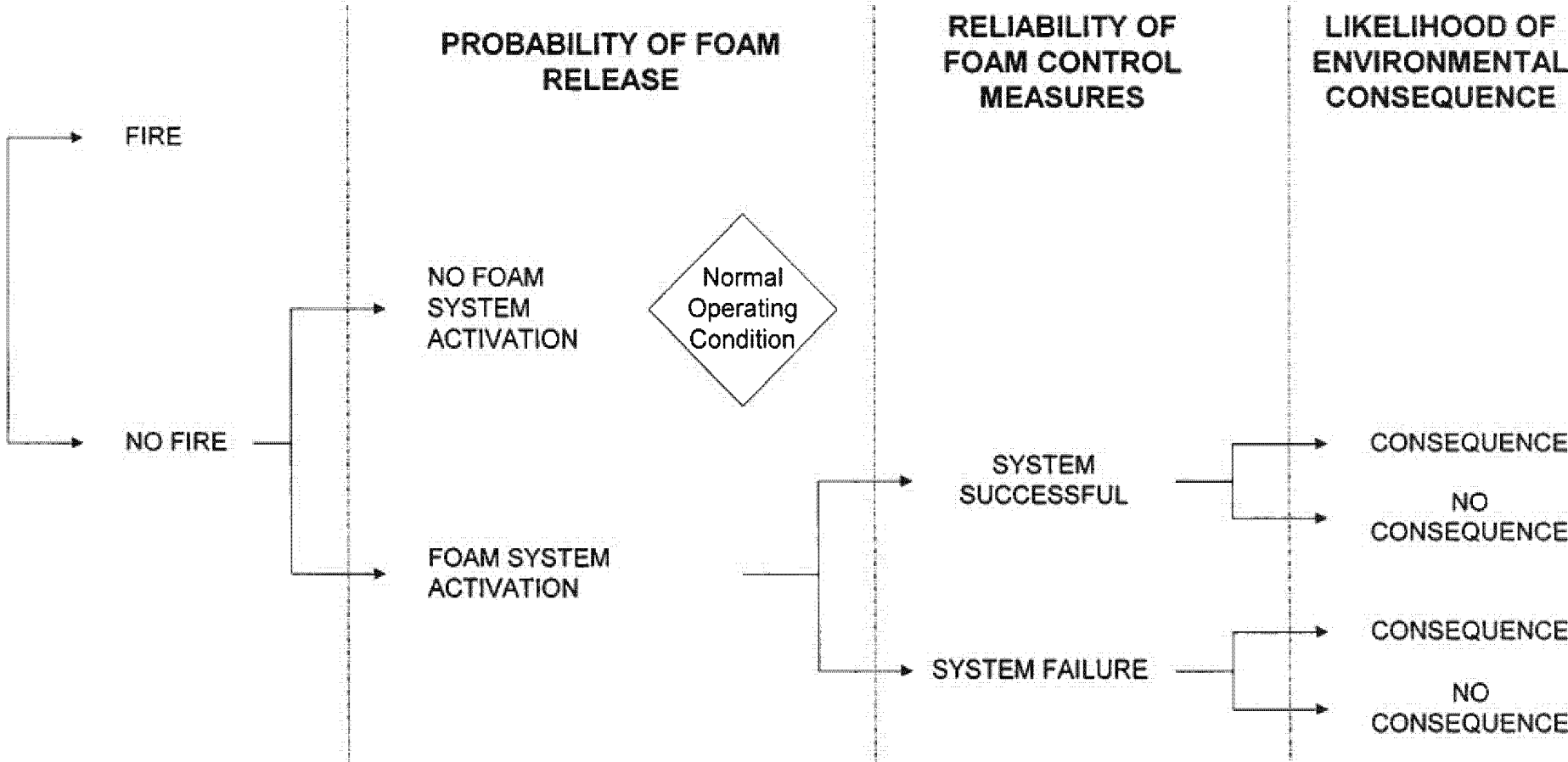
**Probability of
foam release**

**Reliability of
system
controlling
foam
movement**

**Likelihood of
environmental
consequence**



Probability Estimation

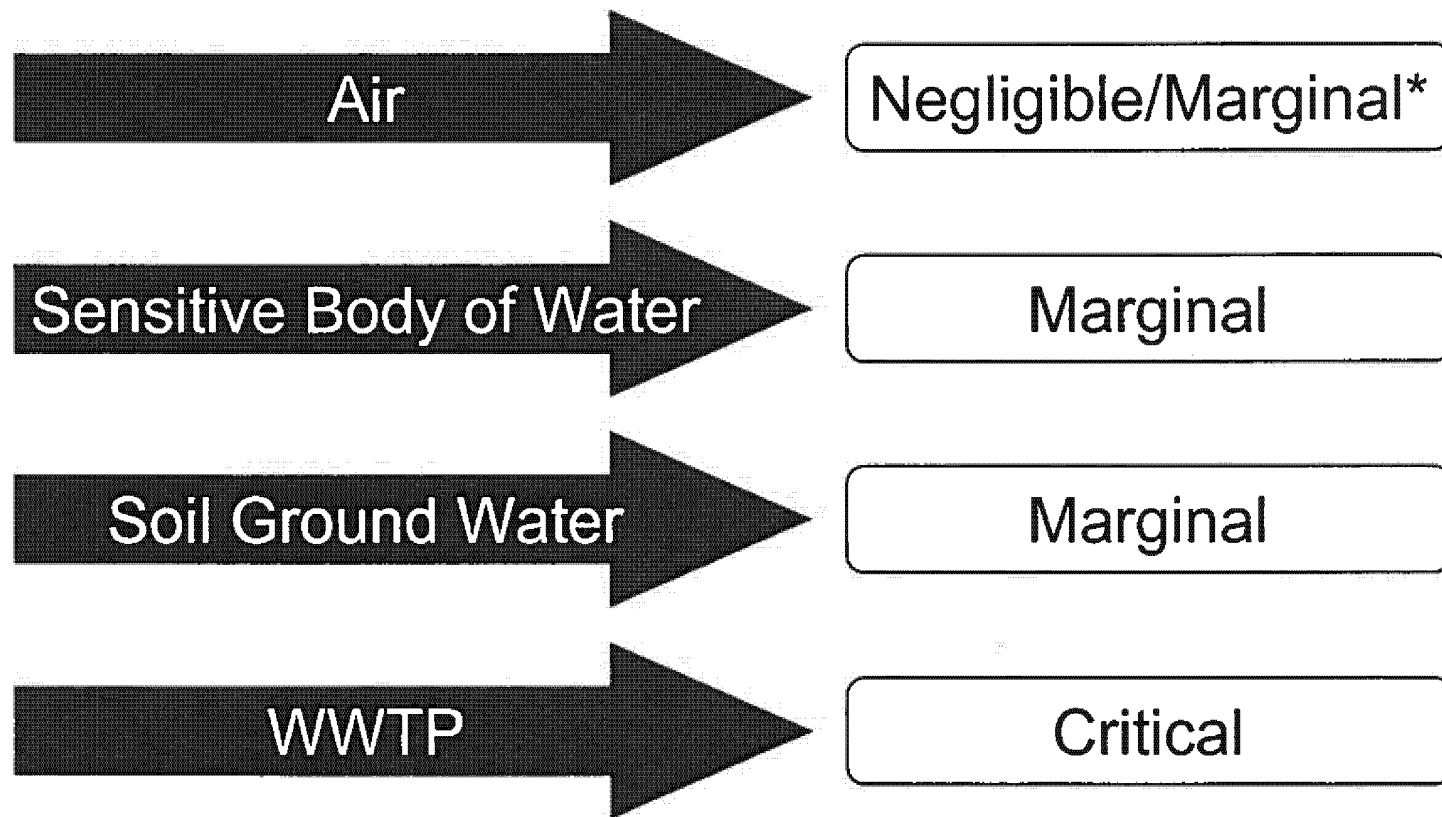


Accident Probability Estimation Of Environmental Consequence

| | AIR | Sensitive Body of Water | Soil Ground Water | Wastewater Treatment Plant |
|--|-----|-------------------------|-------------------|----------------------------|
| 1. Sanitary sewer, WWTP | E | C | E | C |
| 2. Segregated Storm Sewer | E | C | E | E |
| 3. Plugged, Storm Sewer | E | D | E | D |
| 4. Pavement, Plugged Storm Sewer/drains | E | D | E | E |
| 5. Pavement, Plugged Combined Sewer/drains | E | D | E | D |
| 6. Pavement, Combined Sewer WWTP | E | C | E | C |
| 7. Pavement, Storm Sewer | E | C | E | E |
| 8. Unlined Pond, Percolates | E | E | E | E |
| 9. Lined Pond, Pump Off-Site | E | E | E | E |
| 10 Lined Pond, evaporate | E | E | E | E |
| 11. Lined Pond, Meter WWTP | E | D | E | D |
| 12. Lined Pond, Meter Storm Sewer | E | C | E | D |
| 13. Lined Pond, Degrade WWTP | E | D | E | D |
| 14. Lined Pond, Degrade Storm Sewer | E | D | E | D |
| 15. Tank, Pump Off-Site | E | E | E | E |
| 16. Tank, Meter WWTP | E | D | E | D |
| 17. Tank Meter Storm Sewer | E | C | E | D |
| 18. Tank, Degrade WWTP | E | D | E | D |
| 19. Tank, Degrade Storm Sewer | E | D | E | D |



Consequence Estimation Severity of Environmental Impact

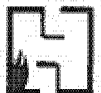


*Air becomes marginal if foam in WWTP



Risk Assessment and Acceptance

| | AIR | Sensitive Body of Water | Soil Ground Water | Wastewater Treatment Plant |
|--|-----|-------------------------|-------------------|----------------------------|
| 1. Sanitary sewer, WWTP | 3E | 3C | 3E | 2C |
| 2. Segregated Storm Sewer | 4E | 3C | 3E | 2E |
| 3. Plugged, Storm Sewer | 4E | 3D | 3E | 2D |
| 4. Pavement, Plugged Storm Sewer/drains | 4E | 3D | 3E | 2E |
| 5. Pavement, Plugged Combined Sewer/drains | 4E | 3D | 3E | 2D |
| 6. Pavement, Combined Sewer WWTP | 3E | 3C | 3E | 2C |
| 7. Pavement, Storm Sewer | 4E | 3C | 3E | 2E |
| 8. Unlined Pond, Percolates | 4E | 3E | 3E | 2E |
| 9. Lined Pond, Pump Off-Site | 4E | 3E | 3E | 2E |
| 10. Lined Pond, evaporate | 4E | 3E | 3E | 2E |
| 11. Lined Pond, Meter WWTP | 3E | 3D | 3E | 2D |
| 12. Lined Pond, Meter Storm Sewer | 4E | 3C | 3E | 2D |
| 13. Lined Pond, Degrade WWTP | 3E | 3D | 3E | 2D |
| 14. Lined Pond, Degrade Storm Sewer | 4E | 3D | 3E | 2D |
| 15. Tank, Pump Off-Site | 4E | 3E | 3E | 2E |
| 16. Tank, Meter WWTP | 3E | 3D | 3E | 2D |
| 17. Tank Meter Storm Sewer | 4E | 3C | 3E | 2D |
| 18. Tank, Degrade WWTP | 3E | 3D | 3E | 2D |
| 19. Tank, Degrade Storm Sewer | 4E | 3D | 3E | 2D |



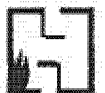
Summary

■ Control and Management of AFFF Solutions

- Based on Risk of Environmental Consequence
 - Risk Decision
 - Probability AND Severity
- No “Unacceptable” Risks from Accidental Discharge
- “Undesirable” Risks Avoidable through Design
- Remaining Options All have Equivocal Residual Risk

■ Basis for Design Criteria

- Ensure Risk is “Acceptable w/ Review by Managing Activity” Category
- Minimizes Risk to the Environment
- Does Not Increase Risk to Life-Safety/ Fire Loss



APPENDIX (10)

Presentation: "Phasing Out a Problem: Perfluorooctyl Sulfonate"

**M. Dominiak
Environmental Protection Agency**

*Phasing Out a Problem:
Perfluorooctyl Sulfonate (PFOS)*

Mary F. Dominiak

U.S. Environmental Protection Agency

Naval Research Laboratory

3 August 2000

What is PFOS?

- Perfluorooctyl sulfonates; *acids, salts, halides, etc.*
- Man-made: do not occur in nature
- Produced since 1950's for use in surface treatment, paper protection, and performance chemical (surfactant and insecticide) products
- Also produced by breakdown/degradation of other sulfonyl-based fluorochemicals
- Made mostly by 3M Company

What is PFOS used for?

- Soil and stain resistant coatings on textiles, carpets, leather (2.3 million lbs/year)
- Oil, grease, and water resistance on paper products, including paperboard and food contact papers (2.6 million lbs/year)
- Performance chemicals: fire fighting foams, industrial surfactants, acid mist suppression, etc. (1.5 million lbs/year)

Why is PFOS a problem?

- PFOS is a PBT chemical:
 - Persistent
 - Bioaccumulative
 - Toxic
- PFOS has been found in the blood of the general US population, in wildlife, and in people overseas

Why is PFOS a problem?

- Persistent:
 - PFOS is a very stable chemical that does not break down or degrade in the environment;
once it's there, it stays
- Bioaccumulative:
 - PFOS can build up over time; *its half-life in human blood is about 4 years*
 - Higher-ups in the food chain are exposed to the full dose of what has built up in their food

Why is PFOS a problem?

- Toxicity:
 - PFOS is only moderately toxic via acute oral exposure; *rat LD₅₀ of 251 mg/kg*
 - In repeat oral dose subchronic and reproductive toxicity studies, however, serious effects seen
 - *Post-natal deaths in rats at 3.2 and 1.6 mg/kg/day*
 - *In repeat-dose treated Rhesus monkeys, death within 3 weeks at 10 mg/kg/day; within 7 weeks at 4.5 mg/kg/day. Adverse effects in cynomolgus monkeys at 0.75 mg/kg/day*

Why is PFOS a problem?

- Detected in blood not only in workers handling the chemical, but in the general US population and in wildlife
 - *High as 12.83 ppm in manufacturing workers*
 - *In pooled serum from general population, 30-40 ppb; small sample of children, mean 54 ppb*
 - *In eagles, wild birds, and fish, in ppb range*

How did PFOS get in people?

- We don't know the precise exposure route, but studies are underway
- Possibilities include:
 - Dietary intake from food wrapped in papers treated with PFOS derivatives
 - Inhalation from aerosol applications
 - Inhalation, dietary, or dermal exposures during manufacturing, use, or disposal of chemicals and treated products

Why haven't PFOS problems been addressed before?

- PFOS was always known to be persistent, but much information on bioaccumulation and toxicity is recent
 - Improved detection technologies find PFOS at much lower levels in humans, wildlife
 - PFOS doesn't fit normal bioaccumulation model; *partitions to blood, not fat*
 - Newest toxicity tests raise greatest concerns

How big a risk is PFOS?

- EPA does not believe that the current situation presents an imminent health risk to the general US population; *blood levels low, concentration in surface-treated products (carpets/textiles) low*
- However, serious concern for potential future risk to humans and wildlife if PFOS continues to be produced, released, built up in the environment
- Studies underway to determine relationship of current blood levels to potential for adverse effects
- Questions/concerns on occupational exposures

What is being done about PFOS?

- 3M conducted studies, shared results with EPA, and discussed concerns
- On 5/16/2000, 3M publicly announced voluntary phase-out of perfluorooctanyl chemistries, most by end of 2000
- 3M submitted phase-out plan to EPA on 6/16/2000, amended on 7/7/2000
- 3M continues aggressive research program

What does the 3M PFOS phaseout plan involve?

- 3M will stop manufacture of PFOS for surface treatment products by 12/31/2000; *includes fabric/carpet/leather soil and stain resistance and paper coating products, including food contact*
- 3M will phase out manufacture of PFOS for performance products by 12/31/2002
- *Caveat:* May request permission for extended production for specific performance uses for which adequate substitutes do not exist or can't be qualified in time; *risk/risk tradeoffs, national security, technical performance issues*

What does EPA think of 3M's PFOS phaseout plan?

- EPA agrees that continued manufacture and use of PFOS represents an unacceptable technology that should be eliminated to protect human health and the environment from long term consequences
- 3M's voluntary phaseout will accomplish this goal more quickly than regulation could
- EPA may use regulation to "close the door" on PFOS after 3M's exit; *concerned parties will be able to comment and to dialogue with EPA*

What does this mean for fire fighters using PFOS foams?

- Fire fighting foams are in the performance category of products; continue through 2002
- 3M and EPA will be assessing health, safety and environmental implications of possible substitutes; *will welcome dialogue!*
- If qualified substitutes not available by end of 2002, 3M may request continued PFOS production for specific uses

What about using chemicals other than PFOS?

- Initial actions and phaseout apply to PFOS chemicals only
- EPA will be expanding review to assess other perfluorinated chemicals and related chemistries; *PFOA, telomers*
- Assessment activities will be international
- Industry group already proposing voluntary two-year research effort on some major telomers to begin 9/2000
- Too early to anticipate outcomes

How will EPA make decisions on PFOS issues?

- Toxic Substances Control Act (TSCA)
- Risk/benefit balancing requirements allow flexibility; *TSCA lets EPA take risk/risk tradeoffs, economic issues into account*
- Possible actions include:
 - Bans
 - Restrictions on uses
 - Production volume limits
 - Data collection and new testing requirements
 - Labeling, hazard communication

Where can I find information on PFOS and EPA actions?

- All documents on PFOS in public EPA Administrative Record, File AR-226
 - Includes all health studies submitted on PFOS
 - Available in hard copy or on CD-ROM
 - 401 M St, SW, Room NE B-607, Wash., DC, noon to 4 PM Eastern, Monday-Friday; telephone 202-260-7099
- Working on website; *not up yet, stay tuned*
- Interim EPA “Voice of PFOS:” Mary Dominiak, phone 202-260-7768; *dominiak.mary@epa.gov*

APPENDIX (11)

Presentation: "Facilities Background and AFFF Issues"

J. Simone
Naval Facilities Engineering Command

Facilities Background And AFFF Issues

**Presentation to Hangar Facilities Breakout Session
DOD AFFF Environmental Meeting
2 August 2000**

**Joe Simone
Naval Facilities Engineering Command**

FACILITIES BACKGROUND

- **Facilities that use AFFF - Aircraft Hangars, HAZ/FLAM Buildings, Fire Fighters Test Facilities, Hush Houses, and others**
- **Variety of Fire Protection Criteria in the Last 10 Years**
- **Variety of Containment Requirements**
- **No Risk Analysis with respect to Environmental**
- **Budget Proposals Guess or Don't Address Funding**

1

NAVAIR/NAVFAC HANGAR PROJECTS

- **Evaluated Detector & Sprinkler Response Time in Hangars**
- **Evaluated Removing AFFF from Overhead Sprinkler Systems**
 - **Evaluated Using Lower AFFF Application Rate**
- **Evaluated New Low Level AFFF Distribution Systems**
- **Evaluated Variety of Optical Flame Detectors**
- **Developed New Fire Protection Criteria**

2

DESIGN

PREVIOUS DESIGNS

- Deluge AFFF Sprinklers
- High Volume AFFF System (20,000 sq.ft. => 5,000 gpm AFFF)
- AFFF is used in the Ceiling and Low Level Systems
- Full Discharge Testing
- May or May not have Drainage System

CURRENT DESIGNS

- Closed Head, Water only Sprinklers
- Low Volume AFFF System (20,000 sq.ft. => 2,000 gpm AFFF & 3,000 gpm water)
- AFFF is used in the Low Level System only
- Test Ports for Discharge Testing
- Drainage
- Detection Technology
- Can Include Abort Switches ₃

AFFF MANAGEMENT ISSUES

- Environmental Hazard is Not Quantified
 - Toxicity?, Air?, Water?
- No Uniform Criteria for AFFF Management (site specific)
- Current Containment Requirements are Based on Worst Case
- Cost of Containment Exceeds Project Funding
- Exceeding Project Funding Results in Removal of Fire Protection Systems from Hangars - Impaired Mission

4

CONTAINMENT ISSUES

If Containment is Required:

- Manual Intervention or Fixed Containment?
- How Do You Size Containment (10 minutes of AFFF supply)?
- Disposal - Is it necessary?

5

APPENDIX (12)

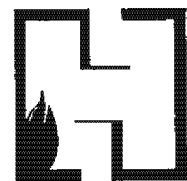
Presentation: "AFFF Risk Assessment"

**A. Wakelin
Hughes Associates, Inc.
Baltimore MD**

Aqueous Film Forming Foam (AFFF) Risk Assessment

For discharges of AFFF from fixed
fire protection systems in shore
facilities

Alison Wakelin



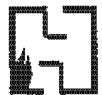
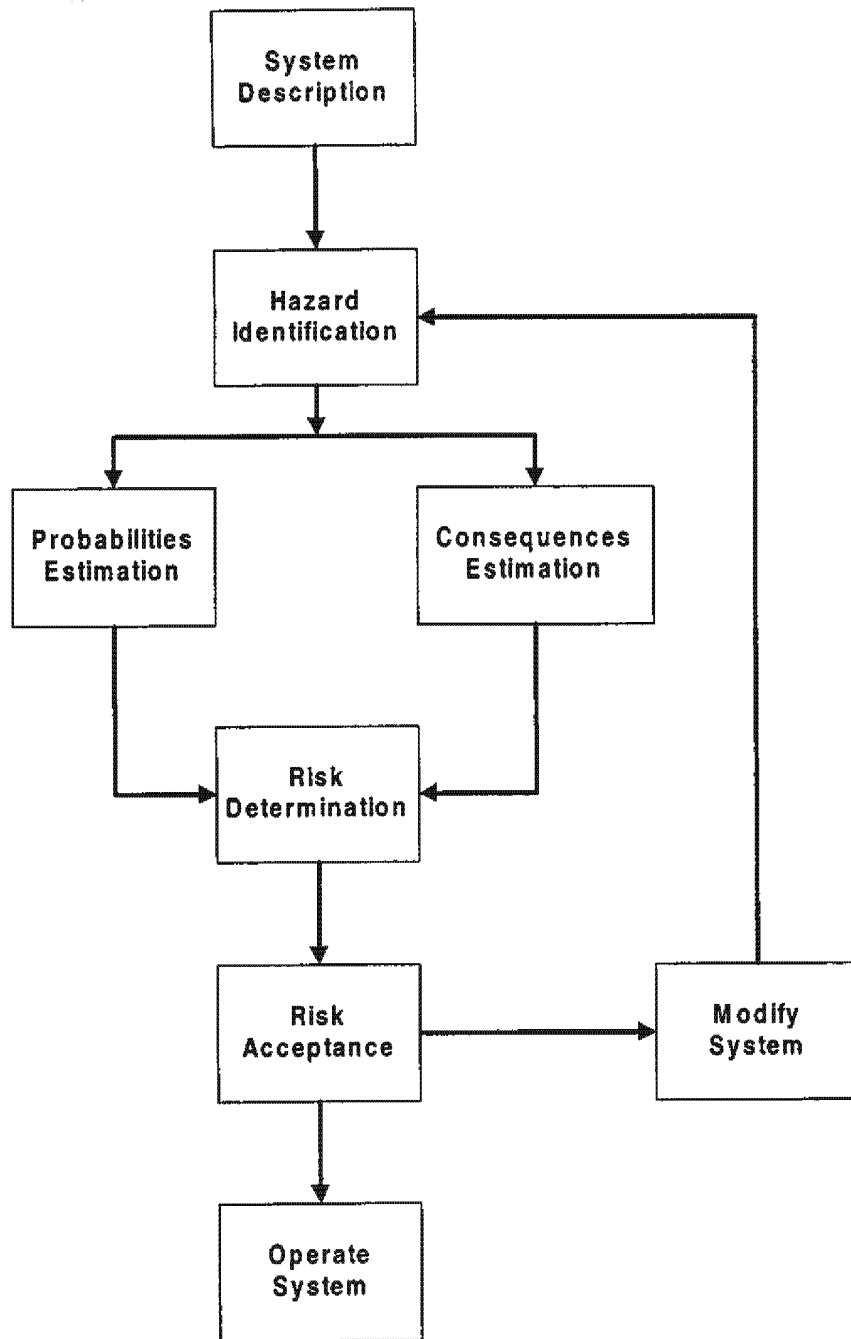
HUGHES ASSOCIATES, INC.
FIRE SCIENCE & ENGINEERING

August 2, 2000

Overview

- Develop physical control options
 - Performance Criteria
- Probability Estimation
- Consequence Estimation
- Risk Assessment

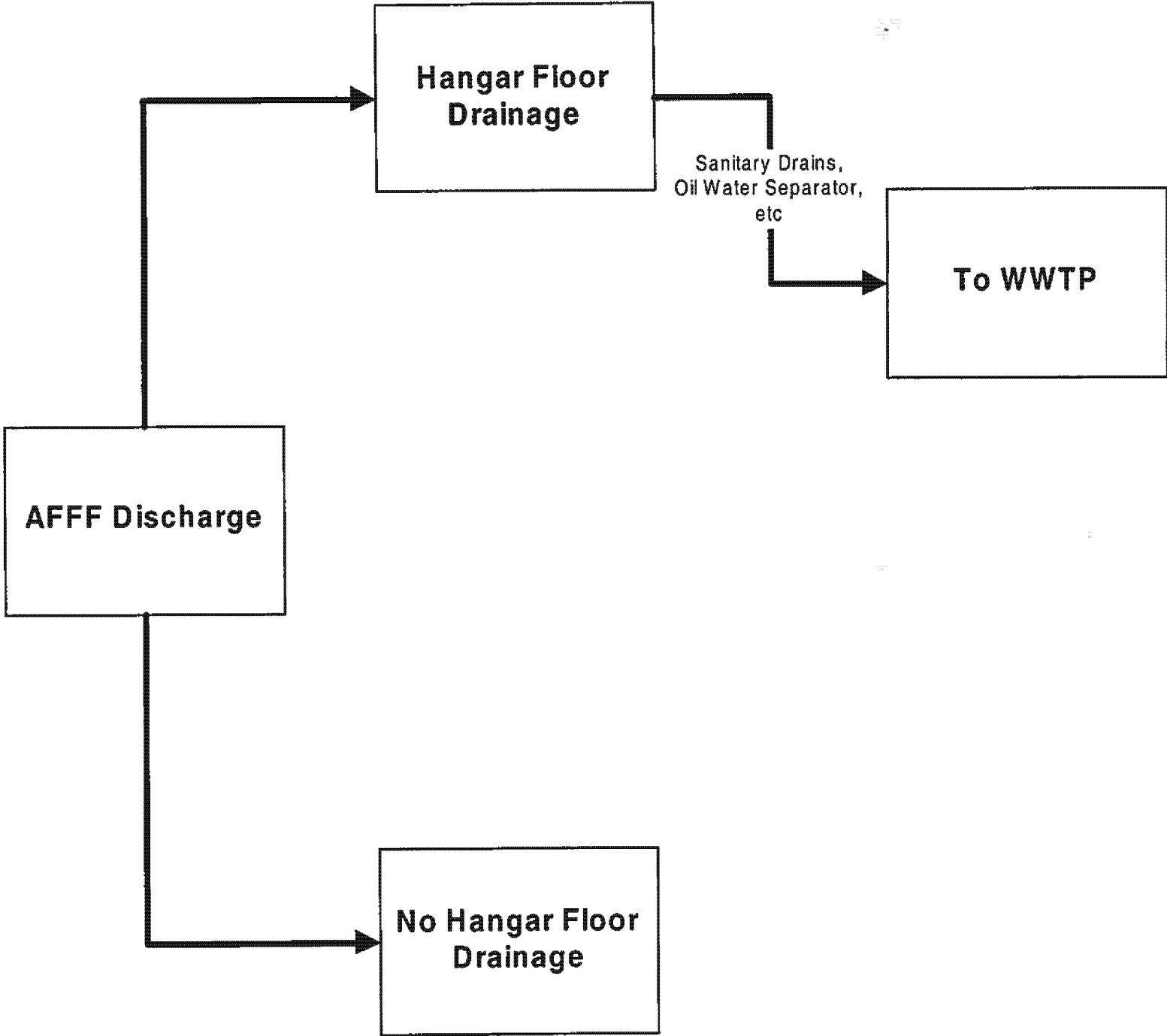


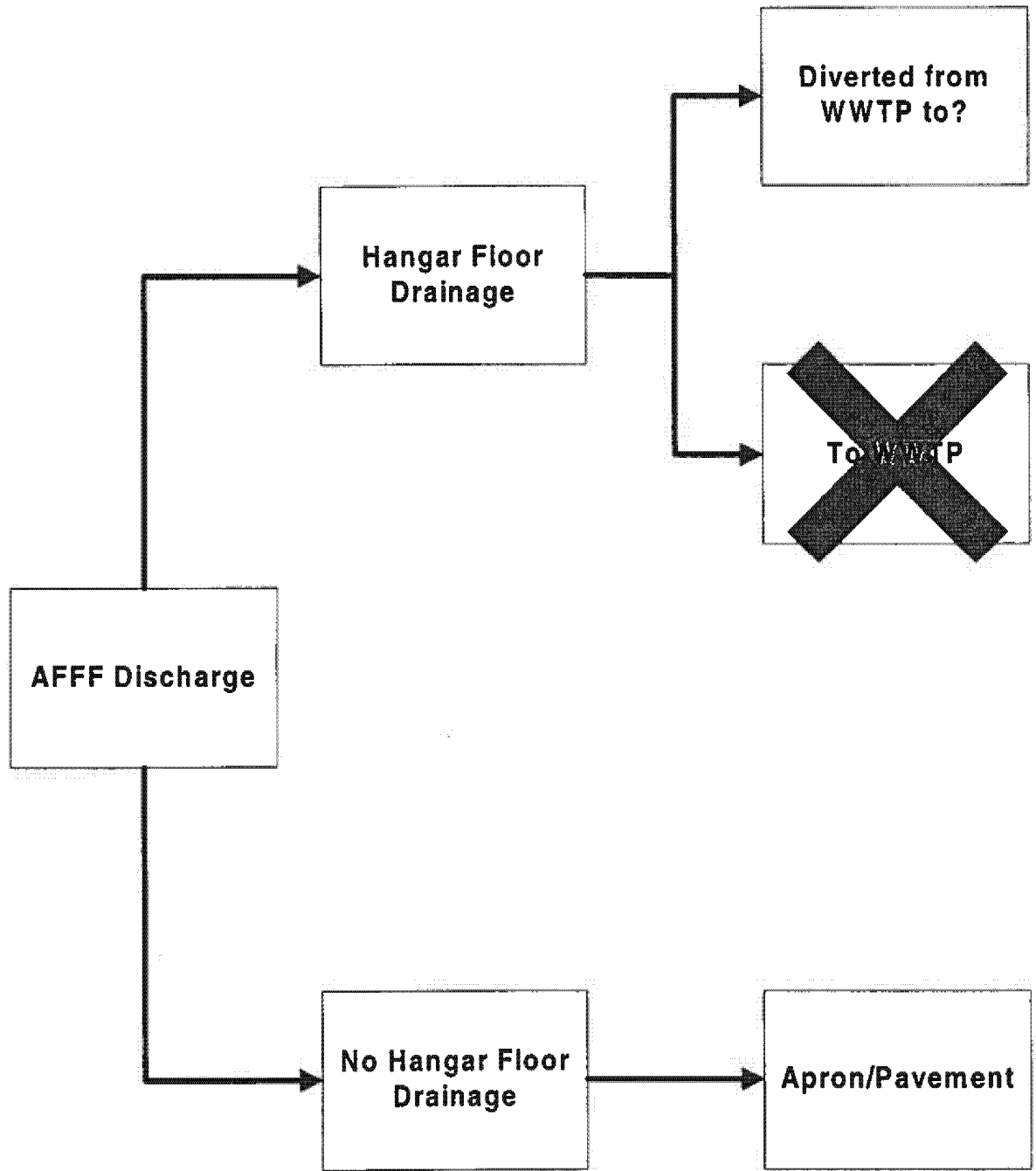


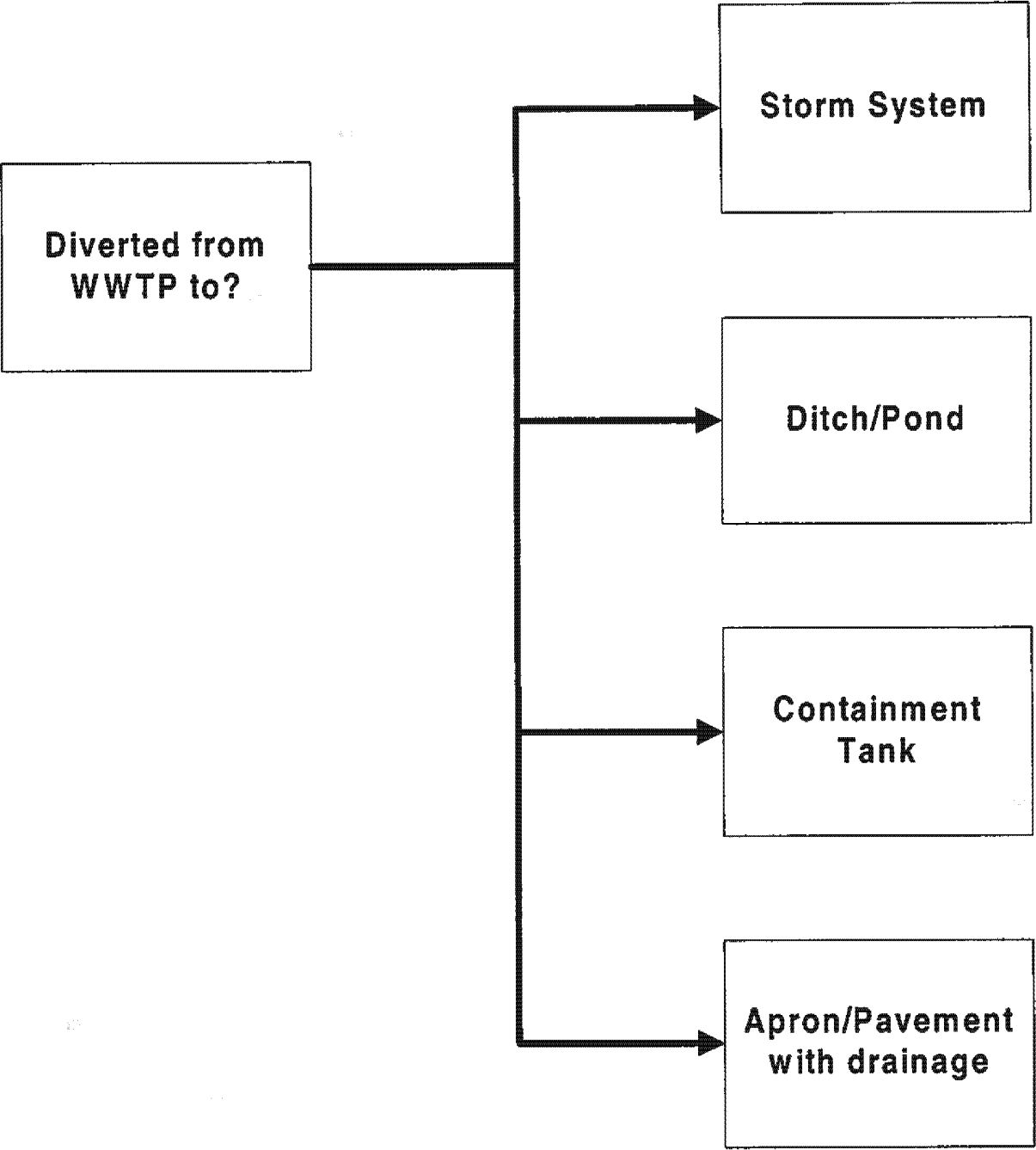
Develop Physical Control Options

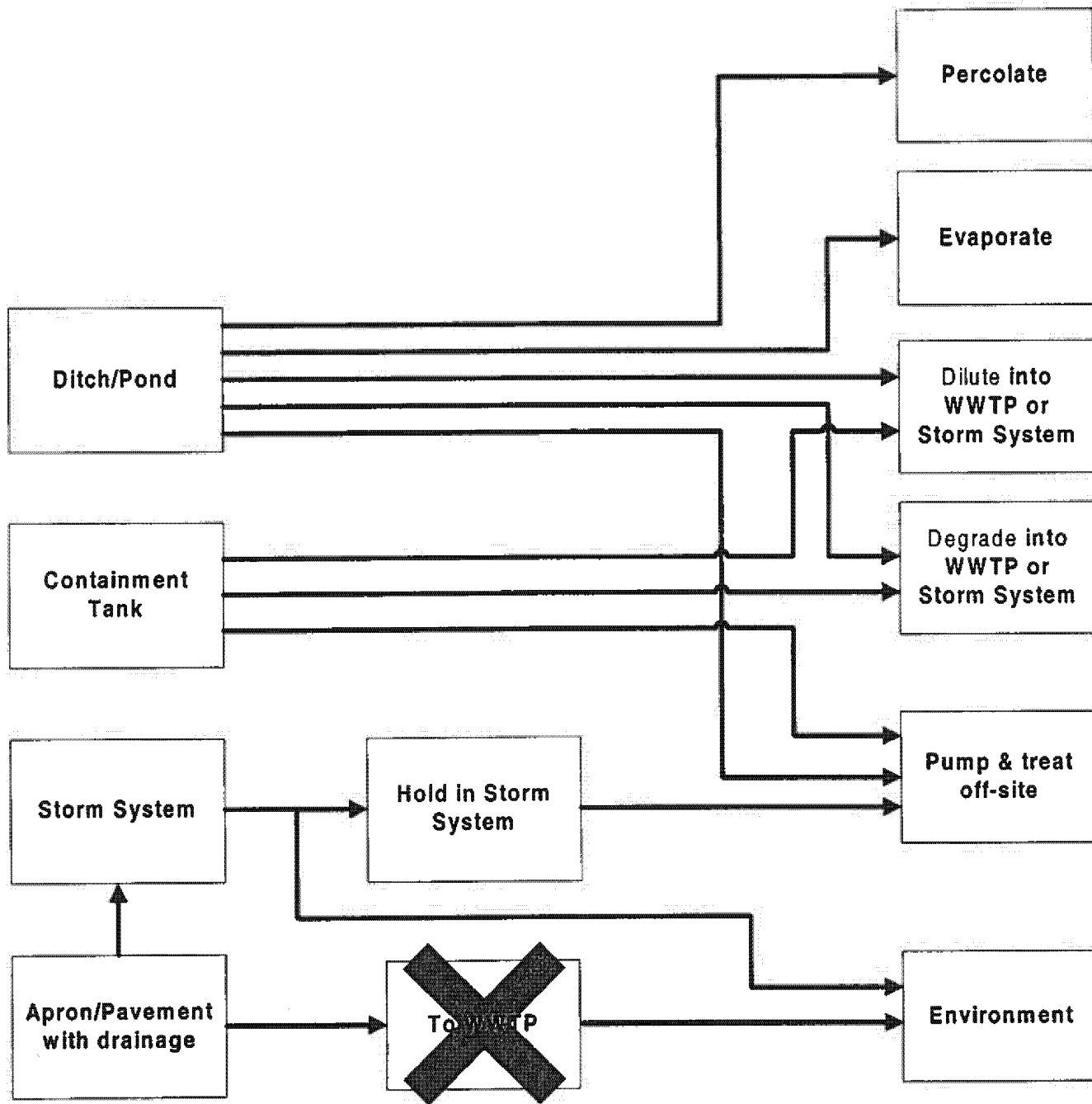
- Hangar drainage requirements (NFPA 409)
- Foam to the WWTP?
- Other options for maintaining positive control of foam











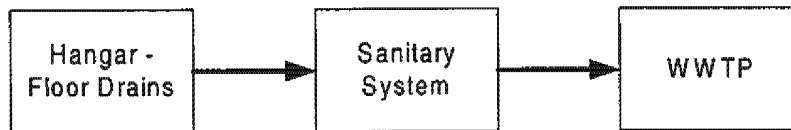
Physical Control Options

- 19 different control options
- Sufficient number to show range of risks
- Three options will be presented
 - data from all available on request

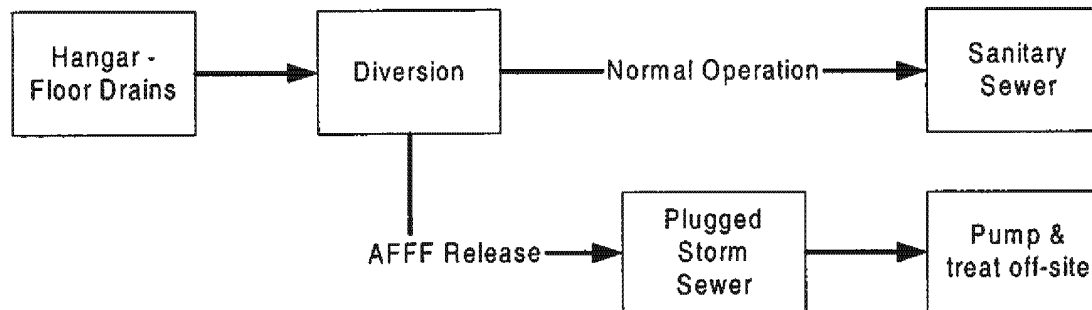


Example Physical Control Options

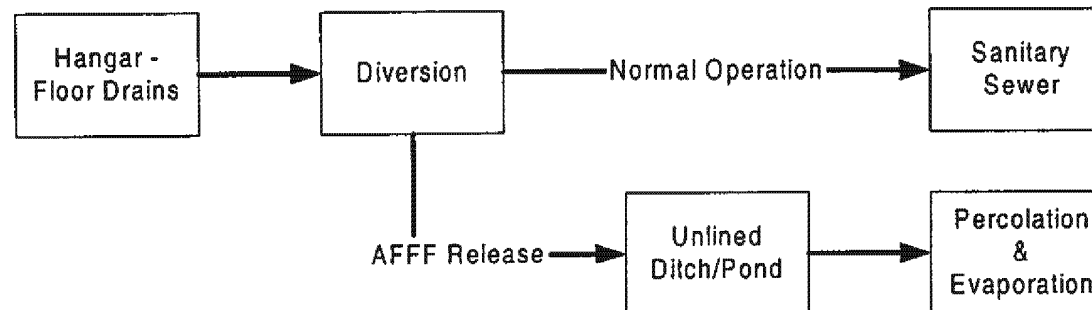
1. Sanitary sewer with direct access to WWTP



2. Plugged, totally segregated storm sewer

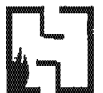


3. Pond, Percolate (drains into soil)



Performance Criteria

- Detailed investigation of control options
- What are performance goals of control options?
 - How much of a discharge needs to be controlled?
- Accidental discharge shut-off in 3 mins?
- Accidental discharge of all foam?

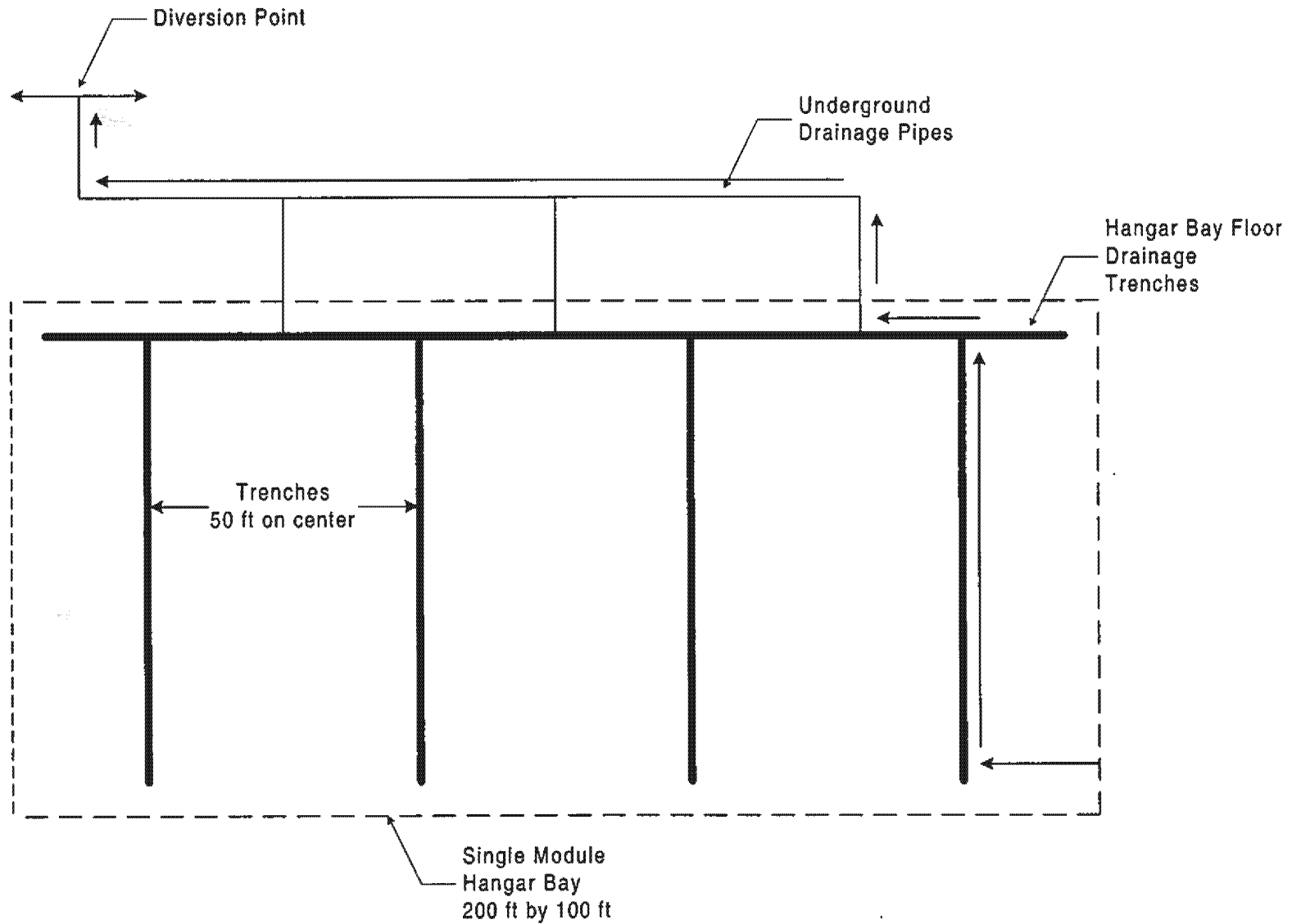


Proposed Foam Control Criteria

- Conservative approach all foam has drained to beyond diversion point
- No emergency shut-off
- 6 min drainage time
- Single “module” hangar 100 ft by 200 ft
- Total flow
 - 16 min @ 2000 gpm = 32,000 gal



Proposed Foam Control Criteria Drainage



Probability Estimation

3 Parts to Probability Estimation

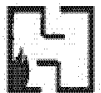
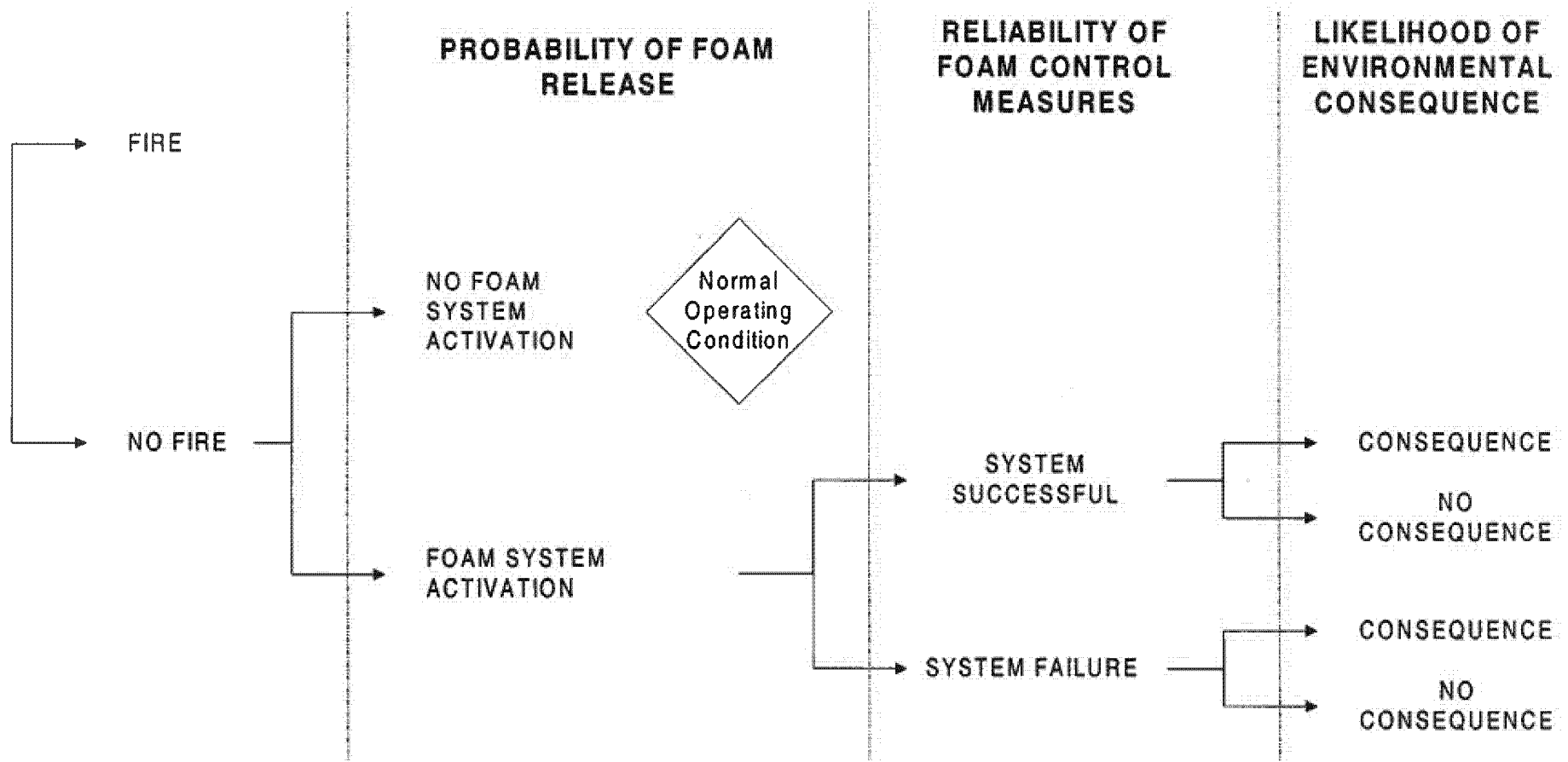
**Probability of
foam release**

**Reliability of
system
controlling
foam
movement**

**Likelihood of
environmental
consequence**



Probability Estimation

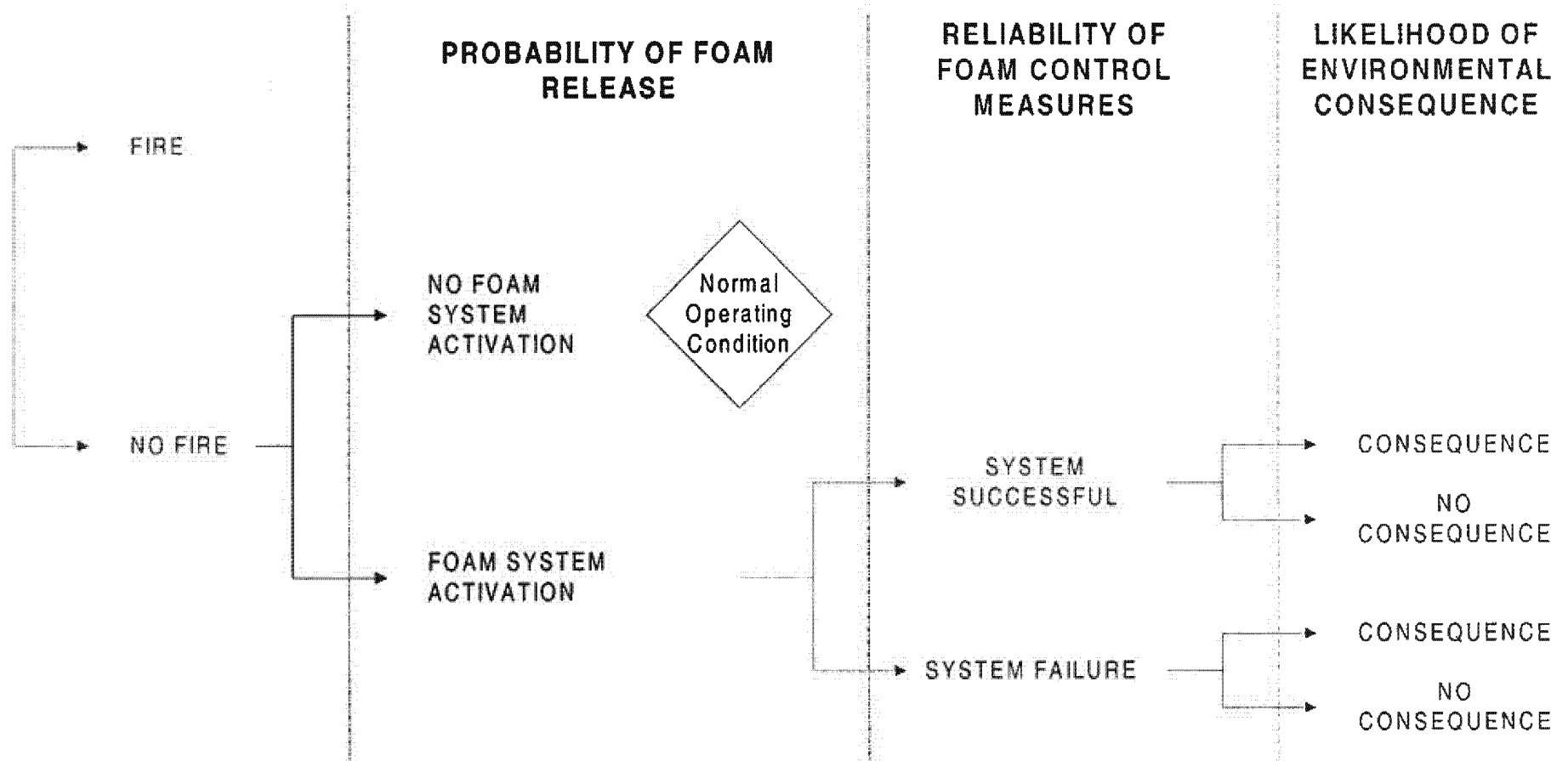


Probability Estimation

- | | |
|---------------------|--|
| A FREQUENT | Likely to occur frequently |
| B PROBABLE | Will occur several times in the life of an item |
| C OCCASIONAL | Likely to occur some time in the life of an item |
| D REMOTE | Unlikely but possible to occur in the life of an item |
| E IMPROBABLE | So unlikely, it can be assumed occurrence may not be experienced |



Probability Estimation Foam System Activation



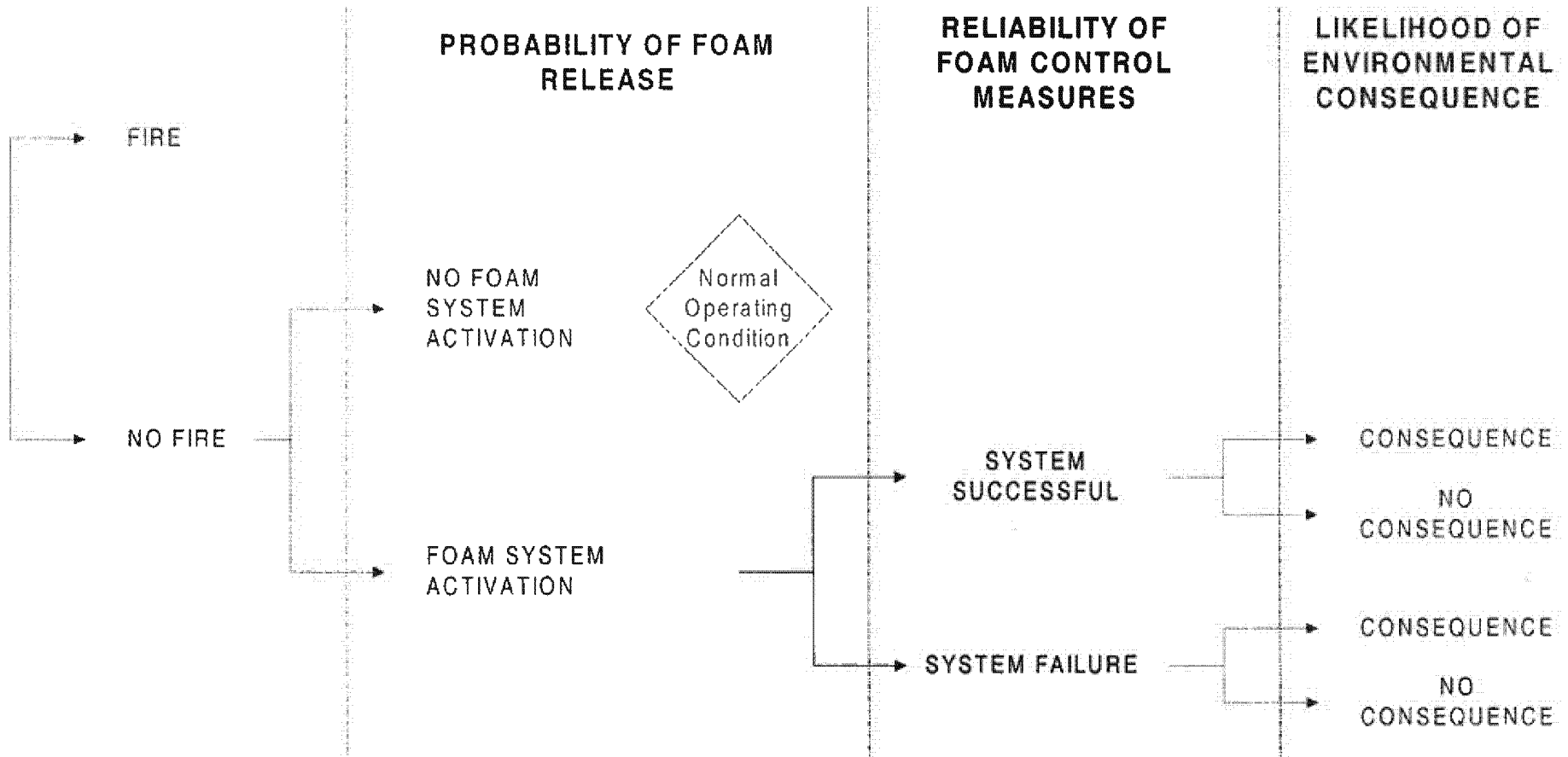
Probability Estimation

Foam System Activation

- Accidental activation of a low level foam system
 - Likely to occur some time in the life of an item
- ⇒ Occasional C



Probability Estimation Foam Control Measures



Probability Estimation

Foam Control Measures

- An engineered design of each control measure is evaluated for:
 - Reliability
 - Likelihood of Control System Failure is Established
 - Failure based on complexity of system



Probability Estimation

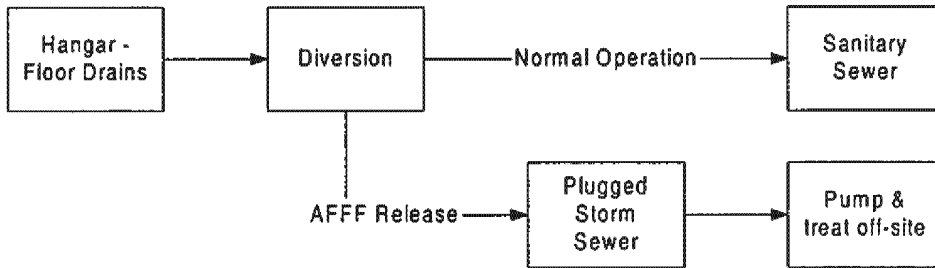
Likelihood of system failure

1. Sanitary sewer with direct access to WWTP



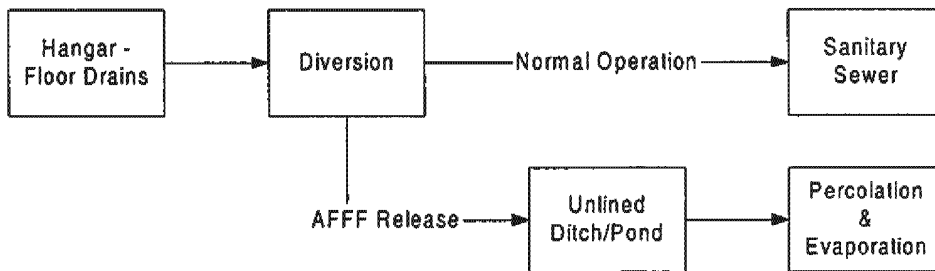
Improbable E

2. Plugged, totally segregated storm sewer



Probable B

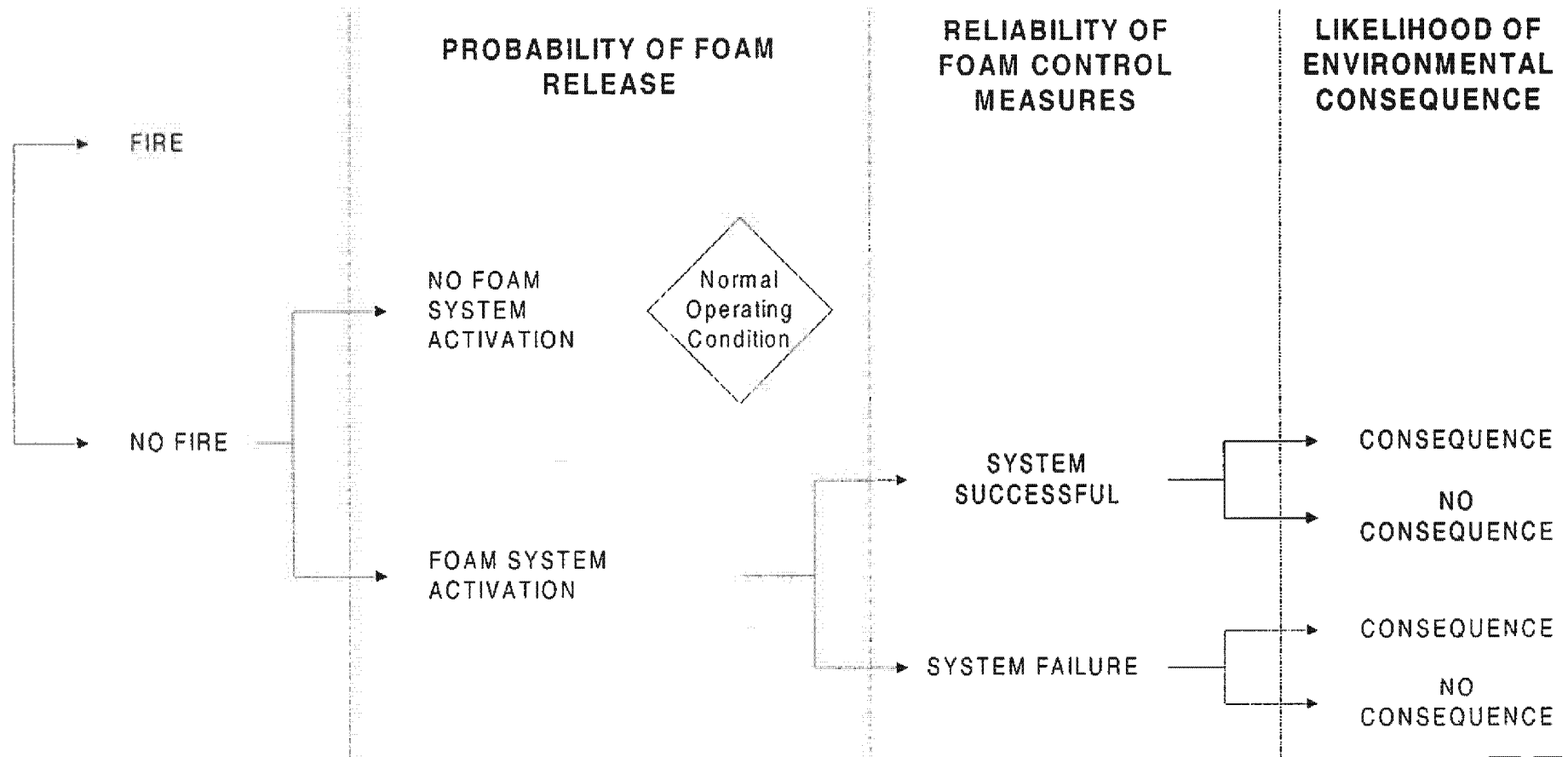
3. Pond, Percolate (drains into soil)



Occasional C



Probability Estimation Environmental Consequence

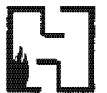
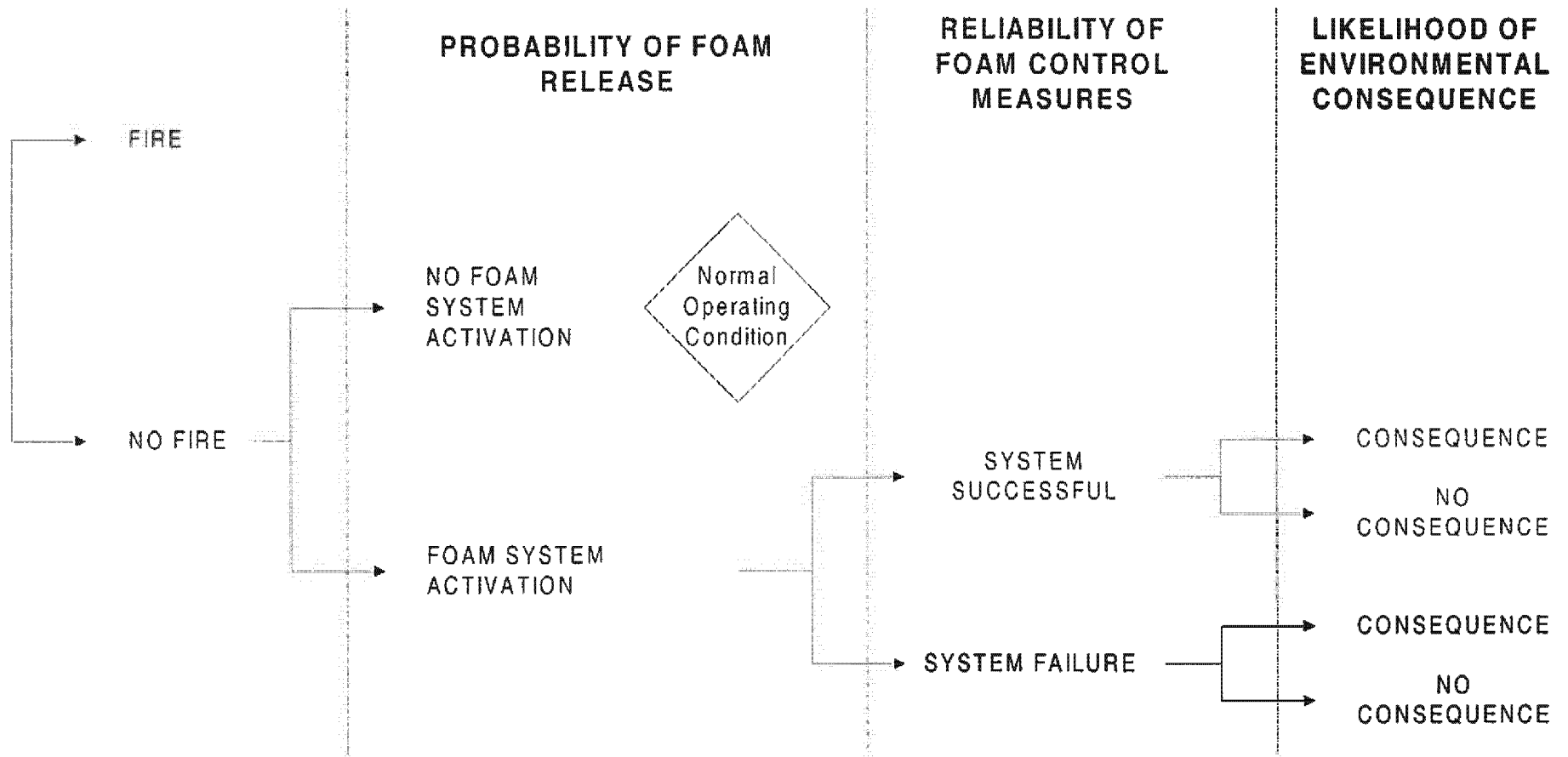


Probability Estimation Environmental Consequence

| Successful Foam Control (Risk By Media) | | | | |
|--|------------|--------------------------------|--------------------------|-----------------------------------|
| | AIR | Sensitive Body of Water | Soil Ground Water | Wastewater Treatment Plant |
| 1. Sanitary sewer, WWTP | Remote | Frequent | Improbable | Frequent |
| 2. Plugged, Storm Sewer | Remote | Improbable | Improbable | Improbable |
| 3. Unlined Pond, Percolates | Remote | Remote | Remote | Improbable |
| Unsuccessful Foam Control (Risk By Media) | | | | |
| | AIR | Sensitive Body of Water | Soil Ground Water | Wastewater Treatment Plant |
| 1. Sanitary sewer, WWTP | Remote | Frequent | Remote | Frequent |
| 2. Plugged, Storm Sewer | Remote | Occasional | Remote | Occasional |
| 3. Unlined Pond, Percolates | Remote | Occasional | Occasional | Occasional |

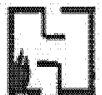
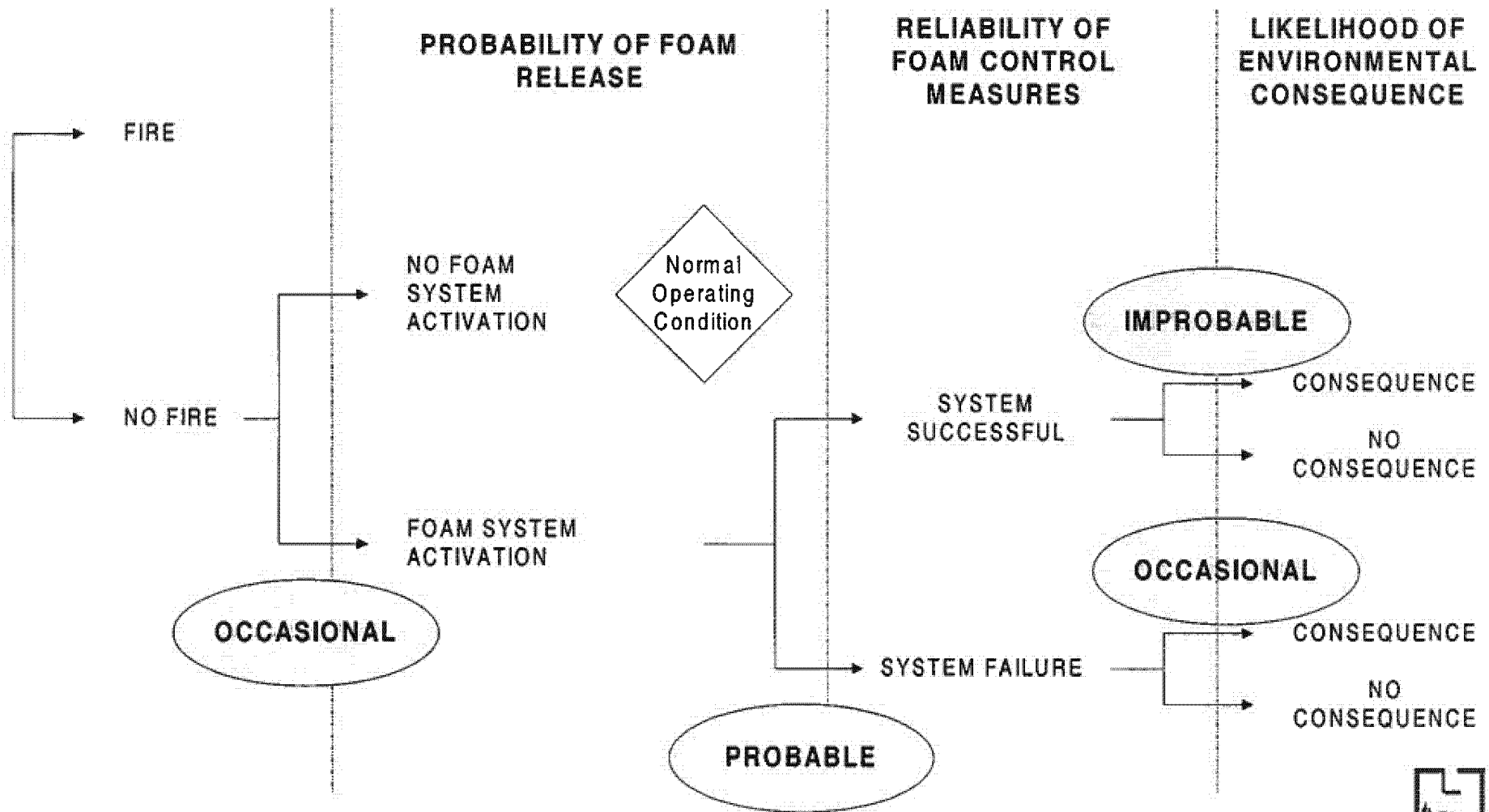


Probability Estimation Environmental Consequence



Probability Estimation Environmental Consequences

Option 2: Plugged storm sewer Sensitive body of water



Probability Estimation

| Frequency Estimation | | Suggested Range |
|----------------------|------------|-------------------------|
| A | FREQUENT | $X > 10^{-1}$ |
| B | PROBABLE | $10^{-1} > X > 10^{-2}$ |
| C | OCCASIONAL | $10^{-2} > X > 10^{-3}$ |
| D | REMOTE | $10^{-3} > X > 10^{-6}$ |
| E | IMPROBABLE | $10^{-6} > X$ |

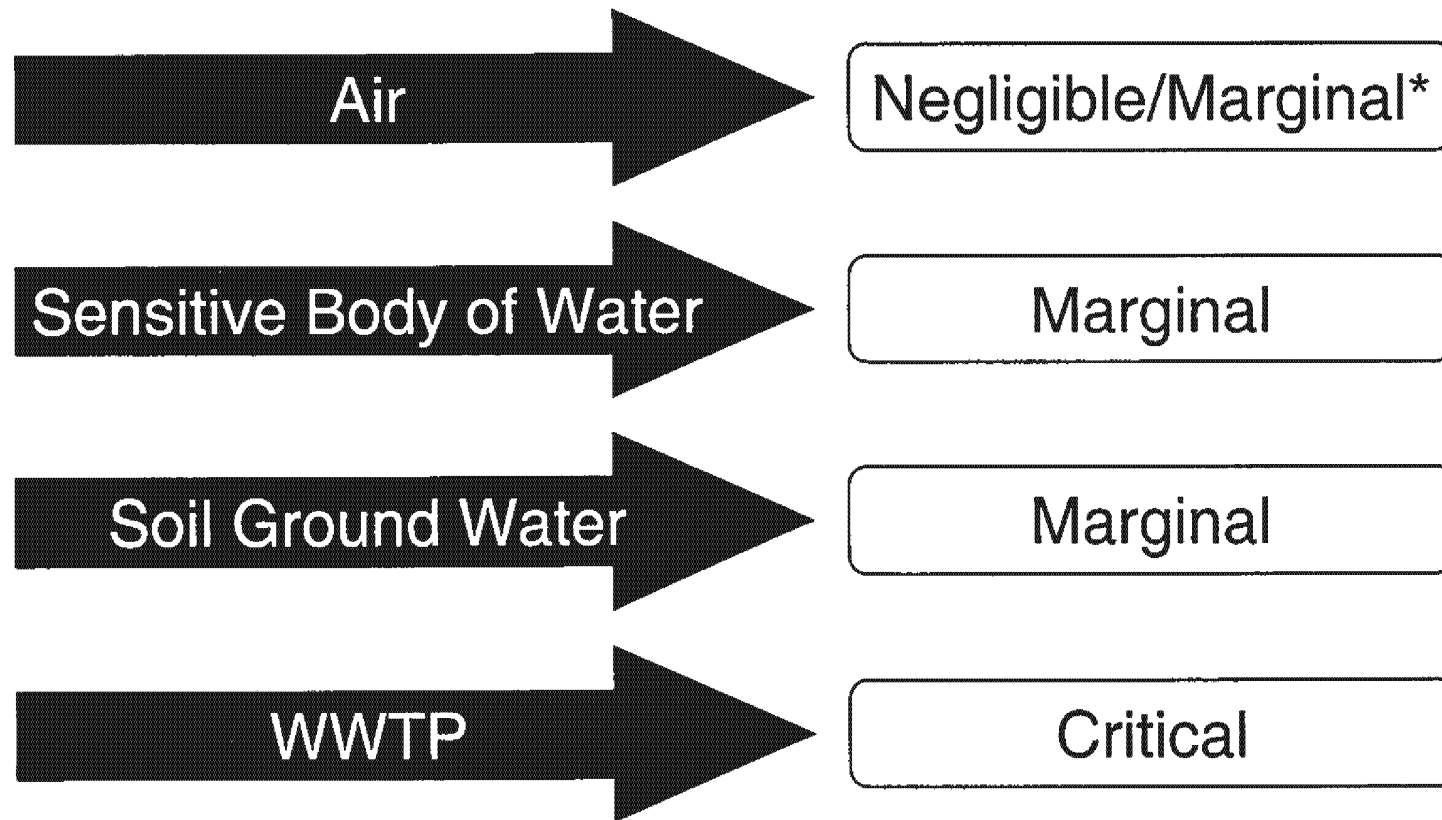


Probability Estimation Environmental Consequence

| | AIR | Sensitive Body of Water | Soil Ground Water | Wastewater Treatment Plant |
|-----------------------------|-----|-------------------------|-------------------|----------------------------|
| 1. Sanitary sewer, WWTP | E | C | E | C |
| 2. Plugged, Storm Sewer | E | D | E | D |
| 3. Unlined Pond, Percolates | E | E | E | E |



Consequence Estimation Severity of Environmental Impact



*Air becomes marginal if foam in WWTP



Risk Assessment & Acceptance

| CATEGORY | 1 CATASTROPHIC | 2 CRITICAL | 3 MARGINAL | 4 NEGLIGIBLE |
|------------------|-------------------|---------------|---------------|-----------------|
| FREQUENCY | | | | |
| A – FREQUENT | 1A | 2A | 3A | |
| B – PROBABLE | 1B | 2B | 3B | |
| C – OCCASIONAL | 1C | 2C | 3C | 4C |
| D – REMOTE | 1D | 2D | | 4D |
| E - IMPROBABLE | | | | 4E |

| | |
|----------------------------|------------------------|
| UNACCEPTABLE: | 1A, 1B, 1C, 2A, 2B, 3A |
| UNDESIRABLE: | 1D, 2C, 2D, 3B, 3C |
| ACCEPTABLE WITH REVIEW: | |
| ACCEPTABLE WITHOUT REVIEW: | 4C, 4D, 4E |



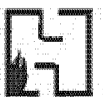
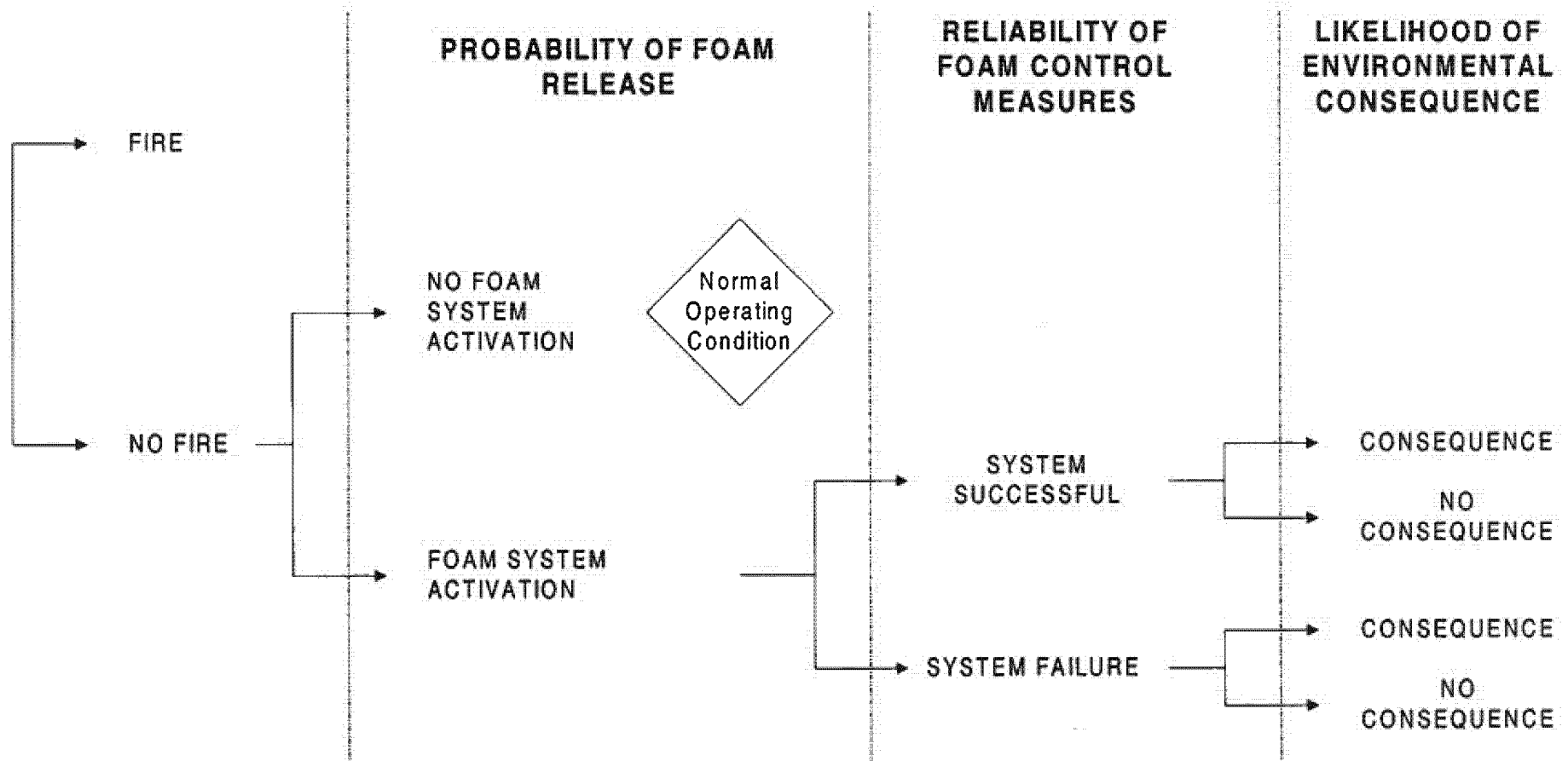
Risk Assessment

Environmental Consequence

| | AIR | Sensitive Body of Water | Soil Ground Water | Wastewater Treatment Plant |
|-----------------------------|-----|-------------------------|-------------------|----------------------------|
| 1. Sanitary sewer, WWTP | | 3C | | 2C |
| 2. Plugged, Storm Sewer | 4E | | | 2D |
| 3. Unlined Pond, Percolates | 4E | | | |



Probability Estimation Foam System Activation



Probability Estimation

Foam System Testing

- Should foam control systems be used for testing?
- Foam system activation becomes probable
- Reliability improved as testing supervised



Risk Assessment Environmental Consequence

| For Foam Testing | | | | |
|-------------------------------|------------|--------------------------------|--------------------------|-----------------------------------|
| | AIR | Sensitive Body of Water | Soil Ground Water | Wastewater Treatment Plant |
| 1. Sanitary sewer, WWTP | | 3B | | 2B |
| 2. Plugged, Storm Sewer | 4D | | | 2D |
| 3. Unlined Pond, Percolates | 4D | | | |
| For Accidental Release | | | | |
| | AIR | Sensitive Body of Water | Soil Ground Water | Wastewater Treatment Plant |
| 1. Sanitary sewer, WWTP | | 3C | | 2C |
| 2. Plugged, Storm Sewer | 4E | | | 2D |
| 3. Unlined Pond, Percolates | 4E | | | |



Risk Assessment

Environmental Consequence

| | AIR | Sensitive Body of Water | Soil Ground Water | Wastewater Treatment Plant |
|--|-----|-------------------------|-------------------|----------------------------|
| 1. Sanitary sewer, WWTP | | 3C | | 2C |
| 2. Segregated Storm Sewer | 4E | 3C | | |
| 3. Plugged, Storm Sewer | 4E | | | 2D |
| 4. Pavement, Plugged Storm Sewer/drains | 4E | | | |
| 5. Pavement, Plugged Combined Sewer/drains | 4E | | | 2D |
| 6. Pavement, Combined Sewer WWTP | | 3C | | 2C |
| 7. Pavement, Storm Sewer | 4E | 3C | | |
| 8. Unlined Pond, Percolates | 4E | | | |
| 9. Lined Pond, Pump Off-Site | 4E | | | |
| 10 Lined Pond, evaporate | 4E | | | |
| 11. Lined Pond, Meter WWTP | | | | 2D |
| 12. Lined Pond, Meter Storm Sewer | 4E | 3C | | 2D |
| 13. Lined Pond, Degrade WWTP | | | | 2D |
| 14. Lined Pond, Degrade Storm Sewer | 4E | | | 2D |
| 15. Tank, Pump Off-Site | 4E | | | |
| 16. Tank, Meter WWTP | | | | 2D |
| 17. Tank Meter Storm Sewer | 4E | 3C | | 2D |
| 18. Tank, Degrade WWTP | | | | 2D |
| 19. Tank, Degrade Storm Sewer | 4E | | | 2D |

Costs

- Single module, 16 minutes of foam discharge
- Costs options we have identified are in the \$0–200K range
- More stringent control criteria can lead to much greater costs
- However risk of an environmental consequence is not reduced



APPENDIX (13)

Presentation: "Summary of Shore Facility AFFF Management Breakout Session"

**D. Verdonik
Hughes Associates, Inc.
Baltimore MD**

Summary of Shore Facility
AFFF Management
Break-Out Session

Dan Verdonik

3 August 2000

Facility AFFF Management Working Group

- Decision to ‘formalize’ a Working Group
 - Develop Facility Policy for AFFF Management
 - Changed name from “Hangar” to “Facility” to reflect broader scope
 - Target for Completion: Approximately 6 months
 - Develop a draft DoDI
 - Staff Through Environmental Side of Services
 - Present to OSD
 - Next Meeting Scheduled for October 12
- Accepted-in-Principle the Risk Based Approach
 - Use as the Basis for the Policy
 - Need to Review Details and Back-up Information
 - Report will be Provided Prior to Next Meeting

Facility AFFF Management Working Group - Membership

| Service | Office | Name |
|----------------|--|------------------------------|
| Navy | HQ NAVFAC | Joe Gott |
| Navy | HQ NAVFAC | Joe Simone |
| Navy | NAVFAC | Vincent Donnally |
| Navy | CNO N457C | Ms. Kathy Ellis |
| Navy | NAVAIR | Larry Wolf |
| Navy | HQ NAVFAC (Contractor Representative) | Kim DePaul Dawn Roderique |
| Army | USACE | Bob DiAngelo |
| Army | USACE | K.C. Kochhar |
| Army | ACSIM F&H | Bruce Park |
| Army | USACE/ACE | Billy Ray Scott |
| USAF | AFCESA | Fred Walker |
| USAF | HQ USAF ILEV | Jayant Shah |
| USMC | HQUSMC DCS/I&LFL | Michael Doherty |
| USMC | HQUSMC DCS/I&LFF | Kevin King |

- Additional Members To Be Identified Prior to Next Meeting

APPENDIX (14)

Presentation: Summary of AFFF Environmental Breakout Session”

J. Hoover
Naval Air Warfare Center
China Lake CA

R. Darwin
Hughes Associates, Inc.
Baltimore MD

**Summary
Of
AFFF Environmental Impact
Breakout Session**

Naval Research Laboratory
3 August 2000

Dr. Jim Hoover
Head, Combustion Research Branch
NAWCWD China Lake

Robert Darwin
Senior Engineer
Hughes Associates, Inc.

Purpose of Breakout Session

Share Information on AFFF

History, performance, chemical composition

Environmental and human health impacts

Regulations – current and future

Replacement activity and status

Future management strategy

- (1) What current and future environmental regulations impact AFFF and why (data and policies)?

Current:

Different regulations affect different components of AFFF

Presentation by Bill Ruppert yesterday provided good summary

Except for UNDS, there are no definitive restrictions at present and no identified directives for change

Future:

Depends on future EPA assessment of AFFF as data is reviewed

(2) What data do we have (or lack) on the environmental impact of AFFF?

Lacking:

Component toxicity/BOD/Persistence (Fate)/Bio-accumulation

Accurate and appropriate dilution factors when AFFF discharged in open bodies of water

Predictive capability/data regarding releases for estimating potential environmental damage. Must consider where the release occurs (shore hangars, runways, unpaved ground, ship bilges, at sea, etc)

- (3) What technology or products exist that could help reduce AFFF releases into our environment or mitigate the impact of those releases?

Depends on the type and location of the release

Reducing releases:

Reduction in system tests, efficiency improvements
Spill response/advance planning/preparedness

Mitigation:

ASH (Air-sparged hydrocyclone)
RO (Reverse osmosis)
Biological/microbial systems

Education and Planning:

DOD guidance/standards on prevention, clean-up and disposal,
training, intentional discharges

(4) What technology or products could be applied to recycle or reuse AFFF?

Not considered to be feasible or cost effective (reformulation, losses, contamination)

- (5) What alternatives to AFFF currently exist and how do they compare in effectiveness, cost, environmental impact, availability, etc ?

None meet performance specification (mil spec)

Development of an AFFF alternative was proposed as project under ONR Future Naval Capability Platform Protection Program

Potential SERDP statement of need

Some UK effort on environmentally friendly foam

(6) What related planning documents exist with other services or agencies?

UK is reportedly working on a standard definition of “biodegradability”

EPA presentation mentioned international dialog on AFFF PFOS issue

USAF needs included in draft NAVAIR ESH-Needs Assessment

(7) What follow-on strategies should be considered ?

Need accurate quantitative definition of the problem

DOD inventory status

How much AFFF in DOD/where used/in-service and reserve stocks/concentrate types

DOD AFFF discharges

How much released/consumed annually (training, system testing and maintenance, accidental discharges, research, fires)

Review current DOD regs and policy

Need a definition of “environmentally friendly” (need “green” definition—what are acceptable thresholds from an environmental standpoint)

Biodegradability

Persistence

BOD/COD

Bio-accumulation

Toxicity

Follow-On Strategies (con't)

Need for future research

SBIR

Goals for Universities

ONR

Need to develop small scale screening tests

Develop “SNAP-equivalent” guidance

Need for “worst case” transition plan (short/mid/long term)

Information distribution to all levels (users, requirers, trainers, regulators, etc)

Develop AFFF detection capability (learn method used by 3M)

Define hazard protocols and appropriateness of AFFF (use and response)

Follow-On strategies (con't)

Assess commercial state-of-the-art

- CBD announcement

- “Turkey shoot” of all available AFFF alternatives

- Quantify performance, chemical and physical properties

- Obtain EPA endorsement of screening tests

Consider future mods to AFFF mil spec

- Prioritize requirements

- Consider trade-offs

Establish formal AFFF working group

- Info sharing

- Formal charter

- DOD primary advocate?

- Future meetings/host/agenda topics

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- Future meetings/host/agenda topics

EPA Activities/Issues on Fluorosurfactants

Mary F. Dominiak

U.S. Environmental Protection Agency

DoD AFFF Workshop, Pentagon

March 16, 2001

Issues and Status

- Discovery of perfluorooctyl sulfonates (PFOS) in humans and wildlife worldwide.
- Concern: Data indicate PFOS chemicals are persistent, bioaccumulative, and toxic.
- 3M phasing out 90 PFOS chemicals by 2003; EPA proposed regulation to follow voluntary phaseout.
- EPA has concerns on related chemistries (PFOA, telomers); assessment and research are underway.
- PFOS, PFOA, and telomers are used in MilSpec AFFF products.

Status of PFOS Rulemaking

- EPA published Proposed Significant New Use Rule (SNUR) on 90 PFOS chemicals (65 FR 62319, 10/18/2000), consonant with 3M phaseout.
- Proposed SNUR is *not* a ban:
 - Would require companies to file notice with EPA 90 days before beginning new manufacture or import of listed PFOS chemicals. EPA could grant, deny, or impose conditions on intended use.
 - Would *not* affect continued use of stocks of chemicals obtained before the end of the phaseout period.
- Comment period extended to 1/1/2001.
- Public meeting 3/27/2001, Sheraton Crystal City.

Status of PFOS Rulemaking

- 25 comments filed.
- Most comments challenge legal basis of proposed SNUR; also request exemptions for specific uses of PFOS chemicals as being essential, low volume, and low exposure.
- Claimed essential uses include photoresists in semiconductor manufacture; aviation hydraulic fluids; and some photolithography.
- Comments currently under review.
- Public meeting on 3/27/2001 provides opportunity for clarification of comments.

Related Chemistry Concerns

- PFOA & telomer chemicals raise similar concerns:
 - Known persistence.
 - PFOA toxicity data in public literature.
 - Question: similar bioaccumulative potential?
 - Question: similar fate and transport?
 - Question: similar widespread exposure?
- EPA hazard assessment on PFOA underway; preliminary conclusions likely by June 2001.
- Telomer producers began voluntary testing in 2000; data to be available in 2002.
- Fluoropolymer manufacturers began additional testing on PFOA/APFO in 2001.

Future EPA Actions

- **PFOS:**
 - Assess and respond to comments on proposed SNUR for 90 3M phaseout PFOS chemicals.
 - Consider need/options for action on other PFOS chemicals.
- **PFOA:**
 - Complete preliminary hazard assessment by June 2001.
 - Assess new data as received.
 - Identify needs/options for action.

Future EPA Actions

- **Telomers:**
 - Begin EPA review of existing data.
 - Review submissions from voluntary industry testing program in 2001-2002.
- **International Activities:**
 - Participate in initial assessment of PFOS by Organization for Economic Cooperation and Development; further action to be determined.

Future EPA Actions

- Regulatory actions available under the Toxic Substances Control Act include:
 - Testing requirements (section 4).
 - SNURs, new chemical reviews (section 5).
 - Manufacturing, use, disposal rules (section 6).
 - Information submission (section 8).
- TSCA uses an “unreasonable risk” standard balancing hazard, exposure, benefits, costs, availability of alternatives at time of proposal.

Future Actions

- Voluntary activity may be expected in lieu of or while regulatory activities are pending.
 - If assessments raise liability concerns, more companies may elect to discontinue chemicals.
 - New chemicals are being submitted to EPA for review as potential substitutes for PFOS/PFOA.
 - Presence of new chemical alternatives may affect TSCA “unreasonable risk” determinations.

AFFFF Implications

- Current EPA activities would *not* restrict continued use of PFOS-based AFFFF stocks obtained prior to the 12/31/2002 phaseout.
- Current EPA activities *would* prevent manufacture or import of PFOS after phaseout, *including* PFOS-based AFFFF, *unless* 90-day notice filed and approved.

AFFF Implications

- Non-PFOS-based AFFF products formulated with PFOA or telomers *may be affected* by ongoing EPA reviews of these related chemistries, and *may be subject* to future regulatory or voluntary risk management actions.
 - Persistence is known: information on toxicity, bioaccumulative potential being assessed or collected.
 - Initial assessments will be completed in 2001-2002.
 - If undertaken, regulatory proceedings average 2-5 years.

AFFFF Implications

- A program to seek, test, and consider long-range alternatives to current fluorosurfactant-based AFFFF would be prudent.
 - Health and environmental concerns generally argue for a move away from persistent chemicals where possible.
 - Ongoing EPA activities provide a multi-year window for development, evaluation, and qualification of alternatives, while still allowing access to and use of stocks of currently accepted chemicals.

For Further Information

- Mary F. Dominiak, 202-260-7768, dominiak.mary@epa.gov
- Karen Lannon, 202-260-2797, lannon.karen@epa.gov
- For data CDs from PFOOS file (AR-226), TSCA NCIC, 202-260-7099, Monday-Friday, noon to 16:00 Eastern time.
- To attend 3/27/2001 PFOOS SNUR public meeting: Annette Washington, 202-260-3515, washington.annette@epa.gov

Chemical & Material Risk Management Directorate,
Office of the Under Secretary of Defense for Acquisition, Technology & Logistics

Chemical & Material Emerging Risk Alert

Aqueous Film Forming Foam (AFFF)

Some legacy AFFF formulations contain chemicals that present human health and environmental risks and require special handling and disposal.

What is AFFF?

AFFF is a fire suppressant used to extinguish flammable liquid fires such as fuel fires. The Department of Defense (DoD) uses AFFF in shipboard and shore facility fire suppression systems, fire fighting vehicles, and at fire training facilities. AFFF is purchased as a concentrate, typically referred to as "3%" or "6%" (Type 3 or Type 6, respectively) depending on its mixture ratio with water. AFFF used by the military must satisfy Military Specification MIL-F-24385F requirements.

What are PFOS and PFOA?

Perfluorooctane sulfonate (PFOS) is a long-chain perfluorinated compound (PFC) either present in legacy stocks of AFFF or a potential breakdown product of PFOS-based AFFF. Perfluorooctanoic acid (PFOA) is also a long-chain PFC. PFOA is not an ingredient in AFFF, but long-chain fluorotelomer-based AFFFs can break down to PFOA. PFOS, PFOA, and other long-chain perfluorinated compounds are found widespread at low levels in humans and the environment, bioaccumulate in the food chain, resist degradation, show evidence of toxicity in laboratory studies, and are the subject of increasing regulation worldwide.¹ Prior to 2000, most fluorosurfactants used in the AFFF military specification (mil spec) were PFOS-based which resulted in AFFF that contained PFOS or PFOS pre-cursors. During that time, AFFFs based on long-chain fluorotelomers were also available for mil spec use. Shortly after the manufacturing phase out announcement by 3M, Inc. of PFOS-based products in 2000, mil spec PFOS-based AFFFs were no longer available. The primary supply of AFFF then became fluorotelomer-based. Over the last

several years, manufacturers of fluorotelomer AFFF have been replacing long-chain fluorosurfactants with short-chain fluorosurfactants. The PFCs in current fluorotelomer-based AFFF are shorter chain molecules and tend to be less bioaccumulative and toxic. Telomer-based AFFF does not contain PFOS but may contain trace amounts of PFOA.

PFOS-Based AFFF

How do I determine if I have PFOS-based AFFF?

Due to their long shelf lives, legacy AFFF, including PFOS-based AFFF concentrate, may still be present in your inventory. Through 2001, the DoD purchased AFFF from 3M and/or Ansul Inc. 3M supplied PFOS-based AFFF under the product name, 3M Light Water AFFF. Ansul supplied a telomer-based AFFF to the DoD.² If the product name and/or purchase date cannot be determined, a sample can be sent to an analytical laboratory to determine the presence or absence of PFOS. Users are advised to compare sampling costs and disposal costs. It may be more cost-effective to properly dispose of limited quantities of unknown PFOS content material rather than pay for sampling and analysis.

Can stockpiles of PFOS-based AFFF continue to be used?

Yes, PFOS-based AFFF can continue to be used in the United States; however, the discharge of wastewater containing AFFF can be regulated under the Clean Water Act. The potential liability from a release during



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use of PFOS-based AFFF should be weighed against the cost of disposal and resupply in determining whether to dispose of or maintain PFOS-based AFFF in your inventory.

How can I dispose of PFOS-based AFFF?

PFOS, PFOA and other perfluorinated acids are highly stable and generally recalcitrant to low energy forms of treatment (e.g. conventional wastewater systems). Industry recommendations for disposal of AFFF concentrate is by thermal destruction at a facility capable of handling halogenated waste or the equivalent. Contact your installation's environmental or hazardous waste management office for assistance.

What environmental risks may be associated with the historic storage, use and disposal of PFOS-based AFFF?

Although not allowed for use today, DoD has used unlined earthen areas/basins at many installations to support live firefighting training activities. These activities may have resulted in soil and groundwater contamination. AFFF releases also may have occurred at AFFF storage tanks and transport lines, accident/emergency response sites, and near facilities (e.g., aircraft hangers) with AFFF fire suppression systems.

As PFOS is subject to restrictions under certain international treaties, restrictions on the use and/or disposal exist in some countries. The European Union requires the removal of all PFOS-based AFFF from service by 27 June 2011.³ In Europe, some Services may have specific policy on the management and disposal of PFOS-based AFFF and resupply of conforming AFFF.⁴

The U.S. Environmental Protection Agency (EPA) has developed Provisional Health Advisories (PHA) for PFOS (0.2 micrograms per liter [µg/L]) and PFOA (0.4 µg/L) to protect against potential risk from exposure to these chemicals in drinking water.⁵ PHAs reflect reasonable,

health-based hazard concentrations above which action should be taken to reduce exposure. State regulatory agencies (e.g., Minnesota, New Jersey, and North Carolina) also have established guidance or action levels for several PFCs in drinking water, groundwater, and soil.⁶

Very limited environmental sampling data exist for PFCs as they were not typically sampled for during site characterization. However, analytical results from sampling conducted at three DoD firefighting training areas showed concentrations of PFOS and PFOA in groundwater several orders of magnitude greater than the EPA PHA values.²

If records indicate your facility may have experienced AFFF leaks, spills or releases to the environment, refer to DoD Instruction 4517.18 for principles to follow in determining what site specific characterization, assessment, and risk management actions you should take.⁷

Currently, there are no *in situ* technologies and very limited *ex situ* options to treat soil or groundwater contaminated with PFCs. Thermal treatment is typically used for contaminated solids while granular activated carbon is the most effective water treatment method.⁸ The DoD Strategic Environmental Research and Development Program is funding research to develop innovative treatment technologies for PFCs.⁹

Telomer-based AFFF

Do telomer-based AFFF concentrates meet DoD military specification requirements?

Current fluorotelomer-based AFFF concentrates that satisfy the requirements of Mil Spec MIL-F-24385F are listed in the DoD Qualified Products Database (QPD) (<https://assist.daps.dla.mil/online/start/>). In order to ensure that the AFFF you purchase meets MIL-F-24385F specifications, it must be listed in the DoD QPD. Because the QPD is updated periodically, the QPD should be checked before each AFFF purchase.



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Do telomer-based AFFF concentrates meet current EPA standards? Will releases trigger cleanup requirements?

Manufacturers have developed new short-chain telomer-based AFFF formulations in coordination with EPA. EPA has approved over 100 pre-manufacture notices for new products that are based on C₆ telomer chemistry.¹ EPA considers the shorter chain compounds to have lower bioaccumulation potential and toxicity than the longer chain PFCs used in legacy AFFF. Fluorotelomer manufacturers can be contacted for advice on how best to distinguish the legacy long-chain telomer-based AFFF products from the newer short-chain telomer-based formulations.

A one-time release of telomer-based AFFF for emergency fire suppression would not be expected to result in levels of contamination requiring cleanup. However, uncontrolled repeated applications of AFFF at firefighting training areas could be expected to contaminate soil and groundwater and thus these activities need to be managed.

How can I control releases of AFFF in the future?

Follow applicable DoD and industry standards on the design, installation, and maintenance of foam systems, extinguishers, and firefighting training areas. DoD Unified Facilities Criteria (UFC), DoD Unified Facilities Guide Specifications, and Component-specific design documents contain relevant guidance. Provide for containment, treatment, and proper disposal of foam discharges through actions such as the use of double lined fire training pits and improved wastewater collection systems.

Minimize false discharges from fixed foam systems by using approved detection, actuation, and control systems as required by industry standards. Whenever operational situations allow, use non-fluorosurfactant training foams.

Footnotes

- ¹ USEPA Long-Chain Perfluorinated Chemicals (PFCs) Action Plan. 30 December 2009. http://www.epa.gov/opptintr/existingchemicals/pubs/pfcs_action_plan1230_09.pdf.
- ² Schultz MM, Barofsky DF, Field JA. 2004. Quantitative Determination of Fluorotelomer Sulfonates in Groundwater by LC MS/MS (*and references herein*) 38:1828-1835.
- ³ European Union Directive 2006/122/ECOF amending Annex 1 to Council Directive 76/769/EEC related to restrictions on the marketing and use of certain dangerous substances and preparations (perfluorooctane sulfonates). 12 December 2006.
- ⁴ Headquarters United States Air Forces in Europe (USAFE) Policy for Management/Elimination of Aqueous Film Forming Foam containing Perfluorooctane Sulfonate (PFOS AFFF). October 2007.
- ⁵ See USEPA–Perfluorooctanoic Acid (PFOA) and Fluorinated Telomers. <http://www.epa.gov/opptintr/pfoa/pubs/pfoainfo.html#provisional>.
- ⁶ See <http://www.pca.state.mn.us/index.php/waste/waste-and-cleanup/cleanup-programs-and-topics/topics/risk-based-site-evaluation-process-guidance-documents.html> for SRV Spreadsheets; <http://www.health.state.mn.us/divs/eh/risk/guidance/gw/table.html>; http://www.state.nj.us/dep/watersupply/pfoa_dwguidance.pdf; <http://h2o.enr.state.nc.us/csu/documents/15A2L-TANBOOK-1jan2010.pdf>.
- ⁷ DoD Instruction 4715.18. Emerging Contaminants (ECs). USD(AT&L). 11 June 2009.
- ⁸ Water Treatment for PFOA and PFOS. Presented by Andrew S. Hartten, DuPont Corporate Remediation Group, at the PFOS and PFOA Science Presentation for EPA Office of Water. 16 October 2009. <http://www.epa.gov/opptintr/pfoa/pubs/activities.html>.
- ⁹ See <http://www.serdp.org/Program-Areas/Environmental-Restoration/Contaminated-Groundwater/Emerging-Issues>.



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DEPARTMENT OF THE NAVY
OFFICE OF THE ASSISTANT SECRETARY
(ENERGY, INSTALLATIONS AND ENVIRONMENT)
1000 NAVY PENTAGON
WASHINGTON, DC 20305-1000

June 17, 2016

MEMORANDUM FOR DEPUTY CHIEF OF NAVAL OPERATIONS
(FLEET READINESS AND LOGISTICS) (N4)
DEPUTY COMMANDANT OF THE MARINE CORPS
(INSTALLATIONS AND LOGISTICS)
DEPUTY COMMANDANT OF THE MARINE CORPS
(AVIATION)

SUBJECT: Aqueous Film Forming Foam (AFFF) Control, Removal, and Disposal

Ref: (a) DASN (E) Policy Memo, 21 Oct 2014
(b) ASD (EI&E) Policy Memo, 28 Jan 2016
(c) EPA Perfluorinated Chemical (PFC) Health Advisories, 19 May 2016

Perfluorinated compounds (PFCs)/per and polyfluoroalkyl substances (PFASs) are a suite of over 100 chemicals, several of which are of emerging public health concern to the Department of the Navy (DON), U.S. Environmental Protection Agency (EPA), state regulators, public water systems, and the general public. The most common DON activity that results in the release of PFC/PFAS to the environment is through the use of AFFF for testing, training, firefighting, and other emergency responses.

Reference (a) directed actions regarding two PFC/PFAS, perfluorooctane sulfonate (PFOS) and perfluorooctanoic acid (PFOA), at cleanup sites and in drinking water systems. In reference (b), ASD (EI&E) directed the DoD Components to issue Service-specific policies to prevent routine uncontrolled environmental releases of AFFF during maintenance, testing, and training activities, and remove and properly dispose of uninstalled PFOS containing AFFF drums and cans from local stored supplies (non-shipboard).

On 19 May 2016, the U.S. Environmental Protection Agency (EPA) issued reference (c) to provide lifetime drinking water health advisories for PFOS and PFOA, which are contained in older formulations of AFFF. The newest formulations of MILSPEC-compliant AFFF (i.e., products qualified since November 2015) may still contain trace quantities of PFOA.

DON intends to remove, dispose, and replace legacy AFFF that contains PFOS and/or PFOA once environmentally suitable substitutes are identified and certified to meet MILSPEC requirements. This policy directs the following actions be taken until suitable replacements are certified:

- Immediately cease the uncontrolled environmental release of AFFF for shoreside installations, with the exception of emergency responses. Installations should

verify and ensure that the following activities have appropriate controls in place to prevent an environmental release: controlled outdoor training with AFFF; testing of firefighting and crash response vehicle AFFF systems; testing of hangar AFFF and other fixed systems. Where such non-emergency operations are deemed necessary, complete containment, capture, and proper disposal mechanisms and procedures must first be in place to the maximum extent practicable prior to conducting such actions to ensure no AFFF is released to the environment.

- Update and implement Navy and Marine Corps firefighting system requirements, as needed, to ensure fire and emergency service vehicles and equipment at DON installations and facilities are tested and certified in a manner that does not allow the release of AFFF to the environment.
- By the end of FY2017, remove and dispose of uninstalled PFOS-containing AFFF in drums and cans from local stored supplies for shore installations and ships to prevent future environmental releases.

The above actions are vitally important to ensure all personnel and their families who live or work on DON installations and facilities are protected from environmental contaminants and receive safe drinking water.

My points of contact are Mr. Richard Mach at richard.mach@navy.mil or (703) 614-5463 and Mr. Jim Rudroff at jim.rudroff@navy.mil or (703) 614-4217.



Karnig Ohannessian
Deputy Assistant Secretary of the Navy
(Environment)



Addressing Perfluorooctane Sulfonate (PFOS) and Perfluorooctanoic Acid (PFOA)

Maureen Sullivan

**Deputy Assistant Secretary of Defense
(Environment, Safety & Occupational Health)**

**EPA PFAS Summit
May 2018**



Drinking Water on Our Installations

- **Completed UCMR3 testing and reporting December 2015**
 - 63 DoD drinking water systems required testing
 - Only one system detected levels above the EPA PHA – Wright Patterson AFB had one sample at 235ppt
- **As a concerned consumer, in June 2016 ASD(EI&E) directed the Military Departments to test for PFOS/PFOA where DoD supplies drinking water**
 - Completed sampling and testing of all 524 DoD drinking water systems for PFOS/PFOA
- **DoD has identified 24 drinking water systems, where DoD is the water supplier, which tested above the LHA**
 - DoD is following the EPA advisory recommended actions to include taking wells off line and providing alternative drinking water
 - These actions break the exposure pathway
- **Where DoD is not the drinking water supplier, installations are encouraged to ask if their drinking water suppliers have tested the drinking water and are the results below the EPA LHAs**
 - Identified 12 systems where DoD is not the supplier that tested above the LHA level



Drinking Water off DoD Installations

- **The Components also sampled private drinking water wells if there was a suspected or known release that migrated off-base**
- **DoD is working with the Communities and private individuals to break the exposure pathway**
- **As part of the CERCLA process, DoD conducted off-base testing. As of August 2017:**
 - 2,445 off-base Public and Private drinking water systems tested
 - 564 public or private drinking water systems tested above the EPA LHA level
- **The information is available to the public at the following web link**
- **<https://www.denix.osd.mil/derp/home/documents/pfos-pfoa-briefing-to-the-hasc/>**



Groundwater Sampling

- **DoD follows a comprehensive approach to identify installations where DoD stored and/or used AFFF and suspect a release is impacting drinking water**
 - As of August 2017, DoD identified 401 active and BRAC installations in the United States with at least one area where there is a known or suspected release of PFOS/PFOA
- **DoD is following the CERCLA process to address these suspected releases [reference: Defense Environmental Restoration Program, 10 U.S.C. Section 2701]**
 - First step is to identify the source(s) of a known or suspected release
 - Then identify if there is an exposure through drinking water
 - If there is exposure, DoD priority is to cut off drinking water exposure
 - Once exposure pathway is broken, the site is prioritized and will follow the CERCLA process to fully investigate the release and determine the appropriate cleanup actions based on risk
- **The DoD Components are conducting additional investigations, which include sampling groundwater**



PFOS/PFOA Challenges

- **PFAS exposure assessment and health study – Coordinating with ATSDR on the design and how we will work together throughout the process**
- **Responding to state laws and standards**
- **Cleanup standard -- Lifetime Health Advisory (LHA) vs Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) risk assessment**
- **Risk Communication**
- **PFOS/PFOA versus Perfluoroalkyl Substances (PFAS) versus Perfluorinated Compounds (PFCs)**
- **We encourage EPA to consider going through the process to determine if establishment of a Maximum Contaminant Level (MCL), under the Safe Drinking Water Act, is appropriate**
- **Disposal of contaminated groundwater and used granulated activated carbon (GAC)**
- **Developing an effective version of Aqueous Film Foaming Film (AFFF) with no known adverse effects**
- **Insufficient time to program for requirements**

DoD remains committed to protecting human health and the environment



Conclusion

- **DoD's priority is to address PFOS/PFOA to protect personnel living and working on our installations and the surrounding communities that we have impacted**
- **Military Departments have made great strides to ensure safe drinking water for our installations**
- **We are addressing DoD's cleanup responsibility**
- **Initiated removal AFFF with PFOS from the supply chain**



References



Defense Environmental Restoration Program Authorities

- **Defense Environmental Restoration Program (10 U.S.C. Section 2701)**
 - Follow the CERCLA process and address hazardous substances, pollutants, and contaminants
- **DoD Follows the CERCLA Process**
 - Preliminary Assessment/Site Inspection – Identify releases
 - Use EPA's Regional Screening Levels to determine whether to continue to a Remedial Investigation
 - Remedial Investigation/Feasibility Study – Investigate and characterize the release and evaluate remedy alternatives
 - Perform Risk Assessment to determine if there is an unacceptable risk to human health or the environment
 - Evaluate ARARs – Once it is determined that remedial action is necessary, DoD will analyze state cleanup standards under the CERCLA ARARs process.
 - Develop Proposed Plan and Decision Document
 - Remedial Action/Remedial Operation
 - Implement and operate remedy
 - Long Term Management
 - Monitoring and Five Year Reviews
- **DoD prioritizes sites by risk level, but other factors may be considered**



Groundwater Sampling

| Component | Total Installations with known or suspected release of PFOS/PFOA (as of August 31, 2017) | Number of Installations Sampled where results exceeded EPA LHA (as of August 31, 2017) | Total number of groundwater wells sampled | Number of groundwater wells that tested above the EPA LHA |
|-----------|--|--|---|---|
| Army | 64 | 9 | 258 | 104 |
| Navy/USMC | 127 | 40 | 1,368 | 784 |
| Air Force | 203 | 39 | 1,022 | 719 |
| DLA | 7 | 2 | 20 | 14 |
| Total | 401 | 90 | 2,668 | 1,621 |



Applicable Policies

- **DoD Instruction 4715.06, “Environmental Compliance in the United States,” May 4, 2015**
- **DoD Instruction 4715.07, “Defense Environmental Restoration Program,” May 21, 2013**
- **DoD Instruction 4715.18, “Emerging Contaminants (ECs),” June 11, 2009**
- **DoD Manual 4715.20, “Defense Environmental Restoration Program (DERP) Management,” March 9, 2012**
- **ASD(EI&E) Memorandum, “Testing DoD Drinking Water for Perfluorooctane Sulfonate (PFOS) and Perfluorooctanoic Acid (PFOA),” June 10, 2016**
- **Emerging Contaminant Governance Council Meeting Results January 28, 2016**

These are consistent with CERCLA, NCP, DERP Statute (10 U.S.C. 2701), and SDWA



Aqueous Film Forming Foam Replacement

- **ASD(EI&E) issued a policy in January 2016 requiring the Military Departments to:**
 - Issue Service-specific risk management procedures to prevent uncontrolled land-based Aqueous Film Forming Foam (AFFF) releases during maintenance, testing, and training activities
 - Remove and properly dispose of PFOS-based AFFF from the local supplies for non-shipboard use where practical
- **Each of the Military Departments is taking actions to remove the AFFF containing PFOS from the supply system**
 - AF funded removal of AFFF from all fire trucks and crash response vehicles in FY 2016
- **DLA is developing new stock numbers for PFOS-free foam**



PFOS/PFOA Initiatives

- **Conducted fate, transport, effects, and remediation research and demonstrations**
- **Held PFAS workshop in May 2017 (<https://www.serdp-estcp.org/Featured-Initiatives/Per-and-Polyfluoroalkyl-Substances-PFASs/2017-Workshop-Report-on-Per-and-Polyfluoroalkyl-Substances>)**
- **SERDP released two Statements of Need for FY 2018, and is initiating supplemental FY 2018 Statements of Need**
- **Participating on the Interstate Technology and Regulatory Council (ITRC) project to review and summarize the currently available Perfluoroalkyl Substances (PFAS) information**
 - ITRC technical team is comprised of members representing Federal and State regulators, Federal agencies, industry, and community stakeholders
 - The ITRC document will provide a unified summary of the state of the science to aid in the selection of appropriate responses to environmental releases of PFAS

Department of Defense



Per- and Polyfluoroalkyl Substances Task Force Operating Principles

September 13, 2019

PER- AND POLYFLUOROALKYL SUBSTANCES (PFAS) TASK FORCE
OPERATING PRINCIPLES

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PER- AND POLYFLUOROALKYL SUBSTANCES (PFAS) TASK FORCE OPERATING PRINCIPLES

I. ESTABLISHMENT, PURPOSE, AND SCOPE

A. ESTABLISHMENT

The Secretary of Defense established the Per and Polyfluoroalkyl Substances (PFAS) Task Force on July 23, 2019, herein referred to as the Task Force. This Operating Principles document delineates the Task Force's membership and specifies the scope of activities and procedures.

B. PURPOSE

The Task Force will provide strategic leadership and direction to ensure a coordinated, aggressive, and holistic approach on DoD-wide efforts to proactively address PFAS. It will provide the Department with the tools needed to address the effects from DOD PFAS releases, as we take care of our Soldiers, Sailors, Airman, and Marines and their families, and the affected communities surrounding our bases.

C. SCOPE OF ACTIVITY

The Task Force shall:

1. Review PFAS related issues affecting the Department and strategically prioritize them for action, focusing on, but not limited to, the following general focus areas:
 - Health aspects, including education for healthcare providers
 - Cleanup standards and performance
 - Finding/funding an effective substitute firefighting alternative without PFAS
 - Interagency coordination/collaboration with other federal agencies, such as the Environmental Protection Agency (EPA), on Administration-wide positions (e.g., science-supported standards for exposure and cleanup).
 - Communications to Congress and the public, including communities surrounding our bases, concerning the PFAS issues and DoD's efforts.
2. Make recommendations to the Secretary of Defense for the establishment of, or changes to, policies, programs, and investments, where necessary, to address PFAS challenges.
3. Establish and oversee a PFAS Task Force Workgroup. The Workgroup will:
 - Recommend a prioritized list of PFAS issues to the Task Force for action.
 - Designate offices of primary responsibility and associated action officers to evaluate solutions to address these issues.
 - Evaluate and provide plans of action and associated milestones for these issues.
 - Recommend final courses of action to address DoD's PFAS challenges.

PER- AND POLYFLUOROALKYL SUBSTANCES (PFAS) TASK FORCE OPERATING PRINCIPLES

- Provide progress reports to the Task Force on the status of actions.
 - Identify issues to the Task Force for engagement with other federal agencies, including the EPA.
4. Serve as the approval authority for actions proposed by the Workgroup.
 5. Establish and monitor metrics, including establishing the format, content and schedule for a periodic Task Force report, to provide information on DoD's progress toward addressing PFAS.
 6. Assess, review, and advise on improving all aspects of the coordination, relevance, efficiency, efficacy, timeliness, viability and transparency of DoD-wide PFAS actions.
 7. Coordinate/collaborate with EPA and other federal agencies to ensure a whole of government approach to this National issue.
 8. Communicate the Task Force progress both within the Department and externally.

II. ORGANIZATION

A. The Assistant Secretary of Defense for Sustainment will chair this Task Force. The Task Force shall have overall responsibility for the implementation of these operating principles. The Task Force shall consist of principal and associate members. The principal members include the following:

Assistant Secretary of Defense for Sustainment (as Chair)
Assistant Secretary of Defense for Health Affairs
Assistant Secretary of the Army (Installations, Energy and Environment)
Assistant Secretary of the Navy (Energy, Installations and Environment)
Assistant Secretary of the Air Force (Installations, Environment, and Energy)
Director of the National Guard Bureau, J-8

B. The associate members will attend meetings at the request of the Chair of the Task Force. Associate members include the following:

Under Secretary of Defense (Comptroller)/Chief Financial
Officer of the Department of Defense
Deputy General Counsel (EE&I) of the Department of Defense
Assistant Secretary of Defense for Legislative Affairs
Assistant to the Secretary of Defense for Public Affairs
Defense Logistics Agency Director

Associate members may be added by the Chair of the Task Force, as necessary.

PER- AND POLYFLUOROALKYL SUBSTANCES (PFAS) TASK FORCE OPERATING PRINCIPLES

C. The Taskforce will coordinate and collaborate with other federal agencies, which include:

- Environmental Protection Agency
- Office of Management and Budget
- National Economic Council
- Council on Environmental Quality
- National Aeronautics and Space Administration
- Department of Energy
- Department of Interior
- Federal Aviation Administration
- United States Coast Guard
- Department of Health and Human Services
- Small Business Administration
- United States Department of Agriculture

D. The Deputy Assistant Secretary of Defense (Environment), will serve as the Executive Secretary for the Task Force.

E. The Task Force shall establish a PFAS Task Force Workgroup. The Workgroup will be led by a GS-15 equivalent from the Office of the Deputy Assistant Secretary of Defense (Environment). The Workgroup members will include one GS15/14 equivalent from each of the following offices:

- Office of the Assistant Secretary of Defense for Health Affairs
- Office of the Assistant Secretary of the Army (Installations, Energy and Environment)
- Office of the Assistant Secretary of the Navy (Energy, Installations and Environment)
- Office of the Assistant Secretary of the Air Force (Installations, Environment, and Energy)
- Office of the Deputy General Counsel (EE&I) of the Department of Defense
- Office of the Assistant Secretary of Defense for Legislative Affairs
- Office of the Assistant to the Secretary of Defense for Public Affairs

Additional Workgroup members may be added by the Chair of the Task Force.

III. PROCEDURES

A. The Chair will convene the Task Force as needed, but at least monthly. The Workgroup will keep The Task Force current on all their respective actions.

PER- AND POLYFLUOROALKYL SUBSTANCES (PFAS) TASK FORCE OPERATING PRINCIPLES

- B. The Chair will report for the Task Force to the Secretary through the Deputy Secretary as appropriate. The Task Force may amend this document as necessary to accomplish the mission.
- C. Budgetary requirements and administrative support for the Task Force will be coordinated by the Chair through the Under Secretary of Defense for Acquisition and Sustainment.
- D. The Task Force Chair will ensure that Task Force activities are internally and externally communicated. The Executive Secretary will maintain historical documentation of accomplishments and recommendations.

IV. DURATION OF TASK FORCE

The Task Force will continue to meet until it and/or its operating principles are amended, superseded, or revoked.

V. PROGRESS REPORTING

The Task Force Chair will provide to the Secretary of Defense:

- A. Monthly written updates.
- B. Interim Findings and Recommendations within 90 days.
- C. Final Findings and Recommendations within 120 days.

115TH CONGRESS }
2d Session

HOUSE OF REPRESENTATIVES

{ REPORT
115-676

NATIONAL DEFENSE AUTHORIZATION ACT
FOR FISCAL YEAR 2019

R E P O R T

OF THE

COMMITTEE ON ARMED SERVICES
HOUSE OF REPRESENTATIVES

ON

H.R. 5515

together with

ADDITIONAL AND DISSENTING VIEWS

[Including cost estimate of the Congressional Budget Office]

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NATIONAL DEFENSE AUTHORIZATION ACT FOR FISCAL
YEAR 2019

MAY 15, 2018.—Committed to the Committee of the Whole House on the State of
the Union and ordered to be printed

Mr. THORNBERRY, from the Committee on Armed Services,
submitted the following

R E P O R T

together with

ADDITIONAL AND DISSENTING VIEWS

[To accompany H.R. 5515]

[Including cost estimate of the Congressional Budget Office]

The Committee on Armed Services, to whom was referred the bill (H.R. 5515) to authorize appropriations for fiscal year 2019 for military activities of the Department of Defense and for military construction, to prescribe military personnel strengths for such fiscal year, and for other purposes, having considered the same, reports favorably thereon with amendments and recommends that the bill as amended do pass.

The amendments are as follows:

The amendment strikes all after the enacting clause of the bill and inserts a new text which appears in italic type in the reported bill.

The title of the bill is amended to reflect the amendment to the text of the bill.

PURPOSE OF THE LEGISLATION

The bill would: (1) authorize appropriations for fiscal year 2019 for procurement and for research, development, test, and evaluation (RDT&E); (2) authorize appropriations for fiscal year 2019 for operation and maintenance (O&M) and for working capital funds; (3) authorize for fiscal year 2019 the personnel strength for each Active Duty component of the military departments, and the per-

sonnel strength for the Selected Reserve for each Reserve Component of the Armed Forces; (4) modify various elements of compensation for military personnel and impose certain requirements and limitations on personnel actions in the defense establishment; (5) authorize appropriations for fiscal year 2019 for military construction and family housing; (6) authorize appropriations for Overseas Contingency Operations; (7) authorize appropriations for fiscal year 2019 for the Department of Energy national security programs; and (8) authorize appropriations for fiscal year 2019 for the Maritime Administration.

RATIONALE FOR THE COMMITTEE BILL

H.R. 5515, the National Defense Authorization Act for Fiscal Year 2019, is a key mechanism through which Congress fulfills one of its primary responsibilities as mandated in Article I, Section 8, of the Constitution of the United States, which grants Congress the power to provide for the common defense, to raise and support an Army, to provide and maintain a Navy, and to make rules for the government and regulation of the land and naval forces. Rule X of the House of Representatives provides the House Committee on Armed Services with jurisdiction over the Department of Defense generally and over the military application of nuclear energy. The committee bill includes findings and recommendations resulting from its oversight activities, conducted through hearings, briefings, and roundtable discussions with Department of Defense and Department of Energy civilian and military officials, intelligence analysts, outside experts, and industry representatives, and it is informed by institutional experience.

The committee believes that America's military faces strategic challenges, including the re-emergence of strategic competitors such as the Russian Federation and the People's Republic of China; threats posed by the Islamic Republic of Iran and the Democratic People's Republic of Korea; and those posed by the Islamic State of Iraq and the Levant, al-Qaida, and other terrorist groups. H.R. 5515 adheres to the Bipartisan Budget Act of 2018, and it provides the Department of Defense and the Department of Energy with important policy authorities to speed decision making and improve agility, while restoring readiness and increasing capabilities and capacities.

National Defense Strategy

H.R. 5515 builds on the National Defense Strategy's recognition of long-term strategic competition. It empowers the Under Secretary of Defense for Policy to develop, implement, and integrate Department of Defense activities across all geographic regions and military functions and domains, and to lead the integration of Department of Defense activities across the interagency of the Federal Government.

With respect to Russia, the bill maintains the long-standing prohibition of military-to-military cooperation with Russia; it maintains the prohibition of U.S. Government recognition of the illegal occupation of Crimea; it funds the President's request of \$250.0 million for assistance to Ukraine, including for lethal defensive items; and, it funds the President's request for \$6.3 billion for the European Defense Initiative (EDI) to further reinforce the U.S.

presence in Europe, and it moves the EDI-request for the Army Pre-positioned Stock United Set to the base budget.

With respect to the whole-of-society plans of the Chinese Community Party of the People's Republic of China (PRC), the bill directs the creation of a whole-of-government strategy to confront these plans; it improves security cooperation to counter the PRC's rising influence in Africa, Southeast Asia, and other regions; and, it improves Taiwan's self-defense capabilities by expanding joint training, foreign military sales, the use of security cooperation authorities, and senior-level military-to-military engagement initiatives.

H.R. 5515 also continues the committee's efforts to reorganize the U.S. Government's efforts with respect to malign foreign influence operations and campaigns by directing the President to designate an official on the staff of the National Security Council to coordinate a whole-of-government response to these operations and campaigns.

Impacts on Military Preparedness

The committee is particularly concerned by the state of military readiness. In 2017, nearly four times as many members of the military died in training accidents as were killed in combat. In all, 21 service members died in combat while 80 died as a result of non-combat, training-related accidents. This spring alone, 25 were killed in military aviation mishaps. In 2017, there were a total of 60 Class-A aviation mishaps across the services.

These mishaps are not limited to military aviation. This past summer, the Navy lost 17 Sailors in separate collisions involving the USS *John S. McCain* and the USS *Fitzgerald*.

H.R. 5515 makes it a top priority of the Department of Defense to increase training of the Joint Force to promote readiness. The funding will allow the Army to conduct 20 Combat Training Center rotations in fiscal year 2019, including 4 rotations for the Army National Guard, doubling the number of Brigade Combat Teams sent to the Center. It will authorize funding for the Army to hold two Security Force Assistance Brigade (SFAB) culminating training events a year, enhancing the Army's combat capability and capacity. The funding in the National Defense Authorization Act for Fiscal Year 2019 enables the Marine Corps to continue maximizing the capacity of their full-spectrum collective training exercises to help restore the capability of the Marine Air-Ground Task Force. H.R. 5515 includes increased funding for equipment maintenance, spare parts, and training to rebuild readiness for ships, aircraft squadrons, and ground units.

The proposal fully supports the President's budget request of \$2.8 billion for the procurement of spare airplane parts for the Navy, Marine Corps, and Air Force. And it also provides \$21.8 billion for equipment maintenance and \$3.7 billion for spare parts; this represents an increase of \$927.9 million over the Fiscal Year 2018 Omnibus.

H.R. 5515 also takes specific steps to restore and rebuild the readiness of the U.S. Navy. It directs the Navy to provide clear chains of command for operations, for building readiness, and for shipyard maintenance. It would limit the time a Navy vessel is forward deployed to more than 10 years, and it would increase the

number of Navy vessels authorized for construction. It accelerates construction of the fourth Ford-class aircraft carrier, authorizes two additional Littoral Combat Ships, and supports two additional Virginia-class attack submarines in fiscal years 2022 and 2023.

Reforming the Department of Defense: Promoting Efficiency, Effectiveness, and Agility

The FY16, FY17 and FY18 National Defense Authorization Acts (NDAAs) included several reforms to the Department of Defense, including reforms to the Department's acquisition processes and to the Office of the Secretary of Defense.

H.R. 5515 focuses on the defense agencies and field activities (DAFAs) that are not part of a military service and do not report directly to the Secretary of Defense. It empowers the newly-created Department of Defense Chief Management Officer (CMO) to eliminate redundancy and cross enterprise activities (e.g., logistics, civilian resource management, real property management, and services contracting). It also requires the CMO to review and assess the function of each DAFA to validate its usefulness to the Joint Force or to recommend its elimination or transformation.

HEARINGS

Committee consideration of the National Defense Authorization Act for Fiscal Year 2019 results from posture and budget-related hearings that began on February 14, 2018, and that were completed on April 19, 2018. The full committee conducted 9 hearings and the 6 subcommittees conducted a total of 23 sessions during this time period. Additionally, over the past year, the committee conducted numerous policy and program oversight hearings, including hearings in support of its reform initiatives, to inform its development of the legislative proposals contained in this Act.

COMMITTEE POSITION

On May 9, 2018, the Committee on Armed Services held a markup session to consider H.R. 5515. The committee ordered the bill H.R. 5515, as amended, favorably reported to the House of Representatives by a recorded vote of 60–1, a quorum being present.

EXPLANATION OF THE COMMITTEE AMENDMENTS

The committee adopted an amendment in the nature of a substitute during the consideration of H.R. 5515. The title of the bill is amended to reflect the amendment to the text of the bill. The remainder of the report discusses the bill, as amended.

RELATIONSHIP OF AUTHORIZATION TO APPROPRIATIONS

The bill does not provide budget authority. This bill authorizes appropriations; subsequent appropriations acts will provide budget authority. However, the committee strives to adhere to the recommendations as issued by the Committee on the Budget as it relates to the jurisdiction of this committee.

The bill addresses the following categories in the Department of Defense budget: procurement; research, development, test, and evaluation; operation and maintenance; military personnel; work-

ing capital funds; and military construction and family housing. The bill also addresses the Armed Forces Retirement Home, Department of Energy National Security Programs, the Naval Petroleum Reserve, and the Maritime Administration.

Active Duty and Reserve personnel strengths authorized in this bill and legislation affecting compensation for military personnel determine the remaining appropriation requirements of the Department of Defense. However, this bill does not provide authorization of specific dollar amounts for military personnel.

SUMMARY OF DISCRETIONARY AUTHORIZATIONS IN THE BILL

The President requested discretionary budget authority of \$708.1 billion for programs within the jurisdiction of the committee for fiscal year 2019. Of this amount, \$617.1 billion was requested for “base” Department of Defense programs, \$69.0 billion was requested for Overseas Contingency Operations requirements covering the entire fiscal year, \$21.8 billion was requested for Department of Energy national security programs and the Defense Nuclear Facilities Safety Board, and \$0.2 billion was requested for defense-related activities associated with the Maritime Administration.

The committee recommends an overall discretionary authorization of \$708.1 billion in fiscal year 2019. The committee authorization is a \$16.0 billion increase above the levels provided for in the National Defense Authorization Act for Fiscal Year 2018 (Public Law 115–91).

The table preceding the detailed program adjustments in division D of this report summarizes the committee’s recommended discretionary authorizations by appropriation account for fiscal year 2019 and compares these amounts to the President’s request.

BUDGET AUTHORITY IMPLICATION

The President’s total request for the national defense budget function (050) in fiscal year 2019 is \$725.5 billion, as estimated by the Congressional Budget Office. In addition to funding for programs addressed in this bill, the total 050 request includes discretionary funding for national defense programs not in the committee’s jurisdiction, discretionary funding for programs that do not require additional authorization in fiscal year 2019, and mandatory programs.

The table preceding the detailed program adjustments in division D of this report details changes to the budget request for all aspects of the national defense budget function.

**DIVISION A—DEPARTMENT OF DEFENSE
AUTHORIZATIONS****TITLE I—PROCUREMENT****AIRCRAFT PROCUREMENT, ARMY****Items of Special Interest***Apache attack helicopters*

The committee understands the Army's current aviation modernization and equipping strategy that resulted from the Army's Aviation Restructure Initiative currently resources the Army National Guard (ARNG) to retain 4 attack reconnaissance battalions for a total of 72 AH-64 Apache attack helicopters. The committee notes that these ARNG attack reconnaissance battalions would be equipped with 18 AH-64 attack helicopters as compared to the Active Component battalions that are equipped with 24 AH-64 attack helicopters. The committee is aware the ARNG is no longer solely the strategic reserve of the past, but also an operational force, and provides significant capability through rotational support to combatant commanders. The committee believes that given the current global threat environment, reliance on ARNG capabilities is expected to increase.

Therefore, the committee believes that all 4 ARNG attack reconnaissance battalions should be equipped with 24 AH-64 attack helicopters, the same as Active Component battalions, in order to improve overall readiness and compatibility between the ARNG and Active Component. The committee encourages the Secretary of the Army to plan, program, and budget for 24 additional AH-64 attack helicopters to address ARNG requirements across the Future Years Defense Program.

Light utility helicopter

The budget request included \$6.4 million for utility helicopter modifications to the UH-60 Black Hawk and the UH-72A Lakota helicopters, but contained no funding for UH-72A life-cycle sustainment and product improvements. The UH-72A Lakota helicopter provides general aviation support for aviation units in the Active and Reserve Components. The committee supports the requirement to conduct mid-life sustainment and product improvement activities for the UH-72A, and includes funding to conduct the analysis, engineering, certification, and risk reduction activities necessary to update the UH-72A Life Cycle Support Plan. The committee also recognizes that the UH-72A was initially fielded without aircraft survivability equipment, which could potentially limit the Active Component and Army National Guard's utilization of the UH-72A platform. As reflected in Division D of this Act, the committee recommends additional funding for the National Guard and Reserve Component Equipment Account (NGREA). The committee understands that while no requirements have been formally identified for UH-72A Lakota ballistic armor or aircraft survivability equipment by the National Guard Bureau, should a requirement be put forth, the committee expects the Army National Guard to utilize NGREA funds.

The committee recommends \$16.4 million, an increase of \$10.0 million, in utility helicopter modifications for UH-72A life-cycle sustainment and product improvements. Further, the committee directs the Secretary of the Army to provide a briefing to the House Committee on Armed Services by February 8, 2019, on the Army's long-term sustainment strategy for the UH-72A Lakota helicopter fleet.

Report on efforts to reduce operational and maintenance costs for CH-47

The committee is aware the Army has recently validated a new specification for an improved thermal-acoustic blanket for CH-47 helicopters, which does not appear to be reflected in the logistics and material databases and support system. By greatly improving capabilities over current blankets, including dry/wet weight, air permeability, thermal and acoustic insulation, and durability the Army has developed a cost-effective way to significantly reduce operational and maintenance costs for the heavy lift fleet. The committee commends the Army for this effort, and directs the Secretary of the Army to provide a briefing to the Armed Services Committees of the House of Representatives and Senate no later than September 28, 2018 detailing plans to outfit all current and future CH-47s with this enhanced capability and the status of the material and logistics supply chain's incorporation of this new specification. The briefing should include a schedule for fielding blankets for the current fleet and the status of inserting the new specification into CH-47 block II production.

Unmanned aerial system units for Army National Guard

The committee understands the Army's current fielding plan for MQ-1C Gray Eagle units includes Active Duty combat aviation brigades and intelligence units, and that at present no systems are planned for fielding to the Army National Guard. However, the committee notes that there are many missions involving military support to civilian authorities for which the MQ-1C Gray Eagle could contribute, including wildfire response, search and rescue, border security, counter-narcotics, and communications support during emergencies. Therefore, the committee directs the Secretary of the Army to provide a briefing to the House Committee on Armed Services by March 1, 2019, on the potential utility, feasibility, and cost of establishing MQ-1C Gray Eagle units in the Army National Guard. The briefing shall include, at a minimum, a detailed analysis of the resources needed to create a minimum of two Gray Eagle companies in the Army National Guard, and an analysis of how such units could provide support to civilian authorities for domestic emergencies.

MISSILE PROCUREMENT, ARMY

Items of Special Interest

Stinger missile modernization program

The committee supports the Army's accelerated strategy to restore capacity and capability in Short-Range Air Defense (SHORAD) teams, to include reconstituting man-portable air de-

fense teams using Stinger missiles to counter current and emerging threats from fixed-wing aircraft, rotary-wing aircraft, and unmanned air systems (UAS). However, the committee has significant concerns regarding the adequacy of the Army's Stinger missile inventory, as well as the resiliency of the associated industrial base that produces key components, including those required for the Stinger missile seeker.

The committee recognizes the requirement for Stinger missiles will likely increase as a result of increased demand for SHORAD capability. The Army's current acquisition strategy does not include any new production of Stinger missiles, and instead implements a service life extension program (SLEP) for existing Stinger missiles. The committee notes that the last new Stinger missile was produced in 2001, and that missiles expire annually due to attrition and decay. While the Stinger SLEP program does extend the missile life by 10 years and improves counter-UAS capability by adding a proximity fuze, the current SLEP program will not mitigate the decline in Stinger missile inventory. Further, the Stinger SLEP program does not address the capability of the Stinger guidance section, electronics or seeker.

The committee directs the Secretary of the Army to provide a briefing to the House Committee on Armed Services by December 3, 2018, on the Stinger Modernization Program. The briefing should address the Army's strategy to mitigate the decline of the Stinger missile inventory, to include required funding, maintenance of the Stinger industrial base, and modernization of the Stinger program in the out-years.

PROCUREMENT OF WEAPONS AND TRACKED COMBAT VEHICLES,
ARMY

Items of Special Interest

Armored brigade combat team modernization

In the committee report accompanying the National Defense Authorization Act for Fiscal Year 2018 (H. Rept. 115–200), the committee expressed concerns about the stability of armored brigade combat team (ABCT) modernization funding in fiscal year 2018 and beyond, noting that the Army was currently modernizing one ABCT every 2 years at best. Furthermore, in H. Rept. 115–200 the committee encouraged the Army to fully modernize at least one ABCT per year, and the National Defense Authorization Act for Fiscal Year 2018 (Public Law 115–91) authorized the additional funding necessary to modernize one complete ABCT. The committee is encouraged by the Army's increased investment for ABCT modernization in the budget request.

Given this increased investment for ABCT modernization, the committee believes the Army should examine the cost benefits of using multiyear procurement contracts for combat vehicle platforms comprising ABCTs. However, the committee is also aware the Army has concerns over the loss of fiscal flexibility that occurs when it commits to a multiyear contract.

Therefore, the committee directs the Secretary of the Army to provide a briefing to the House Committee on Armed Services by December 3, 2018, on the results of a cost-benefit analysis com-

paring a traditional 5-year multiyear contract for ABCT platforms with an alternative 3-year multiyear contract with 2 successive single-year options.

In addition, the committee is concerned that the Army's current nomenclature for a critical part of the ABCT, the M1 Abrams tank, has become so complicated that it fails to communicate the importance of the Army's planned upgrades for the tank. Specifically, the committee is concerned that Army's use of "M1A1 situational awareness," "M1A2 system enhancement program version 3," and "M1A2 system enhancement program version 4" to refer to Army upgrade programs for the M1 Abrams tank fails to clearly and concisely convey the significant capability upgrades resident in these efforts. The committee encourages the Army to change, as soon as possible, to clearer M1 Abrams upgrade program descriptions such as the "M1A3" and "M1A4" to more efficiently describe these programs. The committee believes that such a change does not require any additional testing or funding.

M240 medium machine gun modernization

The committee is concerned the Army may be assuming too much risk in the small arms industrial base with respect to the family of M240 medium machine guns. Current funding profiles could lead to a potential production line shutdown. The shutdown of existing production lines would create significant operational impacts if requirements increase. The committee notes that the budget request included \$2.1 million for M240 production; however, no funding is projected for new production in fiscal year 2020 or fiscal year 2021. The committee encourages the Army to closely monitor this critical industrial base and work with the original equipment manufacturer to develop courses of action to ensure the production line remains viable and capable of supporting potential increased requirements.

The committee directs the Secretary of the Army to provide a briefing to the Committee on Armed Services of the House of Representatives by September 28, 2018. This briefing shall include, at a minimum:

- (1) the projected service life of the current M240 inventory;
- (2) the Army's plan and schedule to replace the current M240 inventory either with newer M240 models or an entirely new system;
- (3) how the Army will address increased requirements caused by increases in end strength and combat formations;
- (4) relevant cost analysis for restarting the M240 production line after a period of dormancy; and
- (5) a description of interaction and communication with the original equipment manufacturer regarding capacity challenges and minimum sustaining production rates.

Additionally, the committee directs the Secretary of the Army to provide an advisability and feasibility study to the House Committee on Armed Services by September 28, 2018, on transitioning the existing fleet of M240B medium machine guns to the lighter-weight M240L configuration. This assessment shall include the estimated costs associated with this transition and using current inventories of M240Bs.

M3E1 Carl Gustaf weapon system

The committee understands the M3E1 Carl Gustaf is the Army's current platform for addressing the Army's multi-role anti-armor anti-personnel weapon system requirement. The committee notes that the Army is implementing a directed requirement signed in January 2017 to expand the fielding of lightweight Carl Gustaf systems to infantry and scout platoons in its infantry brigade combat teams and Stryker brigade combat teams.

The committee notes, however, that the Army does not have plans or funding for a precision-guided round for the Carl Gustaf that will provide pinpoint, multitarget engagement capability at substantially extended ranges. The committee is aware of an emerging U.S. Special Operations Command requirement for a Guided Carl Gustaf Munition and encourages the Army to accelerate development and production of a precision-guided round for the Carl Gustaf weapon system.

Paladin Integrated Management

The base budget request included \$351.8 million for 30 M109A7 Paladin Integrated Management (PIM) self-propelled howitzers. The M109A7 PIM program modernizes the legacy M109A6 Paladin self-propelled howitzer and M992A2 Field Artillery Ammunition Support Vehicle.

The committee has worked closely with the Army to stabilize production for combat vehicle programs and armored brigade combat team modernization in order to maintain overmatch against near-peer and peer strategic competitors. As such, the committee is concerned that the Army's budget request for the Paladin Integrated Management program does not adequately fund the current production contract. The committee notes that the Army has decreased planned PIM funding in fiscal year 2019 by approximately \$237.0 million and that this funding decrease has resulted in a loss of 24 vehicle sets below the original 60 sets authorized under the contract. Furthermore, the committee understands the Army plans to increase production back to 60 sets per year beginning in fiscal year 2020. The committee believes this variance from planned and contracted funding amounts could cause significant disruptions to the PIM supply chain. The committee encourages the Army to maintain funding for PIM consistent with the 60 vehicles sets per year included in its current production contract.

Therefore, the committee recommends \$426.8 million, an increase of \$75.0 million, to increase production for the M109A7 PIM program.

Stryker upgrades

The budget request contained \$21.9 million for the procurement of three conversions of Stryker flat-bottom hull vehicles to the Double V-Hull (DVH) configuration with Engineering Change Proposal (ECP) 1 upgrades resulting in a Stryker DVHA1 vehicle to be fielded in Stryker brigade combat teams (SBCTs). The budget request also contained \$287.5 million for Stryker vehicle modifications to resolve reliability, lethality, safety, operational, and performance degradation issues in Stryker vehicles.

The committee understands the Stryker DVHA1 ECP addresses mobility and electrical power degradation issues resulting from

over 10 years supporting overseas contingency combat operations, as well as other improvements in network capability intended to provide the platform for future evolution of the fleet. The committee notes that the Chief of Staff of the Army just recently completed an assessment of Stryker program priorities and directed that all six remaining SBCTs convert to the Stryker DVHA1 configuration. The committee supports this directed requirement, and believes the conversion would provide SBCTs with a more survivable vehicle, as well as regain the mobility and automotive performance lost due to the additional weight of the existing survivability upgrades. To facilitate and support this effort in fiscal year 2019, the committee notes the Army has requested realignment of \$149.3 million from the Stryker modification budget request, and also has identified new unfunded requirements for Stryker upgrades.

The committee recommends an additional \$188.8 million to accelerate Stryker DVHA1 upgrades for SBCTs. The committee also recommends the realignment of \$149.3 million from the Stryker modification budget request for Stryker DVHA1 upgrades. The committee recommends a total of \$360.0 million, a total increase of \$337.3 million, for Stryker DVHA1 upgrades.

PROCUREMENT OF AMMUNITION, ARMY

Items of Special Interest

M58 MICLIC

The committee has continuing interest in the Department of Defense's plans to modify and upgrade the M58 Mine Clearing Line Charge (MICLIC). This antiquated system has been employed by the United States Marine Corps and U.S. Army since the Vietnam era. Since the beginning of the Global War on Terrorism, enemy mines and improvised explosive devices (IEDs) have been used to counter U.S. ground mobility assets. The past 17 years of conflict, coupled with recent trends indicate that these types of defensive tactics and techniques will be used in future engagements. While the enemy continues to adapt, the M58 MICLIC costs \$83.6K per system and has not seen any significant upgrade in capability since its introduction.

Therefore, the committee directs the Secretary of the Army to provide a briefing to the House Committee on Armed Services not later than February 1, 2019, on the Army's plan for upgrading or replacing the M58 MICLIC. The briefing should include:

- (1) A description of current MICLIC employment statistics and mission requirements
- (2) An overview of a plan and timeline to upgrade the current system or field a newer variant
- (3) The costs associated with the research, development, test, and evaluation of a new system
- (4) Any employment or effectiveness shortfalls with the current M58 system.

OTHER PROCUREMENT, ARMY

Items of Special Interest

CREW electronic counter-measure systems

The budget request contained \$42.7 million for the procurement of counter radio controlled improvised explosive devices (RCIED) electronics warfare (CREW) family of electronic counter measure (ECM) systems to protect dismounted soldiers, fixed-sites, and tactical and combat vehicles. The committee supports this program and notes that the United States Marine Corps and United States Special Operations Command are currently procuring the same family of systems. The committee is aware that the Army has two Program Executive Offices (PEOs) responsible for developing and procuring ground-based mounted and dismounted CREW and ECM systems. The committee notes that PEO Ammunition procures these systems specifically for Army Explosive Ordnance Disposal (EOD) units and that PEO Intelligence, Electronic Warfare & Sensors (IEW&S) for all other Army organizational units. The committee needs to be assured that these PEOs are coordinating effectively on materiel solutions and are engaged in mutually supporting activities regarding CREW ECM systems.

The committee directs the Secretary of the Army to provide a briefing to the House Committee on Armed Services by August 30, 2018, on the Army's efforts to coordinate and synchronize the requirements process, rapid acquisition efforts, and programs of record of PEO IEW&S and PEO Ammunition related to CREW ECM systems.

Enhanced rapid airfield construction capability

The budget request included \$0.9 million for enhanced rapid airfield construction capability (ERACC) equipment.

The committee understands ERACC equipment provides the joint commander with the capability enhancement to rapidly construct new airfields and runways, and to upgrade existing facilities to meet joint task force requests. The committee notes this request specifically provides for the procurement, installation, and fielding of equipment in support of ERACC Type II mission requirements. The committee understands ERACC Type II mission equipment consists of a grade control system that includes a Global Positioning System (GPS) and laser leveling system that is installed on a dozer, grader, scraper and Deployable Universal Combat Earthmover. The committee notes the laser leveling systems allow for precision survey planning with three-dimensional software. The committee understands this system would significantly reduce operational time required for heavy construction missions, and result in fewer machines required to complete missions, as well as fuel savings. The committee believes there are emerging requirements for additional ERACC Type II capability.

The committee recommends \$8.4 million, an increase of \$7.5 million, to accelerate the competitive modernization of ERACC equipment.

Mine resistant ambush protected vehicle sustainment

The committee commends the military services for retaining the most capable mine resistant ambush protected (MRAP) vehicles to meet military operational and training needs, as well as standardizing the fleet to improve long-term sustainment. The committee notes the Army has an enduring requirement of 8,222 MRAP vehicles, and that MRAP vehicles continue to be a critical high demand force protection asset for overseas contingency operations in the U.S. Central Command's area of responsibility. The committee also notes that since the military services finalized the enduring requirements for MRAP vehicles, the military services face an increasingly complex and significantly worse global threat environment.

In this environment, the committee believes demand for MRAP vehicles could increase. Additionally, MRAP vehicles may be needed to fulfill emerging requirements that may not have been fully considered as part of the Army's long-term tactical wheeled vehicle modernization strategy, such as requirements for key leader or command and control vehicles. The committee notes with concern that the Army's budget request contained no funding for MRAP vehicle modifications or improvements for the existing inventory of MRAP vehicles. The committee encourages the Army to take necessary steps to ensure the MRAP vehicle industrial base remains viable.

Therefore, the committee directs the Under Secretary of Defense for Acquisition and Sustainment, in coordination with the Secretary of the Army, to provide a briefing to the House Committee on Armed Services by December 14, 2018, that details the Army's long-term strategy for planning, programming, and budgeting for long-term sustainment, research and development, and procurement of MRAP vehicle platforms.

Tactical Communication and Protective Systems (TCAPS) authorization

The House Armed Services Committee is aware that service members are routinely exposed to extreme loud noises that can damage their hearing. The committee further notes that technologies are available that integrate advanced hearing protection into tactical radio headsets, significantly improving communications ability as well as overall situational awareness. The committee is concerned, however, that disparity in the procurement and fielding schedules of these components is leading to inefficiencies that unnecessarily undermine readiness and could jeopardize the long-term health of service members.

Therefore, the committee directs the Secretary of the Army, in coordination with the Director of the Soldier Lethality Cross-Functional Team pilot as well as the appropriate program executive offices, to provide a briefing to the House Committee on Armed Services by September 1, 2018 on potential courses of action to mitigate the aforementioned disparity.

Tactical network modernization

The committee understands the Army's new tactical network modernization strategy is designed to enable the Army to "fight tonight," while also actively seeking next-generation solutions to stay

ahead of potential adversaries. The committee notes this strategy would fix the existing programs that are necessary to fulfill the most critical operational shortfalls, while pivoting to a new acquisition methodology that fosters rapid insertion of new technology. In the report required by section 112 of the National Defense Authorization Act for Fiscal Year 2018 (Public Law 115–91), the Army stated that “the Army will continually evaluate available solutions, including those that may not have originally been designed for military application, using operational units to demonstrate, experiment with, and test them in the field. The Army will then ‘adapt and buy’ the best of the tested solutions to meet unique military challenges.” Consistent with this new tactical network modernization strategy, the committee expects the Director of the Army’s Network Command, Control, Communication, and Intelligence cross-functional team pilot to test and consider readily available, non-developmental tactical communications technologies that deliver the improved performance in voice, video, and data dissemination at the squad and individual soldier level.

Tactical wheeled vehicle industrial base sustainment

The committee is aware that the Army’s Future Years Defense Program (FYDP) projections for the family of medium tactical vehicles (FMTVs) and the family of heavy tactical vehicles (FHTVs) Recapitalization program in the budget request are significantly lower than corresponding fiscal year 2018 FYDP projections. The committee is concerned that a drastic, unexpected decrease in FYDP procurement projections for these critical vehicle programs could have significant impacts to the medium and heavy tactical wheeled vehicle defense industrial base. The committee notes with concern that this could put at risk the TWV industrial base’s ability to provide surge capacity in an emergency. The committee encourages the Secretary of the Army to develop procurement plans for tactical wheeled vehicles and corresponding recapitalization programs that do not place unreasonable pressure on the tactical wheeled vehicle industrial base, nor undermine its capacity for surge production.

The committee directs the Secretary of the Army to provide a briefing to the House Committee on Armed Services by September 30, 2018, on the Army’s current acquisition strategy and sustainment strategy for FMTVs and FHTVs. The briefing should also include potential courses of action to minimize impacts to the industrial base, as well as ways to maintain surge capacity across the FYDP.

AIRCRAFT PROCUREMENT, NAVY

Items of Special Interest

Current and future anti-submarine warfare system study

Preceding the Navy Department’s MH–60R Mid-Life Upgrade (MLU) in Fiscal Year 20, advances in anti-submarine warfare systems manufactured in the U.S. warrant a review. The committee is encouraged by advances in dipping sonar utilizing low frequency detection and beam-forming technologies, allowing multiple boundary interactions, and interoperability with shipboard sonars and sonobuoys adding greatly enhanced protection to the carrier battle

group. Moreover, these advances in technology are derived from U.S. sources, vice foreign technologies.

Additionally, the committee is concerned that the current MH-60R anti-submarine warfare system, Airborne Low Frequency Sonar (ALFS), that serves as the primary ASW sensor in the Carrier Strike Group, has a component failure rate that has depleted the spares inventory, impacting deployed and nondeployed readiness including the ability to support concurrent MH-60R deployments.

Therefore, the committee directs the Secretary of the Navy to submit a report to the House Armed Services Committee by March 1, 2019 on the current operability and readiness issues of ALFS system and the potential utilization of existing, advanced U.S. technologies to upgrade the MH-60R fleet's anti-submarine warfare system.

Long-range naval carrier aviation

The committee notes that section 1067 of the National Defense Authorization Act for Fiscal Year 2016 (Public Law 114-92) directed the Secretary of Defense to provide three independent studies of alternative future fleet platform architectures for the Navy in the 2030 timeframe.

The committee further notes that the three studies concur as to the need for an enhanced carrier-based unmanned long-range strike capability beyond current plans and programs. The committee remains concerned that while the MQ-25 program leverages Unmanned Carrier-Launched Airborne Surveillance and Strike requirements justification, the most recent documentation sent to industry did not include precision strike capability as a requirement. The committee believes that the Navy may be unnecessarily excluding a critical capability and precluding future growth in a platform that will likely be integrated into the carrier air wing for the next 30 years.

Therefore, the committee encourages the Navy to develop an unmanned anti-access penetrating long-range strike capability from the aircraft carrier, in addition to the current focus on the MQ-25A.

MQ-4

The budget request contained \$577.8 million for procurement of three MQ-4C unmanned aircraft. The committee understands the MQ-4C will be a forward-deployed, land-based, autonomously operated system that provides a persistent maritime intelligence, surveillance, and reconnaissance (ISR) capability using a multi-sensor mission payload. The MQ-4C's unique combination of long endurance and advanced sensors will support combatant commanders and provide a common operational picture of the maritime environment.

The committee supports the budget request of \$577.8 million for procurement of three MQ-4C aircraft. However, how, when, and what quantity of MQ-4C aircraft will be integrated into the Department of Defense's ISR Global Force Management Allocation Process (GFMAP) for airborne ISR aircraft is still unclear. Therefore, the committee also directs the Chairman of the Joint Chiefs of Staff (CJCS), in consultation with the Secretary of the Navy, to

provide a briefing to the House Committee on Armed Services, not later than October 15, 2018, that details the strategy and plan to integrate MQ-4C into the CJCS ISR GFMAP process. At a minimum, the briefing should illustrate the methodology that will be used to determine the quantity of MQ-4C aircraft involved in the process, the scheduling start date, the type of aircraft capability, and the capacity of intelligence discipline capability the MQ-4C will provide to the combatant commanders.

Navy Reserve F/A-18 aircraft

The committee remains concerned about the health and readiness of the Navy Reserve combat air fleet. The committee is aware that the Navy Reserve tactical aviation squadrons provide critical adversary support and strike fighter weapons training to Active Duty forces, and must maintain a high mobilization readiness level as the sole strategic reserve available to the Department of the Navy. The committee understands that the Navy Reserve currently operates 33 legacy F/A-18A+ aircraft that are currently shared between two squadrons. The committee notes that with an average airframe age of 31 years and aircraft systems that are no longer compatible with today's carrier air wing, the Navy Reserve aircraft are increasingly less capable than the F/A-18E/F Super Hornet aircraft used by the Navy's Active Duty fleet. The committee believes that this situation could affect the ability of the two Navy Reserve squadrons to meet requirements for advanced strike employment, and the capability to simulate current advanced threat aircraft. The committee also believes that the legacy F/A-18A+ aircraft needs to be recapitalized with next-generation capability in order to provide realistic threat-representative training for naval aviators and to maintain operational readiness that provides a relevant and deployable reserve to the Active Duty air wings.

Accordingly, the committee directs the Secretary of the Navy, in coordination with the Chief of the Navy Reserve, to provide a briefing to the House Committee on Armed Services not later than December 4, 2018, on its updated plans to recapitalize the Navy Reserve combat air fleet.

WEAPONS PROCUREMENT, NAVY

Items of Special Interest

Advanced Low Cost Munition Ordnance

The committee continues to support development of the Advanced Low Cost Munition Ordnance (ALaMO), a guided 57 mm projectile, to counter the growing threats posed by small boat swarms, unmanned aerial systems, and other emerging threats. Therefore, the committee directs the Secretary of the Navy to provide a briefing to the House Committee on Armed Services by August 30, 2018, on accelerating development of ALaMO's capabilities to address threats posed by unmanned aerial systems. The briefing should also include, but not be limited to, an evaluation of the current funding profile of this program across the Future Years Defense Program, as well as potential courses of action to accelerate or streamline the current program strategy.

SHIPBUILDING AND CONVERSION, NAVY

Items of Special Interest

Frigate

The committee is aware that the Navy awarded five contracts for conceptual design for its new guided missile frigate program, FFG(X), with multiple shipbuilders currently developing their respective designs to compete for a detail design and construction contract award planned for September 2020. This pursuit represents a significant shift from the Navy's previous plans to award a contract in fiscal year 2018 for a frigate derived from minor modifications to a Littoral Combat Ship (LCS) design. The FFG(X) program intends to leverage the proposed capabilities of the previous frigate plans and expand upon them to create a more lethal and survivable ship to meet the Small Surface Combatant (SSC) requirement. Toward that end, the committee encourages the Secretary of the Navy to emphasize concepts of risk reduction, commonality with existing platform equipment, and reduced acquisition and life cycle and sustainment costs to provide a best value solution for this critical platform. FFG(X) represents a significant investment, with the Navy's fiscal year 2019 long-range shipbuilding plan estimating over \$5.5 billion through fiscal year 2023 for the first 6 frigates, and a total of 20 frigates planned through fiscal year 2030.

Since 2005, the Comptroller General of the United States has reported extensively on the LCS program, the predecessor small surface combatant. Considering the lessons learned during the LCS program, the committee directs the Comptroller General of the United States conduct a review of the FFG(X) program and provide a report to the congressional defense committees by March 1, 2019. The report shall include, at a minimum, analysis on the following:

(1) conceptual design plans and activities to support the advancement of multiple ship designs for a full and open competition in fiscal year 2020;

(2) activities to establish requirements and system specifications, and to develop the program's overall acquisition approach, including cost and schedule estimates, as well as a test strategy; and

(3) plans for the detail design and construction award contract, to include a review of the implications of a potential request by the Navy for a block buy award.

Nimitz-class aircraft carrier service life extension

In December 2016, the Secretary of the Navy determined that a 355-ship Navy is required to support force structure demands. A part of this force structure requirement is a power projection requirement of 12 aircraft carriers. With the delivery of the USS *John F. Kennedy* (CVN 79) in 2023, the Navy will reach their 12 aircraft carrier goal but will quickly lose this overall capacity with the programmed retirement of USS *Nimitz* (CVN 68) in fiscal year 2023.

The committee believes that there are several options to retain required aircraft carrier force structure to include accelerating construction of the *Ford*-class carriers. Additionally, the committee believes that service life extension options may be available for USS

Nimitz. Therefore, the committee directs the Secretary of the Navy to provide a briefing to the House Committee on Armed Services by March 1, 2019, on options that exist to extend the service life of USS *Nimitz*, to include the extension of major components. Additionally, such a briefing should include cost estimates and major modernization components.

OTHER PROCUREMENT, NAVY

Items of Special Interest

Arleigh Burke-class destroyer radar backfit

The committee notes that Navy witnesses have provided testimony to the committee and indicated their recommendation to extend the service life of the *Arleigh Burke*-class destroyers for 45 years. Navy notes that expansion of the service life will allow Navy to reach the 355-ship Navy by 2036 or 2037. The committee supports retention of destroyers beyond their current service life but notes that such support is contingent on providing a comprehensive modernization plan for the entirety of the in-service destroyers. As part of this overall modernization of the destroyer fleet, the committee believes that it is essential the Navy develop a next generation maritime radar system for in service *Arleigh Burke*-class destroyers to address existing and emerging gaps in integrated air and missile defense. The committee understands that the Secretary of the Navy is still developing its strategy for how to pursue this capability. The committee further recognizes that the recent decision to perform a class wide service life extension program (SLEP) on all in service destroyers could have an impact on the timing of a radar backfit program. The committee believes that it would be premature to make any decisions regarding specific radars until the Secretary has completed a comprehensive threat and capabilities based assessment of what will be required for a new radar for in service destroyers. Therefore, the committee directs the Secretary of the Navy to brief the House Armed Services Committee on the details of their DDG-51 radar backfit strategy once an overall modernization strategy has been completed.

MH-60R dipping sonar upgrades

The committee notes numerous advancements in anti-submarine warfare systems preceding the Department of the Navy's MH-60R Mid-Life Upgrade in fiscal years 2020 through 2023. Specifically, the committee is encouraged by advances in dipping sonar utilizing low frequency detection and beam-forming technologies, allowing multiple boundary interaction and interoperability with shipboard sonars and sonobuoys to expand the lethality of Navy forces. The committee is concerned that the current MH-60R anti-submarine warfare system, the airborne low frequency sonar that serves as the primary anti-submarine warfare sensor in the carrier strike group, has a high component failure rate.

Therefore, the committee directs the Secretary of the Navy to provide a briefing to the House Committee on Armed Services by February 1, 2019, on the potential use of existing advanced technologies to upgrade the MH-60R fleet. If available manufactured systems meet or exceed current legacy technologies reliability or ca-

pability, then the Department of the Navy is encouraged to conduct a full and open competition for MH-60R dipping sonar upgrades, repairs, and replacements as part of the fleet sustainment of these capabilities.

SPY-6 inherent capabilities

The committee is aware that next generation AN/SPY-6(V) Air and Missile Defense Radars will soon be entering the fleet. As the SPY-6 family of radars begin to deploy and better protect our service members and allies, the committee is also aware that capabilities beyond those designed for nominal radar operations may exist. To provide the committee a better understanding of the full range of capabilities resident in SPY-6(V) radar modular assembly (RMA) based radars, the committee directs the Secretary of the Navy to provide a briefing to the House Armed Services Committee on a plan that will exploit the inherent capabilities of SPY-6(V) within 90 days from the enactment of this Act.

Surface ship torpedo defense

The evolving challenges and tensions in the Indo-Asia-Pacific region underscore the ongoing requirement for a surface ship torpedo defense (SSTD) capability for the Navy's high-value units. The committee understands that the Chief of Naval Operations highlighted this requirement in a 2010 urgent operational need statement and that since that time, potential regional adversaries have continued to improve their submarine and torpedo capabilities. Despite this increasing threat to Navy carrier strike groups and surface platforms, and the continued SSTD testing success and program maturation, the budget request and the Future Years Defense Program inadequately support currently deployed systems and cancel further development of this SSTD capability.

The committee is concerned that this decision is based on the need to balance several years of inadequate funding resources across a range of priorities and that this budgetary dynamic is forcing decisions that put at risk the readiness and security of U.S. naval and Marine forces without adequate alternative plans to mitigate that threat. As raised in previous communications with Navy officials, the committee also has concerns that the Navy has distributed various SSTD program responsibilities among various Navy resource sponsors, which has led to a lack of determined support for efficient program execution and a lack of focused leadership.

In light of these concerns, the committee directs the Secretary of the Navy to provide a briefing to the House Committee on Armed Services by October 1, 2018, that includes, but is not limited to, the following: an assessment of the current and foreseeable torpedo threats facing high-value units and the Navy's plan to adequately protect them, a description of the requirements for SSTD, an assessment of the development program concerning each of the SSTD capability elements, the plan to consolidate responsibility of the SSTD program, and the plan to manage and sustain currently fielded SSTD systems.

PROCUREMENT, MARINE CORPS

Items of Special Interest

Indoor Simulated Marksmanship Trainers

The budget request contained \$52.0 million for Marine Corps Training Devices. Of this amount, \$2.7 million was requested for Indoor Simulated Marksmanship Trainers (ISMTs).

The ISMT system is a three-dimensional simulation-based trainer for indoor use, capable of instructing in basic and advanced marksmanship, shoot/no-shoot judgment, combat marksmanship, and weapons employment tactics. The committee recognizes the value of this training system for remedial and virtual instruction to augment live fire upon simulated targets. The committee notes the ISMT systems are used both within the continental United States (CONUS) and outside CONUS. The committee also recognizes the value of this capability in that it would allow for rapid generation of new training scenarios, thus adding new capability quickly and efficiently to meet the training demands resulting from doctrinal and/or mission requirement changes. The committee encourages the Marine Corps to continue to work with the industrial base to improve and upgrade components for the Training Device portfolio.

The committee recommends \$2.7 million, the full amount in the budget request, for the ISMT system.

Rapid acquisition of Rifle Integrated Controller

The committee understands the Marine Corps is currently evaluating a rifle accessory control unit (RACU) through a two-phase process that should result in fielding capability improvements in the operational performance and close-combat lethality of individual marines. The committee understands the RACU will be fully integrated with current Marine Corps weapons and communication devices and will be evaluated for operational utility at the unit level. The committee recognizes the challenges that exist for an individual marine to operate separate situational awareness, communications, target designators, thermal sights, and other battle management devices. The committee notes the RACU system would consolidate these disparate capabilities into one unified capability. The committee is encouraged by the initial feedback regarding the performance of the RACU during the phase 1 evaluation. The committee understands the phase 2 evaluation should conclude by the end of fiscal year 2018.

The committee expects the Marine Corps to expeditiously complete the phase 2 evaluation and, subject to a successful evaluation, expects the capability to result in a validated requirement. The committee encourages the Commandant of the Marine Corps to consider a rapid acquisition strategy to accelerate the fielding and procurement of the RACU utilizing existing acquisition reform authorities.

AIRCRAFT PROCUREMENT, AIR FORCE

Items of Special Interest

A-10 replacement wings

The base budget request contained \$98.7 million for A-10 aircraft modifications, of which \$79.2 million was included for the A-10 wing replacement program. The committee notes that increases for fiscal years 2017 and 2018 will enable the Department of the Air Force to begin a second wing replacement program for an additional 110 A-10 replacement wings.

The committee continues to believe that sustainment of the 281-aircraft A-10 fleet helps to meet Air Force fighter aircraft capacity requirements. The committee notes that A-10 force structure consists of five Air Reserve Component and four Active Duty squadrons, and that any fewer than nine squadrons will not meet future combatant commander demand for A-10 aircraft. Consequently, subsequent to the test and evaluation of the F-35A and A-10C required by section 134 of the National Defense Authorization Act for Fiscal Year 2017 (Public Law 114-328), the Department should not take any action to reduce the number of A-10 squadrons. Accordingly, the committee believes the Department of the Air Force should accelerate the A-10 wing replacement program.

The committee recommends \$163.7 million in the base budget for A-10 modifications, an increase of \$65.0 million for the A-10 wing replacement program.

The committee also notes that multiyear contracting strategies have resulted in more efficient and cost effective acquisition programs, and believes such a strategy could also result in cost savings for the A-10 wing replacement program. Therefore, the committee directs the Secretary of the Air Force to provide a briefing to the House Committee on Armed Services not later than February 15, 2019, on Department of the Air Force plans to utilize a multiyear contracting strategy to procure A-10 replacement wings.

Additionally, the committee notes that exercising the option to deliver the remaining 110 wings on the contract that expired in September 2016 could have resulted in cost savings compared to current plans to contract separately for a second wing replacement program. Therefore, the committee directs the Secretary of the Air Force to provide a report to the House Committee on Armed Services, not later than February 15, 2019, on the cost of the additional 110 A-10 replacement wings using a second contract compared to the cost of exercising the option to procure the 110 A-10 replacement wings on the original contract.

Air Force enlisted pilot implementation initiatives

The committee directs the Secretary of the Air Force to provide a briefing to the House Committee on Armed Services not later than March 4, 2019, on the plan to implement the enlisted pilot aircrew requirements of Section 1052 of the FY17 NDAA for the MQ-9 enterprise of the Active, Guard, and Reserve components of the Air Force. Furthermore, the committee directs the Secretary of the Air Force to submit a report to the congressional defense committees not later than April 1, 2019, on the costs, benefits, and feasibility of authorizing enlisted Airmen or Warrant Officers as pi-

lots, navigators, or weapon systems operators on all Air Force aircraft or rotorcraft platforms. The report should also assess and explain any policy or guidance impediments that would preclude enlisted Airmen or Warrant Officers from serving as pilots, navigators, or weapon systems operators.

B-2 secure communication modernization plan

The committee notes that the Air Force released its “Bomber Vector” in conjunction with its fiscal year 2019 President’s budget request which outlines the future of the B-1, B-2, B-52, and B-21 bomber fleets. According to this document, during development and production of the B-21, the Air Force will sustain the B-2 bomber to assure no gaps in bomber force availability. In addition to availability, the committee is concerned that the B-2 bomber fleet must keep pace with the threat level and have no gaps in capability during the transition. This is critical as competitor nations increasingly field anti-access and area denial weapon systems that impede and degrade the Air Force’s ability to hold any target at risk around the globe.

The committee is aware that, as noted in the Department of Defense fiscal year 2019 budget request, “modern communications are key enablers for the B-2 in the anti-access/area denial battle-space and directly enhance lethality and force multiplication.” The committee is concerned that the Department terminated the Extremely High Frequency Satellite Communications program, which provided two-way, high-bandwidth, secure, survivable, strategic communication in anti-access and area denial environments. In its place, the Air Force has chosen to rely on the Common Very-Low-Frequency Receiver (CVR), which is to provide the B-2 with receive-only, secure, survivable communications.

Therefore, the committee directs the Secretary of the Air Force to provide a briefing to the House Committee on Armed Services by February 28, 2019, on the B-2 secure communications modernization plan. This briefing should include the following:

- (1) the impact of the Air Force’s decision to downgrade B-2 communications capabilities on the ability of the B-2 to perform its critical strike missions in anti-access/area denial environments;
- (2) recommend solutions that would enable automated transfer of data to the B-2 and enable the aircraft to operate in a networked fashion with other elements for the long-range strike family of systems and other Air Force and Joint systems; and
- (3) provide estimated modernization costs and timelines, and consider opportunities to exploit capabilities developed for other programs.

C-130H modernization efforts

The committee notes that the C-130H aircraft that are flown primarily by the Air National Guard and Air Force Reserve continue to provide critical tactical airlift capabilities and will continue to support this mission for years to come. The committee further notes that in order to sustain mission capability and effectiveness, various sustainment and improvement initiatives are currently underway. The committee supports all of these initiatives however, it does recognize that shortfalls still remain. Specifically, the C-130H Avionics Modernization Program (AMP) addresses cockpit mod-

ernization needs of the aircraft however; the AMP program does not include the flight engineers control panel, which is a key component of the cockpit. Failure to upgrade the flight engineer control panel could leave the C-130H fleet with continued obsolescence issues post AMP. If the Air Force were to decide to upgrade this equipment at a later date, they will have missed the efficiencies of conducting those upgrades concurrent with the AMP upgrades. Therefore, the committee encourages the Air Force to explore the possibility of upgrading the C-130H flight engineer overhead control panel using readily available off the shelf technology. Furthermore, if the Air Force determines that these upgrades are necessary, they should make every effort to upgrade the aircraft in parallel with the AMP program in order to minimize disruption to the operation of the C-130H fleet and mission.

C-130H propulsion systems upgrade

The budget request contained \$22.1 million for procurement of C-130 modifications but no funds for C-130H propulsion systems upgrades.

The committee continues to support the upgrade of C-130H/LC-130H aircraft with the T56 3.5 engine enhancement and NP2000 8-bladed propeller. The committee notes that the Air National Guard (ANG) completed testing of the T56 3.5 engine enhancement and reported results that exceeded expectations for fuel savings and performance. The committee understands that the ANG expects to issue a full test report in the summer of 2018, to be followed by a business case analysis for upgrading the entire fleet of C-130H/LC-130H aircraft. Additionally, the committee is aware that fiscal year 2016 and 2017 propulsion upgrade funds have been put on contract. The committee expects the Air Force to include the necessary funds to accelerate C-130H/LC-130H upgrades in future base budgets.

The committee recommends \$129.0 million for the C-130H/LC-130H propulsion systems upgrade program.

Compass Call transition plan

The committee supports the Air Force's efforts to recapitalize the aging EC-130H Compass Call fleet with the more capable EC-37 type aircraft. The committee notes that the Air Force must first comply with the National Defense Authorization Act for Fiscal Year 2017 (Public Law 114-328) and the National Defense Authorization Act for Fiscal Year 2018 (Public Law 115-91) before it can carry on with the transition plan. The Air Force requested \$108.1 million for fiscal year 2019 for one EC-37. The committee is concerned that the Air Force plan to procure one aircraft per year over 10 years in order to recapitalize this fleet is not the most efficient way to move the capability to the field quickly, and may put the Compass Call mission at unacceptable risk of mission failure.

Therefore, the committee directs the Secretary of the Air Force to provide a briefing to the House Committee on Armed Services by February 1, 2019, on the Compass Call transition plan. This plan should include:

(1) courses of action to accelerate the recapitalization of the EC-130H fleet and Baseline 4 development and deployment for incoming EC-37 aircraft;

- (2) attendant timelines for each course of action;
- (3) cost estimates for each course of action;
- (4) recommended course of action and a plan to manage both fleets while supporting combatant commander requirements; and
- (5) an assessment of the potential for future cooperative development and procurement of EC-37B Compass Call aircraft by the Royal Air Force of the United Kingdom and the Royal Australian Air Force in a way that leverages the best practices of the RC-135 cooperative program arrangement with the Royal Air Force of the United Kingdom.

F-15C Eagle Passive Active Warning and Survivability System

The budget request contained \$147.7 million for procurement of the F-15 Eagle Passive Active Warning and Survivability System (EPAWSS) for the F-15E, but included no funds for procurement of F-15C EPAWSS kits. The F-15 EPAWSS provides radar warning, geo-location, situational awareness, and self-protection solutions to detect and defeat surface and airborne threats in contested environments.

The committee notes that the budget request includes \$137.1 million to continue execution of the engineering, manufacturing and development phase for F-15 C and E aircraft, which includes delivering test assets, development test activities, and continued acquisition support for Milestone C. The committee also notes that the budget request includes \$147.7 million to initiate procurement of F-15E EPAWSS kits, but believes that procurement of F-15C EPAWSS kits is critical to ensure the F-15C's survivability on a modern battlefield in the air superiority mission.

Consequently, the committee recommends \$214.9 million for F-15 EPAWSS procurement, an increase of \$67.2 million for procurement of four F-15C EPAWSS kits. The committee expects that the Department of the Air Force will execute the F-15 EPAWSS procurement upgrade program for the planned 217 F-15Es and 196 F-15Cs.

F-35 autonomic logistics information system

The F-35 Lightning II is the Department of Defense's largest acquisition program, which will eventually deliver 2,443 F-35 aircraft to the Departments of the Navy and Air Force. The committee believes that the F-35 will form the backbone of U.S. air combat superiority for decades to come, replacing or complementing the legacy tactical fighter fleets of the Air Force, Navy, and Marine Corps with a dominant, multi-role, fifth-generation aircraft capable of projecting U.S. power and deterring potential adversaries. The committee notes that for the F-35 program's international partners and foreign military sales customers who are participating in the program, the F-35 will become a cornerstone for future coalition operations. The committee believes that the F-35 will help to close a crucial capability gap that will enhance the strength of our security alliances. The committee, therefore, continues its strong support of this essential aircraft development and procurement program.

Consistent with its support of the F-35 program and oversight responsibilities, the committee notes that at a hearing held by the House Committee on Armed Services' Subcommittee on Tactical Air

and Land Forces on March 7, 2018, the Navy, Marine Corps, and Air Force witnesses all expressed a concern about the autonomic logistics information system (ALIS). The Air Force witness testified that the ALIS is currently labor-intensive for maintainers and support personnel, negatively affecting flight line operations and workforce development. During a subcommittee visit to Hill Air Force Base, Utah, in April 2018, subcommittee members met with Air Force F-35 maintenance personnel who reported that they are still very disappointed in the autonomic logistics information system, and continue to have to use manual workarounds that take time and effort, resulting in lower aircraft availability and mission capable rates. Given these ongoing problems, the committee will continue to conduct a detailed review of the ALIS program.

F-35 canopy transparencies

The F-35 canopy transparency is the transparent enclosure over the cockpit of the F-35 aircraft. The committee notes that the F-35 program uses a sole-source contract to procure F-35 canopy transparencies.

The committee understands that the F-22 program uses a two-source acquisition strategy for canopy transparencies, and that competition from that acquisition strategy has resulted in a more secure supply chain, increased innovation, longer product service life, and lower operating costs. Accordingly, the committee believes a two-source acquisition strategy for F-35 canopy transparencies could provide similar benefits.

Therefore, the committee directs the Secretary of the Air Force to provide a briefing to the House Committee on Armed Services not later than December 14, 2018, on the costs, benefits, analysis, and schedule impacts of the F-35 program using a two-source acquisition strategy for F-35 canopy transparencies.

F-35 sustainment affordability

At a hearing held by the House Committee on Armed Services' Subcommittee on Tactical Air and Land Forces on March 7, 2018, the witnesses all expressed a concern about current operations and sustainment costs and testified that those costs would need to be reduced by over 30 percent to make the F-35 operationally affordable. At that hearing, the Air Force witness testified that if projected overall costs for the F-35 are not reduced, the Air Force would not be able to afford its planned procurement of 1,763 aircraft. While the F-35 program is currently procuring early production lots of F-35 aircraft, the committee believes opportunities exist to take actions that would reduce future F-35 operations and sustainment costs.

Accordingly, the committee strongly urges the Secretary of the Air Force and the Secretary of the Navy, in concert with the F-35 Joint Program Office, to undertake the necessary actions to reduce F-35 sustainment costs. The committee believes that those actions should include, but not be limited to, addressing spare part shortages, addressing technical data requirements, accelerating both land- and sea-based intermediate maintenance capabilities, and modernization of the autonomic logistics information system.

Additionally, the committee believes that increased F-35 production rates and larger F-35 economies of scale could also help lower

unit procurement and sustainment costs. Moreover, the committee also believes that advances in potential adversary aircraft and surface-to-air missile defense systems necessitate a combat fighter force with a higher percentage of fifth generation aircraft. Accordingly, the committee strongly encourages the Department to increase future F-35 production rates.

Future sustainment of remotely piloted aircraft tactical intelligence and strike capabilities

The budget request contained \$946.6 million for procurement of 29 MQ-9A aircraft.

The committee recognizes that the Air Force has a 380 total aircraft inventory (TAI) requirement for MQ-9A aircraft, and is also using a current metric of 40,000 hours for the MQ-9A airframe service-life determination, an increase of 20,000 hours beyond the validated airframe service-life metric. The committee is also waiting to receive a cost-benefit analysis (CBA) from the Air Force, required by section 137 of the National Defense Authorization Act for Fiscal Year 2018 (Public Law 115-91), comparing continued procurement of MQ-9A Block 5 aircraft versus a transition to procurement of MQ-9B aircraft that is still in prototype development by the aircraft manufacturer. The committee understands that the Air Force could forgo the option of continued Block 5 upgrades to existing MQ-9A aircraft, and could pursue an option to participate in development and procurement of the MQ-9B aircraft, but the committee still lacks the required information to make an informed determination as to which effort the Air Force should pursue. The committee is also concerned by the Air Force's attempt this year to categorize MQ-9A aircraft that reach their airframe service-life limit as "combat-loss attrition" to justify additional aircraft procurement using Overseas Contingency Operations resources, when past practice has been to categorize combat-loss attrition only as those aircraft that are destroyed or damaged beyond repair due to hostile engagement by adversaries or aircraft accidents. The committee is also concerned by the Air Force's irregular procurement quantity of aircraft outlined in the Future Years Defense Program (FYDP) and assesses that a more stable profile is needed.

Therefore, the committee recommends \$796.6 million, a decrease of \$149.9 million and quantity of 7 aircraft, for a total procurement of 22 MQ-9A in fiscal year 2019. This decrease will minimize any waste of resources should the aforementioned Air Force CBA favor procuring MQ-9B instead of continuing MQ-9A Block 5 procurement, and also provide a more stable quantity procurement profile during the FYDP without harming TAI goals. The committee also expects the Secretary of the Air Force to adjust the future strategy for sustainment of remotely piloted aircraft tactical intelligence and strike capabilities if the CBA determines it best to procure MQ-9B aircraft instead of MQ-9A Block 5 aircraft.

OA-X light attack aircraft program

The budget request contained no funds for the OA-X light attack aircraft program. The committee understands that the Department of the Air Force intends to include funding for the OA-X light attack aircraft program in fiscal year 2020.

The committee believes that a light attack fighter aircraft is a continuing and exigent need to conduct close air support, counter-insurgency, armed reconnaissance, and other combat operations in more permissive threat environments. The committee further believes that procurement of light attack aircraft would increase the number of cockpits available to season Air Force pilots, thereby providing improvement to current pilot personnel shortfalls. Additionally, the committee notes that the Air Force Chief of Staff has stated, “A light attack aircraft would not only provide relief to our 4th and 5th generation aircraft, but also bolster our interoperability so we can more effectively employ airpower as an international team.”

Accordingly, the committee encourages the Department of the Air Force to accelerate the OA-X light attack program.

Additionally, to ensure the Department of the Air Force procures a low-cost aircraft that will provide cost efficiency along with quality capability, the committee encourages the Department to use a best value, rather than a lowest price technically acceptable, criteria for its source selection decision.

Production adjustment for KC-46A air refueling aircraft

The budget request contained \$2.56 billion for the procurement of 15 KC-46A air refueling tankers.

The committee notes that the KC-46A program costs remain stable, but the delivery schedule may be further delayed. Currently, the Air Force is reporting three category one deficiencies including two for the remote vision system (RVS) and one for the center-line drogue system (CDS). The Government Accountability Office (GAO) observed in its latest report, GAO-18-353, that the program updated its delivery schedule in 2017 to allow the defense contractor to delay delivery of the first 18 fully capable aircraft by 14 months. This delay moved the delivery date from August 2017 to October 2018. According to a schedule risk assessment and GAO’s analysis, if risk is not mitigated, deliveries could be delayed further to May 2019, 21 months from the originally scheduled delivery. The continued delays are set to cause a backup of unaccepted aircraft awaiting the completion of contractual test and documentation requirements. The defense manufacturer believes that it will meet the current delivery schedule and that it has taken appropriate steps to address all category one deficiencies by improving the RVS visual display and fine-tuning CDS software to reduce the number of unintended refueling disconnects. Given the latest Air Force schedule risk assessment, the committee believes the Secretary of the Air Force could use the variation in quantity provision in the contract to reduce the procurement by three aircraft in fiscal year 2019 without impacting the out-year per unit cost of each aircraft. The committee believes that the three additional aircraft funded in the Consolidated Appropriations Act, 2018 (Public Law 115-141) could be awarded in fiscal year 2019 to help mitigate any production line impact. Elsewhere in this bill, funds have been limited for the procurement of three additional KC-46A aircraft until certain conditions are met. Lastly, the committee believes that it is warranted to reduce funds for interim contractor support concurrent with the late delivery of aircraft. The committee intends to provide strict

oversight of this issue and review timelines to compliance to ensure reductions are aligned with ongoing decisions to accept aircraft.

The committee recommends \$2.06 billion, a decrease of \$499.0 million, for the procurement of 12 KC-46A air refueling tankers and \$50.0 million for interim contractor support.

RQ-4 Global Hawk and EQ-4 battlefield airborne communications node aircraft

The budget request contained \$23.7 million for RQ-4 Global Hawk and EQ-4 modifications, but contained no funding for additional EQ-4 aircraft.

The committee recognizes that both the RQ-4 and EQ-4 provide critical warfighting capabilities in communications relay and high-altitude intelligence, surveillance, and reconnaissance (ISR) mission areas for combatant commanders (COCOM). The committee is also satisfied that the EQ-4 has transitioned to a formal Air Force program of record. However, the committee is concerned that the current communication architecture for operating the RQ-4 is antiquated, difficult to maintain, and limits the Air Force's ability to fully use the system to meet COCOM demands for increased capacity and capability. The committee also believes that insufficient capacity exists for the robust communications capability the EQ-4 provides to COCOMs, and that based on current quantity of mission support taskings, the EQ-4 fleet of aircraft could reach service-life limits quicker than anticipated, creating an unmitigated capability gap. The committee supports any Air Force plan to initiate development of the RQ-4 Communication System Modernization Program (CSMP) in fiscal year 2020 to meet combatant commander requirements for expanded airborne communications relay and ISR, as well as establish a pathway to more quickly meet emerging high-altitude, long-endurance ISR and communications requirements.

Therefore, the committee recommends \$128.7 million, an increase of \$105.0 million, for procurement of one additional EQ-4 aircraft and associated modifications. The committee also directs the Secretary of the Air Force to submit a report to the congressional defense committees, not later than February 5, 2019, on the RQ-4 CSMP acquisition strategy. The report should include an updated RQ-4 CSMP acquisition strategy, including a program schedule and budget requirements for development, testing, and fielding of the capability, and a description of how the Air Force is balancing the resources required for CSMP with other efforts to increase RQ-4 sensor capabilities over this same time period.

Total Force C-17 Fleet Management Plan

The committee notes that the Air Force must carefully manage the life cycle of each of its 222 C-17 strategic airlift aircraft assigned to the Regular, Reserve, and Air National Guard Components from an enterprise point of view in order to extract the maximum amount of utility from this limited resource. The committee is also aware that the Air Force is unable to meet its current requirement for strategic airlift as outlined by the fiscal year 2013 Mobility Capability Requirements Study (MCRS). Furthermore, the National Defense Authorization Act for Fiscal Year 2018 (Public Law 115-91) directed the Secretary of Defense to carry out a new

MCRS. This study is to take into account attrition for the first time, which is likely to result in a higher requirement for strategic airlift.

Therefore, the committee directs the Secretary of the Air Force to provide a briefing to the House Committee on Armed Services by February 1, 2019, on the Total Force C-17 Fleet Management Plan. This briefing should include:

- (1) a table and timeline that shows when C-17s will be retired by tail number;
- (2) various courses of action that could be pursued and the impact to meeting the strategic airlift requirements;
- (3) limitation or impediments to controlling the retirement timeline of C-17 aircraft; and
- (4) legislative relief that could enable better management of the fleet through retirement.

Total Force KC-135R net centric operations and battlespace awareness

The committee is aware that all three Air Force components of the Total Force (Regular, Air National Guard, and Reserve) operate the KC-135 Stratotanker, which is Air Mobility Command's primary air refueling platform. The KC-135 provides approximately 87 percent of air refueling support to U.S., allied, and coalition military aircraft.

The committee believes that upgrades to KC-135 defensive systems, including tactical data link technologies, situational awareness displays that bring real-time threat information, and secure radio capability, greatly enhance KC-135 air refueling, airlift, and aeromedical evacuation missions. These systems are meant to protect the aircraft during takeoff, landing, and refueling flight regimes. Also, the systems offer protection during normal refueling flight operations against both infrared and radar-guided air-to-air missiles. Furthermore, the committee believes that upgrades to the KC-135 Real-Time Information in the Cockpit (RTIC) system would enhance network capability and provide a common processing and display platform resulting in consolidated situational awareness.

As reflected in division D of this Act, the committee recommends additional funding for the National Guard and Reserve Equipment Account. The committee expects the Secretary of the Air Force to consider using these funds to modernize the Air National Guard and Air Force Reserve with RTIC and self-protection commercial off-the-shelf solutions through a competitive process.

U-2

The budget request contained \$106.9 million in PE 34260F for the airborne signals intelligence (SIGINT) enterprise and \$70.6 million in PE 35202F for U-2 sensor development, but contained insufficient funding to develop a single-pod SIGINT capability or accelerate electro-optical and infrared sensor upgrades.

The committee supports the Air Force's renewed commitment to the U-2 program reflected in the President's budget request for fiscal year 2019, and the Future Years Defense Program. To ensure the combat capability needed to stay ahead of emerging threats, the committee supports accelerating U-2 modernization and

sustainment efforts. The planned efforts have the potential to provide a substantial leap in intelligence capability to the warfighter over the upcoming years.

Therefore, the committee recommends \$109.9 million in PE 34260F, an increase of \$3.0 million, for single-pod SIGINT development, and recommends \$87.6 million in PE 35202F, an increase of \$17.0 million, to accelerate electro-optical and infrared sensor upgrades. The committee also recommends elsewhere in this Act an increase of \$38.0 million to refurbish and restore U-2 tail number 80-1099 to combat-ready status, and to provide increased high-altitude intelligence, surveillance, and reconnaissance capacity to the combatant commanders.

MISSILE PROCUREMENT, AIR FORCE

Items of Special Interest

AIM-120 production rate

The budget request contained \$552.7 million for procurement of 363 AIM-120 advanced medium-range air-to-air missiles (AMRAAM).

The committee notes that this request is 294 fewer AMRAAM missiles than were projected for fiscal year 2019 in last year's budget request. The committee notes further that additional stocks of the most modern version of the AMRAAM missile is a top priority of numerous combatant commands. While the committee understands that this production rate drop is due to significant delays with the form, fit, function refresh plan to address obsolescence issues, it is concerned that the Air Force is also limiting production quantities of other AMRAAM models sold via foreign military sales (FMS). The committee believes that production of additional FMS variants may help mitigate risk to the supplier base and overall production capacity for the weapon. Therefore, the committee encourages the Secretary of Defense to ensure that the AMRAAM production line is kept at or near full capacity whenever possible, either by increasing production to fill U.S. military requirements or by supplementing production for the U.S. military with higher FMS production.

The committee recommends \$552.7 million, the full amount requested, for AIM-120 AMRAAM procurement.

OTHER PROCUREMENT, AIR FORCE

Items of Special Interest

Deployable Air Base Systems

Given increasing threats, the committee supports efforts to enhance U.S., allied, and partner airbase resiliency in the Indo-Pacific region. The committee is especially supportive of the logistics and resiliency investments identified by the Commander of U.S. Pacific Command's (PACOM) critical investments list as well as the forward air base resiliency requirements as identified on PACOM's integrated priority list.

Therefore, the committee directs the Secretary of the Air Force to provide a briefing to the House Committee on Armed Services, no later than December 1, 2018, on potential courses of action, to

include rapid acquisition strategies to rapidly procure Deployable Air Base Systems in order to address identified PACOM capability gaps.

PROCUREMENT, DEFENSE-WIDE

Items of Special Interest

Common Analytical Laboratory System

The budget request contained \$48.3 million for the Common Analytical Laboratory System (CALs), a tool to enable detection and identification of chemical, biological, radiological, nuclear, and explosive (CBRNE) threats. CALs provides analytical lab capabilities in the field, allowing field commanders to make faster and more informed response decisions, minimizing the effects of CBRNE threats. The committee recommends \$48.3 million, the amount requested, for the Common Analytical Laboratory System.

Multi-Domain Command and Control

The committee understands the Department of the Air Force and Department of the Navy are undertaking efforts to create robust Multi-Domain Command and Control (MDC2) capabilities. The committee supports each Department's plans to ensure MDC2 program efforts are leveraging rapid experimentation and fielding of forward-deployed modular mission Systems for resilient communications and high-performance computing resources for the MDC2 mission.

Therefore, the committee directs the Secretary of the Air Force and the Secretary of the Navy to provide a briefing to the House Committee on Armed Services by September 1, 2018, that explains future funding and any other requirements to achieve rapid experimentation and fielding of MDC2 capabilities to the warfighter.

LEGISLATIVE PROVISIONS

SUBTITLE A—AUTHORIZATION OF APPROPRIATIONS

Section 101—Authorization of Appropriations

This section would authorize appropriations for procurement at the levels identified in section 4101 of division D of this Act.

SUBTITLE B—ARMY PROGRAMS

Section 111—National Guard and Reserve Component Equipment report

This section would modify the annual National Guard and Reserve Component Equipment report, as required by section 10541 of title 10, United States Code, to include an assessment by the Chief of Staff of the Army and the Chief of the National Guard Bureau regarding modernization equipment parity between the active component, Army Reserve, and Army National Guard.

Section 112—Limitation on availability of funds for M27 infantry automatic rifle program

This section would limit the obligation or expenditure of 20 percent of the funds for the Marine Corps M27 infantry automatic rifle program until the Commandant of the Marine Corps provides an assessment of the Marine Corps views on the Army's Small Arms Ammunition Configuration Study, and whether the outcomes of this study are informing future small arms procurement for the Marine Corps. The assessment shall also include details regarding the Marine Corps near- and long-term small arms modernization strategy.

SUBTITLE C—NAVY PROGRAMS

Section 121—Increase in Number of Operational Aircraft Carriers of the Navy

This section would provide the sense of Congress as to aircraft carrier force structure. Additionally, this section would modify section 5062 of title 10, United States Code, by increasing the required aircraft carrier force structure from 11 to 12 operational aircraft carriers by September 30, 2022.

Section 122—Procurement Authority for *Ford* Class Aircraft Carrier Program

This section would authorize the construction of one *Ford* class aircraft carrier designated CVN-81.

Section 123—Full Ship Shock Trial for *Ford* Class Aircraft Carrier

This section would require the Secretary of the Navy to incorporate full ship shock trial results into the construction of the *Ford* class aircraft carrier designated CVN-81.

Section 124—Multiyear Procurement Authority for Amphibious Vessels

This section would authorize the Secretary of the Navy to enter into a multiyear procurement for five *San Antonio*-class amphibious transport dock ships with a Flight II configuration.

Section 125—Multiyear Procurement Authority for Standard Missile-6

This section would authorize the Secretary of the Navy to enter into one or more multiyear contracts for 625 Standard Missile-6 missiles beginning in fiscal year 2019, in accordance with section 2306b of title 10, United States Code.

Section 126—Multiyear Procurement Authority for E-2D Aircraft

This section would authorize the Secretary of the Navy to enter into one or more multiyear contracts for up to 24 E-2D aircraft beginning in fiscal year 2019, in accordance with section 2306b of title 10, United States Code.

Section 127—Multiyear Procurement Authority for F/A–18E/F Aircraft and EA–18G Aircraft

Subject to section 2306b of title 10, United States Code, this section would authorize the Secretary of the Navy to enter into one or more multiyear contracts, beginning with the fiscal year 2019 program year, for the procurement of F/A–18E/F aircraft and EA–18G aircraft.

Section 128—Modifications to F/A–18 Aircraft To Mitigate Physiological Episodes

This section would require the Secretary of the Navy to modify the F/A–18 aircraft to reduce the occurrence of, and mitigate the risk posed by, physiological episodes affecting crewmembers of the aircraft, and require the Secretary to include certain minimum modifications, and submit to the congressional defense committees a written update on the status of all modifications to the F/A–18 aircraft carried out pursuant to this section not later than February 1, 2019, and annually thereafter through February 1, 2021.

Section 129—Frigate Class Ship Program

This section would require the Secretary of the Navy to procure technical data rights to any acquired frigate class vessel. Additionally, this section would require the Secretary to recompete the frigate class procurement not later than the award of the 10th frigate using the acquired technical data rights.

Section 130—Limitation on Procurement of Economic Order Quantities for *Virginia* Class Submarine Program

This section would modify section 124 of the National Defense Authorization Act for Fiscal Year 2018 (Public Law 115–91) and prohibit the Secretary of the Navy from entering into economic order quantity contracts for the *Virginia*-class submarine program until the Secretary certifies that such funding shall be used to enter into economic order quantities for 12 *Virginia*-class submarines.

Section 131—Limitation on Use of Funds for DDG–51 Destroyers

This section would limit expenditures of Shipbuilding and Conversion, Navy, for DDG–51 destroyers until the Secretary of the Navy submits a report as to incorporating degaussing standards into the destroyer program.

SUBTITLE D—AIR FORCE PROGRAMS

Section 141—Inventory Requirement for Air Refueling Tanker Aircraft; Limitation on Retirement of KC–10A Aircraft

This section would require the Secretary of the Air Force to increase the current air refueling tanker fleet from 457 to 479 primary assigned aircraft before it can begin to retire KC–10A aircraft. The Air Force shall maintain 479 total tanker aircraft thereafter, unless adjusted by the fiscal year 2018 “Mobility Capability and Requirements Study.”

Section 142—Limitation on Use of Funds for KC-46A Aircraft
Pending Submittal of Certification

This section would limit the funds authorized to be appropriated to procure three KC-46A aircraft until the Secretary of the Air Force certifies that both supplemental and military type certifications have been approved and that the first aircraft has been accepted by the Air Force.

Section 143—Retirement Date for VC-25A Aircraft

This section would fix the retirement date for the purposes of this statute as it applies to the two Air Force VC-25A aircraft as not later than December 31, 2025.

Section 144—Contract for Logistics Support for VC-25B Aircraft

This section would require the Secretary of the Air Force to ensure that the VC-25B contract for logistics support complies with part 17.204(e) of the Federal Acquisition Regulation and also complies with section 2304 of title 10, United States Code, with regard to open competition.

Section 145—Multiyear Procurement Authority for C-130J Aircraft

This section would authorize the Secretary of the Air Force to enter into one or more multiyear contracts for up to 52 C-130J aircraft beginning in fiscal year 2019, in accordance with section 2306b of title 10, United States Code.

Section 146—Removal of Waiting Period for Limitation on Availability of Funds for EC-130H Compass Call Recapitalization Program

This section would strike the 30-day waiting period imposed on EC-130H funds by section 135(a) of the National Defense Authorization Act for Fiscal Year 2018 (Public Law 115-91).

Section 147—Findings and Sense of Congress Regarding KC-46
Aerial Refueling Tankers

This section would express the sense of Congress in support of industry and Air Force ensuring that the first KC-46A tanker is delivered in fiscal year 2018.

SUBTITLE E—DEFENSE-WIDE, JOINT, AND MULTISERVICE MATTERS

Section 151—Buy-to-Budget Acquisition of F-35 Aircraft

This section would authorize the Secretary of Defense, subject to section 2308 of title 10, United States Code, to procure a higher quantity of F-35 aircraft than authorized by this Act if such additional procurement does not require additional funds.

Section 152—Certification on Inclusion of Technology To Minimize
Physiological Episodes in Certain Aircraft

This section would require that not later than 15 days before entering into a contract for the procurement of a covered aircraft, the Secretary concerned would submit to the congressional defense

committees a written statement certifying that the aircraft to be procured under a contract would include the most recent technological advancements necessary to minimize the impact of physiological episodes on aircraft crewmembers.

TITLE II—RESEARCH, DEVELOPMENT, TEST, AND EVALUATION

RESEARCH, DEVELOPMENT, TEST, AND EVALUATION, ARMY

Items of Special Interest

Accelerated integration to counter emerging threats

The Committee supports the accelerated integration capability to counter emerging threats being initiated by the Program Executive Office, Missiles and Space. The Army is developing a government-owned capability to provide cyber-robust networked weapon systems designed to operate within rapidly evolving threat timelines.

The Committee understands this is being accomplished through a unique approach to adapt and respond to real-time threats, dramatically accelerating the timeline to employ resilience in networked weapon systems.

The Committee directs the Secretary of the Army to provide a briefing to the Committee on Armed Services of the House of Representatives by March 1, 2019, on the status of progress being made through this accelerated program.

Assured Position, Navigation and Timing

In response to global peer threats and demands from combatant commanders, the committee last year expressed its concern that the Army was not moving fast enough to field Assured Position Navigation and Timing (APNT) solutions. APNT solutions are required because of the reliance of military vehicles, communications and weapons systems on precise position, navigation and timing. The committee understands that strategic high-end competitors possess the capability to disrupt systems that depend on GPS which could pose an unacceptable level of risk to U.S. operations in GPS-denied environments. The committee notes the Army has stood up a Cross Functional Team (CFT) pilot to rapidly assess material development solutions to address the APNT mission area and perceived capability gaps.

In response to Section 236 of the National Defense Authorization Act of Fiscal Year 2018, the Army submitted a report to the congressional defense committees dated March 30th, 2018 that described its approach to test various systems at White Sands Missile Range in the 3rd Quarter of Fiscal Year 2018. The Army's report further described fielding both the A kits and B kits of a Quick Reaction Capability to specific units starting in the Second Quarter of Fiscal Year 2019. The committee understands that this testing is ongoing.

The committee directs the Secretary of the Army, in coordination with the Director of the Army's APNT CFT pilot, to provide a briefing to the House Committee on Armed Services by September 1, 2018 that outlines potential courses of action to begin immediate

procurement of these systems, subject to successful test and evaluations.

Targeted Soldier Borne Sensor efforts

The committee is encouraged by the Army's efforts to field the new Soldier Borne Sensor (SBS) capability to the warfighter and is encouraged by the Army's recognition of this capability requirement at the squad level. The committee understands the additional visual and situational awareness provided by the sensor to the warfighter will improve the survivability and lethality of the force. The committee also notes that a capability to operate within high-threat and GPS-denied areas, including but not limited to indoors and within tunnels, is currently available with SBS technologies under evaluation. However, the committee understands there are concerns regarding the current generation of thermal sensors associated with ongoing SBS technology evaluations. Specifically, the committee understands that current thermal sensors reportedly do not provide sufficient resolution to meet desired performance objectives. The committee encourages the Secretary of the Army to focus development efforts to accelerate technology development of electro-optic and infrared sensors that could be carried by the SBS.

The committee directs the Secretary of the Army to provide a briefing to the House Committee on Armed Services by September 28, 2018, on current development efforts to address and resolve concerns regarding electro-optic and infrared sensor capabilities within the SBS platform. This briefing shall also include a detailed analysis of the electro-optic and infrared sensor technologies under evaluation and a plan for addressing the SBS requirement.

Computational molecular modeling and simulation for material development

The committee is aware the use of modeling and simulation during development of materials and other technologies may result in cost savings and other benefits, such as enhanced lethality and survivability. The committee understands that computational molecular modeling and simulation results subsequently tested using cold spray synthesis and mechanical testing have resulted in new repair techniques for armor, helmets, and other personal protective equipment. The committee, therefore, encourages the Army Research Lab to continue the utilization of computational molecular research for material development.

Future digital munitions and integration

The committee recognizes the importance for the Army to retain lethality overmatch within its aviation portfolio. The committee continues to support the Army's Future Vertical Lift and Joint Multi-Role technology demonstration initiatives. However, the committee is concerned about the Army's ability to mitigate Apache helicopter and Grey Eagle Unmanned Aerial System munitions and launcher obsolescence limitations for the foreseeable future. The committee believes existing and emerging threats are key factors to ensuring lethality overmatch. As digital aviation-launched munitions evolve, the need for the Army to retain flexibility in aircraft to munitions integration is critical to ensuring Army Aviation platforms retain a decisive edge.

Therefore, the committee directs the Secretary of the Army to provide a briefing to the House Committee on Armed Services not later than September 15, 2018, on the following:

(1) all requirements, acquisition program plans, and developmental initiatives that address the modernization strategy for all aviation platform munitions and launchers beyond currently fielded systems; and

(2) recommendations on the utility for any development efforts that would modernize aviation launchers and munitions.

Future Vertical Lift

The committee understands that dedicated investment in incremental rotorcraft upgrades has kept America's current vertical lift aviation capabilities viable, and will continue to enable the fleet to bridge capability gaps through the near term. The committee believes that as more dangerous threats emerge at an accelerated pace in the mid-term, unwavering investment in advanced future disruptive technologies like Future Vertical Lift (FVL) will enable rotorcraft aviation to retain overmatch through significant capability improvements in reach, speed, protection, and lethality.

The committee notes that the Army leads the Department of Defense's rotorcraft technology portfolio, which needs additional research and development funding to regain America's world leadership in rotorcraft innovation. Because of America's eroding lead in rotorcraft capability, the committee encourages the Department to explore opportunities to accelerate the FVL program in order to meet national security challenges. The committee expects the Department to maximize full and open competition in doing so.

The committee believes that fiscal years 2019 and 2020 are pivotal years for the FVL modernization efforts, as critical technology demonstrations provide essential evidence during the completion of the FVL analysis of alternatives, and the Army uses this data and analysis to inform its path forward. Therefore, the committee directs the Secretary of the Army to provide a briefing to the House Committee on Armed Services by December 3, 2018, on the outcome of the analysis of alternatives and on any other analysis utilized in deciding the Army's priority of rotorcraft investment for FVL prior to the release of a request for proposal.

Harnessing Emerging Research Opportunities to Empower Soldiers

The committee is aware of the work being done by the Army's Warfighter Technology directorate in improving the protection, survivability, mobility, and combat effectiveness of the Army. The committee is also aware of Harnessing Emerging Research Opportunities to Empower Soldiers (HEROES), an ongoing joint research and development initiative involving both academia and industry. The committee understands that the HEROES initiative accelerates research and innovation through integration of intellectual assets and research facilities, such as those at Natick Laboratory and others. The committee believes programs like HEROES provide benefit to research in areas of advanced ballistic polymers for body armor, fibers to make uniforms more fire resistant, and lightweight structures for advanced shelters that provide tangible benefits to the warfighter. Therefore, the committee encourages the Army to continue to support such programs.

High energy laser systems integration laboratory

The committee has continuing interest in the Army's research, development, and testing of high energy laser weapons systems. The committee is aware of the Army's efforts to develop a high energy laser system integration laboratory in order to provide an interactive means to conduct warfighter assessments and develop the tactics, techniques, and procedures required to employ this technology. The committee recognizes this integration will be critical in bridging the gap from developmental technology to operational capability, while mitigating risk and ensuring warfighter utility. The committee encourages the Army to continue to mature the high energy laser system integration lab, as well as the benefit these activities provide to the research, development, and testing of directed energy weapons.

Improved Turbine Engine Program

The Improved Turbine Engine Program (ITEP) is a competitive acquisition program designed to develop a more fuel efficient and powerful engine to upgrade and enhance the performance and operational readiness of the current Black Hawk and Apache helicopter fleets. This new engine will increase operational capabilities in high altitudes and hot conditions while reducing operating and support costs. The committee has supported significant Army investments into competitive technology development programs for turbine engines over the past decade. During this time, the Army has made significant progress in maturing technologies that will lower ITEP programmatic risk with the goal of improving warfighting capabilities. In addition, the committee has encouraged the Army to prioritize maintenance and sustainment costs for ITEP to ensure the continued affordability of the program.

The committee also acknowledges the benefits of improved fuel efficiencies through lower specific fuel consumption that the ITEP will bring to the battlefield. This program represents a cost-effective approach to modernizing Army aviation and the committee continues to encourage the Army to pursue opportunities to accelerate the fielding of this capability. The committee recognizes 2019 as a crucial year for the program with Engineering Manufacturing Development (EMD) source selection slated for first quarter fiscal year 2019. Given the positive progress of this critical program, the committee is fully funding ITEP in fiscal year 2019 and encourages the Army to robustly fund ITEP in the EMD phase of the program.

Initial Maneuver-Short Range Air Defense capability

The committee is aware that the Army's critical capability gap for Air and Missile Defense remains protecting maneuvering forces. The committee understands that Army maneuver formations require short range air defense (SHORAD) and counter-UAS (CUAS) capabilities that can cover a wide range of air threats to include: unmanned aircraft systems (UAS), rotary wing (RW), fixed wing (FW), and rockets artillery and mortars (RAM). As such, the committee understands the Army is pursuing cross-domain, multi-dimensional solutions that can address these threats as part of a maneuver short-range air defense and indirect fires protection capability. The committee encourages the Army to consider areas where

commonality exists between current CUAS and SHORAD mission platforms and technologies.

The committee understands the Army has formalized a directed requirement to initiate integration and procurement of an initial Maneuver-Short Range Air Defense (IM-SHORAD) capability on a Stryker combat vehicle. The IM-SHORAD directed requirement requires capability to counter threats posed by UAS, RW, FW, and RAM, as well as address an emerging operational need in support of Operation Atlantic Resolve to provide air and missile defense protection of Stryker and Armored Brigade Combat Teams. The committee understands the acquisition strategy to support this directed requirement is still being developed.

The committee directs the Secretary of the Army to provide a briefing to the House Committee on Armed Services by September 14, 2018, on the Army's accelerated acquisition strategy for the IM-SHORAD initiative, as well as identify requirements that are similar to both the SHORAD and CUAS missions. The briefing should also address capabilities currently under development or already fielded that could simultaneously address the CUAS and M-SHORAD mission areas.

Iron Dome experimentation and assessment for short-range air defense

The budget request included \$38.0 million in PE 64020A for cross functional team (CFT) advanced development and prototyping.

The committee understands the Army established six CFT pilots to examine how the Army could leverage existing resources and accelerate getting needed capability to the warfighter. The Army's critical capability gap for Air and Missile Defense (AMD) remains protecting the maneuvering force and is aware the AMD CFT pilot is focused on accelerating delivery of a maneuver short-range air defense (SHORAD) capability. The committee commends the AMD CFT for getting an approved directed requirement for an interim-maneuver SHORAD capability that accelerated the original schedule by 5 years. The committee notes the AMD CFT is also reviewing other AMD capability gaps for the protection of fixed and semi-fixed sites. The committee expects the AMD CFT to immediately address capability gaps in the areas of indirect fire protection capability and AMD.

Since 2011, Congress has provided over \$1.5 billion for the procurement of Iron Dome batteries for the State of Israel, a system with demonstrated capability against a wide-range of threats. There is value in experimenting with the Iron Dome system through demonstrations to assess operational suitability for the fixed and semi-fixed site AMD mission, and M-SHORAD missions. Such demonstrations will evaluate challenges associated with integration of the Iron Dome command and control system with the existing AMD C2 system and sensors.

The committee recommends \$68.0 million, an increase of \$30.0 million, in PE 64020A to support the acquisition of Iron Dome hardware and associated integration activities, for the operational demonstration of the Iron Dome system against a range of threats to evaluate issues associated with the following:

(1) integrating the Iron Dome launcher into a U.S. Army AMD architecture for complimentary support of fixed, semi-fixed, and M-SHORAD operations;

(2) re-designing the Iron Dome launcher to be compatible with the Indirect Fire Protection Capability Multi-Mission Launcher; and

(3) potential options for accelerating development of the Skyhunter missile.

Further, the committee directs the Director of the AMD CFT to provide a briefing to the House Committee on Armed Services by April 2, 2019, on the Army's plans for this experiment and demonstration. If warranted by the demonstration results, the committee directs the Director of the AMD CFT to provide a follow-on briefing on the advisability and feasibility of rapidly transitioning Iron Dome hardware for immediate use, with budgetary recommendations and schedules for accelerated procurement of additional systems.

Lightweight metal matrix composite technology for combat and tactical vehicles

In the committee report (H. Rept. 115–200) accompanying the National Defense Authorization Act for Fiscal Year 2018, the committee recognized the versatility and broad application that Metal Matrix Composite (MMC) Technology provides for the Armed Forces by reducing the weight of parts by 50 percent and increasing their service life by three to four times that of traditional steel parts. The committee understands the U.S. Army Tank and Automotive Research, Development, and Engineering Command (TARDEC) is currently evaluating technologies that can reduce vehicle weight, reduce fuel consumption, increase payload capacity, and extend service life of combat and tactical vehicles, and that MMC technology is part of this ongoing evaluation. The committee supports these efforts and recommends the U.S. Army TARDEC continue to test MMC technology, develop and field components that can reduce vehicle weight, reduce fuel consumption, increase payload capacity, and extend service life.

M119 105mm self-propelled artillery system technology

The committee understands the Army is examining the operational benefits of procuring a self-propelled 105mm howitzer in order to address existing capability gaps for infantry brigade combat teams (IBCTs) indirect fires capabilities. The committee understands that recent demonstrations as part of the Army's Maneuver and Fires Integration Experiment at Fort Sill produced positive results. The committee supports continued demonstrations of this capability and is aware of a potential future demonstration under consideration by the 18th Airborne Corps. The committee understands the demonstrated system incorporated artillery soft recoil technology with existing 105mm artillery systems and then integrated these technologies onto an existing light tactical vehicle. The committee expects the outcomes from these demonstrations to inform future operational requirements and procurement strategies.

The committee believes this capability could enable the Army to achieve significant improvements in combat capability and lethality through only a modest reinvestment of funding for current or fu-

ture planned M119 105mm howitzer modifications. Further, the committee also believes a light, self-propelled 105mm artillery system could substantially improve the deterrence posture of the U.S. Army and allied armies in Europe that may face sophisticated, quick-fire counter-battery systems.

The committee directs the Secretary of the Army, in coordination with the Directors of the Long-Range Precision Fires and Soldier Lethality cross-functional teams, to provide a briefing to the House Committee on Armed Services by December 14, 2018, on the advisability and feasibility of rapidly accelerating the testing, evaluation, and procurement of a self-propelled 105mm howitzer to address the indirect fire capability gaps in IBCTs. The briefing shall include feedback and results from recent demonstrations of self-propelled 105mm howitzer technology, specifically the demonstration that occurred as part of the Army's Maneuver and Fires Integration Experiment at Fort Sill.

Mobile camouflage system

The committee notes the longstanding success of our allied partner nations who employ mobile camouflage systems on their combat vehicles, especially within the North Atlantic Treaty Organization and the European theater. These relatively inexpensive camouflage net systems provide enhanced signature management protection, reduce heat and temperature inside and around combat vehicles, and yield fuel savings without interfering with the operation of the vehicles. Army commanders have expressed an immediate operational need for mobile camouflage systems, in particular woodland, desert, and Arctic variants. The committee is aware of the Army's ongoing operational testing of mobile camouflage systems at the National Training Center, and encourages further acceleration of those efforts.

The committee directs the Secretary of the Army to provide a briefing to the House Committee on Armed Services by September 28, 2018, that outlines the mobile camouflage system test results and the Army's plan and timeline to fund the accelerated development and fielding of these systems to the warfighter.

Personal Protective Equipment advance technology development

The budget request contained \$18.0 million in PE 63827A for soldier systems-advanced development.

The committee recognizes advancements the military services have made in researching and developing materials for Personal Protective Equipment (PPE). The committee notes that this work has steadily reduced the weight of and increased ballistic protection for items like helmets, body armor, and protective undergarments designed for the men and women of the Armed Forces. The committee understands, based on the views of senior defense laboratory scientists, that further research on current materials, such as ceramics and Kevlar, are experiencing diminishing returns. The committee supports further research on advanced materials like high molecular weight polyethylene film and new and harder ceramics like boron suboxide.

Therefore, the committee recommends \$28.0 million, an increase of \$10.0 million, in PE 63827A for PPE advanced materials research.

Shoot-on-the-Move experimentation for short range air defense systems

The budget request contained \$61.1 million in PE 63313A for Missile and Rocket Advanced Technology, to include investment in missile components enabling detection and full kinematic capabilities to develop shoot-on-the-move capability for future short range air defense (SHORAD).

The committee is aware the Army is currently pursuing a near-term maneuver short range air defense (M-SHORAD) capability; however, the near-term solution will not include a shoot-on-the-move capability. The committee understands the capability to shoot-on-the-move would potentially be considered as a future capability requirement as part of follow-on M-SHORAD increments. The committee believes that the development and demonstration of a shoot-on-the-move capability could enable future combat formations to be protected from modern and advanced air and missile delivered fires while maneuvering, and enable continuous force protection during offensive operations.

The committee recommends \$71.1 million, an increase of \$10.0 million, in PE 63313A to accelerate the development and potential demonstration of shoot-on-the-move capability for M-SHORAD platforms and associated systems.

Soldier power and composite armor development

The budget request contained \$28.6 million in PE 62105A for Materials Technology research.

The committee understands that soldier power and composite armor technology development is critical to meeting the increased power demands of soldiers' equipment, while reducing weight. The committee recognizes that conformal wearable battery technology provides a lightweight, flexible power solution that offers greater mobility and flexibility than current capabilities, while streamlining the various battery types and sizes carried by the soldiers. The committee notes these capabilities provide soldiers with expeditionary power, as well as multiple power management alternatives that are all designed for combat operations in austere environments and can be tailored to any mission. The committee supports these programs and believes that they will help to reduce the soldiers' combat carrying load, while meeting the future demands of an increased power burden as well as maximizing survivability and protection. The committee encourages the Army to continue to work with the industrial base to improve and upgrade components in the soldier power and composite armor portfolio to potentially reduce weight and cost, as well as to improve overall performance.

The committee recommends \$29.6 million, an increase of \$1.0 million, in PE 62105A for Materials Technology research.

Squad multipurpose equipment transport

The committee understands the Army is conducting a 12-month technology demonstration leading to a capabilities production document and eventual procurement of a squad multipurpose equipment transport system (SMET). The SMET is an unmanned ground vehicle that will transport equipment for specific missions, resupply, and extended operations, thereby reducing soldier load and increasing squad mobility. The committee supports the Army's use of

other transaction authority to achieve a rapid start to this effort, and encourages the Army to seek additional ways to expedite acquisition of this critical capability.

The committee directs the Army's Program Executive Officer for Combat Support and Combat Service Support to provide a briefing to the House Committee on Armed Services by November 30, 2018, that includes:

- (1) options to accelerate this acquisition strategy;
- (2) courses of action to ensure the delivered system meets all key performance parameters;
- (3) findings and analysis from the user evaluations conducted by two brigade combat teams; and
- (4) an assessment of each variant's reliance on generators versus batteries, power generation capabilities, noise signatures, abilities to adapt to additional systems such as flail and mine rollers, dual stretchers, backhoe and loader kits, as well as any other capabilities considered to be essential by the program executive officer.

Supercavitating ammunition technology

In the committee report accompanying the National Defense Authorization Act for Fiscal Year 2018 (H. Rept. 115–200), the committee noted that supercavitating ammunition can be used in various operational environments, including air-to-air, water-to-water, air-to-water, and water-to-air, and that this technology could potentially address critical mission capability gaps for the warfighter. The committee also directed the U.S. Army Program Executive Officer (PEO) for Ammunition, who acts as the single manager of all conventional ammunition, to provide a briefing to the House Committee on Armed Services on the current status of supercavitating ammunition technology across the Department ammunition enterprise. The briefing acknowledged that the entire ammunition enterprise of the Department of Defense recognizes the value of supercavitating ammunition, and indicated that several efforts are underway to evaluate its performance. The committee notes that this technology is currently in use by the Department of the Navy and that other organizations in the Department of Defense are evaluating supercavitating small caliber ammunition. The committee is pleased that the Department of Defense is continuing to evaluate the performance of this technology and remains supportive of these efforts.

Therefore, the committee directs the PEO for Ammunition, in coordination with all relevant Department of Defense agencies, to provide a briefing to the House Committee on Armed Services by September 14, 2018, on all current test and evaluation activity currently ongoing and planned for supercavitating ammunition technology.

Third Generation Forward-Looking Infrared development

The committee is aware of a growing parity in U.S. Army sights and sensors against current and emerging threats, particularly when it comes to combat vehicle platforms. The committee is concerned that the Third Generation Forward-Looking Infrared (FLIR) development program is proceeding at too slow of a pace to ensure it will enter production as an integrated system in the next Abrams tank and Bradley Fighting Vehicle upgrades.

Therefore, the committee directs the Secretary of the Army to provide a briefing to the House Committee on Armed Services by March 15, 2019, on the Army's plans to synchronize the Third Generation FLIR program with the M1A2 SEP V4 Abrams Upgrade and M2A5 Bradley Fighting Vehicle upgrade. The briefing should also include potential courses of action for, and costs associated with, the acceleration of Third Generation FLIR development.

Transport telemedicine system

The committee is aware that the Department of Defense is developing capabilities that would provide telemedicine and remote physiological monitoring for casualty care of deployed forces. The committee recognizes that such telemedicine capabilities can provide useful reachback support for complex injuries, especially for sensitive organs where combat medics and surgeons may not have in-depth specialty training. The committee encourages the Department to continue to experiment with and examine ways to use emerging telemedicine capabilities to allow for consultation with specialty subject matter experts to provide soldiers on the battlefield with access to high-quality care for complex and difficult injuries. Additionally, the committee supports the idea of partnering with subject matter experts in order to provide direct, real-time consultation between geographically dispersed military and civilian medical personnel; this would support complex diagnostic and surgical problems, as well as allow conferencing for complicated, but less urgent, patient management decisions and virtualized training and continuing medical education.

Urban warfare training

The committee has continuing interest in the Department of Defense's ability to prepare for and operate in complex, densely populated urban terrain. Recent trends reflect that the future of global violence is urban, and that the next war will likely be fought in densely populated cities. The committee is supportive of the Department's ongoing efforts, but remains concerned with the lack of Army prioritization and resourcing to address these challenges. The committee is particularly concerned with the Army's lack of realistic training sites that reflect the scale and density of real-world urban operating environments. The committee believes the Army should more aggressively prepare for urban warfare and explore the construction of an urban warfare training center that focuses on basic and advanced skills to fight, survive, and win in urban operating environments. This training should address the challenges associated with vertical, subterranean, and dense urban terrain, and the inclusion and integration of joint and interagency enablers.

Therefore, the committee directs the Secretary of the Army to provide a briefing to the House Committee on Armed Services not later than February 1, 2019, on the Army's plan for urban warfare training. The report should include:

- (1) a description of urban warfare training requirements;
- (2) an overview of a plan and timeline to integrate urban warfare training within the Army;
- (3) an identification of costs associated with an urban warfare training program;

- (4) a feasibility study on the construction of an urban warfare training center;
- (5) feasibility of utilizing existing private facilities and contracting training iterations until a final DOD facility can be constructed;
- (6) any critical technology, maneuver, or mobility shortfalls associated with operating in a dense urban environment; and
- (7) force design impacts or considerations within the Army.

RESEARCH, DEVELOPMENT, TEST, AND EVALUATION, NAVY

Items of Special Interest

Academic partnerships for undersea unmanned warfare research

The budget request contained \$58.0 million in PE 62747N for undersea warfare applied research.

The committee supports the Navy's efforts to develop the next generation of nuclear submarines and other undersea systems and capabilities. Specifically, the committee supports research, development, testing, and demonstration of maritime robotic systems that may be used for security and surveillance, inspection and survey, munitions retrieval, and environmental monitoring.

The committee understands that there are additional opportunities to enhance development of the next generation submarines and maritime robotics technology in the areas of autonomy, adaptive decision making, docking, 3-D imaging, energy technologies such as marine and hydrokinetic convertors, and data transfer. The committee believes that university-based research and innovation centered on the development of maritime robotic technology and other capabilities required for advanced undersea warfare will be essential in maintaining the Navy's competitive advantage.

Therefore, the committee recommends \$78.0 million, an increase of \$20.0 million, in PE 62747N. Elsewhere in this title, the committee notes the importance of partnerships with academia to advance unmanned platforms and systems in order to maintain a competitive war fighting advantage.

Artificial intelligence and computer vision technologies in Navy unmanned systems

The committee has continuing interest in the Navy's ability to leverage artificial intelligence, machine learning, and computer vision in exploitation and analysis. The committee also recognizes the increasing amounts of imagery and other sensor data that Navy unmanned undersea and unmanned surface vessels generate, and the demand this creates for additional processing, exploitation, management, and dissemination of information. The committee recommends the Navy synchronize their efforts with the Under Secretary of Defense for Intelligence, and ensure that unmanned undersea and unmanned surface vessel computer vision and artificial intelligence requirements are incorporated into Project Maven and other Department of Defense research and development programs. The committee supports the Department's initiatives to leverage commercial technology and innovative solutions to rapidly address current Department challenges, and believes the Navy can benefit from similar capabilities.

Briefing for the Senate Committee on Armed Services and the House Committee on Armed Services on US Navy's efforts to expand carrier air wing long-range strike capability

The committee notes that the aircraft carrier air wing has been optimized for striking power and sortie generation and believes that it may not be configured to support the long-range strike required by current and future threat systems. While the introduction of the F-35C will significantly expand stealth capabilities, the F-35C could require increased range to address necessary targets. The committee believes that several options could be used to address this issue to include developing a stealth tanker capability, improved engine technology or to develop and procure a strike capability that is purposely built to strike at increased range. The committee further notes that the Navy previously desired to significantly increase the carrier air wing range with the development of the A-12 aircraft. The committee understands that the A-12 would have included a 5,000-pound internal carriage payload, stealth, and a range of 800 nautical miles. While the committee believes that requirements to support this capability remain relevant and the technology available, the development of the A-12 aircraft was mired in acquisition challenges that eventually resulted in the cancellation of the program. While the committee further believes that the Department of Defense has successfully developed a suite of long-range intelligence, surveillance and reconnaissance capabilities, the committee also believes that it is vital that the Navy develop a carrier-based long-range strike capability.

Therefore, the committee directs the Secretary of the Navy to provide a briefing to the Senate Committee on Armed Services and the House Committee on Armed Services by January 25, 2019, on options to expand the strike range of a carrier air wing in a contested environment, including manned and unmanned capabilities, and, Department of the Navy capabilities it plans to pursue in the Next Generation Air Dominance capability.

Briefing on Navy support for research into autonomous systems

The committee is aware of the Robotarium, a laboratory hosted at the Georgia Institute of Technology, sponsored by the Office of Naval Research (ONR), where researchers conduct experiments with interconnected, heterogeneous unmanned ground and aerial systems. The committee is supportive of competitively awarded grant programs that enhance academia's ability to conduct complex experiments with autonomous systems. As the role of autonomous systems in operations is expected to grow, the Committee believes it will be increasingly important for ONR to continue to fund initiatives that prepare future engineers to conduct cutting edge research in this discipline, especially with different classes of autonomous systems including unmanned underwater vehicles, unmanned surface vehicles, and unmanned aerial vehicles operating simultaneously across multiple domains. Therefore, the committee directs the Director of ONR to brief the House Committee on Armed Services by November 1, 2018, on initiatives that enhance the ability of academia to conduct complex experiments with autonomous systems.

Briefing on ongoing engine noise reduction efforts

The Committee continues to support ongoing efforts to reduce engine noise from the F-414 engine on the F/A-18 E/F Super Hornet and E/A-18 G Growler.

Attachments, known as chevrons, could reduce the noise associated with operations of these aircraft. A reduction in engine noise would benefit sailors working in close proximity to the aircraft, particularly on the carrier deck, and communities near installations home to these squadrons.

Having received the briefing required by the House Report to the Fiscal Year 2018 National Defense Authorization Act, the committee is aware that the Navy may be requesting authority to reprogram Fiscal Year 2018 funding in order to engineer, manufacture, proof and test redesigned chevrons. The Committee supports such a request, provided the funding source is a program with unexecutable funds.

The Committee is aware that these funds would be used to develop an improved chevron design which could achieve significant noise reduction at full military power. The committee directs the Secretary of the Navy to brief the House Committee on Armed Services no later than September 30, 2018 on engineering plans for Fiscal Year 2018 and 2019 and potential applications of chevron designs to additional aircraft.

Consolidated Afloat Networks and Enterprise Services

The committee acknowledges the Navy's efforts to modernize the functions of its existing command, control, communications, computers, and intelligence network systems through Consolidated Afloat Networks and Enterprise Services (CANES) installation. The committee recognizes that, through CANES, the Navy seeks to build a more responsive and adaptable information technology platform by creating a common computing environment that will increase capabilities, address cybersecurity vulnerabilities, and lower sustainment costs across the fleet. Therefore, the committee continues to support full deployment of CANES, as scheduled, to ensure the Navy's networking environment remains adequately equipped for information warfare.

Defense University Research Instrumentation Program

The budget request contained \$119.4 million in PE 61103N for University Research Initiatives.

The Defense University Research Instrumentation Program (DURIP), administered by the Office of Naval Research, provides academic institutions conducting research for the Department of Defense the ability to acquire the necessary infrastructure to support high-quality research. Additionally, the instrumentation developed and acquired through the DURIP process ensures that the next generation of scientists and engineers are trained with cutting-edge capabilities for the defense science and technology workforce. The committee understands there is additional opportunity for the Navy to facilitate research in an area of interest to the Navy through the DURIP program.

Therefore, the committee recommends \$129.4 million, an increase of \$10.0 million, in PE 61103N, to support the acquisition

of infrastructure required by universities to conduct cutting-edge Navy research.

Directed energy and non-lethal weapons technology policy and guidance

The budget request contained \$27.6 million in PE 63851M for Joint Non-Lethal Weapons testing.

The committee continues to support the Department of Defense's efforts to develop non-lethal technologies as a materiel solution to provide military commanders with a non-lethal capability to protect military bases, security perimeters, and other secured spaces. The committee acknowledges the importance of these technologies as a force multiplier that gives service members more options, and minimizes civilian casualties and collateral damage. Recent development efforts of High Power Radio Frequency directed energy technologies have advanced these weapons to a maturity that can be used globally by the military services and combatant commands to stop vehicles, vessels, and other systems. The committee is concerned that the lack of policy, strategy, and guidance for employment of these non-lethal weapons has limited the potential benefits of deploying these technologies for use more broadly across the combatant commands.

Therefore, the committee directs the Secretary of the Navy to provide a briefing to the House Committee on Armed Services by November 1, 2018, on the future strategy for non-lethal weapons, including development of appropriate policy and guidance for employment. The briefing should also describe the current organizational structure of the non-lethal weapons program and consider the assignment of a joint proponent for non-lethal weapons who would be responsible for coordinating command requirements, facilitating policy development, and setting conditions for further integration of these capabilities.

The committee recommends \$32.6 million, an increase of \$5.0 million, in PE 63851M for the Non-Lethal Weapons program.

E2-D Advanced Hawkeye Identification Friend or Foe

The budget request contained \$223.6 million for the E-2D Advanced Hawkeye program.

The committee notes that the E-2D Identification Friend or Foe (IFF) Interrogation System has certain limitations at long range. These limitations affect the ability of the crewmembers to identify threats at range, reducing critical time to react. The committee also notes that applying meta-materials to the E-2D IFF system may improve the E-2D IFF range detection and overall ability of the fleet to react against distant threats.

The committee recommends \$225.6 million, an increase of \$2.0 million, for the E-2D Advanced Hawkeye program.

Joint Air-to-Ground Missile for fixed wing aircraft (JAGM-F) integration

The committee notes the Department of the Navy, with the eventual retirement of the Maverick missile has similar requirements as the Air Force for Joint Air-to-Ground Fixed (JAGM-F) missile on its AV-8B Harrier, F/A-18C/D/E/F Hornet, and F-35B/C aircraft. JAGM-F is an improvement to the Army's JAGM which will

allow the missile to be eject-launched from fixed-wing aircraft to eliminate time sensitive moving targets and high value covered/sheltered and armored targets. The committee understands JAGM-F will be able to combat adverse weather, low visibility and austere communication environments on land and at sea while engaging multiple targets near simultaneously in multiple engagement modes.

Therefore, the committee directs the Secretary of the Navy to provide a briefing to the House Committee on Armed Services by February 8, 2019 that provides potential options for accelerating Navy and Marine Corps efforts with respect to integrating JAGM on fixed-wing aircraft.

Marine Corps Group 5-class unmanned aircraft development

The budget request contained \$25.3 million in PE 34240M for development of advanced tactical unmanned aircraft system capabilities.

The committee understands that the Marine Corps plans to develop a medium- to large-sized, long-range, medium-altitude, multi-mission, unmanned aircraft system that can persist and survive in an anti-access, area-denial contingency environment. The committee is also aware of multiple capabilities and platforms across joint-service portfolios that could likely mitigate, if not eliminate, the capability gaps and shortfalls identified in the Marine Corps' Initial Capabilities Document, from August 10, 2016, "Marine Air Ground Task Force Unmanned Aircraft System Expeditionary Capabilities." The committee believes the Marine Corps underestimates the required communications, data link, launch, mission execution, and recovery infrastructure, or the human capital resources required to train, operate, maintain, and sustain such a system. The Marine Corps also underestimates the necessary human capital resources required to meet current deployment-to-dwell policy and guidance issued by the Secretary of Defense.

Therefore, the committee recommends \$10.3 million, a decrease of \$15.0 million, in PE 34240M for development of advanced tactical unmanned aircraft system capabilities. The committee also directs the Chairman of the Joint Requirements Oversight Council to provide a briefing to the House Committee on Armed Services, not later than February 5, 2019, that assesses all existing or future joint-service capabilities that are similar in nature to the Marine Corps' planned system, and includes a detailed explanation for why each of those joint-service capabilities could not mitigate or fulfill the gaps or shortfalls identified by the Marine Corps. The committee also directs the Secretary of the Navy to provide a briefing to the House Committee on Armed Services, not later than February 5, 2019, that explains the acquisition and funding strategy of the Marine Corps to affordably develop and field an unmanned capability of this nature, and the personnel, funding, infrastructure, and mission-execution resources that would be needed to viably sustain and support this capability.

Maritime intelligence, surveillance, and reconnaissance capabilities demonstration

The budget request contained no funding for the MS-177A maritime enhanced sensor demonstration program.

The committee notes that the Navy has the opportunity to leverage a \$300.0 million Air Force investment in the MS-177A sensor, which is meant to improve maritime target detection and long-range imaging. This investment could significantly reduce procurement costs and expedite fielding. The committee is aware that U.S. Pacific Command (PACOM) identified the MS-177A in its fiscal year 2018 integrated priority list for consideration. The committee believes that having an organic Navy MS-177A demonstration in the PACOM area of responsibility could help the Navy to assess the full range of anti-surface unit warfare and anti-submarine warfare capabilities. In addition, the MS-177A would help gather needed intelligence against threats in the PACOM strategic environment. The MS-117A would improve the Navy organic capability to conduct standoff anti-surface unit warfare intelligence, surveillance, reconnaissance, and long-range positive identification of targets.

The committee recommends \$23.5 million for the MS-177A maritime enhanced sensor demonstration program.

Naval underwater test ranges

The committee has continuing interest in the Department of Defense's plan to redevelop and modernize the Barking Sands Tactical Underwater Range (BARSTUR). The committee report (H. Rept. 114-577) accompanying the Department of Defense Appropriations Act, 2017, directed the Navy to submit a report to the congressional defense committees on the plan to redevelop and modernize BARSTUR. The report was submitted on October 13, 2017. The report provided by the Navy noted that BARSTUR is an invaluable asset to numerous Hawaii-based and transiting subsurface, surface, and aviation platforms. The committee notes the underwater range is used extensively to conduct submarine sonar, fire control, and weapons technical and operational evaluations, and serves a critical role in hosting the world's largest international maritime warfare exercise, Rim of the Pacific. This exercise serves as a means of promoting stability in the region and represents a unique training opportunity to foster and sustain cooperative relationships that are necessary for ensuring the safety of sea lines of communication and security in the Pacific Ocean. The committee remains concerned about the readiness and operational status of the Barking Sands Tactical Underwater Range and its ability to support critical training and exercises. The committee encourages the Navy to aggressively sustain the modernization timeline, begin the program requirement and acquisition process, and support a competitive source selection and contract award to achieve operational capability in fiscal year 2026.

MQ-25 Unmanned Carrier Aviation program

The budget request contained \$718.9 million for the MQ-25 Unmanned Carrier Aviation program.

The committee supports the Navy's efforts to develop and field a carrier-based unmanned aerial system to provide refueling as well as intelligence, surveillance, and reconnaissance support to the fleet. The committee notes that the Chief of Naval Operations intends to accelerate this program by 2 years in order to provide this capability by 2026. To date, the Navy has provided insufficient air

vehicle justification. Budget documents state that \$598.78 million will go to Air Segment Primary Hardware Development with very little further justification or cost estimates.

The committee recommends a decrease of \$116.9 million, for a total of \$602.0 million, to procure one test article for the MQ-25 Unmanned Carrier Aviation program.

Navy Explosive Ordnance Disposal recovery operations

Navy Explosive Ordnance Disposal (EOD) forces require a safe, effective, and supportable means to conduct Raise, Tow, and Beach (RTB) operations. These operations entail attaching suitable lifting mechanisms to the item of interest on the sea bed (e.g., threat items, Unexploded Ordnance (UXO), salvage items), actuating the lifting mechanism to raise the item to the sea surface, and securing and/or transporting the item of interest to a safe environment for subsequent action. The committee notes that Navy desired to employ the MK V Ordnance Recovery Air Bag (ORCA), a commercial-off-the-shelf (COTS) lift bag with similar lift capacity to legacy requirements. However, the ORCA system was never transitioned to a program of record that could replace the Mod 1 because the system experienced numerous material and design shortcomings making its continued use unacceptable without significant design modifications. Last year, Navy reassessed this issue and determined that the EOD Lift Balloon capability should be provided by the MK 2 MOD 2 Flotation Bladder Assembly. The committee notes that comparable capabilities exist to support this requirement including a developmental lift balloon and an automated tow coupling actuation system currently in limited use by EOD. Therefore, the committee directs the Secretary of the Navy to provide a brief to the House Armed Services Committee by October 1, 2018 that provides a comparison of the current program of record with other developmental efforts.

Navy Next Generation Enterprise Network

The committee acknowledges the Defense Information System Agency's current role in providing network management and security to the Navy's networks. The committee is also aware that the Navy has sought commercial sector input for modernizing its information technology services through the Navy Next Generation Enterprise Network. The committee recognizes that employing advanced commercial network capabilities for end-to-end network connectivity can promote rapid innovation, lead to cost efficiencies, and enhance security capabilities. Therefore, the committee encourages the Department of Defense, where practicable, to take advantage of commercial-off-the-shelf capabilities for supporting, securing, and modernizing its networks.

Navy Theater Anti-Submarine Warfare prototyping

The committee understands that the Navy plans to begin a Deployables Program of Record (PoR) in fiscal year 2020 which intends to address operational gaps in wide area undersea surveillance. The committee commends the Navy for conducting a robust prototyping program as a part of Theater Anti-Submarine Warfare (TASW) efforts since fiscal year 2015, which will inform future requirements and will produce valuable technical and operational in-

formation regarding the fielding and employment of deployables capabilities. However, the committee is also aware that under the current fiscal year 2020 start timeline, tested production units from the Deployable System of Systems Project effort will not be operationally available until late 2022. Therefore, the committee directs the Secretary of the Navy to brief the House Committee on Armed Services by August 30, 2018 as to a plan to maximize the capabilities that have been achieved from current prototyping efforts as well as how the Secretary intends to mitigate the operational gaps that could result because of the Deployables PoR fielding schedule.

Ocular Interruption System

The Committee is aware the Marine Corps' new Ocular Interruption System, which will replace the current decades-old system, represents a materiel solution providing personnel a single, non-lethal hail and warning capability applicable across the range of military operations where the objective is to minimize civilian casualties and limit collateral damage. The Committee is concerned with the budget request's proposed reduction of the Marine Corps Approved Acquisition Objective (AAO) requirement of 1,758 units from the previously stated goal of 1,848 units, and the delay of Full Operational Capability (FOC) until the fourth quarter of fiscal year 2020. The Committee is further concerned that the AAO requirement and the FOC timeline may have been altered without an associated change in requirements. Therefore, the Committee directs the Commandant of the Marine Corps to provide a briefing, not later than September 1, 2018, to the House Armed Services Committee on a plan to potentially fulfill its original AAO requirement of 1,848 units. This briefing shall include to planned delivery order schedule, pricing per unit, and fielding schedule.

Passive rocket propelled grenade armor protection technology

The committee notes there have been significant improvements in passive rocket propelled grenade (RPG) armor protection over legacy RPG armor systems, which are heavy and cumbersome, and present form, fit, and function constraints, particularly for Marine Corps ground combat tactical vehicle fleets operating in expeditionary environments. The committee encourages the Secretary of the Navy to consider lightweight RPG armor solutions that provide protection against RPG attacks while maintaining the ability to fold flat against the vehicle to allow for rapid deployment and transport from amphibious ships and aircraft.

Therefore, the committee directs the Secretary of the Navy to provide a briefing to the House Committee on Armed Services by February 1, 2019, on the testing, evaluation, and integration of lightweight, textile, and flexible RPG armor solutions that provide protection against RPG attacks, while maintaining the ability to fold flat against the vehicle to allow for rapid deployment and transport from amphibious ships and aircraft.

Small Business Innovation Research—Automated Test and Retest Program

The committee recognizes the Small Business Innovation Research (SBIR) program is a valuable tool to engage small business and provide a pathway for innovators to conduct business with the

Department of Defense. The National Defense Authorization Act of 2012 (Public Law 112–81), Section 5001, also known as the SBIR/STTR Reauthorization Act of 2011, mandates that agencies, to the greatest extent practicable, shall issue Phase III awards to the SBIR award recipients that developed the technology. The committee is aware that the technology developed for the Automated Test and Retest Program has demonstrated success that has led to an enterprise-wide approach, and offers cost savings over current efforts. The committee encourages the Navy to continue to support SBIR award recipients to the greatest extent practicable for any Phase III awards associated with the Automated Test and Retest Program.

Therefore, the committee directs the Secretary of the Navy, no later than 31 January 2019, to provide to the Committee on Armed Services of the House of Representatives, a briefing on the Automated Test and Retest Program. The briefing should include an overview of SBIR award recipients associated with this program, the Navy’s methodology and process for considering SBIR Phase III awards, and a plan detailing how the Navy’s Automated Test and Retest program will comply with the SBIR/STTR Reauthorization Act of 2011 for future contract awards.

TH–57 follow-on training system

The budget request contained no funds in PE 63208N for the TH–57 follow-on training system program.

The committee notes that the Department of the Navy procured the TH–57B and TH–57C helicopters used to train Navy, Marine Corps, Coast Guard, and foreign military partners between November 1981 and December 1985. The committee further notes that budget justification materials submitted with the budget request for fiscal year 2019 describe the TH–57 training system as experiencing obsolescence, diminishing manufacturing sources and material shortages, and increasingly expensive operating costs relating to aging aircraft issues. The committee understands that this situation results in potential pilot training shortfalls that will have a negative impact on readiness.

Accordingly, the committee believes the Department of the Navy should accelerate the program to procure a follow-on system to replace the TH–57B and TH–57C helicopters. The committee recommends \$1.0 million in PE 63208N for this purpose.

U.S. Navy MH–60R helicopter antisubmarine warfare and aircraft health monitoring

The committee understands the U.S. Navy operates a fleet of Antisubmarine Warfare (ASW) equipped MH–60R helicopters. The committee notes the MH–60R is fitted with advanced mission systems and sensors that are capable of detecting and engaging modern submarines in littoral and open ocean scenarios. However, the committee understands that the current ASW sonobuoy receiver is heavy and limited to its specific mission of receiving and transmitting data to and from U.S. Navy sonobuoy fields for analysis through acoustic processors.

The committee is aware that new Size Weight and Power (SWaP) receiver technology currently being used on the DDG–51 that could provide the Navy with enhanced capability while also reducing

weight on the MH-60R by over forty pounds. Additionally, the committee understands that the new receiver has the capability to integrate a Next Generation Health Monitoring System (NGHMS), which has the potential to replace the current HUMS system on the aircraft, saving an additional fifty pounds of critical weight. The committee is also aware the U.S. Army is currently conducting demonstrations of NGHMS on the UH-72 Lakota light utility helicopter.

The committee directs the Secretary of the Navy, or his designee, to provide a briefing to the House Committee on Armed Services by September 28, 2018 that provides operational details of the DDG-51 SWaP receiver to include capabilities, any challenges associated with integration with NGHMS and subsequently onto the MH-60R platform. The briefing should also include a notional plan for testing this technology as well as a notional acquisition strategy.

Warfighter safety and performance

The budget request contained \$56.2 million in PE 62236N for Warfighter Sustainment Applied Research.

The committee notes that this program has been instrumental in technology efforts to improve warfighter safety, prevent occupational injury in hazardous, deployed areas, and minimize the effects of extreme environments. The committee believes additional research focused on the safety, performance, and resilience of Navy divers can further reduce risk during dangerous missions in adverse conditions. Research areas that warrant additional focus include studies on decompression sickness, oxygen toxicity, optimization of diver performance, and assessment of the impact of thermal stress. This research can also illuminate human performance characteristics and technologies that have implications across a much larger set of mission-relevant performance calculations.

The committee recommends \$56.2 million, the amount requested, in PE 62236N for Warfighter Sustainment Applied Research.

RESEARCH, DEVELOPMENT, TEST, AND EVALUATION, AIR FORCE

Items of Special Interest

Academic and industrial partnerships for aerospace materials

The budget request contained \$42.0 million in PE 63680F for the manufacturing technology program.

The Air Force has been studying materials for advanced aerospace needs to enhance lethality and survivability in accordance with the 2018 National Defense Strategy. The committee understands developing and manufacturing advanced materials can be challenging, and that opportunity may exist for the Air Force Research Laboratory to leverage existing relationships, and form new partnerships, with higher education and industrial partners in the Manufacturing Technology Program to better understand these challenges. Specifically, the committee believes greater leveraging of software and simulation tools to assess new machining, composite manufacturing, casting, and additive manufacturing technologies being developed by original equipment manufacturers, will

ultimately improve advanced material development and manufacturing.

Therefore, the committee recommends \$47.0 million, an increase of \$5.0 million, in PE 63680F to develop advanced materials and increase advanced materials manufacturing through academic and industrial partnerships to better support aerospace needs.

Academic partnerships for modeling, design, and analysis of unmanned air platforms

The budget request contained \$190.9 million in PE 62203F for aerospace propulsion research and development.

The committee is aware that the Air Force performs a wide range of advanced research and engineering in multi-disciplinary design for unmanned air platforms. Further, the committee recognizes that advanced modeling and design, as well as quicker comparative analyses, are beneficial to this effort. The committee believes that academia is well-suited to partner with the Air Force on modeling, design, and comparative analysis through the use of Educational Partnership Agreements, which are mutually beneficial agreements that may also enhance the Air Force's effort to recruit a diverse and educated workforce.

Therefore, the committee recommends \$195.9 million, an increase of \$5.0 million, in PE 62203F for Educational Partnership Agreements for unmanned platforms.

Elsewhere in this title, the committee notes the importance of partnerships with academia to advance unmanned platforms and systems in order to maintain a competitive war fighting advantage.

Advanced engine development program

The budget request contained \$1.2 billion in PE 64858F for technology transition programs, of which \$790.4 million was included for the advanced engine development project.

The advanced engine development project enables demonstration of advanced turbine engine prototypes. The committee notes that the main effort in this project is the adaptive engine transition program, which is maturing fuel-efficient adaptive engine component technologies and reducing associated risk in preparation for next-generation propulsion system development for multiple combat aircraft applications. The committee understands that adaptive engine technology enables next generation combat aircraft capabilities by combining the efficiency of high-bypass turbofans used by commercial airlines with the performance demanded of military fighter engines. This technology has undergone initial development through the adaptive engine technology and adaptive engine technology demonstrator programs, which the committee has supported in past years. The committee believes that both legacy aircraft and future aircraft can benefit from this capability and technology. Therefore, the committee encourages the Department of the Air Force to continue to make the necessary investments in these critical technology demonstrations and engine developments to ensure operational capability is achieved at the earliest opportunity.

The committee recommends \$790.4 million, the full amount requested, in PE 64858F in order to continue the advanced engine development project, and further encourages the Department of Defense to consider early initiation of development programs aimed at

transitioning advanced engines into the field for both legacy and future combat weapon systems.

Advanced pilot training program

The budget request contained \$265.5 million in PE 65223F for the advanced pilot training (APT) program. The APT program will replace the Air Education Training Command's aging T-38C fleet with new aircraft, a ground-based training system, a maintenance training system, and support infrastructure currently used in the fighter/bomber advanced Specialized Undergraduate Pilot Training track, as well as in the Introduction to Fighter Fundamentals program.

The committee continues to view the APT program as a critical program to replace the aging T-38C aircraft in order to train student pilots in an advanced training aircraft so they can make a more effective transition to fifth-generation combat aircraft upon graduation from undergraduate pilot training. The committee notes that for fiscal year 2018, contract award had been planned for late 2017, and has now been delayed until the summer of 2018. If the delay in contract award extends beyond the summer of 2018, the committee expects the Secretary of the Air Force to provide a briefing to the House Committee on Armed Services within 30 days of the delay announcement, detailing the reasons for further delay, impact on aircraft delivery, and efforts to mitigate the delay so that initial and full operational capability remains on schedule.

The committee recommends \$265.5 million, the full amount requested, in PE 64233F to continue the APT program. The committee also expects the Secretary of the Air Force to provide the briefing to the House Committee on Armed Services directed in the committee report (H. Rept. 115-200) accompanying the National Defense Authorization Act for Fiscal Year 2018, on potential options to accelerate the APT program, subsequent to contract award.

Advanced radar threat system emitters

The budget request contained \$35.9 million in PE 64735F for Department of the Air Force combat training range development, of which \$34.8 million was included for development of a family of advanced radar threat system (ARTS) emitters. The ARTS programs develop, design, build, and test threat system simulators based on advanced foreign-fielded surface-to-air missile (SAM) radar threat systems. ARTS will be used at Department of Defense training ranges for fourth- and fifth-generation aircrew training and tactics development to increase combat effectiveness and aircrew survivability by training aircrews to engage or defend against an advanced SAM threat before encountering it in actual combat to stress their tactics, techniques, and procedures.

The committee understands that ARTS radars would add modern, high-fidelity threat training devices to the ranges that are capable of interacting with fifth-generation sensor-fusion technologies. During a visit to Hill Air Force Base, Utah, in April 2018, F-35A pilots briefed committee members that current training ranges are not equipped with the threat radars necessary to provide the most effective training for F-35 pilots, and the committee believes that the ARTS emitter programs should be accelerated.

Accordingly, the committee recommends \$62.9 million in PE 64735F for Air Force combat training range development, an increase of \$27.0 million, to accelerate the ARTS emitter programs, and understands that this amount is executable in fiscal year 2019.

Advanced Turbine Engine Gas Generators

The Advanced Turbine Engine Gas Generator project develops and demonstrates core engine technologies to address the growing need for affordable small turbofans utilized in current and future missile and remotely piloted aircraft propulsion systems. The project develops and demonstrates technology to reduce cost of ownership by half while improving mission flexibility and fuel consumption to increase range. It will also pave the way for providing much needed competition where there currently is none. The committee directs the Secretary of the Air Force to provide a briefing to the House Committee on Armed Services, not later than February 15, 2019, on Department of the Air Force plans to fund technologies which lead to low cost, high performance turbofan engines of up to 1,200 pounds of thrust.

Aerospace composite structures manufacturing

The budget request contained \$42.0 million in PE 63680F for the Air Force manufacturing technology program. Of this amount, \$30.1 million was requested for advanced manufacturing technology, including agile manufacturing capabilities.

The committee believes that manufacturing technology related to cost reduction for aerospace composite structures is a particularly important part of this overall effort. Specifically, the committee encourages work on production cost reduction methods, low-cost tooling, and agile manufacturing technologies to enable future Air Force unmanned systems requirements to be achieved at an affordable cost.

The committee recommends \$42.0 million, the full amount requested, in PE 63680F for the Air Force manufacturing technology program.

Air Force test and evaluation support

The budget request contained \$692.8 million in PE 65807F for Department of the Air Force test and evaluation support. The committee notes that this amount is \$14.5 million, or about 2 percent, higher than the budget request for fiscal year 2018. The committee also notes that test facilities, capabilities, and resources operated through this program include wind tunnels, rocket and jet engine test cells, armament test ranges, civilian payroll, and contractor services.

In the committee report (H. Rept. 115–200) accompanying the National Defense Authorization Act for Fiscal Year 2018, the committee reported on a briefing it received on a comprehensive assessment of Major Range and Test Facility Base needs and investments to meet the testing required for fifth- and sixth-generation aircraft and air armament, including hypersonic strike weapons. The committee noted that among its findings were that fifth- and sixth-generation aircraft and weapons introduce test and evaluation gaps, and that significant research and development and operations and support investments are required to fill those gaps.

For fiscal year 2018, Department of the Air Force officials informed the committee that funding for test and evaluation support is about \$30.0 million below its historical norms, and that this funding erosion has diminished the ability of the Air Force Test and Evaluation (T&E) enterprise to support T&E of next-generation capabilities in the near term. Since the budget request for fiscal year 2019 would only provide an inflation increase over the previous year, the committee believes that the budget request for fiscal year 2019 is also about \$30.0 million below historical norms.

Consequently, the committee recommends \$724.7 million in PE 65807F for Air Force test and evaluation support, an increase of \$31.9 million, to provide improved open-air range test capabilities on a timeline that supports the Air Force's roles in the development of next-generation platforms and air armament, and addresses the growing range challenges.

Air Operations Center software modernization utilizing agile development software processes

The budget request contained \$106.1 million in PE 27410F for the Air and Space Operations Center (AOC), of which, \$97.6 million is for development of applications and software for the AOC utilizing agile software development and operations (Ag DevOps) techniques.

The committee is disappointed in the past attempt to modernize and upgrade AOC capability through the AOC 10.2 program and the waste of fiscal resources that occurred as a result of AOC 10.2 program termination. The committee is concerned by the Air Force's lack of knowledge regarding contractual insights and cost data, the inability to explain cost-estimation tools and planning considerations necessary to formulate budgets, and how the Air Force values the goods and services received for the resources expended.

Therefore, the committee recommends \$79.6 million in PE 27410F, a decrease of \$26.5 million, for development of applications and software for the AOC utilizing Ag DevOps techniques. The committee also includes a provision elsewhere in this title that would provide the Secretary of the Air Force 25 percent of authorized funding recommended until the Secretary provides a report to the congressional defense committees on software development cost-estimation tools needed to develop "should-cost" models, information regarding costs incurred to date for software development, and a sufficiency review of the report by the Department of Defense Director, Defense Pricing and Acquisition Policy office prior to submitting the report to Congress.

Autonomous life support system

The budget request contained \$36.5 million in PE 63456F for human effectiveness advanced technology development, but included no funds for an autonomous life support system (ALSS). An ALSS is a system in development that would monitor the physiologic state, respiratory profile, and environmental conditions of a pilot in a fighter or training aircraft. It automatically adjusts to the pilot's physiologic demands, thereby diminishing the prospect that a pilot would be subjected to a physiological episode resulting from an inadequate supply of oxygen.

A National Aeronautics and Space Administration (NASA) report conducted by the NASA Engineering and Safety Center, dated September 14, 2017, on F/A-18 and EA-18 fleet physiological episodes, recommended the development of systems that would monitor a pilot's physiologic state. The committee understands that the Air Force's 711th Human Performance Wing is pursuing a cooperative research and development agreement with a contractor to develop an ALSS that includes capabilities for monitoring inhaled and exhaled gas. The committee further understands that the scope of funded work should also include the monitoring of pilot physiology for heart rate, pulse or tissue oxygenation, and estimated core temperature, and that an increase in funds for this purpose would accelerate the development of an ALSS.

Consequently, the committee recommends \$46.5 million, an increase of \$10.0 million, in PE 63456F.

Education and outreach for anti-tampering and cybersecurity research

The committee recognizes the role that anti-tampering technology plays in safeguarding U.S. military weapon systems from theft, reverse engineering, and exploitation. The committee acknowledges and supports the Air Force's highly focused efforts to grow technological advances in this area. Therefore, the committee encourages the Department of Defense to fully fund programs that support anti-tampering research and development. Furthermore, the committee encourages the Department to leverage talent from Historically Black Colleges and Universities (HBCUs) that have a proven track record of excellence in this particular field. The committee recognizes the vital contributions that HBCUs have made in supporting defense readiness and national security priorities through successful research initiatives.

F-15 ALQ-128 electronic warfare warning set

The budget request contained \$192.9 million in PE 27134F for development of F-15 systems, but included no funds for development of the ALQ-128 electronic warfare warning set (EWWS). The ALQ-128 EWWS is a countermeasures receiver used on the F-15C, D, and E aircraft. The ALQ-128, used in concert with other systems, provides active jamming against enemy radar threats.

The committee notes that with the fielding of upgraded active electronically scanned array radars on the F-15 fleet, the aircraft's automatic electronic warfare warning countermeasures and active jamming capability was lost because the legacy ALQ-128 EWWS is not compatible with the new antennas and cannot be upgraded. The committee understands that an ALQ-128 development program to re-design the ALQ-128 would regain the lost warfighter capability to provide active jamming against enemy radar threats, and is necessary to provide an expandable and upgradeable system to meet mission requirements.

Therefore, the committee recommends \$242.9 million, an increase of \$50.0 million, in PE 27134F for development of the ALQ-128 EWWS.

F-35 follow-on development

The committee notes that the F-35 program has accomplished the final developmental test flight of the system development and demonstration (SDD) phase of the program on April 11, 2018. While the SDD required flight test is now complete, the committee further notes that flight testing continues in support of phased capability improvements and modernization of the F-35 air system in an effort formerly known as block four and now known as continuous capability development and delivery (C2D2). The C2D2 program will provide timely, affordable incremental warfighting capability improvements to maintain joint air dominance against evolving threats to the United States and its allies.

Section 224(b) of the National Defense Authorization Act for Fiscal Year 2017 (Public Law 114-328) directed the Secretary of Defense to submit a report to the congressional defense committees that contains the basic elements of an acquisition baseline for the F-35 block four program. However, the report delivered in January 2018 provided only an initial insight into the basic elements of the F-35 C2D2 program. The committee understands that a complete report is planned to be submitted in March 2019, and believes that the basic elements of an acquisition baseline are vital to the ability of the committee to conduct its oversight responsibilities of a significant F-35 modernization budget.

Therefore, elsewhere in this Act, the committee recommends a provision that would limit the obligation of funds for the F-35 C2D2 program until the Secretary of Defense submits the complete report required by section 224(b) of Public Law 114-328.

The committee also notes that in its annual report on the F-35 program, the Director of Operational Test and Evaluation assessed that the F-35 C2D2 schedule was not executable due to insufficient test resources, including an inadequate number of test aircraft configured to conduct C2D2 test flight activity. Accordingly, the committee believes the Department should procure an additional six new test aircraft, two in each of the F-35A, F-35B, and F-35C configuration, to support the C2D2 program so that capability improvements and modernization can be more rapidly developed and procured to meet evolving threats.

Metals Affordability Initiative

The budget requested contained \$37.9 million in PE 63112F for Advanced Materials for Weapons System.

The committee recognizes the importance of this program in providing affordable materials and manufacturing technologies across the entire life-cycle of aerospace materials. Specifically, the Air Force Research Lab-managed Metals Affordability Initiative has reduced metallic aircraft component costs and accelerated the implementation and transfer of technologies across a wide range of aircraft platforms. The committee notes the value of this public-private partnership and the risk sharing model that has directly led to a nearly \$2.4 billion return on the U.S. Government's investment. The committee recommends the Secretary of the Air Force create a dedicated funding line for the Metals Affordability Initiative to show the Air Force's clear commitment to this program.

The committee recommends \$47.9 million, an increase of \$10.0 million, in PE 63112F for Advanced Materials for Weapons System.

Passive ground-based imaging of space objects

The committee is aware of the progress with ground-based space imaging experiments being made by the Air Force Research Laboratory's (AFRL) Joint United States-United Kingdom Research Team. The committee recognizes the potential for high resolution imaging of geosynchronous satellites that also supports the AFRL Science, Technology, Engineering, and Mathematics education goals. The committee is also aware of positive initial test results and additional ground based experiments using full scale baseline separations of over 100 meters between the tracking telescopes. The committee recommends the AFRL continue ground-based space imaging experimentation with passive/unobtrusive optical amplitude interferometry imaging in combination with other surveillance systems for Department of Defense applications.

Precision metrology tools

The budget request contained \$125.3 million in PE 62102F for materials research and development.

The committee recognizes that metrology, or the development of precise measurement tools, is an important aspect of materials research. As the ability to manipulate materials at the subatomic scale, and to generate new and novel materials from computational design, continues to advance, it will also require further development of precision measuring tools. The committee encourages the Air Force to explore new and innovative methods to develop and provision for these tools, including through public-private partnerships to field and maintain cutting-edge metrology systems.

Therefore, the committee recommends \$128.3 million, an increase of \$3.0 million, in PE 62102F to support the development of advanced, precision metrology tools.

Recapitalization of Battle-Management, Command and Control, and associated intelligence capabilities in support of ground forces

The budget request contained no funds in PE 37581F for the Joint Surveillance Target and Attack Radar System (JSTARS) Recapitalization (Recap) program, and \$14.9 million for research and development, and \$9.9 million for procurement activities related to the legacy E-8C JSTARS program.

The committee is concerned and disagrees with the Air Force's decision to terminate the JSTARS Recap program. While the committee understands the Air Force's desire to transition to a new "family of systems" concept for providing intelligence to the Joint Force, it believes that the proposed plan involves significant risk in terms of technology development, integration, cost, and schedule, and therefore the termination of the JSTARS Recap program is unwarranted and will create a significant gap in overall ISR capability and capacity. While the Air Force claims to have accounted for such risks in its decision, the committee does not believe it is appropriate to accept these risks given the importance of this mission area to the Joint Force. In addition, the committee notes that the Air Force's decision on the JSTARS Recap program directly contradicts numerous Department of Defense analyses, and senior-officials' testimony provided to Congress regarding requirements, capabilities, war-gaming, and affordability that justified the exist-

ence and execution of the JSTARS Recap program, as recently as part of the fiscal year 2018 budget request.

Further, the committee is also concerned that the Air Force's decision could impose an unacceptable level of risk to joint ground forces that will rely heavily upon JSTARS Recap to provide reliable, consistent, accurate, and highly integrated Battle-Management, Command and Control, and Ground Moving Target Indicator intelligence capabilities. Finally, the committee believes that the Air Force's decision did not take into account the significantly improved capabilities and increased capacity that the JSTARS Recap aircraft, utilizing a modern aircraft design with fifth-generation radar technology and integrated software processing, is currently designed to bring to the battlefield as compared to the current fleet of legacy E-8C aircraft.

Therefore, the committee recommends \$623.0 million, an increase of \$623.0 million, in PE 37581F to fund the JSTARS Recap program's continued development. The committee also includes a provision elsewhere in this title that addresses this program.

Reusable hypersonic vehicle structure development

The budget request contained \$130.5 million in PE 62201F, and \$125.4 million in PE 62102F for aerospace vehicle technologies and materials. The committee supports the Department of Defense's efforts to accelerate the testing and development of hypersonic vehicles. The committee believes further investment in the development of economically efficient reusable hypersonic systems will extend national defense capabilities beyond the limits of expendable systems. Additional reusable hypersonic vehicle structure development and thermal protection system development is necessary to enable rapid global response to threats, and extend the survivability of platforms in highly contested environments. Further research focused on ceramic matrix components, fabrication, assembly, and full-scale component testing is necessary in order to meet the Air Force's fiscal year 2019 test bed vehicle operations goals. The committee recommends \$140.5 million, an increase of \$10.0 million, in PE 62201F and \$135.34 million, an increase of \$10.0 million, in PE 62102F for aerospace vehicle technologies and materials, to accelerate the development of reusable and air-launched hypersonic vehicle structures.

Robust aircraft electrical power and thermal management systems

The budget request contained \$115.5 million in PE 63216F and \$190.9 million in PE 62203F for the development and demonstration of electrical power, thermal management, and distribution for aerospace applications.

The committee recognizes the Air Force is highly focused on developing directed energy and laser weapons systems, both for self-protection and to provide offensive capability for future aircraft. In order to meet those goals, the Air Force will not just need a lasing system and optics with the size and weight to be incorporated into aircraft-sized systems, but it will also need an end-to-end power generation system that can meet all of these new power demands in addition to all of the other electrical and avionics subsystems on these aircraft. The committee encourages the Air Force to focus developmental work on the aerospace electrical power for lightweight

and efficient power technologies needed for those future aircraft concepts.

Therefore, the committee recommends \$125.5 million, an increase of \$10.0 million, in PE 63216F, and \$195.9 million, an increase of \$5.0 million, in PE 62203F, to accelerate design, fabrication, and testing to support a light-weight, robust electrical power and thermal management system for future aircraft needs.

Secure-live-virtual-constructive advanced training environment

The budget request included \$112.5 million in PE 62202F for Human Effectiveness Applied Research, a program element that includes learning and operational readiness.

The committee notes that this project supports research on the application of cognitive science for performance improvement by enhancing training in mission-relevant environments. This includes advanced technology demonstrations for a secure live-virtual-constructive advanced training environment and live-virtual-constructive cockpit technologies. The committee recognizes the important advances that have resulted from this particular technology demonstration since its inception in 2015, and looks forward to a joint services proof of concept demonstration, as well as accelerated encryption and waveform development. As the U.S. Air Force continues to seek ways to leverage cutting-edge technologies in realistic training and improve mission readiness, the committee is interested in ensuring the joint interoperability of this technology in fifth generation aircraft.

The committee recommends \$112.5 million, the full amount requested, in PE 62202F for Human Effectiveness Applied Research.

Small diameter bomb II cost reduction initiative

The committee understands the small diameter bomb increment II (SDB II) is a joint program between the Air Force and Navy. The SDB II can be used on every tactical fixed-wing aircraft platform and provides the warfighter the capability to attack mobile targets from stand-off ranges, through inclement weather and adverse conditions. The committee notes that since the award of the initial production contract the cost of an all up round (AUR) has increased largely as a result of lower-than-expected quantities of the tri-mode seeker that is currently used on SDB II for other precision guided munition programs. The committee is concerned that this could negatively impact potential planned procurement of SDB IIs in the out-years, and as a result could delay SDB II fielding when the program is scheduled to increase production.

The committee encourages the Secretary of the Air Force to examine implementing potential cost reduction efforts to address rising AUR costs related to the tri-mode seeker at this early stage of SDB II production in order to maximize return on investment for the Department of Defense and the taxpayer.

Technology Transition Program

The budget request contained \$1.2 billion in PE 64858F for the Technology Transition Program.

The committee commends the program's efforts to accelerate and transition technologies and prototypes into acquisition programs of record and operational use. The committee notes a majority of the

funds are allocated towards advanced engine development and prototyping, and is concerned that only \$87.2 million is allocated for experimentation with other technologies. The investment in non-engine technologies is insufficient to address the critical technology and development required to transition systems-of-systems research, mixing low-tech and high-tech assets in a combat-effective framework, and scalable and additive manufacturing solutions.

The committee recommends an increase of \$15.0 million in PE 64858F for non-engine technology experimentation and competitively awarded transition programs within the Technology Transition Program.

Wide-area motion imagery intelligence capability

The budget request contained \$175.3 million in PE 35206F for development of airborne reconnaissance systems, but contained no funding for continued development and modernization of wide-area motion imagery (WAMI) beyond line-of sight (BLOS) capabilities.

The committee notes that persistent, near real-time day and night WAMI capability is considered by operational commanders to be a critical BLOS intelligence, surveillance, and reconnaissance capability for numerous combat units. WAMI capability has been deployed in support of combat operations in the Islamic Republic of Afghanistan since 2010 and in the Republic of Iraq since 2015; however, despite the invaluable capability that WAMI provides, the Air Force has only been able to provide four steady-state unmanned aircraft system lines of WAMI capability. The committee understands that 2 years ago, the Department of Defense validated a U.S. Central Command Joint Urgent Operational Need Statement that requires the further development and procurement of WAMI BLOS capabilities for forward-deployed operations. The committee notes that previous funding has resulted in preliminary multi-intelligence fusion capabilities, near-vertical-direction finding, and enhanced BLOS capabilities. However, a lack of fiscal year 2019 funding will impede final delivery of these capabilities, and will prevent necessary sensor system upgrades to satisfy validated warfighter requirements.

Accordingly, the committee recommends \$186.1 million in PE 35206F, an increase of \$10.8 million, for development of WAMI BLOS sensor improvements, and to continue processing and exploiting improvements that would enable automated multi-intelligence sensor fusion.

Wind energy development radar mitigation efforts

The budget request contained \$6.3 million in PE 35114F for the Air Traffic Control, Approach, and Landing System.

The committee understands the growing importance of renewable energy as a national security imperative, in particular the rapid expansion of wind energy as an alternative energy source. The committee also recognizes the potential impact of wind energy development on the operational readiness, training activities, safety, and force protection of Department of Defense service members, aircraft, and installations. Given the expected increase in the U.S. wind energy development, mitigation approaches must be further developed and accelerated.

The committee recommends that the U.S. Government and industry continue to evaluate the impacts of existing and planned wind energy developments in coordination with the Federal Inter-agency Wind Turbine Radar Impact Mitigation Working Group, and develop best practices for radar mitigation strategies. The committee is aware of an existing pilot program by the U.S. Transportation Command and Air Mobility Command to integrate gap-filler radar systems into their air traffic control operations to mitigate the impact of wind energy developments. This mitigation pilot program has reduced false target alerts and improved the situational awareness of air traffic control operators and the safety of aircrew. The committee recommends additional analysis to assess the feasibility and development requirements associated with the integration, operation, and performance of gap-fill radars integrated into existing air traffic command and control systems.

Therefore, the committee directs the Secretary of the Air Force to provide a briefing to the House Committee on Armed Services not later than October 31, 2018, on the status of the pilot mitigation project and strategy for developing gap-filler radar thresholds and requirements.

Additionally, the committee recommends \$8.8 million, an increase of \$2.5 million, in PE 35114F for the Air Traffic Control, Approach, and Landing System.

RESEARCH, DEVELOPMENT, TEST, AND EVALUATION, DEFENSE-WIDE

Items of Special Interest

Advanced ceramic capabilities

The committee is interested in advancements in dual-use ceramic capabilities and production technologies. The committee is aware that recent advancements in smelting have significant overlap with ceramic production methods and could lower ceramic production costs. Advanced ceramic capabilities have demonstrated versatility in critical military applications, including composite armor for soldier and vehicle protection, and for use in advanced hypersonic vehicle development.

Therefore, the committee directs the Under Secretary of Defense for Research and Engineering, no later November 1, 2018, to provide to the Committee on Armed Services of the House of Representatives a briefing on dual-use ceramic capabilities. The briefing should include an overview of advances in ceramic production processes and technologies, the benefits ceramic capabilities provides, and any forecasted adoption of ceramic capabilities into current weapon systems.

Antitoxin to combat botulinum toxin

Botulinum neurotoxin type A (BoNT/A) is a highly potent toxin, as well as a medical therapy with numerous uses in neurophysiology. The Department of Defense is managing efforts to develop a vaccine against BoNT/A; however, the potential impact of BoNT/A vaccination on future benefits of the medical uses of BoNT/A is unknown. These benefits include treatment of post-traumatic stress disorder-associated migraines and amputation pain.

The committee understands that the Department is also pursuing a small molecule antitoxin drug to combat BoNT/A, which could be used by military personnel without impacting future use of medical therapies derived from BoNT/A. Therefore, the committee encourages the Secretary of Defense to continue its work to develop a monoclonal antibody-based BoNT/A antitoxin drug through the Joint Program Executive Office for Chemical and Biological Defense.

Autonomous capabilities

Not later than April 1, 2019, the Secretary of Defense shall submit to the committee on Armed Services an assessment on the consequences of the international proliferation of autonomous weapons, including those utilizing artificial intelligence and machine learning, and a strategy for U.S. engagement in international discussions. In conducting such an assessment, the Secretary of Defense shall consider each of the following:

(1) An evaluation of the consequences of an arms race in autonomous weapons, cyber weapons, artificial intelligence and machine learning, both from the domestic and competitor point of views.

(2) An explanation of the of the concept of “appropriate human judgement” and how it differs from “meaningful human control”.

(3) An explanation of the U.S. strategy towards influencing how other nations approach autonomous weapons, including human judgement, national safety review processes, and stability concerns.

Further, the study should include an assessment of the current policy guidelines with respect to the role of autonomy in offensive and defensive cyberspace operations, and a discussion of how artificial intelligence and machine learning could impact current policy and doctrine. In conducting such an assessment, the Secretary of Defense shall evaluate the sufficiency of Department of Defense policies governing autonomy in cyberspace.

Central Test and Evaluation Investment Program

The budget request contained \$258.7 million in PE 64940D8Z for the Central Test and Evaluation Investment Program (CTEIP). The committee notes that CTEIP has been used to fund the development of critically needed, high-priority test and evaluation capabilities for the Department of Defense. CTEIP has used a corporate approach to combine service and Department requirements to maximize opportunities for joint efforts and avoid unwarranted duplication of test capabilities. The committee recommends additional focus on developing a geospatial architecture to assist in the testing, analysis, and visualization of cyber and electronic warfare threat systems, and their impact in a radio frequency compromised environment.

The committee encourages the Department to explore efforts to automate data collection and analysis capabilities, thereby reducing manual data entry and expediting the preparation of products and reports. The committee recommends \$258.7 million, the amount requested, in PE 64940D8Z for the Central Test and Evaluation Investment Program.

Chemical, biological, radiological, nuclear, and explosive standoff detection

The committee is aware of the enduring challenge of detecting chemical, biological, radiological, nuclear, and explosive (CBRNE) threats from a safe distance. The committee is also aware of a new technology that may be capable of dynamic wavelength modulation of laser light with potential applications in multiple mission areas, including standoff detection of CBRNE threats. Given the use of chemical weapons in the Syrian Arab Republic and the threat of CBRNE use in the Democratic People's Republic of Korea, sensors capable of standoff detection would provide early warning, thereby increasing timelines to prepare and respond to threats. Therefore, the committee encourages the Department of Defense to continue its efforts to develop standoff CBRNE detection.

Common data environment for modeling and simulation

The committee recognizes that common data environments can yield benefits, such as increased interoperability and strong modeling and simulation (M&S) capabilities. The committee supports continued funding for projects that provide critical Department of Defense-wide data services, such as the Army's Enterprise Data Services Common Data Production Environment. The committee is aware that in the committee report (S. Rept. 115-125) accompanying the National Defense Authorization Act for Fiscal Year 2018, the Senate Committee on Armed Services directed the Secretary of Defense to take actions to identify and address data collection, analysis, and sharing issues that limit robust M&S. Therefore, the committee directs the Secretary of Defense to provide a briefing to the House Committee on Armed Services by November 1, 2018, on the Department's findings from the directive in S. Rept. 115-125.

Contraband cellular devices

The committee is aware that the illegal use of cellular devices in Federal prisons is on the rise. The committee is also aware that new technologies, such as managed access systems, are being developed, tested, and deployed to detect the use of contraband cellular devices among Federal prison populations. The committee acknowledges that military correctional facilities are often plagued with the same ills that infiltrate Federal correctional facilities. Therefore, the committee encourages the Department of Defense to study the effectiveness of new technologies that detect contraband cellular devices to identify and prevent instances of such use in military correctional facilities.

Counter small tactical unmanned air systems

The committee notes that Class I and II unmanned air systems (UAS), which in most cases are readily available commercial-off-the-shelf small and lightweight UAS, can be employed by state and non-state actors for use against U.S. military and civilian personnel. The committee understands that current maneuver short range air defense initiatives, as well as counter-UAS initiatives would address fixed-wing, rotorcraft, and medium-to-large UAS platforms. The committee is concerned by the rapid proliferation of small UAS and believes the military services should examine all

potential combined kinetic and non-kinetic options to immediately address this perceived capability gap in organic air defense for Army Maneuver Brigades.

The committee directs the Secretary of the Defense to provide a briefing to the House Committee on Armed Services by December 15, 2018 that provides an update on current Department of Defense programs to counter class I and II UAS. The briefing shall include:

- (a) The command responsible for developing and promulgating counter-UAS performance requirements;
- (b) A resource plan for developing and assessing potential material solutions for near-term and mid-term timeframes;
- (c) How the Department of Defense intends to ensure that units at the battalion and below echelons will be capable of defeating single and swarming Class 1 and II UAVs; and
- (d) The procedures whereby technical assessments will be shared and coordinated with the other military services.

Counter-unmanned aerial system threat detection

The committee is interested in advancements in counter-unmanned aerial system (C-UAS) technology and the threat these systems pose to the Armed Forces. The committee supports ongoing efforts by the U.S. Army and U.S. Special Operations Command to develop and employ unmanned aerial system (UAS) threat detection technology, and commends the services for recognizing the seriousness of the threat. In light of recent UAS attacks in the U.S. Central Command area of responsibility, the committee is concerned about the increased threat from unmanned aerial systems to forward operating bases and special operations forces personnel. The committee believes additional advancements in scalable C-UAS technologies are necessary to effectively detect, track, neutralize, and ensure the force protection and operational security of deployed service members.

Therefore, the committee directs the Secretary of Defense to provide a briefing to the House Committee on Armed Services by October 31, 2018, on the employment of C-UAS systems. The briefing should include an assessment of the UAS threat to the Armed Forces, a roadmap for C-UAS threat detection technology and capabilities, and the results of operational fielding of C-UAS systems.

Enhanced Maritime Biological Detection

The budget request contained \$145.7 million in PE 64384BP for Contamination Avoidance (CA) Engineering Manufacturing Development (EMD) within the Department of Defense Chemical and Biological Defense Program (CBDP).

The Enhanced Maritime Biological Detection (EMBD) program, an ongoing effort that began in fiscal year 2017, is included in CA EMD and will transition technology from the Joint United States Forces Korea Portal and Integration Threat Recognition Advanced Technology Demonstration to a program of record for the U.S. Navy. EMBD will complete development, testing, integration, and production of a lower cost biological point detection system that will detect, collect, and identify biological warfare agent aerosols, and provide automated warning at a lower sustained cost.

The committee recommends \$145.7 million, the amount requested in PE 64384BP, for CA EMD within the CBDP.

Fielding of radiation detection devices

The committee is encouraged by the Army's efforts to field additional radiation detection devices, and endorses the Army's efforts in fiscal year 2019 to develop and field the next-generation Joint Personal Dosimeter Individual (JPD-I), an individual dosimeter that includes immediate visual alert, measurement of radiation dose, and inclusion of a comprehensive record of radiation exposure over a soldier's career. The committee encourages the Army to conduct a rigorous, fair, and open competition for this new system to ensure the best dosimeter is developed and selected.

Future uses of synthetic biology

The committee is aware of recent advancements in synthetic biology, genomics, biotechnology, and related novel technologies that may enhance human performance and improve traditional approaches to healthcare. This includes enhancing human ability to perform through stressful and resource-limited environments, improving decision making, minimizing the time between disease identification and treatment, and augmenting human immune systems to defeat a variety of diseases, rather than depending on specific vaccines and therapeutics. The development of advanced biosensors to understand hypoxia is a current example of the type of human performance challenges that can be addressed through these advancements.

Therefore, the committee directs the Secretary of Defense to provide a briefing to the House Committee on Armed Services by December 1, 2018, on how the Department of Defense may leverage these advancements, when appropriate, and in accordance with ethical standards, U.S. law, our nation's values, and Department of Defense policy, to enhance service members' performance, increase lethality and survivability, and improve battlefield healthcare. The briefing should also identify opportunities, when appropriate and feasible, to facilitate the maturation of capabilities based on recent advancements.

Historically black colleges and universities, and minority serving institutions

The budget request contained \$30.4 million in PE 61228D8Z for research work with historically black colleges and universities, and minority serving institutions (HBCU/MI).

The committee recognizes the important role this program plays in bolstering the research capabilities and capacities at HBCU/MIs. Not only is such work important in meeting the defense research needs of the Department of Defense, but the committee also believes it provides an added benefit by diversifying the supply of scientists, engineers, and researchers working on the Department of Defense's most challenging problems.

Therefore, the committee recommends \$40.4 million, an increase of \$10.0 million, in PE 61228D8Z for additional research between historically black colleges and universities, and minority serving institutions, as well as increased teaming opportunities between

these institutions and other research universities with experience supporting the Department's unique requirements.

Innovative installation capabilities

The budget request contained \$29.4 million in PE 63342D8W for the Defense Innovation Unit Experimental (DIUx).

DIUx supports the identification, development, and demonstration of game-changing technologies to satisfy joint force priorities at a faster pace than the traditional Department of Defense planning, programming, budgeting, and execution process. As DIUx leverages partnerships with academic institutions, science and technology communities, and private industries, the committee recognizes the advantages that DIUx may provide to accelerate fielding of decisive technical capabilities and interoperability while mitigating operational risk to the warfighter and promoting affordability.

The committee supports the objective of DIUx to maintain U.S. technological superiority across the range of military operations. The committee believes DIUx should also increase efforts to support technological superiority at Department installations by addressing critical technological needs. This may also include mitigation of cybersecurity vulnerabilities identified during the ongoing review of critical infrastructure being conducted by the Department as directed in section 1650 of the National Defense Authorization Act for Fiscal Year 2017 (Public Law 114-328).

Therefore, the committee recommends prioritizing critical technological needs at Department installations, and directs the Director of DIUx to provide a briefing to the House Committee on Armed Services by October 1, 2018, on a plan to invest in the rapid insertion of innovative installation capabilities.

Joint Regional Security Stacks

The committee supports the Department of Defense's efforts to secure and simplify the Department's network environment through modernization. Specifically, the committee supports continued use of the Joint Regional Security Stacks (JRSS) and the modernization, streamlining, and optimization of JRSS architecture to improve performance, reduce the Department's attack surface, and eliminate outdated technical redundancy. The committee believes incorporation of next-generation technology may further increase the Department's cybersecurity posture and resiliency. Therefore, the committee encourages the Defense Information Systems Agency to make full use of next-generation packet brokers which reduce costs by employing active-failover features, reducing redundancy of cybersecurity tools, and implementing new technology that eliminates duplicate network traffic.

Joint threat warning system

The committee recognizes that the Joint Threat Warning System (JTWS) provides credible threat warning and intelligence information to special operations forces (SOF). The committee notes that this program has been critical to enhancing the situational awareness of SOF elements by alerting them to threats to the force and illuminating targeting opportunities. The committee is concerned that the program does not include an air-variant precision high fre-

quency band capability. This gap in coverage exposes SOF operators to unknown threats and decreases their situational awareness. The committee recommends U.S. Special Operations Command further explore collection capabilities that address this critical air-variant high frequency gap in coverage.

Military Free Fall School

The committee is aware of the increased demand being placed on the U.S. Army's Military Free Fall School (MFFS). The committee understands the increased student throughput is largely a result of the expanded population of U.S. Army Special Operations Command personnel who are required to attend MFFS. Consequently, the increased student throughput has resulted in shortfalls in resourcing, an over-reliance on contract personnel, and an increased risk to students and cadre. Therefore, the committee directs the Commander, U.S. Special Operations Command to provide a briefing to the House Committee on Armed Services not later than October 15, 2018, on Special Operations Force Military Free Fall requirements, the funds expended, the expected cost of operating the MFFS across the Future Years Defense Program, and any change in the rate of MFFS safety incidents or injuries from fiscal years 2012 through 2018.

Minerva Research Initiative

The committee recognizes the valuable contributions the Minerva Research Initiative has had on social science research relevant to national security. This initiative has supported innovations in social science and translated important scientific discoveries in the field of counter-terrorism and counter-violent extremism. The committee believes similar research examining our peer and near-peer adversaries' growing influence and competitive advantage against the United States is necessary. According to the National Security Strategy of 2017, the People's Republic of China is reasserting its influence in order to deny the United States access in times of crisis and contest the Department of Defense's ability to operate freely in decisive locations. The committee believes additional national security-related social science research dedicated towards the Russian Federation, China, the Islamic Republic of Iran, and the Democratic People's Republic of Korea, and their export of military and security technology, will help understand these nations' true intentions and develop and implement strategy aimed at countering their influence.

Therefore, the committee directs the Secretary of Defense to provide a briefing to the House Committee on Armed Services not later than November 16, 2018, on the feasibility of expanding the Minerva Research Initiative to state actors, including Russia, China, Iran, and North Korea. The briefing should include the program's ability to provide substantive research addressing peer and near-peer adversary statecraft, to include, but not limited to, foreign influence, foreign investment, emerging technologies, and military exports.

National Hypersonics Initiative

The committee is aware of a National Hypersonics Initiative under development by the Under Secretary of Defense for Research

and Engineering, in conjunction with the military services, defense labs, and the Defense Advanced Research Projects Agency. The committee recognizes the growing amount of resources and emphasis placed by the Department of Defense on the research and development of hypersonic vehicle technology. The committee supports the development of a National Hypersonics Initiative, and believes it is prudent and consistent with the roles and responsibilities granted to the Department's Joint Hypersonics Transition Office as authorized in the National Defense Authorization Act of 2018 (Public Law 115–91). The committee is interested in any impact that the Treaty Between the United States of America and The Union of the Soviet Socialist Republics on the Elimination of Their Intermediate-Range and Shorter-Range Missiles, signed in 1987 and commonly referred to as the INF Treaty, is having on the research and development of hypersonic vehicle technology. The committee understands there is concern that the INF treaty obligations may limit the Department of Defense's ability to flight-test and operationally employ hypersonic vehicles.

Therefore, the committee directs the Under Secretary of Defense for Research and Engineering to provide a briefing to the House Committee on Armed Services not later than September 15, 2018, on the status of the National Hypersonics Initiative and any impacts of the INF Treaty obligations on the research, development, prototyping, testing, or employment of hypersonic vehicle technology.

National lab integration in defense innovation hubs

The committee has continuing interest in the Department of Defense laboratories and engineering centers, their responsiveness to Department of Defense requirements, and maximizing their expertise and reach. The Department's laboratories are integral to the Department's ability to retain capability in areas where the private sector has no commercial interest, and ensuring that commercial solutions are adapted for warfighter needs in a timely manner so that the United States remains dominant in the land, air, sea, space, and cyber domains.

The committee recommends that the Department better enable laboratories and centers to embrace an open and innovative posture, while simultaneously becoming more active in the Department's requirements process. The committee is aware of the Army Research Lab's Open Campus project as an example of open innovation that encourages groundbreaking advances in basic and applied research areas through increased collaboration with the broader research enterprise. The committee believes that this serves as a model for laboratories to become more ingrained in the scientific and research communities, both locally and globally, and become a greater sensor for disruptive technologies that present opportunities or highlight vulnerabilities for the Department. Additionally, the committee recommends that the laboratories increase their presence in innovation hubs across the United States, like those established by the Defense Innovation Unit Experimental, and enhance existing relationships with the Strategic Capabilities Office and the Defense Advanced Research Projects Agency.

Therefore, the committee directs the Under Secretary of Defense for Research and Engineering to provide a briefing to the House

Committee on Armed Services not later than October 1, 2018, on the respective plan for further integrating the laboratories across defense and commercial innovation hubs, and maximizing their expertise and reach. The briefing should include a robust plan and timeline for increasing the Department's laboratory joint presence in innovation hubs across the United States.

Non-lethal directed energy technologies

The committee continues to support the need to minimize collateral damage, pursue all available avenues to reduce civilian casualties, and prevent damage to infrastructure in engagements abroad. The use of non-lethal directed energy technologies provides many opportunities to do so. Some of these technologies have matured and are already employed by military service and combatant commands in the operational environment across the globe. These technologies have the capacity to stop ground vehicles, small vessels, and unmanned aerial vehicles from infringing upon protected spaces, or to deny access to secured facilities. The committee continues to encourage the Department of Defense to make greater efforts to use these technologies where appropriate. Elsewhere in this report, the need for concurrent policy development, sustained integrated non-lethal directed energy technologies, and continued development of next-generation directed energy non-lethal technologies, like the Marine Corps' Ocular Interruption System, is addressed.

Protect DIB critical technologies

The committee recognizes the importance of safeguarding defense industrial base (DIB) critical technologies from cyber and economic actions conducted by our adversaries. The challenge in doing so is particularly acute as supply chains become increasingly globalized, as noted in the report published by the RAND Corporation entitled "U.S. Authorities and DoD Options for Protecting the Defense Industrial Base from Cyber Intrusions and Economic Enticement, Influence, and Control." The report calls attention to the difficulties in protecting DIB members with supply chains in foreign countries and the resulting risks to the integrity of various critical technologies and materials.

Therefore, the committee directs the Undersecretary of Defense for Research and Engineering (R&E) to provide a briefing to the House Armed Services Committee no later than 1 March 2019 on activities and investments the Department is making with respect to foreign suppliers of critical technologies to national defense to ensure their integrity, including microelectronics.

Rapidly deployable radar system

The committee is aware of U.S. Special Operations Command's efforts to accelerate development of an ultra-low power, rapidly deployable radar system. This modular technology can enhance radar situational awareness for special operations forces elements in austere environments. The committee notes the value of this technology and its relevance in current conflicts, particularly due to the persistent threat of adversary controlled, small unmanned aerial systems. The committee looks forward to the results of additional testing and encourages the integration of this ultra-low

power, rapidly deployable radar with other counter-unmanned aerial system efforts across the Department of Defense.

Report on DoD target and threat systems

The Committee recognizes that military capabilities of adversary nations continue to improve over time thus challenging the ability of the United States military to project power and protect its national interests throughout the world. In order to ensure thorough and realistic testing and evaluation of defense weapons systems and effective operational unit training, it is imperative that DoD continues to develop and maintain a sufficient inventory of realistic targets and threat systems that accurately represent the capability of adversary nations. In support of that imperative, the Committee believes that the status and adequacy of target and threat systems programs need to be assessed.

The Secretary of Defense shall conduct a review of the Department's targets and threat systems in support of test and evaluation and training and shall identify recommended actions to address shortcomings in those systems in a final report.

The review, recommendations, and final report shall address, but not be limited to, the following:

(A) All airborne, seaborne, ground, and undersea targets and target control systems used to support open air test and evaluation and warfighter training exercises;

(B) All real and simulated threat systems used to support open air test and evaluation and warfighter training exercises;

(C) The degree to which all of the above systems replicate both current and future threats;

(D) The adequacy of target and threat systems inventories to meet current and future test and evaluation and training requirements;

(E) The ability of the above systems to support effective testing and evaluation of future U.S. combat and weapon systems;

(F) The ability of the above systems to support effective warfighter training against future threats.

Not later than one year after the date of enactment, the Secretary shall submit to the congressional defense committees a final report on the review and recommended actions to address all shortcomings in the abilities of DoD targets and threat systems to effectively support open air test and evaluation events and training exercises.

Research to enhance the understanding of adversarial influence operations

Manipulation of the global information environment by adversaries using both human and machine means poses a challenge to the viability of democratic institutions and social stability. The committee is aware of research conducted by the Defense Advanced Research Projects Agency (DARPA) to develop technologies for high-fidelity simulation of online social behavior, while testing and measuring simulation accuracy and other research projects to better understand influence. For example, the Social-Cognitive Information Security research program uses modeling and simulation to examine how behavior is manipulated in a way that compromises cyber or social infrastructures.

The committee is aware that the Secretary of Defense recently designated the Commander, U.S. Special Operations Command, to be the Joint Proponent for Military Information Support Operations (MISO), and to establish a global messaging/counter-messaging capability. The committee believes research conducted to enhance the understanding of the impact of adversarial manipulation of the global information environment may complement and inform information operation activities of the Department of Defense. Therefore, the committee encourages the Director of DARPA and the Commander, U.S. Special Operations Command, to collaborate and provide for transition of appropriate research projects that enhance and complement MISO.

Use of authority for transactions other than contracts and grants by the Department of Defense

The committee recognizes the need for agility and innovation in the procurement process. The committee believes that, when used appropriately, other transaction authority (OTA) of section 2371 of title 10, United States Code, can provide the necessary flexibility to give the Department of Defense a competitive edge in the commercial marketplace.

The National Defense Authorization Act for Fiscal Year 2016 (Public Law 114–92) modified and made permanent the Department’s ability to carry out certain prototype projects using OTA. Further recognizing the benefits of OTA, section 867 of the National Defense Authorization Act for Fiscal Year 2018 (Public Law 115–91) required the Secretary of Defense to establish a preference for using other transactions (OTs) “in circumstances determined appropriate by the Secretary.”

The committee supports the Department’s continued use of OTA to rapidly explore cutting-edge technologies and reduce barriers to attract non-traditional defense contractors. The committee also acknowledges the Department’s guidance that OTs should be used appropriately by individuals possessing the requisite level of business acumen and judgment to operate in a “relatively unstructured environment.”

However, the committee is increasingly concerned by a perceived lack of transparency surrounding the use of OTA within the Department. The committee is particularly concerned by the limited details provided on the Defense Innovation Unit Experimental’s use of OTA to award a large-scale follow-on production contract for cloud services. While the Department significantly reduced the original award from \$950.0 million to \$65.0 million, and greatly limited the scope of the production agreement, the committee remains concerned about the Department’s failure to provide a comprehensive explanation for how such a large-scale award was made unbeknownst to senior Department officials, and why the award was later reduced.

Therefore, the committee urges the Department to exercise greater prudence and transparency when employing OTA to prevent misuse and abuse. The committee also urges the Department to reiterate through established guidelines that OTA is not a means for circumventing appropriate use of the Federal Acquisition Regulation, and that full and open competition should be used to the max-

imum extent practicable to maintain a sense of integrity, fairness, and credibility in the Federal procurement process.

LEGISLATIVE PROVISIONS

SUBTITLE A—AUTHORIZATION OF APPROPRIATIONS

Section 201—Authorization of Appropriations

This section would authorize appropriations for research, development, test, and evaluation at the levels identified in section 4201 of division D of this Act.

SUBTITLE B—PROGRAM REQUIREMENTS, RESTRICTIONS, AND LIMITATIONS

Section 211—Modification of Authority to Carry Out Certain Prototype Projects

This section would make modifications to section 2371b of title 10, United States Code, regarding use of transactions other than contracts and grants for follow-on production.

Section 212—Extension of Directed Energy Prototype Authority

This section would extend the directed energy prototype authority provided for in section 219(c)(4) of the National Defense Authorization Act for Fiscal Year 2017 (Public Law 114–328) through fiscal year 2019.

Section 213—Prohibition on Availability of Funds for the Weather Common Component Program

This section would restrict funding for further development of meteorological situational awareness sensor programs for unmanned aircraft systems, and require the Secretary of the Air Force to submit a report to the congressional defense committees that describes requirements, existing technologies, current program efforts, testing and evaluation, and a fielding plan for capabilities associated with providing meteorological situational awareness to unmanned aircraft aircrews.

The committee notes that the Air Force office for Unmanned Aircraft Systems (UAS) Innovations and Integration under the Deputy Chief of Staff of the Air Force for Intelligence, Surveillance, and Reconnaissance (HAF/A2) began an initiative in 2010 to develop an UAS sensor that could provide real-time meteorological situational awareness for UAS aircrews to increase mission effectiveness and mitigate reliance upon weather forecasting capabilities in geographic regions with limited or no weather services provided for flight operations. The effort culminated in 2015 and cost the Air Force \$10.6 million. On October 30, 2015, the then-12th Air Force Commander, and now current Deputy Chief of Staff of the Air Force for Operations (HAF/A3), validated key global weather requirements for UAS operations, to include: increasing UAS situational awareness of current and predicted state of environmental phenomena to maximize mission effectiveness, efficiency, safety, resource protection, and risk management; relaying all onboard-UAS weather data and information, such as air temperature, humidity,

wind speed and direction, turbulence, ice accretion, and weather radar in real-time; and increasing real-time, on-board weather collection capability to provide pilot situational awareness and support Air Force forecast processes. However, the HAF/A2 sensor remains non-deployed, despite the Air National Guard Air Force Reserve Command Test Center finding the sensor and its associated software to be potentially operationally effective and suitable in a formal report published in January 2018. More concerning to the committee is that a separate development effort is being undertaken by HAF/A3 weather officials that appears to duplicate the technology. Thus, this section would restrict further funding for additional systems until the Air Force provides a report that will allow the committee to evaluate the need for additional capability.

Section 214—Limitation Pending Certification on the Joint Surveillance Target Attack Radar System Recapitalization Program

This section would restrict obligation of funding for the Advanced Battle-Management System (ABMS) of Systems initiative of the Department of the Air Force, as well as a portion of the proposed divestment of legacy E-8C aircraft contained in the fiscal year 2019 budget request. The restriction would remain in effect until the Secretary of the Air Force certifies to the congressional defense committees that the Joint Surveillance Target Attack Radar System (JSTARS) Recapitalization (Recap) program, as submitted and described in the fiscal year 2018 budget request, is proceeding unhindered with originally planned activities associated with engineering, manufacturing, and development; low-rate initial production; production; and initial contractor support. This section also would require the Comptroller General of the United States to provide a report to the congressional defense committees that assesses the acquisition strategy associated with ABMS, and would require the Secretary of the Air Force to submit a report to the congressional defense committees that includes a strategy for accelerating the JSTARS Recap program, while also managing appropriately the legacy fleet of E-8C aircraft. This section would also authorize use of JSTARS Recap program funding to maintain the program office's functionality.

Section 215—Limitation on Availability of Funds for F-35 Continuous Capability Development and Delivery

This section would limit the obligation or expenditure of 25 percent of the funds for the F-35 continuous capability development and delivery program until 15 days after the Secretary of Defense provides the congressional defense committees a detailed cost estimate and baseline schedule for the program. This section does not apply to any funds authorized to be appropriated by this Act for the development of F-35 dual capable aircraft capability.

Section 216—Limitation on Availability of Funds Pending Report on Agile Software Development and Software Operations

This section would temporarily restrict funding for software development efforts that use agile development and operations methodology until the Secretary of the Air Force provides a report to the congressional defense committees that describes the cost-estimation

tools, the types of contracts, and the mitigation efforts to avoid duplicative development related to the strategy for modernizing and upgrading existing software at worldwide Air Force Air Operations Centers.

Section 217—Limitation on Availability of Funds for Certain High Energy Laser Advanced Technology

This section would limit the availability of 50 percent of the funds authorized to be appropriated by this Act, or otherwise made available for fiscal year 2019, until the Secretary of Defense provides the High Energy Laser logical roadmap and assessment to the congressional defense committees.

Section 218—Plan for Elimination or Transfer of the Strategic Capabilities Office of the Department of Defense

This section would direct the Secretary of Defense to submit a plan to the congressional defense committees by March 1, 2019, for the elimination or transfer of the functions of the Strategic Capabilities Office to another organization or element of the Department of Defense.

Section 219—National Security Science and Technology Strategy

This section would direct the Secretary of Defense to develop a National Security Science and Technology Strategy to prioritize Department of Defense science and technology efforts and investments. The Secretary of Defense would be required to submit the most recent version of the strategy to the congressional defense committees not later than February 4, 2019, and annually thereafter through December 31, 2021.

Section 220—Modification of CVN-73 to Support Fielding of MQ-25 Unmanned Aerial Vehicle

This section would require the Navy to fund the modification of CVN-73 during its refueling and overhaul period in support of future MQ-25 unmanned carrier aircraft operations.

SUBTITLE C—REPORTS AND OTHER MATTERS

Section 221—Report on Survivability of Air Defense Artillery

This section would require the Secretary of the Army to submit a report to the Committees on Armed Services of the Senate and the House of Representatives by March 1, 2019, on efforts to improve Army Air Defense Artillery (ADA) survivability and require the Army to assess measures that could better enhance ADA defenses, both active and passive.

The committee is concerned that U.S. Army Air Defense Artillery units may lack required active and passive non-kinetic capabilities and training to maximize their level of survivability against sophisticated threats. The committee recognizes that ADA is a critical and increasingly important component of Joint Integrated Air and Missile Defense. The committee also supports continued modernization and expansion of ADA capability.

Section 222—Report on T-45 Aircraft Physiological Episode Mitigation Actions

This section would require the Secretary of the Navy to submit a report to the congressional defense committees by March 1, 2019, on modifications made to T-45 aircraft and associated ground equipment to mitigate the risk of physiological episodes among T-45 aircraft crewmembers, and would require the Secretary include certain elements in such report.

Section 223—Report on Efforts of the Air Force to Mitigate Physiological Episodes Affecting Aircraft Crewmembers

This section would require the Secretary of the Air Force to submit a report to the congressional defense committees by March 1, 2019, on all efforts of the Air Force to reduce the occurrence of, and mitigate the risk posed by, physiological episodes affecting crewmembers of covered aircraft and would require the inclusion of certain elements in such report. In this section, the term “covered aircraft” would mean F-35A aircraft of the Air Force, T-6A aircraft of the Air Force, and any other aircraft of the Air Force as determined by the Secretary of the Air Force.

Section 224—Briefing on Use of Quantum Sciences for Military Applications and Other Purposes

This section would require the Secretary of Defense to provide to the congressional defense committees a briefing and plan for using quantum sciences for military applications and other purposes.

Section 225—Report on Defense Innovation Unit Experimental

This section would require the Under Secretary of Defense for Research and Engineering to submit a report to the congressional defense committees by May 1, 2019, on the integration of Defense Innovation Unit Experimental into the broader Department of Defense research and engineering community, the unit’s measures of effectiveness, the number and type of transitions, and the impacts of the unit’s initiatives and investments on the Department.

TITLE III—OPERATION AND MAINTENANCE

ITEMS OF SPECIAL INTEREST

LOGISTICS AND SUSTAINMENT ISSUES

Briefing on Rapidly Deployable Structures

The committee is aware that the military services, including but not limited to the Air Force Civil Engineer Center at Tyndall Air Force Base, are testing and evaluating options that improve the deployability, safety, and energy efficiency of structures used by the Armed Forces in a variety of operational environments. Of particular interest is the use of such structures in remote areas, where access to reliable energy sources can be difficult and environmental conditions can be severe. As such efforts continue, the committee encourages the Department of Defense to allocate appropriate resources for the research, development, test, evaluation, and pro-

curement of structures that leverage energy efficient and insulation technologies.

Toward that end, the committee directs the Assistant Secretary of Defense for Energy, Installations, and Environment to provide a briefing to the House Armed Services Committee, by September 28, 2018, on the Department of Defense's efforts to leverage energy efficient technologies in deployed structures, particularly those capabilities that support operations in remote environments. This briefing shall include, a detailed assessment of recent tests and evaluations of such structures conducted by the military services, including but not limited to findings and analysis regarding thermal efficiency, energy generation and use, modularity, and other required capabilities; a description of key requirements, such as billeting, medical, command and control, and humanitarian and disaster relief, that could be addressed by these structures across the military services; and a plan to develop and promulgate guidance throughout the Department of Defense regarding energy efficient structures in operational environments.

Corrosion Prevention for Improved Air Force Readiness

The committee recognizes the importance of efforts to minimize corrosion, decrease aerodynamic drag, and reduce environmental and occupational risks in aircraft operations. These efforts include the application of alternative coatings applied to aircraft, such as powder-applied coatings, that increase durability while minimizing hazardous air pollutants and volatile organic compounds. In addition, the committee recognizes the importance of innovative technologies that can rapidly and efficiently remove coatings, such as advanced laser technologies, that enable the safe and efficient repair and sustainment of aircraft skin made of metal or composite materials. In addition to surface coatings, adhesives and sealants are critical to providing corrosion protection and structural strength. Lighter weight sealants can reduce aircraft weight, extending operational range and reducing fuel consumption. Furthermore, advances are being made in screening technologies to reduce the amount of time required to validate a material's performance and incorporate it into aircraft maintenance strategy. The committee supports additional efforts that incorporate a range of targeted solutions designed to minimize corrosion and meet Air Force needs for manned and unmanned aircraft. The committee encourages the Secretary of the Air Force to continue to support those efforts that improve operational capability and reduce the cost and amount of time required to sustain these weapon systems.

Innovative Engine Sustainment Wash-Down Management Program

The committee notes that aircraft flown by the United States Navy and United States Marine Corps often fly in corrosive or dusty environments. As a result, contaminants adhere to the turbine blades behind the combustion chamber and could adversely affect engine performance or operation. The committee believes the Department of the Navy should assess what additional operational or maintenance actions could be taken to further to improve fuel efficiency and aircraft availability rates in these corrosive and dusty environments. The committee understands the Navy and Ma-

rine Corps must be able to operate independently worldwide and that targeted investments in energy efficiency enhance combat capability and reduce need for logistics support. The committee understands that maintenance practices and technologies exist for aircraft engine sustainment, to include using “washdown” processes, that could potentially improve fuel efficiency, extend the servicelife of engine components and in turn, improve overall aviation readiness.

Therefore, the committee directs the Secretary of the Navy to provide a briefing to the House Committee on Armed Services by September 28, 2018 on the advisability and feasibility of the establishment of a pilot program led by the Commander, U.S. Naval Air Systems Command (NAVAIR) to test new technologies and best practices in operational energy and resiliency for engine sustainment which reduces maintenance costs, improves aircraft availability rates, and lowers aircraft fuel consumption rates.

Leveraging Technology To Improve Equipment Readiness

The committee notes that readiness is defined by the Department of Defense as “the ability of military forces to fight and meet the demands of assigned missions” and is supported by personnel, training, and equipment readiness. Increasing and sustaining equipment readiness relies on balancing modernization initiatives with ensuring the proper maintenance, utilization, and sustainment of existing weapon systems. The committee is aware of innovative maintenance technologies and practices that may help reduce costs and the time that equipment and weapon systems are down for maintenance, while helping to maximize lifespan and operational availability rates. A significant amount of data can be captured through embedding diagnostic sensors and collecting operator observations, enabling predictive analytic software to proactively identify pending maintenance issues. The committee encourages the service secretaries to seek additional opportunities to leverage innovative technologies and maintenance practices, either as demonstration projects or by incorporating them into a fleet maintenance plan, to increase maintenance responsiveness and the operational availability of weapon systems.

Life Cycle Costs of Major Defense Acquisition Programs

The committee notes that section 2340 note of title 10, United States Code, requires the Department of Defense to ensure competition throughout the life cycle of major defense acquisition programs and the acquisition strategy for each major defense acquisition program includes measures to ensure competition or the option of competition and adequate documentation of the rationale for selection.

Furthermore, the committee notes that section 2340 note of title 10 requires whenever a decision regarding source of repair results in a plan to award a contract for performance of maintenance and sustainment of a major weapon system or subsystem of a major weapon system, the Department shall take actions to ensure that, to the maximum extent practicable and consistent with statutory requirements, contracts for such maintenance and sustainment are

awarded on a competitive basis and give full considerations to all sources.

The committee is concerned about the life cycle costs of major defense acquisition programs and how the Department's implementation of section 2340 note of title 10 is impacting these associated program costs.

The committee directs the Under Secretary of Defense for Acquisition and Sustainment to provide a briefing to the House Committee on Armed Services, not later than December 1, 2018, on the Department's implementation of section 2340 note of title 10. Specifically, the briefing will include the strategy for each major defense acquisition program, the measures taken to ensure competition at both the contract and subcontract level, and the impact of these measures on the life cycle costs for each major defense acquisition program. Additionally, the briefing will include for each major defense acquisition program the consideration of competition throughout the maintenance and sustainment phases.

Management of Navy Legacy F/A-18 Aircraft

The committee is aware of the Department of the Navy's intent to divest legacy F/A-18 aircraft when the majority of the F/A-18 aircraft inventory remains non-flyable due to maintenance backlogs and availability of spare parts. Further, these aircraft experience high physiological event rates. Even so, the committee was encouraged by the Navy's decision to award an alternative-source contract for F/A-18 A/B/C/D depot-level maintenance to reduce the backlog of legacy F/A-18 depot-level maintenance. This contract, awarded in February 2016, can help improve overall aviation readiness rates. The committee is concerned, however, that the Navy's plan for managing the life cycle of the fleet is not clear.

Therefore, the committee directs the Secretary of the Navy to provide a briefing to the House Committee on Armed Services by November 30, 2018, on the Navy's plans for the F/A-18 legacy fleet. The briefing should address the divestiture plan for the F/A-18 aircraft and the rationale for divestiture. For the aircraft remaining, the briefing should address the readiness recovery plans, including plans to fully utilize the alternative-source depot-level maintenance contract.

Navy Next-Generation Small Arms Weapons Training and Readiness Requirements

The committee is concerned that after 5 years, the Navy has not developed a comprehensive plan to address significant small arms training shortfalls identified following the 2013 Washington Navy Yard shooting. The committee reiterated these concerns in the committee report (H. Rept. 114-537) accompanying the National Defense Authorization Act for Fiscal Year 2017. The report directed the Navy to evaluate innovative, non-program-of-record small arms and crew-served training systems to improve Navy security force and fleetwide small arms tactical and crew-served training. The committee is aware of next-generation synthetic small arms training systems that can provide consistent, metrics-based proof of live-fire transfer across warfighter skill levels for individual and crew-served training. Such systems, which reduce ammunition expendi-

ture and training time, have been demonstrated by the Navy Expeditionary Combat Command. The committee believes that these systems can improve reaction time and decision making under stress, skills critical to determining hostile intent and making escalation of force decisions. Given the benefits of these next-generation systems, the committee is concerned that the Navy has continued to rely on legacy simulation systems built for other services, without consideration of unique Navy small arms training and readiness requirements.

Therefore, the committee directs the Commander of U.S. Fleet Forces Command to provide a briefing to the House Committee on Armed Services not later than November 30, 2018, regarding a comprehensive plan to meet small arms training requirements, how next-generation synthetic small arms training systems will be integrated into the comprehensive plan, and the Navy's acquisition strategy to support small arms training requirements.

Navy Ship Maintenance and Repair

The committee is aware that the Navy changed its contracting strategy for ship maintenance and repair in 2013, moving away from the system used since 2004. Despite this change, the Navy continues to experience delays in completing ship availabilities, leading to a reduction in the time a ship's crew has to prepare for deployment. The committee appreciates the need to control costs and to resolve all emergent maintenance issues when a ship is in a maintenance availability. However, the committee is not persuaded that the Navy's current Multiple Award Contract, Multiple Order (MAC-MO) mechanism is always the best contracting approach. The committee has learned of delays in renegotiating contracts while vessels sit idle in the yard, as well as third party planning contractors not obtaining long lead time materials when needed. The committee is aware that the Comptroller General of the United States looked at similar issues, described in Government Accountability Office report GAO-17-54, issued in 2016.

To better understand what adjustments may be needed to make improvements to the Navy's ship maintenance and repair process, the committee directs the Comptroller General to:

- (1) compare the Navy's execution of the MAC-MO strategy against the previous Multi-Ship, Multi-Option strategy, with particular emphasis on cost, lost operational days, and on-time completion;
- (2) assess the effectiveness of third party planners in the MAC-MO strategy, including their performance in developing stable well-defined requirements during advance planning;
- (3) assess the adequacy of the Navy's structure for contract oversight;
- (4) assess the stability and viability of the ship repair industrial base, including private industry's capacity to recruit and retain critically skilled workers and maintain safe and efficient facilities; and
- (5) assess advantages, disadvantages, or key differences between the MAC-MO and Multi-Ship, Multi-Option strategy depending on the location where the work will be performed.

The committee directs the Comptroller General to submit a report to the Committees on Armed Services of the Senate and the

House of Representative by March 1, 2019, on these matters and recommendations to improve the Navy's contracting process.

Supply of Aviation Parts and Spares

The committee is concerned by the rate of non-mission capable aircraft due to issues with supply of parts and spares. The committee is aware of numerous examples of aircraft that have been non-mission capable for several months waiting for the arrival of a part. Therefore, the committee directs the Under Secretary of Defense for Acquisition and Sustainment to provide a briefing to the House Committee on Armed Services not later than September 30, 2018, on the Department's efforts to address issues associated with the availability and supply of aviation parts and spares. At minimum, the briefing should provide an update on the rate of non-mission capable aircraft due to supply, specific actions the Department is taking to decrease this rate, and commercial and industry best-practices for maintenance and supply that may be adopted as part of an overall strategy to improve aircraft mission capability rates.

READINESS ISSUES

Additive Manufacturing in Depot Facilities

The committee is encouraged by the progress that depots and arsenals in each military department are making in developing additive manufacturing capabilities. The committee understands that this capability allows depots to quickly manufacture parts that are no longer available from commercial suppliers, allowing rapid repair of essential operational equipment. However, there remains substantial room across each of the services to add more additive manufacturing capacity. Additionally, the committee has observed little commonality across the Department of Defense in addressing intellectual property issues associated with this process.

The committee directs the Secretary of Defense to provide a briefing to the House Committee on Armed Services not later than December 3, 2018, on a strategy to further integrate additive manufacturing capabilities into industrial facilities across the Department to speed parts production, return equipment to the force, and improve material readiness. The briefing should also address progress in resolving legal and patent questions around use of additive manufacturing.

Adversary Air Training

The committee notes that the budget request contained increased funds for the Air Force to provide more adversary air contracted support for Red Flag exercises, Warfighter Integration Center, and combat air force fighter formal training unit locations. The committee also notes that the budget request contained increased funds for the Navy to provide adversary air support at specialized schools including the Naval Strike and Air Warfare Center. The committee supports these efforts to contract for adversary air training to aid aviation readiness recovery. Contract support will make more combat-coded pilots available for operational duties rather than adversary air training missions and reduce the number of

training hours being placed on airframes. In acquiring contracted services for adversary air, the committee encourages the Secretary of the Air Force and the Secretary of the Navy to maximize competition and ensure the contracts provide flexibility to adjust to emerging training requirements. Finally, the committee encourages the Secretary of the Air Force and Secretary of the Navy to seek opportunities to coordinate adversary air requirements to reduce overall costs and maximize the support to aviation readiness recovery of both departments.

Army Soldier and Squad Virtual Trainer

The committee commends the Army's decision to replace its legacy small arms simulation trainer and call for fire trainer with an advanced Soldier and Squad Virtual Trainer (S/SVT) program to achieve next-generation synthetic small arms, call for fire, use of force, and close quarters combat training and readiness objectives. The committee believes continued improvement of these systems is essential to future success of small units on the battlefield. The committee believes the Army should consider key capabilities such as the use of biometrics, advanced human performance techniques, cognitive drills, and robust data collection to verify soldier improvement. Therefore, the committee directs the Secretary of the Army to provide a briefing to the House Committee on Armed Services not later than December 3, 2018, that details the status of the Army's plan for S/SVT and how key capability and system requirements currently projected by the Army are being accounted for, and will be implemented, in the final S/SVT program in order to sustain readiness.

Assessment of Navy Standard Workweek

The committee notes that the Navy's Comprehensive Review identified fatigue and ineffective crew rest management in the four mishaps that occurred in the Western Pacific in 2017. As noted in the review, "if crewmembers are overly fatigued, mission accomplishment, performance, and safety are in jeopardy." The Comprehensive Review went on to recommend the Navy establish a comprehensive fatigue management policy, and a circadian ship and watch rotation for surface ships.

The committee directs the Chief of Naval Operations to provide a briefing to the House Committee on Armed Services not later than September 30, 2018, that identifies how Chief of Naval Operations Instructions, and other relevant policy documents, have been updated to implement the recommendations of the Comprehensive Review and address crew fatigue, watch rotations, and overall workload for crewmembers of surface ships.

Availability and Sufficiency of Training Ranges to Conduct Training against Near-Peer Adversaries

To build and sustain full-spectrum combat readiness, the military services must train on ranges that replicate the capabilities of near-peer adversaries. Such training requires ranges with sizable land, sea, and air space to accommodate the tactics of modern systems and weapons. In addition, modern war demands extensive training on weapons employment and target identification, as po-

tential adversaries possess complex air defenses and highly sophisticated electronic countermeasures. However, training ranges lack sufficient capability and capacity to support full-spectrum training requirements, including the replication of near-peer adversaries' capabilities. Further, because of the strategic significance of forward-deployed and rotational forces, building overseas training range capabilities is becoming more important to sustaining full-spectrum readiness.

The committee is concerned that the Department of Defense's training range infrastructure is not keeping up with the demand to support full-spectrum training requirements. Therefore, the committee directs the Comptroller General of the United States to assess the following:

(1) the extent to which the Department of Defense has identified the current capacity of training range infrastructure to meet the military services' demand for range access;

(2) the extent to which the Department of Defense has evaluated the training range infrastructure to determine whether it is sufficient to conduct training against near-peer adversary capabilities; and

(3) the extent to which the Department of Defense has developed a comprehensive strategy and investment plan to improve the availability and sufficiency of training ranges to meet the Department's training needs.

The committee further directs the Comptroller General to provide a briefing to the House Committee on Armed Services not later than February 1, 2019, on the findings of this review and to submit a report to the congressional defense committees on a date agreed to at the time of the briefing.

Briefing on Security Forces Assistance Brigade Location Plan

The committee recognizes that a future Security Forces Assistance Brigade (SFAB) construct should highly encourage an expansion of alliances and partnerships as called for in the 2018 National Defense Strategy. Therefore, the committee directs the Secretary of the Army to provide a briefing to the House Committee on Armed Services, not later than January 1, 2019, on the strategic alignment decision matrix and installations plan for the fielding of the Security Forces Assistance Brigades. The plan shall include an assessment of the feasibility and advisability of stationing SFABs appropriately to address the requirements of the geographic combatant commands.

CONUS Training Facilities

In support of the Department of State's Anti-Terrorism-Assistance program, many commercial companies created state of the art CONUS training facilities that provided critical skills to deployable personnel. However, these CONUS training facilities are now being underutilized due to an increased tendency to conduct training OCONUS. These training facilities have successfully increased readiness and contributed to overall mission success through partnerships with programs such as U.S. Military Afghanistan-Pakistan Hands (APH) as well as U.S. Military Observer Group (USMOG). The committee is aware of the excess capacity available

at these commercial training facilities and encourages the Department of Defense and Department of State to use them to further enhance anti-terrorism training. Therefore, the committee directs the Secretary of Defense, in coordination with the Secretary of State, to provide a report by March 1, 2019 detailing the requirement for all services to conduct enhanced and critical skills training. In addition, this report should detail the feasibility of using CONUS facilities to conduct this antiterrorism training and identify any training backlogs and any facility infrastructure shortfalls that exist in order to accomplish this type of training.

Entry Control Facility Technology

The committee remains concerned about the physical security of U.S. military facilities, both in the continental United States as well as abroad. Entry control points at such facilities are particularly vulnerable and require special attention and protection. The committee recognizes the need to continually assess new technology and develop enhanced entry control options in order to protect Department of Defense facilities against evolving adversarial technologies, such as drones and autonomous vehicles. The committee encourages the service secretaries to seek additional opportunities to leverage innovative technologies and research and development in order to enhance overall security, reduce military construction requirements, reduce annual operation and maintenance costs, increase joint interoperability, and protect valuable resources.

Foreign Language Readiness

The committee believes that a globally engaged military force requires an adequate number of personnel trained and proficient in foreign languages. The committee notes the significant number of personnel who attend the Defense Language Institute—Foreign Language Center, the John F. Kennedy Special Warfare Center and School, and other foreign language training programs each year, as well as the global allocation of linguists among the geographic combatant command areas of responsibility. The committee believes these institutions can be augmented by innovative online programs conducted as a traditional classroom, with a live instructor engaging a small student group. Such programs reduce the need for travel and have proven more effective than self-paced instruction. The committee also notes efforts by the Department of Defense to recruit and utilize native speakers of critical languages to support combatant command requirements. Despite the critical requirements for foreign language expertise in certain career fields, the committee is concerned that the overall foreign language readiness of the total force is not adequately documented and assessed.

Therefore, the committee directs the Under Secretary of Defense for Personnel and Readiness to provide a briefing to the House Committee on Armed Services not later than March 1, 2019, that assesses the foreign language readiness of the total force. The briefing shall address the required number of personnel trained and proficient in foreign languages, the current number of personnel trained and proficient in foreign languages, and the distribution of linguist personnel to the appropriate combatant commands; identify any gaps in foreign language readiness to include specific

shortfalls in critical languages and mitigations to address those gaps; and assess the current foreign language training, education, and proficiency testing programs.

Forward Deployed Naval Force Ship Maintenance and Repair Capacity

The committee notes that since 2006, the Navy has doubled the number of surface ships assigned to overseas homeports, with more than 14 percent of the Navy's ships based at ports in the Kingdom of Bahrain, the Italian Republic, the Kingdom of Spain, and Japan. The committee also notes that combatant commander demand for naval presence drives the Navy to base ships at overseas ports. However, the extent to which the Navy has the capacity for ship maintenance and repairs overseas is not clear.

To assess that capacity, the committee directs the Comptroller General of the United States to review the following:

- (1) ship maintenance and repair capacity overseas in either U.S. ports or foreign repair yards;
- (2) to what extent has the Navy identified and taken action to address its overseas maintenance requirements;
- (3) to what extent has the Navy identified the underlying causes of overseas maintenance overruns;
- (4) mitigation options to address any maintenance shortfalls; and
- (5) any other issues the Comptroller General determines appropriate with respect to forward deployed naval force ship maintenance and repair capacity.

The committee further directs the Comptroller General to provide a briefing to the House Committee on Armed Services not later than November 12, 2018, on the Comptroller General's preliminary findings and to submit a final report to the congressional defense committees on a date agreed to at the time of the briefing.

Immersive Virtual Shipboard Environment Training

The committee notes that the Navy has used game-based learning concepts and immersive virtual shipboard environment (IVSE) training for select watch stations aboard Littoral Combat Ships (LCS). The committee understands that IVSE courses offer scalable solutions that have led to faster qualification and certification times, a higher degree of training proficiency, and increased knowledge retention. The committee notes that the Navy's Strategic Readiness Review recognized that the Navy must "foster a culture of learning and create the structures and processes that fully embrace this commitment" in order to restore readiness, yet the Navy has made little progress in adopting proven methods to cultivate the learning culture.

Therefore, the committee directs the Secretary of the Navy to provide a briefing to the House Committee on Armed Services, not later than September 28, 2018, on the Navy's plans to improve training. The briefing should:

- (1) identify training benefits and lessons learned from the Navy's experience with game-based learning concepts and IVSE training for LCS watch stations;
- (2) outline a plan, including associated timelines, for applying such training to Navy and Marine Corps training requirements

across all naval surface ship platforms in alignment with the Chief of Naval Operations' tenet of achieving high-velocity learning using 21st century technology;

(3) identify discrete mission areas where insufficient assets are available to provide traditional training to achieve full-spectrum readiness and where IVSE would improve watch-station training, including training for new platform development programs, coastal riverine operations, and amphibious operations; and

(4) provide a report to the Committees on Armed Services of the Senate and House of Representatives by March 1, 2019 on the advisability and feasibility of procuring, altering, or otherwise modifying the Navy's bridge simulators, including the Navigation, Seamanship, and Shiphandling Trainer, to enable high-fidelity physical representation of the different bridge layouts, characteristics, and operating environments of ships across the fleet.

Information Operations

The committee understands the growing importance of space and cyber operations in military operations and in another provision elsewhere in this Act directed the Secretary of Defense to report readiness to conduct operations in the space and cyber domains. The committee believes that information operations are similarly becoming a major factor in military planning and that operational skill in conducting information operations will be critical to future military success. Therefore, the committee directs the Secretary of Defense to assess the value of measuring and regularly reporting the readiness of the joint force to conduct information operations and report his recommendations to the Committees on Armed Services of the Senate and the House of Representatives by January 31, 2019.

Live, Virtual, and Constructive Training Solution Enhancements

The committee recognizes the important role that live training systems play as part of a comprehensive effort to improve readiness. The committee is aware the Army and Marine Corps are planning for the use of live, virtual, and constructive (LVC) simulation training systems that emphasize joint interoperability. However, the committee is concerned that despite recent progress advancing such LVC capabilities there remain challenges in both fielding and integrating live training devices with both individual and collective training objectives. Additional challenges occur when planned upgrades to new and existing vehicle platforms occur without the corresponding modifications to the training systems. The committee believes that the acquisition and fielding of training systems must be synchronized with the procurement, fielding, and modernization of weapon systems to ensure the services' overall training objectives are supported in a coordinated and cost-effective manner. In addition, the committee encourages the military departments to ensure that new LVC training systems are interoperable with both the joint force infrastructure and the advanced training systems of key allied nations and coalition partners.

The committee directs the Secretary of the Army, in coordination with the Secretary of the Navy, to provide a briefing to the House Committee on Armed Services not later than December 3, 2018, on

the plans of the Army and Marine Corps to utilize live training systems as part of readiness recovery and long-term training efforts. The briefing should address the plans and timelines for fielding live training systems and synchronizing such efforts with the fielding or modernization of weapon systems and efforts to ensure such systems are interoperable with our military partners and allies.

Military Working Dog Capacity and Facilities

The committee is aware that military working dogs are a critical enabler to both facility and operational force security and that the operational need continues to grow. The committee is concerned about the average age of the military working dog population and the capacity to train and access new dogs and handlers to meet future requirements. Additionally, the committee notes that investments in military working dog facilities have not kept pace with the increased demand for military working dogs.

Therefore, the committee directs the Secretary of the Air Force, as the executive agent for the military working dog program, to provide a briefing to the House Committee on Armed Services not later than December 1, 2018, that addresses:

- (1) the total current and future requirement for military working dogs, handlers, and instructors by mission capability;
- (2) the total number of military working dogs and handlers currently available for operational tasking by mission capability;
- (3) an assessment of the condition and capacity of military working dog facilities to support current and future requirements, to include the ability to provide adequate medical care as well as meet mission training requirements; and
- (4) an assessment of capability gaps and plans to mitigate these gaps, including programmed investments.

Modeling and Simulation for Training, Exercises, and Joint Planning

The committee recognizes that the defense modeling and simulation technological and industrial base, including in academia, industry, and government, is an important national security asset. The committee appreciates that the Department of Defense continues to use modeling and simulation technologies across the spectrum of defense activities, including for training, exercises, and joint planning activities. The committee encourages the military services and the combatant commanders to maximize the use of modeling and simulation, including in service, joint, and combined exercises; in joint planning for theater operations and contingencies that cannot be accurately planned for by other means; and in the development of options for senior leadership at the strategic level.

The committee believes it is important for Congress to have a clearer understanding of the benefits and impacts of the Department's use of modeling and simulation. Therefore, the committee directs the Secretary of Defense to provide a report to the House Committee on Armed Services not later than November 30, 2018 on the effects of integrating modeling and simulation into the review and development of operational plans, joint training and exercises, and high-priority security cooperation initiatives.

Modernization and Integration of Major Range and Test Facilities Bases

The committee notes a lack of consistent policy and standardized processes within the Department of Defense to guide the Director of Operational Test and Evaluation and the Director of Test Resource Management Center (TRMC) in scheduling systems utilized by shared military test and training ranges. The committee is concerned that lack of standardization fails to optimize these vital resources nor accommodate joint force utilization. Therefore, the committee directs the Secretary of Defense to provide a briefing to the House Committee on Armed Services not later than January 23, 2019, on its plan to standardize major range and test facilities bases (MRTFB) scheduling. At a minimum, the briefing should:

- (1) identify processes to standardize and integrate current scheduling systems between the joint users of MRTFB ranges and facilities;
- (2) identify process that efficiently integrates next generation aircraft avionics, propulsion and weapons systems test and training;
- (3) optimizes use and capacity of training range land and airspace between competing needs; and,
- (4) provide recommendations on metrics and methods which will ensure each service has an equal opportunity to test and train on MRTFB.

Surface Fleet Live Fire Training

The committee recognizes the Navy's desire to increase fleet readiness training and exercise ship systems before deployment by including live-firing of missiles in pre-deployment training exercises. The committee also notes the Navy's Standard Missile-3 Block IA inventory is approaching the end of service life. Furthermore, the committee is aware that in lieu of demilitarization, the Navy intends to assess repurposing these missiles to conduct live-fire readiness training using shipboard ballistic missile defense systems. The committee encourages this initiative and directs the Secretary of the Navy to provide a briefing to the House Committee on Armed Services not later than November 5, 2018, on the Navy's progress in making SM-3 Block IA missiles approaching the end of their service life available for live-fire readiness training for ships and crews.

Universal Camouflage Inventory and Overdye Technology

The committee notes the Army's transition from Universal Camouflage Pattern (UCP) to Operational Camouflage Pattern (OCP) for soldier uniforms and personal equipment, even though the Army possesses a substantial inventory of now obsolete UCP products. The committee is also aware of Program Executive Office Soldier's efforts to evaluate overdye technologies and processes. This evaluation could validate processes that could alter UCP printed products into a color palette that blends with the new camouflage prints, allowing the Army to conserve resources by overdyeing UCP materials for use with OCP patterned equipment.

The committee directs the Secretary of the Army to provide a briefing to the House Committee on Armed Services not later than August 31, 2018, that includes any current efforts to repurpose and

field UCP personal equipment, any evaluations of overdyed technologies and processes, and a business case analysis of fielding these overdyed technologies and processes.

OTHER MATTERS

Air Refueling Capability and Capacity

The committee notes that air refueling capability is a critical component of logistical capacity and that the Air National Guard fulfills the majority of air refueling requirements. The committee notes that section 144 of the National Defense Authorization Act for Fiscal Year 2018 (Public Law 115–91) required the Secretary of Defense to carry out a mobility capability and requirements study that includes an assessment of the air refueling tanker aircraft military requirement. Upon completion of the study, the committee is interested in how the Air Force will support the requirements for force structure and strategic laydown of aircraft necessary to implement the study.

Therefore, the committee directs the Secretary of the Air Force to provide a briefing to the House Committee on Armed Services, not later than March 1, 2019, on how the Air Force will support the requirements for aerial refueling. At a minimum, the briefing shall include:

- (1) the current and future laydown plans for air refueling locations;
- (2) an overview of air refueling operations per air refueling wing locations to include the number of sortie requests, the number of sorties fulfilled, and the locations or missions the sorties supported;
- (3) fully mission capable and aircraft availability rates for all air refueling wings over the past 5 years;
- (4) an assessment of how the Air National Guard force structure, across all States and territories, can be leveraged to support current and emerging air refueling requirements;
- (5) a description of the long-term plan to maintain adequate refueling capability to meet current and emerging requirements;
- (6) a review of manpower levels across the air refueling force, an identification of current and projected skill set gaps, and recommendations on how to address these gaps; and
- (7) an overview of how the Air Force will determine the disposition of KC–135 aircraft as they are replaced by arrival of KC–46 aircraft.

Disposition of Excess Military Ground Vehicles

The committee notes that the Defense Logistics Agency's Disposition Services is responsible for disposing of excess property received from the military services. Excess military property is screened for reutilization within the Department of Defense; transfer to other Federal agencies; donation to State and local governments, or other qualified organizations; or sale to the general public. As part of the screening process, Disposition Services must assess demilitarization (DEMIL) requirements for the excess property to prevent unauthorized use or the compromise of national security. For ground vehicles, such DEMIL requirements can range from the removal of certain parts and components to the full mutilation and scrapping

of the vehicle. The committee is aware of concerns that types of ground vehicles heretofore available for donation are now consigned to scrap.

Therefore, the committee directs the Under Secretary of Defense for Acquisition and Sustainment, in coordination with the Commander of the Defense Logistics Agency, to submit a report to the congressional defense committees by February 1, 2019, regarding the disposition of military ground vehicles.

The report should include classes and types of Department of Defense military ground vehicles eligible to be considered in the donation and sale program and explanation of the DEMIL codes used in the determination process. Additionally, the report should outline the DEMIL code determination process for ground vehicles, whether applicable policies were followed when ground vehicles previously made available to State and local governments or civilian military museums have instead been scrapped, and steps taken to reevaluate current policies and practices. Finally, the report should include measures taken by the Disposal Services program to improve transparency so that State and local governments or civilian military museums have appropriate access to ground vehicles.

Fluorine-Free Fire Fighting Foam

The committee is aware that the military departments are in the process of replacing legacy aqueous film forming foam (AFFF) with an AFFF that does not contain perfluorooctane sulfonate (PFOS) compounds. In addition, the committee is aware the Department of Defense has undertaken research and development efforts related to fluorine-free AFFF. The committee encourages the Department to accelerate such efforts, to the extent possible. Therefore, the committee directs the Assistant Secretary of Defense for Energy, Installations, and Environment to provide a briefing to the House Committee on Armed Services not later than March 1, 2019, on the progress made towards development and fielding of a fluorine-free AFFF that meets military requirements. At minimum, the briefing should summarize research and development initiatives on fluorine-free AFFF that have been funded by the Department of Defense to date, a summary of the current status and findings of such initiatives, and what additional research and development may be required prior to fielding a fluorine-free AFFF.

Improving Water Security and Efficiency on Installations

Efficient facilities are critical for the support, redeployment, and operation of military forces. While some installations have done great work to improve water efficiency, the Committee is concerned that the military may not be maximizing strategic use of water resources at all installations, and that this could be adding unnecessary costs that could be more effectively used elsewhere. Furthermore, water security is a vital component of installation readiness.

Therefore, the committee directs the Secretary of Defense to provide a report on innovative ways to reduce water use across installations in order to strengthen base readiness through improved water security, and to identify opportunities to replicate across installations some of the successful water-saving tactics already being deployed at some bases, such as planting more native species

and increasing use of gray water systems. The report shall be submitted to the House Committee on Armed Services, not later than March 1, 2019.

Joint Navy-Coast Guard Arctic Strategy

The Navy and the Coast Guard currently produce their own Arctic strategies. The Committee believes the absence of a joint strategy stands in contradiction to the Secretary of Defense's National Defense Strategy, calling for greater integration of a joint force and renewed attention on more traditional peer competitors, namely Russia and China. Therefore, the committee directs the Chief of Naval Operations and the Commandant of the Coast Guard to provide a briefing to the House Committee on Armed Services and the House Committee on Transportation and Infrastructure by September 30, 2018 that provides a framework for a joint strategy integrating all components of the Navy and Coast Guard Arctic mission sets and providing adequate vessel and aircraft resource allocation allowing for the United States to effectively advance security and commercial interests in the region. The briefing should take into consideration the Arctic's relevance in the Navy's configuration of a 355 vessel fleet and identify proper Navy and Coast Guard resource allocation to that effect.

Meeting Readiness Requirements Efficiently

The House Armed Services Committee is concerned that the number of mandatory training and administrative requirements for Service members of the Department of Defense, and the burden that they maintain a multitude of different accounts on different systems to accomplish an array of administrative and training mandatory requirements especially for Reserve Component Service members, impedes their ability to efficiently achieve worldwide deployment readiness. The Committee is aware that, for example, the U.S. Navy Reserve maintains no fewer than ten different computer systems that service members must regularly use.

The Director of Cost Assessment and Program Evaluation is directed to submit to the congressional defense committees a report by April 1, 2019, detailing the costs incurred by each military service to maintain each training and administrative personnel system, particularly computerized systems, and options to consolidate these systems to save taxpayer money, reduce the burden on military members, and promote readiness.

Motorcycle Safety Training

The committee is aware that each of the armed services conducts motorcycle safety training before allowing service members to operate a motorcycle on base. The committee applauds this training and encourages the Department of Defense to continue. The committee has learned that nine States, including several with large military installations, have imposed unique training requirements that go beyond those contained in the National Highway Traffic Safety Administration compliant curriculum. The committee has also learned that the Air Force and Coast Guard adjust their training to meet unique State requirements, while the Departments of the Army and Navy do not, forcing soldiers, sailors, and marines

to seek and pay for the added required training individually. The committee encourages the Secretaries of the Army and Navy to review the adequacy of motorcycle safety training in their respective military departments to ease the burden on soldiers, sailors, and marines.

Open-Air Disposal of Munitions and Mmunition Constituents

The committee remains concerned about the Department of Defense's continued reliance on open burning and open detonation for the demilitarization of excess, obsolete, or unserviceable munitions by its industrial depots rather than using alternative contained technologies. While the committee recognizes the Department may have a need to retain some open burning and open detonation capability for explosive safety reasons, the committee is aware of the Department's efforts to reduce its use of open burning and open detonation. Section 1421 of the National Defense Authorization Act for Fiscal Year 2017 (Public Law 114-328) directed the Secretary of the Army to enter into an arrangement with the Board on Army Science and Technology of the National Academies of Sciences, Engineering, and Medicine to conduct a study of the conventional munitions demilitarization program of the Department of Defense. The intent of this study was to better understand the Department's current procedures, its rationale for using open burning and open detonation, and the status and suitability of alternative technologies in use or under development to reduce the Department's reliance on open burning and open detonation.

Therefore, the committee directs the Secretary of the Army to provide a briefing to the House Committee on Armed Services, not later than 90 days after the date on which the National Academy of Science releases its report, on the actions the Army intends to take in response to the National Academy of Science committee's recommendations.

Physical Security at U.S. Shipyards

The committee believes it is important to ensure the safety and security of personnel and Navy vessels undergoing maintenance in public and private shipyard facilities. While the security of the public shipyards is the responsibility of the Navy, the committee understands that private shipyards must meet specific requirements for physical security barriers, perimeter and waterfront access control, security forces, patrol craft, and other security measures while performing work on Navy vessels. The committee notes there are certain locations where private shipyards are near or adjacent to a Navy installation or to another shipyard performing work on Navy vessels. In such cases, each shipyard is required to individually meet the security requirements associated with a repair contract. The costs associated with these security requirements are ultimately passed back to the government through the cost of the repair contract. Therefore, the committee encourages the Secretary of the Navy to examine this issue and work with private shipyards to find opportunities to meet security requirements in a more collaborative and cost-effective way at shipyards that are near or adjacent to a Navy installation or another shipyard performing work on Navy vessels.

Quality of Life at Remote Sites

The committee notes that the Army and other military services operate several installations at isolated locations in the western United States. Some Army examples include Dugway Proving Ground, Utah; Hawthorne Army Depot, Nevada; and White Sands Missile Range, New Mexico. These remote locations are usually staffed with small populations, presenting financial solvency challenges for morale, welfare, and recreation (MWR) business activities of the Department of the Army. As a result, there are few MWR activities, shopping venues, or dining options on or near the installation to support the daily working population of military personnel, Federal civilian personnel, contract employees, and family members. The committee encourages the Secretary of the Army to review the quality of life support options for all those who work at such installations and develop a plan for improvement.

Regional Biosecurity Plan

The Secretary of Defense is directed to submit to the Committees on Armed Services of the Senate and the House of Representatives, at the same time as the President submits the budget for a fiscal year under section 1105(a) of title 31, United States Code, a report describing the activities of the Department of Defense during the preceding fiscal year to implement the Regional Biosecurity Plan for Micronesia and Hawaii, which is a strategic plan led by the Department of Defense in collaboration with other Federal and non-Federal entities to prevent and control the introduction of invasive species in the United States Pacific region. The Department of Defense's report shall also include next steps and planned activities of the Department for further implementation of the plan, including estimates of additional funding to be used or needed for such next steps and planned activities.

Review of Household Good Weight Allowances

The committee believes that service members should pursue intellectual development by reading thoughtful books related to the military profession. Indeed, the Chairman of the Joint Chiefs of Staff and each Service Chief maintains active professional reading lists to encourage military members to read as part of professional development. The committee further recognizes that a growing number of military families opt for home schooling as a means to provide stability to children's education. The committee notes that the current household good movement weight allowance for military professional gear is 2,000 pounds for military members and 500 pounds for dependent spouses. Professional gear includes a range of items including books, uniforms, and technical equipment. The committee understands that Joint Travel Regulation 051304 modified the allowable weight credit computation for professional gear and definition of professional gear. The committee is concerned that the household good professional gear weight allowance and allowable weight credit computation is insufficient to support increasingly educated workforce and military families who homeschool; therefore, the committee directs the Commander of U.S. Transportation Command in coordination with the military departments and the Defense Travel Management Office to provide

a briefing to the House Committee on Armed Services, not later than August 31, 2018, on the household goods weight allowances. This briefing shall include, at a minimum:

- (1) A summary of the most recent assessment of weight allowance requirements
- (2) Any changes to the household weight allowance for professional gear for the previous ten years
- (3) A review of complaints from service members on professional gear weight allowances and actions taken to address these concerns
- (4) Any recommended policy changes and actions.

Review of Mandatory Training Required by Law

The committee is encouraged by recent initiatives across the military services to review and reduce mandatory administrative training requirements. Such mandates consume time and resources of operational unit leaders and troops and should only be required when necessary to improve the readiness of the force. This issue is especially acute in the Reserve Components, with limited training days. The committee recognizes that such requirements are generated from within the Department of Defense as well as through legislative mandates and statutes. The committee intends to review current military training mandates that arise from statute for possible repeal and would welcome the views of the Secretary of Defense. To that end, the committee encourages the Secretary of Defense to provide a list of any legal mandates to conduct training to the House Committee on Armed Services, accompanied by his recommendation of any that should be repealed.

LEGISLATIVE PROVISIONS

SUBTITLE A—AUTHORIZATION OF APPROPRIATIONS

Section 301—Authorization of Appropriations

This section would authorize appropriations for operation and maintenance activities at the levels identified in section 4301 of division D of this Act.

SUBTITLE B—ENERGY AND ENVIRONMENT

Section 311—Inclusion of Consideration of Energy and Climate Resiliency Efforts in Master Plans for Major Military Installations

This section would amend section 2864 of title 10, United States Code, to require energy and climate resiliency efforts to be considered in installation master plans to ensure the ability to sustain mission-critical operations.

Section 312—Use of Proceeds from Sales of Electrical Energy Derived from Geothermal Resources for Projects at Military Installations Where Resources Are Located

This section would amend section 2916 of title 10, United States Code, to enable certain proceeds from the sale of electrical energy generated from a geothermal energy resource to be used for installation energy or water security projects at the military installation in which the geothermal energy resource is located.

Section 313—Extension of Authorized Periods of Permitted Incidental Takings of Marine Mammals in the Course of Specified Activities by Department of Defense

This section would amend section 1371 of title 16, United States Code, to extend the period the Secretary of Interior may authorize the incidental taking of marine mammals by the Department of Defense from 5 years to 10 years if the Secretary finds that such takings will have a negligible impact on any marine mammal species.

Section 314—State Management and Conservation of Species

This section would prohibit listing of the Greater Sage-Grouse and the Lesser Prairie-Chicken under the Endangered Species Act for a 10-year period. This section would also provide that the previous such listing of the American Burying Beetle may not be enforced or reinstated.

SUBTITLE C—LOGISTICS AND SUSTAINMENT

Section 321—Examination of Naval Vessels

This section would amend section 7304 of title 10, United States Code, to provide that examinations of naval vessels performed under the authority of that section after October 1, 2019, shall be conducted on a no notice basis. This section would also provide that reports detailing the results of such inspections be unclassified and available to the public.

Section 322—Overhaul and Repair of Naval Vessels in Foreign Shipyards

This section would amend section 7310 of title 10, United States Code, to require naval vessels that do not have a homeport be treated as being homeported in the United States or Guam with regard to repair and maintenance of those vessels. Additionally, this section would define the term voyage repair.

Section 323—Limitation on Length of Overseas Forward Deployment of Naval Vessels

This section would add a new section to chapter 633 of title 10, United States Code, that would require the Secretary of the Navy to limit the time a naval vessel is forward deployed overseas to 10 years. This section would permit the Secretary to waive the 10-year requirement for individual naval vessels with notification to the congressional defense committees. This section would further provide that all currently forward deployed naval ships which have exceeded 10 years of service overseas shall have 3 years to return to a U.S. homeport. Finally, this section would require the Secretary to provide a briefing to the Committees on Armed Services of the Senate and the House of Representatives on his rotation plan for forward deployed naval ships.

Section 324—Temporary Modification of Workload Carryover Formula

This section would require the Secretary of Defense to modify the workload carryover calculation formula for each military department depot or arsenal through September 30, 2021. These modifications would reflect the timing of enacted appropriations and the varying repair cycle times of the workload supported, and apply in addition to current Department of Defense carryover exemptions.

Section 325—Limitation on Use of Funds for Implementation of Elements of Master Plan for Redevelopment of Former Ship Repair Facility in Guam

This section would provide that none of the funds authorized to be appropriated by this Act, or otherwise made available for fiscal year 2019 for the Navy, may be obligated or expended for any construction, alteration, repair, or development of the real property consisting of the Former Ship Repair Facility in Guam unless such project directly supports depot-level ship maintenance capabilities, to include the mooring of a floating dry dock.

Section 326—Business Case Analysis for Proposed Relocation of J85 Engine Regional Repair Center

This section would require the Secretary of the Air Force to prepare a business case analysis for the proposed relocation of the J85 Engine Regional Repair Center. This section would also withhold funding for the proposed relocation until 150 days after the Secretary of the Air Force has provided the Committees on Armed Services of the Senate and the House of Representatives a briefing on the business case analysis.

Section 327—Army Advanced and Additive Manufacturing Center of Excellence

This section would require the Secretary of the Army to establish a Center of Excellence on Advanced and Additive Manufacturing at an arsenal and authorize use of public-private partnerships and other transactional activity to facilitate the development of advanced and additive manufacturing techniques in support of Army industrial facilities.

SUBTITLE D—REPORTS

Section 331—Matters for Inclusion in Quarterly Reports on Personnel and Unit Readiness

This section would amend section 482 of title 10, United States Code, to require the Secretary of Defense and each military service to report appropriate readiness metrics for cyber and space operations in the existing periodic reporting requirement. This section would further amend section 482 to require combatant commanders to assess their readiness to conduct operations in a multidomain battle, integrating ground, air, sea, space, and cyber forces.

Section 332—Annual Comptroller General Reviews of Readiness of Armed Forces to Conduct Full Spectrum Operations

This section would require the Comptroller General of the United States to assess the readiness of the Armed Forces in the warfighting domains of ground, sea, air, space, and cyber annually through 2022. The assessment would be based on metrics established by the Secretary of Defense and validated by the Comptroller General, to allow the committee to assess readiness status over time. While the Comptroller General may submit classified reports, unclassified versions of the reports should also be provided.

The committee understands that military readiness is a result of a commander's skillful integration of available military personnel, equipment, supplies, and individual and collective training opportunities. The committee recognizes that readiness has suffered in all military services in recent years, driven by the erosive effects of the Budget Control Act and the unceasing demand for forces in various theaters of operation. The committee believes that the military services should demonstrate measurable readiness recovery with the additional appropriations made in fiscal year 2017, the additional appropriations made available in fiscal year 2018, as well as funding authorized for fiscal year 2019 in this Act.

Section 333—Surface Warfare Training Improvement

This section would express the sense of Congress that the Secretary of the Navy should establish an assessment process for surface warfare officers prior to operational tour assignments and that the Secretary should expand the International Convention on Standards of Training, Certification and Watchkeeping (STCW) qualification process for surface warfare officers and enlisted navigation watch team personnel to improve seamanship and navigation aboard Navy vessels. Further, this section would require the Secretary of the Navy to provide a report on surface warfare officer credentialing, training, and assessment to the congressional defense committees not later than March 1, 2019.

Section 334—Report on Optimizing Surface Navy Vessel Inspections and Crew Certifications

This section would require the Secretary of the Navy to provide a report on optimizing surface navy vessel inspections and crew certifications to reduce redundancies and the burden of inspection type visits that ships undergo. Further, this section would require the Secretary of the Navy to provide an interim briefing to the Committees on Armed Services of the Senate and the House of Representatives not later than January 31, 2019, on matters to be included in the required report.

The committee notes that following the collisions involving U.S. Navy ships in the western Pacific, the Navy conducted a comprehensive review of recent surface force incidents. The committee also notes that the Navy's "Comprehensive Review of Recent Surface Force Incidents" identified an overabundance of inspections, certifications, and that "ships can be subjected to as many as 238 separate inspection, certification, and assist visits in a 36 month period." The Navy's "Strategic Readiness Review" of these incidents further identified that there "has been a dramatic increase in the

operating tempo of individual ships, and accompanying reductions in the time available to perform maintenance, training, and readiness certification.” The “Strategic Readiness Review” went on to note that “sufficient time for training crews and maintaining ships is critical for restoring and monitoring readiness.”

Given the continued operational demand on the fleet, the committee believes that the Navy should reduce the burden of inspection type visits that ships undergo.

SUBTITLE E—OTHER MATTERS

Section 341—Coast Guard Representation on Explosive Safety Board

This section would amend section 172 of title 10, United States Code, to provide that an officer of the Coast Guard serve as a voting member of the explosive safety board.

Section 342—Shiloh National Military Park Boundary Adjustment and Parker’s Crossroads Battlefield Designation

This section would modify the boundary of the Shiloh National Military Park located in Tennessee and Mississippi, to establish Parker’s Crossroads Battlefield as an affiliated area of the National Park System.

Section 343—Sense of Congress Regarding Critical Minerals

This section would express the sense of Congress that aggregates, copper, molybendum, gold, zinc, nickel, lead, silver, and certain fertilizer compounds should be added to the “critical minerals list” ordered by Executive Order 13817.

TITLE IV—MILITARY PERSONNEL AUTHORIZATIONS

LEGISLATIVE PROVISIONS

SUBTITLE A—ACTIVE FORCES

Section 401—End Strengths for Active Forces

This section would authorize the following end strengths for Active Duty personnel of the Armed Forces as of September 30, 2019:

| Service | FY 2018 Authorized | FY 2019 | | Change from | |
|-----------------|--------------------|---------|--------------------------|-----------------|--------------------|
| | | Request | Committee Recommendation | FY 2019 Request | FY 2018 Authorized |
| Army | 483,500 | 487,500 | 487,500 | 0 | 4,000 |
| Navy | 327,900 | 335,400 | 335,400 | 0 | 7,500 |
| USMC | 186,000 | 186,100 | 186,100 | 0 | 100 |
| Air Force | 325,100 | 329,100 | 329,100 | 0 | 4,000 |

| Service | FY 2018 Authorized | FY 2019 | | Change from | |
|-----------------|-----------------------|-----------|-----------------------------|--------------------|-----------------------|
| | | Request | Committee Recommendation | FY 2019 Request | FY 2018 Authorized |
| DOD Total | 1,322,500 | 1,338,100 | 1,338,100 | 0 | 15,600 |

Section 402—Revisions in Permanent Active Duty End Strength Minimum Levels

This section would establish new minimum Active Duty end strengths for the Army, Navy, Marine Corps, and Air Force as of September 30, 2019. The committee recommends 487,500 as the minimum Active Duty end strength for the Army, 335,400 as the minimum Active Duty end strength for the Navy, 186,100 as the minimum Active Duty end strength for the Marine Corps, and 329,100 as the minimum Active Duty end strength for the Air Force.

SUBTITLE B—RESERVE FORCES

Section 411—End Strengths for Selected Reserve

This section would authorize the following end strengths for Selected Reserve personnel, including the end strength for Reserves on Active Duty in support of the Reserves, as of September 30, 2019:

| Service | FY 2018 Authorized | FY 2019 | | Change from | |
|----------------------------|-----------------------|---------|-----------------------------|--------------------|-----------------------|
| | | Request | Committee Recommendation | FY 2019 Request | FY 2018 Authorized |
| Army National Guard | 343,500 | 343,500 | 343,500 | 0 | 0 |
| Army Reserve | 199,500 | 199,500 | 199,500 | 0 | 0 |
| Navy Reserve | 59,000 | 59,100 | 59,100 | 0 | 100 |
| Marine Corps Reserve | 38,500 | 38,500 | 38,500 | 0 | 0 |
| Air National Guard | 106,600 | 107,100 | 107,100 | 0 | 500 |
| Air Force Reserve | 69,800 | 70,000 | 70,000 | 0 | 200 |
| DOD Total | 816,900 | 817,700 | 817,700 | 0 | 800 |
| Coast Guard Reserve | 7,000 | 7,000 | 7,000 | 0 | 0 |

Section 412—End Strengths for Reserves on Active Duty in Support of the Reserves

This section would authorize the following end strengths for Reserves on Active Duty in support of the Reserves as of September 30, 2019:

| Service | FY 2018 Authorized | FY 2019 | | Change from | |
|---------------------------|-----------------------|---------|-----------------------------|--------------------|-----------------------|
| | | Request | Committee Recommendation | FY 2019 Request | FY 2018 Authorized |
| Army National Guard | 30,155 | 30,595 | 30,595 | 0 | 440 |

| Service | FY 2018 Authorized | FY 2019 | | Change from | |
|----------------------------|-----------------------|---------------|----------------------------------|--------------------|-----------------------|
| | | Request | Committee Recom- mendation | FY 2019 Request | FY 2018 Authorized |
| Army Reserve | 16,261 | 16,386 | 16,386 | 0 | 125 |
| Navy Reserve | 10,101 | 10,110 | 10,110 | 0 | 9 |
| Marine Corps Reserve | 2,261 | 2,261 | 2,261 | 0 | 0 |
| Air National Guard | 16,260 | 19,861 | 19,861 | 0 | 3,601 |
| Air Force Reserve | 3,588 | 3,849 | 3,849 | 0 | 261 |
| DOD Total | 78,626 | 83,062 | 83,062 | 0 | 4,436 |

Section 413—End Strengths for Military Technicians (Dual Status)

This section would authorize the following end strengths for military technicians (dual status) as of September 30, 2019:

| Service | FY 2018 Authorized | FY 2019 | | Change from | |
|---------------------------|-----------------------|---------------|----------------------------------|--------------------|-----------------------|
| | | Request | Committee Recom- mendation | FY 2019 Request | FY 2018 Authorized |
| Army National Guard | 22,294 | 22,294 | 22,294 | 0 | 0 |
| Army Reserve | 6,492 | 7,495 | 6,492 | -1,003 | 0 |
| Air National Guard | 19,135 | 18,969 | 18,969 | 0 | -166 |
| Air Force Reserve | 8,880 | 9,908 | 8,880 | -1,028 | 0 |
| DOD Total | 56,801 | 58,666 | 56,635 | -2,031 | -166 |

Section 414—Maximum Number of Reserve Personnel Authorized To Be on Active Duty for Operational Support

This section would authorize, as required by section 115(b) of title 10, United States Code, the maximum number of Reserve Component personnel who may be on Active Duty or full-time National Guard duty during fiscal year 2019 to provide operational support. The personnel authorized here do not count against the end strengths authorized by section 401 or section 412 of this Act unless the duration on Active Duty exceeds the limitations in section 115(b)(2) of title 10, United States Code.

| Service | FY 2018 Authorized | FY 2019 | | Change from | |
|----------------------------|-----------------------|---------|----------------------------------|--------------------|-----------------------|
| | | Request | Committee Recom- mendation | FY 2019 Request | FY 2018 Authorized |
| Army National Guard | 17,000 | 17,000 | 17,000 | 0 | 0 |
| Army Reserve | 13,000 | 13,000 | 13,000 | 0 | 0 |
| Navy Reserve | 6,200 | 6,200 | 6,200 | 0 | 0 |
| Marine Corps Reserve | 3,000 | 3,000 | 3,000 | 0 | 0 |
| Air National Guard | 16,000 | 16,000 | 16,000 | 0 | 0 |
| Air Force Reserve | 14,000 | 14,000 | 14,000 | 0 | 0 |

| Service | FY 2018 Authorized | FY 2019 | | Change from | |
|-----------------|-----------------------|---------|----------------------------------|--------------------|-----------------------|
| | | Request | Committee Recom- mendation | FY 2019 Request | FY 2018 Authorized |
| DOD Total | 69,200 | 69,200 | 69,200 | 0 | 0 |

SUBTITLE C—AUTHORIZATION OF APPROPRIATIONS

Section 421—Military Personnel

This section would authorize appropriations for military personnel at the levels identified in the funding table in section 4401 of division D of this Act.

TITLE V—MILITARY PERSONNEL POLICY

ITEMS OF SPECIAL INTEREST

Active Military Service of the Korean Constabulary

The Committee acknowledges the service and sacrifice of the officers and men of the Korean Constabulary formed under the operational command of the United States Military Government in Korea following the end of the Second World War. Organized, trained, equipped, and led by the United States Army, the Korean Constabulary performed vital security missions on behalf of the United States in the interwar period and played a crucial role in the formation and defense of the Republic of Korea. Repeatedly called to defend their homeland against attacks and insurrection by Communist forces allied with the Korean People’s Army and supported by the Soviet Union, the men of the Korean Constabulary fought with distinction in some of the earliest battles of the Cold War.

The Committee therefore requests the Secretary of Defense to review the eligibility of the officers and men of the Korean Constabulary for active military service from November 1945 to January 1949 under the provisions of Section 401 of Public Law 95–202, and report his findings to the House Armed Services Committee by March 1, 2019.

Best Practices for Prevention and Response to Sexual Assault

The committee commends the Department for its efforts to continuously improve methods to prevent and respond to sexual assault. The committee further commends the Air Force’s efforts to utilize evidenced based bystander intervention training previously shown to prevent and reduce power-based personal violence based on the premise that sexual violence can be measurably and systematically reduced within a community. The Air Force was additionally able to consolidate some of the required and annual briefings and shorten the amount of time they spent on training by focusing on quality over quantity. The committee directs the Department to report to the House Armed Services Committee no later than December 1, 2018 on current use of best practices for prevention and response to sexual assault; update on current research informed evaluation outcome criteria, and the feasibility of developing, and

offering high quality, standardized, research informed best practices for training and response that are shown to prevent sexual assaults across the services.

Briefing on Commissioning Production of Senior Reserve Officer Training Corps

The committee is concerned about the number of Senior Reserve Officer Training Corps (ROTC) units that are not meeting established commissioning production requirements for each of the services. Therefore, the committee directs the Secretary of Defense, in coordination with the Secretaries of the military services, to provide a briefing to the House Committee on Armed Services not later than April 1, 2019, on the performance of the Senior Reserve Officer Training Corps. Such briefing shall describe each of the following:

- (1) annual production requirement and production attainment for each ROTC host unit, to include a breakdown of demographics;
- (2) listing of units that have not met the standards set forth in Department of Defense Instruction 1215.08, for the past 5 years;
- (3) listing of the units that did not meet the standard in the past 5 years that are now compliant; and
- (4) list of units each service intends to disestablish or reduce in scope, but is not authorized to do so.

Briefing on Credentialing Programs

The Committee is supportive of policies which allow servicemembers to attain civilian credentials while on active duty. These programs ensure that servicemembers possess the necessary knowledge, skills, and abilities to perform their duties, and offer servicemembers the chance of better civilian employment upon separation from the military.

However, not all credentialing programs are created equal, and the Department has acknowledged that few oversight mechanisms exist to protect servicemembers from aggressive marketing of credentialing programs of dubious rigor. The committee encourages the Department to work with partners in academia and industry to develop a tool that servicemembers could use to evaluate the quality of a credential based on its desirability in the civilian workforce.

In addition, the Committee is also aware that the Department does not have conclusive evidence that possessing civilian credentials help servicemembers find post-separation employment. Therefore, the Committee directs the Department to brief the House Committee on Armed Services no later than February 1, 2019 on collaborative efforts to develop quality standards for credentialing and licensure programs and a review of academic literature on the impact on employability of attaining a credential.

Briefing on Department of Defense Inspector General Processing Times

The committee is concerned about the steady increase in processing times for Department of Defense Inspector General investigations into whistleblower reprisal and senior leader misconduct complaints. While the Department has conducted past studies into

how best to reduce these processing times, and implemented efficiency measures, the problem persists.

Therefore, the committee directs the Secretary of Defense to provide a briefing to the House Committee on Armed Services not later than July 1, 2019, regarding steps the Department will take to reduce whistleblower reprisal and senior leader misconduct investigation processing times. The briefing shall include:

- (1) a general timeline for a typical whistleblower reprisal and senior leader misconduct investigation, including identification of phases of the investigation that often require substantial time;
- (2) whether changes to law or policy would improve the efficiency of these investigations; and
- (3) whether additional funding, manning, or other resources would improve processing times.

Comptroller General Report on Active Duty Female Retention

The committee commends the Secretary of Defense for the briefing on Female Propensity to serve in the Armed Forces as requested in the House Report 115–200. Inclusive and growth-oriented recruiting must also ensure that the best and brightest females are not only recruited but that they are retained in the Armed Forces once presented with career options. Building on Female Propensity to serve in the Armed Forces, the committee recommends the Department expand their examination of female retention to include retention. An analysis conducted for the Defense Advisory Committee on Women in the Services finds that more women than men leave the military at various career points. Concerns persist that this attrition will result in a disproportionate impact to mission readiness if left unresolved. From an economic standpoint, when female employees leave, organizations must deal with higher recruiting costs, longer training times, and lower productivity. Therefore, not later December 1, 2018 the committee directs Comptroller General to submit a report containing the following components: (1) updated rates of promotion and attrition rates for women compared to other groups; (2) the reason for any differences in promotion and attrition; (3) recommendations to improve promotion and retention; (4) data and analysis to assist the committee in determining whether there are disparities in promotion and attrition rates; and (5) any other matters the commission believes are relevant to this issue.

Deconflicting Reserve Component and Expeditionary Civilian Deployments to Provide Adequate Dwell Time

The committee notes that according to DoDI 1235.12, Accessing the Reserve Components, issued June 7, 2016, “The RC provides an operational capability and strategic depth in support of the national defense strategy,” and further that if the mobilization-to-dwell ratio for a unit or a member of the RC is less than 1 to 4, Secretary of Defense approval is required. In addition, the Department of Defense has an expeditionary workforce that includes defense civilian personnel who also deploy in support of contingency operations and may also be members of the Reserve Components. The committee is concerned that if the Reserve Components order a member to active duty who is employed as a defense civilian, the

defense agency or military department may not count the member's previous recent deployment as an RC member when calculating the mobilization-to-dwell ratio. This lack of awareness by the Reserve Components of a civilian employee's deployment, or alternatively by the military departments or defense agencies about a Reserve Component member's expeditionary civilian deployment may lead to a lack of sufficient dwell time, with an impact on civilian personnel or RC retention.

Therefore, in order to determine the scope of the problem of deconflicting Reserve Component and expeditionary civilian deployments for the purpose of providing adequate dwell time, the Secretary of Defense is directed to provide a report to the congressional defense committees by Feb. 15, 2019, as to whether the Reserve Components or the defense agencies and military departments have mechanisms in place to track and account for deployments of defense civilians who are also Reservists; to establish to scale of this problem; and to make recommendations to the committee for procedures to make it possible for the Reserve Components, and the defense agencies and military departments, to fully account for the service of civilian employees in contingency operations, whether in the RC or as expeditionary civilians.

Federal Wildland Firefighting Education in the Transition Assistance Program (TAP)

The Committee continues to look for ways to strengthen the Transition Assistance Program (TAP) program to match opportunities in the federal workforce with the unique skillset of transitioning service members. The Committee acknowledges that skills honed during military service including logistics, risk mitigation, emergency medicine and response, team communications, equipment maintenance, resource accountability, and leadership in support of mission are directly transferrable to wildland firefighting. While the committee is aware that the Department of Defense, DHS, and DOL collaborate with other agencies to include information and education about civil service opportunities in the federal workforce, the committee believes transitioning service members would benefit from bolstered TAP program education on wildland firefighting careers at agencies including the Bureau of Land Management and the U.S. Forest Service. In addition, the Committee encourages DOD to pursue strategic partnerships and collaborations with non-profit organizations that connect veterans with volunteer disaster relief opportunities as part of TAP. The Committee notes precedent for collaboration with agencies including USDA that provide education on career pathways in agriculture and seeks to build on similar successful models of inter-agency partnerships to meet the nation's workforce needs.

Therefore, the Committee directs the Secretary of Defense to brief the House Committee on Armed Services no later than December 31, 2018 on current and potential interagency efforts in the TAP program related to wildland firefighting career pathways and opportunities in the federal government.

Foreign Area Officer Personnel Training and Career Management

The committee notes that the Department of Defense and the military services have developed a corps of foreign area officers and regional affairs strategists and implemented personnel policies to improve their education and training requirements. The National Defense Authorization Act for Fiscal Year 2017 (Public Law 114–328) required the Secretary to oversee the development and management of a professional workforce supporting security cooperation programs and activities of the Department. The committee is concerned with the implementation of this requirement as well as the services' career management of these officers.

Therefore, the committee directs the Secretary of Defense to provide a briefing to the House Committee on Armed Services by December 15, 2018, on the implementation of the Security Cooperation Workforce Development Program (SCWDP) required by section 384 of title 10, United States Code, and the service career management plan for foreign area officers. Elements of the briefing shall include:

(1) how the Department of Defense SCWDP relates to the foreign area officer programs of the services;

(2) how the foreign area officer programs of the services will benefit from the Department of Defense SCWDP;

(3) how the Secretary of each military department is adapting their foreign area officer program to the National Security Strategy and National Defense Strategy;

(4) what developmental opportunities the Secretary concerned provides for foreign area officers at each grade to prepare them for positions of greater responsibility;

(5) how the Secretary concerned provides promotion opportunities for foreign area officers to serve through General/Flag Officer ranks, and how these compare to other promotion opportunities and rates across the services;

(6) ways that the Secretary has coordinated efforts throughout the joint force to achieve the synergies of best practices across the security cooperation enterprise;

(7) the steps each service is taking to incorporate the elements required under the scope of the final guidance of the SCWDP, as required under section 384(e)(3) of title 10, United States Code, into the career management of foreign area officers, and the relevant challenges; and

(8) the steps the Department is taking to evaluate disparate training provided by services and Defense Intelligence Agency, and whether elements of such training should be provided to all Department of Defense personnel posted to embassies overseas.

Foster and Adoptive Military Families

The committee is aware that military families face unique challenges as adoptive and foster families, including, but not limited to, varying jurisdictional standards and support services between states and countries. The committee also notes that it is critical to the well-being of the child that all adoptions are permanent, and that additional information is needed to promote successful adoptions for military families.

Therefore, the committee directs the Secretary of Defense to provide a report to the House Armed Services Committee not later than 1 March 2019, describing the barriers and challenges faced by military families to fostering or adopting. The report should include, if applicable, jurisdictional differences between states and between countries; access to information; pre-placement training; and post-placement support services; and causes and/or risks for disruptions or dissolutions of military family adoptions. The report should also include what pre- and post-placement support services are currently available for military families fostering and adopting; the feasibility of establishing additional necessary support services; and recommendations for implementing additional pre- and post-placement services. The report should also include any recommendations from the Secretary to address any barriers and challenges faced by military families to fostering and adopting.

Implicit Bias Training

The Committee commends the Marine Corps for recognizing the importance of implicit bias and incorporating unconscious bias training when preparing for women joining combat units. Unconscious biases, sometimes called implicit biases, are a set of automatic preferences so ingrained in people's brains that they often do not realize they have them. Implicit or unconscious bias disproportionately impacts racial/ethnic minorities and women. Comprehensive bias training is research informed and addresses implicit/unconscious biases. The Marine Corps, civilian educational institutions, and the technology and business private sectors have addressed this by including both implicit and explicit bias training. Therefore, the committee encourages the Secretary of Defense to study the feasibility of expanding its current training to include research-informed training addressing implicit bias.

Incorporating Consideration of Advanced Technologies into Professional Military Education

The Committee understands that a return to great power competition represents a key security challenge for the United States in the evolving global threat environment. The rapid development of new technologies in fields including anti-access and area denial weapons, cyber-warfare and electronic warfare, information systems, and other asymmetric fields threatens the U.S. military's historical overwhelming advantage in conventional warfare. Furthermore, the Committee is aware that these technologies are increasingly commercial and therefore available to both state and non-state actors.

The Committee notes that, with this threat in mind, the Department of Defense is investing heavily in technology to enable continued American military supremacy in an environment characterized by "rapid technological advancements and the changing character of war," per the National Defense Strategy (NDS). The Committee is also aware that these areas for investment include advanced computing, "big data" analytics, artificial intelligence, autonomy, robotics, directed energy, hypersonics, and biotechnology.

The Committee notes that effective implementation of the NDS require not just research, development and fielding of these ad-

vanced technologies, but also the integration of these technologies into tactical, operational and strategic thought, planning, and training. The Committee is also aware that experimentation and exploration of these technologies is currently occurring in proof of concept programs, exercises, and in operational deployments.

The Committee believes, however, that fully integrating advanced technologies into military strategy, operations, and tactics requires a comprehensive approach to considering the impact of these technologies at all levels of decision-making. The Committee is aware of the key role professional military education (PME) programs play in educating military leadership and providing them the conceptual framework for decision-making. The Committee commends the efforts of the Department of Defense to align functions to support the goals of the NDS and look for ways to improve lethality. However, it is unclear how decision making under this new strategy is being included in PME education materials.

The Committee therefore directs the Secretary of Defense to brief the House Committee on Armed Services on potential ways in which the Department of Defense can appropriately integrate consideration of next generation technologies into professional military education programs for military officers and enlisted personnel. This brief should include consideration of the appropriate PME schools, institutions or levels; address the feasibility of expanding civilian enrollment at PME institutions in order to expose military leaders to relevant commercial technology leaders; determine the extent to which these technological developments may require changes to existing warfighting doctrine or operational plans; and identify any relevant opportunities for improvement to the service-level or joint PME programs, as well as any other topics the Secretary deems appropriate, and should be delivered to the Committee by December 1, 2018.

Interagency Recruitment Cooperation Efforts

The committee notes that the current and future recruiting environment for military service is and will continue to be difficult with a population that has a lower propensity to serve, a recruit pool that is less qualified, and an economy that is robust. In this environment, the competition for this small pool of recruits will be fierce within the Department of Defense between the services, as well as with other Government agencies. Cooperation between Government agencies with regard to recruits will be critical going forward, especially those recruits with a propensity to serve but who might not be physically qualified for one service or the other.

Therefore, the committee directs the Secretary of Defense to provide a briefing to the House Committee on Armed Services by February 1, 2019, on interagency cooperation with regard to recruiting for military and other Government agency service. Elements of the briefing shall include the following:

- (1) an assessment by the Secretary of the value of cross-Government agency recruitment and how that would affect Department of Defense recruitment efforts;
- (2) what policies the Secretary could put in place in cooperation with other agencies to assist with future recruitment needs;

(3) what current coordination is being conducted with other agencies to assist when recruiting for the Department of Defense or other agencies; and

(4) what recommendations the Secretary would make on inter-agency recruiting cooperation.

Joint Professional Military Education and Professional Military Education Curricula

The committee believes that quality Professional Military Education (PME) and Joint Professional Military Education (JPME) are integral to developing tomorrow's strategic leaders. The military services provide PME at their respective staff and war colleges in order to educate service members in their core competencies according to service needs. The JPME program places emphasis on preparing leaders to conduct operations as a joint force in complex operating environments. Currently, JPME is provided at multiple sites across the country, including the services' staff and war colleges and the National Defense University.

The committee remains concerned that the quality and effectiveness of the faculty and curricula at JPME and PME institutions, particularly senior-service colleges, can vary based on service tradition, school location, and faculty. In addition, the committee is concerned that certain important subject areas may be excluded from the curricula because of time constraints.

The committee supports the ongoing efforts of the Chairman of the Joint Chiefs of Staff and the Secretaries of the Military Departments to evaluate and improve the quality of the education provided at JPME and PME institutions. As a part of this evaluation, the committee encourages the Chairman of the Joint Chiefs of Staff and the Secretaries of the Military Departments to consider whether JPME and PME curricula include exposure to whole-of-government education, including enrolling students from other Federal departments and agencies, hiring faculty from other Federal departments and agencies, and providing courses and programs designed to reinforce the importance of whole of government.

Military Academy Preparatory School Class Enrollment

The committee notes that the mission of the military academies' preparatory schools is to motivate, prepare, and evaluate selected candidates in an academic, military, moral, and physical environment in order to perform successfully at the military academy. The preparatory school achieves this mission by qualifying cadet candidates for academy appointments, and developing in those students a sense of accomplishment and self-confidence that enables them to succeed in a military academy's demanding environment. Admission to a preparatory school is competitive, with selections made by selection boards. The boards select both enlisted Active Duty and civilian applicants who have applied for admission to an academy, but were not selected for direct entry.

The committee is concerned that the average military academy preparatory school class consists of only approximately 25 percent prior-enlisted service members. The committee believes that this percentage is extremely low, and that the services should focus their outreach efforts for attendance to the preparatory schools on

the qualified enlisted force who has already exhibited propensity to serve.

Therefore, the committee directs the Secretaries of the Air Force, the Army and the Navy to develop individual service plans with the goal of increasing the enrollment of enlisted service members at each of the Service Academy Preparatory Schools. The Secretaries concerned shall also provide briefings to the Committee on Armed Services of the House of Representatives by February 1, 2019, on the new outreach plan and their recommendations for increased enlisted member enrollment.

Report on Certain Victims' Rights in Connection with Prosecution of Sex-Related Offenses

The committee is concerned about the implementation of section 534 of the Carl Levin and Howard P. "Buck" McKeon National Defense Authorization Act for Fiscal Year 2015 (Public Law 113-291), which enhances victims' rights in connection with the prosecution of certain sex-related offenses. Specifically, the committee is interested in how the Department of Defense has implemented the requirement that victims be consulted in order to solicit their preference whether the covered offenses should be prosecuted by court-martial or in a civilian court with jurisdiction over the offense. The committee notes that the annual Department of Defense Sexual Assault Prevention and Response Office report contains statistics on the number of cases prosecuted in civilian courts, but it is not evident from this data whether these civilian prosecutions were in accordance with the wishes of the victim or simply the only option for prosecution of the offenses.

Therefore, the committee directs the Department of Defense Inspector General to submit a report to the Committees on Armed Services of the Senate and the House of Representatives not later than April 1, 2019, on the results of a review of the Department of Defense and military departments' processes for consulting victims in cases in which section 534 applies. The report shall include a description of who is responsible for consulting with the victim to determine the preference for prosecution; an analysis of whether the military services are complying with the notification requirement; the method used to record the victim's preference and convey the information to the relevant authorities; and an analysis of whether the policy is applied consistently across the military services.

Report on Legal Training for Commanders

The committee understands that U.S. military commanders are entrusted with a wide range of responsibilities that are necessary to carry out their designated missions. Many of these responsibilities involve interpretation of and compliance with legal requirements. While the committee understands that judge advocates and other legal professionals advise the commanders on many of these subjects, the committee is interested in the full extent and substance of the legal training that commanders receive on the legal authorities with which they have been entrusted.

Therefore, the committee directs the Comptroller General of the United States to submit a report to the Committees on Armed

Services of the Senate and the House of Representatives not later than September 1, 2019, on the following questions:

(1) What legal training do officers receive throughout their careers? Who is responsible for this training, and who certifies satisfactory completion?

(2) What legal and ethics training do commanders receive prior to taking command? At what level of command are officers required to attend this training? What issues are covered during this training, and is the training tailored to the type of command the officer is assigned to?

(3) To what extent and what type of training do commanders receive regarding the following topics: military justice; contract and fiscal law; administrative law; and international and operational law?

(4) To what extent are the military services complying with their legal training requirements for new commanders?

(5) What resources are available to commanders to assist them in carrying out their legal responsibilities?

(6) What procedures are in place to receive feedback on the quality and relevance of the legal training provided to commanders? Is that feedback incorporated into periodic curriculum reviews?

Report on Processes for Federal Recognition of Promotion of Commissioned National Guard Officers

The committee is concerned that delays in federal recognition of National Guard promotions may be increasing and that these lengthy delays result in National Guard officers being deployed and doing the work of the rank to which they are being promoted while receiving the pay of their current rank. The committee notes that such delays deprive National Guard members of the pay to which they are entitled, reduce their time in rank, and may pose retention problems by giving National Guard members an incentive to leave military service.

Therefore the committee directs the Secretary of the Army and the Secretary of the Air Force to each undertake a comprehensive review of the policies and procedures of the Department of the Army and the Department Air Force, as applicable, for the Federal recognition of promotions of commissioned officers of the Army National Guard and the Air National Guard, as the case may be, and to report the results of this review to the congressional defense committees by December 1, 2018. The report shall:

(1) describe the average time between receipt by the military department concerned of scrolls (as defined in Department of Defense Instruction 1310.02) indicating the promotion of commissioned officers in the National Guard and their publication during the five-year period ending on the date of the House passage of the National Defense Authorization Act for Fiscal Year 2019;

(2) describe and assess various approaches for streamlining the process by which the military department concerned approves Federal recognition scrolls, including through—

(A) additional automation;

(B) reduction in required steps; or

(C) delegation of authority to conduct required reviews; and

(3) make recommendations for legislative or administration action to implement an approach under paragraph (2) if the Sec-

retary concerned considers such approach feasible, advisable, and appropriate.

U.S. Air Force Pilot Staff Requirements Validation

The committee remains concerned that the Air Force is having difficulty addressing a persistent pilot shortage. Pilots are vital to the readiness of the Air Force and these shortages may hamper its ability to carry out the 2018 National Defense Strategy, especially as it relates to retention and recruitment within the fighter pilot community. The committee notes that the Air Force provided written testimony to the committee on March 21, 2018, stating that the Air Force has a shortage of 1,812 pilots across all mission areas, with the most acute shortage being fighter pilots. The Air Force admits it is taking risk by under-filling its required pilot and rated staff officer billets. However, the committee is concerned about the current requirement for pilots in staff billets and the fact that the requirements for pilot skills in these positions have not been validated, nor the requirements reviewed, in many years. An assessment of this sort could result in a change in the overall number of required pilots on the staff.

Therefore, the committee directs the Secretary of the Air Force to evaluate and validate every pilot or rated officer required staff billet across the Air Force and joint community enterprise, and to address the recommendations of the Comptroller General “Report on Military Personnel: DOD Needs to Reevaluate Fighter Pilot Workforce Requirements,” (GAO-18-113), and to provide a report to the Committee on Armed Services of the House of Representatives not later than December 7, 2018, on the methodology and the results of the evaluation and validation as well as the implementation of the recommendations of the GAO Report.

U.S. Special Operations Command Preservation of the Force and Families Program Contract Support

The committee recognizes that U.S. special operations forces (SOF) and their families are under unique and continued stresses, including psychological, social, spiritual, and human performance strains. The committee commends the success of the Preservation of the Force and Family (POTFF) program. It has helped to alleviate the magnitude of these stresses and break the stigma of seeking necessary help. It has also decreased rehabilitation time following physical injuries.

The committee understands U.S. Special Operations Command (SOCOM) and component commands have engaged in dialogue with the military services on scaling portions of the program to the broader force. The committee supports this dialogue and encourages the transition by SOCOM of resources and management for aspects of POTFF that are scaled to the military services, as well as a continual assessment of what remain as SOF-specific needs.

However, with POTFF’s contract due to expire this fiscal year, the committee is concerned by the request for proposal submitted by SOCOM. It once again indicates a domineering focus on human performance, to the detriment of a distinct emphasis on mental, emotional, and behavioral health. The committee notes that of the \$88.0 million for POTFF in the budget request for fiscal year 2019,

only \$13.0 million was to support the Psychological Performance Program to promote, maintain, and restore the psychological and behavioral health of SOF.

With these concerns in mind, the committee directs the Commander of Special Operations Command, in coordination with the Secretary of Defense, to provide a briefing to the House Committee on Armed Services by September 14, 2018, on the future of POTFF. The briefing shall include:

(1) how the command plans to balance the emphasis put on the four pillars of the program;

(2) an analysis of mental and behavioral health program gaps, to include an in-depth look into POTFF's suicide-prevention programming; and

(3) how SOCOM will work with services to identify successful elements that can be transitioned to assist conventional forces and families.

LEGISLATIVE PROVISIONS

SUBTITLE A—REGULAR COMPONENT MANAGEMENT

Section 501—Expansion of Authority to Award Constructive Service Credit for Advanced Education, Experience, or Training, upon Original Appointment as a Commissioned Officer

This section would amend sections 533 and 12207 of title 10, United States Code, to permit the Secretaries of the military departments additional discretion to determine the grade of certain individuals receiving an original appointment as a regular or reserve commissioned officer.

Section 502—Surface Warfare Officers Career Paths

This section would amend chapter 602 of title 10, United States Code, by adding a new section that would require the Secretary of the Navy to establish two career paths for surface warfare officers. The Secretary would be required to establish one career path in ship engineering systems and another in ship operations and combat systems, not later than January 1, 2021.

Section 503—Authority of Selection Boards To Recommend Officers of Particular Merit Be Placed at the Top of the Promotion List

This section would amend sections 616, 618, and 624 of title 10, United States Code, to allow officer promotion boards to recommend officers of particular merit be placed at the top of the promotion list, and to allow the Secretary of the military department concerned to re-order the promotion list accordingly.

Section 504—Deferred Deployment for Members Who Give Birth

This section would standardize new mother deployment deferral policy across the military services, to include the Coast Guard.

Section 505—Codification of Lowered Grade for Retired Officers or Persons Who Committed Misconduct in a Lower Grade

This section would amend section 1370 of title 10, United States Code, to clarify that the Secretary concerned has the authority to find that an officer who committed misconduct in a lower grade has not served satisfactorily in any grade equal to or higher than that lower grade.

Section 506—Retention of Military Technicians Who Lose Dual Status under Certain Circumstances

This section would amend section 10216 of title 10, United States Code, to prevent dual-status military technicians who reach their time-in-service end date from losing their jobs due to separation from military service.

SUBTITLE B—RESERVE COMPONENT MANAGEMENT

Section 511—Placement of National Guard Military Technicians (Dual Status) in the Competitive Service

This section would amend section 10508 of title 10, United States Code, to designate dual-status military technician positions that were converted to title 5 civilian employees in the fiscal year 2017 and 2018 National Defense Authorization Acts as competitive, not excepted, service positions.

Section 512—Authorized Strength and Distribution in Grade

This section would amend section 12011(a) and section 12012(a) of title 10, United States Code, to increase the total number of available control grade positions, which includes O-4, O-5, O-6, E-8, and E-9, authorized for the Air National Guard.

Section 513—National Guard Promotion Accountability

This section would amend section 14308(f) of title 10, United States Code, to allow a National Guard officer's date of rank to be backdated, after Federal recognition is granted, and would require the Secretaries concerned to report to the Congress when a promotion scroll exceeds 200 days between date received and its date of publication.

Section 514—Extension of Authority for Pilot Program on Use of Retired Senior Enlisted Members of the Army National Guard as Army National Guard Recruiters

This section would extend the authority of the pilot program on use of retired senior enlisted members of the Army National Guard as Army National Guard recruiters until 2021.

SUBTITLE C—GENERAL SERVICE AUTHORITIES AND CORRECTION OF
MILITARY RECORDS

Section 521—Enlistments Vital to the National Interest

This section would modify section 504(b) of title 10, United States Code, to establish additional requirements for enlistments vital to the national interest.

Section 522—Statement of Benefits

This section would require the Secretary of Defense to provide Active Duty and Reserve service members an authoritative assessment of their earned GI Bill benefits prior to separation, retirement, or release from Active Duty or demobilization.

Section 523—Modification to Forms of Support That May Be Accepted in Support of the Mission of the Defense POW/MIA Accounting Agency

This section would modify the forms of support that may be accepted by the Defense POW/MIA Accounting Agency (DPAA) to include public-private partnerships and the acceptance of gifts that facilitate the accounting of missing persons within the purview of the DPAA mission.

Section 524—Correction of Military Records Website

This section would amend section 1552(a)(5) of title 10, United States Code, to require the Secretary concerned to publish summaries, indexed by subject matter, of all decisions published on the board for correction of military records website of each military department.

Section 525—Modification of DD Form 214 to Include Email Addresses

This section would require the Secretary of Defense to modify the Certificate of Release or Discharge from Active Duty (DD Form 214) to include a specific block explicitly identified as the location in which a member of the Armed Forces may provide one or more email addresses by which the member may be contacted.

Section 526—Public Availability of Reports Related to Senior Leader Misconduct

This section would require the Secretary of Defense and the Secretaries of the military departments to publish, on a public website, redacted reports of substantiated investigations of misconduct in which the subject of the investigation was an officer in the grade of O-7 and above, including officers who have been selected for promotion to O-7, or a civilian member of the Senior Executive Service.

Section 527—Appointment and Training of Personnel to Staff the Board of Corrections for Military and Naval Records

This section would require the Secretary of Defense, in consultation with the service secretaries and the joint chiefs, to provide for

the appointment and training of qualified personnel to join the staff of the Boards of Correction for Military and Naval Records, and would authorize \$3.0 million to carry out the training, to be taken from the Military Personnel Appropriations line.

SUBTITLE D—MILITARY JUSTICE

Section 531—Minimum Confinement Period Required for Conviction of Certain Sex-Related Offenses Committed by Members of the Armed Forces

This section would amend section 856(b)(1) of title 10, United States Code (article 56(b)(1) of the Uniform Code of Military Justice), to require a minimum confinement period of 2 years for individuals convicted of certain sex-related offenses.

Section 532—Punitive Article in the Uniform Code of Military Justice on Domestic Violence

This section would amend subchapter X of chapter 47 of title 10, United States Code (the Uniform Code of Military Justice), to add a new section 928a regarding domestic violence.

Section 533—Defense Advisory Committee on Investigation, Prosecution, and Defense of Sexual Assault in the Armed Forces

This section would amend section 546 of the Carl Levin and Howard P. “Buck” McKeon National Defense Authorization Act for Fiscal Year 2015 (Public Law 113–291) to require the Department of Defense to provide information to the Defense Advisory Committee on Investigation, Prosecution, and Defense of Sexual Assault in the Armed Forces that the panel (by majority vote) deems necessary to carry out its duties.

Section 534—Modification of Military Rules of Evidence To Exclude Admissibility of General Military Character Toward Probability of Innocence in Any Offense Not Strictly Related to Performance of Military Duties

This section would amend Rule 404(a) of the Military Rules of Evidence contained in the Manual for Courts-Martial to provide that the general military character of an accused is not admissible for the purpose of showing the probability of innocence of the accused unless the offense the individual is charged with is strictly and solely related to the performance of military duties.

Section 535—Improved Crime Reporting

This section would require the Secretary of Defense to establish a consolidated tracking process that provides the Department of Defense increased visibility on the military departments’ required crime report submissions to the Federal Bureau of Investigation.

Section 536—Oversight of Registered Sex Offender Management Program

This section would require the Secretary of Defense to designate a single official or entity within the Office of the Secretary of Defense to serve as the official or entity with principal responsibility

for providing oversight of the registered sex offender management program of the Department.

SUBTITLE E—OTHER LEGAL MATTERS

Section 541—Security Clearance Reinvestigation of Certain Personnel Who Commit Certain Offenses

This section would amend section 1564 of title 10, United States Code, to require the Secretary of Defense to conduct a security clearance background reinvestigation under expedited procedures for flag officers and Senior Executive Service personnel employed by the Department of Defense convicted of sexual assault, sexual harassment, fraud against the United States, or other serious crimes.

Section 542—Consideration of Application for Transfer for a Student of a Military Service Academy Who Is the Victim of a Sexual Assault or Related Offense

This section would require the Secretary concerned to expedite the consideration and approval of an application for an inter-academy transfer submitted by a cadet of a military academy who has been the victim of sexual assault.

Section 543—Standardization of Policies Related to Expedited Transfer in Cases of Sexual Assault

This section would require the Secretary of Defense to standardize the expedited transfer procedures for service members who are the victim of sexual assault, regardless of whether their cases are handled by the Sexual Assault Prevention and Response Program or the Family Advocacy Program, and would require the Secretary to establish a transfer policy for service members whose dependent is the victim of sexual assault perpetrated by an unrelated service member.

Section 544—Development of Oversight Plan for Implementation of Department of Defense Harassment Prevention and Response Policy

This section would require the Department of Defense to develop an oversight plan and provide a report to the Committees on Armed Services of the Senate and the House of Representatives for implementation of the Department of Defense Harassment Prevention and Response policy.

Section 545—Development of Resource Guides Regarding Sexual Assault for the Military Service Academies

This section would require each Superintendent of a military service academy to develop and maintain a resource guide on sexual assault, and distribute the guide to all cadets and midshipmen at the academies.

Section 546—Report on Victims in MCIO Reports

This section would require the Secretary of Defense, through the Defense Advisory Committee on Investigations, Prosecutions, and

Defense of Sexual Assault in the Armed Forces, to provide a report every 2 years on the frequency with which victims of sexual offenses identified in military criminal investigative organization cases are accused of or punished for misconduct considered collateral to the investigation of sexual assault.

SUBTITLE F—MEMBER EDUCATION, TRAINING, RESILIENCE, AND
TRANSITION

Section 551—Permanent Career Intermission Program

This section would amend chapter 40 of title 10, United States Code, by adding section 710 and removing all references to the program as a pilot program, making the Career Intermission Program a permanent authority.

Section 552—Improvements to Transition Assistance Program

This section would amend section 1142 of title 10, United States Code, to establish counseling pathways, require transmission of the Joint Service transcript, and allow transitioning service members to select a portion of the content covered during the transition assistance period of instruction.

Section 553—Employment and Compensation of Civilian Faculty
Members at the Joint Special Operations University

This section would amend section 1595(c) of title 10, United States Code, to add the Joint Special Operations University to the list of covered institutions with authority to hire civilian faculty under title 10.

Section 554—Program To Assist Members of the Armed Forces in
Obtaining Professional Credentials

This section would amend section 2015 of title 10, United States Code, to further assist members of the Armed Forces in obtaining professional credentials.

Section 555—Extension of Pilot Program To Assist Members in
Obtaining Post-Service Employment

This section would amend section 555 of the Carl Levin and Howard P. “Buck” McKeon National Defense Authorization Act for Fiscal Year 2015 (Public Law 113–291) to extend the authority for the pilot program under this section to September 30, 2023.

Section 556—Direct Employment Pilot Program for Members of the
Reserve Components and Veterans

This section would allow the Secretary of Defense to carry out a pilot program that provides enhanced job placement and employment assistance for members of the National Guard and Reserve.

Section 557—Extended Duration of Availability of Military OneSource Program Services for Members of the Armed Forces Upon Their Separation or Retirement

This section would extend the duration of availability of Military OneSource program services for members of the military departments and their immediate family members from 180 days following their separation or retirement to at least 1 year after their separation or retirement.

Section 558—Comptroller General Briefing and Report on Permanent Employment Assistance Centers

This section would require the Comptroller General of the United States to provide a briefing to the Armed Services Committees of the Senate and House of Representatives, with a report to follow, on employment assistance required under law and related information regarding civilian employment certification.

Section 559—Activities To Increase Awareness of Apprenticeship Programs

This section would require the Secretary of Defense to include, as part of service members' transition counseling, information on apprenticeship programs and the use of veterans' benefits to pay for these programs.

SUBTITLE G—DEFENSE DEPENDENTS' EDUCATION AND MILITARY FAMILY READINESS MATTERS

Section 561—Enhancement and Clarification of Family Support Services for Family Members of Members of Special Operations Forces

This section would amend section 1788a of title 10, United States Code, to provide greater flexibility to support the family requirements to tactical units by increasing funds available for Major Force Program 11 from \$5.0 million to \$10.0 million. This section would also define the term "family support services" to provide clarity and authorize proper expenditures of appropriated funds.

Section 562—Additional Matters for Assessment and Report on Childcare Services of the Department of Defense

This section would add additional issues for assessment related to military family childcare under section 575 of the National Defense Authorization Act for Fiscal Year 2018 (Public Law 115-91).

Section 563—Continued Assistance to Schools With Significant Numbers of Military Dependent Students

This section would authorize \$40.0 million for the purpose of providing assistance to local educational agencies with military dependent students and \$10.0 million for local educational agencies eligible to receive a payment for children with severe disabilities.

Section 564—Department of Defense Education Activity
Misconduct Database

This section would require the Secretary of Defense to establish a comprehensive policy and database regarding juvenile misconduct occurring in Department of Defense Education Activity schools.

Section 565—Report on Assessment of Frequency of Permanent
Changes of Station of Members of the Armed Forces on Employ-
ment Among Military Spouses

This section would require the Secretary of Defense to provide a report on the impact that frequent permanent changes of station of service members have on military spouses.

SUBTITLE H—DECORATIONS AND AWARDS

Section 571—Limitations on Authority To Revoke Certain Military
Decorations Awarded to Members of the Armed Forces

This section would amend title 10, United States Code, to add a new section that restricts the President and service secretaries from revoking a military decoration after the actual award of the military decoration to the service member except under limited circumstances.

Section 572—Authorization for Award of Expeditionary Medal to
Certain Marines for Actions on June 8, 1995

This section would authorize the Secretary of Defense to award the Armed Forces Expeditionary Medal to a member or former member of the 24th Marine Expeditionary Unit for the mission to rescue Captain Scott O'Grady.

SUBTITLE I—MISCELLANEOUS REPORTS AND OTHER MATTERS

Section 581—Public Availability of Top-Line Numbers of Deployed
Members of the Armed Forces

This section would require the Secretary of Defense to publicly make available the top-line numbers of members of the Armed Forces deployed for each country.

The Secretary would be able to waive the requirement in the case of a sensitive military operation if he determines the public disclosure of such numbers could reasonably be expected to provide an operational military advantage to an adversary, or the members of the Armed Forces are deployed for less than 30 days.

Section 582—Criteria for Interment at Arlington National
Cemetery

This section would require the Secretary of the Army to establish revised interment criteria for Arlington National Cemetery that preserve Arlington National Cemetery as an active burial ground well into the future.

Section 583—Report on General and Flag Officer Costs

This section would require the Secretary of Defense to submit a report to the congressional defense committees on the costs of supporting general and flag officers.

Section 584—Report on Outside Employment of Senior Personnel

This section would require the Secretary of Defense to report on senior leader outside employment requests and activities.

Section 585—Limitation on Use of Funds Pending Submittal of Report on Army Marketing and Advertising Program

This section would limit the use of funds to not more than 60 percent of the amounts authorized to be appropriated by this Act for the Army Marketing and Research Group for fiscal year 2019, used for advertising and marketing activities to be obligated or expended until the Secretary of the Army submits a report to the Committees on Armed Services of the Senate and the House of Representatives on recommendations of the Army Audit Agency's audit of the Army's Marketing and Advertising Program concerning contract oversight and return on investment.

TITLE VI—COMPENSATION AND OTHER PERSONNEL BENEFITS

ITEMS OF SPECIAL INTEREST

Availability of Alcohol at Military Commissary Stores

The Committee notes the recent announcement made by the Department of Defense on the availability of beer and wine at military commissary stores in order to provide a similar shopping experience to commercial grocery stores.

In light of these measures, the Committee directs the Secretary of Defense to conduct a study on the feasibility of expanding commissary alcohol sales to include the sale of distilled spirits. The study shall include a comparison of state and local laws that could impact the expansion of the sale of distilled spirits. The study shall also include an estimate on revenue and sales that could result from such an expansion. The Secretary shall provide a briefing to the Committee on Armed Services of the House of Representatives on the detailed findings of the study no later than September 28, 2018.

Examination of Flexible/Noncontinuous Maternity Leave

The Committee commends the Department for granting up to 84 days for service members following child birth. Although current maternity and parental leave policies are a strong step in the right direction, more can be done to tailor leave to families' unique situations. Continuing its work from 2015 and 2016, Defense Advisory Committee on Women in the Services (DACOWITS) examined issues and concerns surrounding pregnancy, the postpartum period, and parenthood. There is evidence to suggest that Service members' ability to maintain work-life balance is one of the military's

top retention challenges, with service members expressing concern that a military career is incompatible with having a family. In its most recent report, DACOWITS recommends the Secretary of Defense consider allowing the Military Services to permit flexible (noncontinuous) use of maternity and parental leave if requested by the military parent(s). Allowing flexible (noncontinuous) use of maternity and parental leave is a strategy mentioned by DACOWITS and modeled by leading companies in the private sector. This is one potential way to support a servicemember after a child joins the member's family. Noncontinuous leave, when requested, could help servicemembers better balance their unique family needs during critical junctures of their lives and, in turn, help support retention efforts. Therefore, not later than December 1, 2018 the committee directs the Secretary of Defense to submit a report assessing the feasibility of permitting flexible (noncontinuous) use of maternity leave.

Imminent Danger Pay Adjudication Process

The committee acknowledges that servicemembers continue to serve in locations at daily risk of harm from hostile fire, explosions, or other hostile actions, and are thus entitled to Imminent Danger Pay. The committee understands that, regarding the locations and time periods for Imminent Danger Pay eligibility, the final adjudicating authority for the Department of Defense is the Under Secretary of Defense for Personnel and Readiness, who assesses requests submitted by geographic Combatant Commanders. The committee has received recent testimony that this request, adjudication, and approval process can span many months, during which servicemembers in harm's way are not receiving Imminent Danger Pay. So that Congress may improve its oversight of the timeliness of Imminent Danger Pay review and approval, the committee directs the Under Secretary of Defense for Personnel and Readiness to submit a report to the Committee on Armed Services of the House of Representatives, not later than August 31, 2018, listing, for the period 2008–2018:

- (1) each request for Imminent Danger Pay made by a geographic Combatant Commander, including details on the underlying justification for Imminent Danger Pay;
- (2) the date of submission for each request;
- (3) the adjudication status and/or ultimate determination for each request; and,
- (4) date of ultimate determination, where applicable.

Small Business Purchasing Contracts for Fresh Fruits and Vegetables for the Defense Commissary Agency ("DeCA")

The Committee commends DeCA for its efforts to achieve cost savings and provide patrons with an improved shopping experience. DeCA strives to maintain a good record of including small businesses in its acquisition practices including the acquisition of fresh fruits and vegetables through utilizing small businesses. These small businesses are best positioned to provide quality and fresh produce because of their proximity to commissaries and have traditionally provided these products at competitive prices. As the transformation proceeds the Committee encourages DeCA to con-

tinue to utilize small businesses for the acquisition of quality fresh fruits and vegetables. Therefore, the Committee directs the Secretary of Defense to submit a report to the House Committee on Armed Services by December 1, 2018 on the efforts to continue to utilize small businesses for fresh fruits and vegetables.

LEGISLATIVE PROVISIONS

SUBTITLE A—PAY AND ALLOWANCES

Section 601—Prompt Review of Request for Imminent Danger Pay

This section would amend section 310 of title 37, United States Code, to require the Secretary of Defense to issue a determination, within 90 days, when a geographic combatant commander submits a request to add a location to the Imminent Danger Pay eligibility list.

Section 602—Application of Basic Allowance for Housing to Members of the Uniformed Services in the Virgin Islands

This section would amend section 403 of title 37, United States Code, to apply Basic Allowance for Housing to service members in the Virgin Islands.

Section 603—Mandatory Increase in Insurance Coverage Under Servicemembers' Group Life Insurance for Members Deployed to Combat Theaters of Operation

This section would amend section 1967(a)(3) of title 38, United States Code, to mandate, in the case of a member who elects to not be insured under a Servicemembers' Group Life Insurance plan at the full \$400,000 available, the member's insurance will automatically increase to \$400,000 if they are deployed to a combat zone.

Section 604—Military Housing Privatization Initiative

This section would assure that the Basic Allowance for Housing reduction directed by section 403 of title 10, United States Code, would not take effect in fiscal year 2019, ensuring that the Military Housing Privatization Initiative (MHPI) housing recapitalization efforts are not reduced. The committee remains concerned about the reduction in BAH and its effect on the recapitalization of these housing units. The committee believes that military families must be provided with on-base housing that is safe and periodically modernized. Additionally, this section would require the Secretary of Defense to present a plan to the Committees on Armed Services of the Senate and the House of Representatives by December 1, 2018, to provide for a permanent financial solution to the long term MHPI recapitalization problem.

Section 605—Per Diem Allowance Policies

This section would halt implementation of the 2014 Department of Defense per diem policy, direct the Secretary of Defense to issue a report on options to reduce travel costs, and require notification of any subsequent changes to the per diem policies following the report.

SUBTITLE B—BONUSES AND SPECIAL INCENTIVE PAYS

Section 611—One-Year Extension of Certain Expiring Bonus and Special Pay Authorities

This section would extend, through December 31, 2019, income replacement payments for Reserve Component members experiencing extended and frequent mobilization for Active Duty service; would extend two critical recruitment and retention incentive programs for Reserve Component health care professionals; would extend accession and retention incentives for nuclear-qualified officers; and would extend the consolidated special and incentive pay authorities added to subchapter II of chapter 5 of title 37, United States Code, by the National Defense Authorization Act for Fiscal Year 2008 (Public Law 110–181). Additionally, this section would extend the authority of the Secretary of Defense to prescribe a temporary increase in the rates of basic allowance for housing otherwise prescribed for a military housing area or a portion of a military housing area if the military housing area or portion thereof is located in an area covered by a declaration by the President that a major disaster exists.

SUBTITLE C—OTHER MATTERS

Section 621—Expansions of Installation Benefits to Surviving Spouses, Dependent Children, and Other Next of Kin

This section would amend section 1126 of title 10, United States Code, to require the Secretary of Defense to provide lifetime installation access to Gold Star spouses and their dependent children for the purposes of attending memorial services, visiting gravesites, and accessing survivor services to which they are already entitled. Additionally, this section would provide the Secretary discretion to provide similar access to other surviving family members and require access reciprocity between the military services, and would extend access to base commissaries, exchanges, and other recreation facilities for all remarried surviving military spouses for as long as they have surviving dependent children under their guardianship.

Section 622—Transportation on Military Aircraft on a Space-Available Basis for Disabled Veterans With a Service-Connected, Permanent Disability Rated as Total

This section would amend section 2641b of title 10, United States Code, to authorize space-available travel for disabled veterans with a service-connected, permanent disability rated as total.

Section 623—Extension of Parking Expenses Allowance to Civilian Employees at Recruiting Facilities

This section would amend section 481i of title 37, United States Code, to allow the Secretary of Defense to reimburse military and civilian employees of the Department of Defense for parking expenses at recruiting facilities.

Section 624—Advisory Boards Regarding Military Commissaries and Exchanges

This section would require the Secretary of Defense to direct installation commanders to establish an advisory board to advise commanders regarding the interests of patrons and beneficiaries of military commissaries and exchanges.

Section 625—Study and Report on Development of a Single Defense Resale System

This section would direct the Secretary of Defense to conduct a study to determine the feasibility of consolidating the military resale entities into a single defense resale system and would prohibit the use of funds in fiscal year 2019 for any action on consolidation by the Secretary of Defense.

TITLE VII—HEALTH CARE PROVISIONS

ITEMS OF SPECIAL INTEREST

Advanced Pain Management Fellows Program

The committee is aware of the importance of pain management health care providers across the Military Health System. More specifically, Certified Registered Nurse Anesthetists (CRNAs) are qualified pain practitioners who work in various practice settings to treat patients suffering from a wide range of acute and chronic pain conditions. CRNA chronic pain management practitioners are able to minimize the use of opioids to address chronic pain through the use of a multimodal approach that includes pharmacologic and non-pharmacologic pain mitigation strategies. Furthermore, the holistic approach that CRNA pain management practitioners employ when treating their chronic pain patients may reduce the reliance on opioids as a primary pain management modality, thus aiding in the reduction of potential adverse drug events related to opioids. The committee believes advanced pain management fellowship programs for CRNAs may enhance comprehensive pain management. The committee encourages the Secretary of Defense and the Secretaries of the military departments to consider advanced pain management fellowship programs for CRNAs as part of their respective long-term health education and training programs.

Athletic Trainers

The Committee understands that athletic trainers provide invaluable services to many people and organizations. However, the Committee notes that athletic trainers are not included on the TRICARE authorized provider list. Therefore the committee directs the Secretary of Defense to provide a briefing to the House Committee on Armed Services by 1 February 2019, that examines the potential uses of civilian athletic trainers within the TRICARE program, the reimbursement structure for athletic trainers for Medicare or other commensurate federal health programs, and an assessment of credentialing organizations that may help facilitate a standardized accreditation process for athletic trainers.

Chronic Traumatic Encephalopathy (CTE)

The Committee commends the Department of Defense for focusing a significant amount of research on studying military relevant injuries related to traumatic brain injury (TBI). The Committee acknowledges the importance of this research but would also like to better understand the potential link between TBI and chronic traumatic encephalopathy (CTE). CTE is a neurodegenerative disorder that involves the progressive accumulation of the protein tau in nerve cells within certain regions of the brain. As the tau protein accumulates, it disturbs function and appears to lead to symptoms seen in affected patients with multiple head trauma. In 2013, a senior Department of Defense official stated, “we are learning through the process of discovery the effects of repetitive mild traumatic brain injury and also how to prevent this issue of chronic traumatic encephalopathy”. Research on CTE has made significant advancements, but there are still gaps in research between TBI and CTE and understanding the status and progress of CTE efforts within the military is of critical importance. Therefore, the Committee directs the Secretary of Defense, in consultation with Secretaries of the military departments, to provide a report on CTE research in the military to the Committees on Armed Services of the House of Representatives and the Senate not later than 1 April 2019. This report shall include an assessment of the gaps between CTE and TBI research, current funding levels, ongoing research studies, CTE related initiatives to track and monitor service-members, and ongoing research efforts with the National Institutes of Health, executive agencies and civilian academic and research organizations.

Comprehensive Women’s Health for Active Duty

The committee recognizes that as the population of women in the military increases and more women seek additional opportunities in direct combat units and throughout the joint force, it is critical that women’s health is addressed comprehensively to optimize health and readiness. The committee notes the efforts of Navy Medicine with the establishment of the Women’s Health Clinical Community and the piloting of a comprehensive clinic at Naval Medical Center, San Diego, to address the complex needs of the Active Duty female population. Guided by feedback from clinical and non-clinical stakeholders and evidence-based research, the comprehensive women’s health clinic addresses women’s health in a patient-centered manner integrating perinatal, women’s health, mental health, and force readiness. As the Military Health System transitions military treatment facilities from the services to the Defense Health Agency, the committee encourages the inclusion of similar health clinics where appropriate to improve the readiness of women in the force.

Department of Defense Action Plan for Countering Infectious Diseases

The committee acknowledges the important work across the Department of Defense in the areas of preventive medicine and infectious disease. The 2014 Ebola outbreak demonstrated the need for a prompt and efficient response to a highly infectious disease out-

break. It also demonstrated that in the future, the U.S. military may be expected to assume a primary role in responding to such crises. The likelihood of a future regional and global infectious disease crisis is high, and the lessons learned from the 2014 Ebola crisis are directly applicable to the next potential infectious disease outbreak. It is therefore critical that the Department of Defense consider lessons learned from previous outbreaks. In addition, the Department must take action to promote force health protection from emerging infectious diseases while preparing to support missions in areas of increased risk or military operations supporting international response within a future public health emergency.

The committee therefore directs the Secretary of Defense, in coordination with the Assistant Secretary for Preparedness and Response at the Department of Health and Human Services, to provide a briefing to the House Committee on Armed Services not later than June 1, 2019, on the development of an action plan focused on efforts to counter emerging infectious disease threats. This briefing should identify capability gaps; actions taken to improve point-of-care diagnostics linked to disease surveillance and information-sharing networks; examine infectious disease emergency response teams; capabilities for medical evacuation of patients with high consequence infections; gaps in infection prevention and control standards; and research efforts focused on medical countermeasures.

Diabetes Prevention Program

The committee notes there are an estimated 30 million Americans with diabetes but only approximately 50,000 military members or their family members have the disease. However, the committee understands that the number of military beneficiaries with diabetes increases to more than 200,000 for retirees and their family members who are under the age of 65 and doubles to over 400,000 for those beneficiaries in the TRICARE for Life, Medicare-eligible population. If not treated, those with diabetes face higher risks of heart disease, kidney failure, limb amputations, and blindness. The committee is aware that Medicare expanded its diabetes prevention pilot program to provide coverage for all eligible at-risk beneficiaries with prediabetes who are aged 65 years or older, which has led to substantial health care savings as well as reducing the risk of patients developing type 2 diabetes. Given the detrimental health impact of diabetes as well as the increased costs incurred for direct treatment and comorbid medical complications of this disease, prevention programs addressing the vulnerability of at-risk TRICARE beneficiaries should be closely examined.

Therefore, the committee directs the Secretary of Defense to provide a briefing to the Committee on Armed Services of the House of Representatives not later than March 1, 2019, that examines the feasibility of using a similar program for TRICARE beneficiaries to prevent diabetes, improve health, and reduce health care costs.

Direct Report Language on National Guard Mental Health

The Committee remains concerned about the high rate of suicides in the reserve component and specifically, within the Army National Guard. The Committee is aware of numerous efforts by

the Chief of the National Guard Bureau to increase access and resources for Guardsmen to receive behavioral health treatment and support. The Committee also supports the establishment of a more integrated and holistic approach to resilience and fitness across the National Guard to better assess and improve the operational readiness of Guardsmen by carrying out pilot programs as required. Therefore, the Committee directs the Chief of the National Guard Bureau to provide a report to the House Committee on Armed Services not later than 1 March 2019, on the effectiveness of National Guard Bureau behavioral health programs like resiliency, suicide prevention, and other mental health outreach efforts.

Exceptional Family Member Program

The committee notes the purpose of the Exceptional Family Member Program (EFMP) is to provide comprehensive and coordinated community support, housing, educational, medical, and personnel services worldwide to military families with children with special needs. The committee is concerned that with over 100,000 families participating in the EFMP and inconsistent application of the Department of Defense policy across the services, there are families who are inadvertently disadvantaged by not having an individualized service plan. The committee is also concerned that the Department of Defense and military services lack the common performance measures and outcome metrics to assess assignment coordination and family support.

Therefore, the committee directs the Secretary of Defense to develop a plan consisting of common performance metrics for assignment coordination and family support, including best practices for performance measurement; a systematic process for evaluating the results of monitoring activities conducted by each of the military services program; and a review to determine the feasibility of creating interstate compacts as a requirement for schools supporting EFMP students.

The committee further directs the Secretary of Defense to provide a briefing to the Committee on Armed Services of the House of Representatives not later than March 1, 2019, on this plan.

GAO Audit of TRICARE

The committee notes that during the 2018 transition of TRICARE managed care support contractors, many issues related to network adequacy arose, which affected beneficiary access to care, specifically access to mental health services. There is evidence that mental health providers from the East and West regions received new contracts that include a proposed 30% discount off Civilian Health and Medical Program of the Uniformed Services (CHAMPUS) rates. With the limited options and resources that TRICARE beneficiaries currently have, these discounts will further jeopardize the mental health of military members, veterans, and their families who rely on TRICARE for their basic needs.

Therefore, the committee directs the Comptroller General of the U.S. Government Accountability Office (GAO) to conduct a study of the Defense Health Agency's (DHA) oversight of the transition of TRICARE managed care support contractors for its TRICARE regions. The Comptroller General shall provide a report to the Com-

mittee on Armed Services of the House of Representatives by September 30, 2019 detailing the extent to which (i) DHA provided guidance and oversight to the outgoing and incoming managed care support contractors; (ii) there were any issues with health care delivery, and if so, the effect, if at all, DHA's guidance and oversight during the transition period had on these issues as well as DHA's resolutions for remediating any managed care support contractors' deficiencies; and (iii) DHA has reviewed any lessons learned from prior transitions and incorporated them into the current transition.

Global Health Engagement Organization Consolidation

The committee recognizes the Department of Defense's efforts to develop global health engagement (GHE) capabilities that have become an integral part of combatant command security cooperation initiatives. These activities are used to improve military health professional readiness and interoperability by providing important training opportunities and experiences in operational settings with partner nations. However, the committee is concerned that there is duplication of effort with the Defense Institute for Medical Operations. The Defense Institute for Medical Operations supports overseas train-the-trainer programs on topics such as disaster management, force health protection, health surveillance, and other areas of health practice.

As part of the Uniformed Services University of Health Science (USUHS) mission to support military readiness, the Center for Global Health Engagement was established by the Department of Defense to provide an enterprise-wide hub for GHE to support the combatant commands with leadership and scholarship; strategic and operational support to the joint force; training and professional development; management of GHE-related research; and assessment, monitoring, and evaluation activities. The committee believes USUHS provides a vital nexus of education and training for the Military Health System and may serve as an important support platform that provides economies of scale related to training, education, campus locations, and infrastructure support.

Therefore, the committee directs the Secretary of Defense to provide a briefing to the House Committee on Armed Services not later than April 1, 2019, on the feasibility of consolidating and integrating the capabilities of the Center for Global Health Engagement and the Defense Institute of Medical Operations into one organization.

Improving Delivery of Mental Health Services

The committee acknowledges the efforts of the Department of Defense and the military services to diagnose and treat military members suffering from mental health disorders. The committee commends the Department for systems it has in place to ensure service members receive standard of care for disorders where clinical evidence has informed best practices for treatment. However, there is room for improvement: the MHS lacks an enterprise wide system to accurately and consistently track care, cost, and implementation of evidence based quality medical and behavioral health therapeutic services for mental health disorders. The committee directs the Secretary of Defense to provide a briefing to the Committee on

Armed Services of the House of Representatives not later than December 1, 2018 on the following: (1) feasibility study for creating a formalized methodology for tracking, measuring, and reporting across the MHS to ensure delivery of cost effective, evidence based quality treatments; (2) data and analysis to assist the committee in determining whether there are challenges to implementing evidence based mental health treatments for military personnel; (3) recommendations for addressing the current translation of innovative biomarker and neuroimaging diagnostics and research findings into practice; (4) any other matters the Secretary of Defense believes are relevant to this issue.

Improving Health Care Choices for Severely Injured Service Members

The committee seeks to better serve severely disabled veterans who are entitled to hospital insurance benefits under part A of title XVIII of the Social Security Act. The committee directs the Secretary of Defense, in coordination with the Secretary of Human Health Services and the Commissioner of Social Security, to report on the total number of individuals who are retired from the Armed Services under chapter 61 of title 10, United States Code; entitled to hospital insurance benefits under part A of title XVIII of the Social Security Act pursuant to receiving benefits for 24 months as described in subparagraph (A) or (C) of section 226(b)(2) of such Act (42 U.S.C. 426(b)(2)); and because of such entitlement, are no longer enrolled in TRICARE Prime or TRICARE Select (as those terms are defined in section 1072 of title 10, United States Code) under chapter 55 of title 10, United States Code. The committee further directs the Secretary to submit the results of the report to the House Committee on Armed Services by December 1, 2018.

Joint Advanced Orthopedic Surgical Training

The committee is aware of the importance of limiting musculoskeletal injuries (MSKI), which on average result in 21,000 shoulder and knee arthroscopies affecting service members per year. The committee also recognizes that military orthopedic surgeons may be challenged to participate in civilian training partnerships to maintain or learn specialized techniques needed to care for military beneficiaries due to operational missions. These training challenges may have a significant impact on both the readiness of military personnel and the costs associated with MSKI for the Department of Defense. The committee encourages the Secretary of Defense and the Secretaries of the military departments to consider joint advanced orthopedic surgical training partnerships as an integral component of their respective long-term health education and training programs.

Mental Health Care in the Military Health System

The committee commends the Department of Defense and military services' significant efforts over the past decade to aggressively improve treatment of traumatic brain injury (TBI), post-traumatic stress disorder (PTSD), chronic traumatic encephalopathy (CTE), and other mental health issues. The committee also recognizes the importance of research and innovation being made in the

treatment of brain disease and the need to improve collaboration between the Department of Defense, the National Institutes of Health, the Department of Veterans Affairs, and medical research translation offices at major universities. As the Military Health System transitions the operations of the military treatment facilities (MTF) from the military services to the Defense Health Agency, the committee notes this area of research and treatment needs aggressive oversight.

Therefore, the committee directs the Secretary of Defense, in coordination with the Secretaries of the military departments, to submit a report to the Committees on Armed Services of the Senate and the House of Representatives not later than April 1, 2019, on the plan for the Military Health System to provide mental health care services as part of the transition of the MTFs. This report shall include an assessment of how mental health care providers will be arranged within the command structure of the Defense Health Agency, how mental health care policy and processes will be managed within the Defense Health Agency to deliver mental health care services to members of the Armed Forces and covered beneficiaries; the ability of each service Surgeon General to maintain the readiness of the military health workforce to deliver mental health care services operationally in support of deployed forces. In addition, this report shall include a plan to accelerate innovation and delivery of treatments for TBI, CTE and PTSD to members of the Armed Forces and covered beneficiaries through improved coordination of behavioral health research and development efforts across the federal government, academic institutions, and industry; inclusion of evidence-based suicide prevention programs; promotion of acquisition strategies that utilize other transaction authorities to accelerate development and delivery of promising breakthrough therapies for TBI, CTE and PTSD; facilitation of public-private investment partnerships to pursue psychiatric and brain disease treatments; and plans to expeditiously field Food and Drug Administration—cleared pharmaceuticals and medical devices that provide clinicians with therapeutics and tools for rapid, accurate assessments of traumatic brain injury and PTSD.

Military Entrance Processing Command Physical Examination Model

The committee acknowledges the critical mission U.S. Military Entrance Processing Command (MEPCOM) performs throughout the United States. An important component of the MEPCOM mission is ensuring prospective service members are provided a physical examination as part of the military accession process. However, the committee is concerned that MEPCOM is unable to ensure these physical examinations are provided in a timely manner. The committee directs the Secretary of Defense to provide a briefing to the House Committee on Armed Services not later than January 15, 2019, that evaluates the commercially distributed physical examination model being used by the Department of Defense Medical Examination Board and explores the feasibility of the MEPCOM contracting for physical examination services.

Military Nurse Work Experience

The committee is aware that military nurses provide critical support across the Military Health System. However, national nursing shortages and vigorous salary and bonus competition for journey-level nurses has impacted the ability of the military to attract more experienced nurses to civil service. The inability to compete for nurses, coupled with restrictive Federal guidelines that dictate the hiring of new graduate nurses at considerably lower salaries than civilian counterparts, has in some instances created significant compensation disparity between military treatment facilities and hospitals in the local community. Additionally, a recent change to the Office of Personnel Management policy may limit applicant pools and adversely impact the ability of military treatment facilities to foster growth and development of current employees who have completed additional education and obtained further licensure. The committee encourages the Secretary of Defense to work with the Office of Personnel Management to consider new qualification and classification standards for military nurses.

Military Nutrition and Diet Planning

The committee understands that a significant number of Active Duty military can currently be considered obese. This likely leads to additional health care costs and loss of military readiness, with too many Active Duty soldiers, sailors, marines, and airmen unable to deploy due to illness or injury. To ensure that our military is ready to fight today and in the future, on February 14, 2018, the Under Secretary of Defense for Personnel and Readiness issued policy guidance to the military services that states: "Service members who have been non-deployable for more than 12 consecutive months, for any reason, will be processed for administrative separation" With this renewed emphasis on military personnel policies necessary to provide a more ready and lethal force, the committee is concerned that the Department of Defense lacks a cohesive, science-based approach to diet and nutrition that supports that goal. It is incumbent upon the Department to ensure our service members are trained and resourced in ways that will allow them to perform duties necessary to remain in a full-duty and deployable status. Healthy food options are a key component of this effort.

The committee is aware that the Department has funded research on optimal nutritional approaches that promote performance and reduce illness, injury, and other health problems in order to ensure that deployable personnel are prepared for worldwide assignments.

Therefore, the committee directs the Secretary of Defense provide a briefing to the House Committee on Armed Services by January 15, 2019, detailing this research and its conclusions. The briefing should include, among other aspects, an overview of studies that focused on the usage of low carbohydrate diets, which show promising outcomes for physiological and performance factors key to warfighter readiness and effectiveness. Additionally, the briefing should discuss the use of standard dietary guidelines as defined by the U.S. Dietary Guidelines for Americans, as well as any other available comparisons. The briefing should also include systemic

factors that inhibit the delivery of food options other than those defined by the U.S. Dietary Guidelines for Americans to service members at Department of Defense dining facilities and other venues. Finally, this briefing should include the plan for a Department-wide approach to diet and nutrition that incorporates performance-based outcomes in support of warfighter readiness.

Mitigating Work Place Violence in Military Treatment Facilities

The committee notes that the Department of Defense incorporated many of the recommendations into policy to address workplace violence following the 2009 Ft. Hood shooting review. The committee is concerned that there are still gaps in the implementation of the policies with respect to establishing Threat Assessment Teams in Military Treatment Facilities. This is evident by the 2016 incident at Ft. Leavenworth hospital when an employee set his supervisor on fire. Therefore, the committee directs the Secretary of Defense to provide a briefing to the House Armed Service Committee no later than 1 March 2019 on the establishment of the Threat Assessment Teams at Military Treatment Facilities and the training provided to the members of the team.

Orthotics for New Recruits

Custom orthotics are offered to servicemembers in some circumstances with a referral from their primary care provider, however it is the understanding of the committee that there is currently not a uniform method for providing orthotics to servicemembers across the joint force. With over 70% of muscular-skeletal injuries affecting the lower extremities, higher priority must be placed on injury prevention, which will likely reduce the cost of treatment and increase force readiness. The committee therefore directs the Secretaries of each service to seek advice from the orthopedic and podiatric consultants residing within each branch of the Armed Forces regarding the benefits of prescribing and dispensing custom orthotics to each new recruit upon entering the military, and follow up with a briefing to Congress no later than April 1, 2019.

Periodic Health Assessment Analysis

The committee notes the continued progress in reforming the Department of Defense Periodic Health Assessment (PHA). The Department implemented the new electronic PHA in February 2018. The new PHA is designed to accomplish multiple requirements and provide standardized health assessment data that can be analyzed and compared across all military services, as well as to national standards. The PHA includes a comprehensive health risk assessment using evidence-based diagnostic tools validated and recommended by the Centers for Disease Control and Prevention and clinical specialty leaders. This is a systematic collection and analysis of health-related information for use by service members, health care providers, and health care teams to identify and support beneficial health behaviors and mutually work to direct changes in potentially harmful health behaviors. The committee encourages the Secretary of Defense and the Secretaries of the military departments to continue to reform the PHA and use pre-

dictive analytics to examine population health factors and trend analysis to better understand comprehensive health risk assessment and improve the readiness of the force.

Podiatric Surgeons in the Military

The committee is concerned that surgically advanced military podiatrists are not presented with the same administrative opportunities as surgeons and doctors of other medical disciplines, and have historically had few opportunities for positions of leadership across the military medical enterprise. Podiatric surgery, as a medical discipline in the Armed Forces, has evolved over the last several decades, including an additional 3-year surgical residency requirement for all military podiatric surgeons. Podiatrists have increasingly deployed to combat zones overseas, serving in a variety of ways to meet the surgical needs of our warfighters. Moreover, podiatric surgeons remain in the Medical Service Corps in the Army and Navy, and the Biomedical Science Corps in the Air Force. This alignment does not administratively suit the profession, and podiatric surgeons may serve more effectively when aligned with surgeons of other medical disciplines. Lastly, while Army Reserve surgeons receive a 90-day rotation exemption limiting their tour of duty in combat, Reserve podiatric surgeons are not eligible for this exemption. This creates challenges to recruiting the best podiatrists for military service, and is especially difficult for podiatrists serving in the Reserve component who are faced with the possibility of a long deployment with potentially adverse effects on their civilian practice. The committee therefore directs the Secretary of Defense, in coordination with the Secretaries of the military departments, to submit a report to the House Committee on Armed Services not later than April 1, 2019, on improvements that can be made to podiatry as a medical discipline within the Armed Services; how podiatry is aligned within each military branch; and what efforts are being made to provide additional clinical, command, training, and leadership opportunities to podiatrists across the joint force.

Podiatry in the Military

The committee is concerned that surgically advanced military podiatrists are not presented with the same advancement opportunities as surgeons and doctors of other medical disciplines, and have historically had few opportunities for positions of command across the military medical enterprise. Podiatry, as a medical discipline in the Armed Forces, has evolved over the last several decades, including an additional 3-year surgical residency requirement for all military podiatrists. Podiatrists have increasingly deployed to combat zones overseas, serving in a variety of ways to meet the surgical needs of our warfighters. Moreover, podiatrists remain in the Medical Service Corps in the Army and Navy, and the Biomedical Science Corps in the Air Force. This alignment often limits advancement and leadership opportunities in the civilian sector, and may put them at a disadvantage when compared to officers in the Medical Corps. Lastly, while surgeons of other disciplines receive a 90-day rotation exemption limiting their tour of duty in combat, podiatrists are not eligible for this exemption. This creates chal-

lenges to recruiting the best podiatrists for military service, and is especially difficult for podiatrists serving in the Reserve component who are faced with the possibility of a long deployment with potentially adverse effects on their civilian practice.

The committee therefore directs the Secretary of Defense, in coordination with the Secretaries of the military departments, to submit a report to the House Committee on Armed Services not later than April 1, 2019, on improvements that can be made to podiatry as a medical discipline within the Armed Services; how podiatry is aligned within each military branch; and what efforts are being made to provide additional clinical, command, training, and advancement opportunities to podiatrists across the joint force.

Study on CT Angiography and Fractional Flow Reserve Computed Tomography in the Military Health System

The Committee is aware of the significant health and cost savings advantages of new technology for non-invasive diagnosis of cardiac artery disease through cardiac CT angiography (CTA) and fractional flow reserve computed tomography (FFRct). This FDA approved diagnostic device coupled with use of CTA as an initial testing strategy is recognized as part of a preferred pathway of care by the Blue Cross Blue Shield Association, the American College of Cardiology, the American Heart Association, and the National Health Service in the United Kingdom. The committee directs the Director of the Defense Health Agency to provide a report to the House Committee on Armed Services no later than March 1, 2019, that reviews and assesses the clinical efficacy of this technology and how it may be incorporated throughout the Military Health System.

Support for Global Health Security Agenda and Briefing on Joint Staff Recommendations

The Committee is supportive of the Department of Defense contributions to biosecurity and the Global Health Security Agenda (GHSA). The DoD possesses unique capabilities that contribute to interagency efforts to prevent, detect, and respond to outbreaks of infectious disease worldwide, as demonstrated by the response to Ebola in West Africa.

As the Ebola response required in excess of \$600 million in DoD funding, the Committee is supportive of ensuring that the DoD learns lessons that can be applied to future pandemic prevention and response efforts. Therefore, the committee directs the Director of the Defense Threat Reduction Agency to provide a briefing to the House Committee on Armed Services not later than October 31, 2018 on implementation of recommendations made by the Joint Staff in its 2016 analysis of Operation United Assistance. The briefing shall include, but not be limited to, the status of implementation of the following recommendations:

(A) Participate in or facilitate interagency meetings to synchronize the GHSA plans and activities. Support GHSA initiatives in partner countries.

(B) Conduct a capability based assessment to identify gaps in DoD's ability to respond to infectious disease outbreaks, both domestically and internationally.

(C) Sustain, and expand if possible public health-related capacity building for the full range of infectious diseases with partner countries as conditions allow.

(D) Work with CDC and other stakeholders to develop a strategic plan for a global laboratory network and improved information sharing.

(E) Identify and leverage opportunities to expand sampling programs to enhance OCONUS disease surveillance and gain an improved understanding of disease prevalence in different geographic areas.

(F) Support the continued development of USG strategic plans that increase the public health and bio-surveillance capacities of partner nations.

Therapeutic Service Dog Training Program for Service Members

The committee is aware that service dog training therapy can provide important therapeutic benefits to service members recovering from post-traumatic stress disorder, traumatic brain injury, and other post-deployment mental health conditions. The committee notes the important role played by non-governmental organizations that have established robust programs in the training and handling of therapeutic service dogs, and further notes that the right mix of personnel with the appropriate backgrounds and certifications facilitates positive therapeutic experiences. The committee believes these programs, whenever possible, should use data and research to continue to improve their effectiveness in assisting service members. The committee encourages the Secretary of Defense to continue administering a therapeutic service dog-training program that delivers effective and positive therapeutic and emotional benefits to service members recovering from post-traumatic stress disorder and other post-deployment mental health conditions.

TRICARE Managed Care Support Contractor Reporting

The committee notes the TRICARE benefit underwent considerable reform beginning January 1, 2018. The Department of Defense consolidated the TRICARE regions from three to two as part of the updated TRICARE management contract, and Congress directed that the TRICARE benefit be consolidated into two plans: a Healthcare Maintenance Plan and a Preferred Provider Plan. Both reforms took effect on January 1, 2018. The committee is aware of challenges for beneficiaries regarding timely appointments, referrals, provider network development, and other administrative processing functions. The committee is concerned these challenges may be impacting beneficiary access to health care services. Therefore, the committee directs the Secretary of Defense to provide a briefing to the Committee on Armed Services of the House of Representatives not later than March 1, 2019, on managed care support contractor compliance with performance metrics and standards relating to appointments, referral processing, network development (to include the requirement to cover 85 percent of the beneficiaries with standard select coverage in Prime Service Areas with special emphasis on remote locations), and other administrative processing functions.

LEGISLATIVE PROVISIONS

SUBTITLE A—TRICARE AND OTHER HEALTH CARE BENEFITS

Section 701—TRICARE Medicare Advantage Demonstration Program

This section would authorize the Department of Defense to develop a Medicare Advantage demonstration program for TRICARE-eligible beneficiaries.

Section 702—Pilot Program on Treatment of Members of the Armed Forces for Post-Traumatic Stress Disorder Related to Military Sexual Trauma

This section would authorize the Secretary of Defense to assess the feasibility of a pilot program that uses intensive outpatient programs to treat members of the Armed Forces suffering from post-traumatic stress disorder resulting from military sexual trauma.

Section 703—Pilot Program on Cryopreservation and Storage

This section would require the Secretary of Defense to establish a pilot program for not more than 1,000 Active Duty service members that provides the opportunity to cryopreserve and store their gametes prior to deployment to a combat zone.

SUBTITLE B—HEALTH CARE ADMINISTRATION

Section 711—Transition of Administration by Defense Health Agency of Military Medical Treatment Facilities

This section would amend section 1073 of title 10, United States Code, by requiring the Department of Defense to transition the administration of military treatment facilities from the respective Secretary of the military departments to the Director of the Defense Health Agency not later than September 30, 2020. This section would also prohibit the Secretary of Defense from closing or limiting services in any military medical treatment facility until a transition certification process is completed.

Section 712—Sharing Information with State Prescription Drug Monitoring Programs

This section would amend section 1074g of title 10, United States Code, by requiring the Department of Defense to establish a prescription drug monitoring program and share information with State prescription drug monitoring programs.

Section 713—Improvement to Notification to Congress of Hospitalization of Combat-Wounded Members of the Armed Forces

This section would amend section 1074l(a) of title 10, United States Code, by including notification to Congress of hospitalization of combat-wounded members of the Armed Forces to every military medical treatment facility.

Section 714—Improvements to Trauma Center Partnerships

This section would amend section 708 of the National Defense Authorization Act for Fiscal Year 2017 (Public Law 114–328), by authorizing the use of civilian trauma centers in the training of military health professionals in trauma-related specialties.

Section 715—Wounded Warrior Policy Review

This section would require the Secretary of Defense to update and review policy and procedures related to wounded warrior care and include a report on the review not later than 1 year after the date of the enactment of this Act.

Section 716—Joint Force Medical Capabilities Development and Standardization

This section would require the Secretary of Defense to develop a process to establish joint medical capabilities that meet operational planning requirements and provide a report on this process to the Committees on Armed Services of the Senate and the House of Representatives not later than March 1, 2019.

SUBTITLE C—REPORTS AND OTHER MATTERS

Section 721—Establishment of Triservice Dental Research Program

This section would authorize the Secretary of Defense to establish the Triservice Dental Research Program at the Uniformed Services University of the Health Sciences.

Section 722—Increasing the Number of Appointed Directors of the Henry M. Jackson Foundation for the Advancement of Military Medicine

This section would increase the number of appointed directors of the Henry M. Jackson Foundation for the Advancement of Military Medicine.

Section 723—Extension of Authority for Joint Department of Defense-Department of Veterans Affairs Medical Facility Demonstration Fund

This section would authorize the extension of the Joint Department of Defense-Department of Veterans Affairs Medical Facility Demonstration Fund established by section 1704 of the National Defense Authorization Act for Fiscal Year 2010 (Public Law 111–84) and most recently amended by section 719 of the National Defense Authorization Act for Fiscal Year 2018 (Public Law 115–91).

Section 724—Inclusion of Gambling Disorder in Health Assessments and Related Research Efforts of the Department of Defense

This section would require the Department of Defense to include questions concerning gambling disorders in annual periodic health assessments and the Health-Related Behaviors Survey of Active Duty Military Personnel.

Section 725—Medical Simulation Technology and Live Tissue Training within the Department of Defense

This section would require the Department of Defense to use medical simulation technology before the use of live tissue training to train medical professionals and combat medics except for when the use of live tissue training is determined necessary by the medical chain of command. This section would also require a briefing on the use and benefit of medical simulation technology and live tissue training within the Department of Defense.

Section 726—Limitation on Changes to Federal Emergency Services Certification Levels of the Air Force

This section limits any changes to Federal Emergency Services certification levels in the Air Force.

Section 727—Strategic Medical Research Plan

This section would require the Secretary of Defense, in consultation with the Secretaries of the military departments, to submit to the congressional defense committees a comprehensive strategic medical research plan that is inclusive of the Congressional Directed Medical Research Plan and the Defense Health Program.

Section 728—Independent Evaluation of Mental Health Care

This section would require an independent assessment of mental health care services in the Military Health System by an independent federally funded research and development center.

Section 729—Study on Reimbursement Rates for Mental Health Care Providers under TRICARE Prime and TRICARE Select in the East and West Regions of the TRICARE Program

This section would direct the Secretary of Defense to conduct a study assessing the impacts of using established reimbursement rates to reimburse covered mental health care providers on the availability of such providers.

TITLE VIII—ACQUISITION POLICY, ACQUISITION MANAGEMENT, AND RELATED MATTERS

ITEMS OF SPECIAL INTEREST

Assessment of Acquisition Workforce

The committee directs the Secretary of Defense to provide the House Armed Services Committees no later than December 1, 2018 a report to assess the current effectiveness of Defense Acquisition University's mission to adequately train the Department of Defense's acquisition workforce and other personnel involved in the acquisition process. This report shall include an assessment of Defense Acquisition University's ability to adequately train students to write acquisition requirements (including scope of work) so that requirements are developed in such a way as to meet the needs of the Department, as well as its ability to adequately train students on the appropriate use of transactions other than contracts, cooper-

ative agreements, and grants, also known as other transaction authority, and additional items at the Secretary's discretion.

Briefing on Athletic Footwear for New Recruits

The committee notes the health and safety of newly recruited servicemembers is of utmost importance. The committee notes athletic footwear furnished to new recruits upon entering the military should be consistently issued in a manner that accounts for each recruit's individual physiological requirement in order to prevent lower extremity musculoskeletal injuries. The committee directs the Department of Defense to provide a briefing to the House Committee on Armed Services, not later than November 1, 2018, on the Department's effort to examine, measure, and fit new recruits with athletic shoes in an effort to reduce and prevent injury. The briefing will present the information separately by individual service as well as in aggregate.

Comptroller General Report on the Issuance of Regulations in the Defense Federal Acquisition Regulation Supplement

The committee notes that despite recent legislative reform to the acquisition system there has been a significant delay between statutory enactment and issuance of regulations in the Defense Federal Acquisition Regulation Supplement (DFARS). For example, a final rule on procurement of commercial items (issued in January 2018) amended the DFARS based upon requirements from as long ago as the National Defense Authorization Act for Fiscal Year 2013 (Public Law 112-239). As a result, the acquisition and contracting communities within and outside the Federal Government are unable to take full advantage of recent reforms and improvements to acquisition and contracting procedures. The committee is concerned that the momentum generated by congressional acquisition reform initiatives has been lost as a result of delayed, and potentially incomplete, revision of regulations, and seeks to identify and remedy the causes of such delays. According to the Department of Defense's operating guidance for the DFARS, the standard timeline for issuance of a final rule is one year, including multiple layers of review within and outside the Department as well as time for public comment. The committee seeks recommendations on how to reduce that timeline and ensure that previously enacted statutory provisions are not disregarded in regulation. The committee also encourages exploration of other ways to quickly implement enacted reforms such as through interim policy memoranda or other guidance, without the need for formal regulatory action.

Therefore, the committee directs the Comptroller General of the United States to submit a report to the congressional defense committees by March 1, 2019, on the issuance of regulations in the Defense Federal Acquisition Regulation Supplement as required under statutory provisions enacted in past National Defense Authorization Acts. The report should describe the existing revision process and assess the status of statutory provisions enacted since fiscal year 2010. The report should assess the factors delaying revision to the DFARS and provide recommendations for any changes that might accelerate such revisions. The committee intends for the

Comptroller General to focus on acquisition policy-related statutory provisions enacted in past National Defense Authorization Acts.

The committee further directs the Comptroller General to provide a briefing to the House Committee on Armed Services by December 1, 2018, on preliminary findings.

Contract Incentives for Superior Supplier Performance

The committee directs the Under Secretary of Defense for Acquisition and Sustainment to provide a briefing to the House Committee on Armed Services not later than December 1, 2018, on the Department of Defense's Superior Supplier Incentive Program. This program is designed to recognize and reward contractors who demonstrate superior performance by focusing on cost, schedule, performance, quality, and responsiveness. The briefing should include discussion of the feasibility of providing contract incentives, such as more favorable contract terms and conditions, which had been considered in relation to the Department of the Navy's Superior Supplier Incentive Program that preceded the Department of Defense's program.

Core Logistics Capability

The committee notes that section 2464 of title 10, United States Code, requires the Department of Defense to maintain a core logistics capability that is Government-owned and Government-operated (including Government personnel and Government-owned and Government-operated equipment and facilities) to ensure a ready and controlled source of technical competence and resources necessary to ensure effective and timely response to a mobilization, national defense contingency situations, and other emergency requirements. The committee further notes that recent National Defense Authorization Acts have made important changes to commercial item statutes, and that elsewhere in this Act the committee recommends further changes to the statutes governing commercial items. In all cases, the committee expects the Department to implement any statutory changes in a manner consistent with the mandate in section 2464 of title 10, United States Code, to maintain core logistics capabilities.

The committee directs the Under Secretary of Defense for Acquisition and Sustainment to provide a report to the House Committee on Armed Services, not later than February 1, 2019, on the Department's implementation of changes to commercial item statutes enacted in National Defense Authorization Acts for fiscal years 2016 through 2019, and how such changes may affect core logistics capability in the future.

Data Rights Impact to Sustainment

The committee is concerned about access to appropriate data rights with regard to long-term sustainment of weapon systems, especially for weapon systems transitioning to organic depot sustainment.

The committee directs the Under Secretary of Defense for Acquisition and Sustainment to provide a briefing to the House Committee on Armed Services by September 30, 2018, on the process

and status of obtaining appropriate data rights for long-term sustainment of weapon systems transitioning to organic depots.

Domestic Samarium Cobalt Magnet Manufacturing

The committee is aware of the Department of Defense's continued need for a reliable rare earth magnet manufacturing industrial base to provide key components in many weapon systems. The committee is concerned that a recent memorandum of understanding (MOU) with Japan may result in the outsourcing of all remaining rare earth magnet manufacturing capability in the United States to foreign manufacturers. There is currently one U.S.-owned and -operated rare earth magnet manufacturing facility in the United States, which produces samarium cobalt magnets. The committee urges the Secretary of Defense to take the appropriate steps to ensure that the United States is not completely without a commercial-scale rare earth magnet manufacturing facility.

The committee directs the Secretary of Defense to provide a briefing to the House Committee on Armed Services by September 30, 2018, on the risks to the current domestic rare earth supply chain, including domestic samarium cobalt magnet makers, as a result of the MOU with Japan. The briefing should also describe the Department's strategy for preserving the long-term viability of the U.S. rare earth magnet industrial base.

Ensuring Availability of Beryllium

The committee notes that beryllium is the only material designated by the Department of Defense's Strategic Materials Protection Board as a critical material. The committee notes there is a complete, vertically integrated supply chain in the United States for beryllium metal and other beryllium products that are used in major defense systems including the F-35 Joint Strike Fighter and nuclear weapon systems. This supply chain has historically been supported by the Department of Defense through the Defense Production Act and other authorities as required in order to maintain access to this critical, strategic material.

The committee is interested in the Department's efforts to help the U.S. defense industrial base sustain a secure, viable, and affordable domestic supply of beryllium.

The committee therefore directs the Secretary of Defense to provide a briefing to the House Committee on Armed Services not later than September 30, 2018, on the Department's efforts to maintain the availability of beryllium for defense needs. The briefing should address the following:

(1) what steps the Department is taking to ensure a stable and affordable domestic supply chain for beryllium;

(2) whether the Department intends to provide any guidance regarding individual programs using beryllium feedstock from the Russian Federation and metal production from the Republic of Kazakhstan;

(3) the Department's coordination with the National Nuclear Security Administration to maintain the availability of beryllium for nuclear modernization requirements;

(4) the Department's efforts to work with the Occupational Safety and Health Administration to ensure that regulatory burdens do not jeopardize the domestic beryllium supply chain; and

(5) the potential opportunities for the Department's guidance to its component agencies and military services to ensure a whole-of-Department approach to beryllium supply.

Final Activities of and Archiving of Records for Advisory Panel on Streamlining and Codifying Acquisition Regulations

The committee notes that the Advisory Panel on Streamlining and Codifying Acquisition Regulations has continued to provide analysis to the relevant congressional committees and the Department of Defense to support statutory and regulatory implementation of recommendations contained in volume 1 of its final report. The committee expects the Advisory Panel to provide additional recommendations to Congress and the Executive Branch in volumes 2 and 3 of the final report. The Advisory Panel, pursuant to section 883 of the National Defense Authorization Act for Fiscal Year 2018 (Public Law 115–91), which amended section 809 of the National Defense Authorization Act for Fiscal Year 2016 (Public Law 114–92), will remain in existence for 180 days following delivery of volume 3 of the final report in January 2019. During this final 6-month period, the Advisory Panel should continue to provide any necessary analysis and clarification of recommendations contained in the final report to Congress and the Executive Branch to support and facilitate statutory and regulatory implementation of such recommendations.

The committee expects that the Department of Defense's acquisition reform efforts will not cease upon the termination of the Advisory Panel on Streamlining and Codifying Acquisition Regulations. In addition, the Department of Defense's implementation of recent legislative reforms as well as the Advisory Panel's recommendations on regulations will require continued research and analysis by the Department. The committee notes that section 809 of Public Law 114–92 established the National Defense University as one of the sponsors of the Advisory Panel.

The committee directs the Secretary of Defense that upon termination of the Advisory Panel, the Advisory Panel's records shall be maintained by the Eisenhower School at the National Defense University by no later than August 1, 2019.

Installation of Command, Control, Communication and Computer Systems

The committee remains concerned that the Navy is using lowest price technically acceptable (LPTA) contracting procedures inappropriately, particularly when acquiring complex systems, including command and control systems or services for the installation of command and control systems on ships. The committee notes that the Navy faces a significant backlog of maintenance and repair on ships and this backlog includes upgrades of command and control systems. The capacity of the Navy to reduce the backlog of needed repairs remains of concern to the committee. Consequently, the committee directs the Secretary of the Navy to provide a briefing to the House Armed Services Committee not later than March 1,

2019, on the Navy's acquisition plan for command and control systems and the installation of these systems aboard Navy vessels. The briefing shall include an overview on how the Navy plans to reduce the backlog of needed command and control system upgrades, as well as the physical installation of these systems on Navy vessels. The briefing shall include the Navy's plan for acquiring adequate contracting capacity for the performance of the required work, the plan to incentivize contractors to perform the work quickly, and the total amount of work programmed for the next five years by class of ship.

Mandatory Arbitration Briefing

The committee directs the Secretary of Defense to provide a briefing to the House Committee on Armed Services not later than March 1, 2019, on steps the Department has taken to ensure compliance with the provisions of Subpart 222.74 of the Defense Federal Acquisition Regulation Supplement concerning restrictions on the use of mandatory arbitration agreements. The briefing shall include steps taken to ensure that the Department does not fund contracts in excess of \$1 million with contractors that require as a condition of employment that employees enter an agreement to resolve certain claims and torts through arbitration. The briefing shall also include steps taken to ensure that contractors have certified that covered subcontractors, as defined in the clause at 252.222-7006 of the Defense Federal Acquisition Regulation Supplement, have been required to agree not to enter into such agreements. The briefing shall also include the extent to which the Secretary of Defense has waived the requirements of this subpart. The briefing shall also include potential ways for Department of Defense to determine the prevalence of mandatory arbitration by Department of Defense contractors compared to contractors that do not do business with Department of Defense.

Manufacturing Extension Partnership Program

The committee supports and recognizes the importance of the National Institute of Standards and Technology Manufacturing Extension Partnership program. The committee understands that the Manufacturing Extension Partnership program provides assistance to small- and medium-sized manufacturing companies to reduce costs, increase productivity, improve management, enhance supply chains, and adapt to new market and supply chain opportunities. In addition, the committee believes that additional resourcing and support for the program would likely provide these services to a larger number of manufacturers involved in Department of Defense programs.

Therefore, the committee directs the Under Secretary of Defense for Acquisition and Sustainment to provide a briefing to the House Committee on Armed Services not later than March 1, 2019, on the Department of Defense plans for future cooperation with the Manufacturing Extension Partnership program, including collaborative efforts between the Department and the Manufacturing Extension Partnership program. The briefing should also include a review of potential opportunities for expanding Department support for the Manufacturing Extension Partnership program in an effort to pro-

vide assistance to manufacturing elements of the defense industrial base.

National Defense Stockpile

The committee notes the importance of the National Defense Stockpile and of the preservation of strategic and critical materials for national defense. The committee is concerned about the current risks and long-term sustainability of the National Defense Stockpile. According to the Department of Defense, there are significant unsatisfied stockpile requirements, and, under the current program-financing model, the Transaction Fund will be unsustainable by 2024.

The committee directs the Secretary of Defense to provide a briefing to the House Committee on Armed Services by September 30, 2018, on the National Defense Stockpile. The briefing should address the following:

- (1) the Department's plan to address the current unmitigated risks;
- (2) how the Department will make the Transaction Fund sustainable;
- (3) an overview of the Department's stockpile management to include acquisition of materials, storage, security, and maintenance;
- (4) the Department's ability to upgrade, refine, and process the material for storage, disposition, or use; and
- (5) any vulnerabilities to the National Defense Stockpile supply chain and the Department's risk mitigation efforts.

Navy Build-to-Print Cost Savings

The committee supports expanding competition in Navy acquisition, including appropriate use of "build-to-print" competitions where the Navy holds sufficient rights to the design of military equipment components to compete the production of them with multiple sources. The committee is aware of Navy efforts to use such competitions to dramatically reduce the time and cost of contracting for selected items. The committee encourages the Navy to expand these efforts if they can be pursued in a way that works collaboratively with industry on obtaining the necessary technical data rights and intellectual property through early negotiations.

One Hundred Percent Employee-Owned Contractors

The committee is interested in understanding the merits of 100 percent employee-owned contractors and the potential benefits they bring to strengthening the defense industrial base. The committee seeks to further understand the benefits and cost implications of awarding contracts to employee-owned contractors for the Department of Defense; the retention rates of employee-owned contractors; and any other benefits of this type of contractor.

The committee will work with the Comptroller General of the United States to further study these types of contractors.

Report on REE-Bearing Waste Recycling

The committee continues to be concerned with our dependence on foreign sources for materials critical to our national defense. To

help mitigate this supply chain risk, the FY 2017 National Defense Authorization Act strongly encouraged the Department to recycle discarded items, such as spent fluorescent lamps, in order to extract, reclaim and reuse critical materials and rare earth elements contained in such waste. This section also provided the Department broad authority to recover, acquire, recycle and manage the disposal and recyclable strategic and critical materials containing REE from other federal agencies.

The committee is aware of recent advances in domestic recycling technology, providing clean and efficient means for reclaiming rare earth elements from a variety of domestic waste streams. At current recycling levels of fluorescent lamps alone, recoverable quantities of target rare earth elements such as Yttrium, deemed by the Department to be critical to the national defense, can wholly offset the total amount of imported Yttrium originating in China on an annual basis, and sold at or below current market price.

Where feasible, such waste streams should not be destroyed or landfilled, but managed in accordance with our national defense needs. The committee therefore directs the Secretary of Defense to submit a report to the House Committee on Armed Services by February 1, 2019, on the Department's past and planned future use of new authorities granted to them to both recycle the Department's applicable REE-bearing waste, and recover and exploit the REE-bearing waste of other federal agencies.

LEGISLATIVE PROVISIONS

SUBTITLE A—STREAMLINING OF DEFENSE ACQUISITION STATUTES AND REGULATIONS

Section 800—Effective Dates; Coordination of Amendments

This section would set the effective dates for the establishment of a new part V of subtitle A of title 10, United States Code, and the redesignation of the chapter and section numbers for title 10 subtitles B, C, and D in order to create numerical space for a new part V at the end of subtitle A. This restructuring would also enable additional growth and potential future reorganization of title 10 statutes in other subject areas outside of the acquisition code.

The committee expects that this restructuring effort would be sustained. The second phase of reorganization would be enacted by follow-on legislation that would direct the more detailed chapter by chapter transfer into the final revised, rationalized structure of title 10 not later than February 1, 2020.

PART I—CONSOLIDATION OF DEFENSE ACQUISITION STATUTES IN NEW PART V OF SUBTITLE A OF TITLE 10, UNITED STATES CODE

Section 801—Framework for New Part V of Subtitle A

This section would establish the initial step in the first phase of a comprehensive reorganization and optimization of acquisition-related statutes in title 10, United States Code. The committee recognizes that the structure for acquisition-related statutes in title 10 has become unwieldy and inadequate.

This section would create a new part V at the end of subtitle A of title 10, thus logically organizing all acquisition-related statutes in one part in the Code. The committee expects that the actual shift of statutory language for the new part V would be established in a subsequent second phase of legislation, but not later than February 1, 2020.

The committee notes that reorganizing defense acquisition statutes into a restructured, rationalized form would reflect more clearly the underlying organization of these statutes and provide a structure that is more intuitive and easier to navigate, as well as facilitate future growth within the Code's structure. In addition, the proposed reorganization would provide an opportunity to restore parallelism between the acquisition-related provisions of title 10 and the corresponding provisions of title 41, United States Code, that are applicable to procurement by non-defense agencies, which would benefit the entirety of the Federal contracting community.

The committee expects that this restructuring effort will be sustained, and the second phase of reorganization will be enacted by follow-on legislation that will direct the more detailed chapter by chapter transfer into the final revised, rationalized structure of title 10 (to include the new part V of subtitle A) not later than February 1, 2020.

PART II—REDESIGNATION OF SECTIONS AND CHAPTERS OF SUBTITLES B, C, AND D TO PROVIDE ROOM FOR NEW PART V OF SUBTITLE A

Section 806—Redesignation of Sections and Chapters of Subtitle D of Title 10, United States Code—Air Force

This section would redesignate the chapter and section numbers for subtitle D of title 10, United States Code, in order to create numerical space for a new part V at the end of subtitle A. This restructuring would also enable additional growth and potential future reorganization of title 10 statutes in other subject areas outside of the acquisition code.

The committee expects that this restructuring effort would be sustained. The second phase of reorganization would be enacted by follow-on legislation that would direct a more detailed chapter by chapter transfer into a final revised, rationalized structure of title 10 not later than February 1, 2020.

Section 807—Redesignation of Sections and Chapters of Subtitle C of Title 10, United States Code—Navy and Marine Corps

This section would redesignate the chapter and section numbers for subtitle C of title 10, United States Code, in order to create numerical space for a new part V at the end of subtitle A. This restructuring would also enable additional growth and potential future reorganization of title 10 statutes in other subject areas outside of the acquisition code.

The committee expects that this restructuring effort would be sustained. The second phase of reorganization would be enacted by follow-on legislation that would direct a more detailed chapter by chapter transfer into a final revised, rationalized structure of title 10 not later than February 1, 2020.

Section 808—Redesignation of Sections and Chapters of Subtitle B of Title 10, United States Code—Army

This section would redesignate the chapter and section numbers for subtitle B of title 10, United States Code, in order to create numerical space for a new part V at the end of subtitle A. This restructuring would also enable additional growth and potential future reorganization of title 10 statutes in other subject areas outside of the acquisition code.

The committee expects that this restructuring effort would be sustained. The second phase of reorganization would be enacted by follow-on legislation that would direct a more detailed chapter by chapter transfer into a final revised, rationalized structure of title 10 not later than February 1, 2020.

Section 809—Cross References to Redesignated Sections and Chapters

This section would establish the cross-references guidance for new redesignated sections and chapters of title 10, United States Code.

The committee expects that this restructuring effort would be sustained. The second phase of reorganization would be enacted by follow-on legislation that would direct a more detailed chapter by chapter transfer into a final revised, rationalized structure of title 10 not later than February 1, 2020.

PART III—REPEALS OF CERTAIN PROVISIONS OF DEFENSE ACQUISITION LAW

Section 811—Amendment to and Repeal of Statutory Requirements for Certain Positions or Offices in the Department of Defense

This section would amend or repeal a number of statutory requirements for certain Department of Defense positions or offices established or required by law, and would establish a sunset for one statutory designation.

The committee notes that these repeals do not constitute an assessment of the offices' or positions' respective missions or roles in the acquisition process, but rather are an effort to remove needlessly prescriptive and obsolete requirements from the United States Code. Codifying the existence and structure of certain offices may unnecessarily restrict the Secretary of Defense's ability to modify the Department's organizational structure to improve efficiency and effectiveness in a way that is consistent with the reforms to the organization of the Office of the Secretary of Defense as required by section 901 of the National Defense Authorization Act for Fiscal Year 2017 (Public Law 114-328). Repeal of these statutory requirements would not directly abolish the affected positions, but would allow the Secretary to restructure those positions should such action be warranted. Removing statutory mandates would enhance the Secretary's authority and ability to craft an agile acquisition organization.

Section 812—Repeal of Certain Defense Acquisition Laws

This section would repeal a number of outdated provisions of law related to defense acquisition, including sections of title 10, United States Code, and provisions that appear in the United States Code as legislative “note” sections under various provisions of title 10. These out-of-date provisions either required the Department of Defense to issue regulations, have now expired by their own terms, or are otherwise obsolete.

The committee notes that, with respect to repeal of a statutory requirement for issuance of a regulation, it is not expressing a view on the merits of the policies covered by the regulation. Rather, in repealing the statutory requirement for a regulation, this section would allow the Secretary of Defense to revise the regulation as circumstances warrant. Repealing the statutory requirement would allow the Secretary to revise or rescind the regulation, but would not prescribe it. The decision to retain, or not retain, the regulation would remain with the Secretary.

Section 813—Repeal of Certain Department of Defense Reporting Requirements

This section would repeal certain Department of Defense recurring reporting requirements. The committee notes that excessive reporting requirements can impose costs on the Department of Defense that outweigh the intended benefits of each individual report, and can potentially impede the Department’s ability to effectively direct resources to core objectives. In the National Defense Authorization Act for Fiscal Year 2017 (Public Law 114–328), Congress initially directed a large group of recurring reporting requirements to sunset on December 31, 2021. This section continues to advance this streamlining effort.

SUBTITLE B—AMENDMENTS TO GENERAL CONTRACTING AUTHORITIES, PROCEDURES, AND LIMITATIONS

Section 821—Contract Goal for the AbilityOne Program

This section would amend section 2323a of title 10, United States Code, to create a contract goal for the AbilityOne program of 1.5 percent. This section would also require the Secretary of Defense to submit an annual report to the U.S. AbilityOne Commission on progress made toward achieving said contract goal.

The committee intends to establish greater transparency for this program’s execution.

Section 822—Increased Micro-Purchase Threshold Applicable to Department of Defense Procurements

This section would amend section 2338 of title 10, United States Code, by raising the micro-purchase threshold for the Department of Defense from \$5,000 to \$10,000.

Section 823—Preference for Offerors Employing Veterans

This section would amend chapter 137 of title 10, United States Code, by adding a new section that would authorize the head of an agency, in awarding a contract for the procurement of goods and

services for the Department of Defense, to establish a preference for offerors that employ veterans on a full-time basis, with criteria for use of such preference determined by the Secretary of Defense. Prior to establishing such preference, the Secretary of Defense would be required to provide a briefing to the House Committee on Armed Services on the process for assessing and verifying offeror compliance with regulations relating to equal opportunity for veteran's requirements, and an implementation plan that includes penalties for an offeror that willfully and intentionally misrepresents the veteran status of employees.

The committee notes the importance of ensuring and expanding economic opportunity for veterans, and the role of the Department in this endeavor. The committee further notes that the Department uses existing programs that maximize contracting opportunities for veteran-owned businesses and believes procurement policy should also encourage the employment of veterans through development of a preference that rewards the employment of veterans by companies. The committee also notes the importance of establishing effective compliance mechanisms as part of any such preference to ensure that the service of veterans is not abused as a result of willful misrepresentation of their status by offerors.

Section 824—Revision of Requirement to Submit Information on Services Contracts to Congress

This section would amend section 2329(b) of title 10, United States Code, to change from October 1, 2022, to October 1, 2020, the effective date for the Secretary of Defense's submission to Congress of information on services contracts that clearly and separately identifies the amount requested for each category of services to be procured for each Defense Agency, Department of Defense Field Activity, command, or military installation. This section would also add the requirement that such information should be included in the Future Years Defense Program submitted to Congress under section 221 of this title.

The committee notes the Department of Defense's recent decision to proceed with an initiative to budget services acquisitions over the course of the full Future Years Defense Program and to develop an implementation plan that leverages existing tools that can be employed to improve planning for acquisition of services. The committee notes that the Department's approach harmonizes well with the committee's reform efforts enacted in the National Defense Authorization Act for Fiscal Year 2018 (Public Law 115-91) concerning enterprise data standardization and transparency. The committee further notes that the Department's decision obviates the need for, and expenditure on, the independent analysis on this matter performed by a federally funded research and development center or other organization that was included in the conference report (H. Rept. 115-404) accompanying the National Defense Authorization Act for Fiscal Year 2018.

The committee directs the Secretary of Defense to provide a briefing to the House Committee on Armed Services by December 1, 2018, on the development of this implementation plan and milestones leading to implementation of this initiative not later than October 1, 2020.

Section 825—Data Collection and Inventory for Services Contracts

This section would amend section 2330a of title 10, United States Code, by changing the dollar threshold for data to be collected on each purchase of services by a military department or Defense Agency from \$3.0 million to the simplified acquisition threshold. This section would also remove the specification of the four service acquisition portfolio groups to be included in such data collection. This section would also change the activities contained in an annual inventory prepared by the Secretary of Defense from those pursuant to staff augmentation contracts, to those pursuant to services contracts, and replace references to the Under Secretary of Defense for Acquisition, Technology, and Logistics with the Under Secretary of Defense for Acquisition and Sustainment.

Section 826—Competition Requirements for Purchases from Federal Prison Industries

This section would amend section 2410n of title 10, United States Code, by removing “for which Federal Prison Industries does not have a significant market share”.

This section would create a requirement for conducting market research before purchasing a product listed in the Federal Prison Industries (FPI) catalog. This section would require the Department of Defense to:

- (1) conduct market research to determine if the product is comparable to products in the private sector and meets the Department’s needs (price, quality, or time of delivery) prior to purchasing a product from FPI.
- (2) use competitive procedures or purchase under a multiple award contract if the product is not comparable and does not meet the Department’s needs.

Section 827—Requirement for a Fair and Reasonable Price for Technical Data Before Development or Production of Major Weapon Systems

This section would provide the Department of Defense with additional flexibility on negotiations for appropriate technical data.

Section 828—Revisions in Authority Relating to Program Cost Targets and Fielding Targets for Major Defense Acquisition Programs

This section would amend sections 2448a, 2366a, and 2366b of title 10, United States Code, to allow the Secretaries of the military departments, or, in instances where an alternate milestone decision authority for a program has been designated under section 2430(d)(2) of title 10, United States Code, the Secretary of Defense, to establish program cost, fielding, and performance goals in planning major defense acquisition programs. This section would also allow for the delegation of these responsibilities beyond the Deputy Secretary of Defense.

The committee notes that while section 825 of the National Defense Authorization Act for Fiscal Year 2016 (Public Law 114–92) amended section 2430 of title 10, United States Code, by changing the designation of the milestone decision authority for major de-

fense acquisition programs to be, with some exceptions, the service acquisition executive of the military department that is managing the program, this change has not been reflected elsewhere in this title. As a result, certain statutory responsibilities remain with the Secretary of Defense when they should more appropriately be performed by the Secretaries of the military departments. This section addresses this discrepancy as it pertains to establishing program cost, fielding, and performance goals in planning major defense acquisition programs, as well as associated reporting to Congress that coincides with the granting of Milestone A and Milestone B approval.

Section 829—Revision of Timeline for Use of the Rapid Fielding Pathway for Acquisition Programs

This section would amend section 804(b)(2) of the National Defense Authorization Act for Fiscal Year 2016 (Public Law 114–92) to change part of the objective of an acquisition program under the rapid fielding pathway from completing fielding within 5 years, to completing low-rate initial production within 5 years.

The committee notes that requiring completion of fielding within 5 years may unnecessarily limit the applicability of this pathway for incremental upgrade programs.

Section 830—Clarification of Services Contracting Definitions

This section would direct the Secretary of Defense, not later than 180 days after the date of the enactment of this Act, to revise the Defense Federal Acquisition Regulation Supplement to clarify the definitions of and relationships between terms related to services contracts, including the appropriate use of personal and nonpersonal services contracts, and the responsibilities of individuals in the acquisition workforce with respect to such contracts.

The committee notes that definitions for terms related to contracted services are found in statute, regulation, and elsewhere in the Department of Defense’s contracted services lexicon. The committee expects the Department to clearly delineate in one place the definitions of and relationships between terms related to contracted services, including associated supervisory responsibilities.

SUBTITLE C—PROVISIONS RELATING TO COMMERCIAL ITEMS

Section 831—Revision of Definition of Commercial Item for Purposes of Federal Acquisition Statutes

This section would clarify the definition of commercial items. Specifically, it would clarify commercial items as commercial products or commercial services.

The committee notes the current definition of commercial items throughout the United States Code is inconsistent, with 40 disparate definitions of commercial items. Additionally, commercial item definitions do not appropriately take into account the differences between products and services. The separation of the definition of commercial items into commercial products and commercial services would simplify and streamline procurement. Consistency in application of definitions would assist the acquisition work-

force as well as businesses seeking to participate in the defense sector.

Section 832—Definition of Subcontract

This section would create a precise definition for “subcontract” in title 41, United States Code, and incorporates this revised definition in title 10, United States Code.

The committee notes there are multiple definitions of subcontract and establishing a single definition for a subcontract would provide clarification, simplicity, and consistency for defense procurement actions.

Section 833—Limitation on Applicability to Department of Defense Commercial Contracts of Certain Provisions of Law and Certain Executive Orders and Regulations

This section would update section 2375, section 2533a, and section 2533b of title 10, United States Code, with the clarified definition of commercial products and commercial services. This section would also establish a new section 2375a to limit applicability of certain Executive orders and regulations.

The committee expects that these revisions would remove current obstacles from commercial transactions between the Department of Defense and commercial suppliers, and improve access to the best commercial goods and services.

Section 834—Modifications to Procurement Through Commercial E-Commerce Portals

This section would amend section 846 of the National Defense Authorization Act for Fiscal Year 2018 (Public Law 115–91) to allow the Administrator of the General Services Administration to develop procedures for procurement through a commercial e-commerce portal. The procedures must satisfy the requirements for competitive procedures outlined in title 41, United States Code. Additionally, this section would require these procedures to be submitted to the congressional defense committees 30 days prior to implementation.

This section would also amend titles 10 and 41, United States Code, by increasing the micro-purchase threshold for procurement through a commercial e-commerce portal from \$10,000 to \$25,000.

The committee notes that Public Law 115–91 authorized the Office of Management and Budget to develop a program managed by the General Services Administration to procure commercial products through e-commerce portals. The committee expects the commercial e-commerce portals would simplify and streamline the defense acquisition process as well as provide better transparency.

SUBTITLE D—INDUSTRIAL BASE MATTERS

Section 841—Requirement That Certain Ship Components Be Manufactured in the National Technology and Industrial Base

This section would amend section 2534 of title 10, United States Code, and would require certain auxiliary ship components to be procured from a manufacturer in the national technology and industrial base.

Section 842—Report on Domestic Sourcing of Specific Components for All Naval Vessels

This section would require the Secretary of the Navy to submit a report to the congressional defense committees by March 1, 2019, that provides a market survey and cost assessment associated with limiting competition to domestic sources for certain naval components.

Section 843—Removal of National Interest Determination Requirements for Certain Entities

This section would streamline the National Industrial Security Program by removing the regulatory requirements relating to National Interest Determinations (NIDs). It would build on section 1712 of the National Defense Authorization Act for Fiscal Year 2018 (Public Law 115–91), which required a review of whether certain companies “should be exempted from one or more of the foreign ownership, control, or influence [FOCI] requirements of the National Industrial Security Program.” This section would address NIDs as a particularly urgent problem within that set of FOCI requirements authorized for exemption. It would also authorize the Secretary of Defense to accelerate implementation of this policy for contracting entities that have already demonstrated a longstanding commitment to industrial security and have previously been approved for access to proscribed information.

The committee is concerned that, especially with regard to entities from allied countries (United States, the United Kingdom of Great Britain and Northern Ireland, the Commonwealth of Australia, and Canada) that comprise the national technology and industrial base (NTIB), the NID process creates substantial burdens without meaningfully enhancing the government’s national security interests. It also causes the misallocation of scarce industrial security oversight resources. Under current practice, but not pursuant to any statutory mandate, NIDs are required for entities operating under a “special security agreement” (SSA) to access proscribed categories of classified information. The committee is aware that certain agencies can take between 6 and 10 months to process NID requests, even for SSA-mitigated companies from NTIB countries that have a longstanding history of industrial security performance in the United States and are critical players in our nation’s defense industrial base. These delays and associated burdens have restricted competition and innovation by excluding qualified and responsible U.S.-based companies that operate under SSAs.

Section 844—Pilot Program To Test Machine-Vision Technologies To Determine the Authenticity and Security of Microelectronic Parts in Weapon Systems

This section would require the Under Secretary of Defense for Research and Engineering, in coordination with the Defense Microelectronics Activity, to establish a pilot program to test the feasibility and reliability of using machine-vision technologies to determine the authenticity and security of microelectronics parts in weapon systems.

The committee supports the Department of Defense’s comprehensive counterfeit material prevention strategy, which is a risk-based

approach that includes collaboration with industry to reduce counterfeit parts in the supply chain. The committee notes that since it first highlighted this issue in 2012, the Department has made significant improvements and standardized the processes for assuring acquisition of authentic and conforming material. However, remaining ahead of emerging security threats in this area remains a challenge.

The committee believes that utilization of innovative software applications may provide opportunities to cost-effectively add capabilities and improve operations by addressing gaps from third-party providers, including receiving and inspection requirements for non-franchised parts.

Specifically, the committee is aware of new technologies based on personalization and anti-counterfeiting software that, combined with optical and digital authentication methods, are effectively being used to meet high-security inventory demands in commercial industry. Such technologies include machine-vision technologies that have the ability to identify and authenticate objects without adding additional hardware to the object such as radio frequency identification chips, bar codes, quick response codes, or serial numbers. These technologies provide identification of counterfeit goods by using authentication methods that are strongly resistant to replication and tampering; can be applied to a variety of substrates such as plastic and metal; can be encoded and/or embedded onto substrates; and can be easily authenticated optically and digitally using decoder devices and applications on mobile devices. The committee understands that such technologies may provide data analytics capability as well. As a result, the committee believes a pilot program of the appropriate scope is the best way for the Department to evaluate and understand the potential of this new technology.

SUBTITLE E—SMALL BUSINESS MATTERS

Section 851—Department of Defense Small Business Strategy

This section would require the Department of Defense to develop and implement a small business strategy to better leverage small businesses as a means to enhance or support mission execution. This section specifies that such a strategy should include plans to integrate small businesses into a holistic view of industry; to realign the Department's small business programs with agency mission under a unified management structure; and to clarify points of entry into the defense market.

The committee expects that this unified strategy would create expanded small business engagement in the defense sector by increasing entry points for non-traditional and innovative companies.

Section 852—Prompt Payments of Small Business Contractors

This section would direct Federal agencies to establish a prompt payment goal of 15 days for small business prime contractors. It would also extend the accelerated payment objective to other-than small prime contractors that subcontract with small businesses, and encourage these prime contractors to also accelerate payments to their small business subcontractors.

Section 853—Increased Participation in the Small Business Administration Microloan Program

This section would amend section 636(m)(3)(C) of title 15, United States Code, by increasing the total limit on outstanding loans from \$5.0 million to \$6.0 million.

This section would also amend section 636(m)(4)(E), which establishes the “25/75 Rule.” Currently, the 25/75 Rule prohibits a microloan intermediary from using more than 25 percent of the technical assistance grants they receive from the Small Business Administration (SBA) to provide pre-loan assistance to small business borrowers and third-party contracts. This section would amend the ratio from 25/75 to 50/50.

This section would also require the Administrator of SBA to submit a report to the Committee on Small Business of the House of Representatives and the Committee on Small Business and Entrepreneurship of the Senate, not later than 1 year after the date of the enactment of this Act, on why the program often has low participation rates among microlenders. The report shall gather a representative sample of eligible entities that participate in the program and those that do not, along with the reasons why entities do not partake, and offer recommendations on modifications that would increase participation.

Finally, this section would require the Comptroller General of the United States to submit a report to the Committee on Small Business of the House of Representatives and the Committee on Small Business and Entrepreneurship of the Senate, not later than 1 year after the date of the enactment of this Act, evaluating SBA oversight of the microloan program and the specific processes SBA uses to ensure compliance and track performance.

Section 854—Amendments to Small Business Innovation Research Program and Small Business Technology Transfer Program

This section would authorize the use of Small Business Innovation Research or Small Business Technology Transfer program funding for administrative costs and expand phase flexibility during fiscal years 2018 through 2022.

Section 855—Construction Contract Administration

This section would amend section 644 of title 15, United States Code, to require Federal agencies to provide prospective construction contractors with information about an agency’s policies and performance on the administration of change orders.

Section 856—Broadband and Emerging Information Technology Coordinator

This section would direct the Associate Administrator for the Office of Investment and Innovation of the Small Business Administration to designate a senior employee as the “Broadband and Emerging Information Technology Coordinator.” The Coordinator would be responsible for connecting small businesses with financing programs, and advising these businesses on how to acquire broadband and new information technology.

This section would also direct a biennial report on activities beginning 2 years after the first designation of a Coordinator to the Committee on Small Business and Entrepreneurship of the Senate and the Committee on Small Business of the House of Representatives.

Section 857—Amendments to the Small Business Investment Act of 1958

This section would amend the Small Business Investment Act of 1958 (15 U.S.C. 682(b)) by increasing the Individual Leverage Limit from \$150.0 million to \$175.0 million and by increasing the total amount of capital and surplus that a financial institution and Federal savings association can invest in a small business investment company from 5 percent to 15 percent.

Section 858—Consolidated Budget Justification for the Department of Defense Small Business Innovation Research Program and Small Business Technology Transfer Program

This section would direct the Secretary of Defense to submit to Congress a budget justification for all activities conducted under the Small Business Innovation Research Program or Small Business Technology Transfer Program during the previous fiscal year.

Section 859—Funding for Procurement Technical Assistance Program

This section would amend section 2413(b) of title 10, United States Code, to provide Procurement Technical Assistance Centers (PTACs) the resources necessary to conduct greater outreach and provide expanded support to small businesses. Division D of this Act would increase the topline budget for the Procurement Technical Assistance Program to \$50.0 million.

This section would increase the funding caps for PTACs operating on statewide, less than statewide, and eligible tribal locations. This section would also adjust the percentage of Federal funding for PTACs to 75 percent from 65 percent, and would adjust the community contribution to 25 percent from 35 percent.

Section 860—Exemption of Certain Contracts From the Periodic Inflation Adjustments to the Acquisition-Related Dollar Threshold

This section would amend subparagraph (B) of section 1908(b)(2) of title 41, United States Code, to exempt certain contracts from the periodic inflation adjustments to the acquisition-related dollar threshold.

SUBTITLE F—OTHER MATTERS

Section 871—Additional Requirements for Negotiations for Noncommercial Computer Software

This section would amend section 2322a of title 10, United States Code, and codify existing Defense Federal Acquisition Regulations on noncommercial software rights as well as mandate, to the maximum extent practicable, that specially negotiated licenses be used for weapon systems noncommercial software.

Section 872—Removal of Requirement for Risk and Sensitivity Analysis of Baseline Estimates in Selected Acquisition Reports

This section would amend section 2432(c)(1)(B) of title 10, United States Code, by removing the requirement for risk and sensitivity analysis to be included with baseline estimates in selected acquisition reports.

The committee notes that risk and sensitivity analyses help in understanding the effects of changing variables on cost estimates. However, this language has been interpreted as requiring analysis of the sensitivity of the information in selected acquisition reports, resulting in unwarranted barriers to dissemination.

Section 873—Prohibition on Acquisition of Sensitive Materials From Non-Allied Foreign Nations

This section would amend section 2533b of title 10, United States Code, by prohibiting acquisition of certain sensitive materials from non-allied foreign nations.

Section 874—Transfer or Possession of Defense Items for National Defense Purposes

This section would amend sections 922 and 925 of title 18, United States Code, to allow joint production, integration, and calibration of military-grade hardware by licensed contractors, transfers of defense items to government customers, and export of authorized weapons to foreign governments.

Section 875—Expedited Hiring Authority for Shortage Category Positions in the Acquisition Workforce

This section would expand and extend direct-hire authority for acquisition professionals, which permits an agency to appoint candidates to positions for which there is either a severe shortage of candidates or a critical hiring need. Section 1413 of the National Defense Authorization Act for Fiscal Year 2004 (Public Law 108–136) authorized agency heads to determine, under regulations prescribed by the Office of Personnel Management (OPM), that certain Federal acquisition positions are shortage category positions in order to use direct-hire authorities. This section would extend the expiration date on those direct-hire authorities from September 30, 2017, to September 30, 2021. Additionally, this section would add the General Schedule Realty series (GS–1170) to the description of acquisition workforce found in section 1703 of title 41, United States Code, thereby including GS–1170 positions under the direct-hire authority extension established in this section.

The committee notes that the government depends on skilled acquisition and program personnel to understand complex market dynamics, develop clear requirements, negotiate in the best interest of the taxpayer, and hold contractors to high performance standards. The expediency that direct-hire authority allows can be helpful to an agency both in meeting critical initiatives that may require particular expertise, such as to support information technology modernization, cybersecurity efforts, and real property acquisition and disposal, as well as supporting the Federal Govern-

ment as it plans and executes on its agency and regulatory reform activities.

Section 876—Extension of Prohibition on Providing Funds to the Enemy

This section would amend section 841(n) of the Carl Levin and Howard P. “Buck” McKeon National Defense Authorization Act for Fiscal Year 2015 (Public Law 113–291) to change from December 31, 2019, to December 31, 2021, the sunset date for the provisions of the prohibition on providing funds to the enemy.

Section 877—Repeal of Certain Determinations Required for Grants of Exceptions to Cost or Pricing Data Certification Requirements and Waivers of Cost Accounting Standards

This section would repeal section 817(b)(1) of the Bob Stump National Defense Authorization Act for Fiscal Year 2003 (Public Law 107–314) regarding certain determinations required for grants of exceptions to cost or pricing data certification requirements and waivers of cost accounting standards.

The committee notes that section 817(b) of Public Law 107–314 provides that a grant of an exception or waiver is appropriate only upon a determination that the property or services cannot reasonably be obtained under the contract, subcontract, or modification, as the case may be, without the grant of the exception or waiver, in addition to two other determinations. The committee believes that this requirement could unnecessarily limit the granting of exceptions or waivers in those instances in which, while cost and pricing data could be obtained, it would add little value and delay contract negotiations. For example, on a long-running production program, determination of a fair and reasonable price may be both possible and more efficiently performed without submission of certified cost and pricing data, and therefore meet two of the three conditions for grant of an exception or waiver. However, because the contractor is willing and able to provide such data, the condition at section 817(b)(1) would not be met and the exception or waiver could not be granted.

The committee believes that increasing the flexibility with which exceptions or waivers can be granted will help streamline the acquisition process. The committee expects the Secretary of Defense to promptly revise the Defense Federal Acquisition Regulation Supplement to reflect this repeal.

Section 878—Reporting on Projects Performed through Transactions Other Than Contracts, Cooperative Agreements, and Grants

This section would direct the Secretary of Defense to submit to the congressional defense committees, not later than December 31 of each year through 2021, a report on the Department of Defense’s use of transactions other than contracts, cooperative agreements, and grants, known as other transaction authority, to perform projects. The report would include, for transactions that provide for payments in a total amount in excess of \$5.0 million, information including the entities entering into the transaction, the amount of payment provided for, project goals and status, and key dates. The

report would also address mechanisms established to regulate use of this authority, including policies, guidance, and reporting requirements.

The committee remains committed to providing the Department of Defense the needed flexibility to acquire advanced capabilities through streamlined and expedited processes. The committee recognizes that other transaction authority has been an effective tool for research and development, particularly for execution of science, technology, and prototyping programs. It provides needed flexibility in terms of adherence to select Federal acquisition regulations. While the benefits of this flexibility are clear, the committee believes that it is still necessary to exercise effective oversight both to understand the ways in which the Department is properly leveraging the use of this authority and to prevent its abuse or misuse. The committee does not intend for this reporting requirement to cause the Department to seek additional approval for use of other transaction authority, beyond the congressional notification requirement already established in statute. Rather, it is designed to facilitate regular and consistent updates on use of this authority across the Department in order to facilitate proper assessment of effectiveness and success. The \$5.0 million threshold for reporting is consistent with the amount established in statute for inclusion of a clause that provides for the Comptroller General of the United States to examine the records of any party to an agreement entered into using other transaction authority.

Section 879—Standardization of Formatting and Public Accessibility of Department of Defense Reports to Congress

This section would direct the Secretary of Defense to provide a briefing not later than March 1, 2019, to the House Committee on Armed Services on a plan for implementing, not later than March 1, 2020, standardization of the formatting and public accessibility of unclassified Department of Defense reports required by Congress. The briefing shall address how the Department plans to ensure that reports are created in an open format that can be retrieved, downloaded, indexed, and searched by commonly used web search applications. An open format is one that is platform independent, machine readable, and made available to the public without restrictions that would impede reuse of that information. The briefing shall also address how the Department plans to provide a publicly accessible online repository of its unclassified reports to Congress required by provisions of law, including protocols for inclusion of reports which, although unclassified, may not be appropriate for public release in their entirety. The briefing shall address how the Department plans to include in the repository unclassified reports to Congress required by provisions of law issued since January 1, 2010.

Section 880—Defending United States Government Communications

This section would provide that, not later than January 1, 2021, no government agency may procure or obtain, nor extend or renew a contract to procure or obtain, nor enter into a contract with an entity that uses covered telecommunications equipment or services

with any covered entity. This section would define covered telecommunications equipment or services as that:

(1) produced by Huawei Technologies Company or ZTE Corporation (or any subsidiary or affiliate of either company);

(2) telecommunications services provided by an entity using such equipment; or

(3) telecommunications equipment or services produced or provided by an entity that the head of an agency believes to be owned or controlled by, or otherwise connected to, the Government of the People's Republic of China.

This section would require the head of an agency to submit to the specified committees a plan to phase in the prohibition in this section, including with respect to the "white label" problem.

This section would also permit the head of an agency to provide an additional 2-year waiver if he determines it is appropriate to allow an entity to terminate its use of covered telecommunications equipment and he can demonstrate certain other conditions have been met. Additionally, the head of an agency would be permitted, subject to the receipt of a written assurance concerning any future use of Huawei or ZTE Corporation components, to permit an entity to continue to use components through the end of their reasonable life-cycle, if the component cannot be used to route or direct data traffic or provide visibility into any data or packets transmitted or manipulated by such components.

This section would further require the Director of National Intelligence (DNI), in coordination with the Director of the Federal Bureau of Investigation and the Secretaries of State, Homeland Security and Defense, to produce a report on the national security risks posed by use of technology produced by Huawei and ZTE technology, especially pertaining to evidence of malicious software or hardware that enables unauthorized network access. The DNI would further be required to develop a plan to share such report with U.S. allies, partners, and U.S. cleared defense contractors and telecommunications service providers. The Director would also be required to ensure an unclassified version of the report is available for U.S. allies and partners, and well as telecommunications companies, that do not have access to classified information.

In an April 12, 2018, House Committee on Armed Services hearing, the Secretary of Defense stated with respect to information and communications technology produced by companies linked to the People's Republic of China, namely Huawei and ZTE, that he does "not think that's wise" for the Department to allow equipment manufactured and maintained by those companies to be a part of its supply chain.

The committee is also aware that the Federal Communications Commission in an April 17, 2018, meeting voted unanimously to approve a proposed rule that would deny Universal Service Fund support to purchase equipment or services from companies posing a national security threat to the integrity of communications networks or the communications supply chain. The commission specifically cited the risks posed by Huawei and ZTE in the notice of proposed rulemaking.

TITLE IX—DEPARTMENT OF DEFENSE ORGANIZATION AND MANAGEMENT

LEGISLATIVE PROVISIONS

SUBTITLE A—ORGANIZATION AND MANAGEMENT OF THE DEPARTMENT OF DEFENSE GENERALLY

Section 901—Authority of Secretary of Defense to Determine Command and Control Relationships

This section would amend section 113 of title 10, United States Code, to specify that the Secretary of Defense may define command and control relationships within the Department of Defense as necessary to support the Department's objectives and missions.

Section 902—Civilian Personnel Management

This section would amend section 129 of title 10, United States Code, to require the Secretary of Defense to consider the cost of the Department of Defense military and contract workforces, along with the cost of the civilian workforce, when managing the civilian personnel workforce of the Department.

Section 903—Performance of Civilian Functions by Military Personnel

This section would amend section 129a of title 10, United States Code, to require that when the Secretaries of the military departments determine that the performance of civilian functions by military personnel is cost effective, that they further consider whether the functions performed are consistent with the military occupational specialty for which the military personnel have been trained.

Section 904—Roles of Under Secretary of Defense for Policy and Under Secretary of Defense for Intelligence

This section would amend section 134 of title 10, United States Code, with respect to the authorities of the Under Secretary of Defense for Policy. It would amend the Under Secretary's responsibility for supervising and directing the activities of the Department with respect to export controls, to focus on policy making within the Department as it pertains to export controls.

This section would add a new authority to those of the Under Secretary of Defense for Policy, subject to the Secretary of Defense, with respect to the development, implementation, and integration across the Department of Defense of the National Defense Strategy and other strategic policy guidance for the activities of the Department across all geographic regions and military functions and domains. It would also provide the Under Secretary with the authority, subject to the Secretary of Defense, of integrating the activities of the Department of Defense within the interagency process with respect to the National Security Strategy of the United States.

The committee notes that the Summary to the 2018 National Defense Strategy stated that "the central challenge to U.S. prosperity and security is the reemergence of long-term strategic competition by what the National Security Strategy classifies as revisionist

powers.” The committee asserts that it is essential that a senior civilian official be responsible for, subject to the Secretary of Defense, the Department’s efforts with respect to strategic competition.

This section would also amend section 137 of title 10, United States Code, with respect to the authorities of the Under Secretary of Defense for Intelligence. The Under Secretary of Defense for Intelligence would assume the authority for supervising and directing the activities of the Department of Defense with respect to technology protection in the export controls process, other than the policy making activities that are the responsibility of the Under Secretary of Defense for Policy.

Numerous senior Department of Defense civilian and military officials have testified to the risk to U.S. military technological superiority and the committee believes that the Under Secretary of Defense for Policy and the Under Secretary of Defense for Intelligence, respectively, have specific roles in, and expertise with, protecting sensitive technologies.

Section 905—Designation of Navy Commanders

This section would amend section 5013 of title 10, United States Code, to require the Secretary of the Navy to designate a single commander within the Department of the Navy responsible for ensuring Navy forces are available for tasking and deployment, including those Navy forces that may be operating from a forward deployed location. This section would also require the Secretary to designate a single commander for all Navy shipyards, including any located overseas.

The committee notes that the Secretary of the Navy’s Strategic Readiness Review cited unclear command relationships as a contributing factor to the surface force accidents suffered by 7th Fleet ships in 2017. The committee encourages the Secretary to consider designating the Commander, Fleet Forces Command, as the responsible commander for tasking and deployment, as that official performs that function now for all naval forces excepting the Pacific Fleet.

The committee notes that the Commander, Naval Sea Systems Command, has the overall responsibility within the Department of the Navy for scheduling and maintaining Navy vessels in public and private shipyards, with the exception of the U.S. Naval Ship Repair Facility and Japan Regional Maintenance Center. The committee encourages the Secretary to consider designating the Commander, Naval Sea Systems Command, as the single commander of naval shipyards, including the facility located in Japan.

SUBTITLE B—COMPREHENSIVE PENTAGON BUREAUCRACY REFORM AND REDUCTION

Section 911—Authorities and Responsibilities of the Chief Management Officer of the Department of Defense

This section would authorize the Chief Management Officer (CMO) of the Department of Defense to carry out the elimination of agencies and activities (other than those established by statute and other than the Department of Defense Education Activity), and to maximize efficiency across the Department with respect to civil-

ian resource management, logistics, services contracting, and real estate management (other than with respect to the military departments). Section 132a of title 10, United States Code, would be further amended by requiring each Defense Agency and Department of Defense Field Activity to transmit their budgets to the CMO for review before submission to the Under Secretary of Defense (Comptroller). The CMO would submit a report concerning all proposed budgets to the Secretary of Defense not later than January 31 of the year preceding the budgets' fiscal year. The Secretary would submit a report by March 31 with a plan of action and proposed legislation for each budget the CMO did not certify. No Defense Agency or Department of Defense Field Activity funds, with respect to civilian resource, logistics, services contracting, and real estate management shall be obligated or expended until the CMO approves the plan; such process shall be conducted without impact to the processes carried out by the Director of National Intelligence.

The Department's Chief Management Officer would reduce or eliminate duplicative cross-enterprise functions across all Defense Agencies and Field Activities related to civilian resource, services contracting, logistics, or real estate management. Not later than March 1, 2020, the CMO would submit a plan to the congressional defense committees. The CMO would certify that the Department has achieved at least 25 percent savings of these functions within these Defense Agencies and Field Activities by January 1, 2021; the Government Accountability Office would verify and validate the CMO's certification. This would be a recurring requirement, each 5 years (beginning January 1, 2021), with the second iteration expanding the scope of the review to include the military departments.

Section 912—Authorities and Responsibilities of the Inspector General of the Department of Defense

This section would require the Department of Defense Inspector General (IG) to maximize efficiency among Department IGs with respect to any cross-enterprise IG activities. This section would require each organization or element IG to submit a budget to the Department of Defense IG for review before submission to the Under Secretary of Defense (Comptroller). The Department IG would submit a report about the budgets to the Secretary not later than January 31 of the year preceding the budget's fiscal year. The Secretary would submit a report to Congress about budgets the Department IG did not certify by March 31 each year, including a plan of action and recommended legislation. No IG funds may be obligated or expended until the Department IG certifies the IG's budget. The Department IG would submit a plan for compliance with the above not later than March 1, 2020.

The committee understands there are almost 30 different inspectors general (IGs) in the Department of Defense, including: the Department of Defense IG, the four military service IGs, the Special Inspector General for Afghanistan Reconstruction, the nine combatant commands, the Defense Media Activity, the Defense Contract Audit Agency, the Defense Contract Management Agency, Defense Information Systems Agency, Defense Logistics Agency, Defense Security Service, and Defense Threat Reduction Agency. The committee believes this proliferation of IG offices merits oversight from

a lead IG to determine if there are opportunities for elimination of waste, redundancy, and duplication.

Section 913—Transition of Certain Defense Agencies and Department of Defense Field Activities

This section would require the Secretary of Defense, acting through the Chief Management Officer (CMO), to submit a plan to the congressional defense committees not later than March 1, 2020, concerning the transfer and migration of all Defense Information Systems Agency information technology contracting and acquisition services, and senior leader communications functions, to other Department elements.

This section would require the CMO to eliminate the Washington Headquarters Service not later than January 1, 2021. The CMO would transfer any essential functions to other appropriate elements of the Office of the Secretary of Defense (OSD) and eliminate the others. The CMO would be required to submit a plan to the congressional defense committees to accomplish the above by March 1, 2020.

This section would also require the CMO to review the efficiency and effectiveness of each Defense Agency and Department of Defense Field Activity and to examine potential duplication among the agencies and activities. The CMO would be required to submit a report to the congressional defense committees on his findings not later than March 1, 2020, including any recommendations to eliminate an agency or activity or transfer some or all of its functions to another Department entity.

This section would also clarify the Secretary's authority to establish or terminate any Defense Agency or Department of Defense Field Activity, other than entities that are specifically established or terminated by act of Congress.

Section 914—Actions To Increase the Efficiency and Transparency of the Defense Logistics Agency

This section would require that the Director of the Defense Logistics Agency (DLA) and the Chief Management Officer (CMO) jointly implement a comprehensive system not later than January 1, 2021, that enables customers to view items and materials available to customers, the delivery status of items and materials in transit, and predictive analytics designed to improve the system's efficiency.

This section would also require the Director of DLA and the CMO to jointly reduce charged rates by at least 10 percent, eliminate duplication of services, and establish specific goals and metrics to ensure the agency is fulfilling its mission by January 1, 2021.

This section would also require the Director of DLA and the CMO to jointly submit a plan to accomplish the above to the congressional defense committees by March 1, 2020.

Section 915—Review of Functions of Defense Contract Audit Agency and Defense Contract Management Agency

This section would direct the Under Secretary of Defense for Acquisition and Sustainment and the Under Secretary of Defense

(Comptroller) to conduct a joint review of the Defense Contract Auditing Agency and Defense Contract Management Agency to validate their missions and functions and determine if any of their functions could be more appropriately performed by the other Agency, any other organization within the Department of Defense, or commercial providers. This review would also validate the continued need for two separate Agencies with oversight for defense contracting. The Secretary of Defense shall submit, not later than March 1, 2020, a report to the congressional defense committees that includes the results of this review.

Section 916—Streamlining of Defense Finance and Accounting Services

This section would require that, not later than January 1, 2021, the Chief Management Officer (CMO) and the Under Secretary of Defense (Comptroller) shall jointly carry out activities to make the Defense Finance and Accounting Services more efficient and effective.

This section would further require that, not later than March 1, 2020, the CMO and Comptroller shall jointly submit a plan for carrying out such activities to the congressional defense committees.

Section 917—Reduction in Number of Chief Information Officers in the Senior Executive Service

This section would require that, starting in calendar year 2021, there may not be more than five “Chief Information Officers” in the Department of Defense.

The committee understands that there are at least 60 Senior Executive Service grade positions in the Department of Defense with the position of “Chief Information Officer”.

The committee is concerned that this number of senior personnel with this same responsibility injects duplication, redundancy, and slows the Department’s ability to swiftly react to the requirements of the Department in terms of information technology and responding to the cyber domain of warfare.

Section 918—General Provisions

This section would provide authority for the Secretary of Defense and the Chief Management Officer of the Department of Defense to consolidate certain reporting requirements established in this Act.

This section would also define certain terms used in this Act and make certain conforming changes in title 10, United States Code.

SUBTITLE C—OTHER MATTERS

Section 921—Artificial Intelligence and Machine Learning Policy and Oversight Council

This section would direct the Under Secretary of Research and Engineering to establish an Artificial Intelligence and Machine Learning Policy and Oversight Council to continuously improve research, innovation, policy, joint processes, and procedures that facilitate the development, acquisition, integration, advancement,

and sustainment of artificial intelligence and machine learning throughout the Department of Defense.

Section 922—Limitation on Transfer of the Chemical, Biological, and Radiological Defense Division of the Navy

This section would require the Secretary of the Navy to provide a report to the congressional defense committees on the timeline, costs, risks, and benefits of transferring the Chemical, Biological, and Radiological Defense Division, Dahlgren, Virginia, to another location. The report would be required not later than 90 days after the date of the enactment of this Act. This section would further prohibit the Secretary of the Navy from transferring or preparing to transfer the Chemical, Biological, and Radiological Defense Division to another location until 45 days after submission of the report.

TITLE X—GENERAL PROVISIONS

ITEMS OF SPECIAL INTEREST

COUNTER-DRUG ACTIVITIES

Colombian Security and the U.S.-Colombian Partnership

The peace accords between the Government of Colombia and the Revolutionary Armed Forces of Colombia (FARC) in August 2016 was a landmark event that ended over 50 years of armed conflict in Colombia. As a result of the agreement, the Colombian legislature passed, and the Government of Colombia implemented, several portions of the peace accords, which included demobilization and reintegration processes for FARC members. The committee is encouraged by the progress of the Colombian people and its Government in implementing the peace accord legislation.

Colombian leadership has made great strides in bringing stability to the country, developing integration pathways for the FARC political party, disarming over 11,000 FARC members, implementing rural development, establishing rule of law, and reintegrating FARC members into society. The committee notes that complete implementation of other pieces of the peace accords, including land reform and combating FARC dissidents who have chosen not to disarm, will likely take decades.

The committee commends the Government of Colombia for its continued leadership in working to end decades of violence and instability with the FARC and other armed groups in Colombia. The committee is also aware that security issues remain a problem in Colombia, including transnational criminal organizations seizing territorial control post peace accords, FARC dissidents choosing not to disarm and continuing criminal behavior, and increasing coca production over the past 2 years.

Further, the committee commends the Colombian military on its professionalization, successes in bringing security to Colombia and being the exporters of security to global organizations such as the North Atlantic Treaty Organization, and regional neighbors including the Republic of Honduras, the Republic of Guatemala, and the United Mexican States.

Over the past 17 years, the U.S. has assisted Colombia in the fight for its security and stability. The committee has supported these efforts and acknowledges the continuing vital importance of the U.S.-Colombian relationship for bringing strength and stability to the hemisphere.

DOD Support to Combating the Opioid Epidemic

The committee is deeply concerned about the rising numbers of opioid-related deaths in the United States. This nationwide health epidemic affects millions of people and their families. The abuse of opioids, both prescription and illicit opioids, is a public health emergency as categorized by the President in January 2018. This crisis highlights national security concerns including illicit trafficking of opioids, synthetic opioids, to include Fentanyl, and precursors for the production of opioids by transnational criminal organizations (TCOs), and their networks which have supply chains that extend into south and east Asia. The committee believes that the Department of Defense can play a vital role in support of lead U.S. agencies to address this crisis.

Therefore, the committee directs the Secretary of Defense, no later than September 30, 2018, to submit a report to the House Committee on Armed Services with an assessment of the assistance the Department is providing to lead U.S. government agencies to combat the opioid crisis. This report should include an assessment of resources available to assist other U.S. government partners in their strategy to combat the opioid epidemic to include the United States Postal Service, and an analysis of potential opportunities for the Department to provide assistance in the future.

United States-Mexico Security Cooperation

The committee recognizes the importance of the relationship between the United States and the United Mexican States. The United States continues to face a nationwide epidemic of opioid addiction. Mexico continues to face violence, corruption, and instability as a result of transnational criminal organizations (TCOs) producing opioids and other illicit substances for distribution in the United States. The unlawful activity of the TCOs creates instability, violence, and insecurity in both the United States and Mexico.

The committee believes these shared security challenges can only be countered cooperatively as each nation addresses illicit trafficking, violence, and production and distribution of illicit narcotics. The strength of the military-to-military relationship between the United States and Mexico is vital in combating these challenges. The committee encourages efforts to continue the development of the strong relationship and partnership between the U.S. Armed Forces and the Mexican Armed Forces.

OTHER MATTERS

Assessment of Air National Guard and Air Force Reserve Involuntary Mobilization Plans to Support Special Operations Activities

During review of the fiscal year 2019 President's budget request and related activities in support of Air Force Special Operations

Command (AFSOC), the committee determined that a small number of Air National Guard units and all Air Force Reserve Command units that support AFSOC missions and force presentation requirements do not possess a current, validated involuntary mobilization plan that complies with various Department of Defense, Department of the Air Force, and Special Operations Command instructions or policies. The committee is concerned that without sufficient and validated involuntary mobilization plans that detail how the Air National Guard and the Air Force Reserve Command intend to support AFSOC as operational reserve units, should the need arise for Special Operations Command to fully mobilize forces in support of global special operations activities, the Air National Guard and Air Force Reserve Command may lack the capability and capacity to support the mission.

Therefore, the committee directs the Comptroller General of the United States to provide a briefing to the House Committee on Armed Services not later than March 1, 2019, that assesses involuntary mobilization plans for Air National Guard and Air Force Reserve Command units that support Air Force Special Operations missions and activities. The Comptroller General should assess, at a minimum:

- (1) the existence and recency of an involuntary mobilization plan;
- (2) the sufficiency and validity of the plan as compared to a unit's Designed Operational Capability statement, authorized and assigned manpower levels, authorized and assigned equipment, facilities, and support functions necessary to execute the plan;
- (3) comparison with existing Department of Defense policy and regulations governing mobilization-to-dwell and deployment-to-dwell goals and objectives;
- (4) any discrepancies, shortfalls, or gaps associated with the aforementioned areas of assessment; and
- (5) any additional information the Comptroller General would find useful to support the briefing.

Briefing on Ukrainian Special Operations Forces Training

The committee recognizes the critical role played by U.S. and partner assistance in training, advising, and equipping Ukrainian military and security forces over the last several years, especially at the International Peacekeeping and Security Center in Yavoriv, Ukraine. This training facility has facilitated the successful completion of numerous joint, combined exercises up to the battalion level and has better enabled multi-domain readiness of Ukrainian forces. By employing the instrumented training capability at this center, United States Army Europe has led the Joint Multinational Training Group-Ukraine in greatly enhancing the operational capability, performance, and professionalism of Ukrainian forces.

The committee further understands that such joint, combined training is scheduled to conclude in 2020 and that the Ukrainian General Staff is aware of acute needs, identified in October 2016 and restated in December 2017, to modernize the International Peacekeeping and Security Center before such training ends. These requirements include refurbishing and adding multiple integrated laser engagement systems, enhancing range and battlefield effects, and developing an urban operations training system.

Finally, the committee understands that since their establishment in 2016, Ukrainian special operations forces have grown in both numbers and capabilities with a focus on unconventional missions such as counterterrorism and drug interdiction operations. In addition, Ukrainian land forces have grown, requiring additional training to support skills development in support of combined exercises with NATO and U.S. forces. Therefore, the committee directs the Secretary of Defense to provide the congressional defense committees, not later than September 30, 2018, with a briefing on current and planned U.S. support to Ukrainian special operations and land forces training, including but not limited to: detailed assessments of both the training center at Berdychiv, Ukraine and a land forces training complex in the Mykolaiv District near Odessa, Ukraine; analysis of training requirements; and a plan for potential U.S. funding assistance to new or modernized training facilities.

Civil Support Team Information Management System

The committee is aware that the National Guard Bureau Weapons of Mass Destruction Civil Support Teams (CST) currently field the CST Information Management System (CIMS). CIMS provides a common operation picture and promotes information sharing and real-time collaboration. CIMS also supports the CST mission of assisting and advising first responders and facilitating communications with other Federal resources in an emergency.

The committee encourages the expansion of CIMS to establish an enterprise-wide capable tool, commonly referred to as the National Guard Chemical, Biological, Radiological, and Nuclear Response Enterprise Information Management System 2018+ (NG CIMS 2018+). The committee believes that expansion will increase the capabilities of the CIMS to support other National Guard Bureau forces, such as the Chemical, Biological, Radiological, Nuclear, and High-Explosive Enhanced Response Force Package and Homeland Defense Response Force units.

The committee notes that the timeline the Department of Defense previously presented to the committee in their September 8, 2015, report "Civil Support Team Information Management System" has been delayed. The committee, therefore, directs the Secretary of Defense to provide a briefing to the House Committee on Armed Services by October 1, 2018, on the plan for the development of NG CIMS 2018+, including a description of timelines, milestones, fielding, and completion dates.

Close Combat Lethality Task Force

The Committee understands that military operations still require our units to close with and destroy the enemy. The Committee also notes that, despite comprising a tiny fraction of total Department of Defense personnel, the ground close combat formations primarily tasked to close with and destroy the enemy bear a unique burden, reflected in them historically accounting for almost 90% of casualties.

The Committee is aware that the Secretary of Defense established the Close Combat Lethality Task Force (CCLTF) on February 8, 2018 in order to implement select initiatives identified by the 2017 Cost Assessment and Program Evaluation's Close Combat

Strategic Portfolio Review. The Committee also notes that the CCLTF further aims to improve the personnel policies, training methods, and equipment to update the training of ground close combat formations to reflect available technology, human factors science, and talent management best practices.

The Committee notes that, relative to the overall size of the Department budget, the cost of supporting modernization to equipment and training for ground close combat formations is relatively small. The Committee believes that increased investments in these units' personnel, equipment, readiness, and training offer outsize returns for our military's combat capabilities.

The Committee notes that greater tactical integration of existing unmanned aircraft—specifically medium-altitude, long-endurance aircraft—offers a unique opportunity to address deficiencies in close combat units organic sensing, load-bearing, communications extension, and lethality capabilities.

In addition, the Committee notes that, since 2001, special operations forces (SOF) have taken on an increasing share of global missions, driven by the responsiveness of their capabilities to combatant commander requirements. The Committee believes that the CCLTF's efforts to bring SOF capabilities and training methodologies to line close combat formations is an important element of the overall CCLTF effort.

In order to allow the Committee to fully support the efforts of the CCLTF, the Committee directs the Secretary of Defense to brief the House Committee on Armed Services not later than December 1, 2018 on the CCLTF's findings, including key focus areas for improvements in ground close combat equipment, training and readiness; proposals for rationalizing personnel management for ground close combat formations; the feasibility of establishing a Joint Close Combat Leader Center as a center of excellence for small-unit infantry leadership; the feasibility of making existing unmanned aircraft organic to ground close combat units; and the impact of improving line close combat formation capabilities and interoperability with SOF, as well as any other topics the Secretary deems appropriate.

Counter-Unmanned Aircraft System Authority for United States Facilities and Assets

The committee notes that the National Defense Authorization Act for Fiscal Year 2018 (Public Law 115–91) provided the Department of Defense a modest expansion of existing counter-unmanned aircraft system (C–UAS) authority in section 130i of title 10, United States Code, to address additional mission areas that the Department determined are critical, high-priority U.S. facilities and assets essential to the Department carrying out its mission. The committee appreciates the Department's deliberate and thoughtful implementation of the C–UAS authority to ensure the safety and security of Department assets and facilities, in addition to ensuring the safety of operations within the U.S. National Airspace System. The committee also notes that the Department, in conjunction with the Administrator, Federal Aviation Administration, is required to provide to relevant congressional committees a semiannual briefing on how the current C–UAS is being utilized

and implemented, and various other items of information pertaining to the authority.

Therefore, the committee directs the Secretary of Defense to provide a briefing to the House Committee on Armed Services not later than September 1, 2018, the date of the next scheduled semi-annual C-UAS briefing requirement to Congress. The briefing should include a list of capability gaps and shortfalls for C-UAS systems or mission areas of the Department that are not currently included in the existing C-UAS authority, but deemed to be high-priority or critical facilities or assets contributing to the success of the Department in executing its mission. The briefing should also include a list of existing Department research and development, or test and evaluation locations within the military services, that currently participate and specialize in C-UAS capabilities in the areas of detection and tracking, hard-kill defeat prediction, or improvised explosive/improvised explosive device performance assessment capability. The committee also encourages the Secretary of Defense to leverage existing deployment, operations, and test and evaluation activities and operational capabilities for C-UAS that are occurring at various U.S. overseas basing locations in order to determine what existing C-UAS technologies and capabilities could feasibly and viably be deployed to protect U.S. facility and asset locations requiring C-UAS capability.

Counterterrorism Effectiveness Research

The committee recognizes that basic research into the effectiveness of current counterterrorism policies and strategy is critical to informing and shaping future efforts. The committee understands that there is currently a wide range of social science research in these areas that should be leveraged, including better use of and integration with existing research by organizations maintaining databases of terrorism incidents globally.

For example, the National Consortium for the Study of Terrorism and Responses to Terrorism (START) is a university-based research and education center. The center is comprised of an international network of scholars committed to the scientific study of the causes and human consequences of terrorism in the United States and around the world. START supports the research efforts of leading social scientists at more than 50 academic and research institutions across the country and the globe.

The committee is aware the START program supports more than 14 terrorism and counterterrorism related datasets that are used across civilian and defense agencies, including the Department of Homeland Security and the Department of Defense, in order to directly inform international, Federal, State, and local training and educational programs.

However, the budget request for fiscal year 2019 did not include funding for this effort. The committee believes that it is within the purview of the Department of Defense, and specifically U.S. Special Operations Command (SOCOM) as the Coordinating Authority for Countering Violent Extremist Organizations, to foster academically rigorous studies of terrorism, like the START initiative, to provide a foundational understanding for how to assess the effectiveness of specific counterterrorism activities and programs, and best practices to inform counterterrorism policies. Further, the committee

believes that as the Coordinating Authority for Countering Weapons of Mass Destruction (CWMD), SOCOM may also derive similar benefits for the Department of Defense from research pertaining to CWMD strategies, policies, and programs, by leveraging and enhancing programs like START.

Therefore, the committee directs the Commander, U.S. Special Operations Command to provide a briefing to the House Committee on Armed Services by October 30, 2018, on the feasibility and advisability of funding programs like START.

Development and Procurement of Combat Equipment and Clothing for Female Servicemembers in Combat Occupations

The Committee notes that in June 2015 the Under Secretary of Defense for Acquisition, Logistics, and Technology provided guidance to the services to take immediate steps to ensure that combat equipment is properly designed and fitted for female servicemembers. In 2016, the Committee recognized that the Services had been conducting anthropometric studies on male and female servicemembers in order to properly outfit and equip their respective servicemembers. However, although more than 600 women have competed for and joined newly opened ground combat units in the Army and Marine Corps, the Committee is concerned that properly designed and fitted combat equipment, gear, and clothing is not consistently available to women warfighters. That concern also encompasses other women from all the services who continue to deploy to areas where they too need properly fitting combat and organizational gear. The Committee believes that female servicemembers in physically demanding occupations like infantry and armor are not positioned for success and their lethality and safety is compromised if they are required to train and perform in equipment not designed for their body type. Properly designed and fitted equipment for women should be available beginning with initial entry training through any and all deployments.

Therefore, the Committee directs the Secretary of Defense, in coordination with the service chiefs, to submit a report to the Committees on Armed Services no later than 180 days after the enactment of this Act. The report shall include:

(1) Information about the status of procuring and issuing the following to all females serving in or training for, infantry and armor occupations and to those from other units and occupations deploying to areas where they will require such equipment (from the beginning of training through any deployments): (1) personal protective equipment (2) organizational clothing and individual equipment (including for example tanker apparel, mechanics coveralls, tanker headsets, and ruck frames); and (3) the female urinary diverter;

(2) Information about timing, including the date on which such equipment will be available;

(3) What additional legislative and funding authorities are required to expedite procurement;

(4) The results of any surveys and studies that have addressed the availability, serviceability, and effectiveness of personal protective equipment, organizational clothing and individual equipment, and the female urinary diverter device.

Foreign Currency Fluctuation Account

In the committee reports accompanying the National Defense Authorization Act for Fiscal Year 2015 through 2017 (H. Rept. 113–446, H. Rept. 114–102, H. Rept. 114–537), the committee encouraged the Department of Defense to take into consideration the current balance within the Foreign Currency Fluctuation, Defense (FCF,D) account when determining foreign currency rates in future budget submissions.

When the FCF,D account has a balance close to or at the statutory cap of \$970.0 million, the committee believes the budgeted rates should be adjusted to generate losses within the account, thereby drawing down the FCF,D account balance. This would reduce the operation and maintenance (O&M) budget requirement for foreign goods and services, allowing excess funds to be allocated to other readiness programs without changing the budget topline. However, as the FCF,D account realizes a net gain, these gains remain in O&M and are used for purposes not originally requested in the annual budget submission to Congress. Without visibility of these transactions through a reprogramming request, the committee cannot determine whether funds remaining in the FCF,D account are being used to reduce current readiness shortfalls.

The committee observes that the Department continues to not take the current balance into account when determining foreign currency rates. Due to lack of the use of current balances to structure foreign currency rates, the committee recommends a reduction in the O&M budget for fiscal year 2019 as shown in section 4301 of this Act, a reduction in the Military Personnel budget for fiscal year 2019 as shown in section 4401 of this Act, and a reduction in the Defense Health Program budget for fiscal year 2019 as shown in section 4501 of this Act, and realigns those funds to support higher priority defense requirements throughout the Department.

Friendly Force Identification in Close Air Support

The committee is aware that tactical aircraft controllers use a multitude of commercial-off-the-shelf infrared (IR) strobes for friendly force identification in close combat operations, and that U.S. Special Operations Command (SOCOM) has validated and approved a Thermal-Identification, Friend or Foe (T-IFF) Capability Production Document (CPD) to improve existing capability. The committee notes the T-IFF program would provide for an “out of band” beacon which should align with current advanced targeting pods used on tactical aircraft. The committee also notes that SOCOM is planning two user evaluations in 2018 to assess potential commercial off-the-shelf solutions that could also potentially meet the requirements in the T-IFF CPD.

While the committee is supportive of these efforts and encourages their acceleration, it is concerned that current infrared marking strobes currently fielded to U.S. ground forces, to include U.S. Special Operation Forces, are not easily detectable to tactical aircraft performing close air support, and could result in fratricide. Additionally, the committee is aware of multiple programs in progress across the military services to address this requirement. These efforts and requirements must be coordinated and communicated across the military services and SOCOM to expeditiously

provide upgraded IR strobes that can be detected by advanced targeting pods.

The committee directs the Commander, U.S. Special Operations Command, in coordination with the Chief of Staff of the Army and the Chief of Staff of the Air Force, to provide a briefing to the House Committee on Armed Services by December 14, 2018, on their efforts to synchronize a friendly force identification mechanism, such as IR strobes, for use during combat close air support operations. The briefing should also include efforts to ensure that these mechanisms are detectable by advanced targeting pods used on current tactical aircraft.

Genetic and Medical Information Security

Recent advancements in information and computational capabilities, along with advancements in synthetic biology and genomics, have resulted in the convergence of data and life sciences. The committee is troubled by the potential risks posed by the proliferation of personal biological information, including DNA sequences, electronic medical records, medical claims processing data, pharmacy records, health information exchanges, and activity trackers. The committee recognizes this information is essential for the development of precision medicine, but is concerned about the potential lack of appropriate security control over the data of service members due to the growing efforts by adversaries to acquire this information. The committee believes acquisition of this information by adversaries may lead to the development of new biological threats.

Therefore, the committee directs the Secretary of Defense to provide a briefing to the House Committee on Armed Services by March 1, 2019, on the Department of Defense's effort to secure service members' genetic, medical, and lifestyle information. The briefing shall include information on the location, access control, and security protocols of all databases with this information; and offer policy recommendations for protecting this information.

The committee further directs the Director of the Defense Intelligence Agency to provide a briefing to the House Committee on Armed Services by March 1, 2019, on foreign intelligence services attempts to collect this information on Department of Defense personnel, including:

- (1) attempts by foreign intelligence services to collect genetic data, medical records, and any other personal health or biological information;
- (2) use of non-traditional intelligence collection techniques, to include foreign investment in commercial entities that offer genetic data analysis, medical record administration, and other health information services; and
- (3) use of this data lost through data breaches, unauthorized disclosures, or non-traditional collection techniques to enable targeting of U.S. persons.

MQ-9 Enterprise Supporting Air Combat Command and Air Force Special Operations Command Activities

After a detailed review, the committee has determined that a system to manage and develop MQ-9 specific remotely piloted aircraft (RPA) aircrews does not exist between Air Force Special Oper-

ations Command (AFSOC), Air Combat Command (ACC), and the Air Force Personnel Center. The committee is concerned that ACC is the Air Force's primary entity responsible for managing, assigning, and transitioning MQ-9 aircrews for AFSOC and that AFSOC may not have the visibility it needs into ACC "talent management" processes to sufficiently support AFSOC future planning and normalization of operations tempo. Moreover, the role of the Air Force Personnel Center's in managing and career-shaping MQ-9 aircrews is unclear.

Therefore, the committee directs the Commander of ACC, in coordination with the Commander of AFSOC and the Commander of the Air Force Personnel Center, to provide a briefing to the House Committee on Armed Services not later than October 19, 2018, on how MQ-9 aircrews are assigned, managed, and developed among ACC and AFSOC. The briefing should also include an update regarding the Air Force's MQ-9 Culture and Process Improvement Program activities for each command, and each command's progress for acquiring the necessary manpower authorizations, and actual assigned manpower, to achieve deployment to dwell operations tempo to comply with Department of Defense policies.

National Guard Access to Department of Defense Owned Unmanned Aircraft Systems

The committee notes that section 1084 of the National Defense Authorization Act for Fiscal Year 2018 (Public Law 115-91) required that not later than 1 year after the date of the enactment of Public Law 115-91, the Secretary of Defense, in coordination with the Chief of the National Guard Bureau, the Commander, U.S. Northern Command, and the Commander, U.S. Pacific Command, complete an efficiency and effectiveness review of the governance structure, coordination processes, documentation, and timing requirements stipulated in Department of Defense policy memorandum 15-002, "Guidance for the Domestic Use of Unmanned Aircraft Systems (UAS)." In addition, not later than 30 days after the policy review is completed, the Secretary of Defense is required to submit the results of the review to the congressional defense committees. The committee expects that during the policy review, Department of Defense officials will implement a processing timeline for reviewing National Guard UAS utilization requests that appropriately balances reviewing the request for compliance with established policy and reviewing the request in a timely manner that coincides with the responsiveness, urgency, and operational planning factors dictated by the specific mission the UAS capability is being requested to support.

Therefore, the committee directs the Secretary of Defense to provide a briefing to the House Committee on Armed Services not later than 30 days after the policy review required by section 1084 of Public Law 115-91 is completed. The briefing should include information related to the processing timeline that the Secretary established during the policy review and how the timeline will be implemented.

Preparedness of U.S. Forces To Counter North Korean Chemical and Biological Weapons

The committee is aware of reports of the Democratic People's Republic of Korea's pursuit of the essential laboratories, equipment, and skills for an advanced biological weapons program, in addition to reports of existing stockpiles of chemical weapons. The 2017 National Security Strategy states that North Korea is pursuing chemical and biological weapons, which could be delivered by missile. The strategy also states that the Department of Defense will ensure U.S. military forces can operate effectively in the face of biological weapons attacks, and that our troops and critical domestic and overseas installations are effectively protected against such threats.

To assist the committee in conducting its oversight of the preparedness of U.S. forces to respond to these threats, the committee directs the Comptroller General of the United States to review the extent to which Department of Defense military units deployed to the Republic of Korea and the Department's chemical and biological defense support units on the Korean peninsula, in the U.S. Pacific Command area of responsibility, and in the United States, are prepared to counter chemical and biological weapons, including:

- (1) detection and identification;
- (2) individual and collective protection;
- (3) medical countermeasures;
- (4) decontamination;
- (5) training and exercises; and
- (6) any other matters the Comptroller General deems relevant.

The committee also directs the Comptroller General to provide a briefing to the House Committee on Armed Services by March 1, 2019, on the preliminary results of the review, and submit a subsequent report by a date agreed to at the time of the briefing.

Report on NORTHCOM Response to Hurricane Maria

In 2017, the United States witnessed Hurricane Maria, which had a devastating impact on Puerto Rico and required a Federal Government response. Therefore, the committee directs the Secretary of Defense, in collaboration with the Secretary of Homeland Security and the Federal Emergency Management Agency Administrator, to submit a report by December 1, 2018 on the ongoing U.S. Government recovery effort of Hurricane Maria. The report shall include the following elements: (a) statistics on ongoing power outages; (b) the number of deaths in each U.S. state or territory affected; (c) measures to improve hurricane emergency response plans for insular areas and/or territories of the United States.

Review of National Guard Capabilities in Support of Incident Awareness and Assessment Mission Operations

The committee notes there is inconsistency among National Guard and Department of the Air Force officials in expressing what type of capabilities and which platforms are required to support the Incident Awareness and Assessment (IAA) mission of the National Guard. The committee requires clarification regarding the National Guard's current and future capability and capacity requirements to execute the IAA mission in support of Domestic Operations

(DOMOPS) when National Guard personnel are on duty or mobilized under title 32, United States Code, authority, and in support of Defense Support to Civil Authorities (DSCA) when National Guard personnel are on duty or mobilized under title 10, United States Code, authority. The committee believes it is critical for the Department of Defense to maintain a sufficient capability, capacity, and responsiveness among the Active and Reserve components of the Department when supporting missions related to homeland defense and responding to natural disasters or declared emergencies.

Therefore, the committee directs the Chief, National Guard Bureau, in coordination with the Commander, U.S. Northern Command, the Director, Air National Guard, and the Director, Army National Guard, to provide a report to the congressional defense committees by October 1, 2018, that provides an Incident Awareness and Assessment capability and capacity roadmap for the National Guard covering the 2019 to 2023 Future Years Defense Program (FYDP). The report should describe, at a minimum:

(1) the validated capability and capacity requirements defining the IAA mission in support of U.S. Northern Command, State Governors, and other Government agencies;

(2) the specific platforms and quantities of platforms the National Guard will leverage, maintain, or procure to support IAA capability and capacity requirements;

(3) a schedule depicting specific platforms that will be procured, maintained, or divested in support of IAA capabilities and capacity over the covered time period;

(4) a schedule depicting specific platforms and associated modernization and upgrades that will be accomplished over the covered time period;

(5) the required funding needed and currently programmed in the FYDP to support individual platforms within the IAA portfolio of capabilities; and

(6) any capability or capacity gaps or shortfalls that are identified over the covered time period.

Senior Civilian or Military Leaders in Charge of Audit and Financial Management

The committee has long maintained that a central factor of the department's audit progress has been clear leadership and accountability across the department. The committee is concerned that there are mid-level departments within the services and agencies that lack designated audit and financial management accountability of senior leaders by requiring this in official position duties. Therefore, the committee directs the department to provide a report no later than September 30, 2018, to the congressional armed services committees on the senior civilian or military leadership responsible for audit and financial management compliance of each respective department.

Soo Locks

The committee understands that the Soo Locks on the St. Marys River at Sault Ste. Marie, Michigan, are the only waterway connection from Lake Superior to the rest of the Lower Great Lakes and the St. Lawrence Seaway. The committee is concerned that of the

2 current operational locks, only the Poe Lock is large enough to accommodate the 1,000-foot carriers necessary to transport a majority of the iron ore used in domestic steel production. The committee notes that this lock is near the end of its 50-year useful lifespan and that the U.S. Army Corps of Engineers is reevaluating a past economic evaluation report to update the Soo Locks' benefit to cost ratio.

The committee believes that a failure at the Soo Locks would have drastic impacts on national security, in that the U.S. iron mining-integrated steel production-manufacturing supply chain is dependent on the Soo Locks, and there is no redundancy. Indeed, such a failure would cripple steel production that is used for national defense priorities. Therefore, the committee urges the Chief of the Corps of Engineers and all involved executive branch agencies to expedite necessary reviews, analysis, and approvals in order to speed the required upgrades at the Soo Locks.

LEGISLATIVE PROVISIONS

SUBTITLE A—FINANCIAL MATTERS

Section 1001—General Transfer Authority

This section would allow the Secretary of Defense, with certain limitations, to make transfers between amounts authorized for fiscal year 2019 in division A of this Act. This section would limit the total amount transferred under this authority to \$5.0 billion. This section would also require prompt notification to Congress of each transfer made.

Section 1002—Expertise in Audit Remediation

This section would amend section 252(b)(2) of chapter 9A of title 10, United States Code, directing the Secretary of Defense to report the number of professionals performing auditing and audit remediation services who hold certain qualifications.

Section 1003—Authority To Transfer Funds to Director of National Intelligence for CAPNET

This section would authorize the Secretary of Defense, consistent with the authority provided in section 1001 of this Act, to transfer an amount that does not exceed \$2.0 million to the Director of National Intelligence (DNI) to provide support for the operation of the CAPNET network.

The committee notes its belief that, per established procedures, the Department of Defense currently has the authority to provide support to the DNI for the operation of CAPNET.

Section 1004—Independent Public Accountant Audit of Financial Systems of the Department of Defense

This section would direct the Secretary of Defense to ensure new or altered financial systems meet applicable Federal requirements through a review performed by an independent public accountant.

SUBTITLE B—COUNTERDRUG ACTIVITIES

Section 1011—Department of Defense Support for Combating Opioid Trafficking and Abuse

This section would express the sense of Congress regarding the nationwide opioid epidemic affecting millions of U.S. citizens. The section would also increase, by \$20.0 million, Department of Defense National Guard counterdrug programs to support the Federal Government's efforts to combat the opioid crisis.

SUBTITLE C—NAVAL VESSELS AND SHIPYARDS

Section 1021—Inclusion of Operation and Sustainment Costs in Annual Naval Vessel Construction Plans

This section would incorporate operations and sustainment costs into the 30-year shipbuilding plan required by section 231 of title 10, United States Code.

Section 1022—Purchase of Vessels Using Funds in National Defense Sealift Fund

This section expands section 2218 of title 10, United States Code, and authorizes the Secretary of the Navy to procure up to 10 foreign-constructed ships if the Secretary certifies that the U.S. Navy has initiated an acquisition strategy for the construction of 10 new sealift vessels. Additionally, this section would limit 25 percent of the U.S. Navy Military Sealift Command's fiscal year 2019 expenditures until the Secretary of the Navy enters into a contract for the procurement of two used National Defense Reserve Fleet vessels, and completes the capability development document for the common hull multi-mission platform.

Section 1023—Purchase of Vessels Built in Foreign Shipyards With Funds in National Defense Sealift Fund

This section would modify section 2218 of title 10, United States Code, and require a 30-day notice to the congressional defense committees before entering into a contract for a used vessel authorized for procurement by section 2218 of title 10, United States Code.

Section 1024—Technical Corrections and Clarifications to Chapter 633 of Title 10, United States Code, and Other Provisions of Law Regarding Naval Vessels

This section updates chapter 633 of title 10, United States Code.

Section 1025—Retention of Navy Hospital Ship Capability

This section would require the Secretary of the Navy to retain two Mercy-class hospital ships until the Secretary has certified to the congressional defense committees that a replacement capability has been fielded.

SUBTITLE D—COUNTERTERRORISM

Section 1031—Definition of Sensitive Military Operation

This section would modify section 130f of title 10, United States Code, regarding notification requirements for sensitive military operations.

Section 1032—Prohibition on Use of Funds for Transfer or Release of Individuals Detained at United States Naval Station, Guantanamo Bay, Cuba, to the United States

This section would prohibit the use of any amounts authorized to be appropriated or otherwise made available for the Department of Defense during the period beginning on the date of the enactment of this Act and ending on December 31, 2019, to transfer or release detainees at U.S. Naval Station, Guantanamo Bay, Cuba, to or within the United States, its territories, or possessions.

Section 1033—Prohibition on Use of Funds to Construct or Modify Facilities in the United States to House Detainees Transferred from United States Naval Station, Guantanamo Bay, Cuba

This section would prohibit the use of any amounts authorized to be appropriated or otherwise made available for the Department of Defense during the period beginning on the date of the enactment of this Act and ending on December 31, 2019, to construct or modify any facility in the United States, its territories, or possessions to house any detainee transferred from U.S. Naval Station, Guantanamo Bay, Cuba, for the purposes of detention or imprisonment in the custody or under the effective control of the Department of Defense.

Section 1034—Prohibition on Use of Funds for Transfer or Release of Individuals Detained at United States Naval Station, Guantanamo Bay, Cuba, to Certain Countries

This section would prohibit the use of any amounts authorized to be appropriated or otherwise made available for the Department of Defense during the period beginning on the date of the enactment of this Act and ending on December 31, 2019, to transfer, release, or assist in the transfer or release of any individual detained at U.S. Naval Station, Guantanamo Bay, Cuba, to Libya, the Federal Republic of Somalia, the Syrian Arab Republic, or the Republic of Yemen.

SUBTITLE E—MISCELLANEOUS AUTHORITIES AND LIMITATIONS

Section 1041—Notification on the Provision of Defense Sensitive Support

This section would modify the current Defense Sensitive Support congressional notification procedures, to include a Secretary of Defense determination that the requesting Federal department has reasonably attempted to satisfy the requirement using internal resources, and that the Department of Defense is the most appropriate Federal agency or department to satisfy the request for support. This section would also add a congressional notification re-

quirement for Department of Defense requests for Reverse Defense Sensitive Support from other Federal departments or agencies.

Section 1042—Coordinating United States Response to Malign Foreign Influence Operations and Campaigns

This section would amend section 101 of the National Security Act of 1947 (50 U.S.C. 3021) to explicitly task the National Security Council (NSC) to coordinate the full U.S. Government response to malign foreign influence operations and campaigns, particularly those that are cyber-enabled. This section would define “malign foreign influence operations and campaigns,” and would request the President to task an NSC official with combating it, and further requires the President to submit a report to the designated congressional committees not later than 9 months after the date of the enactment of this Act on the whole-of-government strategy for combating malign foreign influence operations.

Section 1043—Workforce Issues for Military Realignments in the Pacific

This section would amend section 1806 of title 48, United States Code, to allow the continued employment of temporary workers on Guam engaged in the military realignment to Guam or to perform service as a health care worker. This section would also exempt returning workers from the cap on such workers in the event of a single departure and return to Guam.

Section 1044—Mitigation of Operational Risks Posed to Certain Military Aircraft by Automatic Dependent Surveillance-Broadcast Equipment

This section would enable the Secretary of Defense to mitigate the operational risk posed to certain military aircraft by the Federal Aviation Administration (FAA) next-generation airspace control mandate that takes effect on January 1, 2020, by accommodating certain fighter, bomber, and other sensitive mission aircraft until the Department of Defense and FAA agree on one or more solutions to address Automatic Dependent Surveillance-Broadcast Out security risks or incorporate mitigation for security risks into a memorandum of agreement.

The committee notes that the Department is working to meet the FAA mandate for its aircraft and supports its efforts to procure equipment and carry out modifications for its accommodated fighter, bomber, and special mission aircraft.

Section 1045—Limitation on Availability of Funds for Unmanned Surface Vehicles

This section would limit the availability of funds authorized to be appropriated by this Act, or otherwise made available for fiscal year 2019, until the Under Secretary of Defense for Research and Engineering certifies the Strategic Capabilities Office Ghost Fleet Overlord Unmanned Surface Vehicle program to the congressional defense committees.

Section 1046—Program for Department of Defense Controlled
Unclassified Information in the Hands of Industry

This section would require the Secretary of Defense to establish and implement a foreign ownership, control, or influence program for Department of Defense controlled unclassified information in the hands of industry.

The Secretary would be required to act to ensure that prior to any company receiving controlled unclassified information or classified information, or becoming a cleared defense contractor, the company would have to report to the Secretary any foreign direction or controlling interest in the company or any access to intellectual property relating to classified information or controlled unclassified information.

The Secretary would be required to make a determination on the basis of such a company's report whether the company should receive such information due to a risk to national security and whether such risk can be mitigated.

Section 1047—Protection of Emerging and Foundational
Technologies

This section would require the Secretary of Defense to establish and maintain a list of emerging and foundational technologies that are necessary for maintaining the national security technical advantage of the United States.

This section would require the Secretary to use that list to inform the activities carried out by the Secretary relating to technology protection, including under interagency processes.

SUBTITLE F—STUDIES AND REPORTS

Section 1051—Additional Matter for Inclusion in Annual Report on
Civilian Casualties in Connection With United States Military
Operations

This section would amend section 1057(b)(2) of the National Defense Authorization Act for Fiscal Year 2018 (Public Law 115–91) to include an annual reporting requirement on civilian casualties in connection with U.S. military operations.

Section 1052—Department of Defense Review and Assessment on
Advances in Artificial Intelligence and Machine Learning

This section would direct the Secretary of Defense, acting through the Defense Innovation Board and the Under Secretary of Defense for Research and Engineering, to carry out a review and assessment of the advances in artificial intelligence, related machine learning developments, and associated technologies for military applications. This section would also require the Secretary of Defense to submit an initial report to the congressional defense committees not later than 180 days after the date of the enactment of this Act, and a comprehensive report not later than 1 year after the date of the enactment of this Act.

Section 1053—Report on Joint Enterprise Defense Infrastructure

This section would prohibit certain funds authorized to be appropriated by this Act from being obligated or expended for the Joint Enterprise Defense Infrastructure until the Secretary of Defense provides a report to the congressional defense committees on the Joint Enterprise Defense Infrastructure.

Section 1054—Report on Proposed Consolidation of Department of Defense Global Messaging and Counter Messaging Capabilities

This section would limit the availability of funds authorized to be appropriated by this Act, or otherwise made available for fiscal year 2019, until the Secretary of Defense provides a report to the congressional defense committees on the Department of Defense Global Messaging and Counter Messaging program.

Section 1055—Comprehensive Review of Professionalism and Ethics Programs for Special Operations Forces

This section would direct the Secretary of Defense, in coordination with the Secretaries of the military departments, to conduct a comprehensive review of the ethics and professionalism programs of the U.S. Special Operations Command and the military departments for officers and other military personnel serving in special operations forces. This section would require the Secretary of Defense to submit the review to the Committees on Armed Services of the Senate and the House of Representatives by March 1, 2019.

Section 1056—Munitions Assessments and Future-Years Defense Program Requirements

This section would require the Under Secretary of Defense for Acquisition and Sustainment to provide all relevant documents related to the Department of Defense's munitions requirements process, as well as provide the planned funding and munitions requirements required for fiscal year 2020 and across the Future Years Defense Program for munitions across all military services and the Missile Defense Agency. This section would also require the Under Secretary to evaluate and identify supply chain risks, including qualified supplier shortages or single source supplier vulnerabilities for munitions production. The committee notes that munitions are defined as a complete device charged with explosives; propellants; pyrotechnics; initiating composition; or chemical, biological, radiological, or nuclear material for use in operations including demolitions, to include conventional ammunition.

Section 1057—Report on Establishment of Army Futures Command

This section would require the Secretary of the Army to provide a report to the congressional defense committees on the Army's plan for the establishment of Army Futures Command, to include a description of the authorities, mission, and organizational structure. This section does not prohibit the Secretary of the Army from proceeding forward with any current internal organizational changes in accordance with existing authorities related to the establishment of the Army Futures Command.

Section 1058—Assessment of Department of Defense
Electromagnetic Spectrum Warfare Enterprise

This section would require the Secretary of Defense, in consultation with the Chairman of the Joint Chiefs of Staff (CJCS), to develop an implementation plan to conduct joint campaign modeling and wargaming for joint electromagnetic spectrum operations (JEMSO) of the Department of Defense, and to submit that plan in the form of a report by February 18, 2019, to the congressional defense committees. This section would also require the Secretary and CJCS to provide various briefing presentations to the House Committee on Armed Services, not later than February 25, 2019, on essential topics and functions of the Department's JEMSO enterprise.

The committee is concerned that since the electronic warfare (EW) strategy document was released by the Department's Electronic Warfare Executive Committee in June 2017, subsequent efforts to strengthen, modernize, and create synergy of effort across the Department related to the JEMSO enterprise may have stagnated within the military services, the Office of the Secretary of Defense, and the Office of the Chairman of the Joint Chiefs of Staff. The committee seeks to gain a greater understanding of current JEMSO efforts since release of the EW strategy document, and the committee encourages those officials overseeing the JEMSO enterprise to reinvigorate efforts towards achieving the goals and objectives described in the EW strategy.

Section 1059—Report on Support for Non-Contiguous States and
Territories in the Event of Threats and Incidents

This section would direct the Department of Defense to provide a report on its preparedness to provide contiguous States with temporary relief and emergency work in the aftermath of an emergency incident.

Section 1060—Report on Low-Boom Flight Demonstration

This section would require the Administrator of the National Aeronautics and Space Administration to submit a report, not later than 90 days after the date of the enactment of this Act, to the Committee on Science, Space, and Technology of the House of Representatives describing the progress in development of the Low-Boom Flight Demonstration.

Section 1061—Report on Cyber-Enabled Information Operations

This section would require the President to provide the Committees on Armed Services and Foreign Affairs of the House of Representatives and the Committees on Armed Services and Foreign Relations of the Senate a report not later than 180 days after the date of the enactment of this Act on the effects of cyber-enabled information operations on the national security of the United States.

SUBTITLE G—OTHER MATTERS

Section 1071—Technical, Conforming, and Clerical Amendments

This section would make a number of technical, conforming, and clerical amendments of a non-substantive nature to existing law.

Section 1072—Principal Advisor on Countering Weapons of Mass Destruction

This section would direct the Secretary of Defense to designate, from among the personnel of the Office of the Secretary of Defense, a Principal Advisor on Countering Weapons of Mass Destruction (CWMD). Such individual shall act as the Principal Advisor to the Secretary on the activities of the Department of Defense relating to countering weapons of mass destruction. Further, this section would require a plan for realigning, restructuring, or reducing the current CWMD oversight framework of the Office of the Secretary of Defense.

Section 1073—Receipt of Firearm or Ammunition

This section would require for the purposes of Federal firearms laws that the residency of members of the Armed Forces and their spouses be determined in the same manner.

Section 1074—Federal Charter for Spirit of America

This section would designate Spirit of America, a nonprofit organization, as a federally chartered corporation.

Section 1075—Transfer of Aircraft to Other Departments

This section would amend section 1098 of the National Defense Authorization Act for Fiscal Year 2014 (Public Law 113–66) to relieve the United States Air Force (USAF) from the mandate to modify United States Coast Guard (USCG) HC–130H aircraft with designated capabilities for use by the United States Forest Service (USFS).

The committee notes that officials from the USFS, USCG, and USAF notified the committee, and relevant other House of Representatives and Senate committees of jurisdiction, that a recently completed USFS cost-benefit analysis demonstrated it is more cost-effective, and provides greater firefighting capacity and responsiveness, to utilize contract service provided capability instead of owning and operating year-round a small, organic fleet of modified HC–130H aircraft.

Section 1076—Reauthorization of National Aviation Heritage Area

This section would amend title V of division J of the Consolidated Appropriations Act of 2005 (Public Law 108–447) to establish Dayton History as the entity responsible for managing the National Aviation Heritage Area.

Section 1077—Recognition of America's Veterans

This section would honor America's veterans, including those who have not yet been appropriately recognized for their service to

the Nation, by authorizing the Secretary of Defense to carry out a parade in their honor. The Secretary would be authorized to expend funds authorized to be appropriated under this Act for the display of small arms and munitions appropriate for customary ceremonial honors and for the participation of military units that perform customary ceremonial duties.

The committee believes that, as America approaches the 100th anniversary of the 1918 Armistice ending World War I, it is appropriate to honor a century of military service by the men and women who have sacrificed to secure America's freedom. The committee further believes that the world they made through their sacrifices is increasingly under threat from competitors like the Russian Federation and the People's Republic of China. The committee is concerned that far too many veterans, including veterans of the conflicts in Korea, Vietnam, Iraq, and Afghanistan, have been denied the public display of gratitude their service deserves and therefore the committee believes now is the right time to celebrate a century of patriotic sacrifice and service.

Section 1078—National Commission on Military Aviation Safety

This section would establish a National Commission on Military Aviation Safety. The commission would undertake a comprehensive study and deliver a report not later than June 1, 2019, on military aviation mishaps occurring between fiscal years 2013–18.

Section 1079—Target Practice and Marksmanship Training Support

This section would amend sections 669a, 669g, and 669h of title 16, United States Code, to expand opportunities for construction and sustainment of target practice and marksmanship training facilities at public target ranges on Federal and non-Federal land.

Section 1080—Sense of Congress on Adversary Air Capabilities

This section would express the sense of Congress that each Department of Defense facility housing an F-22 aircraft squadron should have adversary air capabilities to improve training of F-22 aircrews.

Section 1081—Sense of Congress Regarding Organic Attack Aviator Training Capability

This section would express the sense of Congress that the Army National Guard should retain rotary wing attack aviation units as well as organic training capacity such as the Western and Eastern Army Aviation Training Sites.

Section 1082—Sense of Congress on the Legacy, Contributions, and Sacrifices of American Indian and Alaska Natives in the Armed Forces

This section would express the sense of Congress on the legacy, contributions, and sacrifices of American Indian and Alaska Natives in the Armed Forces, and commits to ensuring progress for these groups with regard to representation in senior leadership po-

sitions, improved access to resources, and support for families and tribal communities.

Section 1083—Amateur Radio Parity

This section would require the Federal Communications Commission to amend section 97.15 of title 47, Code of Federal Regulations, to prohibit the application of any private land use restriction to amateur radio stations in a manner that would preclude communications in an amateur radio service.

Section 1084—Sense of Congress Regarding the International Borders of the United States

This section would express the sense of Congress that operational control of the international borders of the U.S. is critical to national security, the U.S. must devote adequate resources to securing the border, and the Department of Defense must have adequate resources to support the mission to secure the international borders of the U.S. while maintaining combat readiness.

Section 1085—Program To Commemorate 75th Anniversary of World War II

This section would require the Secretary of Defense to conduct a program to commemorate the 75th anniversary of World War II; such program would be authorized to include the provision of support to other Federal Government agencies, and to State and local governments.

The Secretary would be authorized to spend not more than \$2.0 million for fiscal year 2019 for the activities of the Department of Defense World War II Commemoration Fund.

TITLE XI—CIVILIAN PERSONNEL MATTERS

ITEMS OF SPECIAL INTEREST

Civilian Talent Recruitment

The committee recognizes that the Department of Defense and the military departments encounter difficulty recruiting highly specialized civilians in science, technology, engineering, and mathematics (STEM) fields due to pay and other compensation limitations imposed by the Office of Personnel Management general schedule pay scales.

Therefore, the committee directs the Secretary of Defense, in coordination with the Director of the Office of Management and Budget, to provide a briefing to the House Committee on Armed Services not later than January 31, 2019, on the challenges associated with the Department's efforts to hire organic civilians in the STEM fields.

The briefing must include the following elements:

(1) recommendations on how the Department can use professional pay incentives, such as special or incentive pay, like those provided to uniformed career fields such as pilots or medical professionals;

(2) impacts any delays in hiring have on the Department and the services' medium- and long-term technical capabilities; and

(3) an assessment of the average time it takes for the Department of Defense and the military services to hire STEM civilians and recommendations for how this process can be improved.

Direct Hiring Authority

The committee notes that section 1106 of the National Defense Authorization Act for Fiscal Year 2017 (Public Law 114–328) provides direct-hire authority to the Secretary of Defense for post-secondary students and recent graduates. Under this authority, the Secretary may recruit and appoint qualified recent graduates and current post-secondary students to competitive service positions in professional and administrative occupations within the Department of Defense. These appointments cannot exceed 15 percent of the number of hires made into professional and administrative occupations. Further, section 1110 of Public Law 114–328 allows for direct-hire authority for the Department for Financial Management Experts not exceeding 10 percent of the number of hires.

The committee recognizes that additional hiring challenges exist throughout the Department and at many installations, and notes that additional direct-hiring authority may allow for more efficient and effective hiring of talented personnel in the fields of cybersecurity, engineering, science, and cost analysis positions. Therefore, the committee directs the Secretary of Defense, in consultation with the military departments, to provide a briefing to the House Committee on Armed Services not later than January 31, 2019, on the effectiveness of existing direct-hire authority and recommendations for any necessary expansion of or changes to the existing authority to improve the Department's ability to hire technically skilled personnel in a timely manner.

Presidential Management Fellows Program

The committee recognizes that the Presidential Management Fellows (PMF) program has been one of the most successful means of recruiting the nation's top graduate students into U.S. government service. Consistent with the 2018 National Defense Strategy, the committee recognizes the PMF program's role in recruiting highly-qualified, talented, and innovative graduate students in order to create the "motivated, diverse, and highly skilled civilian workforce." In the committee's view, during the four decades since the program's founding, the Department of Defense has benefited greatly from the program. Despite this, the centrally managed process for hiring PMFs into the Office of the Secretary of Defense (OSD) has been suspended since 2015. While Department of Defense components are permitted to hire PMFs, unfortunately, they are unable to replicate the well-rounded experience created by the rotating assignments of the OSD program that is so crucial to leadership at the highest levels.

Therefore, the committee directs the Secretary of Defense to submit a report by January 31, 2019, on the PMF program. The report shall include the following elements: (a) a description of the PMF program historically and as it currently exists within the Department; (b) statistics on federal civilian employees who entered the

Department from the PMF program since its inception, including the overall number, their average length of tenure, the component by which they were hired, their entering and departing career civilian ranks, and an accounting for any notable subsequent leadership positions in the national security field; (c) an explanation for why the centrally managed process for hiring PMFs into the Office of the Secretary of Defense has been suspended and recommendations for any changes to policy, authorities, and resources required to resume it; (d) an assessment of the benefits and costs of resuming the use of and expanding the size of the PMF program across the Department; (e) recommendations for any changes to policy, authorities, and resources required to improve the program and expedite the on-boarding process for PMFs.

Recruitment and Hiring of Navy Astronomers

The Committee recognizes the critical missions of the U.S. Naval Observatory (USNO) and the Naval Observatory Flagstaff Station (NOFS) to the Department. The Committee is aware of challenges in recent years to recruitment and timely hiring of astronomers at NOFS, which risks key astronomical observation shifts going missed. The Committee directs the Secretary of the Navy to provide a briefing to the Committee on Armed Services of the House no later than December 31, 2018, outlining: the hiring process and timeline for astronomy positions at USNO and NOFS; identifying reasons for delays in approving positions and hiring for such positions; what the Navy is doing to shorten timelines; barriers and challenges to recruitment of individuals with relevant expertise; identifying impediments to hiring such individuals in a timely basis; and identifying impediments to recruiting and relocating individuals to NOFS.

Workplace Flexibility for Federal Civilians

The committee recognizes efforts taken by the military services to increase workplace flexibility to attract and retain talented personnel. The committee remains concerned, however, that a lack of professional flexibility in the civilian work force limits the ability of the Department of Defense and the military services to attract and retain highly trained mid-level career professionals. Family planning and an individual's desire to further their education are two frequently cited reasons why professionals seek more flexible work schedules.

The committee notes numerous private sector organizations started providing increased work flexibility to their employees, providing incentives that lure the skilled workforce away from the DoD and the services. Therefore, in order to preserve and enhance the DoD's civilian workforce the committee directs the Secretary of Defense, in coordination with the Secretaries of the military departments, to provide a briefing by January 31st, 2019 that identifies current policies that allow work-share, job-share, part-time, tele-work, and other flexibilities currently offered by the Department for civilian employees. The briefing should identify the frequency with which these policies are used by each pay-band and career-field, whether certain career-fields have been exempted from certain flexibility programs and the justification for exemption, the

number of employees who have been denied opportunities to do work-share, job-share, part-time work, or tele-work, and how many of these employees, as a result, have left the federal government.

LEGISLATIVE PROVISIONS

Section 1101—Direct Hire Authority for the Department of Defense for Certain Competitive Service Positions

This section would amend chapter 99 of title 5, United States Code, by adding a new section that would provide the Secretary of Defense authority to expedite hiring of civilian personnel into positions involving maintenance, depot maintenance, cybersecurity, acquisition, and science, technology, and engineering. This authority would expire on September 30, 2025.

Section 1102—Modification of Direct Hire Authority for the Department of Defense for Post-Secondary Students and Recent Graduates

This section would amend chapter 99 of title 5, United States Code, by adding a new section that would authorize the Secretary of Defense to recruit and hire recent graduates into competitive positions in the Department of Defense through September 30, 2025. This section would also repeal the more limited authority provided by section 1106 of the National Defense Authorization Act for Fiscal Year 2017 (Public Law 114–328).

Section 1103—Extension of Overtime Rate Authority for Department of the Navy Employees Performing Work Aboard or Dockside in Support of the Nuclear-Powered Aircraft Carrier Forward Deployed in Japan

This section would amend section 5542 of title 5, United States Code, to extend until September 30, 2021, the authority of the Secretary of the Navy to pay overtime rates to civilian employees performing temporary duty in Japan in support of the forward deployed nuclear aircraft carrier.

Section 1104—One-Year Extension and Expansion of Authority to Waive Annual Limitation on Premium Pay and Aggregate Limitation on Pay for Federal Civilian Employees Working Overseas

This section would amend section 1101 of the Duncan Hunter National Defense Authorization Act for Fiscal Year 2009 (Public Law 110–417) to extend the authority to waive the annual limitation on premium pay and aggregate limitation on pay for Federal civilian employees working overseas until September 30, 2019.

This section would also restrict the waiver limitation to the pay periods applicable, rather than the entire calendar year.

Section 1105—Appointment of Retired Members of the Armed Forces to Positions in or Under the Department of Defense

This section would provide the Secretary of Defense temporary authority to appoint retired members of the Armed Forces to Federal civilian positions within the Department of Defense imme-

diately upon retirement for certain categories of positions. This section would provide this authority to the Secretary for 5 years.

Section 1106—Extension of Authority to Conduct Telework Travel Expenses Test Programs

This section would amend section 5711 of title 5, United States Code, to extend the authority of the Administrator of the General Services Administration to conduct a test telework program until December 31, 2020.

Section 1107—Personnel Demonstration Projects

This section would amend section 4703 of title 5, United States Code, to deem that demonstration projects conducted under this authority lasting more than 10 years shall not count against the limit of 10 such projects ongoing at any time.

Section 1108—Expanded Flexibility in Selecting Candidates From Referral Lists

This section would amend subchapter I of chapter 33 of title 5, United States Code, to provide Federal agencies flexibility in setting the minimum number of candidates who must be considered on a referral list for each vacancy by amending sections 3317, 3318, and 3319 of such title.

Section 1109—Temporary and Term Appointments in the Competitive Service

This section would amend subchapter I of chapter 31 of title 5, United States Code, by adding a new section that would authorize the heads of Federal agencies to hire civilian personnel through temporary and term appointments. This section would also permit an agency head to make noncompetitive hires for up to 18 months to meet a critical need.

TITLE XII—MATTERS RELATING TO FOREIGN NATIONS

ITEMS OF SPECIAL INTEREST

Carrier Presence in the Middle East

The committee recognizes the importance of maintaining an aircraft carrier strike group in the U.S. Central Command (CENTCOM) area of operations to deter the Islamic Republic of Iran, support ongoing missions in the Republic of Iraq, the Syrian Arab Republic, and the Islamic Republic of Afghanistan, provide assurance to regional partners, and maintain the capacity to flexibly respond to a variety of crises across the volatile region. The Navy currently struggles to meet combatant commander presence requirements in CENTCOM and a recent gap in carrier presence there temporarily limited CENTCOM's capacity to address these security challenges. In an effort to more quickly reach the requirement for 12 aircraft carriers identified in the most recent Force Structure Assessment and to achieve greater cost savings, the committee authorized an acceleration of the next Ford-class aircraft

carrier designated CVN-81 in fiscal year 2019. The committee also recommends that the Navy assess options to extend the service life of USS Nimitz (CVN 68) to mitigate potential gaps, which could affect CENTCOM's regional force presence.

Casualty Evacuation in U.S. Africa Command Area of Operations

Given the vast distances and austere conditions affecting mobility on the African continent, the committee recognizes that personnel recovery and casualty evacuation are critical enablers to U.S. Africa Command's (AFRICOM's) conduct of operations. The committee is concerned, however, that current funding for contractor-owned, contractor-operated casualty evacuation capabilities is currently insufficient to support requirements. Therefore, the funding table in division D would authorize an additional \$15.0 million for contractor-owned, contractor-operated casualty evacuation capability in AFRICOM's area of operations.

Combined Joint Task Force-Horn of Africa

The committee has long been concerned about U.S. Africa Command (AFRICOM) Combined Joint Task Force-Horn of Africa's (CJTF-HOA) ability to execute assigned missions and taskings, as evidenced by section 1241 of the National Defense Authorization Act for Fiscal Year 2011 (Public Law 111-383), which required the Secretary of Defense, in consultation with the Secretary of State, to monitor and evaluate the impact of CJTF-HOA's activities to counter violent extremism in Africa and provide a report to Congress.

The committee continues to be concerned that CJTF-HOA's organizational structure, resourcing, command relationships, and lack of clearly defined role, responsibility, and authority have led to sub-optimal performance in executing its assigned missions as an operational headquarters and ensuring unified action in the region. The committee acknowledges that as the only major element of AFRICOM located on the continent, there may be value in maintaining and better enabling CJTF-HOA to synchronize, facilitate, and oversee its assigned missions. The committee notes, however, that options other than a joint task force may be more effective in accomplishing these missions.

Therefore, the committee directs the Secretary of Defense to evaluate the missions of CJTF-HOA and the operational environment to determine whether a joint task force provides the most effective headquarters option for command and control of operations. Further, the committee directs the Secretary to provide a briefing to the House Committee on Armed Services not later than October 31, 2018, on the results of the evaluation. The briefing shall include:

- (1) an evaluation of the costs and benefits of maintaining a permanent U.S. military presence in East Africa, and the potential locations for such presence;

- (2) an evaluation of the advantages and disadvantages of maintaining a combined joint task force structure to fulfill assigned missions and taskings;

(3) the range of headquarters options available for command and control of operations in East Africa and the advantages and disadvantages of each option;

(4) recommendations for the most effective headquarters structure, command relationships, and assignment of missions to improve the command and control of operations and to ensure unified action in East Africa; and

(5) any other matter the Secretary determines to be appropriate.

Coordinating Efforts To Counter the Malign Activities of the People's Republic of China and the Russian Federation Across Combatant Commands

The committee is concerned about the People's Republic of China and the Russian Federation's malign influence and activities that extend across all geographical regions and supports the Department's efforts to increase coordination across combatant commands in countering those activities. The committee believes that China and Russia's influence campaigns, economic investment and infrastructure, and security presence throughout the Indo-Pacific, Central Asia, Africa, Europe, and South America, have national security implications for the United States and its allies and partners. Therefore, the committee encourages all combatant commands to coordinate their respective efforts and use all appropriate authorities to include security cooperation activities, foreign military sales, and other equipment transfers to counter China and Russia's activities and to develop the capabilities of United States allies and partners. The committee notes that the combatant commands should align their efforts in accordance with section 1637 of the National Defense Authorization Act for Fiscal Year 2018 (Public Law 115–91), as appropriate.

The committee directs the Secretary of Defense to provide a briefing to the House Committee on Armed Services by December 3, 2018, on the actions the combatant commands are taking to increase coordination and counter the activities posed by China and Russia.

Department of Defense Inspector General Audit of Foreign Military Sales

An efficient, thorough, and effective Foreign Military Sales (FMS) process is vital to U.S. foreign policy and national security, and contributes to the health of the U.S. defense industrial base. The committee is aware, however, of concerns raised by U.S. military leaders, the defense industry, and foreign partners that the FMS process is slow, cumbersome, and overly complicated.

Therefore, the committee directs the Inspector General of the Department of Defense to conduct an audit regarding Department of Defense implementation of FMS programs and, upon completion of the audit, to submit a final report to the Committees on Armed Services of the Senate and the House of Representatives, the Committee on Foreign Relations of the Senate, and the Committee on Foreign Affairs of the House of Representatives. The committee further directs the Inspector General to meet with the House Committee on Armed Services and the House Committee on Foreign Affairs not later than June 30, 2018, to scope the audit fully. Addi-

tionally, the committee directs the Inspector General to provide an interim briefing to the House Committee on Armed Services and the House Committee on Foreign Affairs not later than November 30, 2018, on the manner that it intends to conduct such audit.

Foreign Military Sales

A key element of the 2018 National Defense Strategy is to “strengthen alliances and attract new partners.” The committee is aware that the Department of Defense is making progress instituting the security cooperation reforms contained in the National Defense Authorization Act for Fiscal Year 2017 (Public Law 114–328). The committee remains concerned, however, that the execution of foreign military sales (FMS) is not coordinated holistically across the Department to prioritize resources and effort in support of U.S. national security objectives and the defense industrial base. Consequently, acquisition decisions continue to be made in a stovepiped manner and without sufficient regard for the role of FMS. Therefore, the committee directs the Secretary of Defense to provide a briefing to the House Committee on Armed Services and the House Committee on Foreign Affairs by October 31, 2018, on the procedures instituted by the Department to integrate FMS and other security cooperation activities into the planning process for defense acquisition.

Additionally, the committee notes that there are separate and disparate efforts across the Department that develop, negotiate, and implement foreign military sales for missile defense capability. This often leads to foreign partners not being provided price and availability for all potential systems that could meet their requirements, and the best solution to benefit both the partner nation and overall Department interests. Therefore, the committee directs the Under Secretary of Defense for Policy, in coordination with the Director of the Missile Defense Agency, Secretary of the Navy, and Secretary of the Army, to provide a briefing to the House Committee on Armed Services by November 30, 2018, on options to improve, consolidate, and streamline missile defense foreign military sales across the Department.

Further, the committee believes that production of additional foreign military sales variants may help mitigate risk to the supplier base and overall production capacity for precision guided munitions. Elsewhere in this report the committee encourages the Secretary of Defense to ensure that the AIM–120 advanced medium-range air-to-air missiles production line is kept at or near full capacity whenever possible, either by increasing production to fill U.S. military requirements or by supplementing production for the U.S. military with higher FMS production.

Improved Coordination of Activities in Africa With International Partners

The committee is aware that international partners such as the United Kingdom of Great Britain and Northern Ireland, the French Republic, Japan, and the United Arab Emirates, plus multinational organizations such as the European Union and African Union, and many others, conduct programs to build partner capacity in Africa. The committee is concerned that U.S. programs may be duplicative

or in conflict with international partners' activities, or that gaps in capabilities are unaddressed.

The committee directs the Secretary of Defense, in consultation with the Secretary of State, to provide a briefing to the House Committee on Armed Services and the House Committee on Foreign Affairs by October 31, 2018, on the steps being taken to coordinate security cooperation activities in Africa with international partners.

International Armaments Cooperation

The committee appreciates that international armaments cooperation (IAC) involves cooperative research, development, test, and evaluation of defense technologies, systems, or equipment; joint production and follow-on support of defense articles or equipment; and procurement of foreign technology, equipment, systems or logistics support. The committee further appreciates that the Office of the Director of International Cooperation and the IAC Directorate are charged with performing managerial roles with respect to these important functions. However, the committee questions whether IAC is sufficiently utilized for strategic purposes and questions whether the Office of the Director of International Cooperation and the IAC Directorate are optimally situated to contribute to long-term policy making and strategic oversight regarding Department of Defense security cooperation programs.

Therefore, the committee encourages the Secretary of Defense to evaluate the status of IAC within the Department of Defense and to consider the merits of realigning the Office of the Director of International Cooperation and the IAC Directorate from the Office of the Under Secretary of Defense for Acquisition and Sustainment to the Office of the Under Secretary of Defense for Policy. The committee also directs the Secretary of Defense to provide a briefing to the House Committee on Armed Services by October 31, 2018, on IAC, the Office of the Director of International Cooperation, and the IAC Directorate. At a minimum, the briefing shall include the following:

(1) a description of the dispositions, missions, roles, and responsibilities of all departmental offices with a role in IAC (to include the Office of the Director of International Cooperation, the IAC Directorate, and the Defense Security Cooperation Agency);

(2) an assessment of the advantages and disadvantages of the current organizational and operational structures related to IAC (to include the placement of the Office of the Director of International Cooperation and the IAC Directorate);

(3) an assessment of the merits of realigning the Office of the Director of International Cooperation or the IAC Directorate to the Office of the Under Secretary of Defense for Policy; and

(4) a discussion of the steps that have been, or may be, taken by the Department of Defense to improve IAC to achieve strategic objectives.

Multilateral Cooperation on the Korean Peninsula

The committee supports efforts between United States Forces Korea and the United Nations Command Sending States and cer-

tain countries to augment U.S. forces and forces of the Republic of Korea on the Korean peninsula.

The committee is pleased to see cooperation and participation among the United States, South Korea, United Nations Command Sending States, and certain countries in combined defense exercises. The committee further believes that these allies and partners can continue to play a vital role in contributing military assets for contingencies and capabilities in the naval and maritime domain as well as participating in training and exercises.

Therefore, the committee directs the Secretary of Defense, in coordination with the component commands, to provide a briefing to the Committee on Armed Services of the House of Representatives not later than December 1, 2018, on recommendations to strengthen coordination with liaison components and to broaden such cooperation, including information sharing, training and exercise opportunities, and integration and planning of multi-national forces into existing arrangements between the United States and South Korea.

Naval Mine Countermeasure Capability in the U.S. Central Command's Area of Operations

The committee recognizes the importance of the U.S. Navy's mine countermeasures (MCM) capability in protecting the free flow of commerce through the Suez Canal, the Strait of Hormuz, and the Bab al Mandeb Strait.

Therefore, the committee directs the Secretary of Defense to provide a briefing to the House Committee on Armed Services not later than September 30, 2018, on the MCM platforms that are capable of being readily deployed to U.S. Central Command's area of operations. This briefing should describe available MCM platforms, the time that would be required to clear relevant sea lanes of the mine threats posed by regional state and non-state actors including the Islamic Republic of Iran, the extent to which MCM training and exercises focus on potential mining contingencies in Middle Eastern waterways, and, if applicable, the extent to which U.S. MCM shortfalls could be covered by partner-country capabilities.

Non-Standard Acquisition in Foreign Military Sales

The committee is aware that foreign partners are increasingly considering U.S.-made capabilities through Foreign Military Sales (FMS) that are not currently a Department of Defense program of record. For FMS purposes, a non-standard article is one that the Department of Defense does not manage, either because an applicable end item has been retired or because it was never purchased for Department components; a non-standard service is one that the Department of Defense does not routinely provide for itself or for purchase. Likewise, the Department's building partner capacity (BPC) programs include acquisition of non-standard articles and services under defense security cooperation train and equip authorities. Consequently, there is an increasing need for the Department of Defense to provide adequate program-level support so that these systems can be sold to international partners and supported over the life-cycle of the program.

The committee is also aware that the military departments have, on a case-by-case basis, established program offices to support the foreign sale of certain non-standard articles. The committee is concerned, however, that these ad hoc efforts do not provide the support necessary to manage foreign partners' acquisition of non-standard articles and services across the Department of Defense in a holistic manner.

Therefore, the committee directs the Secretary of Defense to conduct a review of the acquisition of non-standard articles and services for FMS and BPC programs, and to provide a briefing to the House Committee on Armed Services and the House Committee on Foreign Affairs by October 31, 2018, on the results of the review. The briefing shall include the following with respect to foreign partners' acquisition of non-standard articles and services through FMS or BPC programs:

- (1) a description of current processes and procedures;
- (2) an overview of previous programs, and an assessment of future opportunities for such programs;
- (3) the various options the Department of Defense could use to address this issue, including the advantages and disadvantages of each and funding requirements;
- (4) statutory, regulatory, policy, or funding constraints related to the options in (3); and
- (5) any other matter the Secretary considers appropriate.

Report on New START Treaty

The committee notes that the New START Treaty entered into force in 2011 and is set to expire in 2021 but may be extended for a period of an additional five years. U.S. Strategic Command Commander General Hyten stated in March 2017 before the House Armed Services Committee that "I've stated for the record in the past, and I'll state again, that I'm a big supporter of the New START Agreement." In addition, the committee notes that Air Force deputy chief of staff for strategic deterrence General Weinstein also stated in March 2017 that "The reason you do a treaty is not to cut forces but to maintain strategic stability among world powers. And the New START Treaty allowed us to maintain [that stability]. I think there is a huge value with what the New START Treaty has provided . . . So I think the New START Treaty has been good, been good for us."

Therefore, the committee directs the Secretary of Defense, in coordination with the Chairman of Joint Chiefs of Staff, to provide a report to the congressional defense committees no later than November 15, 2018, on whether, and if so, the reasons that, the New START Treaty, and the extension of the treaty as of the date of the report, is in the national security interests of the United States.

Report on U.S. Casualty Estimates for Armed Conflict With North Korea

The committee directs the Secretary of Defense to provide a report to the House Committee on Armed Services, not later than September 30, 2018, and again 180 days thereafter, on the U.S. casualty estimates for likely scenarios of an armed conflict with

North Korea. The reports should be unclassified, but each may contain a classified annex.

Security and Stability in Venezuela

The committee is concerned about the degradation of democratic institutions, security and stability, and human rights violations in the Bolivarian Republic of Venezuela during the authoritarian rule of President Nicolás Maduro. President Maduro's leadership tenure has produced economic, political, and security instability in Venezuela.

The severe humanitarian crisis unfolding in Venezuela includes inflation exceeding 1,100 percent, massive shortages in food and medical supplies, and a near complete collapse of social services. The committee notes this crisis is directly impacting the Republic of Colombia with an estimated 500,000 Venezuelans seeking refuge there.

The committee recognizes that hundreds of thousands more vulnerable members of the Venezuelan population could potentially migrate to Colombia and other neighboring countries to seek safety and opportunity. This migration could have impacts on stability throughout South America.

Therefore, the committee urges the Department of Defense, in close conjunction with other U.S. agencies, to monitor the economic, security, and political situation in Venezuela closely and to continue working with the government of Colombia and other regional partners to assist the Venezuelan refugee population and resolve the crisis.

Support to Syrian Women

The committee notes the efforts of nongovernmental organizations that have successfully increased the inclusion of Syrian women in local and provincial governance. The committee further notes that women have been instrumental to humanitarian aid efforts at the local level in Syria, and have helped keep schools, hospitals, and basic services running in their communities. Women serve on local councils, advise local police departments, and are being trained to hold forums and town halls in their communities.

The committee directs the Secretary of Defense in coordination with the Secretary of State to provide the House Armed Services Committees no later than December 1, 2018 a briefing on any efforts to support appropriately vetted Syrian opposition forces as defined in section 1209 of the Carl Levin and Howard P. "Buck" McKeon National Defense Authorization Act for Fiscal Year 2015 (Public Law 113-291; 128 Stat. 3541) in their efforts to increase the inclusion of women in security and governance processes. Additionally, the briefing shall include any plans to initiate or expand such efforts in the future.

Tactical Wheeled Vehicle Support to the Afghan National Defense and Security Forces

The committee notes that the Department of Defense works closely with the Afghan National Defense and Security Forces (ANDSF) to provide protected mobility as well as a wide-range of other capabilities based on military requirements, including

ANDSF priorities as well as the ANDSF's capability to maintain and sustain such equipment. The committee understands the Combined Security Transition Command-Afghanistan (CSTC-A) conducted a tactical wheeled vehicle (TWV) optimization study in 2016 in support of the ANDSF with a focus on creating a sustainable, affordable, and effective fleet that would increase combat capability and force protection for occupants. It is unclear to the committee whether this study considered providing excess defense article mine resistant ambush protected (MRAP) vehicles to the ANDSF. The committee notes there are several thousand MRAP vehicles categorized as Excess Defense Articles (EDA) in the Department's inventory that could potentially be used to address protected mobility requirements for the ANDSF. The committee is aware the ANDSF are using MRAP vehicles and notes these vehicles provide for increased survivability and offensive power in combat operations. Further, the committee is aware of a recent letter of request by the Islamic Republic of Afghanistan for 738 MRAP vehicles.

Therefore, the committee directs the Under Secretary of Defense for Policy, in consultation with the Director, Defense Security Cooperation Agency, to provide a briefing to the House Committee on Armed Services by October 30, 2018, on the cost, operational survivability, and sustainability of EDA MRAP vehicles for the ANDSF, the status of the most recent letter of request for 738 MRAP vehicles for the ANDSF, and whether MRAP vehicles were considered as part of the most recent TWV optimization study conducted by CSTC-A. The briefing should also take into account cost, blast protection level, catastrophic losses to date of vehicles and numbers of Afghan soldiers killed in vehicles damaged by improvised explosive devices.

Trans-Saharan Counterterrorism Partnership (TSCTP)

The committee recognizes the threat posed by terrorist groups such as al-Qaeda in the Islamic Maghreb (AQIM), Boko Haram, and ISIS West Africa, and that such threat poses risks to the stabilization of countries in West Africa and the Sahel.

The committee emphasizes that countering terrorism throughout Western Africa and the Sahel requires enhancing regional border security, tracking illicit financial flows, building law enforcement capacity, and strengthening the rule of law. In order to promote stable and strong institutions throughout Western Africa and the Sahel, a whole of government approach is called for, leveraging State Department-led diplomatic efforts, military-to-military relationships developed and led by U.S. Africa Command (AFRICOM), and development projects carried out by the U.S. Agency for International Development (USAID).

The Trans-Saharan Counterterrorism Partnership (TSCTP) developed in 2005 by the Department of Defense (AFRICOM), Department of State, and USAID was created to support national and regional institutions in the region working with regional governments and European partners bordering the Mediterranean.

The committee encourages the Trans-Saharan Counterterrorism Partnership to continue with regular interagency coordination and engagement with regional partners and allies.

The Committee directs the Office of the Secretary of Defense, in coordination with the Secretary of State, to provide a briefing to

the House Committees on Armed Services and Foreign Affairs by March 1, 2019 on the Trans-Saharan Counterterrorism Partnership including any activities or partner engagement related to military, counter-terrorism, and law-enforcement capacity-building, as well as public diplomacy and information operations.

U.S. Military Education and Training Locations

The committee recognizes the importance of U.S. military leadership in advancing the North Atlantic Treaty Organization's mission to guarantee freedom and security in the alliance and around the world. As the 75th anniversary of D-Day and the allied invasion of Normandy, France, approaches, the committee notes the significance of this event in history. As such, the committee believes the Cotentin Peninsula could serve as a potential location for Department of Defense activities to grow global partnerships and alliances.

Therefore, the committee directs the Secretary of Defense to submit a report to the House Committee on Armed Services and the Senate Committee on Armed Services not later than December 1, 2018, on the feasibility (including cost and availability of any suitable locations for potential activities) of activities to grow global partnerships and alliances on the Cotentin Peninsula prior to the 75th anniversary of the D-Day invasion in June 2019.

Western Hemisphere Region Report on Strategy To Increase Engagement With Region

It is the sense of Congress that the security, stability, and prosperity of the Western Hemisphere region are vital to the national interests of the United States. The United States has a military capability in the Western Hemisphere region that builds goodwill and is able to project power, build partner capacity, deter acts of aggression, and respond, if necessary, to natural disasters, regional threats or to threats to the national security of the United States by the activities of actors, such as Iran, China, Russia, North Korea, transnational criminal organizations, or terrorist organizations in the region. The Committee believes continuing efforts by the Department of Defense to increase investments in the Western Hemisphere are necessary to build and maintain a robust United States commitment to the region.

Therefore, the Committee directs the Secretary of Defense, in coordination with the Secretary of State, to submit a report to the congressional defense committees, the Committee on Foreign Relations of the Senate, and the Committee on Foreign Affairs of the House of Representatives by April 1, 2019, that contains a strategy on effective U.S. defense engagement with the Western Hemisphere region, a plan to implement that strategy, and any additional funding requirements to implement such strategy. The strategy shall address each of the following:

(1) The security challenges, including threats, emanating from the Western Hemisphere region, including from natural disasters, and any capability gaps in United States defense posture to the region;

(2) The security threats to the United States or to its interests in the Western Hemisphere region from the engagement of Iran,

China, Russia, and North Korea in the region, with a specific focus on Iran's engagement in the Tri-Border region of South America, Bolivia, and Venezuela and Russian engagement in Nicaragua, Cuba, and Venezuela;

(3) The counterintelligence threats to the United States from Cuba and the role of Cuba in supporting the Venezuelan government;

(4) The threats to the United States from transregional and transnational threat networks, including in drug trafficking, illegal mining, deforestation, human trafficking, and other illicit activities;

(5) The threats to the United States from the links of the Venezuelan government with drug trafficking and transnational criminal organizations and corrupt government actors in the region;

(6) Department of Defense plans, force posture, capabilities, and resources to address any gaps in intelligence, surveillance, reconnaissance, or counter-intelligence capabilities in the region; and

(7) The allies, partners, and other countries in the region that the Defense Department has prioritized for increased cooperation and a description of the areas of proposed increased cooperation.

LEGISLATIVE PROVISIONS

SUBTITLE A—ASSISTANCE AND TRAINING

Section 1201—Report on the Use of Security Cooperation Authorities

This section would express the sense of Congress that the Secretary of Defense should use appropriate security cooperation authorities to counter the malign influence campaigns that are directed at allies and partners and that pose a significant threat to the United States. This section would also require the Secretary of Defense to include a report on funding for this purpose with the consolidated budget materials for security cooperation required by section 381 of title 10, United States Code, in fiscal year 2020 through fiscal year 2025.

The committee recognizes that Department of Defense programs aimed at building partner capacity, such as those authorized under section 333(a) of title 10, United States Code, have largely focused on building counterterrorism capabilities in allies and partners. However, with the security cooperation reforms contained in the National Defense Authorization Act for Fiscal Year 2017 (Public Law 114-328) and the evolving security environment, the committee urges the Department to develop capabilities with key allies and partners that will enable them to counter and mitigate the impact of malign influence campaigns by competitors or adversaries.

Section 1202—Clarification of Authority To Waive Certain Expenses for Activities of the Regional Centers for Security Studies

This section would amend section 342 of title 10, United States Code, to clarify that travel, transportation, and subsistence expenses are included among the costs of activities of the Regional Centers eligible for waiver of reimbursement.

Section 1203—NATO Strategic Communications Center of Excellence

This section would authorize the Secretary of Defense to provide funds for fiscal year 2019 for the purposes of supporting the NATO Strategic Communications Center of Excellence, and would direct the Secretary of Defense to assign executive agent responsibilities to an appropriate organization within the Department of Defense.

Section 1204—NATO Cooperative Cyber Defense Center of Excellence

This section would authorize the Secretary of Defense to provide funds for fiscal year 2019 for the purposes of supporting the NATO Cooperative Cyber Defense Center of Excellence, and would direct the Secretary of Defense to assign executive agent responsibilities to an appropriate organization within the Department of Defense.

Section 1205—Participation in and Support of the Inter-American Defense College

This section would make permanent the authority for U.S. participation in and support of the Inter-American Defense College and would transfer such authority to chapter 16 of title 10, United States Code. This section would further require that Department of Defense participation in, and host nation support of, the Inter-American Defense College shall be in accordance with a memorandum of understanding between the Department and the Inter-American Defense Board, with Secretary of State concurrence, and that such memorandum of understanding shall provide details of any cost-sharing or funding arrangements, a curriculum, and a plan for academic program development.

Section 1206—Increase in Cost Limitation for Small Scale Construction Related to Security Cooperation

This section would increase the limitation on small scale construction related to security cooperation from \$0.75 million to \$2.0 million.

Section 1207—Report on Security Cooperation With Haiti

This section would require the Secretary of Defense, with the concurrence of the Secretary of State, to submit a report on cooperation between the Department of Defense and the Government of the Republic of Haiti.

Section 1208—Review and Report on Processes and Procedures Used to Carry Out Section 362 of Title 10, United States Code

This section would require the Secretary of Defense, with the concurrence of the Secretary of State, to conduct a review of the processes and procedures used to carry out section 362 of title 10, United States Code, and submit a report to the appropriate congressional committees on such review. This section would also make conforming amendments to section 362 and to section 1206 of the Carl Levin and Howard P. “Buck” McKeon National Defense Authorization Act for Fiscal Year 2015 (Public Law 113–291).

SUBTITLE B—MATTERS RELATING TO AFGHANISTAN AND PAKISTAN

Section 1211—Extension of Authority To Transfer Defense Articles and Provide Defense Services to the Military and Security Forces of Afghanistan

This section would extend the authority to transfer defense articles being drawn down in the Islamic Republic of Afghanistan and the authority to provide defense services regarding such transfers to the military and security forces of Afghanistan.

Section 1212—Extension of Authority for Reimbursement of Certain Coalition Nations for Support Provided to United States Military Operations

This section would extend through December 31, 2019, the authority to make Coalition Support Fund (CSF) payments under section 1233 of the National Defense Authorization Act for Fiscal Year 2008 (Public Law 110–181).

This section would also maintain the limitations enacted in section 1233 of the National Defense Authorization Act for Fiscal Year 2018 (Public Law 115–91), which provided that of the funds authorized for CSF, not more than \$700.0 million may be provided to the Islamic Republic of Pakistan, and of that amount, not more than \$350.0 million may be provided until the Secretary of Defense certified that Pakistan is taking demonstrable steps against the Haqqani Network.

The committee notes that elsewhere in this Act, it has fully authorized the President's budget request of \$900.0 million for fiscal year 2019 for CSF payments.

Section 1213—Extension and Modification of Commanders' Emergency Response Program

This section would extend the Commanders' Emergency Response Program through 2020 and would modify the eligibility to include Somalia, Yemen, and Libya.

Section 1214—Report on Assistance to Pakistan

This section would require the Secretary of Defense to submit a report to the congressional defense committees not later than 90 days after the date of the enactment of this Act describing the manner in which the Department provides assistance to the Government of Pakistan.

SUBTITLE C—MATTERS RELATING TO SYRIA, IRAQ, AND IRAN

Section 1221—Extension and Modification of Authority To Provide Assistance to Counter the Islamic State of Iraq and Syria

This section would extend the authority to provide assistance to counter the Islamic State of Iraq and Syria. This section would also authorize a funding level of \$850.0 million for such support in Iraq.

The committee notes that some U.S.-provided equipment has inadvertently fallen into the hands of groups that operate outside of the control of the central Government of the Republic of Iraq and the Kurdish Regional Government. The committee urges the De-

partment of Defense to evaluate its current safeguards to ensure that equipment is properly stored and maintained.

Section 1222—Extension of Authority To Provide Assistance to the Vetted Syrian Opposition

This section would extend and modify section 1209 of the Carl Levin and Howard P. “Buck” McKeon National Defense Authorization Act for Fiscal Year 2015 (Public Law 113–291) by extending the “Syria train and equip” program and the reprogramming requirement through December 31, 2019.

Further, this section would require the President to submit to the congressional defense committees a plan at least 30 days prior to an initial reprogramming request in fiscal year 2019. The plan would describe the efforts the United States will take to train and build an appropriately vetted force; the nature of the force; the current effectiveness of the force; the conditions to be met for a determination that the Islamic State in Iraq and Syria has been adequately neutralized; the roles and contributions of partner countries; the concept of operations, timelines and types of training, equipment, stipends, sustainment, supplies to be provided by the United States (including measures for accountability); and a description of force posture.

Section 1223—Extension and Modification of Authority To Support Operations and Activities of the Office of Security Cooperation in Iraq

This section would extend the authority for the Office of Security Cooperation in Iraq (OSC-I) through December 31, 2019. The committee recognizes that OSC-I will manage U.S. security cooperation with the Republic of Iraq over the long term and expects the Department of Defense to ensure, to the extent practicable, that the Government of Iraq is able to sustain and maintain U.S.-provided equipment throughout the lifespan of such equipment.

Section 1224—Sense of Congress on Ballistic Missile Cooperation to Counter Iran

This section would express the sense of Congress that the Gulf Cooperation Council member countries should take meaningful steps to build an interoperable ballistic missile defense architecture with emphasis on information sharing, including early warning and tracking data, to defend against the Islamic Republic of Iran missile threat.

Section 1225—Strategy To Counter Destabilizing Activities of Iran

This section would authorize the Secretary of Defense, with concurrence of the Secretary of State, to develop and implement a strategy with foreign partners to counter the destabilizing activities of Iran. Under such a strategy, partners and allies would commit to collaborating with the United States on a variety of efforts, including but not limited to investing in intelligence, surveillance, and reconnaissance platforms, mine countermeasures resources, integrated air and missile defense, and cybersecurity; engaging in

combined planning, defense education, and institution building; and sharing information.

Further, this section would require the Secretary of Defense, in consultation with the Secretary of State, to submit a report to the congressional defense committees and the Committee on Foreign Relations of the Senate and the Committee on Foreign Affairs of the House of Representatives, on the strategy and the actions taken by partners and allies.

Section 1226—Report on Compliance of Iran Under the Chemical Weapons Convention

This section would require the Secretary of Defense, in consultation with the Secretary of State, to submit a report to the House Committee on Armed Services and the House Committee on Foreign Affairs by February 1, 2019, assessing the extent to which Iran is complying with its obligations under the Chemical Weapons Convention.

Section 1227—Report on Potential Release of Chemical Weapons or Chemical Weapons Precursors From Barzeh Research and Development Center and Him Shinshar Chemical Weapons Storage and Bunker Facilities in Homs Province of Syria

This section would require the Secretary of Defense to provide a report to the congressional defense committees within 30 days after the date of the enactment of this Act on the analysis for potential release of chemical weapons or chemical weapon precursors, conducted prior to U.S. and partner forces strikes on the Barzeh Research and Development Center and the Him Shinshar chemical weapons storage and bunker facilities in Homs province of Syria in April 2018.

Section 1228—Report on Cooperation Between Iran and the Russian Federation

This provision would require a report each year for the next 5 years on military and security cooperation between the Islamic Republic of Iran and the Russian Federation, particularly in respect to Syria. The report would further cover Russian and Iranian intelligence-sharing, joint naval exercises, joint cooperation on Iran's space and nuclear programs, Russian cooperation with Hezbollah, and the potential that Iran will adopt Russia's hybrid warfare model.

SUBTITLE D—MATTERS RELATING TO THE RUSSIAN FEDERATION

Section 1231—Prohibition on Availability of Funds Relating to Sovereignty of the Russian Federation over Crimea

This section would extend by 1 year the prohibition imposed by section 1245 of the National Defense Authorization Act for Fiscal Year 2016 (Public Law 114-92), as amended by section 1232 of the National Defense Authorization Act for Fiscal Year 2018 (Public Law 115-91). This section would prohibit the use of fiscal year 2019 funds to implement any activity that recognizes the sovereignty of the Russian Federation over Crimea. This section would also allow the Secretary of Defense, in concurrence with the Sec-

retary of State, to waive the prohibition if the Secretary determines that doing so would be in the national security interest of the United States and submits a notification to the Committees on Armed Services of the Senate and the House of Representatives, the Committee on Foreign Relations of the Senate, and the Committee on Foreign Affairs of the House of Representatives.

Section 1232—Limitation on Availability of Funds Relating to
Implementation of the Open Skies Treaty

The committee is aware that the Department of State's 2018 arms control compliance report, also known as the "Report on Adherence to and Compliance with Arms Control, Nonproliferation, and Disarmament Agreements and Commitments", submitted pursuant to section 2593a of title 22, United States Code, continues to find the Russian Federation in violation of numerous provisions of the Treaty on Open Skies. Consistent with prior National Defense Authorization Acts, the committee believes legislation is appropriate and required to oversee the implementation of this treaty.

This section would prohibit the use of funding authorized in this Act for fiscal year 2019 for the purposes of upgrading or modernizing certain Treaty on Open Skies systems until such time as the President (or the Secretary of State) is able to certify that the President has imposed treaty violations responses and legal countermeasures.

This section would also limit the use of funding authorized in this Act or any other Act for fiscal year 2019 for the approval or adoption of any implementing decision in the Open Skies Consultative Commission concerning approval of a request by states parties to certify infra-red or synthetic aperture radar sensors under the treaty. Such funding would be restricted until:

(1) the Secretary of Defense, jointly with the relevant U.S. Government officials, submits a certification that an implementing decision would not be harmful or detrimental to the national security of the United States, as well as a report on certain matters has been submitted to the appropriate congressional committees; and

(2) the President has certified, not later than 90 days prior to a decision taking effect, that Russia is in complete compliance with the treaty, is allowing observation flights over certain specified regions, and it has agreed to certain conditions (including the extradition of Russian citizens involved in undertaking unlawful activities against the United States incident to the 2016 Presidential election, it has withdrawn from Crimea and ceased support to Russian proxies in Eastern Ukraine, and has ceased all military and financial support for any state that uses or has used against its civilian population any agent or substance banned by the Chemical Weapons Convention).

The President would be permitted to waive the limitation subject to certain conditions.

The section would also permit the Secretary to cease operation of treaty aircraft for safety of flight.

Section 1233—Comprehensive Response to the Russian Federation’s Material Breach of the INF Treaty

This section would state a series of findings concerning Russian Federation violations of the INF Treaty. This section would also state that it is the policy of the United States that Russia has defeated the object and purpose of the treaty, is in material breach of the treaty, and as a result the U.S. is legally entitled to suspend the operation of the treaty in whole or in part for so long as the Russian Federation continues to be in material breach of the treaty.

This section would additionally withhold 25 percent of the funding authorized to be appropriated by this Act for Department support to the Executive Office of the President, other than funding required for senior leader communications, until the President certifies that each requirement of section 1290 of the National Defense Authorization Act for Fiscal Year 2017 (Public Law 114–328) has been met; that the President has notified the appropriate congressional committees of the imposition of sanctions pursuant to section 1290 of that Act; and, that the President has submitted the report required by section 1244(c) of the National Defense Authorization Act for Fiscal Year 2018 (Public Law 115–91).

The committee notes that because the requirements of section 1244(b)(2) of Public Law 115–91 have not been satisfied as of this report, the restriction on \$50.0 million in fiscal year 2018 authorized funding for the Special Mission Area of the Defense Information Systems Agency remains in place.

The committee is aware that the State Department’s 2018 arms control compliance report, also known as the Report on Adherence to and Compliance With Arms Control, Nonproliferation, and Disarmament Agreements and Commitments, submitted pursuant to section 2593a of title 22, United States Code, continues to find Russia in violation of the Treaty on the Elimination of Intermediate-Range and Shorter-Range Missiles (INF Treaty), specifically the obligations not to possess, produce, or flight-test a ground-launched missile with a range capability of 500 kilometers to 5,500 kilometers. Each National Defense Authorization Act since fiscal year 2014 has included measures to pressure Russia to return to compliance with the treaty and to ensure Russia cannot obtain a military advantage by its violations of the treaty. The committee believes time is running out for Russia to take actions that will allow for the preservation of the treaty.

Section 1234—Modification and Extension of Ukraine Security Assistance Initiative

This section would extend by 2 years section 1250 of the National Defense Authorization Act for Fiscal Year 2016 (Public Law 114–92), most recently amended by section 1234 of the National Defense Authorization Act for Fiscal Year 2018 (Public Law 115–91), to authorize the Secretary of Defense to provide security assistance and intelligence support to the Government of Ukraine. This section would also authorize \$250.0 million to carry out this authority in fiscal year 2019.

The committee recognizes the essential role played by U.S. and partner assistance in training, advising, and equipping Ukrainian

military and security forces, including the invaluable contributions of the National Guard through the State Partnership Program, and urges the Defense Department to fully resource those efforts. As part of these efforts, the committee recognizes the contributions of training activities conducted at the International Peacekeeping and Security Center in Yavoriv, Ukraine, and similar locations.

The committee commends the administration for providing defensive lethal assistance through Foreign Military Financing in the past year to the Government of Ukraine to support its efforts to protect and defend its territorial integrity. The committee urges the Department to continue to use the Ukraine Security Assistance Initiative (USAI) for assistance to the Government of Ukraine and encourages the Department to consider USAI as a source of funds for future defensive lethal assistance.

Section 1235—Statement of Policy on United States Military Investment in Europe

This section would state that it is the policy of the United States to sustain credible deterrence against aggression by the Government of the Russian Federation.

The committee notes section 1273 of the National Defense Authorization Act for Fiscal Year 2018 (Public Law 115–91) required the Secretary of Defense to submit a report to the congressional defense committees detailing a Future Years Defense Program plan for resourcing and planning for the European Deterrence Initiative. Section 1273 also prohibited any further action with respect to sites identified for divestiture, but not yet divested, as part of the European Infrastructure Consolidation (EIC) initiative until the report was submitted to the congressional defense committees.

As the section 1273 report has not been submitted in compliance with the statutory requirement, the committee believes the limitation of the divestiture of sites under the EIC is still in place.

Section 1236—Imposition of Sanctions With Respect to Certain Persons Providing Sophisticated Goods, Services, or Technologies for Use in the Production of Major Defense Equipment or Advanced Conventional Weapons

This section would require the President to submit a report to the specified congressional committees within 120 days after the date of enactment of the Act; the report would list such persons as are described in section 1290 of the National Defense Authorization Act for Fiscal Year 2017 (Public Law 114–328).

This section would also require the President to submit a report to the specified congressional committees within 120 days after the date of enactment of the Act; the report would provide information related to the supply chains for Russian arms sales programs.

The section would require the imposition of sanctions with respect to persons providing specified support to Russian industry, with a focus on targeting Russia's defense industry supply chain, involved with developing or producing major defense equipment or advanced conventional weapons. The sanctions available to the President would include, denial of sales or defense articles and services; licenses for export of an item on the United States Munitions List; or, exports controlled for national security under the Ex-

port Administration Regulations. It would also contain an enhanced sanction for governments of state-sponsors of terrorism that obtain such equipment from Russia. The President would be authorized to waive the imposition of sanctions with respect to the new sanctions provided in this section in certain specified circumstances.

This section would also amend section 231 of the Countering America's Adversaries Through Sanctions Act (Public Law 115-44), by providing an authority to suspend the imposition of sanctions under that Act for 180-day periods in the event a person demonstrates that they are directly supporting U.S. national security objectives and have taken specified steps, including terminating defense relationships with Russia, or reducing reliance upon the Russian defense or intelligence sectors.

Finally, all provisions or amendments made by this section would expire in 5 years.

Section 1237—Extension of Limitation on Military Cooperation Between the United States and the Russian Federation

This section would extend for 1-year section 1232(a) of the National Defense Authorization Act for Fiscal Year 2017 (Public Law 114-328), as most recently amended by section 1231 of the National Defense Authorization Act for Fiscal Year 2018 (Public Law 115-91). This section would limit the use of fiscal year 2019 funds for bilateral military-to-military cooperation between the Government of the United States and the Russian Federation until the Secretary of Defense, in coordination with the Secretary of State, provides a certification to appropriate congressional committees relating to certain actions by Russia. This section would also allow the Secretary of Defense to waive the limitation under certain conditions.

Section 1238—Sense of Congress Regarding Russia's Violations of the Chemical Weapons Convention

This section would express the sense of Congress that the Russian Federation is in violation of the Chemical Weapons Convention.

Section 1239—United States Actions Regarding Material Breach of INF Treaty by the Russian Federation

This section would provide that, unless the President certifies to the specified congressional committees that the Russian Federation has returned to full and verifiable compliance with the INF Treaty within 1 year of the date of the enactment of this Act, the prohibitions set forth in Article VI of the Intermediate-range Nuclear Forces Treaty would no longer be binding upon the United States as a matter of U.S. law.

Section 1240—Limitation on Availability of Funds To Extend the Implementation of the New START Treaty

This section would limit the expenditure of funds for the Department of Defense to extend the implementation of the New START Treaty unless and until the President certifies that the President

has raised the issue of certain new Russian nuclear weapons systems under Article V of the New START Treaty and that the Russian Federation has responded in writing to the United States as to whether they will agree to declare such nuclear weapons systems pursuant to the Treaty. The President would be required to notify the specified congressional committees on whether the Russian position threatens the viability of the New START Treaty or requires political, economic, or military response by the United States.

SUBTITLE E—MATTERS RELATING TO THE INDO-PACIFIC REGION

Section 1251—Support for Indo-Pacific Stability Initiative

This section would express the sense of Congress in support of the Indo-Pacific Stability Initiative to increase and enhance U.S. force posture; improve military and defense infrastructure, basing, and logistics; and increase bilateral and multilateral training and exercises with allies and partner nations.

This section would require the Secretary of Defense to submit a requirement and resource plan to the congressional defense committees by March 1, 2019, that includes an analysis of the challenges faced by the United States to meet the objectives and activities outlined in the Indo-Pacific Stability Initiative and the resource requirements needed through fiscal year 2024 to address such challenges. This section also would require the Secretary to submit budget materials in support of the budget of the President for fiscal year 2020.

Section 1252—United States Strategy on China

This section would require the President to issue a strategy on the United States' whole-of-government approach to safeguard U.S. interests against Chinese industrial acquisitions, political influence, and regional and global military capabilities and presence that have defense and security implications for the United States and its allies and partners. The strategy and recommendations for implementation would be required to be submitted to the appropriate congressional committees as a written report not later than March 1, 2019.

Section 1253—Strengthening Taiwan's Force Readiness

This section would direct the Secretary of Defense to conduct a comprehensive assessment, in consultation with appropriate counterparts of Taiwan, on ways to enhance and reform Taiwan's military forces, particularly Taiwan's reserve forces. The assessment would also require the development of recommendations to strengthen bilateral cooperation and improve Taiwan's self-defense capabilities. The Secretary of Defense, in consultation with the Secretary of State, would be required to submit a report on the assessment and a list of recommendations and planned actions to the appropriate congressional committees not later than 1 year after the date of the enactment of this Act.

Section 1254—Modification, Redesignation, and Extension of Southeast Asia Maritime Security Initiative

This section would modify the Southeast Asia Maritime Security Initiative by amending the name to the Indo-Pacific Maritime Security Initiative. It would include India as a covered country and allow for the inclusion of additional countries in the Indo-Pacific region if the Secretary of Defense, in concurrence with the Secretary of State, determines and certifies to the appropriate committees of Congress that it is important for increasing maritime security and maritime domain awareness. This section would also extend the authority by 3 years from September 30, 2020, to September 30, 2023.

Section 1255—Missile Defense Exercises in the Indo-Pacific Region With United States Regional Allies and Partners

This section would express the sense of Congress that the United States should continue to develop and deploy robust missile defense in the Indo-Pacific region. This section would also express that the United States should increase coordination, conduct bilateral and multilateral missile defense exercises, and increase the capacity and integration of missile defense systems with allies and partners to move toward a more interoperable and integrated missile defense architecture.

This section would also state that the Secretary of Defense may conduct missile defense exercises in the Indo-Pacific region with U.S. regional allies and partners to improve interoperability.

Finally, this section would require the Secretary of Defense to provide a briefing to the congressional defense committees, the Committee on Foreign Relations of the Senate, and the Committee on Foreign Affairs of the House of Representatives on the matters contained in subsection (c) not later than 120 days after the date of the enactment of this Act.

Section 1256—Quadrilateral Cooperation and Exercise

This section would express the sense of Congress on supporting quadrilateral cooperation among the United States, Japan, the Commonwealth of Australia, and the Republic of India, and others as appropriate.

This section would also state that the Secretary of Defense may conduct a quadrilateral naval military exercise and it would require the Secretary to provide a briefing to the congressional defense committees, the Committee on Foreign Relations of the Senate, and the Committee on Foreign Affairs of the House of Representatives on matters contained in this section not later than 120 days after the date of the enactment of this Act.

Section 1257—Name of United States Indo-Pacific Command

This section would change the name of “United States Pacific Command” to “United States Indo-Pacific Command” beginning in January 1, 2020. This section also would make several conforming amendments pursuant to the name change.

The committee notes that changing the name from “United States Pacific Command” to “United States Indo-Pacific Command”

may involve some necessary administrative expenditures. The committee believes the Department of Defense should be prudent and minimize such costs to the extent practicable.

Section 1258—Requirement for Critical Languages and Expertise in Chinese, Korean, and Russian

This section would require the Secretary of Defense to provide a plan to address shortfalls in Chinese, Korean, and Russian language and expertise across the Department of Defense. Specifically, the plan shall provide a near-term and long-term plan for how the Department is building competency in these critical areas and the Secretary of Defense shall submit that plan to the congressional defense committees not later than 180 days after the date of the enactment of this Act.

Section 1259—Modification of Report Required Under Enhancing Defense and Security Cooperation With India

This section would amend subsection (a)(2) of section 1292 of the National Defense Authorization Act for Fiscal Year 2017 (114–328) by adding an additional reporting requirement. The new reporting requirement would include a description of the progress on enabling agreements between the United States and the Republic of India, any limitations that hinder or slow progress, measures to improve interoperability, and actions India is taking, or the Secretary of Defense or the Secretary of State believe India should take, to advance the relationship with the United States.

Section 1260—Statement of Policy on Naval Vessel Transfers to Japan

This section would express that it shall be the policy of the United States to support maritime defense cooperation with Japan.

Section 1261—Report and Public Notification on China’s Military, Maritime, and Air Activities in the Indo-Pacific Region

This section would state the sense of Congress that greater transparency of the People’s Republic of China provocative military, maritime, and air activities in the Indo-Pacific region would aid in raising awareness of these activities, enable regional security partners to more effectively protect their sovereignty and defend their rights under international law, and maintain stability within the region to enable constructive relations with China.

This section would also require Secretary of Defense, in consultation with the Director of National Intelligence and the Secretary of State, to submit a report to the appropriate congressional committees on a quarterly basis describing China’s activities in the Indo-Pacific region, and disseminate the report to regional allies and partners and provide public notification, as appropriate. The dissemination and availability of the report and public notification shall be made in a manner consistent with national security and the protection of classified national security information.

Section 1262—Senior Defense Engagement With Taiwan

This section would express the sense of Congress that, pursuant to the Taiwan Travel Act, a service secretary or member of the joint chiefs should visit Taiwan for a senior-level defense engagement. This section would require a briefing to the congressional defense committees, the Committee on Foreign Relations of the Senate, and the Committee on Foreign Affairs of the House of Representatives on any plans of the Department to carry out senior-level defense engagement.

Section 1263—Limitation on Use of Funds To Reduce the Total Number of Members of the Armed Forces on Active Duty Who Are Deployed to the Republic of Korea

This section would limit the use of funds authorized to be appropriated by this Act to reduce the number of members of the Armed Forces serving on Active Duty in the Republic of Korea below 22,000 unless the Secretary of Defense first provides certification to the congressional defense committees that such a reduction is in the national security interest of the United States and will not significantly undermine the security of the United States allies in the region.

Section 1264—Enhancing Missile Defense Cooperation With Partners

This section would state the sense of Congress that the Secretary of Defense should seek to increase missile defense coordination and cooperation with U.S. partners.

This section would amend section 1292 of the National Defense Authorization Act for Fiscal Year 2017 (Public Law 114-328) as amended by section 1258 of the National Defense Authorization Act for Fiscal Year 2018 (Public Law 115-91) by including missile defense cooperation as a priority of Department of Defense defense cooperation efforts with the Republic of India.

SUBTITLE F—OTHER MATTERS

Section 1271—Report on Status of the United States Relationship With the Republic of Turkey

This section would require the Secretary of Defense, in consultation with the Secretary of State, to submit a report on the U.S.-Turkish relationship to the congressional defense committees, the Committee on Foreign Relations of the Senate and the Committee on Foreign Affairs of the House of Representatives, not later than 60 days after the date of the enactment of this Act.

This section would also prohibit any action to execute delivery of a foreign military sale for major defense equipment under section 36 of the Arms Export Control Act (22 U.S.C. 2761) to the Republic of Turkey until the required report is delivered to the specified congressional committees.

Section 1272—Sense of Congress on Unity of Gulf Cooperation Council Member Countries

This section would describe the sense of Congress that the member countries of the Gulf Cooperation Council (GCC) are important security cooperation partners of the United States, that GCC unity and cohesion is critical to facing the growing threats from the Islamic Republic of Iran, and that the timely normalization of diplomatic, security, and economic relationships is in the best interest of the United States.

Section 1273—Report on United States Government Police Training and Equipping Programs for Mexico

This section would require the President to submit a report to the congressional defense committees, the Committee on Foreign Relations of the Senate, the Committee on Homeland Security and Governmental Affairs of the Senate, and the Committee on the Judiciary of the Senate, and the Committee on Foreign Affairs of the House of Representatives, the Committee on Homeland Security of the House of Representatives, and the Committee on the Judiciary of the House of Representatives by July 1, 2019, on U.S. police training and equipping programs with the United States of Mexico.

Section 1274—Authority To Increase Engagement and Military-to-Military Cooperation With Western Balkans Countries

This section would authorize the Secretary of Defense to increase engagement and military-to-military cooperation utilizing authorized programs and activities under chapter 16 of title 10, United States Code, for the Western Balkans region including the Republic of Serbia, Bosnia and Herzegovina, the Republic of Kosovo, and the Republic of Macedonia.

The committee is concerned about long-term stability and security in the Western Balkans region. Ethnic tensions, economic challenges, and malign outside influences are contributing to the instability of the region. The committee remains concerned about the upcoming elections in Bosnia and Herzegovina. Since the signing of the Dayton Accords in 1995, Bosnia and Herzegovina has maintained growth in developing democratic institutions and elections. The committee encourages the Government of Bosnia and Herzegovina to promptly and effectively address their constitutional challenges and hold fair and free elections in October 2018.

The committee remains deeply concerned over the Russian Federation's intensifying efforts to assert its influence in the Western Balkans. The committee condemns Russia's involvement in the attempted coup against the Government of the newest member of the North Atlantic Treaty Organization (NATO), Montenegro, in October 2016. The committee is also concerned about Russian information operations in the Balkans including propaganda and efforts to highlight lingering ethnic tensions.

The committee is encouraged by the strong partnerships that continue to develop in the Western Balkans with the United States. These partnerships are vital to increase security, stability, and prosperity in the region. The committee also encourages European partners and allies to strengthen relationships in the region as well. The committee is hopeful about, and supportive of, the contin-

ued work of many in the region toward goals of integrating into the Euro-Atlantic community, including NATO and the European Union (EU). The continued forward progress by these nations toward accession into NATO and the EU provides a stable framework from which to achieve greater stability and security throughout Central Europe. The committee notes that the Department of Defense should continue to increase military-to-military cooperation and engagements in the region.

Section 1275—Technical Corrections Relating to Defense Security Cooperation Statutory Reorganization

This section would make technical corrections relating to defense security cooperation statutory reorganization.

Section 1276—United States-Israel Countering Unmanned Aerial Systems Cooperation

This section would modify section 1279 of the National Defense Authorization Act for Fiscal Year 2016 (Public Law 114–92) to authorize establishment of a cooperative research and development program with the State of Israel to develop capabilities for countering unmanned aerial systems through modification of the existing memorandum of agreement between the United States and Israel for anti-tunneling defense capabilities or through a new memorandum of agreement.

Section 1277—Three-Year Extension of Authorization of Non-Conventional Assisted Recovery Capabilities

This section would modify section 943(g) of the National Defense Authorization Act for Fiscal Year 2009 (Public Law 110–417), as most recently amended by section 1051(n) of the National Defense Authorization Act for Fiscal Year 2018 (Public Law 115–91), authorization of non-conventional assisted recovery capabilities, by striking “2021” and inserting “2024”.

Section 1278—Revision of Statutory References to Former NATO Support Organizations and Related NATO Agreements

This section would amend section 2350d of title 10, United States Code, to update the statutory reference to reflect a reorganization of the North Atlantic Treaty Organization (NATO) with respect to the elimination of the NATO Support Organization and the establishment of the NATO Support and Procurement Organization. This section would also amend section 2350d to reflect that NATO supply and logistics support activities may extend to NATO operations outside of Europe.

Section 1279—Sense of the Congress Concerning Military-to-Military Dialogues

This section would state the sense of Congress regarding the parameters that lead to successful military-to-military dialogues.

Section 1280—Modifications to Global Engagement Center

This section would modify section 1287 of the National Defense Authorization Act for Fiscal Year 2017 (Public Law 114–328).

Nothing in this section would alter the requirements of section 8119 of the Consolidated Appropriations Act of 2018 (Public Law 115–141) or any successor provision in an Appropriation Act.

Section 1281—Report on Acquisition and Cross-Servicing Agreements

This section would amend section 2342 of title 10, United States Code, with a requirement to report on cross-servicing agreements with NATO Allies and other countries. Reporting would include the country, date, text, dollar amount, and an assessment as to whether or not it falls within U.S. national security interests.

Section 1282—Prohibition on Provision of Weapons and Other Forms of Support to Certain Organizations

This section would prohibit funds authorized to be appropriated by this Act or otherwise made available to the Department of Defense for fiscal year 2019 from being used to provide weapons or any other form of support to certain organizations.

Section 1283—Certification and Authority To Terminate Funding for Academic Research Relating to Foreign Talent Programs

This section would require the Secretary of Defense to submit a plan to implement a certification requirement to ensure certain applicants for certain Department of Defense research funding provide the Secretary information concerning whether they have participated, or are currently participating, in foreign talent or expert recruitment programs of certain countries.

The Secretary would be required to implement such certification program not later than one year after the date of the enactment of this Act. The Secretary would have the authority to terminate the award of Department funds if an applicant or recipient of such funds is unable to provide the required certification.

Section 1284—Sense of Congress on Support for Georgia

This section would express the sense of Congress regarding the United States support for Georgia's sovereignty and territorial integrity as well as support for continued cooperation between the United States and Georgia.

Section 1285—Sense of Congress on Support for Estonia, Latvia, and Lithuania

This section would express the sense of Congress on U.S. support for the Republic of Estonia, the Republic of Latvia, and the Republic of Lithuania, including support for their sovereignty, concern over aggressive military actions of the Russian Federation against these nations, and encouragement for further defense cooperation between the United States and these nations.

Section 1286—Report on United States Strategy in Yemen

This section would require the Secretary of Defense to submit a report to the congressional defense committees not later than February 1, 2019, describing the strategy of the United States Armed Forces with respect to Yemen including a description of the U.S.

Armed Forces activity in Yemen, costs associated with such activity, key objectives of such activity, indicators of effectiveness, how current efforts align with such objectives, the estimated annual resources required through fiscal year 2022 to achieve such objectives, the applicable legal authorities, and any other matters the Secretary deems relevant.

Section 1287—Report on Hizballah

This section would require the President to submit to the Senate Committee on Armed Services, the House Committee on Armed Services, the congressional intelligence committees, the Committee on Foreign Affairs of the House of Representatives, and the Committee on Foreign Relations of the Senate a report on Hizballah no later than 90 days after the enactment of this act. The report would include accounting of Hizballah's known rocket arsenal, an evaluation of the impact of the United Nations Interim Force in Lebanon (UNIFIL), an evaluation of Hizballah's capabilities, a description of routes used by Hizballah to procure weapons illegally, an estimate of entities that support Hizballah's network, an assessment of Hizballah's involvement in regional conflicts, and an assessment of Hizballah's fundraising in territories where UNIFIL operates.

TITLE XIII—COOPERATIVE THREAT REDUCTION

ITEMS OF SPECIAL INTEREST

Future of the Cooperative Threat Reduction Program

The committee notes the successful history of the Nunn-Lugar Cooperative Threat Reduction (CTR) program, including the pivotal role it played in securing former Soviet Union nuclear material and delivery platforms, the destruction of Russian and Syrian chemical weapons, and the securing of sensitive biological laboratories around the world. In response to an evolving threat landscape, Congress has provided modifications to the original program to address current requirements for threat reduction and the proliferation of weapons of mass destruction (WMD) by state and non-state actors around the globe.

The committee is aware that additional opportunities may exist for enhanced cooperation with allies and partners to address emerging proliferation concerns and WMD threats, such as those on the Korean Peninsula. The committee notes, however, that interagency coordination, expeditious project approval, prioritization, measuring program effectiveness, and policy gaps continue to pose challenges to effective and efficient utilization of CTR by the Department of Defense, despite efforts for improvement.

Therefore, the committee directs the Secretary of Defense to provide a report to the House Committee on Armed Services by December 1, 2018, on how to strengthen the CTR program so that it may be better leveraged for emerging threat reduction and proliferation concerns in an efficient and expeditious manner.

LEGISLATIVE PROVISIONS

Section 1301—Funding Allocations

This section would allocate specific funding amounts for each program under the Department of Defense Cooperative Threat Reduction (CTR) Program from within the overall \$335.2 million that the committee would authorize for the CTR Program. The allocation under this section reflects the amount of the budget request for fiscal year 2019.

Section 1302—Specification of Cooperative Threat Reduction Funds

This section would specify that funds authorized to be appropriated to the Department of Defense for the Cooperative Threat Reduction Program, established under the Department of Defense Cooperative Threat Reduction Act (50 U.S.C. 3711), would be available for obligation in fiscal years 2019, 2020, and 2021.

TITLE XIV—OTHER AUTHORIZATIONS

LEGISLATIVE PROVISIONS

SUBTITLE A—MILITARY PROGRAMS

Section 1401—Working Capital Funds

This section would authorize appropriations for Defense Working Capital Funds at the levels identified in section 4501 of division D of this Act.

Section 1402—Chemical Agents and Munitions Destruction,
Defense

This section would authorize appropriations for Chemical Agents and Munitions Destruction, Defense at the levels identified in section 4501 of division D of this Act.

Section 1403—Drug Interdiction and Counter-Drug Activities,
Defense-Wide

This section would authorize appropriations for Drug Interdiction and Counter-Drug Activities, Defense-wide at the levels identified in section 4501 of division D of this Act.

Section 1404—Defense Inspector General

This section would authorize appropriations for the Office of the Inspector General at the levels identified in section 4501 of division D of this Act.

Section 1405—Defense Health Program

This section would authorize appropriations for the Defense Health Program at the levels identified in section 4501 of division D of this Act.

Section 1406—National Defense Sealift Fund

This section would authorize appropriations for the National Defense Sealift Fund at the levels identified in section 4501 of division D of this Act.

SUBTITLE B—OTHER MATTERS

Section 1411—Authority for Transfer of Funds to Joint Department of Defense-Department of Veterans Affairs Medical Facility Demonstration Fund for Captain James A. Lovell Health Care Center, Illinois

This section would authorize the transfer of funds from the Department of Defense to the Joint Department of Defense-Department of Veterans Affairs Medical Facility Demonstration Fund established by section 1704 of the National Defense Authorization Act for Fiscal Year 2010 (Public Law 111–84).

Section 1412—Authorization of Appropriations for Armed Forces Retirement Home

This section authorizes appropriations for fiscal year 2019 from the Armed Forces Retirement Home Trust Fund for the operation of the Armed Forces Retirement Home.

Section 1413—Quarterly Briefing on Progress of Chemical Demilitarization Program

This section would modify section 1521 of title 50, United States Code, to require the Secretary of Defense to provide quarterly briefings to the congressional defense committees on the progress of the chemical demilitarization program, including contractor cost and schedule performance, destruction progress, and any other relevant information until stockpile destruction is complete. This section would also eliminate the semiannual written reports required in the section referenced above.

TITLE XV—AUTHORIZATION OF ADDITIONAL APPROPRIATIONS FOR OVERSEAS CONTINGENCY OPERATIONS

ITEMS OF SPECIAL INTEREST

Cargo Inspections To Counter Vehicle Borne IED Threats

The Committee is encouraged that the Department of the Army is testing and planning to deploy new passive cargo inspection technologies to address a joint urgent operational need to counter Vehicle Borne Improvised Explosive Device (VBIED) threats. This disruptive technology, which utilizes naturally occurring cosmic ray muons and electrons, identifies shielded and unshielded nuclear and radioactive materials; detects smuggled contraband, including weapons, bombmaking materials, and illicit goods; and is proven safe for humans, animals, and food products. The Committee encourages the Army to continue with the current testing program and supports efforts to deploy the system at a major US military

facility. Further, the Committee requests a briefing 60 days after the enactment of this bill on the potential future deployments of these next generation inspection technologies inside and outside the continental United States. The briefing, which may be provided in a classified setting, shall include an assessment of current cargo inspection protocols and requirement gaps that may exist.

National Guard and Reserve Component Equipment Account

The budget request for Overseas Contingency Operations (OCO) contained no funding for a National Guard and Reserve Component equipment account. Elsewhere as reflected in division D of this Act, the committee notes that the base budget request contained \$3.4 billion for procurement of National Guard and Reserve Component equipment and \$219.9 million in the OCO request for Army National Guard and Army Reserve other procurement programs.

The committee remains concerned about the availability of equipment needed to sustain and modernize the National Guard and Reserve Components as an operational reserve and for their domestic support missions. The committee notes that National Guard and Reserve Components are often reliant upon overused and outdated equipment, creating a widening capability gap with the Active Component, and have been unable to maintain pace with rapid technological change. The committee believes additional funds are required to address identified equipment shortfalls and improve compatibility with Active Components. The committee expects these funds to be used for the purposes of, but not limited to, the procurement of rotorcraft; avionics and radar upgrades for legacy strike fighter aircraft to include Navy Reserve F-18 strike fighters; wheeled and tracked combat vehicles; tactical wheeled vehicles; ammunition; small arms; tactical radios (to include single channel ground and airborne radio systems); UH-72A Lakota survivability upgrades; UH-60 disaster response equipment, such as rescue hoists, water buckets, and radios; non-system training devices; vehicle convoy operations trainers; unstabilized gunnery trainers and virtual convoy operations trainers; sense and avoid system upgrades for unmanned air systems; and explosive ordnance disposal man-portable robots & lightweight X-ray systems and other unfunded procurement items for the National Guard and Reserve Components.

The committee recommends additional funding for a National Guard and Reserve Component equipment account within the Overseas Contingency Operations budget request. The committee also recommends \$3.4 billion, the full amount of the base budget request, for National Guard and Reserve Component equipment and also recommends \$219.9 million in the OCO request for Army National Guard and Army Reserve.

LEGISLATIVE PROVISIONS

SUBTITLE A—AUTHORIZATION OF APPROPRIATIONS

Section 1501—Purpose of Certain Authorizations of Appropriations

This section would establish the purpose of this title and make authorization of appropriations available upon enactment of this Act for the Department of Defense, in addition to amounts other-

wise authorized in this Act, to provide for additional authorization of funds due to overseas contingency operations and other additional funding requirements.

Section 1502—Procurement

This section would authorize additional appropriations for procurement at the levels identified in section 4102 of division D of this Act.

Section 1503—Research, Development, Test, and Evaluation

This section would authorize additional appropriations for research, development, test, and evaluation at the levels identified in section 4202 of division D of this Act.

Section 1504—Operation and Maintenance

This section would authorize additional appropriations for operation and maintenance programs at the levels identified in section 4302 of division D of this Act.

Section 1505—Military Personnel

This section would authorize additional appropriations for military personnel at the levels identified in section 4402 of division D of this Act.

Section 1506—Working Capital Funds

This section would authorize additional appropriations for Defense Working Capital Funds at the levels identified in section 4502 of division D of this Act.

Section 1507—Drug Interdiction and Counter-Drug Activities, Defense-Wide

This section would authorize additional appropriations for Drug Interdiction and Counter-Drug Activities, Defense-Wide, at the levels identified in section 4502 of division D of this Act.

Section 1508—Defense Inspector General

This section would authorize additional appropriations for the Office of the Inspector General at the levels identified in section 4502 of division D of this Act.

Section 1509—Defense Health Program

This section would authorize additional appropriations for the Defense Health Program at the levels identified in section 4502 of division D of this Act.

SUBTITLE B—FINANCIAL MATTERS

Section 1511—Treatment as Additional Authorizations

This section would state that amounts authorized to be appropriated by this title are in addition to amounts otherwise authorized to be appropriated by this Act.

Section 1512—Special Transfer Authority

This section would authorize the transfer of up to \$4.5 billion of additional war-related funding authorizations in this title among the accounts in this title.

SUBTITLE C—LIMITATIONS, REPORTS, AND OTHER MATTERS

Section 1521—Afghanistan Security Forces Fund

This section would extend the Afghanistan Security Forces Fund through December 31, 2019. This section would also set a goal of using \$18.0 million to support, to the extent practicable, the efforts of the Government of the Islamic Republic of Afghanistan to promote the recruitment, training, and integration of Afghan women into the Afghan National Defense and Security Forces and as security personnel for future elections.

This section would also require an assessment of the Government of Afghanistan's ability to manage, employ, and sustain equipment divested under the Afghan Security Forces Fund; if the results of said assessment are unfavorable, the Secretary of Defense, in consultation with the Secretary of State, would be authorized to withhold assistance under the Afghanistan Security Forces Fund.

Section 1522—Joint Improvised-Threat Defeat Fund

This section would amend subsections (b) and (c) of section 1514 of the John Warner National Defense Authorization Act for Fiscal Year 2007 (Public Law 109-364) to extend the use and transfer authority for the Joint Improvised-Threat Defeat Fund through fiscal year 2019. This section would also extend the authority for interdiction of improvised explosive device precursor chemicals to December 31, 2019.

This section would also direct the Secretary of Defense to submit to the Committees on Armed Services of the Senate and the House of Representatives by March 1, 2019, a plan to transition funding for the Joint Improvised-Threat Defeat Fund from Overseas Contingency Operations to the base budget.

TITLE XVI—STRATEGIC PROGRAMS, CYBER, AND INTELLIGENCE MATTERS

ITEMS OF SPECIAL INTEREST

SPACE ACTIVITIES

Briefing on Deployed Satellite Communications Terminals

The committee notes that currently deployed satellite communications terminals may not meet the performance, the agility, timeliness, and weight requirements needed to provide secure satellite communications to naval and expeditionary forces. The committee directs the Secretary of the Navy to provide a briefing to the House Committee on Armed Services by November 1, 2018, on the current validated requirements for the terminals and a plan, including applicability, operational capability and cost, for quickly fielding commercially available, secure, lightweight, satellite com-

munications terminals, equipped with rapidly deployable antennas, in support of warfighter operations.

Briefing on Supply Chain for In-Space Propulsion Thrusters

The committee is aware that the Department of Defense and its suppliers rely on U.S., allied, and non-allied manufacturers for procurement of in-space propulsion thrusters. These thrusters are used on critical military satellites and the Committee is concerned that the presence of Russian origin thrusters on these satellites may constitute a security risk, particularly as the Department of Defense shifts towards the use of commercial off the shelf satellites.

Therefore, the Committee directs the Secretary of the Air Force to provide a briefing on the supply chain for in-space propulsion thrusters, whether the presence of allied or non-allied thrusters increases risk, and if so how, options to mitigate any identified risks, and the cost implications of relying solely on U.S. sources to the House Committee on Armed Services by January 31, 2019.

Commercial Satellite Imagery

The committee continues to support the National Geospatial-Intelligence Agency's (NGA) continued acquisition of commercial satellite imagery in support of global geospatial-intelligence needs. The committee is also aware that NGA, working with the National Reconnaissance Office (NRO), is developing a joint transition plan to transfer commercial imagery pixel acquisition from NGA to NRO in fiscal year 2019, and expects continued focus and leveraging of these commercial capabilities to add to U.S. imagery capacity and capabilities.

As this transition occurs, the committee believes it is essential to maintain continuity of operation, quality of service, cost-effective services, and capability for the warfighter and other user communities.

Acquisition of commercial imagery should contract with several providers to leverage U.S. industry providers of global, high-resolution, and cost-effective services, with high revisit rates, and reliable performance including those that have demonstrated proven capability and those that are rapidly emerging within industry. Commercial synthetic aperture radar imagery can also provide day, night, and all-weather imagery in highly cloud covered regions.

The committee directs the NGA Director and the NRO Director to jointly provide a briefing to the congressional defense committees and the congressional intelligence committees by August 1, 2018, on agency plans for the transition from NGA to NRO, and planned funding beyond fiscal year 2019, and on an open and fair competitive acquisition process to leverage industry capabilities, including but not limited to plans following the EnhancedView contract.

Commercial Space Situational Awareness Capabilities

The committee continues to be concerned with the direction of the multiple programs seeking to address space situational awareness (SSA) requirements, including Joint Space Operations Center Mission System, the Enterprise Space Battle Management Com-

mand and Control System, and the SSA Operations at the National Space Defense Center. The committee expects the Air Force to operationalize existing best of breed commercial capabilities to meet warfighter requirements.

The committee supports the efforts being undertaken by the Air Force Research Laboratory and the Air Force Rapid Capabilities Office to develop common data standards and process commercial data to augment Department of Defense capabilities. The development of common data standards will be important to ensuring the broader multi-domain command and control efforts that are being undertaken within the Air Force.

Criteria for Launch Service Agreement Down-Select

The committee notes that the Secretary of the Air Force plans to make an initial down-select decision to three potential Expendable Evolved Launch Vehicle (EELV) launch providers for assured access to space in the summer of 2018, and plans to make a final award for launch service procurement contracts by the end of fiscal year 2019. The committee is aware that full-scale flight tests of new space launch vehicles may not occur until after this award is made.

The committee therefore directs the Secretary of the Air Force to provide a briefing to the House Committee on Armed Services not later than October 1, 2018, on the criteria and sufficiency of test data that the Air Force will use to make the final launch service agreement awards by the end of fiscal year 2019, potentially ahead of fully integrated flight tests. The briefing should also include criteria and incentives that the Air Force will use to ensure that the contractors selected maintain schedule and fidelity in line with their contract bids.

GPS Backup Demonstration

The committee continues to support the demonstration of backup and complementary positioning, navigation, and timing capabilities of the Global Positioning System (GPS) as required by section 1606 of the National Defense Authorization Act for Fiscal Year 2018 (Public Law 115–91). The committee encourages the Secretary of Defense, Secretary of Transportation, and Secretary of Homeland Security to continue to work together to jointly develop and implement a plan for carrying out this backup GPS capability demonstration in 2019 and 2020. Further, the committee expects the Secretaries to submit the final report next year as required by Public Law 115–91. The committee directs the Secretary of Defense to provide a briefing to the congressional defense committees by December 1, 2018, on the progress being made on this demonstration.

Launch Support and Infrastructure Modernization

The committee is aware that the Air Force's launch support and modernization program required by section 1609 of the National Defense Authorization Act for Fiscal Year 2018 (Public Law 115–91) covers the Eastern and Western Ranges, but does not include U.S. spaceports. Therefore, the committee directs the Secretary of the Air Force to provide a briefing to the Committees on Armed Services of the Senate and the House of Representatives not later

than September 14, 2018, on the potential benefits of including in this program U.S. spaceports and ranges that actively support national security missions, including benefits such as increasing resilience and rapid launch capability, and the estimated costs of including them.

Launch Vehicle Upper Stage Mission Enhancement

The committee is interested in the cost-effective development of advanced launch vehicle upper stages to be used for defense of our space assets. Advanced upper stages could increase the operational flexibility and on-orbit reusability of the holistic launch system while also allowing for greater delivery of mass to orbit.

The committee directs the Secretary of Defense to provide a briefing to the congressional defense committees by December 3, 2018, on the benefits, risks, costs, and operational opportunities for next generation upper stage technology. The briefing should examine as appropriate on-orbit reusability, cryogenic refueling, multiple engine restarts, and power generation to support secondary payloads that can support space resiliency.

Next Generation Overhead Persistent Infrared Satellites

The committee supports the Department of Defense's efforts to improve the affordability, resiliency, and agility of Overhead Persistent Infrared Satellite systems that can be rapidly fielded as the battlespace changes. As adversaries challenge this capability, the Department must respond with technology upgrades in a rapid fashion to counter the threat by pursuing affordable systems with lifetimes under 7 years; disaggregated strategic missile warning, missile defense tracking, and battlespace awareness missions; smaller bus sizes; resilient mission architectures that can survive a loss of system nodes/satellites and still provide primary mission capability through complementary mission capabilities and both on-orbit and ground spares with the ability to rapidly reconstitute.

The committee believes these efforts should be supported with robust prototyping to demonstrate the now disaggregated missions of strategic missile warning and battlespace awareness for increased resiliency: operational demonstrations to drive down operational interface risks and technical demonstrations to drive down technical risks so that technology insertion into our operational systems can be done in a low-risk fashion. Prototypes should have residual operational capability that can contribute immediately to the resilience of the mission.

Plan for Use of Allied Launch Services in Case of Emergency Need

The committee notes that a plan for the use of allied launch vehicles was mandated by section 1604 of the National Defense Authorization Act for Fiscal Year 2017 (Public Law 114-328). This plan was to provide assured access to space should the Department of Defense be unable to meet that requirement for a limited period using only U.S. launch vehicles.

In 2017, the Air Force provided to Congress a report that analyzed the initial potential of using an allied nation's launch vehicle and services for U.S. national security space launches. The committee commends the Air Force for providing this analysis. The

committee notes the report identified a number of activities that have not been implemented, specifically regarding the pursuit of non-recurring design validation or certification of the allied launch system for specific payloads or reference missions, early integration studies of specific payloads, an environmental impact statement plus one year of standard mission integration and space-flight-worthiness assessment, and the pursuit of a pathfinder mission. The committee further notes that additional capabilities may be needed to use allied launch capability in the event of an emergency and inability of U.S. launch providers to provide assured access to space.

The committee directs the Secretary of Defense to provide a report to the House Committee on Armed Services by December 3, 2018, on an operational backup plan for assured access into space using allied launch vehicles. This plan shall include:

(1) an assessment of U.S. satellites that would be appropriate to be launched on an allied launch vehicle;

(2) relevant laws, regulations, and policies governing the launch of national security satellites;

(3) whether any legislative, regulatory, or policy actions or changes would be necessary to allow for the launch of a national security satellite on an allied launch vehicle; and

(4) the certification requirements for using allied launch vehicles pursuant to the plan and the estimated cost, schedule, and measures that would be necessary to certify allied launch vehicles.

When creating this backup plan, the committee expects the Secretary to leverage findings identified by the previous Air Force report.

Portable Satellite Data Receiver Status

The committee notes that the United States Air Force Research Laboratory's Small Business Initiative Research has provided funding for the development of a unique satellite communications receive suite for reliable, portable connection by the warfighter to the Global Broadcast System (GBS). The committee is aware that the Department of Defense joint program office now includes these portable receive suites as an approved solution for receive technology with military satellite communications on the existing GBS network. The committee encourages the Department of Defense and the Air Force to ensure that these suites are made available to the warfighter.

The committee directs the Secretary of the Air Force to provide a briefing to the House Committee on Armed Services by November 1, 2018, on a plan, including applicability and cost, for rapidly fielding commercially available, secure, satellite, Suitcase Portable Receive Suites and Rucksack Portable Receive Suites in support of deployed warfighter operations.

Rapid Satellite Capability Reconstitution

The committee recognizes the value that rapid reconstitution may contribute to increasing resilience in the space domain. The committee directs the Under Secretary of Defense for Research and Engineering to submit a report to the House Committee on Armed Services by January 15, 2019, on the needs and capabilities of the

Department of Defense to rapidly reconstitute disaggregated Earth-orbiting satellite constellations. The report should include options for developing an approach for commercially acquiring, where cost effective, resilient and rapid launch services to support reconstitution, including but not limited to the feasibility of launching satellites within one week of need.

Satellite Communications

The committee is aware that the Consolidated Appropriations Act, 2018 (Public Law 115–141) added two more Wideband Global Satellite Communications System (WGS) satellites. The committee also notes the increasing demand for satellite communications (SATCOM) capacity and the potential for increased contribution from commercial SATCOM providers. In addition, recognizing the growing capacity and resilience requirements, the National Defense Authorization Act for Fiscal Year 2017 (Public Law 114–328) required that the pilot program required under section 1605 of the National Defense Authorization Act for Fiscal Year 2015 (Public Law 113–291) provide order-of-magnitude improvements in SATCOM capability.

The committee is aware of proven commercial SATCOM technology, including high capacity satellite communications technology, that delivers improvements in capacity and performance capabilities and supports operations in contested environments in a cost-effective manner. The committee supports the Department of Defense's request for multiyear procurement authority for these services.

Therefore, the committee directs the Secretary of Defense to submit a report to the Committee on Armed Services of the House of Representatives by December 1, 2018, including:

(1) the costs associated with the procurement, operations, and sustainment of the additional WGS satellites, including life-cycle costs, and costs related to operations and maintenance, and launch;

(2) an update on the status of the Air Force commercial SATCOM pilot and pathfinder programs, including an update on fulfilling the order-of-magnitude requirement, an explanation of the steps the Department is taking to expedite the integration of commercially available high capacity satellite communications to meet the growing capacity demand and counter accelerating adversary communications denial capabilities, and whether the Air Force plans to use its existing authorities to solicit and award annual services contracts; and

(3) a comprehensive plan to modernize terminals and networking capability needed to access and adopt new multi-domain commercial communications technologies, multi-mode terminals and network.

Space Flag Exercise and Responsive Launch

The committee is encouraged that the budget request proposed creating a dedicated Air Force Space Procurement funding line to acquire affordable, flexible launch services to deliver spacelift capability for small payloads to low Earth orbit through geostationary transfer orbit. The committee supports the proposed Rocket System Launch Program procurement and encourages sustained invest-

ment to further operationalize integration of new small launch services into the space enterprise.

The National Defense Authorization Act for Fiscal Year 2018 (Public Law 115–91) also states that the Secretary of Defense should establish “an annual capstone training event” for space professionals to refine doctrine, operations, and training. This “Space Flag” exercise improves training to operate in the event of loss of space capabilities and to deter conflict in space. The U.S. Air Force concluded its second annual Space Flag exercise in August 2017 in Colorado Springs, Colorado.

Demonstrating overt resolve and ability to rapidly replenish diminished capabilities could contribute to increasing resilience in space as it relates to operations, tactics, and procedures for protecting and defending U.S. assets. In addition, integrating responsive launch capabilities into the annual Space Flag event could be an important step in evolving space mission operations, and to test, train, and operationalize these capabilities.

Accordingly, the committee directs the Secretary of the Air Force to provide a briefing to the congressional defense committees by December 1, 2018, on the value, plans, requirements, and benefits of aligning the small launch activities of the Rocket System Launch Program with the annual Space Flag training exercise.

Use of Commercial Items in Follow-On Wideband Communications System

The committee supports efforts to conduct an analysis of alternatives for a follow-on wideband communications system to the Wideband Global Satellite Communications System as required by section 1611 of the National Defense Authorization Act for Fiscal Year 2016 (Public Law 114–92). The committee encourages the Department of Defense’s efforts to maximize the use of commercial satellite communications capabilities as required by section 2377 of title 10, United States Code.

Section 2377 of title 10, United States Code, requires that Federal agencies maximize the use of commercial items in determining requirements and soliciting for procurements. To prevent critical satellite communications capability gaps and to field a follow-on wideband communications system by 2021, the Department must ensure that its market research is fully investigating the ability of a commercial offeror to meet the requirements of the Air Force’s procurement needs on a commercial basis, in part or in full.

Therefore, the committee directs the Secretary of Defense to provide a briefing to the House Committee on Armed Services by June 30, 2018, on the Department’s efforts to comply with section 2377 of title 10, United States Code, and on its analysis of alternatives for a follow-on wideband communications system.

MISSILE DEFENSE PROGRAMS

Airborne Tracking and Targeting System

The Committee notes that the Missile Defense Agency has been working on technologies to develop and test ballistic missile tracking and surveillance using MQ–9 Reaper unmanned aerial vehicles under an experimental program. The Committee directs the Missile

Defense Agency, in coordination with Commander, Pacific Command and Commander, Central Command, to provide a brief to the House Armed Services Committee by December 31, 2018 on the addition of an operational fleet of advanced sensors deployed on MQ-9 Reaper systems to the ballistic missile defense system, to include integration and test efforts, operational value for regional and homeland defense, basing options, Warfighter concepts of operation, and total research, development, test and evaluation and operations and sustainment costs associated with deployment to the Pacific command and Central command areas of responsibility.

Cruise Missile Threat to Hawaii

The committee notes the cruise missile threat to the United States, including Hawaii, and notes that the ballistic missile defense review, which has been delayed, may address this issue. Therefore, the committee directs the Secretary of Defense, in consultation with the Director of National Intelligence, to provide to the Armed Services Committee of the House of Representatives a briefing no later than 45 days after the Ballistic Missile Defense Review is submitted to Congress, on the cruise missile defense threat to the United States, including Hawaii, including in the event of a conflict with Russia or China, the role of nuclear deterrence plays in the layered defense of the United States, and an assessment of the required architecture, development and deployment timeline, estimated costs and any relevant policy implications related to a potential cruise missile defense system to protect the United States, including specifically Hawaii.

Cybersecurity of Ballistic Missile Defense System

This committee notes the 2017 report from the Director, Operational Test and Evaluation, of the Department of Defense, on the cybersecurity testing gaps that exist for the Ballistic Missile Defense System (BMDS). The committee further notes that a plan is needed from the Missile Defense Agency and Director, Operational Test and Evaluation to conduct vulnerability assessments, cooperative vulnerability and penetration assessments, and adversarial assessments on all BMDS mission elements. Therefore, the committee directs the Director of the Missile Defense Agency, in coordination with the Director, Operational Test and Evaluation, to provide a briefing to the Committees on Armed Services of the Senate and the House of Representatives by December 31, 2018, on the BMDS cybersecurity testing road map. The briefing must include a comprehensive plan to improve the cybersecurity posture of the mission elements of the BMDS, including addressing the requirement to further enhance such posture through the integration and dissemination of left- and right-of-launch data, and what process the Director of the Missile Defense Agency will use to incorporate lessons learned from the cybersecurity assessments.

Hypersonic Defense

The committee directs the Director of the Missile Defense Agency to provide a briefing to the congressional defense committees by December 31, 2018, on the hypersonic defense analysis of alternatives and the integrated plan, including estimated costs to de-

liver hypersonic defense capabilities in a manner that is global, cost effective, persistent, and provides resilient tracking, in accordance with section 1687 of the National Defense Authorization Act for Fiscal Year 2017 (Public Law 114–328). This briefing shall include an assessment on the required architecture, deployment timeline, and estimated costs for defense against hypersonic threats as demonstrated and/or pursued by Russia and China.

Maintenance of Patriot Batteries

The committee notes that an ongoing review by the Comptroller General of the United States of the Army's maintenance of the Patriot missile defense system has found that although the Army believes that the current pace of recapitalizing Patriot equipment incurs long-term risks to sustaining the system, the Army has concluded that it cannot increase the recapitalization pace without affecting current operational demands or without shifting resources from its integrated air and missile defense modernization priorities. In addition, the ongoing review by the Comptroller General has found that the return of reset equipment to Patriot units generally has not met the Army's timeliness goal and that delays in returning reset equipment can affect unit training. Therefore, the committee directs the Secretary of the Army to provide a briefing to the Committee on Armed Services of the House of Representatives not later than December 1, 2018, on a plan to conduct a comparative analysis of factors affecting Patriot reset timeliness and appropriate corrective actions to improve timeliness.

Options To Supplement Missile Defense of Hawaii

The committee notes that Hawaii is currently defended against missile threats from North Korea by the deployed ground-based interceptors located at Fort Greely, Alaska, and Vandenberg Air Force Base, California. Mindful of potential costs and untested capability of Standard Missile–3 (SM–3) interceptors against long-range missile threats, the committee directs the Secretary of the Navy, in consultation with the Director of the Missile Defense Agency, to provide a briefing to the Committee on Armed Services of the House of Representatives, not later than September 15, 2018, on the potential to supplement this defense by assigning a permanent Aegis ship patrol to increase a layered ballistic missile defense of Hawaii, with the assumption that SM–3 missiles might be effective against long-range threats. The briefing should address the technical capability, feasibility, benefits, risks, cost, and trade-offs of this option for the purpose of defending Hawaii.

In addition, mindful of the high demand for Terminal High Altitude Area Defense (THAAD) batteries and the untested capability of the THAAD weapon system against long-range threats, the committee also directs the Director of the Missile Defense Agency, in coordination with the Secretary of the Army, to provide a briefing to the Committee on Armed Services of the House of Representatives, not later than September 15, 2018, on the feasibility of stationing a permanent THAAD battery in Hawaii, and the technical capability, costs, benefits, and risks of testing a THAAD interceptor against an intercontinental ballistic missile.

Patriot Interceptor Inventory

The committee recognizes, given the reality of ever-increasing capabilities and quantities of ballistic missiles and air-breathing threats (such as cruise missiles and unmanned aerial vehicles), the importance of maintaining a full complement of interceptors for the Patriot system. Section 1678 of the National Defense Authorization Act for Fiscal Year 2018 (Public Law 115–91) directed the Army to submit a plan to maintain an inventory of interceptors necessary to retain the capability provided by Patriot interceptors. The committee notes that the report has not yet been received and will be delayed until July 2018.

Therefore, the committee directs the Secretary of the Army, in coordination with the Chief of Staff of the Army, to submit an amended report to the congressional defense committees by July 31, 2018, that addresses the value of maintaining use of Guidance Enhanced Missile (GEM–T) capabilities alongside Patriot Advanced Capability–3 (PAC–3) and PAC–3 Missile Segment Enhanced (MSE) to provide Patriot with a full complement of capability and capacity against current and evolving threats, including air-breathing and all other types of ballistic missiles. The report should also include the Army’s intent to recertify the aging GEM–T inventory and cite a desired date to commence this activity so as to minimize any negative consequences to Patriot munitions capacity.

Protection of Ballistic Missile Defense System Components

The committee notes an increase to land-based ballistic missile defense system (BMDS) components with the development and delivery of the Long Range Discriminating Radar, Homeland Defense Radar-Hawaii, Pacific Radar, and completion of the Aegis Ashore site in Poland. These new sites are in addition to already deployed terrestrial weapon system sites and radars. Responsibility for protection of these sites against threats such as cruise missiles, unmanned aerial vehicles, and electronic warfare falls under the combatant commander for which they are located.

The committee directs the Secretary of Defense, in coordination with the Commander, U.S. Strategic Command, and appropriate regional combatant commands, to provide a briefing to the congressional defense committees by November 30, 2018, detailing the current protections of deployed BMDS assets from cruise missile, unmanned aerial vehicle, and electronic warfare threats. The briefing should also include the requirements for protection of the future assets that are in the program of record, as well as any plans to increase protection of current and future assets, including costs and any mitigating measures in the event that a system is degraded or unavailable.

Standard Missile–3 Testing and Reliability

The committee is aware of the role and importance of the Standard Missile–3 (SM–3) interceptors in providing missile defense capability to the warfighter. The committee notes that failures of the SM–3 IB and SM–3 IIA revealed issues that may have been avoided with additional system engineering focus, and these recent challenges could have impacts on reliability assessments of these interceptors by the Director, Operational Test and Evaluation.

The committee also notes that section 1680 of the National Defense Authorization Act for Fiscal Year 2018 (Public Law 115-91) included a requirement to test the SM-3 IIA capability against a longer range threat. The committee directs the Director of the Missile Defense Agency to provide a briefing to the Committees on Armed Services of the House of Representatives and the Senate, not later than August 1, 2018, on how the recent SM-3 IIA test failure affects the planned test of this missile against an intercontinental ballistic missile-range target. This briefing should include implications such as changes to timeline of planned tests, requirements for additional tests, and changes in funding requirements.

The committee also directs the Director of the Missile Defense Agency, in coordination with the Director of the Office of Test and Evaluation, to provide a briefing to the Committees on Armed Services of the Senate and the House of Representatives, not later than December 15, 2018, detailing how the Missile Defense Agency will ensure the contractor's systems engineering and ground testing procedures are adequate to support production of SM-3 IB and SM-3 IIA interceptors. The briefing should describe how ground test data from production interceptors supports SM-3 reliability estimates from the Missile Defense Agency and the Office of Test and Evaluation.

Warfighter Procedures for Responding to and Releasing Information Regarding an Inbound Ballistic Missile Threat

The committee notes that on January 13, 2018, the Hawaii Emergency Management Agency (HI-EMA) issued a false incoming ballistic missile alert that caused widespread panic and confusion in the State of Hawaii. The U.S. Pacific Command (PACOM) notified HI-EMA that no launch had occurred within minutes of the false alert being issued. Nevertheless, it took HI-EMA 38 minutes to retract the alert.

The committee notes the importance of clear and accurate communications and cooperation between PACOM and relevant federal and state entities responsible for communicating and alerting the public of an incoming threat. Therefore, the committee directs the Secretary of Defense, in coordination with the Chairman of the Joint Chiefs of Staff to provide a briefing to the Committee on Armed Services of the House of Representatives on ballistic missile alert procedure, warfighter coordination, plans, and timelines in the event of a legitimate incoming ballistic missile attack to the Homeland, including coordination, plans and timelines for releasing critical defense information to other Federal agencies, and state entities as appropriate, responsible for informing the general public. The briefing shall also include the DoD's role and process, if any, in retracting a false, misinformed, or unauthorized alert issued by a federal or state agency regarding an inbound ballistic missile threat.

NUCLEAR FORCES

Air Force Global Strike Command and Nuclear Deterrence
Institute

The committee continues to oversee Air Force Global Strike Command (AFGSC) as it leads and coordinates efforts across the Air Force for both nuclear deterrence operations and the National Leadership Command Capabilities/Nuclear Command, Control, and Communications system. The committee believes strong and sustained attention on these missions will be required as the Air Force carries out its portions of the nuclear modernization program.

The committee understands that the AFGSC's strategy to enhance science, technology, innovation, and collaboration related to its missions has successfully leveraged partnerships with local governments, academia, industry, and non-profits. This strategy also includes an intent to establish an institute dedicated to AFGSC's missions, further leverage these partnerships, and provide AFGSC an analytical foundation and direct access to expertise across its mission set. To better understand how the Air Force intends to proceed with this initiative, the committee directs the Secretary of the Air Force to provide a briefing to the House Committee on Armed Services by November 30, 2018, on implementation of the AFGSC's strategy to enhance science, technology, innovation, and collaboration. The briefing should include:

- (1) the Secretary's decision regarding if, and if so, when and how, to establish the institute recommended by the strategy;
- (2) whether and how the institute could uniquely contribute to the nuclear deterrence operations mission of the Air Force without duplication of other capabilities and resources; and
- (3) the benefits and costs associated with the institute.

B83-1 Nuclear Gravity Bomb

The committee notes that the 2018 Nuclear Posture Review (NPR) proposes to retain the B83-1 nuclear gravity bomb in the U.S. nuclear stockpile, whereas it had previously been slated for retirement in the early 2020s. The NPR stated, "the B83-1 and B61-11 gravity bombs can hold at risk a variety of protected targets. As a result, both will be retained in the stockpile, at least until there is sufficient confidence in the B61-12 gravity bomb that will be available in 2020." The NPR elaborated, saying it proposes "sustaining the B83-1 past its currently planned retirement date until a suitable replacement is identified."

The committee also notes that in 2012, the National Nuclear Security Administration (NNSA) estimated that retaining the B83 gravity bomb would potentially require it to undergo an alteration in the 2020s and a life extension program in the 2030s, both of which would cost billions of dollars. Additionally, the NNSA may have planned to use certain materials from the B83 for currently planned life extension programs.

The committee believes further explanation for the decision to retain the B83 is warranted, particularly because such decision may require the B83 to undergo significant life extension activities and could impact other planned warhead modernization programs. The

committee also expects a fuller understanding of the military requirements associated with the B83-1 and its retention.

The committee therefore directs the Secretary of Defense, in coordination with the Commander of U.S. Strategic Command and the Administrator for Nuclear Security, to submit a report to the Committees on Armed Services of the Senate and the House of Representatives by November 15, 2018, on the plan and rationale for, and implications of, retaining the B83-1. The report should address specific military requirements associated with the decision to now retain the B83-1, impacts on current or planned warhead programs including re-use of any materials, and potential risks, benefits, plans and costs associated with continued surveillance and potential life extension activities for the B83-1. The committee directs the report to be provided in unclassified form, with a classified annex as necessary.

Comptroller General Review of Plans To Swap B61 Bombs in Europe

The committee notes that the Department of Energy and the Department of Defense are carrying out a life extension program to maintain the safety, security, reliability, and credibility of B61 nuclear gravity bombs, and expect a first production unit of the updated B61-12 weapon to be available in late 2019. To swap legacy B61 bombs currently deployed in Europe in support of the North Atlantic Treaty Organization (NATO) for modern B61-12 bombs, the Air Force will conduct movements of nuclear weapons to and from Europe using certified military cargo aircraft. Initial planning for these movements is underway and the committee understands that such planning requires dialogue and close coordination with host nation governments.

To enable improved oversight of this planning, the committee directs the Comptroller General of the United States to submit a report to the Committees on Armed Services of the Senate and the House of Representatives by March 1, 2019, containing a review and assessment of the Department of Defense plans to swap B61 nuclear gravity bombs in Europe, including the following:

- (1) readiness of the military forces responsible for conducting and supporting the weapon movements;
- (2) coordination between the United States and allied host nations regarding the movements;
- (3) any potential actions that may be considered or planned to enhance surety and survivability; and
- (4) the Department of Defense's identification and mitigation of any risks to these plans.

Nuclear Survivability and Hostile Environments Testing

To be a credible and effective deterrent, U.S. nuclear weapons are designed to operate in the most extreme hostile environments. The committee has no doubt that current U.S. nuclear forces and weapons meet these exacting requirements. However, as it has expressed in the past, the committee believes that the Department of Defense and the National Nuclear Security Administration (NNSA) must be mindful of how the threat environment and so-called "stockpile-to-target sequence" may evolve as adversaries continue

to advance their defensive capabilities. In particular, the committee believes the United States must ensure it has the capability to experimentally test materials, components, subsystems, and full systems in realistic environments that combine multiple extreme threats.

To better understand Department of Defense and NNSA efforts in this regard, the committee directs the Chairman of the Nuclear Weapons Council, in coordination with the Administrator for Nuclear Security, to provide a briefing to the Committees on Armed Services of the Senate and the House of Representatives by November 30, 2018, on nuclear weapon survivability requirements and related test capabilities. Such briefing should include:

- (1) current requirements related to survivability and the stockpile-to-target sequence;
- (2) the evolving threat environment and potential changes to such requirements over the next 20 years;
- (3) capabilities to test materials, components, subsystems, and systems in realistic, combined environments;
- (4) any risks or gaps in such experimental capabilities and any plans to address or mitigate such risks or gaps; and
- (5) any changes in concepts of operation that may be applicable.

Perimeter Security at NATO Nuclear Bases

The committee appreciates the importance of the North Atlantic Treaty Organization's (NATO) deterrence and defense mission, and the role that U.S. forward-deployed nuclear weapons play in the NATO Alliance. The committee notes its continuing interest in ensuring robust and consistent security for these weapons and that NATO, the United States, and individual host nations have engaged in a series of security enhancement and modernization projects in recent years. The committee applauds these steps and supports ongoing efforts to standardize requirements and security measures across NATO's nuclear bases but also recognizes that each base and host nation presents different challenges for implementation and standardization of upgrades. The committee believes that continued enhancements and progress towards standardization is an important endeavor, and that an area particularly ripe for further action is perimeter security.

The committee therefore directs the Secretary of Defense, in coordination with the Secretary of the Air Force, to provide a briefing to the Committees on Armed Services of the House of Representatives and the Senate by December 1, 2018, assessing and comparing perimeter security at all NATO nuclear bases. Such briefing should also contain the following:

- (1) a comparison of perimeter security at NATO nuclear bases versus each other and versus nuclear bases in the United States;
- (2) details on requirements and standards for perimeter security at NATO nuclear bases and nuclear bases in the United States; and
- (3) a plan for actions that the United States could propose and undertake to standardize and enhance perimeter security at NATO nuclear bases, including through bilateral engagements with host nations and multilateral engagement through NATO.

Plutonium Pit Production and Reuse

In 2008, the Secretary of Defense and the Secretary of Energy stated in a joint report, “at present the United States does not have the ability to produce new nuclear weapons,” particularly the ability to produce plutonium pits. In 2010, the Secretaries signed a Memorandum of Agreement that said the National Nuclear Security Administration (NNSA) would “plan and program to ramp up to a minimum of 50–80 pits/year.” In 2014, the Secretary of Defense said in a letter to the congressional defense committees that “the Department of Defense (DOD) has revalidated its requirement for 50–80 pits per year based on the demands of stockpile modernization, the commitments to a modern physical infrastructure, and the ability to hedge against technical or geopolitical risk.”

Section 3112 of the Carl Levin and Howard P. “Buck” McKeon National Defense Authorization Act for Fiscal Year 2015 (Public Law 113–291), put this requirement, and associated timeframes for production, into statute and included a Sense of Congress that “the requirement to create a modern, responsive nuclear infrastructure that includes the capability and capacity to produce, at minimum, 50 to 80 pits per year, is a national security priority.”

The 2018 Nuclear Posture Review (NPR) also discusses the need for a plutonium pit production capacity, saying “the United States does not have a sustained plutonium pit manufacturing capability needed to avoid stockpile age-out, support life extension programs (LEP), and prepare for future uncertainty . . . To avoid age-related risks, DOD requires NNSA to produce at least 80 plutonium pits per year by 2030, and to sustain the capacity for future LEPs and follow-on programs.”

The committee continues to believe a pit production capability is a national security priority, but seeks clarification on whether and why the 2018 NPR has modified the pit production requirement. Therefore, the committee directs the Secretary of Defense, in coordination with the Secretary of Energy and the Commander of U.S. Strategic Command, to submit a report to the Committees on Armed Services of the Senate and the House of Representatives by November 30, 2018, on the annual pit production requirement, including any associated timelines. Such report should include a detailed rationale and justification for any changes to the requirement, the drivers behind the requirement, and associated costs. Such report should also include a detailed assessment of the potential to reuse plutonium pits that are currently in the inventory of the United States.

Tonopah Test Range Land Use Agreement

The committee understands that the Air Force and the National Nuclear Security Administration (NNSA) are currently negotiating an extension to a land use agreement at the Tonopah Test Range (TTR) which enables NNSA’s Sandia National Laboratories to utilize a portion of TTR for drop testing of inert nuclear gravity bombs. Sandia Labs has been operating at TTR since 1956, when it originally used 580 square miles of the range, and since the most recent update to the agreement in 2002 has been using 280 square miles. The current land use agreement expires in 2019 and is likely to make further reductions to make additional land available to the

Air Force. The committee supports efforts to provide additional land for the Air Force mission at TTR and nearby ranges, which are operating over capacity, but is mindful that Sandia and NNSA must be able to carry out their testing mission. The committee encourages and looks forward to a cooperative, mutually beneficial update to this agreement that enables both partners to carry out their important missions.

CYBER-RELATED MATTERS

Addressing Readiness Deficiencies Through the Hacking for Defense Innovation Education Program

The committee notes that the National Defense Authorization Act for Fiscal Year 2018 (Public Law 115–91) authorized the Secretary of Defense to support national security innovation and entrepreneurial education, including but not limited to, Hacking for Defense.

The committee notes that expansion of Hacking for Defense innovation and entrepreneurial education at U.S. and North Atlantic Treaty Organization (NATO) universities may optimize and enhance the Department's innovation efforts outlined in the 2018 National Defense Strategy. Developing a culture of rapid and meaningful innovation, and deploying advanced warfighter solutions, may remedy existing readiness deficiencies. The committee also notes that Hacking for Defense innovation education programs may benefit overall Department of Defense professional education such as at the National Defense University, the Defense Acquisition University, the Naval Postgraduate School, and other professional education programs.

Therefore, the committee directs the Under Secretary of Defense for Acquisition and Sustainment to provide a briefing to the House Committee on Armed Services not later than September 28, 2018 on how the Department may expand Hacking for Defense to support the Department's innovation and entrepreneurial education efforts, including a description of how the Hacking for Defense program is currently being employed within the Department of Defense and how it may be further leveraged to provide advanced warfighter solutions, address readiness deficiencies, and reinvigorate, modernize, and enhance the Department's innovation education with U.S. and NATO universities and professional education programs.

Comptroller General Review of Current Military Cyber Operations

The committee notes that in the last several years, the Department of Defense has employed cyber capabilities to achieve objectives in or through cyberspace. Unlike military operations that occur in the air and land domains, cyberspace operations and the effects of those operations are not always visible to Congress and the American people. The committee believes that as the Department continues to conduct cyberspace operations, it will be critical that operations are fully aligned with the appropriate authorities, policies and doctrine, rules of engagement, plans, oversight mechanisms, and lessons learned processes. It will also be important that the Department manages the number of organizations that are con-

ducting these operations, to ensure there are clearly defined roles and responsibilities, and that there are deconfliction mechanisms in place.

Therefore, the committee directs the Comptroller General of the United States to assess the Department of Defense's current military cyberspace operations. The assessment should identify:

(1) the types of cyberspace operations the Department has undertaken, activities undertaken to prepare for cyberspace operations, and the organizations conducting these operations;

(2) authorities, policies, doctrine, and rules of engagement for these operations;

(3) internal oversight and congressional reporting mechanisms;

(4) efforts to develop and synchronize cyberspace operations with combatant commanders' plans; and

(5) processes used to deconflict cyberspace operations or mitigate the impact of cyberspace operations on other military operations.

The committee directs the Comptroller General to provide a briefing to the House Committee on Armed Services by March 1, 2019, on preliminary findings, and submit a final report to the congressional defense committees at a date agreed to at the time of the briefing.

Comptroller General Review of Information Operations Strategy

The committee notes that information operations are a means for the United States to promote economic and political freedom, as well as countering all forms of extremism and adversarial influence. In June 2016, in response to a congressional requirement, the Department of Defense issued an information operations strategy to align departmental actions and ensure effective integration of Department of Defense efforts. These efforts contribute to the mission that the Department of State's Global Engagement Center was directed to lead, organize, and synchronize.

Section 1637 of the National Defense Authorization Act for Fiscal Year 2018 (Public Law 115-91) directed the Department of Defense to establish processes and procedures to integrate strategic information operations and cyber-enabled information operations across the relevant elements of the Department of Defense, including those responsible for military deception, public affairs, electronic warfare, and cyber operations. This section also directed the Department of Defense to coordinate regional information strategies and interagency coordination plans of the combatant commands with the appropriate Department of State officials and the Global Engagement Center, and to develop an implementation plan to support the Department of Defense Strategy for Operations in the Information Environment. However, the committee remains concerned about the lack of progress in developing the strategy, tools, and coordination mechanisms to counter adversarial influence.

Therefore, the committee directs the Comptroller General of the United States to assess the Department's information operations strategy and implementation efforts. The assessment shall:

(1) identify the Department of Defense's implementation of the 2016 strategy, integration of cyber and intelligence capabilities, and other activities, for information operations;

(2) identify roles, responsibilities, and coordination of activities within the Department of Defense, and between the Department and interagency partners;

(3) identify previous and planned investments by the Department to support and implement information operations; and

(4) any other matters the Comptroller General determines relevant.

The committee directs the Comptroller General to provide a briefing to the House Committee on Armed Services by March 1, 2019, on preliminary findings, with a report to follow at a time agreed to at the time of the briefing.

Cyber Scholarship Program

The budget request contained \$7.9 million in PE 33140D8Z, for the defense-wide Information Security Systems Program.

Section 1649 of the National Defense Authorization Act for Fiscal Year 2018 (Public Law 115–91) amended chapter 112 of title 10, United States Code, to establish the Department of Defense Cyber Scholarship Program. The committee believes the Cyber Scholarship program may alleviate the challenges the Department of Defense is experiencing in recruiting and retaining cybersecurity personnel. Additionally, the committee believes that providing additional opportunities under the program will be beneficial in addressing Department requirements for a qualified cyber workforce, especially if the Department focuses on educating the public and relevant academic institutions about this program. The committee also believes that Reserve Officer Training Corps (ROTC) programs at universities that offer degrees in cyber studies and related fields provide an opportunity to leverage and expand partnerships to assist in closing the gap of trained cyber warriors in the military.

Therefore, the committee recommends \$17.9 million, an increase of \$10.0 million, in PE 33140D8Z.

Further, the committee directs the Secretary of Defense to provide a briefing to the House Committee on Armed Services by February 1, 2019, on the implementation and utilization of the Cyber Scholarship Program, to include efforts to educate the public and focus on institutions with high-quality computer science, engineering, and cybersecurity programs, including historically black colleges and universities, and minority-serving institutions. The briefing should also include implementation and utilization of efforts to leverage ROTC at institutions with cyber studies as a way to expand the pool of talented technical applicants.

Information Security Continuous Monitoring and Comply-To-Connect Implementation

While the Committee understands that pursuant to the requirements established in Section 1653 of the National Defense Authorization Act for Fiscal Year 2017 (Public Law 114–328), the Department of Defense included language relating to a Department-wide automated information security continuous monitoring capability and a comply-to-connect policy in its Fiscal Year 2019 budget request, the Committee is concerned that this language failed to adequately explain the Department's implementation strategy and the resources it will require. The Committee therefore directs the Di-

rector of Cost Assessment and Program Evaluation to provide the Committee on Armed Services of the House of Representatives, no later than December 1, 2018, a briefing specifically outlining the resources and any recommendations that will be required to fully address the requirements contained within Section 1653 of the National Defense Authorization Act for Fiscal Year 2017.

Joint Enterprise Defense Infrastructure

On September 13, 2017, the Deputy Secretary of Defense signed a memorandum establishing the Cloud Executive Steering Group to accelerate the adoption of enterprise-wide cloud architecture and services, known as the Joint Enterprise Defense Infrastructure, or JEDI.

A report provided to Congress by the Department of Defense on October 19, 2017, in response to the committee report (H. Rept. 114–577) accompanying the Department of Defense Appropriations Act, 2017, outlined several challenges impacting the Department's ability to expand commercial cloud service usage. These included accurately projecting costs for security and complex migrations, lack of consistent security requirements, and an inability to identify tangible cost-savings. Although the report outlined efforts to address these challenges, additional information has not been provided to the committee on progress to that end. The report also outlined several ongoing cloud computing activities.

The committee has long championed modernization of information technology to facilitate efficiencies and cost-savings, enhance performance, and provide our warfighters with cutting-edge capabilities on and off the battlefield. The committee is encouraged by the Department's renewed commitment to accelerate the adoption of cloud computing architecture and services.

However, the committee is concerned with the lack of information supporting the planned acquisition of JEDI from a single commercial provider. This includes lack of detail regarding security requirements and associated costs, anticipated cost-savings, migration costs, and how the Department intends to maintain the ability to leverage the latest cloud computing capabilities and preserve the ability to transition workloads and data to other providers.

Additionally, the committee has not been provided with details on customer capability requirements or how JEDI impacts current cloud computing services and other activities, such as those identified in the October 2017 report. The committee expects the Department to provide sufficient information necessary for the conduct of oversight responsibilities.

Mitigation of Autonomous Systems

The Committee notes the Department's increased reliance on autonomous systems and their associated datalinks and sensors. While the Committee supports increased investments in these systems, the rapid research, development, and deployment of autonomous equipment presents unique challenges to cyber vulnerability. Therefore, the committee directs the Secretary of Defense to provide a briefing by December 1, 2018 outlining the specific steps the Department is taking to protect autonomous systems from cyberattack, including mitigations resulting from the cyber vulner-

ability evaluations of major weapon systems that were conducted as directed by Section 1647 of the National Defense Authorization Act for Fiscal Year 2016 (Public Law 114–92). The briefing should address layered cyber defense of associated datalinks, sensors, and onboard systems, technologies used to secure the communication architecture and RF links, and any other approaches used to improve the cyber security in these systems.

Network Protection

The committee is aware that open, highly scalable network protection platforms that allow for integration of both government and commercial off-the-shelf capabilities, may allow for the Department of Defense to keep pace with evolving threats. The committee believes expeditious detection and mitigation is critical, especially as the Department makes greater use of commercial cloud computing and other commercial capabilities.

Therefore, the committee directs the Secretary of Defense to provide a briefing to the House Committee on Armed Services not later than February 5, 2019, on the status and evolution of automated cyber defense capabilities, to include those that automatically detect and mitigate malware and other threats. The briefing should include a description of efforts to acquire an open, scalable platform that can integrate commercial and government off-the-shelf technologies, and an evaluation of the potential effectiveness of a capability that can be deployed within and across network boundaries and endpoints.

Operational Cyber Testing of Weapons Systems

The committee is aware of the challenges of performing operational cyber testing of weapon systems to understand the potential impacts of a cyber attack to the system's performance. The committee continues to believe in the importance of evaluating the cyber vulnerabilities of major Department of Defense weapons systems, as authorized in the National Defense Authorization Act for Fiscal Year 2016 (Public Law 114–92). The committee recognizes that for some systems there are gaps in the capability of the operational test and evaluation infrastructure that prevent it from adequately completing tests and measuring the impacts on a weapon system of a realistic cyber threat. The committee is also aware of efforts within the Department to further develop the capabilities to provide the necessary test, modeling, and simulation capabilities to build a robust infrastructure to be able to perform comprehensive cybersecurity weapon systems testing. The committee encourages the Department to utilize collaboration between academia and the different test ranges and facilities to build a robust infrastructure to execute tactical cyber attack scenarios against weapon systems in an operationally realistic environment.

Plan to Enhance Coordination With Universities and Industry on Cyber Education

The committee notes that universities and private industry will continue to be critical partners in the education and training of our future cyber force. Traditional academic approaches to cyber training and cyber certifications such as Security + and CISSP are

based on preventing vulnerabilities, attacks, and gaps that have been identified in the past. The committee is concerned that the relevance of the training content of academic institutions could be immaterial depending on when the courseware was updated. Bridging the gap in cyber training between curriculum that has been built on legacy data versus training built on current real world cyberattacks is a meaningful area of cyber training research, curriculum development, and instruction delivery that must be addressed. Therefore, the committee directs the Secretary of Defense to present to the defense committees a plan on how the Department of Defense can leverage and partner with universities and industry on cyber education and training that addresses this gap by November 1, 2018. This plan shall include: current partnerships and ability to expand and leverage those partnerships; existing curriculum and recommended changes needed to ensure relevance to future threats; joint development of curriculum, courseware and research projects; availability and joint use of university facilities; and recommended changes to legislation to improve cyber education and training partnerships.

Securing Personally Identifiable Information

The committee recognizes that the Department of Defense takes extensive measures to protect the personally identifiable information (PII) of its Servicemembers and civilian employees but that more remains to be done, especially with advances in technological communications and evolving threats. For instance, the use of smartphone devices invites new security threats that could potentially exploit the integrity of PII. Therefore, the committee directs the Secretary of Defense to provide a briefing to the House Committee on Armed Services by October 31, 2018 detailing information security technologies that the Department employs to protect the official unclassified email and official unclassified mobile communications of its employees.

Threat Cyberspace Operations

The committee notes the increasingly contested nature of the cyber domain and the growing reliance of the Department of Defense and the military services on information technology systems. The committee continues to believe in the importance of performing robust cyber security assessments to determine the potential vulnerabilities of a system to a cyber-attack. The committee is aware that these assessments are based on realistic adversarial threats, including intelligence-based cyber tactics, techniques, and procedures that are representative of the continually emerging adversary capabilities. The Army Threat Cyberspace Operations program maintains a threat intelligence-based test capability that is important in meeting these mission needs. Therefore, the committee urges the Department of the Army to ensure that this program is adequately funded in future years to maintain cyber threat capabilities in an environment where the threat is rapidly evolving.

INTELLIGENCE MATTERS

Foundational Intelligence Analysis Modernization

The committee believes the Department of Defense must ensure that the defense intelligence enterprise has modern tools that can quickly integrate new technologies to assist analysts providing intelligence to support operations and acquisition activities. The committee is aware of the Department's efforts to modernize intelligence capabilities; however, the committee is concerned by a lack of urgency in modernizing the defense intelligence enterprise's capabilities to provide foundational intelligence to the combatant commands and the military services. Therefore, the committee directs the Joint Staff Director for Intelligence, in coordination with the Under Secretary of Defense for Intelligence and the Director of the Defense Intelligence Agency (DIA), to develop a plan by October 1, 2018, to modernize systems used to provide foundational intelligence. Further, the committee directs the Joint Staff Director for Intelligence, in coordination with the DIA Director, to provide a briefing to the House Committee on Armed Services by November 1, 2018, on such plan to modernize foundational intelligence systems. If a determination is made that a new system is required, the committee expects the Battlespace Awareness Functional Capabilities Board to validate the requirements for any new system, and that the acquisition plan will follow best practices for the rapid acquisition and improvement of technology dependent systems.

Insider Threat Detection and User Activity Monitoring

The committee is aware that in June 2015, the Government Accountability Office recommended that the Department of Defense issue risk-assessment guidance and evaluate the ability of its insider threat programs to address capability gaps (GAO-15-544). The committee is also aware of the Department's efforts to rapidly detect and remedy cyber vulnerabilities through programs such as the Air Force's Automated Remediation and Asset Discovery Program. The committee believes that continuous network monitoring and greater network visibility can significantly improve security of the Department's classified information and systems. Therefore, the committee encourages the Department to perform cost and technical analyses of available commercial off-the-shelf and government off-the-shelf solutions for user activity monitoring and for rapid detection and remediation of cyber attacks, for the purposes of obtaining best value and performance to decrease risks.

Further, the committee directs the Chief Management Officer to provide a briefing to the House Committee on Armed Services by November 1, 2018, on the outcomes of its cost and technical analyses required by this report, and the Department's efforts to implement enterprise-wide programs and policies for insider threat detection, user activity monitoring, and cyber attack detection and remediation.

Insider Threat Risk Model Validation

The committee supports the Department of Defense continued efforts to improve vetting and screening of its workforce for potential threats. The committee commends the efforts to develop risk-rating

tools and to migrate department programs to a risk in person model in order to prioritize risk so that the Department can efficiently allocate resources against the riskiest populations inside the workforce. The committee encourages the Department to continue to evolve and mature insider threat and continuous vetting risk models and rating tools, especially those efforts to use artificial intelligence and machine learning to help identify potential sources of human investigative biases in current tools and algorithms. The committee believes artificial intelligence and machine learning have tremendous potential to assist in the identification of potential issues in time for commanders and other leaders to mitigate potential issues before they escalate into security vulnerabilities.

Intelligence Combat Support Agencies

The committee commends the work of the Under Secretary of Defense for Intelligence to answer a request in the Intelligence Authorization Act for Fiscal Year 2017 (division N of Public Law 115–31) to review the roles and missions of the Defense Intelligence Agency. The committee agrees with the Under Secretary’s finding identifying a gap in Department of Defense coordination of the functions of the Combat Support Agencies (CSA) that also are members of the intelligence community. The directors of these agencies report to both the Secretary of Defense and the Director of National Intelligence, but these agencies lack a framework to balance the resourcing and mission conflicts this bifurcated chain of command can occasionally cause. Therefore, not later than October 1, 2018, the committee directs the Secretary of Defense, in consultation with the Director of National Intelligence, to develop policies that outline the process to balance the missions under the Combat Support Agency role with the missions and functions assigned by the intelligence community. These policies must address a process for assigning and integrating any new missions assigned by the Department of Defense or the intelligence community. The committee further directs the Secretary of Defense, in consultation with the Director of National Intelligence, to provide a briefing to the House Committee on Armed Services and the Permanent Select Committee on Intelligence of the House of Representatives not later than October 15, 2018, on the plan to develop these policies.

Intelligence Support to Cyber Operations

The committee is concerned about the Defense Intelligence Enterprise’s ability to provide the cyber community with all-source intelligence support, consistent with the support provided to operations in other domains. Therefore, the committee directs the Under Secretary of Defense for Intelligence, in coordination with the Defense Intelligence Agency and the military services, to provide a briefing to the House Committee on Armed Services and the House Permanent Select Committee on Intelligence by December 1, 2018, on intelligence support to cyber operations. The briefing should include efforts to standardize a common military intelligence lexicon and doctrine for intelligence preparation of the battlefield for cyber operations, efforts to develop all-source intelligence analysts with the capability to support cyber operations,

and efforts to fully resource intelligence analysis support elements at U.S. Cyber Command and the service cyber components.

Science, Technology, Engineering, and Math Careers in Defense Intelligence

The committee is concerned about the Defense Intelligence Agency's (DIA) ability to attract and maintain adequate science, technology, engineering, and math (STEM) professionals. Specifically, the committee is concerned about career progression in the science and technology intelligence (S&TI) field at the Service Intelligence Centers and the Missile and Space Intelligence Center. Therefore, the committee directs the Director of DIA to provide a briefing to the House Committee on Armed Services not later than December 1, 2018, on a plan to develop a STEM career program that attracts and maintains the defense intelligence cadre of S&TI analysts to meet tomorrow's threats.

Security and Intelligence Role in Export Control

The committee is concerned about the coordination of security and technology protection issues involved in the export control process managed for the Department of Defense by the Under Secretary of Defense for Policy. The committee understands export controls support the Department's broad policy objectives to build relationships with partner nations, but the committee believes the risks of technology transfer deserve close scrutiny by the intelligence and security communities. Therefore, the committee directs the Under Secretary of Defense for Policy, in coordination with the Under Secretary of Defense for Intelligence, to provide a briefing to the House Committee on Armed Services not later than October 1, 2018, on security support to export control.

Security Clearance Background Investigation Reciprocity

The committee remains interested in improving the efficiency, effectiveness and timeliness of background investigations for security clearances. The committee believes that the federal government must do more to address conditions that have caused the investigation backlog, including reciprocity issues across agencies and departments. The committee notes that the Intelligence Reform and Terrorism Prevention Act (IRTPA) (Public Law 108-458) mandated that investigations initiated by an authorized investigative agency shall be transferable to any other authorized investigative agency, but a December 2017 Government Accountability Office report found full implementation of investigative transferability has yet to occur. The committee strongly believes that ample time has passed since the passage of IRTPA for full implementation of investigative reciprocity between agencies, and the failure to implement transferability requirements is unacceptable. Not later than October 1, 2018, the committee directs the Secretary of Defense, in coordination with the Director of National Intelligence and the Director of the Office of Personnel Management to brief the committee on efforts to ensure seamless transition of investigations between authorized investigative agencies, as required by law.

The committee has received numerous briefings on the Department's plan to reassume the background investigation mission for

Department of Defense personnel from the National Background Investigations Bureau, and is encouraged by the efforts to move towards continuous evaluation and continuous vetting as a replacement for periodic reinvestigations to reduce the investigative backlog. The committee notes the lead role the Department is taking for continuous monitoring and continuous vetting across the federal government. The committee believes any solution to improve the efficiency, effectiveness and timeliness of background investigations must be applied across the federal government uniformly. Therefore, not later than November 1, 2018, the committee directs the Secretary of Defense, in coordination with the Director of National Intelligence and the Director of the Office of Personnel Management to brief the committee on efforts to ensure reciprocity is a consideration for implementation of continuous evaluation and continuous vetting across the federal government.

Strengthening Oversight of the Military Intelligence Program Budget

The committee is aware of a recent draft Government Accountability Office report on the Military Intelligence Program (MIP) that identifies a lack of clear and definitive guidance about which programs, projects, and activities should be assigned to the MIP. As a result, there may be intelligence and intelligence-related capabilities resourced outside of the MIP. Conversely, the committee believes there are MIP resources allocated to programs, projects, and activities that do not primarily support the Secretary of Defense's intelligence, counterintelligence, and related intelligence responsibilities and requirements. Thus, the Department of Defense's ability to make informed decisions to balance appropriate resources against programs, projects, or activities is limited.

The committee believes the Under Secretary of Defense for Intelligence (USDI) should take measures to more clearly define guidance about which programs, projects, or activities should be assigned to the MIP using the Joint Publication's definition of intelligence. Therefore, the committee directs USDI to review all of the Department's intelligence, counterintelligence, and related intelligence programs, projects, and activities supporting the Secretary's responsibilities and requirements. The review shall also include programs, projects, and activities potentially funded outside of the MIP. In conducting the review, the committee expects USDI to note that the committee believes resources for sensors integral to the function of weapon systems, sensors and systems developed for space and missile defense, and resources for activities and programs associated with Operational Preparation of the Environment and Nonconventional Assisted Recovery are in support of operational requirements, and should be excluded from designation to the MIP.

Further, the committee directs USDI to provide a briefing to the Committees on Armed Services of the Senate and the House of Representatives by March 1, 2019, on the results of the review, including how the review will result in clear guidance on designation of programs, projects, and activities to the MIP.

LEGISLATIVE PROVISIONS

SUBTITLE A—SPACE ACTIVITIES

Section 1601—Improvements to Acquisition System, Personnel, and Organization of Space Forces

This section would direct the Deputy Secretary of Defense to develop a plan to establish a separate alternative acquisition system for defense space acquisitions, including with respect to space vehicles, ground segments, and terminals. The Deputy Secretary would be required to submit a report to the congressional defense committees by December 31, 2019, on such plan.

This section would also task the Secretary of the Air Force to develop and implement a plan to increase the number and improve the quality of the civilian and military space cadre within the Air Force. The Secretary would also be required to submit a report to the congressional defense committees by March 1, 2019, on such plan.

This section would also require the Secretary of the Air Force to establish a new numbered Air Force responsible for space warfighting operations. The Secretary would be required to submit a plan for doing so to the congressional defense committees by December 31, 2019.

Lastly, this section would amend chapter 6 of title 10, United States Code, by adding a new section that would establish a subordinate unified command for space under U.S. Strategic Command that would be responsible for joint space warfighting operations.

Section 1602—Rapid, Responsive, and Reliable Space Launch

This section would amend section 2273b of title 10, United States Code, regarding assured access to space to include consideration of rapid, responsive, and reliable space launches for national security space programs. It would also require the Secretary of Defense to provide for consideration of both reusable and expendable launch vehicles with respect to any solicitations occurring on or after March 1, 2019. Lastly, it would require the Secretary of Defense to conduct a risk and cost impact analysis with respect to reusable launch vehicles for national security payloads. The Secretary would be required to submit such analysis to the congressional defense committees within 180 days after the date of the enactment of this Act.

Section 1603—Provision of Space Situational Awareness Services and Information

This section would amend section 2274 of title 10, United States Code, by terminating the authority of the Department of Defense to provide space situational awareness (SSA) data to commercial and foreign entities on January 1, 2024. This section would further require the Secretary of Defense to enter into a contract with a federally funded research and development center to assess which department or departments should assume the authorities of section 2274 of title 10. This section would also direct the Secretary of Defense to develop a plan to ensure that one or more departments may provide space situational awareness services to non-United

States Government entities. Lastly, this section would direct the Secretary to submit a report to the appropriate congressional committees, as defined by this section, on such plan.

Section 1604—Budget Assessments for National Security Space Programs

This section would amend section 239b of title 10, United States Code, by extending the required budget assessments for national security space programs to fiscal year 2021 and by requiring the Secretary of Defense to submit a report on the budget for space programs to the congressional defense committees within 30 days after the date on which the President submits the budget request to Congress.

Section 1605—Enhancement of Positioning, Navigation, and Timing Capacity

This section would require the Secretary of the Air Force to ensure that military Global Positioning System user equipment terminals have the capability to receive Galileo and QZSS signals, starting with increment 2, including with appropriate mitigation efforts. This section would also require the terminals to have the capability to receive non-allied positioning, navigation, and timing signals if the Secretary of Defense, in consultation with the Commander, U.S. Strategic Command, determines that the benefits outweigh the risks or the risks can be appropriately mitigated. This section would also require engagement with relevant U.S. allies.

Section 1606—Use of Small- and Medium-Size Buses for Strategic and Tactical Satellite Payloads

This section would require the Secretary of Defense to conduct a study on the risks, benefits, and cost savings with respect to using small- and medium-size buses for strategic and tactical satellite payloads for protected satellite communications programs and next-generation overhead persistent infrared systems. This section would further require the Secretary to provide a briefing to the Committees on Armed Services of the Senate and the House of Representatives, not later than 180 after the date of the enactment of this Act, on such study.

This section would also require the Director of Cost Assessment and Program Evaluation to certify that future analysis of alternatives include materiel solutions for using small- and medium-size buses. Lastly, this section would require the Secretary of Defense, Secretary of the Air Force, and the Chairman of the Joint Chiefs of Staff to provide a briefing to the Committees on Armed Services of the Senate and the House of Representatives, not later than 240 days after the date of the enactment of this Act, on alternative space-based architectures using small-, medium-, and large-size buses.

Section 1607—Designation of Component of Department of Defense Responsible for Coordination of Modernization Efforts Relating to Military-Code Capable GPS Receiver Cards

This section would require the Secretary of Defense to designate a component of the Office of the Secretary of Defense to be responsible for coordinating common solutions for the Military-code modernization efforts among the military departments, Defense Agencies, and other appropriate elements of the Department of Defense by not later than 30 days after the date of enactment of this Act.

Section 1608—Designation of Component of Department of Defense Responsible for Coordination of Hosted Payload Information

This section would require the Secretary of Defense, in coordination with the Secretary of the Air Force, and other Secretaries of the military departments and the heads of Defense Agencies the Secretary determines appropriate, to designate a component of the Department of Defense or a military department to be responsible for coordinating information, processes, and lessons learned relating to using commercially hosted payloads across the military departments, Defense Agencies, and other appropriate elements of the Department of Defense not later than 30 days after the date of the enactment of this Act.

Section 1609—Limitation on Availability of Funds for Joint Space Operations Center Mission System

This section would limit obligation or expenditure of funds for the Joint Space Operations Center Mission System and Enterprise Space Battle Management Command and Control program until the Deputy Secretary of Defense provides to the congressional defense committees a certification that the Secretary of the Air Force has entered into a contract to operationalize existing, proven, best-in-breed commercial space situational awareness processing software to address warfighter requirements and fill gaps in current space situational awareness capabilities.

Section 1610—Evaluation and Enhanced Security of Supply Chain for Protected Satellite Communications Programs and Overhead Persistent Infrared Systems

This section would require the Secretary of Defense to develop a plan for and conduct evaluations of the supply chain vulnerabilities for protected satellite communications and next-generation overhead persistent infrared systems. Additionally, it would require the Secretary to develop risk mitigation strategies for the identified vulnerabilities. This section would require the Secretary to establish requirements to carry out the supply chain vulnerability evaluation and submit such requirements to the congressional defense committees not later than 120 days after the date of the enactment of this Act. Lastly, this section would require the Secretary to provide a briefing to the Committees on Armed Services of the Senate and House of Representatives not later than 180 days after the date of the enactment of this Act on the plan developed for carrying out such an evaluation.

Section 1611—Report on Protected Satellite Communications

This section would require the Secretary of Defense to submit a report to the congressional defense committees by December 31, 2018, on how specific protected satellite communications programs meet the requirements for resilience, mission assurance, and nuclear command, control, and communication missions of the Department of Defense.

Section 1612—Plan on Space Warfighting Readiness

This section would require the Secretary of Defense to develop a plan that identifies joint mission-essential tasks for space as a warfighting domain. This section would further require the Secretary to provide a briefing to the Committees on Armed Services of the House of Representatives and the Senate, within 60 days after the date of the enactment of this Act, on any authorities associated with such plan that the Secretary determines require legislative action.

Section 1613—Study on Space-Based Radio Frequency Mapping

This section would direct the Secretary of Defense and the Director of National Intelligence to jointly conduct a study on the capabilities of the private sector with respect to radio frequency mapping and services for space-based electromagnetic collections. This section would also require the Secretary, in coordination with the Director, to provide a report on the study to the congressional defense committees and congressional intelligence committees, not later than 90 days after the date of the enactment of this Act.

Section 1614—Plan To Provide Persistent Weather Imagery for United States Central Command

This section would require the Secretary of the Air Force to develop a plan to provide the U.S. Central Command with persistent weather imagery after 2025. The Secretary would be required to submit such plan to the congressional defense committees by March 1, 2019.

SUBTITLE B—DEFENSE INTELLIGENCE AND INTELLIGENCE-RELATED ACTIVITIES

Section 1621—Role of Under Secretary of Defense for Intelligence

This section would amend section 137 of title 10, United States Code, to clarify the responsibilities of the Under Secretary of Defense for Intelligence.

Section 1622—Security Clearance for Dual Nationals

This section would authorize the Secretary of Defense to apply additional security reviews to dual citizens seeking positions that require access to highly classified information. The committee expects that any additional security reviews will not further exacerbate background investigation backlogs.

Section 1623—Department of Defense Counterintelligence
Polygraph Program

This section would amend section 1564a of title 10, United States Code, by authorizing the Secretary of Defense to add dual citizens to Department of Defense counterintelligence polygraph program, for the purposes of assessing risk.

Section 1624—Defense Intelligence Business Management Systems

This section would require the Chief Management Officer of the Department of Defense, in coordination with the Under Secretary of Defense (Comptroller) and the Under Secretary of Defense for Intelligence, to provide a report to the congressional defense committees and the congressional intelligence committees, not later than March 1, 2019, outlining a plan to standardize the planning, programming, budgeting, and execution process for the Military Intelligence Program (MIP) across the Department of Defense. This section would also direct the implementation of the plan not later than October 1, 2020. This section would prohibit the use of program elements that contain both MIP and non-MIP resources. The committee is concerned with the Department's ability to provide sufficient oversight of the Military Intelligence Program budget.

Section 1625—Modification to Annual Briefing on the Intelligence,
Surveillance, and Reconnaissance Requirements of the Combatant
Commands

This section would require the Department of Defense to incorporate into the existing report required by section 1626 of the Carl Levin and Howard P. "Buck" McKeon National Defense Authorization Act for Fiscal Year 2015 (Public Law 113-291) data related to the number of requests for intelligence, surveillance, and reconnaissance capability and capacity submitted to the Chairman of the Joint Chiefs of Staff (CJCS) by the combatant commanders, the number of requests formally validated by the CJCS, the quantity of validated requests tasked to the military services to fulfill, and the amount of validated requests actually fulfilled by the military services.

Section 1626—Prohibition on the Availability of Funds for Department
of Defense Assuming Background Investigation Mission for
the Federal Government

This section would prohibit the Department of Defense from assuming the background investigation mission for the entire Federal Government before December 31, 2019.

SUBTITLE C—CYBERSPACE-RELATED MATTERS

Section 1631—Amendments to Pilot Program Regarding Cyber
Vulnerabilities of Department of Defense Critical Infrastructure

This section would modify subsection (b) of section 1650 of the National Defense Authorization Act for Fiscal Year 2017 (Public Law 114-328) to incorporate the Defense Digital Service (DDS) into pilot program authorities for identifying new, innovative methodologies or engineering approaches to evaluate cyber

vulnerabilities of Department of Defense critical infrastructure. The committee notes the success of the Defense Digital Service's "Hack the Pentagon" program, and encourages the Department to use this or similar DDS activities to more rapidly and effectively improve the cybersecurity of government owned and operated facilities.

Section 1632—Budget Display for Cyber Vulnerability Evaluations and Mitigation Activities for Major Weapon Systems of the Department of Defense

This section would require that the justification materials submitted to Congress by the Secretary of Defense in support of the President's annual budget request for the Department of Defense include a consolidated display for cyber vulnerability evaluations and mitigation activities for each major weapon system beginning in fiscal year 2021. The display for each major weapon system shall include the status of, funding required, and a description of planned activities to continue or complete the cyber vulnerability evaluations in accordance with section 1647 of the National Defense Authorization Act for Fiscal Year 2016 (Public Law 114-92), and necessary mitigation activities for the Future Years Defense Program.

Section 1633—Transfer of Responsibility for the Department of Defense Information Network to United States Cyber Command

This section would mandate that the Secretary of Defense transfer of all roles, missions, and responsibilities of the Commander, Joint Force Headquarters-Department of Defense Information Networks from the Defense Information Support Agency to Commander, United States Cyber Command, by September 30, 2019. It would additionally require the Secretary of Defense to certify in writing to the congressional defense committees that such transfer shall not result in mission degradation.

Section 1634—Pilot Program Authority To Enhance Cybersecurity and Resiliency of Critical Infrastructure

This section would authorize the Secretary of Defense, in coordination with the Secretary of Homeland Security, to provide technical personnel to the Department of Homeland Security to enhance cooperation, collaboration, and unity of government efforts in support of the protection of critical infrastructure from cyber incidents and significant cyber incidents.

Section 1635—Pilot Program on Regional Cyber Security Training Center for the Army National Guard

This section would authorize the Secretary of the Army to carry out a pilot program to establish a National Guard cyber security training center for members of the Army National Guard.

Section 1636—Procedures and Reporting Requirement on Cybersecurity Breaches and Loss of Personally Identifiable Information

This section would require the Secretary of Defense to promptly notify the congressional defense committees in the event of a sig-

nificant loss of personally identifiable information of civilian or uniformed members of the Armed Forces in classified or unclassified formats.

Section 1637—Cyber Institutes at the Senior Military Colleges

This section would authorize the Secretary of Defense to establish a Cyber Institute at each of the senior military colleges.

Section 1638—Study and Report on Reserve Component Cyber Civil Support Teams

This section would require the Secretary of Defense and the Secretary of Homeland Security to conduct a study on the feasibility and advisability of establishing cyber civil support teams comprised of Reserve Component members, primarily operating under the command and control of the Governor of each State, to prepare for and respond to cyber incidents, cyber emergencies, and cyber attacks. The Secretaries concerned shall provide a report to the congressional defense committees, the Committee on Homeland Security of the House of Representatives, and the Committee on Homeland Security and Governmental Affairs of the Senate not later than 180 days after the date of the enactment of this Act on the results of the study, to include their final determination on the feasibility of, advisability and necessity of establishing Reserve Component cyber civil support teams for each State, and if so, proposed legislation.

SUBTITLE D—NUCLEAR FORCES

Section 1641—Under Secretary of Defense for Research and Engineering and the Nuclear Weapons Council

This section would amend section 179 of title 10, United States Code, to include the Under Secretary of Defense for Research and Engineering as a member of the Nuclear Weapons Council and make a technical correction to the title of the Under Secretary for Acquisition and Sustainment.

Section 1642—Long-Range Standoff Weapon Requirements

This section would amend section 217 of the National Defense Authorization Act for Fiscal Year 2014 (Public Law 113–66) to enable the Secretary of the Air Force to retire the conventionally armed AGM–86 cruise missile and require the Secretary to ensure that a conventionally armed follow-on air-launched cruise missile, the long-range standoff weapon, achieves initial operating capability for conventional missions not later than 4 years after it achieves initial operating capability for nuclear missions.

Section 1643—Acceleration of Ground-Based Strategic Deterrent Program and Long-Range Standoff Weapon Program

This section would require the Under Secretary of Defense for Acquisition and Sustainment, in consultation with the Secretary of the Air Force, to develop and implement plans to accelerate the development, procurement, and fielding of the Ground Based Strategic Deterrent (GBSD) program and the Long-Range Standoff

cruise missile program. For GBSD, the plan would be required to recapitalize the full intercontinental ballistic missile system, without phasing or splitting the program. For both programs, the plans would be required to assess the benefits, risks, feasibility, costs, and cost savings of various options for accelerating the programs. The Under Secretary, in consultation with the Secretary of the Air Force, would be required to submit the plans to the congressional defense committees within 120 days after the date of the enactment of this Act. The Commander of U.S. Strategic Command would be required, within 160 days after the date of the enactment of this Act, to provide a briefing to the congressional defense committees on the views of the Commander regarding the plans.

Section 1644—Procurement Authority for Certain Parts of
Intercontinental Ballistic Missile Fuzes

This section would authorize \$9.8 million of the funds made available by this Act for Missile Procurement, Air Force, for the procurement of certain commercially available parts of intercontinental ballistic missile fuzes, notwithstanding section 1502(a) of title 31, United States Code, under contracts entered into under section 1645(a) of the Carl Levin and Howard P. “Buck” McKeon National Defense Authorization Act for Fiscal Year 2015 (Public Law 113–291).

Section 1645—Prohibition on Reduction of the Intercontinental
Ballistic Missiles of the United States

This section would prohibit the Department of Defense from obligating or expending fiscal year 2019 funds to reduce the responsiveness, alert level, or quantity of deployed U.S. intercontinental ballistic missiles to less than 400. This section would provide an exception to this prohibition for activities related to maintenance and sustainment and activities to ensure safety, security, or reliability.

Section 1646—Extension of Prohibition on Availability of Funds for
Mobile Variant of Ground-Based Strategic Deterrent Missile

This section would amend section 1664 of the National Defense Authorization Act for Fiscal Year 2017 (Public Law 114–328) to extend, to fiscal year 2020, a prohibition on the availability of funds to retain the option for, or develop, a mobile variant of the Ground-Based Strategic Deterrent missile.

Section 1647—Independent Study on Nuclear Weapons Launch-
Under-Attack Option

This section would require the Secretary of Defense, within 30 days of enactment of this Act, to seek to enter into a contract with a federally funded research and development center (FFRDC) to conduct a study on the potential benefits and risks of reducing the role of the launch-under-attack option in U.S. nuclear weapons planning. The Secretary would not be allowed to award such contract to an FFRDC for which the Air Force is the primary sponsor. This section would require the FFRDC to submit the report to the Secretary not later than 270 days after enactment of this Act, and

would require the Secretary to submit the report to the congressional defense committees not later than 30 days after receiving it.

Section 1648—Extension of Annual Report on the Plan for the Nuclear Weapons Stockpile, Nuclear Weapons Complex, Nuclear Weapons Delivery Systems, and Nuclear Weapons Command and Control System

This section would amend section 1043 of the National Defense Authorization Act for Fiscal Year 2012 (Public Law 112–81) to extend the expiration of a reporting requirement related to nuclear weapons from 2019 to 2022.

Section 1649—Sense of Congress on Nuclear Posture of the United States

This section would express a sense of Congress regarding the nuclear posture of the United States.

Section 1650—Sense of Congress on Extended Nuclear Deterrence in the Indo-Pacific Region

This section would express the sense of Congress concerning the nuclear weapons program of the Democratic People’s Republic of Korea and U.S. extended deterrence commitments to Indo-Pacific region allies and partners.

SUBTITLE E—MISSILE DEFENSE PROGRAMS

Section 1661—Development of Persistent Space-Based Sensor Architecture

This section would direct the Director of the Missile Defense Agency (MDA), in coordination with the Director of National Intelligence, the Commander of Air Force Space Command, and the Commander of U.S. Strategic Command, to complete a plan and initiate development in fiscal year 2019 for a space-based missile defense sensor architecture. This section would limit obligation or expenditure of funds to initiate the space-based missile defense layer program until the plan is submitted to Congress. This section would also amend section 1683 of the National Defense Authorization Act for Fiscal Year 2018 (Public Law 115–91) to require the Director of the MDA to submit a report to the congressional defense committees and congressional intelligence committees by January 31, 2019, on options to use other transactional authorities to accelerate development of this architecture.

Section 1662—Boost Phase Ballistic Missile Defense

This section would require the Director, Missile Defense Agency (MDA) to begin a program in fiscal year 2019 to develop boost phase intercept capabilities that are either air-launched or ship-based, cost effective, and that include a kinetic interceptor. This section would require an independent feasibility study to be conducted for delivering an initial or demonstrated boost phase capability by calendar year 2021 using unmanned aerial vehicles and kinetic interceptors.

This section would also provide support for directed energy efforts that would contribute to intercontinental ballistic missile boost phase intercept applications, and would direct MDA to continue developing this capability in fiscal year 2019 and leverage directed energy work by the Under Secretary of Defense for Research and Engineering. This section would require the Director of MDA to provide a briefing to the Committees on Armed Services of the House of Representatives and the Senate, and to any other congressional defense committee upon request, not later than February 28, 2019, on the criteria and parameters used to measure progress of such program.

Section 1663—Improvements to Research and Development and Acquisition Processes of Missile Defense Agency

This section would require the Under Secretary of Defense for Research and Engineering to transfer all research and development efforts and programs that have not yet reached milestone B to the Missile Defense Agency (MDA) if they are planned to be incorporated into the ballistic missile defense system or have explicit application for ballistic missile or hypersonic defense. This section would also require the Under Secretary to submit a report to the congressional defense committees by March 31, 2019, on the programs affected.

Further, this section would require the Secretary of Defense to notify the congressional defense committees before any of MDA's unique acquisition authorities are changed, and would prohibit changing the missile defense requirements generation process managed by U.S. Strategic Command.

This section would also require that MDA make the quarter and fiscal year for execution of planned flight tests unclassified. Lastly, this section would require the Deputy Secretary of Defense to update membership of the Missile Defense Executive Board, and would require that the Under Secretary of Defense for Acquisition and Sustainment be a standing member of the board and a co-chairman with respect to all decisions regarding acquisition and production milestone approvals, including other transaction authority contracts or transactions in excess of \$500.0 million.

Section 1664—Layered Defense of the United States Homeland

This section would express the sense of Congress in support of the Department of Defense's efforts to provide layered defense of the homeland, and would require the Director of the Missile Defense Agency, in coordination with the Under Secretary of Defense for Policy, Commander of U.S. Northern Command, and Commander of U.S. Pacific Command, to provide a briefing to the Committees on Armed Services of the Senate and the House of Representatives by January 31, 2019, on options to increase layered protection of the U.S. homeland, to include the continental United States, Hawaii, and Alaska, from both the Democratic People's Republic of Korea and the Islamic Republic of Iran.

Section 1665—Testing of Redesigned Kill Vehicle Prior to Production

This section would prohibit a lot production decision for the Redesigned Kill Vehicle until after a successful flight intercept test. This section would also provide a waiver for the Secretary of Defense to make such a decision prior to a successful flight test, if the specified conditions are met.

Section 1666—Requirements for Ballistic Missile Defense Capable Ships

This section would require the Secretary of the Navy to include ballistic missile defense ship requirements in all future force structure assessments.

Section 1667—Multiyear Procurement Authority for Standard Missile-3 Block IB Missiles

This section would authorize the Department of Defense to enter a multiyear procurement for Standard Missile-3 Block IB missiles.

Section 1668—Limitation on Availability of Funds for Army Lower Tier Air and Missile Defense Sensor

This section would limit obligation or expenditure of funds for the Lower Tier Air and Missile Defense Sensor until the Secretary of the Army provides a report detailing the rationale for any delay should the acquisition strategy delivered in September 2018 push initial operating capability past 2023. This section would also require the Secretary of the Army to ensure performance specifications of the sensor specify certain requirements.

Section 1669—Missile Defense Radar in Hawaii

This section would express the sense of Congress on maintaining or accelerating the schedule for the homeland missile defense in Hawaii. This section would further require alignment of the In-Flight Interceptor Communications System Data Terminal (IDT) with homeland defense radar in Hawaii by requiring the Director of the Missile Defense Agency to provide a certification that the contract for the homeland defense radar in Hawaii is on schedule to award the contract by not later than December 31, 2018, and that the radar and the IDT will reach initial operating capability not later than fiscal year 2023. Should the contract not be awarded by December 31, 2018, this section would direct the Director of the Missile Defense Agency to provide a briefing to the Committees on Armed Services of the House of Representatives and the Senate every other week until the date of award. This section would also require the Director of the Missile Defense Agency to provide semi-annual briefings to the Committees on Armed Services of the House of Representatives and the Senate on progress of the IDT and homeland missile defense radar in Hawaii, including updates on the environmental impact study process and acquisition of the radar and terminal.

Section 1670—Reports on Unfunded Priorities of the Missile Defense Agency

This section would require the Director of the Missile Defense Agency to submit a report to the Secretary of Defense, the Chairman of the Joint Chiefs of Staff, and the congressional defense committees on the unfunded priorities of the Missile Defense Agency for fiscal years 2020 and 2021, within 10 days of the submission of the budget request to Congress for those fiscal years.

Section 1671—Report on Ballistic Missile Defense

This section would require the Secretary of Defense to submit a report on ballistic missile defense to the congressional defense committees not later than 30 days after the date of enactment of this Act.

Section 1672—Sense of Congress on Missile and Rocket Defense Cooperation Between the United States and Israel

This section would express the sense of Congress in support of the administration's 10-year memorandum of understanding starting in fiscal year 2019 between the United States and the State of Israel on missile defense cooperation.

SUBTITLE F—OTHER MATTERS

Section 1681—Extension of Commission To Assess the Threat to the United States From Electromagnetic Pulse Attacks and Similar Events

This section would amend section 1691 of the National Defense Authorization Act for Fiscal Year 2018 (Public Law 115–91) to extend several deadlines associated with the Commission to Assess the Threat to the United States from Electromagnetic Pulse Attacks and Similar Events.

Section 1682—Procurement of Ammonium Perchlorate and Other Chemicals for Use in Solid Rocket Motors

This section would require the Secretary of the Army and the Deputy Assistant Secretary of Defense for Manufacturing and Industrial Base Policy to jointly conduct a business case analysis of the Federal Government using a government-owned, contractor-operated model to ensure a robust domestic supply of specialty chemicals, including ammonium perchlorate, for use in solid rocket motors. The Secretary and Deputy Assistant Secretary would be required to submit this business case analysis to the congressional defense committees by March 1, 2019.

This section would also require the Secretary of Defense to use, to the extent practicable, full and open competition in awarding a contract for the sale of ammonium perchlorate from retired solid rocket motors. The Secretary would be required to notify the congressional defense committees 30 days after the date of any such award that does not use full and open competition.

Section 1683—Conventional Prompt Global Strike Hypersonic Capabilities

This section would require the Secretary of Defense to submit to the congressional defense committees by November 30, 2018, a validated requirement for ground-, sea-, or air-launched (or a combination thereof) conventional prompt global strike (CPGS) hypersonic capabilities.

This section would further require the Under Secretary of Defense for Acquisition and Sustainment to submit a report to the congressional defense committees by November 30, 2018, on the plan to deliver a CPGS capability in accordance with section 1693 of the National Defense Authorization Act for Fiscal Year 2018 (Public Law 115–91). The report would also include options with cost estimates for accelerating delivery for such system, policy decisions needed to employ the capabilities, and details with respect to the assessed level of ambiguity and misinterpretation of risks, and how those risks would be addressed.

Section 1684—Report Regarding Industrial Base for Large Solid Rocket Motors

This section would require the Under Secretary of Defense for Acquisition and Sustainment, in consultation with the Secretaries of the military departments that the Under Secretary determines appropriate, to submit a report to the appropriate congressional committees by April 15, 2019, on whether, and if so, how, the Federal Government will sustain more than one supplier for large solid rocket motors. The report would be required to include an assessment of several matters, including risks, costs, and options for sustaining more than one supplier by leveraging various programs of the Department of Defense and the broader Federal Government. Finally, this section would require the Under Secretary to provide a briefing to the appropriate congressional committees by November 30, 2018, on the industrial base for large solid rocket motors.

As it has expressed in the past, the committee continues to support the GBSD program and efforts to recapitalize the nuclear triad. The committee continues to expect the Air Force and the Department of Defense to be mindful of the impacts GBSD and other large upcoming or ongoing programs have on the industrial base for large solid rocket motors in the near, medium, and longer terms. Due to the large volume of rocket motors that will be procured for GBSD, this program may have a particularly large impact on the health and vitality of this key element of the U.S. industrial base. The committee does not expect or encourage the GBSD program alone to be responsible for sustaining this industrial base, but does expect the Department of Defense to carefully consider its impacts, assessing risks, benefits, and costs.

Section 1685—National Intelligence Estimate With Respect to Russian and Chinese Interference in Democratic Countries

This section would direct the Director of National Intelligence to produce a National Intelligence Estimate on Russian and Chinese interference in democratic countries around the world.

DIVISION B—MILITARY CONSTRUCTION AUTHORIZATIONS

PURPOSE

Division B provides military construction, family housing, and related authorities in support of the military departments during fiscal year 2019. As recommended by the committee, division B would authorize appropriations in the amount of \$10,332,478,000 for construction in support of the Active Forces, Reserve Components, defense agencies, and the North Atlantic Treaty Organization security infrastructure fund for fiscal year 2019.

MILITARY CONSTRUCTION AND FAMILY HOUSING OVERVIEW

The Department of Defense requested \$8,612,447,000 for military construction, \$267,538,000 for Base Realignment and Closure activities, and \$1,582,632,000 for family housing for fiscal year 2019. The committee recommends authorization of appropriations of \$8,498,136,000 for military construction, \$322,868,000 for Base Realignment and Closure activities, and \$1,582,632,000 for family housing in fiscal year 2019. In addition, the committee recommends the inclusion of \$71,158,000 in undistributed savings from prior years. The Department of Defense also requested \$921,420,000 for Overseas Contingency Operations military construction for fiscal year 2019. The committee recommends authorization of appropriations of \$921,420,000 for Overseas Contingency Operations military construction within title XXIX.

Section 2001—Short Title

This section would cite division B of this Act as the “Military Construction Authorization Act for Fiscal Year 2019”.

Section 2002—Expiration of Authorizations and Amounts Required To Be Specified by Law

This section would ensure that the authorizations provided in titles XXI through XXVII and title XXIX of this Act shall expire on October 1, 2023, or the date of the enactment of an Act authorizing funds for military construction for fiscal year 2024, whichever is later.

Section 2003—Effective Date

This section would provide that titles XXI through XXVII and title XXIX of this Act would take effect on October 1, 2018, or the date of the enactment of this Act, whichever is later.

TITLE XXI—ARMY MILITARY CONSTRUCTION

SUMMARY

The budget request contained \$1,011,768,000 for Army military construction and \$707,169,000 for family housing for fiscal year 2019. The committee recommends authorization of appropriations

of \$1,095,868,000 for military construction and \$707,169,000 for family housing for the Army in fiscal year 2019.

ITEMS OF SPECIAL INTEREST

Explanation of Funding Adjustments

The committee recommends the inclusion of funding for several projects requested by the Department of the Army but not contained in the budget request for military construction and family housing. These increases include:

(1) \$18.0 million for a Microgrid and Power Plant at Fort Campbell, Kentucky;

(2) \$16.5 million for Cantonment Area Roads at Fort Meade, Maryland; and (3) \$9.6 million for a Supply Support Activity at Fort Hood, Texas.

The committee also recommends the inclusion of \$50.0 million for the Secretary of the Army, with prior notification to Congress, to carry out projects intended to enhance force protection and safety. The committee recommends the Secretary use this authority to alleviate deficiencies in access control points, air traffic control towers, fire stations, and anti-terrorism and force protection.

Finally, the committee recommends a reduction of funding for a project contained in the budget request submitted by the Department of the Army for military construction and family housing. This reduction is:

(1) \$10.0 million for Command and Control Facility, Increment 4 at Fort Shafter, Hawaii. While the committee supports the requirement for this incrementally funded project, the committee notes this is the second consecutive year the Army has reported cost increases associated with this project. The committee believes the Department did not provide sufficient justification for the most recent cost increase associated with this project. Therefore, the committee recommends \$95.0 million, a reduction of \$10.0 million, for this project.

LEGISLATIVE PROVISIONS

Section 2101—Authorized Army Construction and Land Acquisition Projects

This section would contain the list of authorized Army construction projects for fiscal year 2019. The authorized amounts are listed on an installation-by-installation basis. The State list contained in this Act is intended to be the binding list of the specific projects authorized at each location.

Section 2102—Family Housing

This section would authorize new construction and planning and design of family housing units for the Army for fiscal year 2019.

Section 2103—Authorization of Appropriations, Army

This section would authorize appropriations for Army military construction at the levels identified in section 4601 of division D of this Act.

Section 2104—Extension of Authorizations of Certain Fiscal Year
2015 Projects

This section would extend the authorization of a certain project originally authorized by section 2101 of the Military Construction Authorization Act for Fiscal Year 2015 (division B of Public Law 113–291) until October 1, 2019, or the date of the enactment of an act authorizing funds for military construction for fiscal year 2020, whichever is later.

TITLE XXII—NAVY MILITARY CONSTRUCTION

SUMMARY

The budget request contained \$2,543,189,000 for Navy and Marine Corps military construction and \$419,117,000 for family housing for fiscal year 2019. The committee recommends authorization of appropriations of \$2,538,898,000 for military construction and \$419,117,000 for family housing for the Navy and Marine Corps in fiscal year 2019.

ITEMS OF SPECIAL INTEREST

Explanation of Funding Adjustments

The committee recommends the inclusion of funding for several projects requested by the Department of the Navy but not contained in the budget request for military construction and family housing. These increases include:

- (1) \$78.8 million for an Aircraft Paint Complex at Naval Base Coronado, California;
- (2) \$75.6 million for X-Ray Wharf Improvements (Berth 2) at Naval Base Guam, Guam;
- (3) \$51.3 million for 2nd Radio Battalion Complex, Phase 2 at Camp Lejeune, North Carolina;
- (4) \$31.9 million for a Welding and Body Repair Shop Facility at Marine Corps Base Albany, Georgia;
- (5) \$22.3 million for Expeditionary Combat Skills Student Berthing at Naval Construction Battalion Center, Gulfport, Mississippi;
- (6) \$21.8 million for Missile Magazines at Naval Weapons Station Seal Beach, California;
- (7) \$19.7 million for a Consolidated Fire Station at Naval Station Guantanamo Bay, Cuba;
- (8) \$19.5 million for LCS Mission Module Readiness Center at Naval Base San Diego, California;
- (9) \$16.6 million for a Supply Warehouse SOI–West at Camp Pendleton, California;
- (10) \$14.9 million for a Communications Line Ops to Admin at Naval Air Station Lemoore, California;
- (11) \$14.8 million for Missile Motor Magazines and U&SI at Camp Navajo, Arizona
- (12) \$13.1 million for Ammunition Supply Point Upgrade, Phase 2 at Marine Corps Base Quantico, Virginia;
- (13) \$10.0 million for Air Traffic Control Tower (North Field) at Naval Air Station Whiting Field, Florida; and (14) \$6.3 million for

a Cryogenics Facility Marine Corps Air Station Beaufort, South Carolina.

The committee also recommends the inclusion of \$50.0 million for the Secretary of the Navy, with prior notification to Congress, to carry out projects intended to enhance force protection and safety. The committee recommends the Secretary use this authority to alleviate deficiencies in access control points, air traffic control towers, fire stations, and anti-terrorism and force protection.

Finally, the committee recommends a reduction of funding for several projects contained in the budget request submitted by the Department of the Navy for military construction and family housing. These reductions include:

(1) \$73.97 million for an Aircraft Maintenance Hangar at Marine Corps Air Station Cherry Point, North Carolina. The committee supports the requirement for this project and provides the full project authorization of \$133.97 million included in the budget request. However, the committee supports the authorization of appropriations in an amount equivalent to the ability of the Department to execute in the year of the authorization for appropriations. For this project, the committee believes that the Department of the Navy cannot fully expend the funding in fiscal year 2019. Therefore, the committee recommends an authorization of appropriation of \$60.0 million, a reduction of \$73.97 million, for this project.

(2) \$71.287 million for a Machine Gun Range at Joint Region Marianas, Guam. The committee supports the requirement for this project and provides the full project authorization of \$141.287 million included in the budget request. However, the committee supports the authorization of appropriations in an amount equivalent to the ability of the Department to execute in the year of the authorization for appropriations. For this project, the committee believes that the Department of the Navy cannot fully expend the funding in fiscal year 2019. Therefore, the committee recommends an authorization of appropriation of \$70.0 million, a reduction of \$71.287 million, for this project.

(3) \$59.353 million for Pier 8 Replacement at Naval Base San Diego, California. The committee supports the requirement for this project and provides the full project authorization of \$108.1 million included in the budget request. However, the committee supports the authorization of appropriations in an amount equivalent to the ability of the Department to execute in the year of the authorization for appropriations. For this project, the committee believes that the Department of the Navy cannot fully expend the funding in fiscal year 2019. Therefore, the committee recommends an authorization of appropriation of \$47.747 million, a reduction of \$59.353 million, for this project.

(4) \$55.6 million for the Master Time Clocks & Operations Facility at the Naval Observatory, District of Columbia. The committee supports the requirement for this project and provides the full project authorization of \$115.6 million included in the budget request. However, the committee supports the authorization of appropriations in an amount equivalent to the ability of the Department to execute in the year of the authorization for appropriations. For this project, the committee believes that the Department of the Navy cannot fully expend the funding in fiscal year 2019. There-

fore, the committee recommends an authorization of appropriation of \$60.0 million, a reduction of \$55.6 million, for this project.

(5) \$58.321 million for Dry Dock #1 Superflood Basin at the Portsmouth Navy Yard, Maine. The committee supports the requirement for this project and provides the full project authorization of \$109.96 million included in the budget request. However, the committee supports the authorization of appropriations in an amount equivalent to the ability of the Department to execute in the year of the authorization for appropriations. For this project, the committee believes that the Department of the Navy cannot fully expend the funding in fiscal year 2019. Therefore, the committee recommends an authorization of appropriation of \$51.639 million, a reduction of \$58.321 million, for this project.

(6) \$51.86 million for Flightline Utility Modernization at Marine Corps Air Station Cherry Point, North Carolina. The committee supports the requirement for this project and provides the full project authorization of \$106.86 million included in the budget request. However, the committee supports the authorization of appropriations in an amount equivalent to the ability of the Department to execute in the year of the authorization for appropriations. For this project, the committee believes that the Department of the Navy cannot fully expend the funding in fiscal year 2019. Therefore, the committee recommends an authorization of appropriation of \$55.0 million, a reduction of \$51.86 million, for this project.

(7) \$50.52 million for a D5 Missile Motor Receipt/Storage Facility at Hill Air Force Base, Utah. The committee supports the requirement for this project and provides the full project authorization of \$105.52 million included in the budget request. However, the committee supports the authorization of appropriations in an amount equivalent to the ability of the Department to execute in the year of the authorization for appropriations. For this project, the committee believes that Department of the Navy cannot fully expend the funding in fiscal year 2019. Therefore, the committee recommends an authorization of appropriation of \$55.0 million, a reduction of \$50.52 million, for this project.

(8) \$21.98 million for a TBS Fire Station at Marine Corps Base Quantico, Virginia. The committee notes this project was authorized in the National Defense Authorization Act for Fiscal Year 2018 (Public Law 115–91) and a subsequent appropriations was included for this project in the Consolidated Appropriations Act, 2018 (Public Law 115–141). The committee does not believe an additional authorization of appropriations for fiscal year 2019 is required for this project and therefore recommends a reduction of \$21.98 million, for this project.

(9) \$8.0 million for Planning and Design. The committee recommends an authorization of appropriation of \$177.542 million, a reduction of \$8.0 million, for planning and design activities.

Aegis Ashore Poland Austere Housing

The committee notes that the U.S. Navy has made the decision to maintain austere housing accommodations for the Aegis Ashore site in Redzikowo, Republic of Poland. This decision was made despite the committee's concerns about the impact that these conditions could have on the quality of life for the sailors manning the site.

Aegis Ashore Poland will provide critical missile defense capability to defend our deployed forces, allies, partners, and friends from missile defense threats. The site will be manned 24/7 by sailors on rotating, unaccompanied tours. The Commander of Naval Installations Command determined that the Aegis Ashore site located in Redzikowo, Poland, warranted “austere” housing, and the Chief of Naval Operations approved this determination. Under this determination, the housing accommodation guidelines will place up to 4 persons in each berthing room.

The committee is concerned that the austere housing may have a negative impact on quality of life for the sailors manning the site as they execute a critical missile defense mission. Therefore, the committee directs the Secretary of the Navy to provide a briefing to the House Committee on Armed Services by November 30, 2018, on options to improve housing standards for sailors at the Aegis Ashore Poland site, including estimated costs and schedule for completing the possible improvements.

Infrastructure in Support of Submarine Training and Operational Requirements

The committee supports the Navy’s development of the *Columbia*-class to serve as the Navy’s future ballistic missile submarine. While the first submarine delivery is projected outside of the current Future Years Defense Program, the committee believes it is important for infrastructure requirements to be properly identified, programmed, and synchronized to support the training and operational requirements of this new class of submarine. The committee notes that the military departments have struggled in the past to align military construction and infrastructure investments with delivery of new weapon systems. The committee encourages the Secretary of the Navy to review the Navy’s current infrastructure plans to ensure proper alignment with the *Columbia*-class program. Finally, the committee notes the importance of continuing to make appropriate investments in the infrastructure capabilities and capacity necessary to meet the training and certification of crews supporting the current fleet of *Ohio*-class submarines.

Public Shipyard Infrastructure

The committee acknowledges that it has received the report related to Naval Shipyard Development Plans required by the committee report (H. Rept. 115–200) accompanying the National Defense Authorization Act for Fiscal Year 2018. The report identified a number of infrastructure-related configuration, age, condition, and capacity issues that adversely impact nuclear submarine and aircraft carrier depot maintenance throughput. The Navy’s report identifies approximately \$21.0 billion in infrastructure investments through 2040 that will be needed in the shipyards, to include \$14.0 billion for construction to provide the optimal layout of facilities in order to increase production capacity, \$4.0 billion for improvements of the dry docks to provide needed capability and capacity for future classes of ships, and \$3.0 billion for capital equipment. The committee believes the public shipyards are key elements that support our national defense. As such, the committee encourages the Secretary of the Navy to plan, program, and budget appropriate in-

vestments in the public shipyards to ensure those shipyards have the capabilities and capacity necessary to efficiently and effectively support the Navy fleet of today as well as the future.

Red Hill Bulk Underground Fuel Storage Facility

The committee is aware that the Navy and Defense Logistics Agency (DLA) have entered into an enforceable agreement with the Environmental Protection Agency (EPA) and the Hawaii Department of Health known as an Administrative Order on Consent (AOC). The AOC has opportunities for stakeholder involvement at every milestone. The committee notes that the EPA and Hawaii Department of Health regulate the Red Hill Underground Fuel Storage Facility and must approve work on AOC milestones including tank inspection, repair, and maintenance; tank upgrade alternatives using Best Available Practicable Technology (BAPT); release detection and tank tightness testing; corrosion and metal fatigue practices; investigation and remediation of releases; groundwater protection and evaluation; and a risk and vulnerability assessment. The committee encourages the Navy and DLA to continue to work with Federal and State regulators to meet all compliance deadlines related to the AOC. Furthermore, the committee encourages the Navy and DLA to consider increasing community outreach efforts, to include holding more public events such as town halls, to keep the community and local stakeholders informed on milestones and compliance with the AOC.

Furthermore, the committee continues to recognize the strategic value of the Red Hill Underground Fuel Storage Facility and the support it provides to U.S. Pacific Command (PACOM) operations in peacetime and for contingencies. This facility is a national strategic asset that supports combatant commander theater security requirements, contingency operations, and routine movements in the Indo-Asia-Pacific region. Moving the fuel to another storage facility in the Indo-Asia-Pacific region would have implications for the U.S. military force structure in the region. If the facility were closed, the ability of the U.S. Armed Forces to support the National Defense Strategy would be significantly undermined. The committee appreciates the ongoing dialogue with the Department of Defense and Department of the Navy on this topic while they continue to comply with the requirements of the AOC. The committee will continue to provide congressional oversight on compliance with the AOC and the planning, programming, budgeting, and execution for the BAPT solutions and overall recapitalization plan for the Red Hill Underground Fuel Storage Facility.

Tijuana Sewage Runoff

The committee is aware that discharges of raw sewage into the Tijuana River have required Navy in-water military training in the vicinity of Coronado, California, to be temporarily shifted to another location due to health and safety concerns. In addition, sewage spills and debris such as discarded tires often clog the river channel causing substantial erosion along the perimeter of the Naval Outlying Landing Field Imperial Beach (NOLFIB). The erosion has threatened the installation's perimeter fencing and resulted in the Navy developing a project to reinforce the riverbank

and relocate portions of Navy fencing. The committee is aware that such discharges also cause secondary impacts to local Navy operations, such as beach closures at Naval Base Coronado in areas that are prime nesting grounds for the Western Snowy Plover and the California Least Tern. Increased regulatory actions by State and Federal environmental protection agencies may be levied if the quality and safety of these species' nesting areas are affected, which will negatively constrain military activities in these areas.

The committee is concerned that future spills, discharges, and debris from the Tijuana River may have more significant impacts on the military installations and operations in the San Diego region. Therefore, the committee directs the Secretary of the Navy to provide a briefing to the House Committee on Armed Services and other committees of jurisdiction in the House, not later than December 1, 2018, detailing whether such spills, discharges, and debris have any impact on the national security interests of the United States; whether there is a need to avoid future spills to prevent impacts to training, installations, and operations; and what actions might be taken to resolve or mitigate these impacts. As necessary, the Secretary is encouraged to coordinate with the Department of State, the Environmental Protection Agency, the Department of Homeland Security (to include U.S. Customs and Border Patrol and the U.S. Coast Guard), the International Boundary and Water Commission, and the Department of the Interior on this briefing requirement.

LEGISLATIVE PROVISIONS

Section 2201—Authorized Navy Construction and Land Acquisition Projects

This section would contain the list of authorized Navy construction projects for fiscal year 2019. The authorized amounts are listed on an installation-by-installation basis. The State list contained in this Act is intended to be the binding list of the specific projects authorized at each location.

Section 2202—Family Housing

This section would authorize new construction and planning and design of family housing units for the Department of the Navy for fiscal year 2019.

Section 2203—Improvements to Military Family Housing Units

This section would authorize the Secretary of the Navy to make improvements to existing units of family housing for fiscal year 2019.

Section 2204—Authorization of Appropriations, Navy

This section would authorize appropriations for Navy military construction at the levels identified in section 4601 of division D of this Act.

TITLE XXIII—AIR FORCE MILITARY CONSTRUCTION

SUMMARY

The budget request contained \$1,725,707,000 for Air Force military construction and \$395,720,000 for family housing for fiscal year 2019. The committee recommends authorization of appropriations of \$1,570,773,000 for military construction and \$395,720,000 for family housing for the Air Force in fiscal year 2019.

ITEMS OF SPECIAL INTEREST

Explanation of Funding Adjustments

The committee recommends the inclusion of funding for several projects requested by the Department of the Air Force but not contained in the budget request for military construction and family housing. These increases include:

(1) \$26.0 million for a Dormitory (168 personnel) at Little Rock Air Force Base, Arkansas;

(2) \$26.0 million for a Composite Aircraft Antenna Calibration facility at Hill Air Force Base, Utah;

(3) \$15.0 million for an AGE Facility at Davis-Monthan Air Force Base, Arizona;

(4) \$14.2 million for Anti-Terrorism Perimeter Security/Entry Control Point at Rome Laboratory, New York;

(5) \$14.0 million for Add-Alter Joint Personnel Recovery Agency Command and Control Mission Support Facility at Fairchild Air Force Base—White Bluff, Washington;

(6) \$13.0 million for a Child Development Center at Joint Base Andrews, Maryland;

(7) \$12.25 million for an Entrance Road and Gate Complex at Barksdale Air Force Base, Louisiana;

(8) \$9.0 million for a Main Gate at Patrick Air Force Base, Florida;

(9) \$8.0 million for a Military Working Dog Facility at Joint Base Andrews, Maryland; and

(10) \$7.0 million for Wyoming Gate Upgrade for Anti-Terrorism Compliance at Kirtland Air Force Base, New Mexico.

The committee also recommends the inclusion of \$50.0 million for the Secretary of the Air Force, with prior notification to Congress, to carry out projects intended to enhance force protection and safety. The committee recommends the Secretary use this authority to alleviate deficiencies in access control points, air traffic control towers, fire stations, and anti-terrorism and force protection.

Finally, the committee recommends reduction of funding for several projects contained in the budget request submitted by the Department of the Air Force for military construction and family housing. These reductions include:

(1) \$185.0 million for the MIT—Lincoln Laboratory (West Lab CSL/MIF) at Hanscom Air Force Base, Massachusetts. The committee supports the requirement for this project and provides the full project authorization of \$225.0 million included in the budget request. However, the committee supports the authorization of appropriations in an amount equivalent to the ability of the Depart-

ment to execute in the year of the authorization for appropriations. For this project, the committee believes that Department of the Air Force cannot fully expend the funding in fiscal year 2019. Therefore, the committee recommends an authorization of appropriation of \$40.0 million, a reduction of \$185.0 million, for this project.

(2) \$55.1 million for the ADAL Intelligence Production Complex (NASIC) at Wright-Patterson Air Force Base, Ohio. The budget request included \$116.1 million to construct the first phase of the construction of additional workspace for intelligence analysis and production to support the National Air and Space Intelligence Center. The committee supports the requirement for this project and is aware that a \$66.0 million second phase is planned in a future program but is needed to support the full mission requirement. The committee believes it is more appropriate to authorize the full scope of a military construction requirement and provide incremental funding as opposed to bifurcating a construction project into separate phases. Therefore, the committee recommends combining the two phases into a single project and provides a total authorization of \$182.0 million for the ADAL Intelligence Production Complex at Wright-Patterson Air Force Base, Ohio. However, the committee supports the authorization of appropriations in an amount equivalent to the ability of the Department to execute in the year of the authorization for appropriations. For this project, the committee believes that Department of the Air Force cannot fully expend the funding in fiscal year 2019. Therefore, the committee recommends an authorization of appropriation of \$61.0 million, a reduction of \$55.1 million, for this project.

(3) \$40.0 million for a Personnel Deployment Processing facility at Al Udeid, Qatar. The committee supports this requirement. However, the committee recommends no funds in the base budget, a reduction of \$40.0 million, for this project in order to transfer this project to Title XXIX, Overseas Contingency Operations Military Construction.

(4) \$30.884 million for the Presidential Aircraft Recap Complex, Increment 2 at Andrews Air Force Base, Maryland. The committee supports the requirement for this project, but notes that an additional \$24.884 million was provided in the Consolidated Appropriations Act, 2018 (Public Law 115–141), which was signed into law after the budget request for fiscal year 2019 was submitted. In addition, the committee notes an additional \$6.0 million was included in the project for site preparation work that is no longer required. Therefore, the committee recommends an authorization of appropriation of \$123.116 million, a reduction of \$30.884 million, for this project.

(5) \$30.4 million for Flightline Support facilities at Al Udeid, Qatar. The committee supports this requirement. However, the committee recommends no funds in the base budget, a reduction of \$30.4 million, for this project in order to transfer this project to Title XXIX, Overseas Contingency Operations Military Construction.

(6) \$8.0 million for Planning and Design. The committee recommends an authorization of appropriation of \$187.577 million, a reduction of \$8.0 million, for planning and design activities.

Infrastructure Investments in Support of Research and Development Contracts

The committee notes that section 2353 of title 10, United States Code, provides the secretary of a military department the authority to provide for the acquisition or construction of facilities and equipment by either the Government or the contractor that the secretary concerned determines to be necessary for the performance of a contract for research, development, or both. However, the committee notes that the Air Force Instruction (AFI) approval process currently used to approve projects seeking to use this authority may not be appropriate for the circumstances at certain research facilities. Specifically, the committee notes that the current AFI-32 series is used for traditional military construction projects, and does not adequately address construction funded through contracts for research, development, or both. Therefore, the addition of language to AFIs pertinent to acquisition and construction of facilities and equipment authorized by section 2353 of title 10, United States Code, may be more appropriate and necessary for the implementation of this authority. The committee believes the Secretary of the Air Force should closely examine this issue and issue a revised AFI, as appropriate, that better supports the use of section 2353 of title 10, United States Code.

Therefore, the committee directs the Secretary of the Air Force to provide a briefing to the House Committee on Armed Services not later than September 30, 2018, on the results of a review of the authorities that support the acquisition or construction of facilities and equipment for research and development contracts, the supporting AFIs to carry out such projects, and any plans to update the AFI to better utilize the existing authorities.

LEGISLATIVE PROVISIONS

Section 2301—Authorized Air Force Construction and Land Acquisition Projects

This section would contain the list of authorized Air Force construction projects for fiscal year 2019. The authorized amounts are listed on an installation-by-installation basis. The State list contained in this Act is intended to be the binding list of the specific projects authorized at each location.

Section 2302—Family Housing

This section would authorize new construction and planning and design of family housing units for the Air Force for fiscal year 2019.

Section 2303—Improvements to Military Family Housing Units

This section would authorize the Secretary of the Air Force to make improvements to existing units of family housing for fiscal year 2019.

Section 2304—Authorization of Appropriations, Air Force

This section would authorize appropriations for Air Force military construction at the levels identified in section 4601 of division D of this Act.

Section 2305—Modification of Authority To Carry Out Certain Phased Project Authorized in Fiscal Years 2015, 2016, and 2017

This section would modify the authority provided by section 2301(b) of the Military Construction Authorization Act for Fiscal Year 2015 (division B of Public Law 113–291), the authority provided by section 2301(b) of the Military Construction Authorization Act for Fiscal Year 2016 (division B of Public Law 114–92), and the authority provided by section 2301(b) of the Military Construction Authorization Act for Fiscal Year 2017 (division B of Public Law 114–328) to authorize the Secretary of the Air Force to modify the location of three previously authorized construction phases of the project.

Section 2306—Modification of Authority To Carry Out Certain Fiscal Year 2017 Project

This section would modify the authority provided by section 2301 of the Military Construction Authorization Act for Fiscal Year 2017 (division B of Public Law 114–328) and authorize the Secretary of the Air Force to make certain modifications to the scope and authorized cost of a previously authorized construction project.

Section 2307—Modification of Authority To Carry Out Certain Fiscal Year 2018 Project

This section would modify the authority provided by section 2301 of the Military Construction Authorization Act for Fiscal Year 2018 (division B of Public Law 115–91) and authorize the Secretary of the Air Force to make certain modifications to the scope of a previously authorized construction project.

Section 2308—Additional Authority To Carry Out Certain Fiscal Year 2019 Projects

This section would provide the Secretary of the Air Force additional authority to carry out certain fiscal year 2019 projects pursuant to the Defense Laboratory Modernization Pilot Program established by section 2803 of the Military Construction Authorization Act for Fiscal Year 2016 (division B of Public Law 114–92).

Section 2309—Additional Authority To Carry Out Project at Travis Air Force Base, California, in Fiscal Year 2019

This section would provide specific authorization for a construction project at Travis Air Force Base.

TITLE XXIV—DEFENSE AGENCIES MILITARY CONSTRUCTION

SUMMARY

The budget request contained \$2,693,324,000 for defense agency military construction and \$58,373,000 for family housing for fiscal year 2019. The committee recommends authorization of appropriations of \$2,473,338,000 for military construction and \$58,373,000 for family housing for defense agencies for fiscal year 2019.

ITEMS OF SPECIAL INTEREST

Explanation of Funding Adjustments

The committee notes the budget request submitted by the Department of Defense for military construction and family housing included \$150.0 million for the Energy Resilience and Conservation Investment Program. The committee supports this program and encourages the Department of Defense to continue to emphasize projects that will support increased resiliency of military installations and mission critical functions. Therefore, the committee recommends an authorization of appropriation of \$165.0 million, an increase of \$15.0 million, for this program.

In addition, the committee recommends reduction of funding for several projects contained in the budget request submitted by the Department of Defense for military construction and family housing. These reductions include:

(1) \$130.386 million for Kinnick High School at Yokosuka, Japan. The committee supports the requirement for this project and provides the full project authorization of \$170.386 million included in the budget request. However, the committee supports the authorization of appropriations in an amount equivalent to the ability of the Department to execute in the year of the authorization for appropriations. For this project, the committee believes that Department of Defense cannot fully expend the funding in fiscal year 2019. Therefore, the committee recommends an authorization of appropriation of \$40.0 million, a reduction of \$130.386 million, for this project.

(2) \$44.0 million for Long Range Discrimination Radar System Complex, Phase 2 at Clear Air Force Station, Alaska. The committee supports the requirement for this project and provides the full project authorization of \$174.0 million included in the budget request. However, the committee supports the authorization of appropriations in an amount equivalent to the ability of the Department to execute in the year of the authorization for appropriations. For this project, the committee believes that Department of the Defense cannot fully expend the funding in fiscal year 2019. Therefore, the committee recommends an authorization of appropriation of \$130.0 million, a reduction of \$44.0 million, for this project.

(3) \$32.6 million for Next NGA West (N2W) Complex, Phase 1, Increment 2 in St. Louis, Missouri. The committee supports the requirement for this project, but notes that an additional \$25.0 million was provided in the Consolidated Appropriations Act, 2018 (Public Law 115–141), which was signed into law after the budget request for fiscal year 2019 was submitted. In addition, the com-

mittee notes that the Office of Management and Budget has directed the National Geospatial-Intelligence Agency not to award the project until receiving the full appropriation for both increments, resulting in a cost increase of \$7.6 million due to the delay in award. As noted elsewhere in this report, the committee believes such a policy is not in the best interest of the Department of Defense or the taxpayer. Therefore, the committee recommends an authorization of appropriation of \$181.0 million, a reduction of \$32.6 million, for this project.

(4) \$10.0 million for an Ambulatory Care Center Addition/Alteration at RAF Croughton, United Kingdom. The committee notes this facility may be early-to-need based on an ongoing analysis of alternatives related to a separate military construction requirement. Therefore, the committee recommends no funds, a reduction of \$10.0 million, for this project.

(5) \$10.0 million for Contingency Construction at Unspecified Worldwide Locations. The budget request included \$10.0 million to support contingency construction requirements not previously authorized by law. While the committee notes this authority was used for a project in fiscal year 2018, unobligated balances remain available in the military construction account and other authorities exist to construct projects that are in keeping with a national security interest. As such, the committee recommends no funds, a reduction of \$10.0 million, for this program.

(6) \$8.0 million for Missile Field #1 Expansion at Fort Greely, Alaska. The committee notes that the Continuing Appropriations Act, 2018 and Supplemental Appropriations for Disaster Relief Requirements Act, 2017 (Public Law 115-56) provided \$200.0 million for the construction of an additional 20 silos at Missile Field #4. The committee questions why the requirement for the additional expansion of Missile Field #1 was not included in the previous request. In addition, the committee notes that this project could be carried out as a minor military construction project and does not require specific authorization. Therefore, the committee recommends no funds, a reduction of \$8.0 million, for this project.

LEGISLATIVE PROVISIONS

Section 2401—Authorized Defense Agencies Construction and Land Acquisition Projects

This section would contain the list of authorized defense agencies' construction projects for fiscal year 2019. The authorized amounts are listed on an installation-by-installation basis. The state list contained in this Act is intended to be the binding list of the specific projects authorized at each location.

Section 2402—Authorized Energy Conservation Projects

This section would authorize the Secretary of Defense to carry out energy resilience and conservation projects.

Section 2403—Authorization of Appropriations, Defense Agencies

This section would authorize appropriations for defense agencies' military construction at the levels identified in section 4601 of division D of this Act.

Section 2404—Extension of Authorizations of Certain Fiscal Year
2015 Projects

This section would extend the authorization of certain projects originally authorized by section 2401 of the Military Construction Authorization Act for Fiscal Year 2015 (division B of Public Law 113–291) until October 1, 2019, or the date of the enactment of an Act authorizing funds for military construction for fiscal year 2020, whichever is later.

TITLE XXV—INTERNATIONAL PROGRAMS

SUMMARY

The budget request contained \$171,064,000 for the North Atlantic Treaty Organization Security Investment Program (NSIP) for fiscal year 2019. The committee recommends authorization of appropriations of \$171,064,000 for NSIP for fiscal year 2019.

ITEMS OF SPECIAL INTEREST

Facilities and Infrastructure for U.S. Military Personnel at North
Atlantic Treaty Organization Host Nation Bases

The committee appreciates its ongoing and cooperative dialogue with the Department of Defense regarding efforts to improve infrastructure and facilities for U.S. military personnel stationed at North Atlantic Treaty Organization (NATO) host nation bases. As NATO continues to strengthen and update its posture in response to increasing threats, the committee believes that the United States, NATO, and individual host nations must recapitalize facilities and infrastructure that support the NATO mission.

Based on site visits and direct oversight, the committee is pleased that the Kingdom of Belgium has taken several unilateral steps and applied its own funding to improve the security posture at several bases hosting U.S. personnel. However, the committee is disappointed that longstanding plans to recapitalize certain facilities at Belgian bases have not yet been executed. The committee understands that, over a decade ago, NATO allocated common funding to construct several new, modern facilities in Belgium to replace inadequate, decades-old buildings. But, due to bureaucratic delays outside of the control of NATO and the U.S. Government, the new facilities have not yet been built and U.S. personnel continue to work and operate in antiquated, substandard, and potentially unsafe facilities. The committee is aware of recent discussions between senior officials from the U.S. and Belgium on this issue, and is pleased that officials from both nations are working together to execute recapitalization plans. The committee encourages Belgium, NATO, and the U.S. Government to find and execute a near-term solution to this serious problem.

LEGISLATIVE PROVISIONS

SUBTITLE A—NORTH ATLANTIC TREATY ORGANIZATION SECURITY INVESTMENT PROGRAM

Section 2501—Authorized NATO Construction and Land Acquisition Projects

This section would authorize the Secretary of Defense to make contributions to the North Atlantic Treaty Organization Security Investment Program in an amount not to exceed the sum of the amount specifically authorized in section 2502 of this Act and the amount collected from the North Atlantic Treaty Organization as a result of construction previously financed by the United States.

Section 2502—Authorization of Appropriations, NATO

This section would authorize appropriations for the North Atlantic Treaty Organization Security Investment Program at the levels identified in section 4601 of division D of this Act.

SUBTITLE B—HOST COUNTRY IN-KIND CONTRIBUTIONS

Section 2511—Republic of Korea Funded Construction Projects

This section would authorize the Secretary of Defense to accept 16 military construction projects totaling \$518.6 million pursuant to agreement with the Republic of Korea for required in-kind contributions.

TITLE XXVI—GUARD AND RESERVE FORCES FACILITIES

SUMMARY

The budget request contained \$467,395,000 for military construction of National Guard and Reserve facilities for fiscal year 2019. The committee recommends authorization of appropriations of \$648,195,000 for military construction for fiscal year 2019.

ITEMS OF SPECIAL INTEREST

Explanation of Funding Adjustments

The committee recommends the inclusion of funding for several projects requested by the Department of the Army and Department of the Air Force for their reserve components but not contained in the budget request for military construction and family housing. These increases include:

- (1) \$42.6 million for a Regional ISO Maintenance Hangar at Westover Air Reserve Base, Massachusetts;
- (2) \$24.0 million for a NORTHCOM—Construct Alter Facilities at Naval Air Station Joint Reserve Base New Orleans, Louisiana;
- (3) \$24.0 million for an HC-130J Maintenance Hangar at Patrick Air Force Base, Florida;
- (4) \$23.0 million for an ECS Modified TEMF at Yakima Training Center, Washington;

(5) \$13.0 million for Replace Fire Station at Mansfield Lahm Airport, Ohio;

(6) \$11.0 million for an Aircraft Vehicle Storage Building at Lexington, Oklahoma;

(7) \$9.4 million for an Aerial Port Facility at Grissom Air Reserve Base, Indiana;

(8) \$9.0 million for Construct Aircraft Apron at Great Falls International Airport, Montana;

(9) \$8.8 million for Relocate Main Gate at Youngstown Air Reserve Station, Ohio;

(10) \$8.0 million for Construct Small Arms Range at Rickenbacker International Airport, Ohio; and

(11) \$8.0 million for Construct Small Arms Range at Duluth International Airport, Minnesota.

LEGISLATIVE PROVISIONS

SUBTITLE A—PROJECT AUTHORIZATIONS AND AUTHORIZATION OF APPROPRIATIONS

Section 2601—Authorized Army National Guard Construction and Land Acquisition Projects

This section would contain the list of authorized Army National Guard construction projects for fiscal year 2019. The authorized amounts are listed on an installation-by-installation basis. The State list contained in this Act is intended to be the binding list of the specific projects authorized at each location.

Section 2602—Authorized Army Reserve Construction and Land Acquisition Projects

This section would contain the list of authorized Army Reserve construction projects for fiscal year 2019. The authorized amounts are listed on an installation-by-installation basis. The State list contained in this Act is intended to be the binding list of the specific projects authorized at each location.

Section 2603—Authorized Navy Reserve and Marine Corps Reserve Construction and Land Acquisition Projects

This section would contain the list of authorized Navy Reserve and Marine Corps Reserve construction projects for fiscal year 2019. The authorized amounts are listed on an installation-by-installation basis. The State list contained in this Act is intended to be the binding list of the specific projects authorized at each location.

Section 2604—Authorized Air National Guard Construction and Land Acquisition Projects

This section would contain the list of authorized Air National Guard construction projects for fiscal year 2019. The authorized amounts are listed on an installation-by-installation basis. The State list contained in this Act is intended to be the binding list of the specific projects authorized at each location.

Section 2605—Authorized Air Force Reserve Construction and
Land Acquisition Projects

This section would contain the list of authorized Air Force Reserve construction projects for fiscal year 2019. The authorized amounts are listed on an installation-by-installation basis. The State list contained in this Act is intended to be the binding list of the specific projects authorized at each location.

Section 2606—Authorization of Appropriations, National Guard
and Reserve

This section would authorize appropriations for the National Guard and Reserve military construction at the levels identified in section 4601 of division D of this Act.

SUBTITLE B—OTHER MATTERS

Section 2611—Modification of Authority To Carry Out Certain
Fiscal Year 2016 Project

This section would modify the authority provided by section 2603 of the Military Construction Authorization Act for Fiscal Year 2016 (division B of Public Law 114–92) to authorize the Secretary of the Navy to modify the location of a previously authorized construction project.

Section 2612—Modification of Authority To Carry Out Certain
Fiscal Year 2018 Project

This section would modify the authority provided by section 2601 of the Military Construction Authorization Act for Fiscal Year 2018 (division B of Public Law 115–91) to authorize the Secretary of the Army to make certain modifications to the scope of a previously authorized construction project.

Section 2613—Additional Authority To Carry Out Certain Fiscal
Year 2019 Project

This section would authorize the Secretary of the Navy to carry out a military construction project and acquire land at Pittsburgh, Pennsylvania, for the construction of a reserve training center. The Secretary may use available, unobligated Navy military construction reserve funds for the project.

**TITLE XXVII—BASE REALIGNMENT AND
CLOSURE ACTIVITIES**

SUMMARY

The budget request contained \$267,538,000 for activities related to Base Realignment and Closure (BRAC) activities. The committee recommends authorization of appropriations of \$322,868,000 for BRAC activities.

ITEMS OF SPECIAL INTEREST

Explanation of Funding Adjustments

The committee notes the budget request submitted by the Department of Defense for activities related to Base Realignment and Closure (BRAC) included \$322.868 million for the activities related to recommendations from the previous BRAC rounds. The committee notes that additional resources may allow for the acceleration of certain activities. Therefore, the committee recommends additional authorization of appropriations of \$18.11 million for Base Realignment and Closure—Army, \$19.11 million for Base Realignment and Closure—Navy, and \$18.11 million for Base Realignment and Closure—Air Force.

LEGISLATIVE PROVISIONS

Section 2701—Authorization of Appropriations for Base Realignment and Closure Activities Funded through Department of Defense Base Closure Account

This section would authorize appropriations for ongoing activities that are required to implement the base realignment and closure activities authorized by the Defense Base Closure and Realignment Act of 1990 (part A of title XXIX of Public Law 101-510), at the levels identified in section 4601 of division D of this Act.

Section 2702—Additional Authority To Realign or Close Certain Military Installations

This section would provide the Secretary of Defense with authority to close or realign a military installation if the Secretary receives notification from the Governor of a State or territory that recommends the realignment or closure of a military installation within the Governor's State or territory.

Section 2703—Prohibition on Conducting Additional Base Realignment and Closure (BRAC) Round

This section would affirm that nothing in this Act shall be construed to authorize an additional Base Realignment and Closure round.

TITLE XXVIII—MILITARY CONSTRUCTION
GENERAL PROVISIONS

ITEMS OF SPECIAL INTEREST

Allied Pilot Training on Advanced Pilot Trainer

The committee understands that as the U.S. Air Force evaluates proposals for the Advanced Pilot Trainer (T-X) to make a final award in 2018, it will also be conducting an analysis of each undergraduate pilot training base to determine when the T-X will replace the T-38C Talon currently in service at those bases. Undergraduate pilot training lays the foundation for all pilots that will fly advanced fighter aircraft, including pilots from allies and partners who will fly American fighter aircraft variants. It is critical

that pilots from allies and partners also receive opportunities to adequately prepare to fly these aircraft. Therefore, the committee recommends that the Secretary of the Air Force, when evaluating locations for basing the T-X, consider the importance of locations that also provide training to allies and partners.

Comptroller General Review of Utilities Privatization

The committee continues to support the utility privatization program and other alternative financing arrangements to achieve greater efficiencies, improve reliability and resiliency of utility systems, and reduce operating costs to the Department of Defense. While the Department has leveraged this authority for approximately 20 years, the committee notes with concern the amount of time it can take to complete a utility privatization project, from initial feasibility review by the military department to award of a contract to a utility provider. The committee is aware of instances where the process took more than 5 years from analysis to award. After two decades of experience with utilities privatization, the committee is concerned that procedures have not improved. The Department's protracted process for awarding privatization contracts deters potential utility providers from considering such a contract.

Therefore, the committee directs the Comptroller General of the United States to review the Department's utility privatization program and submit a report to the Committees on Armed Services of the Senate and the House of Representatives not later than September 30, 2019, on his findings and recommendations. Specifically, the report shall address the following for each military service:

- (1) the specific steps of the utility privatization process, the average amount of time to complete each step, and the contributing factors for the time each step takes;
- (2) the extent to which best practices have been identified and are shared between the services and the Defense Logistics Agency, and other stakeholders to improve the process; and
- (3) any recommendations to help improve the process as determined to be appropriate by the Comptroller General.

Core Sampling at Joint Base San Antonio

The Committee notes that Joint Base San Antonio is served by a wastewater pipeline, known as W-6 that is subject to a Consent Decree with the Environmental Protection Agency requiring its replacement. The local utility providing wastewater service is the San Antonio Water System, an agency of the City of San Antonio, Texas. This pipeline is critical to the functional wastewater system of Joint Base San Antonio, the City of San Antonio, and Bexar County. The Committee believes that the timely replacement of the pipeline is in the best interests of both Joint Base San Antonio and the community. The proposed route of the replacement pipeline would traverse a part of the base that contains capped and closed landfills with uncertain contents. The committee understands that the Air Force and the City are currently at an impasse on the liability for any contamination discovered during site investigations of the proposed pipeline route and during construction and subse-

quent maintenance and operation of a new pipeline. Given the hazards posed by the condition of the existing pipeline to the population on Joint Base San Antonio, and the legal requirements for replacing the pipeline under the Consent Decree, the Committee encourages the Secretary of the Air Force to work with the City of San Antonio toward an amicable and rapid resolution.

To establish an estimate of liability that will allow informed decisions, the Committee encourages the Secretary of the Air Force to conduct core sampling along the proposed route of the new pipe to determine if any regulated or hazardous substances are present in the soil along the proposed route and the concentrations of any such substances. Furthermore, the committee directs the Secretary of the Air Force to provide a briefing to the House Armed Services Committee, not later than September 30, 2018, on the whether or not the Air Force performed such core sampling and the results of the core sampling performed. If the Air Force did not perform such core sampling, the briefing shall include a detailed explanation for the reasons such sampling was not performed. At the time of the briefing, the Secretary should also provide an update on the status of negotiations with the San Antonio Water System and proposed way-ahead for the site investigations and construction of the W-6 replacement pipeline.

Department of Defense Lands Leases in Hawaii

The Department of Defense has multiple land leases in Hawaii that require renegotiation and renewal within the next 15 years, including the Pohakuloa Training Area, Kahuku Training Area, Makua Military Reservation, and Poamoho Training Area. Therefore, the committee directs the Secretary of Defense to report to the House Committee on Armed Services on efforts to renew Department of Defense leases in Hawaii by July 31, 2018.

Incremental Funding of Military Construction Projects

As noted elsewhere in this report, the committee continues to believe in the value and appropriateness of incrementally authorizing appropriations for certain military construction projects. The committee notes that the Office of Management and Budget has directed the Department of Defense to not plan, program, or request incremental funded projects. However, the committee believes that allowing the Department to seek incremental funding for certain projects ensures more stability and predictability in the planning process, reduces acquisition costs, and enables the Department to execute more work in place on other infrastructure requirements in the fiscal year. Furthermore, the committee believes that incremental funding of large and complex military construction projects ensures continuous oversight and opportunities to adjust the authorization of appropriation level for projects should issues arise or requirements change over the course of construction. To date, the committee is not aware of any example where a military construction project has been left with inadequate funding or has not been executable as a result of an incremental funding approach. The committee expects the Secretary of Defense and the Director of the Office of Management and Budget to work with the House Committee on Armed Services, and the other appropriate congressional

oversight committees, to develop a framework that enables the planning, programming, budgeting, and execution of incrementally funded military construction projects.

Naval Academy Dairy Farm

The committee is aware the Secretary of the Navy is currently prohibited by section 6976 of title 10, United States Code from disposing of 875 acres of real property containing the Naval Academy dairy farm located in Gambrills, Maryland. The committee notes that this prohibition has been in place for more than twenty years and believes that it should be reexamined. Therefore, the committee directs the Secretary of the Navy to provide a report to the House Armed Services Committee, not later than September 30, 2018, regarding the real property containing the Naval Academy dairy farm. At minimum, the report shall address the current use and activities taking place on the property, an assessment of the continued need for the property to be retained by the Navy, and an evaluation of potential future uses for the property, including conveyance to a local county or municipality. In addition, the report should address how the Navy would continue supporting the functions and activities that benefit from the proceeds of current leases of the real property.

Operational Energy Technologies

The committee is aware of a variety of technologies that may improve operational flexibility, enhance logistics, and reduce supply lines for forces operating in deployed environments, to include the ability to convert natural gas to tactical fuels, improve power generation, distribution, and storage in deployed environments, and increase the range and capability of tactical vehicles. The committee is supportive of these efforts and encourages the Department of Defense to transition such natural gas to tactical fuel technologies from the research and development stage in support of operational requirements. Therefore, the committee directs the Secretary of Defense to provide a briefing to the House Armed Services Committee, not later than March 1, 2019, that outlines steps the Department is taking, to include resourcing and timelines for maturation of operational energy technologies, to transition such technologies to full scale demonstrations and commercial production.

Privatization of On-Base Lodging

The committee supports the ongoing efforts of the Secretary of Defense to make Department of Defense business operations more efficient. As the Secretary of Defense noted in his February 2017 Memorandum, this efficiency will free up resources to enable “a larger, more capable and more lethal Joint force.” One of the ways to accomplish this is to find savings in areas that may no longer merit individual military department approaches, particularly in non-core functions. To that end, the committee notes that the Army has privatized its on-base lodging operations and understands this effort has resulted in upgraded on-base lodging facilities, an improved experience for the military traveler, annual savings for the Army, and a self-sustaining lodging program. The committee is

aware that the Department is considering options to consolidate and privatize Navy and Air Force on-base lodging.

Therefore, the committee directs the Secretary of the Navy and the Secretary of the Air Force to provide a briefing to the House Committee on Armed Services, not later than March 1, 2019, on how the Navy and Air Force will ensure holistic sustainability and affordability of their lodging programs. At a minimum, the briefing shall include details on capital investment needs to correct facility configuration and capacity deficiencies, provision of adequate long-term sustainment of facilities, and the implementation of best practices that will maximize reductions in government manpower and operational costs for Navy and Air Force on-base lodging programs.

Relocation of Defense Non-Tactical Generator and Rail Equipment Center, Hill Air Force Base, Utah

The committee is aware of the Department of the Army's decision to relocate the Defense Non-Tactical Generator and Rail Equipment Center (DGRC) from Hill Air Force Base, Utah, to Anniston Army Depot, Alabama. The committee is also aware the Utah Department of Transportation plans to construct a new interchange at the current site of the DGRC and State funding is programmed in 2022. The committee understands that the Army, Air Force, and State of Utah must undertake a number of actions before the DGRC parcel may be transferred and encourages the Secretary of the Air Force to begin discussions as soon as practicable with the Utah Department of Transportation to ensure the orderly transfer of the property by 2022.

Furthermore, the committee directs the Secretary of the Army, in coordination with the Secretary of the Air Force, to submit a report to the Committees on Armed Services of the Senate and the House of Representatives not later than January 31, 2019, on the detailed plan for executing the relocation of the DGRC and all actions necessary to ultimately transfer property to the Utah Department of Transportation. The report shall provide a detailed plan and timeline to relocate this mission to Anniston Army Depot and all necessary construction or renovation of facilities at Anniston Army Depot. The report should also include all actions necessary to enable transfer of Air Force property on Hill Air Force Base to the Utah Department of Transportation, to include the demolition of facilities, the construction or renovation of facilities, environmental remediation required, funding programmed to facilitate the transfer of the property to the Utah Department of Transportation, and any constraints to the execution of the transfer of the property by 2022.

Wireless Communications on Base

The committee recognizes that some military installations are located in rural areas with limited wireless communications coverage. There are also installations that cover such a large amount of land that communications infrastructure outside the fence line is unable to provide consistent or optimal service to portions of the installation. The committee believes that wireless communications coverage on military installations not only provide valuable support for the quality of life for service members and their families, but

also can support military requirements related to force protection, logistics, training, or operations. The committee is aware that the Navy is considering using real estate agreements, such as easements and enhanced use leases, to allow commercial industry to develop communications infrastructure on its installations to improve service and connectivity. The committee is aware that the Army and Air Force have also expressed a desire to improve wireless communications capabilities on military installations but may not be taking the same approach as the Navy. Therefore, the committee directs the service secretaries to provide a briefing to the House Armed Services Committee, not later than September 30, 2018, on each of the military departments' requirements, plans, and timelines for improving communications coverage and capabilities on its installations.

Yucca Mountain

Pursuant to the Nuclear Waste Policy Act, the Department of Energy (DOE) plans to permanently dispose of high-level nuclear waste at Yucca Mountain, Nevada, located on DOE's Nevada National Security Site (NNSS), which would require transportation of nuclear waste to the repository. The committee has been briefed on DOE's proposed route to transport the waste to Yucca Mountain, and understands the route is located near DOE activities at NNSS and Department of Defense (DOD) activities at the Nevada Test and Training Range (NTTR). In 2017, Secretary of the Air Force Heather Wilson stated that, "if Yucca Mountain becomes a storage area it needs to operate without impacting the ability of the country to defend itself," and, "there is no route across the range that would not impact testing and training." Documents provided to the committee by the Air Force indicate that although the proposed route is located outside of the boundaries of NTTR, several sections of the route would border the range, and this siting of the rail line was confirmed in a DOE Record of Decision and Environmental Impact Statement.

The NTTR provides the largest air and ground military training space in the contiguous United States, free from commercial aircraft interference, and stores 75 percent of stateside Air Force live munitions. The NNSS provides DOE and other government agencies unique, high-hazard testing environments. Both facilities are national assets.

The committee directs the Secretary of Defense, in coordination with the Secretary of Energy, to submit a report to the congressional defense committees, not later than January 15, 2019, describing any impacts that the Yucca Mountain Project would have on DOD and DOE activities at NNSS, NTTR, and any other defense facilities in proximity to Yucca Mountain or the proposed transportation route.

LEGISLATIVE PROVISIONS

SUBTITLE A—MILITARY CONSTRUCTION PROGRAM AND MILITARY FAMILY HOUSING

Section 2801—Commercial Construction Standards for Facilities on Leased Property

This section would amend section 2667 of title 10, United States Code, to allow the use of commercial construction standards when a private developer is constructing facilities on military land for commercial use under an enhanced use lease agreement.

Section 2802—Extension of Temporary, Limited Authority To Use Operation and Maintenance Funds for Construction Projects Outside the United States

This section would provide continued authority for the Secretary of Defense to use funds appropriated for operation and maintenance for military construction to meet temporary operational requirements during a time of declared war, national emergency, or contingency operation through the end of fiscal year 2019.

Section 2803—Small Business Set-Aside for Contracts for Architectural and Engineering Services and Construction Design

This section would amend section 2855 of title 10, United States Code, to increase the threshold for small business set-asides for architectural and engineering services and construction design contracts from \$300,000 to \$1.0 million.

Section 2804—Authority To Obtain Architectural and Engineering Services and Construction Design for Defense Laboratory Modernization Program

This section would amend section 2803 of the National Defense Authorization Act for Fiscal Year 2016 (Public Law 114–92) to clarify that the Secretary of the military department concerned may use amounts available for research, development, testing, and evaluation funding to obtain architectural and engineering services to carry out a construction project under this authority. This section would also extend the period of the Defense Laboratory Modernization Pilot Program until October 1, 2023.

Section 2805—Repeal of Limitation on Certain Guam Project

This section would amend section 2879 of the National Defense Authorization Act for Fiscal Year 2018 (Public Law 115–91) by repealing the requirement that the Secretary of the Navy award five military construction projects prior to awarding the “Replace Andersen Housing Phase II” project.

Section 2806—Enhancing Force Protection and Safety on Military Installations

This section would authorize the Secretaries of the military departments to carry out military construction projects to enhance force protection and safety on military installations. This section would require a notification to the congressional defense commit-

tees prior to obligating or expending funds to carry out a project under this authority.

Section 2807—Limitation on Use of Funds for Acquisition of
Furnished Energy for New Medical Center in Germany

This section would prohibit the Secretary of Defense or Secretary of any military department from using funds to enter into a contract for the acquisition of energy for the proposed Rhine Ordnance Barracks Army Medical Center until the Secretary of Defense submits certain certifications regarding the source of energy supply and the design of the medical center.

Section 2808—Treatment of Leases of Non-Excess Property
Entered Into With Insured Depository Institutions

This section would amend section 2667 of title 10, United States Code, to direct the Secretary concerned to accept financial services provided by an insured depository institution to service members and employees of the Department of Defense as sufficient in-kind consideration to cover all lease, services, and utilities costs assessed with regard to the leased property.

SUBTITLE B—REAL PROPERTY AND FACILITIES ADMINISTRATION

Section 2811—Optional Participation in Collection of Information
on Unutilized and Underutilized Military Installation Properties
Available for Homeless Assistance

This provision would amend section 11411 of title 42, United States Code, to provide the Department of Defense discretion on the reporting of surplus facilities for possible assistance for the homeless. Since most facilities owned by the Department require credentialed access, few if any facilities have been transferred for adaptive reuse by homeless organizations.

Section 2812—Force Structure Plans and Infrastructure
Capabilities Necessary To Support the Force Structure

This section would require the Secretary of Defense to submit a force structure plan for each military service not later than February 3, 2021, accompanied by a categorical model of installation capabilities required to support force structure and an assessment of the adequacy of the Department of Defense's existing infrastructure inventory to support force structure plans.

Section 2813—Retrofitting Existing Windows in Military Family
Housing Units To Be Equipped With Fall Prevention Devices

This section would amend section 2879 of title 10, United States Code, to authorize the Secretaries of the military departments to create a grant program from which privatized housing entities and military installations may request funds to retrofit or install window fall prevention devices in privatized and military-owned housing.

Section 2814—Updating Prohibition on Use of Certain Assessment of Public Schools on Department of Defense Installations to Supersede Funding of Certain Projects

This section would freeze a portion of the Public Schools on Military Installations List required in the National Defense Authorization Act for Fiscal Year 2017 (Public Law 114–328) to ensure that the original top 38 schools do not lose priority due to any reassessment.

SUBTITLE C—LAND CONVEYANCES

Section 2821—Authority for Transfer of Administrative Jurisdiction Over Certain Lands, Marine Corps Air Ground Combat Center Twentynine Palms, California, and Marine Corps Air Station Yuma, Arizona

This section would authorize the Secretary of the Navy to transfer acquired State and privately owned lands to the Secretary of the Interior for inclusion as public lands withdrawn and reserved by section 2941 of the National Defense Authorization Act for Fiscal Year 2014 (Public Law 113–66). This section would also allow the Secretary of the Interior to transfer certain parcels of land at Marine Corps Air Station Yuma to the Secretary of the Navy.

Section 2822—Public Inventory of Guam Land Parcels for Transfer to Government of Guam

This section would require the Secretary of the Navy to establish, maintain, and regularly update an inventory of real property located on Guam owned by the U.S. Government and administered by the Department of the Navy which the Secretary of the Navy expects to transfer to the Government of Guam. Such inventory shall be available online and accessible to the public and include specific information about each parcel of land included in the inventory. This section would also establish a formal process for the Governor of Guam to petition the Secretary of the Navy to add parcels to the inventory.

Section 2823—Land Conveyance, Naval Academy Dairy Farm, Gambrills, Maryland

This section would authorize conveyance of 40 acres of land from the United States Naval Academy Dairy Farm to Anne Arundel County, Maryland, contingent on certain conditions and considerations.

Section 2824—Technical Correction of Description of Limestone Hills Training Area Land Withdrawal and Reservation, Montana

This section would amend section 2931 of the Military Construction Authorization Act for Fiscal Year 2014 (division B of Public Law 113–66) to adjust the acreage of withdrawn public land in Broadwater County, Montana.

Section 2825—Land Conveyance, Wasatch-Cache National Forest,
Rich County, Utah

This section would direct the Secretary of Agriculture to transfer ownership of 80 acres of public land to the Utah State University Research Foundation, a 501(c)(3) non-profit.

SUBTITLE D—MILITARY LAND WITHDRAWALS

Section 2831—Indefinite Duration of Certain Military Land Withdrawals and Reservations and Improved Management of Withdrawn and Reserved Lands

This section would amend statutory authority for several military land withdrawals to extend the withdrawals indefinitely. This section would also amend section 670a of title 16, United States Code, to require the Secretary of the Interior and the concerned Secretary of a military department to continuously review such withdrawals and would establish a public comment process regarding the resource management plans and military use of such lands.

Section 2832—Designation of Potential Wilderness Area

This section would allow the Secretary of the Interior to permit a microwave communications site on one acre of land within a federally protected wilderness area.

SUBTITLE E—OTHER MATTERS

Section 2841—Defense Community Infrastructure Program

This section would amend section 2391 of title 10, United States Code, to authorize the Secretary of Defense to make grants, conclude cooperative agreements, and supplement funds available under other Federal programs to assist States and local governments in addressing deficiencies in community infrastructure projects or facilities which are located outside of military installations but which support military installations.

Section 2842—Restrictions on Use of Funds for Development of Public Infrastructure in Commonwealth of Northern Mariana Islands

This section would require the Secretary of Defense to convene an Economic Adjustment Committee meeting and describe assistance necessary to support changes in Department of Defense activities in the Commonwealth of the Northern Mariana Islands in a report to the congressional defense committees. This section would also prohibit the Department of Defense from carrying out any grant, transfer, cooperative agreement, or supplemental funding that will result in the development of public infrastructure unless such project is included in the Economic Adjustment Committee report and specifically authorized by law.

Section 2843—Study and Report on Coleman Bridge, York River,
Virginia

This section would require the Commander, U.S. Transportation Command, to review the feasibility of including the George P. Cole-

man Memorial Bridge near Naval Weapons Station, Yorktown, Virginia, in the Strategic Highways Network and to report his findings to the congressional defense committees not later than 180 days after the date of the enactment of this Act.

Section 2844—Certifications Required Prior to Transfer of Certain Veterans Memorial Object

This section would amend section 2864 of the National Defense Authorization Act for Fiscal Year 2018 (Public Law 115–91); it would provide language clarifying the certification requirement and require a report prior to the return of certain veterans memorial objects.

TITLE XXIX—OVERSEAS CONTINGENCY OPERATIONS MILITARY CONSTRUCTION

SUMMARY

The budget request contained \$921,420,000 for Overseas Contingency Operations military construction for fiscal year 2019. The committee recommends authorization of appropriations of \$921,420,000 for Overseas Contingency Operations military construction for fiscal year 2019.

ITEMS OF SPECIAL INTEREST

EXPLANATION OF FUNDING ADJUSTMENTS

The committee recommends reduction of funding for a project contained in the Overseas Contingency Operations budget request submitted by the Department of Defense for military construction. This reduction is:

(1) \$69.0 million for a High Value Detention Facility at Guantanamo Bay, Cuba. The Department of Defense did not provide the committee sufficient justification for the need to construct a new, permanent facility with increased capacity and capabilities. In addition, the committee notes that while the current facility may not be ideally configured, it is still capable of meeting current and foreseeable detention requirements. Therefore, the committee recommends no funds, a reduction of \$69.0 million, for this project.

As noted earlier in this report, the committee recommended a reduction in funding for several projects included in the base budget request in order to transfer them to the Overseas Contingency Operations title of this Act. Therefore, the committee recommends a commensurate increase in the Overseas Contingency Operations account to support these projects. Specifically, these projects include:

(1) \$40.0 million for a Personnel Deployment Processing facility at Al Udeid, Qatar; and

(2) \$30.4 million for Flightline Support facilities at Al Udeid, Qatar.

LEGISLATIVE PROVISIONS

Section 2901—Authorized Army Construction and Land Acquisition Projects

This section would contain the list of certain authorized Army construction projects for fiscal year 2019. These projects represent a binding list of the specific projects authorized at these locations.

Section 2902—Authorized Navy Construction and Land Acquisition Projects

This section would contain the list of authorized Navy construction projects for fiscal year 2019. These projects represent a binding list of the specific projects authorized at these locations.

Section 2903—Authorized Air Force Construction and Land Acquisition Projects

This section would contain the list of certain authorized Air Force construction projects for fiscal year 2019. These projects represent a binding list of the specific projects authorized at these locations.

Section 2904—Authorized Defense Agencies Construction and Land Acquisition Projects

This section would contain the list of authorized defense agencies' construction projects for fiscal year 2019. These projects represent a binding list of the specific projects authorized at these locations.

Section 2905—Authorization of Appropriations

This section would authorize appropriations for Overseas Contingency Operations military construction at the levels identified in section 4602 of division D.

Section 2906—Restrictions on Use of Funds for Planning and Design Costs of European Deterrence Initiative Projects

This section would limit the ability of the secretaries concerned from using any of the amounts authorized to be appropriated for planning and design of military construction projects requested under the European Deterrence Initiative until the Secretary of Defense submits a list of the military construction projects to support the European Deterrence Initiative that are anticipated during fiscal year 2019 and at least the four succeeding fiscal years. The committee notes its support for the European Deterrence Initiative and the military construction program that supports it. However, the committee believes that it is important for Congress to have a clear understanding of the overall military construction plan for Europe and the construction projects that will be supported with this planning and design funding.

DIVISION C—DEPARTMENT OF ENERGY NATIONAL SECURITY AUTHORIZATIONS AND OTHER AUTHORIZATIONS

TITLE XXXI—DEPARTMENT OF ENERGY NATIONAL SECURITY PROGRAMS

OVERVIEW

The budget request for fiscal year 2019 contained \$21.60 billion for atomic energy defense activities. The committee recommends \$21.96 billion, an increase of \$357.0 million to the budget request.

ITEMS OF SPECIAL INTEREST

NATIONAL NUCLEAR SECURITY ADMINISTRATION

Overview

The budget request for fiscal year 2019 contained \$15.09 billion for the programs of the National Nuclear Security Administration. The committee recommends \$15.40 billion, an increase of \$307.0 million to the budget request.

Weapons Activities

Defense Nuclear Security and related construction projects

The budget request contained \$690.6 million for Defense Nuclear Security at the National Nuclear Security Administration (NNSA). This funding supports day-to-day security operations across the nuclear security enterprise, as well as sustainment and recapitalization of physical security infrastructure and equipment. This does not include certain major line item construction projects that would result in significant security improvements.

The committee continues to emphasize the need for sustained and focused NNSA and Department of Energy leadership attention on physical security efforts within the nuclear security enterprise. The security certifications required by section 2657 of title 50, United States Code, were intended to ensure the Administrator for Nuclear Security and the Secretary of Energy focus significant personal attention on the issue and are accountable for both progress and problems. Further, the congressionally mandated Center for Security Technology, Analysis, Response, and Testing, the Security Management Improvement Plan, and Security Infrastructure Revitalization Program have helped provide a solid knowledge base of physical security expertise and clear direction for a program that must be continuously vigilant and improving. The committee commends these steps, but continues to seek further progress on two major line item construction projects that will support both improved security and accomplishment of NNSA's mission deliverables: the West End Protected Area Reduction Project at the Y-12 National Security Complex, and the Material Staging Facility at the Pantex Plant.

The committee recommends \$701.6 million for Defense Nuclear Security, an increase of \$11.0 million to the budget request, \$9.0

million for the West End Protected Area Reduction project, and \$24.0 million for the Material Staging Facility.

Directed Stockpile Work

The budget request included \$4.67 billion for Directed Stockpile Work (DSW), including life extension programs (LEP) and major alterations, stockpile systems, stockpile services, and strategic materials. The committee continues to believe the National Nuclear Security Administration (NNSA) must emphasize these programs and capabilities that directly support and enable NNSA's deliverables to the Department of Defense.

The W76-1 LEP will soon complete production and its successful delivery to the Navy is a notable achievement. This weapon will soon comprise approximately 70 percent of the nation's operationally deployed strategic warheads. Production engineering on the B61-12 LEP continues, and the committee will closely oversee capacity and throughput challenges to ensure it stays on track for delivery of a first production unit and associated capabilities by December 2019. This weapon will be both a tangible and credible extended deterrent for U.S. allies, as well as form an important component of the United States' own strategic deterrent. The W88 ALT 370, with its refresh of components and high explosives, will produce a modernized warhead that will ensure its reliability for decades. And the W80-4 LEP will produce a warhead for the future long-range standoff (LRSO) cruise missile, which supports the air leg of the strategic triad. The committee will continue to track alignment between the W80-4 LEP and the LRSO program itself. Finally, the W76-2 program will produce a lower-yield submarine-launched ballistic missile warhead, as proposed by the 2018 Nuclear Posture Review. Aligning initial production of the W76-2 with the end of production of the W76-1 will help minimize costs and ensure timely production and deployment.

The committee recommends \$4.66 billion for Directed Stockpile Work, a decrease of \$8.0 million to the budget request.

Domestic uranium

The committee understands that recent market trends, foreign competition, and other factors have had significant negative impacts on the nation's domestic uranium industry. For instance, the domestic uranium mining industry has diminished such that in recent years domestic suppliers provide less than 5 percent of U.S. demand for uranium. Additionally, all domestically owned uranium enrichment facilities have been closed.

The National Nuclear Security Administration (NNSA) is conducting an analysis of alternatives (AOA), due for completion in 2020, regarding if and how to reconstitute a domestic uranium enrichment capability for national security purposes. In its review of NNSA's AOA guidance, the Comptroller General of the United States found that NNSA's mission needs statement was limited in scope, showed preference toward a particular solution, and did not include the potential for enrichment facilities that meet multiple mission needs beyond just tritium production. The Comptroller General also found that NNSA's cost estimates for two potential enrichment technologies, which ranged from \$3.8 billion to \$14.0 billion depending on the technology and assumptions, only partially

or minimally met best practice standards for being comprehensive, credible, well-documented, and accurate.

The committee also notes that policy changes must be considered as part of the AOA, including changes that would enable the current supply of unobligated fuel to last longer and changes that would revise domestic policies or international agreements regarding limitations on the use of obligated fuel. The committee believes this AOA must be comprehensive and data-driven, and expects NNSA to update the mission needs statement and AOA guidance to address the Government Accountability Office's recommendations.

While the AOA is underway, the committee believes NNSA must be mindful of ensuring U.S. technical expertise for uranium does not atrophy and that both mature and less-mature technology options continue to be advanced. The committee also believes NNSA and the wider Federal Government must be mindful of any short- or long-term implications for national security if the domestic uranium industry as a whole is moribund.

To enable its oversight of these issues, the committee directs the Administrator for Nuclear Security, in consultation with appropriate officials from the Department of Energy and other agencies, to provide a briefing to the Committees on Armed Services of the Senate and the House of Representatives by November 30, 2018, on the state of the domestic uranium industry in general, its impacts on national security, and the status of NNSA's ongoing analysis of alternatives related to domestic uranium enrichment. Such briefing should include:

(1) an assessment of commercial market trends, Department of Energy excess uranium sales, Federal regulations and policies, enrichment capacity, and foreign imports;

(2) details on how NNSA is sustaining technical expertise in domestically owned uranium enrichment technologies while its analysis of alternatives is ongoing and no domestically owned source of enriched uranium is operational;

(3) NNSA's plans to revise and clarify the mission needs statement, as recommended by the Comptroller General;

(4) how NNSA intends to consider a comprehensive range of options in the AOA, including policy changes such as reexamining the mixture of obligated and unobligated fuel used in reactors in proportion to tritium production and energy production, and revisions regarding limitations on the use of obligated fuel;

(5) how NNSA will ensure that cost estimates of all options are consistent with best practices, and how the cost estimates are aligned with the updated scope of need.

Fusion technology pathways

The committee is aware of several different paths that may, some day, lead to viable fusion-based energy production and believes such a breakthrough would have extraordinary implications for energy security, national security, and the world in general. The committee is also cognizant that fusion-based energy production has been a long-sought outcome of the high energy density physics community, but has yet to yield anticipated results. The committee understands that tokamak technology is of particular interest in the

scientific community for its potential to achieve viability for fusion energy production.

To better understand the state of science and technology development in this field, the committee directs the Administrator for Nuclear Security, in coordination with the directors of appropriate national laboratories and appropriate officials of the Department of Energy, to provide a briefing to the Committee on Armed Services of the House of Representatives by February 1, 2019, on fusion energy technology development. Such briefing should review and assess all potential fusion technology paths, particularly technologies related to the tokamaks and the use of divertor test facilities to better understand remaining challenges for dealing with hot plasma exhaust. In addition, the briefing should assess fusion technology paths, their viability as a potential future power source, remaining risks and challenges associated with such technologies, any complementary research and development that is needed or ongoing, any implications of such research and technologies for the programs of the National Nuclear Security Administration, and any other matters the Administrator determines appropriate to enhance the committee's oversight and understanding.

Inertial Confinement Fusion

The budget request included \$418.9 million for the Inertial Confinement Fusion (ICF) Ignition and High Yield program at the National Nuclear Security Administration (NNSA).

In the absence of nuclear explosive testing, this program provides for specialized expertise and unique facilities to better understand high energy density science and the operation of nuclear weapons. The budget request proposed a significant decrease in funding for ICF, including initiation of "a three-year ramp-down in NNSA's financial commitment to . . . the Omega Laser Facility, resulting in the cessation of the financial assistance agreement," and reductions in funding for both ignition and non-ignition experiments at the National Ignition Facility.

The committee is encouraged by NNSA's proposal to rebalance and prioritize funding for programs and capabilities that directly support NNSA's deliverables to the Department of Defense, recapitalize NNSA's aging infrastructure, and prepare for an uncertain future. The committee also notes that the ICF program has, so far, failed to achieve fusion ignition, an outcome that was long-promised on specific timelines. However, the committee also believes that NNSA must carefully consider the impacts of its deep proposed reduction to the ICF program, particularly on the long-term pipeline of expertise and the sustainment of unique capabilities upon which certification of the U.S. nuclear stockpile has depended since the cessation of nuclear explosive testing.

To better understand these impacts and deliverables, the committee directs the Administrator for Nuclear Security to provide a briefing to the Committees on Armed Services of the Senate and the House of Representatives by September 1, 2018, on NNSA's plans for the ICF program. Such briefing should include the impacts of the proposed budget reductions, any risks and risk mitigation options, the sustainability of facilities and infrastructure related to the ICF program, plans for maintaining a robust pipeline of experts in high energy density science and ICF at NNSA, clear

criteria and milestones for measuring ICF program performance against measurable goals, an evaluation of ICF lines of efforts against stated goals, and such other matters as the Administrator determines relevant.

The committee recommends \$467.9 million, an increase of \$49.0 million, for the ICF program.

Infrastructure

The budget request includes \$540.7 million for Recapitalization and \$365.0 million for Maintenance and Repair of Facilities. These programs fund efforts to reduce the large backlog of deferred maintenance across the nuclear security enterprise and preventative maintenance activities. Combined, these programs and the large line item construction projects are critical to arresting and reversing the declining state of the National Nuclear Security Administration's (NNSA) infrastructure.

Section 3111 of the National Defense Authorization Act for Fiscal Year 2018 (Public Law 115–91) directed the Administrator for Nuclear Security to establish the Infrastructure Modernization Initiative (IMI) with a goal of reducing the backlog of deferred maintenance and repair needs at NNSA by 30 percent by 2025. The committee believes that achieving this goal is critical to accomplishing NNSA's national security mission and to the safety and well-being of NNSA's workforce. Section 3111 and section 3119 of Public Law 115–91 also provided the Administrator new and enhanced statutory authorities to accelerate and streamline action on these infrastructure problems. The committee agrees with NNSA's view that infrastructure risk is becoming safety risk and mission risk and will closely monitor NNSA's progress in implementing the IMI and leveraging its associated authorities. The committee continues to note the importance of adequately resourcing preventative and sustaining maintenance to extend the life and increase the safety of its facilities. The committee encourages the Administrator to work closely with Congress as it prepares and executes the long-term NNSA infrastructure strategy.

The committee recommends \$611.7 million for Recapitalization, an increase of \$71.0 million to the budget request, and \$404.0 million for Maintenance and Repair of Facilities, an increase of \$39.0 million to the budget request.

Lithium and tritium

The committee continues to conduct oversight of the National Nuclear Security Administration's (NNSA) approach to managing and ensuring a sustainable supply of key strategic materials, and recognizes NNSA's efforts to bring coherency and stability to what were previously scattered and decentralized efforts. The committee believes that a clear, long-term plan to ensure access to these materials is important for the credibility of the nuclear deterrent.

Although NNSA's plans for all of its strategic materials would benefit from further clarification and refinement, the committee in particular desires increased detail and clarity on NNSA's plans with regard to tritium and lithium. As the Nuclear Posture Review (NPR) states, "U.S. production of tritium . . . is now insufficient to meet the forthcoming U.S. nuclear force sustainment demands, or to hedge against unforeseen developments. Programs are planned,

but not yet fully funded, to ease these critical production shortfalls.” And as the NPR states with regards to lithium: “The U.S. is also unable to produce or process a number of other critical materials, including lithium . . . For instance, the United States largely relies on dismantling retired warheads to recover lithium to sustain and produce deployable warheads. This may be inadequate to support the nuclear force replacement program and any supplements to it.”

The committee therefore directs the Administrator for Nuclear Security to provide a briefing to the Committees on Armed Services of the Senate and the House of Representatives by November 1, 2018, on NNSA’s plans to meet near- and long-term requirements for tritium and lithium. Such briefing should include the requirements, the options and plans to meet such requirements, costs associated with these options and plans, and the status of any actions underway.

Report on IW-1 and W78 replacement

The committee notes that the recent Nuclear Posture Review (NPR) proposes “advancing the W78 warhead replacement one year to FY19 to support fielding on [the] Ground Based Strategic Deterrent (GBSD) by 2030.” The NPR also discusses “exploring future ballistic missile warhead requirements based on the threats and vulnerabilities of potential adversaries, including the possibility of common reentry systems between the Air Force and Navy,” but does not directly mention the Interoperable Warhead-1 (IW-1) program.

However, the fiscal year 2019 budget request for the National Nuclear Security Administration includes \$53.0 million for the IW-1 restart of the Phase 6.2 work (Feasibility Study & Design Options) on this program. The budget request justification materials further say that the IW-1 program “will replace the W78 warhead by 2030 and support fielding of the U.S. Air Force GBSD missile system planned to replace the current Minuteman III ICBM force. Additionally, the program will investigate the feasibility of deploying the replacement warhead’s nuclear explosive package in a US Navy flight body.”

To clarify and better understand the direction of this program, the committee directs the Administrator for Nuclear Security, in coordination with the Chairman of the Nuclear Weapons Council, to provide a report to the congressional defense committees no later than January 15, 2019, on the status of the W78 replacement, also referenced as the IW-1 program. Specifically, the report should include, since deferral of the program or due to the NPR, any changes in requirements, program plans and schedules, assumptions, and options and designs being considered or that are preferred.

Secure transportation asset and Mobile Guardian Transporter

The budget request includes \$278.6 million for the National Nuclear Security Administration’s (NNSA) Secure Transportation Asset. Run by the NNSA Office of Secure Transportation, this program provides for the safe and secure transportation of nuclear weapons, weapons components, and special nuclear materials.

Within this amount, \$51.8 million was requested to continue development of the Mobile Guardian Transporter (MGT) program, which is developing and procuring new highly-secure trailers to replace existing Safeguards Transporter (SGT) trailers that are nearing the end of their 20-year service life. The committee understands that several SGTs are beginning to show signs of significant rusting and structural degradation in key locations, that mitigation of this issue is not cost effective, and that at least one SGT has been removed from the fleet earlier than planned due to this problem.

The committee is concerned that this issue, or similar unexpected issues, if widespread, could undermine NNSA's planned risk reduction effort to keep a portion of the SGT fleet in operation beyond their 20-year service life while MGT is developed. Coupled with NNSA's reduction in its planned fiscal year 2019 budget request for MGT, NNSA's ability to meet surging transportation requirements in the 2020s could be at risk. The committee will oversee the SGT risk reduction effort, the MGT development and prototyping effort, and the Secure Transportation more broadly to track these important efforts.

The committee recommends \$278.6 million for the Secure Transportation Asset, the amount of the budget request.

Streamlined and innovative approaches to non-nuclear construction projects

Section 3111 of the National Defense Authorization Act for Fiscal Year 2018 (Public Law 115-91) created the Infrastructure Modernization Initiative (IMI) at the National Nuclear Security Administration (NNSA) to accelerate and streamline efforts to reduce the large backlog of deferred maintenance and repair needs across the infrastructure of the nuclear security enterprise. As part of IMI, the Secretary of Energy is required to provide an enhanced and streamlined process to the Administrator for Nuclear Security to construct and demolish non-nuclear facilities that cost less than \$100.0 million.

The committee continues to endorse and encourage efforts of the Department of Energy (DOE) and NNSA to streamline approaches and processes related to constructing these types of facilities using commercial standards and best practices, as well as efforts to employ innovative approaches. For example, new office buildings, light laboratories, fire stations, and emergency operations centers currently being planned at sites across the nuclear enterprise may be constructed at less cost and more quickly if streamlined, commercially-based, or more innovative approaches are utilized.

The committee believes continued focus and action is needed. Therefore, the committee directs the Administrator for Nuclear Security to provide a briefing to the Committees on Armed Services of the Senate and the House of Representatives by January 15, 2019, on the actions taken by NNSA and DOE to implement the IMI, and in particular to carry out a streamlined process to construct or demolish non-nuclear facilities costing less than \$100.0 million. Such briefing should include options for further streamlining and accelerating associated processes (while retaining applicable safety standards), identification of any innovative approaches

or pilot programs to accelerate construction of such facilities, and such other matters as the Administrator determines appropriate.

Weapons Activities and the Future Years Nuclear Security Program

The budget request contained \$11.02 billion for the Weapons Activities of the National Nuclear Security Administration (NNSA). These programs support NNSA's central mission of ensuring and sustaining the safety, security, reliability, and credibility of the U.S. nuclear weapon stockpile.

In previous years, the committee has highlighted the comments of senior administration and military officials that have expressed concern that NNSA's 5-year, Future Years Nuclear Security Program (FYNSP) budget profile was inadequate to meet NNSA's programmatic needs. The committee believes NNSA has taken noteworthy steps in this regard within its recent budget requests and the FYNSP submitted to Congress with the budget request for fiscal year 2019. Recent increases have made significant strides to address the inadequacy in NNSA funding identified by the Secretary of Energy in a December 23, 2015, letter to the Director of the White House Office of Management and Budget, which said NNSA's 5-year, Future Years Nuclear Security Program budget profile, "does not reflect the funding that we estimate is necessary to meet [NNSA] requirements over the period . . . we estimate that an additional \$5.2 billion over FY2018–2021 is needed to establish a viable and sustainable program portfolio."

Elsewhere in this title, the committee discusses its recommendations for increased funding and prioritization for several programs within Weapons Activities, including for infrastructure, defense nuclear security, and inertial confinement fusion.

The committee recommends \$11.22 billion for Weapons Activities, an increase of \$198.0 million to the budget request.

Defense Nuclear Nonproliferation

Future nuclear proliferation challenges

The committee continues to focus on the challenges associated with the detection, evaluation, and response to emerging nuclear threats, including emerging technologies that could lead to technological surprise. Recent advancements in materials, manufacturing, computing, and cyber interconnectivity indicate that robust efforts are needed to identify and develop solutions to ensure the United States can continue to reliably detect, define, deter, delay, deny, and defeat these threats.

The committee therefore directs the Administrator for Nuclear Security, in coordination with the directors of relevant national security laboratories, to provide a briefing to the Committees on Armed Services of the Senate and the House of Representatives by November 15, 2018, on emerging nuclear proliferation threats and the state of our capabilities to address these threats. Such briefing should include options for novel solutions to meet these challenging threats, leverage on-going efforts within the national security laboratories, and include an estimate of the resources required to respond effectively and stay ahead of any emerging threats.

Nuclear Counterterrorism and Incident Response program

The budget request contained \$319.2 million for the Nuclear Counterterrorism and Incident Response program of the National Nuclear Security Administration (NNSA). This program is responsible for countering nuclear threats, responding to nuclear incidents worldwide, and providing for the Department of Energy's emergency management capability.

The committee continues to highlight the importance and value of these programs that leverage the unique capabilities and knowledge at NNSA's laboratories for national-level response efforts. Though a smaller and often-overlooked part of NNSA's portfolio of responsibilities, the personnel within this program ensure the nation's warfighters and first responders are able to detect, evaluate, and take decisive and technically informed action against all types of nuclear threats and incidents.

The budget request includes \$32.5 million to procure three fixed-wing Aerial Measuring System (AMS) aircraft in fiscal year 2019. These aircraft will replace antiquated and increasingly difficult to sustain aircraft, and provide NNSA enhanced capability to support national and international events involving radiological releases. Based on the completed analysis of alternatives for AMS, the committee supports this recapitalization.

The committee recommends \$319.2 million, the amount of the budget request, for the Nuclear Counterterrorism and Incident Response program.

Naval Reactors

Naval Reactors program

The budget request contained \$1.79 billion for the Naval Reactors program. Naval Reactors is responsible for all aspects of naval nuclear propulsion efforts, including reactor plant technology design and development, reactor plant operation and maintenance, and reactor retirement and disposal. The program ensures the safe and reliable operation of reactor plants in nuclear-powered submarines and aircraft carriers that comprise over 45 percent of the Navy's major combatants.

The committee has long been supportive of the Naval Reactors program and believes it is an exceptional example of a nuclear-related government program that is mission-driven, safety-focused, and well-managed. Due to this success, the committee will continue to have very high expectations for performance by Naval Reactors, particularly as it develops and delivers the life-of-ship reactor for the Columbia-class submarines. The committee is encouraged by the strong actions taken by Naval Reactors to address a manufacturing problem with the prototype electric-drive motor for the Columbia class but is mindful that there is no schedule margin remaining for delivering this prototype, the reactor, and the Columbia itself. The committee notes that, as work on the Columbia-class Reactor System Development program ramps down over the 5-year Future Years Nuclear Security Program, Naval Reactors is planning increases in its Naval Reactors Development funding. The committee expects Naval Reactors to more clearly justify these proposed increases within future budget requests.

The budget request includes a significant, long-planned increase in funding for Naval Reactors to begin construction of the Spent Fuel Handling Recapitalization Project in Idaho and refueling of the S8G land-based prototype reactor in New York. The committee appreciates Naval Reactors' transparency and adherence to its planned budget profile.

The committee recommends \$1.79 billion for the Naval Reactors program, the amount of the budget request.

Federal Salaries and Expenses

Management and operating contracts for national security laboratories

The committee notes that the National Nuclear Security Administration (NNSA) continues to implement its plans to compete its large management and operating (M&O) contracts for running the laboratories and plants of the nuclear security enterprise. The committee has long conducted oversight of these plans to ensure the costs and benefits of the M&O contract competitions and overall contracting strategy are appropriately weighed. Last year, the committee included section 3138 in the National Defense Authorization Act for Fiscal Year 2018 (Public Law 115-91) to continue this oversight and require an independent organization to review NNSA's contracting strategy. Among other matters, this review is required to assess the current for-profit contracting model for NNSA's nuclear security laboratories.

The committee is aware that the State of New Mexico recently considered legislation that would require NNSA and its M&O laboratory contractors to continue paying certain State taxes as a for-profit entity, even if the M&O contract is awarded to a non-profit entity. The committee cautions that such an approach may be counterproductive and inappropriately interfere with the Federal Government's ability to manage its national security laboratories to provide maximum value and benefit to national security and U.S. taxpayers. The committee understands the important role that these laboratories play in their local communities and States, and highlights other means, such as payments in lieu of taxes, that the Federal Government may leverage to support such local communities.

Security clearance investigations for the nuclear security enterprise

The committee notes that, while the Office of Personnel Management (OPM) has undertaken significant steps to improve the security clearance investigation process, the backlog of security clearance investigations continues to prevent the Federal Government, including the National Nuclear Security Administration's (NNSA) nuclear security enterprise, from hiring qualified personnel in a timely manner. This problem is particularly acute for NNSA as elements of the nuclear security enterprise continue to execute robust hiring plans to support the increased workload associated with the nation's nuclear modernization program. In a recent report on the state of the nuclear weapons stockpile, the director of one of national security laboratories highlighted this challenge, saying that for his laboratory, "1,011 staff were hired in 2016, and about 1,000 new hires are expected by the end of 2017. This hiring rate is ex-

pected to continue . . . However, technical mentoring, particularly by experienced senior staff who are on the verge of retiring, is virtually impossible if newly hired staff are unable to obtain a security clearance in a timely manner.” The director further noted that 1,300 DOE “Q” clearances were awaiting approval.

The committee understands the complexity of this issue and continues to seek solutions that enable a robust background review but also timely completion. To enhance its oversight, the committee directs the Administrator for Nuclear Security, in consultation with the Director of the Office of Personnel Management, to provide a briefing to the Committees on Armed Services of the Senate and the House of Representatives by December 1, 2018, on efforts to streamline and improve the security clearance investigation and adjudication process for the nuclear security enterprise. Such briefing should include actions taken by NNSA and OPM, any planned actions, options for future action, and any recommendations of the Administrator regarding statutory changes or other Congressional action.

ENVIRONMENTAL AND OTHER DEFENSE ACTIVITIES

Overview

The budget request for fiscal year 2019 contained \$6.51 billion for environmental and other defense activities. The committee recommends \$6.56 billion, an increase of \$50.0 million to the budget request.

Defense Environmental Cleanup

Briefings on vapor events at Hanford Site

The committee is concerned about the continuing reports of toxic vapors emanating from nuclear waste tanks at the Hanford Site being inhaled by workers. Over the past several years, many workers have reported suspicious odors and subsequent health effects. The committee notes that additional protective measures and guidance have been implemented at the site, but that reported events continue. The committee therefore directs the Secretary of Energy, acting through the Assistant Secretary of Energy for Environmental Management, to provide semiannual briefings to the Committee on Armed Services of the House of Representatives, starting on August 31, 2018, and continuing during fiscal year 2019, on waste tank vapor incidents at the Hanford Site. Such briefings should include details on recent vapor inhalation events, any technical data regarding the vapors, any health problems caused by the vapors, mitigation measures in place to protect workers from the vapors, engineered or administrative controls being considered to prevent such events, and any other information the Secretary determines to be relevant.

LEGISLATIVE PROVISIONS

SUBTITLE A—NATIONAL SECURITY PROGRAMS AND AUTHORIZATIONS

Section 3101—National Nuclear Security Administration

This section would authorize appropriations for the National Nuclear Security Administration for fiscal year 2019, including funds for weapons activities, defense nuclear nonproliferation programs, naval reactor programs, and Federal Salaries and Expenses, at the levels specified in the funding table in division D of this Act.

This section would also authorize several new plant projects for the National Nuclear Security Administration.

Section 3102—Defense Environmental Cleanup

This section would authorize appropriations for defense environmental cleanup activities for fiscal year 2019 at the levels specified in the funding table in division D of this Act.

Section 3103—Other Defense Activities

This section would authorize appropriations for Other Defense Activities for the Department of Energy for fiscal year 2019 at the levels specified in the funding table in division D of this Act.

Section 3104—Nuclear Energy

This section would authorize appropriations for certain nuclear energy programs for the Department of Energy for fiscal year 2019 at the levels specified in the funding table in division D of this Act.

SUBTITLE B—PROGRAM AUTHORIZATIONS, RESTRICTIONS, AND LIMITATIONS

Section 3111—Security Clearance for Dual Nationals Employed by National Nuclear Security Agency

This section would authorize the Secretary of Energy to apply additional security reviews to dual citizens seeking positions that require access to highly classified information. The committee expects that any additional security reviews will not further exacerbate background investigation backlogs.

Section 3112—Department of Energy Counterintelligence Polygraph Program

This section would amend section 4504b of the Atomic Energy Defense Act (50 U.S.C 2654b) by authorizing the Secretary of Energy to add dual citizens to the Department of Energy counterintelligence polygraph program, for the purposes of assessing risk.

Section 3113—Extension of Enhanced Procurement Authority To Manage Supply Chain Risk

This section would extend the authority provided by section 2786 of title 50, U.S. Code, for an additional 5 years, to June 30, 2023. This authority enables the Secretary of Energy to take certain procurement actions to help protect the supply chain for certain crit-

ical national security technologies. This section would also make a technical correction to section 2786 of title 50, U.S. Code.

Section 3114—Low-Yield Nuclear Weapons

This section would repeal section 3116 of the National Defense Authorization Act for Fiscal Year 2004 (Public Law 108–136) related to low-yield nuclear weapons. This section would also authorize the Secretary of Energy, acting through the Administrator for Nuclear Security, to carry out the engineering development phase, and any subsequent phase, to modify or develop a low-yield nuclear warhead for submarine-launched ballistic missiles.

Section 3115—Use of Funds for Construction and Project Support Activities Relating to MOX Facility

This section would require the Secretary of Energy to carry out construction and project support activities relating to the Mixed Oxide Fuel Fabrication Facility with any funds authorized to be appropriated by this Act or otherwise made available for such purposes for fiscal year 2019. The Secretary would be allowed to waive this requirement if the Secretary submits to the congressional defense committees the matters described under section 3121(b)(1) of the National Defense Authorization Act for Fiscal Year 2018 (Public Law 115–91).

Section 3116—Prohibition on Availability of Funds for Programs in Russian Federation

This section would provide that none of the funds authorized to be appropriated by this Act or otherwise made available for fiscal year 2019 for atomic energy defense activities may be obligated or expended to enter into a contract with, or otherwise provide assistance to, the Russian Federation. The Secretary of Energy, without delegation, would be provided the authority to waive this prohibition if the Secretary determines, in writing, that a nuclear-related threat in Russia must be addressed urgently and that it is necessary to waive the prohibition to address that threat. The waiver could only be used if the Secretary of State and the Secretary of Defense concur in that determination, and the Secretary of Energy submits a report to the appropriate congressional committees containing notification that such waiver is in the national security interest of the United States, a justification for such waiver, a description of the activities to be carried out pursuant to the waiver, and a period of 7 days elapses. The prohibition and waiver contained in this section would not apply to up to \$3.0 million that the Secretary of Energy may make available for the Department of Energy's Russian Health Studies Program.

Section 3117—Prohibition on Availability of Funds for Research and Development of Advanced Naval Nuclear Fuel System Based on Low-Enriched Uranium

This section would prohibit any funds authorized to be appropriated by this Act for fiscal year 2019 or otherwise made available to the Department of Energy or the Department of Defense from being obligated or expended to plan or carry out research and de-

velopment of an advanced naval nuclear fuel system based on low-enriched uranium. The section would provide an exception to this prohibition and require that, in accordance with section 7319 of title 10, United States Code, that \$10.0 million of the funds authorized for defense nuclear nonproliferation within the National Nuclear Security Administration's atomic energy defense activities shall be made available to the Deputy Administrator for Naval Reactors for low-enriched uranium activities.

Section 3118—Limitation on Availability of Funds Relating to Submission of Annual Reports on Unfunded Priorities

This section would amend section 4716 of the Atomic Energy Defense Act (50 U.S.C. 2756) to provide that, for any of fiscal years 2020 through 2024 in which the Administrator fails to submit a report pursuant to such section 4716 that contains at least one unfunded priority of the National Nuclear Security Administration (NNSA), the Administrator for Nuclear Security would be prohibited from obligating or expending funds for travel and transportation of persons under the NNSA's Federal Salaries and Expenses account until the date on which such a report is submitted.

SUBTITLE C—REPORTS

Section 3121—Notification Regarding Release of Contamination at Hanford Site

This section would require the Assistant Secretary of Energy for Environmental Management to promptly notify and provide a briefing to the congressional defense committees after any improper release of contamination resulting from defense waste at the Hanford Site.

SUBTITLE D—OTHER MATTERS

Section 3131—Inclusion of Capital Assets Acquisition Projects in Activities by Director for Cost Estimating and Program Evaluation

This section would amend section 3221 of the National Nuclear Security Administration Act (50 U.S.C. 2411) to include capital assets in the definition of major atomic energy defense acquisition programs regarding the authorities of the Director for Cost Estimating and Program Evaluation.

The committee clarifies that this section does not affect the role of the Department of Energy (DOE) Office of Project Management in overseeing implementation of DOE Order 413.3B.

Section 3132—Whistleblower Protections

This section would make a series of findings and express the sense of Congress regarding nuclear safety and whistleblowers. This section would also require the Secretary of Energy, including by acting through the Administrator for Nuclear Security as appropriate, to impose civil penalties, as the Secretary or the Administrator determine appropriate, on contractors, subcontractors, and suppliers for violations of Department of Energy rules, regulations, and orders relating to nuclear safety and radiation protection.

This section would also require the Secretary to define, within 120 days of enactment of this Act, what constitutes evidence of a chilled work environment with respect to employees and contractors making a whistleblower complaint and would require an annual congressional notification on the imposition of any penalties related to violations of rules, regulations, and orders by contractors, subcontractors, and suppliers.

TITLE XXXII—DEFENSE NUCLEAR FACILITIES SAFETY BOARD

LEGISLATIVE PROVISIONS

Section 3201—Authorization

The budget request contained \$31.2 million for the Defense Nuclear Facilities Safety Board for fiscal year 2019. The committee recommends \$31.2 million, the amount of the budget request.

TITLE XXXIV—NAVAL PETROLEUM RESERVES

LEGISLATIVE PROVISIONS

Section 3401—Authorization of Appropriations

This section would authorize \$10.0 million for fiscal year 2019 for operation and maintenance of the Naval Petroleum Reserves.

TITLE XXXV—MARITIME MATTERS

ITEMS OF SPECIAL INTEREST

Maritime Security Program

The committee remains deeply concerned by the decrease in our merchant mariner fleet. The committee notes that the U.S. commercial presence in the international maritime domain has been on a steady decline since its peak in World War II and is currently at the lowest level in American history. Of some 40,000 large, oceangoing commercial vessels in the world today, just 181 sail under the U.S. flag, including 81 vessels operating exclusively in international trade. A robust commercial shipping industry is vital to the U.S. military's ability to project power around the world. The Maritime Security Program (MSP) is critical to U.S. sustainment capability and supporting the pool of highly trained Mariners necessary to support our government owned Ready Reserve Force fleet when activated. Created in 1996, the program helps maintain an active, privately-owned, U.S.-flag and U.S.-crewed fleet of 60 militarily useful commercial ships operating in international trade. MSP participants receive an annual stipend and their ships are available "on-call" to support DOD's global transportation needs. The MSP supports employment for 2,400 U.S. merchant mariners, and provides DOD with assured access to the critical multibillion-dollar global network of intermodal facilities and transport systems maintained by MSP participants. Recent agreements such as the 2016 US-Israel Memorandum of Understanding (MOU) and the de-

cision to end foreign military financing (FMF) funding for jet fuel purchases may affect the ability to project forces in times of future contingencies because of the potential diminution of government-impelled cargo.

Therefore, the committee directs the Secretary of the Navy, in consultation with the Secretary of Transportation, to provide a briefing to the House Armed Services Committee by September 1, 2018 as to the MSP impact, if any, of the 2016 U.S.-Israel (MOU). Such a briefing shall specifically include an assessment of the loss of merchant mariners and the national security impact associated with the long-term sustainment of the Ready Reserve Force in times of conflict.

LEGISLATIVE PROVISIONS

SUBTITLE A—MARITIME ADMINISTRATION

Section 3501—Authorization of the Maritime Administration

This section would authorize appropriations for the national security aspects of the merchant marine for fiscal year 2019.

Section 3502—Compliance by Ready Reserve Fleet Vessels With SOLAS Lifeboats and Fire Suppression Requirements

This section would require the Secretary of Defense to incorporate lifeboat and fire suppression standards associated with the International Convention for the Safety of Life at Sea for Ready Reserve Fleet vessels that are planned to be retained by the Secretary beyond October 1, 2026.

Section 3503—Maritime Administration National Security Multi-Mission Vessel Program

This section would limit the Maritime Administration from procuring used training vessels for the National Security Multi-Mission Vessel Program.

The committee notes that the Maritime Administration requested authority to procure two used vessels and is concerned that such a short-term strategy would not support the long-term maritime academies' interests. The committee continues to support the new construction of these training vessels in the United States.

Section 3504—Permanent Authority of Secretary of Transportation To Issue Vessel War Risk Insurance

This section would amend chapter 539 of title 46, United States Code, to make permanent the authority of the Secretary of Transportation to provide vessel war risk insurance.

Section 3505—Use of State Maritime Academy Training Vessels

This section would require the Secretary of Transportation to implement a program to share maritime academy training vessels with the State maritime academies.

SUBTITLE B—COAST GUARD

Section 3521—Alignment with Department of Defense and Sea Services Authorities

This section would require the Coast Guard to notify the Committee of Transportation and Infrastructure of the House of Representatives and the Committee on Commerce, Science, and Transportation of the Senate on August 26, 2018, if there is not in effect any general order or regulation prohibiting sexual harassment by members of the Coast Guard and that the violation of such order or regulation is punishable in accordance with the Uniform Code of Military Justice. The notification is required to include the status of the drafting of such a regulation, the projected implementation timeline, and an explanation of any barriers to implementation. The subsection also amends section 217 of the Coast Guard Authorization Act of 2010 (Public Law 111–281) to include sexual harassment in the annual report on sexual assaults reported to the Committee of Transportation and Infrastructure of the House of Representatives and the Committee on Commerce, Science, and Transportation of the Senate.

This section would amend chapter 29 of title 14 by adding a new section, Annual Performance Report, to require the Coast Guard to submit to the Committee of Transportation and Infrastructure of the House of Representatives and the Committee on Commerce, Science, and Transportation of the Senate an update on Coast Guard mission performance during the previous fiscal year, and make it available on a public website.

Section 3522—Preliminary Development and Demonstration

This section would amend section 573 of title 14, United States Code, to clarify the process to report safety concerns found either by an independent third party or a Government employee for acquisition programs or projects or a capability or asset or any subsystem of a capability or asset not previously identified during operational test and evaluation of a capability or asset already in low, initial or full-rate production.

Section 3523—Contract Termination

This section would amend chapter 17 of title 14, United States Code, by inserting a new section 657 to establish a process for contract cancellation, including requiring the Coast Guard to notify each vendor when it terminates a procurement or acquisition contract with a total value of more than \$1.0 million and that such vendors are required to maintain all work product related to the contract for at least 1 year. Additionally, the Coast Guard shall provide an annual report to the Committee of Transportation and Infrastructure of the House of Representatives and the Committee on Commerce, Science, and Transportation of the Senate on terminated contracts.

Section 3524—Reimbursement for Travel Expenses

This section would amend section 518 of title 14, United States Code, to state that a covered beneficiary and their dependents re-

siding on an island located in the 48 contiguous States and the District of Columbia that lacks public access roads to the mainland, shall be reimbursed for reasonable travel expenses for medical services when referred by a primary care physician to a physician on the mainland or the Coast Guard medical regional manager for the area determines medical services cannot be provided on the island.

Section 3525—Capital Investment Plan

This section would amend section 2902(a) of title 14, United States Code, to change the date when the Capital Investment shall be reported to the Committee of Transportation and Infrastructure of the House of Representatives and the Committee on Commerce, Science, and Transportation of the Senate to require reporting on projected commissioning and decommissioning dates for each asset.

Section 3526—Major Acquisition Program Risk Assessment

This section would amend chapter 29 of title 14, United States Code, to add a section on major acquisition program risk assessment stating that twice a year the Coast Guard shall provide to the Committee of Transportation and Infrastructure of the House of Representatives and the Committee on Commerce, Science, and Transportation of the Senate a briefing regarding a current assessment of risks associated with all current major acquisition programs, including breach of program schedule or costs.

Section 3527—Marine Safety Implementation Status

This section would state that the Coast Guard shall submit a report on the date on which the President submits to Congress a budget for fiscal year 2020 and for the following two years to the Committee of Transportation and Infrastructure of the House of Representatives and the Committee on Commerce, Science, and Transportation of the Senate on the implementation of each action outlined in the Commandant's final action memo from December 19, 2017.

Section 3528—Retirement of Vice Commandant

This section would amend section 46 of title 14, United States Code, to state that a Vice Commandant who is not reappointed or appointed Commandant shall retire with the grade of admiral.

Section 3529—Large Commercial Yacht Code

This section would require the Secretary of the department in which the Coast Guard is operating through the Commandant of the Coast Guard to establish a code for certification of certain large commercial yachts.

SUBTITLE C—COAST GUARD AND SHIPPING TECHNICAL
CORRECTIONS

CHAPTER 1—COAST GUARD

Section 3531—Commandant Defined

This section amends chapter 1 of title 14, U.S. Code, to add a section with the definition of the Commandant as the “Commandant of the Coast Guard”. Throughout title 14, “Commandant of the Coast Guard” is replaced with “Commandant”.

Section 3532—Training Course on Workings of Congress

This section would amend section 60(d) of title 14, U.S. Code, by striking an outdated training requirement and stating that a Coast Guard flag officer or Coast Guard Senior Executive Service employee working in the National Capital Region shall complete a training course on the workings of Congress not later than 60 days after reporting for duty.

Section 3533—Miscellaneous

This section would amend multiple sections of title 14, U.S. Codes with various technical changes.

Section 3534—Department of Defense Consultation

This section would amend section 566 of title 14, U.S. Code, to change “enter into” to “maintain” the memorandum of understanding with the Navy for technical assistance. This section would also amend section 566 of title 14, U.S. Code, to remove language for an already delivered one-time report on Coast Guard acquisitions.

Section 3535—Repeal

This section would strike section 568 of title 14, U.S. Code, to remove guidance on excessive pass-through charges related to the long-defunct Deepwater acquisition program.

Section 3536—Mission Need Statement

This section would amend section 569 of title 14, U.S. Code, to appear after section 2904 and renumber this section. This section would also amend subsection (a) in section 2904 of title 14, U.S. Code, as so redesignated, to strike “, on the date on which the President submits to Congress a budget for fiscal year 2019 under such section,” and replaces “for fiscal year 2016” with “for fiscal year 2019”.

Section 3537—Continuation on Active Duty

This section would amend section 290(a) of title 14, U.S. Code, to change “Officers, other than the Commandant, serving” to “Officers serving” in or above the grade of vice admiral are not subject to consideration for continuation under this subsection.

Section 3538—System Acquisition Authorization

This section would amend section 2701(2) of title 14, U.S. Code, to change “and aircraft” to “aircraft, and systems” for the requirement for prior authorization of appropriations. This section would also amend section 2702(2) of title 14, U.S. Code, to change “and aircraft” to “aircraft, and systems” for the appropriations.

Section 3539—Inventory of Real Property

This section would amend section 679(a) of title 14, U.S. Code, to change “not later than September 30, 2015, the Commandant shall establish” to “The Commandant shall maintain” the inventory of real property. This section would also amend section 679(b) of title 14, U.S. Code, to state that the Commandant shall update inventory of real property not later than 30 days after any change to control of such property.

CHAPTER 2—MARITIME TRANSPORTATION

Section 3541—Definitions

This section would amend section 2101 of title 46, U.S. Code, to add the definition of the Commandant as the “Commandant of the Coast Guard”, re-designate existing definitions, and update all cross-references to the definitions in 46 U.S.C. 2101 throughout the code.

Section 3542—Authority to Exempt Vessels

This section would amend section 2113 of title 46, U.S. Code, to strike subsections (4) and (5) and replace with a new subsection (4) to state that the Secretary may maintain different structural fire protection, manning, operating, and equipment requirements for vessels.

Section 3543—Passenger Vessels

This section would amend section 3507 of title 46, U.S. Code, to strike subsection (a)(3) pertaining to an expired effective date, clarify subsection (e)(2) by changing “services confidential” to “services as confidential”, and, in subsection (i), replace “Within 6 months after the date of enactment of the Cruise Vessel Security and Safety Act of 2010, the Secretary shall issue” with “The Secretary shall maintain” for procedures related to passenger vessel security and safety requirements.

This section would also amend section 3508 of title 46, U.S. Code, to strike subsection (d) and removes outdated requirements in subsections (a), (c), and (e), as redesignated by the section.

Section 3544—Tank Vessels

This section would amend section 3703a, 3705 and 3706 of title 46, U.S. Code, to remove outdated requirements. Amends section 1001(32)(A) of the Oil Pollution Act of 1990 (33 U.S.C. 2701(32)(a)) to remove an outdated cross-reference.

Section 3545—Grounds for Denial or Revocation

This section would amend section 7503a and 7704 of title 46, U.S. Code, to renumber the subsections after striking previously repealed subsection (a) in each section.

Section 3546—Miscellaneous Corrections to Title 46, U.S.C.

This section would amend miscellaneous sections of title 46, U.S. Code, to remove outdated requirements, re-designate subsections, and update cross-references.

Section 3547—Miscellaneous Corrections to Oil Pollution Act of 1990

This section would amend the Oil Pollution Act of 1990 (33 U.S.C. 2701) to remove outdated requirements, re-designate subsections, and update cross-references.

Section 3548—Miscellaneous Corrections

This section would amend: section 1 of the Act of June 15, 1917 (chapter 30; 50 U.S.C. 191) to replace the “Secretary of Transportation” with the “Secretary of the department in which the Coast Guard is operating.”; section 5(b) of the Act entitled “An Act to regulate the construction of bridges over navigable waters”, approved March 23, 1906 (chapter 1130; 33 U.S.C. 495(b)) to remove outdated requirements; and section 5(f) of the Act to Prevent Pollution from Ships (33 U.S.C. 1904(f)) to remove outdated cross-references.

DIVISION D—FUNDING TABLES

Section 4001—Authorization of Amounts in Funding Tables

This section would provide for the allocation of funds among programs, projects, and activities in accordance with the tables in division D of this Act, subject to reprogramming guidance in accordance with established procedures.

Consistent with the previously expressed views of the committee, this section would also require that a decision by an agency head to commit, obligate, or expend funds to a specific entity on the basis of such funding tables be based on merit-based selection procedures in accordance with the requirements of section 2304(k) and section 2374 of title 10, United States Code, and other applicable provisions of law.

SUMMARY OF NATIONAL DEFENSE AUTHORIZATIONS FOR FISCAL YEAR 2019

(In Thousands of Dollars)

| | FY 2019 Request | House Change | House Authorized |
|---|--------------------|------------------|---------------------|
| DISCRETIONARY AUTHORIZATIONS WITHIN THE JURISDICTION OF THE ARMED SERVICES COMMITTEE | | | |
| National Defense Funding, Base Budget Request | | | |
| Function 051, Department of Defense-Military | | | |
| Division A: Department of Defense Authorizations | | | |
| Title I—Procurement | | | |
| Aircraft Procurement, Army | 3,782,558 | 223,270 | 4,005,828 |
| Missile Procurement, Army | 3,355,777 | 494,338 | 3,850,115 |
| Weapons & Tracked Combat Vehicles, Army | 4,489,118 | 1,368,521 | 5,857,639 |
| Procurement of Ammunition, Army | 2,234,761 | 249,661 | 2,484,422 |
| Other Procurement, Army | 7,999,529 | 410,925 | 8,410,454 |
| Aircraft Procurement, Navy | 19,041,799 | -327,950 | 18,713,849 |
| Weapons Procurement, Navy | 3,702,393 | 175,200 | 3,877,593 |
| Procurement of Ammunition, Navy & Marine Corps | 1,006,209 | | 1,006,209 |
| Shipbuilding & Conversion, Navy | 21,871,437 | 1,852,100 | 23,723,537 |
| Other Procurement, Navy | 9,414,355 | -377,325 | 9,037,030 |
| Procurement, Marine Corps | 2,860,410 | 19,900 | 2,880,310 |
| Aircraft Procurement, Air Force | 16,206,937 | -673,516 | 15,533,421 |
| Missile Procurement, Air Force | 2,669,454 | | 2,669,454 |
| Space Procurement, Air Force | 2,527,542 | 5,000 | 2,532,542 |
| Procurement of Ammunition, Air Force | 1,587,304 | -5,000 | 1,582,304 |
| Other Procurement, Air Force | 20,890,164 | -235,250 | 20,654,914 |
| Procurement, Defense-Wide | 6,786,271 | -18,000 | 6,768,271 |
| Joint Urgent Operational Needs Fund | 100,025 | -100,025 | 0 |
| Subtotal, Title I—Procurement | 130,526,043 | 3,061,849 | 133,587,892 |
| Title II—Research, Development, Test and Evaluation | | | |
| Research, Development, Test & Evaluation, Army | 10,159,379 | 162,200 | 10,321,579 |
| Research, Development, Test & Evaluation, Navy | 18,481,666 | -94,550 | 18,387,116 |
| Research, Development, Test & Evaluation, Air Force | 40,178,343 | 694,100 | 40,872,443 |
| Research, Development, Test & Evaluation, Defense- Wide | 22,016,553 | 97,950 | 22,114,503 |
| Operational Test & Evaluation, Defense | 221,009 | | 221,009 |
| Subtotal, Title II—Research, Development, Test and Evaluation | 91,056,950 | 859,700 | 91,916,650 |
| Title III—Operation and Maintenance | | | |
| Operation & Maintenance, Army | 42,009,317 | -2,775,388 | 39,233,929 |
| Operation & Maintenance, Army Reserve | 2,916,909 | 30,000 | 2,946,909 |
| Operation & Maintenance, Army National Guard | 7,399,295 | 70,000 | 7,469,295 |
| Operation & Maintenance, Navy | 49,003,633 | -673,430 | 48,330,203 |
| Operation & Maintenance, Marine Corps | 6,832,510 | 78,100 | 6,910,610 |
| Operation & Maintenance, Navy Reserve | 1,027,006 | 10,000 | 1,037,006 |
| Operation & Maintenance, Marine Corps Reserve | 271,570 | 16,700 | 288,270 |
| Operation & Maintenance, Air Force | 42,060,568 | -78,900 | 41,981,668 |
| Operation & Maintenance, Air Force Reserve | 3,260,234 | 50,600 | 3,310,834 |

SUMMARY OF NATIONAL DEFENSE AUTHORIZATIONS FOR FISCAL YEAR 2019—Continued

(In Thousands of Dollars)

| | FY 2019 Request | House Change | House Authorized |
|--|--------------------|-------------------|---------------------|
| Operation & Maintenance, Air National Guard | 6,427,622 | 23,900 | 6,451,522 |
| Operation & Maintenance, Defense-Wide | 36,352,625 | -745,825 | 35,606,800 |
| US Court of Appeals for the Armed Forces, Defense ... | 14,662 | | 14,662 |
| DoD Acquisition Workforce Development Fund | 400,000 | | 400,000 |
| Overseas Humanitarian, Disaster and Civic Aid | 107,663 | | 107,663 |
| Cooperative Threat Reduction | 335,240 | | 335,240 |
| Environmental Restoration, Army | 203,449 | 10,000 | 213,449 |
| Environmental Restoration, Navy | 329,253 | 10,000 | 339,253 |
| Environmental Restoration, Air Force | 296,808 | 50,000 | 346,808 |
| Environmental Restoration, Defense | 8,926 | | 8,926 |
| Environmental Restoration, Formerly Used Sites | 212,346 | | 212,346 |
| Subtotal, Title III—Operation and Maintenance | 199,469,636 | -3,924,243 | 195,545,393 |
| Title IV—Military Personnel | | | |
| Military Personnel Appropriations | 140,689,301 | -700,500 | 139,988,801 |
| Medicare-Eligible Retiree Health Fund Contributions ... | 7,533,090 | | 7,533,090 |
| Subtotal, Title IV—Military Personnel | 148,222,391 | -700,500 | 147,521,891 |
| Title XIV—Other Authorizations | | | |
| Working Capital Fund, Army | 158,765 | | 158,765 |
| Working Capital Fund, Air Force | 69,054 | | 69,054 |
| Working Capital Fund, DECA | 48,096 | | 48,096 |
| Working Capital Fund, Defense-Wide | 1,266,200 | | 1,266,200 |
| National Defense Sealift Fund | 0 | 816,752 | 816,752 |
| Chemical Agents & Munitions Destruction | 993,816 | | 993,816 |
| Drug Interdiction and Counter Drug Activities | 787,525 | 20,000 | 807,525 |
| Office of the Inspector General | 329,273 | 5,000 | 334,273 |
| Defense Health Program | 33,729,192 | -452,500 | 33,276,692 |
| Subtotal, Title XIV—Other Authorizations | 37,381,921 | 389,252 | 37,771,173 |
| Total, Division A: Department of Defense Authoriza- tions | 606,656,941 | -313,942 | 606,342,999 |
| Division B: Military Construction Authorizations | | | |
| Military Construction | | | |
| Army | 1,011,768 | 84,100 | 1,095,868 |
| Navy | 2,543,189 | -4,291 | 2,538,898 |
| Air Force | 1,725,707 | -154,934 | 1,570,773 |
| Defense-Wide | 2,693,324 | -219,986 | 2,473,338 |
| NATO Security Investment Program | 171,064 | | 171,064 |
| Army National Guard | 180,122 | 11,000 | 191,122 |
| Army Reserve | 64,919 | 23,000 | 87,919 |
| Navy and Marine Corps Reserve | 43,065 | | 43,065 |
| Air National Guard | 129,126 | 62,000 | 191,126 |
| Air Force Reserve | 50,163 | 84,800 | 134,963 |
| Unaccompanied Housing Improvement Fund | 600 | | 600 |
| Subtotal, Military Construction | 8,613,047 | -114,311 | 8,498,736 |

SUMMARY OF NATIONAL DEFENSE AUTHORIZATIONS FOR FISCAL YEAR 2019—Continued

(In Thousands of Dollars)

| | FY 2019 Request | House Change | House Authorized |
|--|--------------------|-----------------|---------------------|
| Family Housing | | | |
| Construction, Army | 330,660 | | 330,660 |
| Operation & Maintenance, Army | 376,509 | | 376,509 |
| Construction, Navy and Marine Corps | 104,581 | | 104,581 |
| Operation & Maintenance, Navy and Marine Corps | 314,536 | | 314,536 |
| Construction, Air Force | 78,446 | | 78,446 |
| Operation & Maintenance, Air Force | 317,274 | | 317,274 |
| Operation & Maintenance, Defense-Wide | 58,373 | | 58,373 |
| Improvement Fund | 1,653 | | 1,653 |
| Subtotal, Family Housing | 1,582,032 | 0 | 1,582,032 |
| Base Realignment and Closure | | | |
| Base Realignment and Closure—Army | 62,796 | 18,110 | 80,906 |
| Base Realignment and Closure—Navy | 151,839 | 19,110 | 170,949 |
| Base Realignment and Closure—Air Force | 52,903 | 18,110 | 71,013 |
| Subtotal, Base Realignment and Closure | 267,538 | 55,330 | 322,868 |
| Prior Year Savings | 0 | -71,158 | -71,158 |
| Total, Division B: Military Construction Authoriza- tions | 10,462,617 | -130,139 | 10,332,478 |
| Total, 051, Department of Defense-Military | 617,119,558 | -444,081 | 616,675,477 |
| Division C: Department of Energy National Security Authorization and Other Authorizations | | | |
| Function 053, Atomic Energy Defense Activities | | | |
| Environmental and Other Defense Activities | | | |
| Nuclear Energy | 136,090 | | 136,090 |
| Weapons Activities | 11,017,078 | 198,000 | 11,215,078 |
| Defense Nuclear Nonproliferation | 1,862,825 | 127,000 | 1,989,825 |
| Naval Reactors | 1,788,618 | | 1,788,618 |
| Federal Salaries and Expenses | 422,529 | -18,000 | 404,529 |
| Defense Environmental Cleanup | 5,630,217 | 50,000 | 5,680,217 |
| Other Defense Activities | 853,300 | | 853,300 |
| Defense Nuclear Waste Disposal | 30,000 | | 30,000 |
| Subtotal, Environmental and Other Defense Activi- ties | 21,740,657 | 357,000 | 22,097,657 |
| Independent Federal Agency Authorization | | | |
| Defense Nuclear Facilities Safety Board | 31,243 | | 31,243 |
| Subtotal, Independent Federal Agency Authorization | 31,243 | 0 | 31,243 |
| Subtotal, 053, Atomic Energy Defense Activities | 21,771,900 | 357,000 | 22,128,900 |

Function 054, Defense-Related Activities

Other Agency Authorizations

SUMMARY OF NATIONAL DEFENSE AUTHORIZATIONS FOR FISCAL YEAR 2019—Continued

(In Thousands of Dollars)

| | FY 2019 Request | House Change | House Authorized |
|---|--------------------|-----------------|---------------------|
| Maritime Security Program | 214,000 | 86,000 | 300,000 |
| Subtotal, Independent Federal Agency Authorization | 214,000 | 86,000 | 300,000 |
| Subtotal, 054, Defense-Related Activities | 214,000 | 86,000 | 300,000 |
| Subtotal, Division C: Department of Energy National Security Authorization and Other Authorizations .. | 21,985,900 | 443,000 | 22,428,900 |
| Total, National Defense Funding, Base Budget Re- quest | 639,105,458 | -1,081 | 639,104,377 |

National Defense Funding, Overseas Contingency Operations

Function 051, Department of Defense-Military

Procurement

| | | | |
|--|-------------------|-------------------|-------------------|
| Aircraft Procurement, Army | 363,363 | -54,270 | 309,093 |
| Missile Procurement, Army | 1,802,351 | -646,938 | 1,155,413 |
| Weapons & Tracked Combat Vehicles, Army | 1,107,183 | -1,095,521 | 11,662 |
| Procurement of Ammunition, Army | 309,525 | -211,661 | 97,864 |
| Other Procurement, Army | 1,382,047 | -273,125 | 1,108,922 |
| Aircraft Procurement, Navy | 80,119 | | 80,119 |
| Weapons Procurement, Navy | 14,134 | | 14,134 |
| Procurement of Ammunition, Navy & Marine Corps | 246,541 | | 246,541 |
| Other Procurement, Navy | 187,173 | | 187,173 |
| Procurement, Marine Corps | 58,023 | | 58,023 |
| Aircraft Procurement, Air Force | 1,018,888 | -192,700 | 826,188 |
| Missile Procurement, Air Force | 493,526 | | 493,526 |
| Procurement of Ammunition, Air Force | 1,421,516 | | 1,421,516 |
| Other Procurement, Air Force | 3,725,944 | | 3,725,944 |
| Procurement, Defense-Wide | 572,135 | | 572,135 |
| National Guard & Reserve Equipment | 0 | 150,000 | 150,000 |
| Subtotal, Procurement | 12,782,468 | -2,324,215 | 10,458,253 |

Research, Development, Test and Evaluation

| | | | |
|---|------------------|----------------|------------------|
| Research, Development, Test & Evaluation, Army | 325,104 | -40,000 | 285,104 |
| Research, Development, Test & Evaluation, Navy | 167,812 | | 167,812 |
| Research, Development, Test & Evaluation, Air Force | 314,271 | | 314,271 |
| Research, Development, Test & Evaluation, Defense- Wide | 500,544 | | 500,544 |
| Subtotal, Research, Development, Test and Evalua- tion | 1,307,731 | -40,000 | 1,267,731 |

Operation and Maintenance

| | | | |
|--|------------|-----------|------------|
| Operation & Maintenance, Army | 18,210,500 | 2,314,057 | 20,524,557 |
| Operation & Maintenance, Army Reserve | 41,887 | | 41,887 |
| Operation & Maintenance, Army National Guard | 110,729 | | 110,729 |
| Afghanistan Security Forces Fund | 5,199,450 | | 5,199,450 |
| Counter-ISIS Train & Equip Fund | 1,400,000 | | 1,400,000 |

SUMMARY OF NATIONAL DEFENSE AUTHORIZATIONS FOR FISCAL YEAR 2019—Continued

(In Thousands of Dollars)

| | FY 2019 Request | House Change | House Authorized |
|--|--------------------|------------------|---------------------|
| Operation & Maintenance, Navy | 4,757,155 | | 4,757,155 |
| Operation & Maintenance, Marine Corps | 1,121,900 | | 1,121,900 |
| Operation & Maintenance, Navy Reserve | 25,637 | | 25,637 |
| Operation & Maintenance, Marine Corps Reserve | 3,345 | | 3,345 |
| Operation & Maintenance, Air Force | 9,285,789 | | 9,285,789 |
| Operation & Maintenance, Air Force Reserve | 60,500 | | 60,500 |
| Operation & Maintenance, Air National Guard | 15,870 | | 15,870 |
| Operation & Maintenance, Defense-Wide | 8,549,908 | -200,000 | 8,349,908 |
| Ukraine Security Assistance | 0 | 250,000 | 250,000 |
| Subtotal, Operation and Maintenance | 48,782,670 | 2,364,057 | 51,146,727 |
| Military Personnel | | | |
| Military Personnel Appropriations | 4,660,661 | | 4,660,661 |
| Subtotal, Military Personnel | 4,660,661 | 0 | 4,660,661 |
| Other Authorizations | | | |
| Working Capital Fund, Army | 6,600 | | 6,600 |
| Working Capital Fund, Air Force | 8,590 | | 8,590 |
| Drug Interdiction and Counter Drug Activities | 153,100 | | 153,100 |
| Office of the Inspector General | 24,692 | | 24,692 |
| Defense Health Program | 352,068 | | 352,068 |
| Subtotal, Other Authorizations | 545,050 | 0 | 545,050 |
| Military Construction | | | |
| Army | 261,250 | -69,000 | 192,250 |
| Navy | 227,320 | | 227,320 |
| Air Force | 345,800 | 69,000 | 414,800 |
| Defense-Wide | 87,050 | | 87,050 |
| Subtotal, Military Construction | 921,420 | 0 | 921,420 |
| Total, National Defense Funding, Overseas Contingency Operations | 69,000,000 | -158 | 68,999,842 |
| Total, National Defense | 708,105,458 | -1,239 | 708,104,219 |
| MEMORANDUM: NON-DEFENSE AUTHORIZATIONS | | | |
| Title XIV—Armed Forces Retirement Home (Function 600) | 64,300 | | 64,300 |
| Title XXXIV—Naval Petroleum and Oil Shale Reserves (Function 270) | 10,000 | | 10,000 |
| MEMORANDUM: TRANSFER AUTHORITIES (NON-ADD) | | | |
| Title X—General Transfer Authority | [5,000,000] | | [5,000,000] |
| Title XV—Special Transfer Authority | [4,500,000] | | [4,500,000] |
| MEMORANDUM: DEFENSE AUTHORIZATIONS NOT UNDER THE JURISDICTION OF THE ARMED SERVICES COMMITTEE (NON-ADD) | | | |

SUMMARY OF NATIONAL DEFENSE AUTHORIZATIONS FOR FISCAL YEAR 2019—Continued

(In Thousands of Dollars)

| | FY 2019 Request | House Change | House Authorized |
|------------------------------|----------------------------|-------------------------|-----------------------------|
| Defense Production Act | [38,578] | | [38,578] |

NATIONAL DEFENSE BUDGET AUTHORITY IMPLICATION

(In Thousands of Dollars)

| | FY 2019 Request | House Change | House Authorized |
|---|--------------------|-----------------|---------------------|
| Summary, Discretionary Authorizations Within the Jurisdiction of the Armed Services Committee | | | |
| SUBTOTAL, DEPARTMENT OF DEFENSE (051) | 617,119,558 | -444,081 | 616,675,477 |
| SUBTOTAL, ATOMIC ENERGY DEFENSE PROGRAMS (053) | 21,771,900 | 357,000 | 22,128,900 |
| SUBTOTAL, DEFENSE-RELATED ACTIVITIES (054) | 214,000 | 86,000 | 300,000 |
| TOTAL, NATIONAL DEFENSE (050)—BASE BILL | 639,105,458 | -1,081 | 639,104,377 |
| TOTAL, OVERSEAS CONTINGENCY OPERATIONS | 69,000,000 | -158 | 68,999,842 |
| GRAND TOTAL, NATIONAL DEFENSE | 708,105,458 | -1,239 | 708,104,219 |
| Scoring adjustments to account for transfers out already credited to 050 by OMB | | | |
| Transfers to non-Defense budget functions | -128,000 | | -128,000 |
| Subtotal, Budget Sub-Function 051 | -128,000 | | -128,000 |
| Base National Defense Discretionary Programs that are Not In the Jurisdiction of the Armed Services Committee or Do Not Require Additional Authorization (CBO Estimates) | | | |
| Defense Production Act Purchases | 39,000 | | 39,000 |
| Indefinite Account: Disposal Of DOD Real Property | 8,000 | | 8,000 |
| Indefinite Account: Lease Of DOD Real Property | 36,000 | | 36,000 |
| Subtotal, Budget Sub-Function 051 | 83,000 | | 83,000 |
| Formerly Utilized Sites Remedial Action Program | 120,000 | | 120,000 |
| Subtotal, Budget Sub-Function 053 | 120,000 | | 120,000 |
| Other Discretionary Programs | 7,819,542 | | 7,819,542 |
| Subtotal, Budget Sub-Function 054 | 7,819,542 | | 7,819,542 |
| Total Defense Discretionary Adjustments (050) | 8,022,542 | | 8,022,542 |
| Budget Authority Implication, National Defense Discretionary | | | |
| Department of Defense--Military (051) | 686,074,558 | -444,239 | 685,630,319 |
| Atomic Energy Defense Activities (053) | 21,891,900 | 357,000 | 22,248,900 |
| Defense-Related Activities (054) | 8,033,542 | 86,000 | 8,119,542 |
| Total BA Implication, National Defense Discretionary | 716,000,000 | -1,239 | 715,998,761 |
| National Defense Mandatory Programs, Current Law (CBO Baseline) | | | |
| Concurrent receipt accrual payments to the Military Retirement Fund | 7,720,000 | | 7,720,000 |
| Revolving, trust and other DOD Mandatory | 1,794,000 | | 1,794,000 |
| Offsetting receipts | -1,855,000 | | -1,855,000 |
| Subtotal, Budget Sub-Function 051 | 7,659,000 | | 7,659,000 |
| Energy employees occupational illness compensation programs and other | 1,277,000 | | 1,277,000 |
| Subtotal, Budget Sub-Function 053 | 1,277,000 | | 1,277,000 |
| Radiation exposure compensation trust fund | 50,000 | | 50,000 |
| Payment to CIA retirement fund and other | 514,000 | | 514,000 |
| Subtotal, Budget Sub-Function 054 | 564,000 | | 564,000 |
| Total National Defense Mandatory (050) | 9,500,000 | | 9,500,000 |
| Budget Authority Implication, National Defense Discretionary and Mandatory | | | |
| Department of Defense--Military (051) | 693,733,558 | -444,239 | 693,289,319 |

NATIONAL DEFENSE BUDGET AUTHORITY IMPLICATION—Continued

(In Thousands of Dollars)

| | FY 2019 Request | House Change | House Authorized |
|---|----------------------------|-------------------------|-----------------------------|
| Atomic Energy Defense Activities (053) | 23,168,900 | 357,000 | 23,525,900 |
| Defense-Related Activities (054) | 8,597,542 | 86,000 | 8,683,542 |
| Total BA Implication, National Defense Discretionary and Mandatory | 725,500,000 | -1,239 | 725,498,761 |

TITLE XLI—PROCUREMENT

SEC. 4101. PROCUREMENT.

SEC. 4101. PROCUREMENT (In Thousands of Dollars)

| Line | Item | FY 2019 Request | | House Change | | House Authorized | |
|-----------------------------------|--|-----------------|---------|--------------|------------|------------------|-----------|
| | | Qty | Cost | Qty | Cost | Qty | Cost |
| AIRCRAFT PROCUREMENT, ARMY | | | | | | | |
| FIXED WING | | | | | | | |
| 002 | UTILITY F/W AIRCRAFT | | 744 | | | 744 | |
| 003 | MQ-1 UAV | | 43,326 | | 60,000 | | 103,326 |
| | MQ-1 Gray Eagle Service Life Extension Program | | | | [60,000] | | |
| 004 | RQ-11 (RAVEN) | | 46,416 | | | | 46,416 |
| ROTARY | | | | | | | |
| 007 | AH-64 APACHE BLOCK IIIA REMAN | 48 | 753,248 | | | 48 | 753,248 |
| 008 | ADVANCE PROCUREMENT (CY) | | 174,550 | | | | 174,550 |
| 009 | AH-64 APACHE BLOCK IIIB NEW BUILD | 12 | 284,687 | | | 12 | 284,687 |
| | Additional AH-64Es to address ARNG shortfalls | | | [6] | [192,000] | | |
| | Realignment to cover ARNG shortfalls | | | [-6] | [-192,000] | | |
| 010 | ADVANCE PROCUREMENT (CY) | | 58,600 | | | | 58,600 |
| 011 | UH-60 BLACKHAWK M MODEL (MYP) | 49 | 988,810 | 5 | 85,000 | 54 | 1,073,810 |
| | Additional UH-60Ms for ARNG | | | [5] | [85,000] | | |
| 012 | ADVANCE PROCUREMENT (CY) | | 106,150 | | | | 106,150 |
| 013 | UH-60 BLACK HAWK A AND L MODELS | 18 | 146,138 | | | 18 | 146,138 |
| 014 | CH-47 HELICOPTER | 6 | 99,278 | | | 6 | 99,278 |
| 015 | ADVANCE PROCUREMENT (CY) | | 24,235 | | | | 24,235 |
| MODIFICATION OF AIRCRAFT | | | | | | | |

| | | | |
|-----|--|---------|----------|
| 018 | UNIVERSAL GROUND CONTROL EQUIPMENT (UAS) | 27,114 | 27,114 |
| 019 | GRAY EAGLE MODS2 | 97,781 | 97,781 |
| 020 | MULTI SENSOR ABN RECON (MIP) | 52,274 | 66,274 |
| | Army UFR: program increase | | 14,000 |
| | | | [14,000] |
| 021 | AH-64 MODS | 104,996 | 104,996 |
| 022 | CH-47 CARGO HELICOPTER MODS (MYP) | 7,807 | 7,807 |
| 023 | GRCS SEMA MODS (MIP) | 5,573 | 5,573 |
| 024 | ARL SEMA MODS (MIP) | 7,522 | 7,522 |
| 025 | EMARSS SEMA MODS (MIP) | 20,448 | 20,448 |
| 026 | UTILITY/CARGO AIRPLANE MODS | 17,719 | 17,719 |
| 027 | UTILITY HELICOPTER MODS | 6,443 | 16,443 |
| | UH-72A Life-Cycle Sustainability | | 10,000 |
| | | | [10,000] |
| 028 | NETWORK AND MISSION PLAN | 123,614 | 123,614 |
| 029 | COMMS, NAV SURVEILLANCE | 161,969 | 161,969 |
| 030 | DEGRADED VISUAL ENVIRONMENT | 30,000 | 30,000 |
| 031 | GATM ROLLUP | 26,848 | 26,848 |
| 032 | RQ-7 UAV MODS | 103,246 | 154,114 |
| | Realignment of EDI APS Unit Set from OCO to Base | | 50,868 |
| | | | [50,868] |
| 033 | UAS MODS | 17,644 | 21,046 |
| | Realignment of EDI APS Unit Set from OCO to Base | | 3,402 |
| | | | [3,402] |
| | GROUND SUPPORT AVIONICS | | |
| 034 | AIRCRAFT SURVIVABILITY EQUIPMENT | 57,170 | 57,170 |
| 035 | SURVIVABILITY CM | 5,853 | 5,853 |
| 036 | CMWS | 13,496 | 13,496 |
| 037 | COMMON INFRARED COUNTERMEASURES (CIRCIM) | 36,839 | 36,839 |
| | OTHER SUPPORT | | |
| 038 | AVIONICS SUPPORT EQUIPMENT | 1,778 | 1,778 |
| 039 | COMMON GROUND EQUIPMENT | 34,818 | 34,818 |
| 040 | AIRCREW INTEGRATED SYSTEMS | 27,243 | 27,243 |
| 041 | AIR TRAFFIC CONTROL | 63,872 | 63,872 |
| 042 | INDUSTRIAL FACILITIES | 1,417 | 1,417 |
| 043 | LAUNCHER, 2.75 ROCKET | 1,901 | 1,901 |

SEC. 4101. PROCUREMENT
(In Thousands of Dollars)

| Line | Item | FY 2019 Request | | House Change | | House Authorized | |
|------|---|-----------------|------------------|--------------|----------------|------------------|------------------|
| | | Qty | Cost | Qty | Cost | Qty | Cost |
| 044 | LAUNCHER GUIDED MISSILE: LONGBOW HELLFIRE XM2 | | 991 | | | | 991 |
| | TOTAL AIRCRAFT PROCUREMENT, ARMY | 133 | 3,782,558 | 5 | 223,270 | 138 | 4,005,828 |
| | MISSILE PROCUREMENT, ARMY | | | | | | |
| | SURFACE-TO-AIR MISSILE SYSTEM | | | | | | |
| 001 | LOWER TIER AIR AND MISSILE DEFENSE (AMD) | | 111,395 | | 260,000 | 179 | 111,395 |
| 002 | MISE MISSILE | 179 | 871,276 | | [260,000] | | 1,131,276 |
| | Realignment of EDI APS Unit Set from OCO to Base | | | | | | |
| 003 | INDIRECT FIRE PROTECTION CAPABILITY INC 2-I | | 145,636 | | | | 145,636 |
| 004 | ADVANCE PROCUREMENT (CY) | | 31,286 | | | | 31,286 |
| | AIR-TO-SURFACE MISSILE SYSTEM | | | | | | |
| 006 | JOINT AIR-TO-GROUND MSLs (JAGM) | 1,046 | 276,462 | | -27,600 | 1,046 | 248,862 |
| | Unit cost and engineering services cost growth | | | | [-27,600] | | |
| | ANTI-TANK/ASSAULT MISSILE SYS | | | | | | |
| 008 | JAVELIN (AAMS-M) SYSTEM SUMMARY | 709 | 303,665 | | -36,200 | 709 | 267,465 |
| | Forward financed in the FY18 Omnibus for command launch units | | | | [-50,000] | | |
| | Realignment of EDI APS Unit Set from OCO to Base | | | | [13,800] | | |
| 009 | TOW 2 SYSTEM SUMMARY | 1,472 | 105,014 | | | 1,472 | 105,014 |
| 010 | ADVANCE PROCUREMENT (CY) | | 19,949 | | | | 19,949 |
| 011 | GUIDED MLRS ROCKET (GMLRS) | 3,267 | 359,613 | | -30,000 | 3,267 | 329,613 |
| | Forward financed in the FY18 Omnibus | | | | [-30,000] | | |
| 012 | MLRS REDUCED RANGE PRACTICE ROCKETS (RRPR) | 2,214 | 20,964 | | 171,138 | 2,214 | 20,964 |
| 013 | HIGH MOBILITY ARTILLERY ROCKET SYSTEM (HIMARS) | | | | [171,138] | | 171,138 |
| | Realignment of EDI APS Unit Set from OCO to Base | | | | | | |
| | MODIFICATIONS | | | | | | |
| 015 | PATRIOT MODS | | 313,228 | | 20,000 | | 333,228 |

| | | | | | | | | |
|-----|--|--------------|--|-----|----------------|--|--------------|------------------|
| 016 | Increase PATRIOT Mod efforts | | | | [20,000] | | | |
| | ATACMS MODS | 221,656 | | | 15,000 | | | 236,656 |
| | Forward financed in the FY18 Omnibus | | | | [-65,000] | | | |
| | Realignment of EDI APS Unit Set from OCO to Base | | | | [80,000] | | | |
| 017 | GMLRS MOD | 266 | | | | | | 266 |
| 018 | STINGER MODS | 94,756 | | | | | | 94,756 |
| 019 | AVENGER MODS | 48,670 | | | | | | 48,670 |
| 020 | ITAS/TOW MODS | 3,173 | | | | | | 3,173 |
| 021 | MLRS MODS | 383,216 | | | | | | 505,216 |
| | Realignment of EDI APS Unit Set from OCO to Base | | | | 122,000 | | | |
| 022 | HIMARS MODIFICATIONS | 10,196 | | | [122,000] | | | 10,196 |
| 023 | SPARES AND REPAIR PARTS | 27,737 | | | | | | 27,737 |
| | SUPPORT EQUIPMENT & FACILITIES | | | | | | | |
| 024 | AIR DEFENSE TARGETS | 6,417 | | | | | | 6,417 |
| 025 | PRODUCTION BASE SUPPORT | 1,202 | | | | | | 1,202 |
| | TOTAL MISSILE PROCUREMENT, ARMY | 8,887 | | | 494,338 | | 8,887 | 3,850,115 |
| | | | | | | | | 325 |
| | PROCUREMENT OF W&TCV, ARMY | | | | | | | |
| | TRACKED COMBAT VEHICLES | | | | | | | |
| 001 | BRADLEY PROGRAM | | | | 205,000 | | | 205,000 |
| | Realignment of EDI APS Unit Set from OCO to Base | | | | [205,000] | | | |
| 002 | ARMORED MULTI PURPOSE VEHICLE (AMPV) | 479,801 | | 131 | 230,359 | | | 710,160 |
| | Realignment of EDI APS Unit Set from OCO to Base | | | | [230,359] | | | |
| | MODIFICATION OF TRACKED COMBAT VEHICLES | | | | | | | |
| 004 | STRYKER (MOD) | 287,490 | | | -149,300 | | | 138,190 |
| | Army requested realignment to WTCV-5 | | | | [-149,300] | | | |
| 005 | STRYKER UPGRADE | 21,900 | | 3 | 338,100 | | 113 | 360,000 |
| | A1 conversions for 5th SBCT | | | | [188,800] | | | |
| | Army requested realignment—A1 conversions for 5th SBCT | | | | [149,300] | | | |
| 006 | BRADLEY PROGRAM (MOD) | 625,424 | | | 50,000 | | | 675,424 |
| | Realignment of EDI APS Unit Set from OCO to Base | | | | [50,000] | | | |

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(In Thousands of Dollars)

| Line | Item | FY 2019 Request | | House Change | | House Authorized | |
|------|--|-----------------|-----------|--------------|-----------|------------------|-----------|
| | | Qty | Cost | Qty | Cost | Qty | Cost |
| 007 | M109 FOV MODIFICATIONS | | 26,482 | | | | 26,482 |
| 008 | PALADIN INTEGRATED MANAGEMENT (PIM) | 30 | 351,802 | | 142,000 | 30 | 493,802 |
| | Realignment of EDI APS Unit Set from OCO to Base | | | | [67,000] | | |
| | Smooth funding production profile | | | | [75,000] | | |
| 009 | IMPROVED RECOVERY VEHICLE (M88A2 HERCULES) | 26 | 110,500 | | 42,354 | 26 | 152,854 |
| | Realignment of EDI APS Unit Set from OCO to Base | | | | [42,354] | | |
| 010 | ASSAULT BRIDGE (MOD) | | 2,120 | | | | 2,120 |
| 011 | ASSAULT BREACHER VEHICLE | 12 | 62,407 | | | 12 | 62,407 |
| 012 | M88 FOV MODS | | 4,517 | | | | 4,517 |
| 013 | JOINT ASSAULT BRIDGE | 30 | 142,255 | | | 30 | 142,255 |
| 014 | M1 ABRAMS TANK (MOD) | | 927,600 | | 34,000 | | 961,600 |
| | Realignment of EDI APS Unit Set from OCO to Base | | | | [34,000] | | |
| 015 | ABRAMS UPGRADE PROGRAM | 95 | 1,075,999 | | 455,000 | 95 | 1,530,999 |
| | Realignment of EDI APS Unit Set from OCO to Base | | | | [455,000] | | |
| | WEAPONS & OTHER COMBAT VEHICLES | | | | | | |
| 018 | M240 MEDIUM MACHINE GUN (7.62MM) | | 1,955 | | 5,126 | | 7,081 |
| | Program Increase—M240L and M240B | | | | [5,000] | | |
| | Realignment of EDI APS Unit Set from OCO to Base | | | | [126] | | |
| 019 | MULTI-ROLE ANTI-ARMOR ANTI-PERSONNEL WEAPON S | | 23,345 | | | | 23,345 |
| 020 | GUN AUTOMATIC 30MM M230 | | 7,434 | | | | 7,434 |
| 021 | MACHINE GUN, CAL .50 M2 ROLL | | 22,330 | | | | 22,330 |
| 022 | MORTAR SYSTEMS | | 12,470 | | 180 | | 12,650 |
| | Realignment of EDI APS Unit Set from OCO to Base | | | | [180] | | |
| 023 | XM320 GRENADE LAUNCHER MODULE (GLM) | | 697 | | | | 697 |
| 024 | COMPACT SEMI-AUTOMATIC SNIPER SYSTEM | | 46,236 | | | | 46,236 |
| 025 | CARBINE | | 69,306 | | 1,800 | | 71,106 |

| | | | | | | |
|-----|--|------------------|------------|------------------|------------|------------------|
| 026 | Realignment of EDI APS Unit Set from OCO to Base | | | [1,800] | | 7,929 |
| 027 | SMALL ARMS—FIRE CONTROL | 7,929 | | 3,378 | | 39,346 |
| | COMMON REMOTELY OPERATED WEAPONS STATION | 35,968 | | [3,378] | | |
| 028 | Realignment of EDI APS Unit Set from OCO to Base | | | | | 48,251 |
| | HANDGUN | 48,251 | | | | |
| | MOD OF WEAPONS AND OTHER COMBAT VEH | | | | | |
| 029 | MK-19 GRENADE MACHINE GUN MODS | 1,684 | | | | 1,684 |
| 030 | M777 MODS | 3,086 | | | | 3,086 |
| 031 | M4 CARBINE MODS | 31,575 | | 4,200 | | 35,775 |
| | Additional free-float forward extended rails | | | [4,200] | | |
| 032 | M2 50 CAL MACHINE GUN MODS | 21,600 | | 4,920 | | 26,520 |
| | Realignment of EDI APS Unit Set from OCO to Base | | | [4,920] | | |
| 033 | M249 SAW MACHINE GUN MODS | 3,924 | | | | 3,924 |
| 034 | M240 MEDIUM MACHINE GUN MODS | 6,940 | | 7 | | 6,947 |
| | Realignment of EDI APS Unit Set from OCO to Base | | | [7] | | |
| 035 | SNIPER RIFLES MODIFICATIONS | 2,747 | | | | 2,747 |
| 036 | M119 MODIFICATIONS | 5,704 | | | | 5,704 |
| 037 | MORTAR MODIFICATION | 3,965 | | | | 3,965 |
| 038 | MODIFICATIONS LESS THAN \$5.0M (WOCV-WTCV) | 5,577 | | | | 5,577 |
| | SUPPORT EQUIPMENT & FACILITIES | | | | | |
| 039 | ITEMS LESS THAN \$5.0M (WOCV-WTCV) | 3,174 | | 1,397 | | 4,571 |
| | Realignment of EDI APS Unit Set from OCO to Base | | | [1,397] | | |
| 040 | PRODUCTION BASE SUPPORT (WOCV-WTCV) | 3,284 | | | | 3,284 |
| 041 | SMALL ARMS EQUIPMENT (SOLDIER ENH PROG) | 1,640 | | | | 1,640 |
| | TOTAL PROCUREMENT OF W&TCV, ARMY | 4,489,118 | 110 | 1,368,521 | 437 | 5,857,639 |
| | PROCUREMENT OF AMMUNITION, ARMY | | | | | |
| | SMALL/MEDIUM CAL AMMUNITION | | | | | |
| 001 | CTG, 5.56MM, ALL TYPES | 41,848 | | 3,392 | | 45,240 |
| | Realignment of EDI APS Unit Set from OCO to Base | | | [3,392] | | |
| 002 | CTG, 7.62MM, ALL TYPES | 86,199 | | 40 | | 86,239 |
| | Realignment of EDI APS Unit Set from OCO to Base | | | [40] | | |

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(In Thousands of Dollars)

| Line | Item | FY 2019 Request | | House Change | | House Authorized | |
|------|--|-----------------|---------|--------------|------|------------------|---------|
| | | Qty | Cost | Qty | Cost | Qty | Cost |
| 003 | CTG, HANDGUN, ALL TYPES | | 20,158 | | | 17 | 20,175 |
| | Realignment of EDI APS Unit Set from OCO to Base | | | | | [17] | |
| 004 | CTG, .50 CAL, ALL TYPES | | 65,573 | | | 189 | 65,762 |
| | Realignment of EDI APS Unit Set from OCO to Base | | | | | [189] | |
| 005 | CTG, 20MM, ALL TYPES | | 8,198 | | | | 8,198 |
| 007 | CTG, 30MM, ALL TYPES | | 77,995 | | | 25,000 | 102,995 |
| | Realignment of EDI APS Unit Set from OCO to Base | | | | | [25,000] | |
| 008 | CTG, 40MM, ALL TYPES | | 69,781 | | | | 69,781 |
| | MORTAR AMMUNITION | | | | | | |
| 009 | 60MM MORTAR, ALL TYPES | | 45,280 | | | 218 | 45,498 |
| | Realignment of EDI APS Unit Set from OCO to Base | | | | | [218] | |
| 010 | 81MM MORTAR, ALL TYPES | | 46,853 | | | 484 | 47,337 |
| | Realignment of EDI APS Unit Set from OCO to Base | | | | | [484] | |
| 011 | 120MM MORTAR, ALL TYPES | | 83,003 | | | | 83,003 |
| | TANK AMMUNITION | | | | | | |
| 012 | CARTRIDGES, TANK, 105MM AND 120MM, ALL TYPES | | 168,101 | | | | 168,101 |
| | ARTILLERY AMMUNITION | | | | | | |
| 013 | ARTILLERY CARTRIDGES, 75MM & 105MM, ALL TYPES | | 39,341 | | | | 39,341 |
| 014 | ARTILLERY PROJECTILE, 155MM, ALL TYPES | | 211,442 | | | 79,400 | 290,842 |
| | Realignment of EDI APS Unit Set from OCO to Base | | | | | [79,400] | |
| 015 | PROJ 155MM EXTENDED RANGE M982 | 1,189 | 100,906 | | | 51,700 | 152,606 |
| | Realignment of EDI APS Unit Set from OCO to Base | | | | | [51,700] | |
| 016 | ARTILLERY PROPELLANTS, FUZES AND PRIMERS, ALL | | 236,677 | | | 31,900 | 268,577 |
| | Forward financed in the FY18 Omnibus | | | | | [-15,000] | |
| | Program decrease | | | | | [-2,000] | |
| | Realignment of EDI APS Unit Set from OCO to Base | | | | | [48,900] | |

SEC. 4101. PROCUREMENT
(In Thousands of Dollars)

| Line | Item | FY 2019 Request | | House Change | | House Authorized | |
|------|--|-----------------|-----------|--------------|-----------|------------------|-----------|
| | | Qty | Cost | Qty | Cost | Qty | Cost |
| 001 | TACTICAL TRAILERS/DOLLY SETS | | 16,512 | | | | 16,512 |
| 002 | SEMITRAILERS, FLATBED: | | 16,951 | | 8,000 | | 24,951 |
| | Realignment of EDI APS Unit Set from OCO to Base | | | | [8,000] | | |
| 003 | AMBULANCE, 4 LITTER, 5/4 TON, 4X4 | | 50,123 | | 20,770 | | 70,893 |
| | Realignment of EDI APS Unit Set from OCO to Base | | | | [20,770] | | |
| 004 | GROUND MOBILITY VEHICLES (GMV) | | 46,988 | | -10,000 | | 36,988 |
| | Unobligated Balances | | | | [-10,000] | | |
| 005 | ARNG HMMWV MODERNIZATION PROGRAM | | | | 25,000 | | 25,000 |
| | Additional HMMWVs | | | | [25,000] | | |
| 006 | JOINT LIGHT TACTICAL VEHICLE | | 1,319,436 | | | | 1,319,436 |
| 007 | TRUCK, DUMP, 20T (CCE) | | 6,480 | | | | 6,480 |
| 008 | FAMILY OF MEDIUM TACTICAL VEH (FMTV) | | 132,882 | | | | 132,882 |
| 009 | FIRETRUCKS & ASSOCIATED FIREFIGHTING EQUIP | | 14,842 | | | | 14,842 |
| 010 | FAMILY OF HEAVY TACTICAL VEHICLES (FHTV) | | 138,105 | | 115,400 | | 253,505 |
| | Realignment of EDI APS Unit Set from OCO to Base | | | | [115,400] | | |
| 012 | HVY EXPANDED MOBILE TACTICAL TRUCK EXT SERV | | 31,892 | | 6,682 | | 38,574 |
| | Realignment of EDI APS Unit Set from OCO to Base | | | | [6,682] | | |
| 013 | TACTICAL WHEELED VEHICLE PROTECTION KITS | | 38,128 | | 50,000 | | 88,128 |
| | Realignment of EDI APS Unit Set from OCO to Base | | | | [50,000] | | |
| 014 | MODIFICATION OF IN SVC EQUIP | | 78,507 | | 377 | | 78,884 |
| | Realignment of EDI APS Unit Set from OCO to Base | | | | [377] | | |
| 015 | MINE-RESISTANT AMBUSH-PROTECTED (MRAP) MODS | | | | 27,000 | | 27,000 |
| | SFAB emerging requirements | | | | [27,000] | | |
| | NON-TACTICAL VEHICLES | | | | | | |
| 016 | HEAVY ARMORED VEHICLE | | 790 | | | | 790 |
| 017 | PASSENGER CARRYING VEHICLES | | 1,390 | | | | 1,390 |

| | | | |
|-----|---|---------|--------------------|
| 018 | NONTACTICAL VEHICLES, OTHER | 15,415 | 15,415 |
| | COMM—JOINT COMMUNICATIONS | | |
| 020 | SIGNAL MODERNIZATION PROGRAM | 150,777 | 150,777 |
| 021 | TACTICAL NETWORK TECHNOLOGY MOD IN SVC | 469,117 | 533,117 |
| | Additional TCN-L, NOSC-L, and next generation embedded kits for IBCTs and SBCTs. | | 64,000 [64,000] |
| 022 | SITUATION INFORMATION TRANSPORT | 62,727 | 62,727 |
| 023 | JOINT INCIDENT SITE COMMUNICATIONS CAPABILITY | 13,895 | 13,895 |
| 024 | JCSE EQUIPMENT (USREDCOM) | 4,866 | 4,866 |
| | COMM—SATELLITE COMMUNICATIONS | | |
| 027 | DEFENSE ENTERPRISE WIDEBAND SATCOM SYSTEMS | 108,133 | 108,133 |
| 028 | TRANSPORTABLE TACTICAL COMMAND COMMUNICATIONS | 56,737 | 56,737 |
| 029 | SHF TERM | 13,100 | 13,100 |
| 030 | SMART-T (SPACE) | 9,160 | 9,160 |
| 031 | GLOBAL BRODCST SVC—GBS | 25,647 | 25,647 |
| 032 | ENROUTE MISSION COMMAND (EMC) | 37,401 | 37,401 |
| | COMM—C3 SYSTEM | | |
| 036 | COE TACTICAL SERVER INFRASTRUCTURE (TSI) | 20,500 | 20,500 |
| | COMM—COMBAT COMMUNICATIONS | | |
| 037 | JOINT TACTICAL RADIO SYSTEM | | 1,560 |
| | Realignment of EDI APS Unit Set from OCO to Base | | [1,560] |
| 038 | HANDHELD MANPACK SMALL FORM FIT (HMS) | 351,565 | 351,565 |
| 040 | RADIO TERMINAL SET, MIDS LVT(2) | 4,641 | 4,641 |
| 041 | TRACTOR DESK | 2,187 | 2,187 |
| 042 | TRACTOR RIDE | 9,411 | 22,611 |
| | Army UFR: program increase | | 13,200 [13,200] |
| 044 | SPIDER FAMILY OF NETWORKED MUNITIONS INCR | 17,515 | 17,515 |
| 045 | TACTICAL COMMUNICATIONS AND PROTECTIVE SYSTEM | 819 | 819 |
| 046 | UNIFIED COMMAND SUITE | 17,807 | 17,807 |
| 047 | COTS COMMUNICATIONS EQUIPMENT | 191,835 | 208,835 |
| | Program decrease | | 17,000 [-5,000] |
| | Realignment of EDI APS Unit Set from OCO to Base | | [22,000] |

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|------|--|-----------------|---------|--------------|---------|------------------|---------|
| | | Qty | Cost | Qty | Cost | Qty | Cost |
| 048 | FAMILY OF MED COMM FOR COMBAT CASUALTY CARE | | 25,177 | | | | 25,177 |
| | COMM—INTELLIGENCE COMM | | | | | | |
| 050 | CI AUTOMATION ARCHITECTURE (MIP) | | 9,740 | | | | 9,740 |
| 051 | DEFENSE MILITARY DECEPTION INITIATIVE | | 2,667 | | | | 2,667 |
| | INFORMATION SECURITY | | | | | | |
| 053 | FAMILY OF BIOMETRICS | | 8,319 | | | | 8,319 |
| 054 | INFORMATION SYSTEM SECURITY PROGRAM-ISSP | | 2,000 | | | | 2,000 |
| 055 | COMMUNICATIONS SECURITY (COMSEC) | | 88,337 | | | | 88,340 |
| | Realignment of EDI APS Unit Set from OCO to Base | | | | 3 | | |
| 056 | DEFENSIVE CYBER OPERATIONS | | 51,343 | | [3] | | 51,343 |
| 057 | INSIDER THREAT PROGRAM—UNIT ACTIVITY MONITO | | 330 | | | | 330 |
| 058 | PERSISTENT CYBER TRAINING ENVIRONMENT | | 3,000 | | | | 3,000 |
| | COMM—LONG HAUL COMMUNICATIONS | | | | | | |
| 059 | BASE SUPPORT COMMUNICATIONS | | 34,434 | | | | 34,434 |
| | COMM—BASE COMMUNICATIONS | | | | | | |
| 060 | INFORMATION SYSTEMS | | 95,558 | | | | 95,558 |
| 061 | EMERGENCY MANAGEMENT MODERNIZATION PROGRAM | | 4,736 | | | | 4,736 |
| 062 | HOME STATION MISSION COMMAND CENTERS (HSMCC) | | 24,479 | | | | 24,479 |
| 063 | INSTALLATION INFO INFRASTRUCTURE MOD PROGRAM | | 216,433 | | | | 225,483 |
| | Realignment of EDI APS Unit Set from OCO to Base | | | | 9,050 | | |
| | Realignment of EDI APS Unit Set from OCO to Base | | | | [9,050] | | |
| | ELECT EQUIP—TACT INT REL ACT (TIARA) | | | | | | |
| 066 | JTT/CIBS-M (MIP) | | 10,268 | | | | 10,268 |
| 068 | DCGS-A (MIP) | | 261,863 | | | | 261,863 |
| 069 | JOINT TACTICAL GROUND STATION (JTGS) (MIP) | | 5,434 | | | | 5,434 |
| 070 | TROJAN (MIP) | | 20,623 | | | | 21,223 |
| | Realignment of EDI APS Unit Set from OCO to Base | | | | 600 | | |
| | Realignment of EDI APS Unit Set from OCO to Base | | | | [600] | | |

| | | | | |
|-----|--|---------|----------|---------|
| 071 | MOD OF IN-SVC EQUIP (INTEL SPT) (MIP) | 45,998 | | |
| 072 | CI HUMINT AUTO REPRTING & COLL(CHARCS)(MIP) | 296 | | |
| 076 | ITEMS LESS THAN \$5.0M (MIP) | 410 | | |
| | ELECT EQUIP—ELECTRONIC WARFARE (EW) | | | |
| 077 | LIGHTWEIGHT COUNTER MORTAR RADAR | 9,165 | | |
| 078 | EW PLANNING & MANAGEMENT TOOLS (EWPMT) | 5,875 | | |
| 079 | AIR VIGILANCE (AV) (MIP) | 8,497 | | |
| 083 | CI MODERNIZATION (MIP) | 486 | | |
| | ELECT EQUIP—TACTICAL SURV. (TAC SURV) | | | |
| 084 | SENTINEL MODS | 79,629 | | |
| 085 | NIGHT VISION DEVICES | 153,180 | 86 | 79,629 |
| | Realignment of EDI APS Unit Set from OCO to Base | | [86] | |
| 086 | LONG RANGE ADVANCED SCOUT SURVEILLANCE SYSTEM | | 2,861 | 2,861 |
| | Realignment of EDI APS Unit Set from OCO to Base | | [2,861] | |
| 087 | SMALL TACTICAL OPTICAL RIFLE MOUNTED MLRF | 22,882 | | 22,882 |
| 088 | RADIATION MONITORING SYSTEMS | 17,393 | 11 | 17,404 |
| | Realignment of EDI APS Unit Set from OCO to Base | | [11] | |
| 090 | INDIRECT FIRE PROTECTION FAMILY OF SYSTEMS | 46,740 | 262 | 47,002 |
| | Realignment of EDI APS Unit Set from OCO to Base | | [262] | |
| 091 | FAMILY OF WEAPON SIGHTS (FWS) | 140,737 | -8,775 | 131,962 |
| | Realignment of EDI APS Unit Set from OCO to Base | | [525] | |
| | Unexecutable funds | | [-9,300] | |
| 093 | PROFILER | 171 | | 171 |
| 094 | JOINT BATTLE COMMAND—PLATFORM (JBC-P) | 405,239 | 26,146 | 431,385 |
| | Realignment of EDI APS Unit Set from OCO to Base | | [26,146] | |
| 095 | JOINT EFFECTS TARGETING SYSTEM (JETS) | 66,574 | | 66,574 |
| 096 | MOD OF IN-SVC EQUIP (LLDR) | 20,783 | 4,050 | 24,833 |
| | Realignment of EDI APS Unit Set from OCO to Base | | [4,050] | |
| 097 | COMPUTER BALLISTICS: LHMCB XM32 | 8,553 | | 8,553 |
| 098 | MORTAR FIRE CONTROL SYSTEM | 21,489 | | 21,489 |
| 099 | COUNTERFIRE RADARS | 162,121 | | 162,121 |
| | ELECT EQUIP—TACTICAL C2 SYSTEMS | | | |

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SEC. 4101. PROCUREMENT
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| Line | Item | FY 2019 Request | | House Change | | House Authorized | |
|------|--|-----------------|---------|--------------|------|------------------|---------|
| | | Qty | Cost | Qty | Cost | Qty | Cost |
| 100 | ARMY COMMAND POST INTEGRATED INFRASTRUCTURE (| | 2,855 | | | | 2,855 |
| 101 | FIRE SUPPORT C2 FAMILY | | 19,153 | | | | 19,153 |
| 102 | AIR & MSL DEFENSE PLANNING & CONTROL SYS | | 33,837 | | | | 33,837 |
| 103 | LIFE CYCLE SOFTWARE SUPPORT (LCSS) | | 5,136 | | | | 5,136 |
| 104 | NETWORK MANAGEMENT INITIALIZATION AND SERVICE | | 18,329 | | | | 18,329 |
| 105 | MANEUVER CONTROL SYSTEM (MCS) | | 38,015 | | | | 38,015 |
| 106 | GLOBAL COMBAT SUPPORT SYSTEM-ARMY (GCSS-A) | | 15,164 | | | | 15,164 |
| 107 | INTEGRATED PERSONNEL AND PAY SYSTEM-ARMY (IPP) | | 29,239 | | | | 29,239 |
| 109 | RECONNAISSANCE AND SURVEYING INSTRUMENT SET | | 6,823 | | | | 6,823 |
| 110 | MOD OF IN-SVC EQUIPMENT (ENFIRE) | | 1,177 | | | | 1,177 |
| | ELECT EQUIP—AUTOMATION | | | | | | |
| 111 | ARMY TRAINING MODERNIZATION | | 12,265 | | | | 12,265 |
| 112 | AUTOMATED DATA PROCESSING EQUIP | | 201,875 | | | | 201,875 |
| 113 | GENERAL FUND ENTERPRISE BUSINESS SYSTEMS FAM | | 10,976 | | | | 10,976 |
| 114 | HIGH PERF COMPUTING MOD PGM (HPCMP) | | 66,330 | | | | 66,330 |
| 115 | CONTRACT WRITING SYSTEM | | 5,927 | | | | 5,927 |
| 116 | RESERVE COMPONENT AUTOMATION SYS (RCAS) | | 27,896 | | | | 27,896 |
| | ELECT EQUIP—AUDIO VISUAL SYS (AV) | | | | | | |
| 117 | TACTICAL DIGITAL MEDIA | | 4,392 | | | | 4,392 |
| 118 | ITEMS LESS THAN \$5M (SURVEYING EQUIPMENT) | | 1,970 | | | | 1,970 |
| | ELECT EQUIP—SUPPORT | | | | | | |
| 119 | PRODUCTION BASE SUPPORT (C-E) | | 506 | | | | 506 |
| | CLASSIFIED PROGRAMS | | | | | | |
| 120A | CLASSIFIED PROGRAMS | | 4,501 | | | | 4,501 |
| | CHEMICAL DEFENSIVE EQUIPMENT | | | | | | |
| 121 | PROTECTIVE SYSTEMS | | 2,314 | | | 27 | 2,341 |

| | | | | | |
|-----|--|---------|--|-------|---------|
| 122 | Realignment of EDI APS Unit Set from OCO to Base | | | | |
| | FAMILY OF NON-LETHAL EQUIPMENT (FNLE) | 7,478 | | [27] | 7,478 |
| 124 | CBRN DEFENSE | 173,954 | | 317 | 174,271 |
| | Realignment of EDI APS Unit Set from OCO to Base | | | [317] | |
| | BRIDGING EQUIPMENT | | | | |
| 125 | TACTICAL BRIDGING | 98,229 | | | 98,229 |
| 126 | TACTICAL BRIDGE, FLOAT-RIBBON | 64,438 | | | 64,438 |
| 127 | COMMON BRIDGE TRANSPORTER (CBT) RECAP | 79,916 | | | 79,916 |
| | ENGINEER (NON-CONSTRUCTION) EQUIPMENT | | | | |
| 128 | HANDHELD STANDOFF MINEFIELD DETECTION SYS-HST | 8,471 | | | 8,471 |
| 129 | GRND STANDOFF MINE DETECTN SYSM (GSTAMIDS) | 29,883 | | | 29,883 |
| 130 | AREA MINE DETECTION SYSTEM (AMDS) | 11,594 | | 1 | 11,595 |
| | Realignment of EDI APS Unit Set from OCO to Base | | | [1] | |
| 131 | HUSKY MOUNTED DETECTION SYSTEM (HMDS) | 40,834 | | | 40,834 |
| 132 | ROBOTIC COMBAT SUPPORT SYSTEM (RCSS) | 4,029 | | | 4,029 |
| 133 | EOD ROBOTICS SYSTEMS RECAPITALIZATION | 14,208 | | | 14,208 |
| 134 | ROBOTICS AND APPLIQUE SYSTEMS | 31,456 | | | 31,456 |
| 136 | REMOTE DEMOLITION SYSTEMS | 1,748 | | 1 | 1,749 |
| | Realignment of EDI APS Unit Set from OCO to Base | | | [1] | |
| 137 | < \$5M, COUNTERMINE EQUIPMENT | 7,829 | | | 7,829 |
| 138 | FAMILY OF BOATS AND MOTORS | 5,806 | | | 5,806 |
| | COMBAT SERVICE SUPPORT EQUIPMENT | | | | |
| 139 | HEATERS AND ECU'S | 9,852 | | | 9,852 |
| 140 | SOLDIER ENHANCEMENT | 1,103 | | | 1,103 |
| 141 | PERSONNEL RECOVERY SUPPORT SYSTEM (PRSS) | 5,875 | | | 5,875 |
| 142 | GROUND SOLDIER SYSTEM | 92,487 | | | 92,487 |
| 143 | MOBILE SOLDIER POWER | 30,774 | | | 30,774 |
| 145 | FIELD FEEDING EQUIPMENT | 17,521 | | | 17,521 |
| 146 | CARGO AERIAL DEL & PERSONNEL PARACHUTE SYSTEM | 44,855 | | | 44,855 |
| 147 | FAMILY OF ENGR COMBAT AND CONSTRUCTION SETS | 17,173 | | | 17,173 |
| 148 | ITEMS LESS THAN \$5M (ENG SPT) | 2,000 | | | 2,000 |
| | PETROLEUM EQUIPMENT | | | | |

| SEC. 4101. PROCUREMENT (In Thousands of Dollars) | | | | | | | | | |
|---|---|-----------------|---------|--------------|----------|------------------|---------|--|--|
| Line | Item | FY 2019 Request | | House Change | | House Authorized | | | |
| | | Qty | Cost | Qty | Cost | Qty | Cost | | |
| 149 | QUALITY SURVEILLANCE EQUIPMENT | | 1,770 | | | | 1,770 | | |
| 150 | DISTRIBUTION SYSTEMS, PETROLEUM & WATER | | 39,730 | | | | 39,730 | | |
| | MEDICAL EQUIPMENT | | | | | | | | |
| 151 | COMBAT SUPPORT MEDICAL | | 57,752 | | 20,000 | | 77,752 | | |
| | Simulators and other technologies to reduce the use of live animal tissue for medical training. | | | | [20,000] | | | | |
| | MAINTENANCE EQUIPMENT | | | | | | | | |
| 152 | MOBILE MAINTENANCE EQUIPMENT SYSTEMS | | 37,722 | | | | 37,722 | | |
| 153 | ITEMS LESS THAN \$5.0M (MAINT EQ) | | 4,985 | | 268 | | 5,253 | | |
| | Realignment of EDI APS Unit Set from OCO to Base | | | | [268] | | | | |
| | CONSTRUCTION EQUIPMENT | | | | | | | | |
| 155 | SCRAPERS, EARTHMOVING | | 7,961 | | | | 7,961 | | |
| 156 | HYDRAULIC EXCAVATOR | | 1,355 | | | | 1,355 | | |
| 158 | ALL TERRAIN CRANES | | 13,031 | | | | 13,031 | | |
| 159 | HIGH MOBILITY ENGINEER EXCAVATOR (HMEE) | | 46,048 | | | | 46,048 | | |
| 160 | ENHANCED RAPID AIRFIELD CONSTRUCTION CAPAP | | 980 | | 7,500 | | 8,480 | | |
| | Program increase—additional ERACC systems | | | | [7,500] | | | | |
| 161 | CONST EQUIP ESP | | 37,017 | | | | 37,017 | | |
| 162 | ITEMS LESS THAN \$5.0M (CONST EQUIP) | | 6,103 | | | | 6,103 | | |
| | RAIL FLOAT CONTAINERIZATION EQUIPMENT | | | | | | | | |
| 163 | ARMY WATERCRAFT ESP | | 27,711 | | | | 27,711 | | |
| 164 | ITEMS LESS THAN \$5.0M (FLOAT/RAIL) | | 8,385 | | | | 8,385 | | |
| | GENERATORS | | | | | | | | |
| 165 | GENERATORS AND ASSOCIATED EQUIP | | 133,772 | | | | 133,772 | | |
| 166 | TACTICAL ELECTRIC POWER RECAPITALIZATION | | 8,333 | | | | 8,333 | | |
| | MATERIAL HANDLING EQUIPMENT | | | | | | | | |

| | | | | | |
|-----|--|------------------|----------------|------------------|-----------|
| 167 | FAMILY OF FORKLIFTS | 12,901 | | 12,901 | |
| | TRAINING EQUIPMENT | | | | |
| 168 | COMBAT TRAINING CENTERS SUPPORT | 123,228 | | 123,228 | |
| 169 | TRAINING DEVICES, NONSYSTEM | 228,598 | | 228,598 | |
| 170 | CLOSE COMBAT TACTICAL TRAINER | 33,080 | | 33,080 | |
| 171 | AVIATION COMBINED ARMS TACTICAL TRAINER | 32,700 | | 32,700 | |
| 172 | GAMING TECHNOLOGY IN SUPPORT OF ARMY TRAINING | 25,161 | | 25,161 | |
| | TEST MEASURE AND DIG EQUIPMENT (TMD) | | | | |
| 173 | CALIBRATION SETS EQUIPMENT | 4,270 | | 4,270 | |
| 174 | INTEGRATED FAMILY OF TEST EQUIPMENT (IFTE) | 76,295 | | 76,295 | |
| | Realignment of EDI APS Unit Set from OCO to Base | | 9,495 | 9,495 | |
| 175 | TEST EQUIPMENT MODERNIZATION (TEMOD) | 9,806 | | 9,806 | |
| | OTHER SUPPORT EQUIPMENT | | | | |
| 176 | M25 STABILIZED BINOCULAR | 4,368 | 33 | 4,401 | |
| | Realignment of EDI APS Unit Set from OCO to Base | | [33] | | |
| 177 | RAPID EQUIPPING SOLDIER SUPPORT EQUIPMENT | 9,879 | | 9,879 | |
| 178 | PHYSICAL SECURITY SYSTEMS (OPA3) | 54,043 | | 54,043 | |
| 179 | BASE LEVEL COMMON EQUIPMENT | 6,633 | | 6,633 | |
| 180 | MODIFICATION OF IN-SVC EQUIPMENT (OPA-3) | 49,797 | | 49,797 | |
| 181 | PRODUCTION BASE SUPPORT (OTH) | 2,301 | | 2,301 | |
| 182 | SPECIAL EQUIPMENT FOR USER TESTING | 11,608 | | 11,608 | |
| 183 | TRACTOR YARD | 4,956 | | 4,956 | |
| | OPAZ | | | | |
| 184 | INITIAL SPARES—C&E | 9,817 | | 9,817 | |
| | TOTAL OTHER PROCUREMENT, ARMY | 7,999,529 | 410,925 | 8,410,454 | |
| | AIRCRAFT PROCUREMENT, NAVY | | | | |
| | COMBAT AIRCRAFT | | | | |
| 001 | F/A-18E/F (FIGHTER) HORNET | 24 | 24 | 1,937,553 | 1,907,553 |
| | Excess NRE and Support Costs | | | | [-30,000] |
| 002 | ADVANCE PROCUREMENT (CY) | 58,799 | | 58,799 | |
| 003 | JOINT STRIKE FIGHTER CV | 9 | 9 | 1,144,958 | 1,132,058 |

SEC. 4101. PROCUREMENT
(In Thousands of Dollars)

| Line | Item | FY 2019 Request | | House Change | | House Authorized | |
|------|--|-----------------|-----------|--------------|------------|------------------|-----------|
| | | Qty | Cost | Qty | Cost | Qty | Cost |
| | Production Efficiencies | | | | [-12,900] | | |
| 004 | ADVANCE PROCUREMENT (CY) | | 140,010 | | | | 140,010 |
| 005 | JSF STOVL | 20 | 2,312,847 | | -36,300 | 20 | 2,276,547 |
| | Production Efficiencies | | | | [-36,300] | | |
| 006 | ADVANCE PROCUREMENT (CY) | | 228,492 | | | | 228,492 |
| 007 | CH-53K (HEAVY LIFT) | 8 | 1,113,804 | | -24,000 | 8 | 1,089,804 |
| | Support cost growth | | | | [-24,000] | | |
| 008 | ADVANCE PROCUREMENT (CY) | | 161,079 | | | | 161,079 |
| 009 | V-22 (MEDIUM LIFT) | 7 | 806,337 | | | 7 | 806,337 |
| 010 | ADVANCE PROCUREMENT (CY) | | 36,955 | | | | 36,955 |
| 011 | H-1 UPGRADES (UH-1Y/AH-1Z) | 25 | 820,755 | | | 25 | 820,755 |
| 014 | P-8A POSEIDON | 10 | 1,803,753 | | -26,000 | 10 | 1,777,753 |
| | Excessive CFE Electronics cost growth | | | | [-5,000] | | |
| | Excessive GFE Electronics cost growth | | | | [-1,000] | | |
| | Excessive support cost growth | | | | [-20,000] | | |
| 015 | ADVANCE PROCUREMENT (CY) | | 180,000 | | | | 180,000 |
| 016 | E-2D ADV HAWKEYE | 4 | 742,693 | | -16,300 | 4 | 726,393 |
| | Excessive CFE cost growth | | | | [-5,800] | | |
| | Excessive Non-recurring cost growth | | | | [-2,900] | | |
| | Excessive Other ILS cost growth | | | | [-1,700] | | |
| | Excessive peculiar equipment cost growth | | | | [-5,900] | | |
| 017 | ADVANCE PROCUREMENT (CY) | | 240,734 | | | | 240,734 |
| | AIRLIFT AIRCRAFT | | | | | | |
| 018 | C-40A | 2 | 206,000 | | -206,000 | 2 | 0 |
| | Forward financed in the FY18 Omnibus | | | | [-206,000] | | |
| | OTHER AIRCRAFT | | | | | | |

33
38

| | | | | | |
|-----|---------------------------------------|---|-----------|---|-----------|
| 020 | KC-130J | 2 | 160,433 | 2 | 160,433 |
| 021 | ADVANCE PROCUREMENT (CY) | | 110,013 | | 110,013 |
| 022 | MQ-4 TRITON | 3 | 568,743 | | 544,793 |
| | Unit and support cost growth | | | | -23,950 |
| | ADVANCE PROCUREMENT (CY) | | | | [-23,950] |
| 023 | MQ-8 UAV | | 58,522 | | 58,522 |
| 024 | STUASLO UAV | | 54,761 | | 54,761 |
| 025 | VH-92A EXECUTIVE HELO | | 14,866 | | 14,866 |
| 026 | MODIFICATION OF AIRCRAFT | 6 | 649,015 | | 649,015 |
| | AEA SYSTEMS | | 25,277 | | 25,277 |
| 027 | AV-8 SERIES | | 58,577 | | 58,577 |
| 029 | ADVERSARY | | 14,606 | | 14,606 |
| 030 | F-18 SERIES | | 1,213,482 | | 1,210,982 |
| | Program decrease | | | | -2,500 |
| | | | | | [-2,500] |
| 031 | H-53 SERIES | | 70,997 | | 70,997 |
| 032 | SH-60 SERIES | | 130,661 | | 130,661 |
| 033 | H-1 SERIES | | 87,143 | | 87,143 |
| 034 | EP-3 SERIES | | 3,633 | | 3,633 |
| 035 | P-3 SERIES | | 803 | | 803 |
| 036 | E-2 SERIES | | 88,780 | | 88,780 |
| 037 | TRAINER A/C SERIES | | 11,660 | | 11,660 |
| 038 | C-2A | | 11,327 | | 11,327 |
| 039 | C-130 SERIES | | 79,075 | | 79,075 |
| 040 | FEWSG | | 597 | | 597 |
| 041 | CARGO/TRANSPORT A/C SERIES | | 8,932 | | 8,932 |
| 042 | E-6 SERIES | | 181,821 | | 181,821 |
| 043 | EXECUTIVE HELICOPTERS SERIES | | 23,566 | | 23,566 |
| 044 | SPECIAL PROJECT AIRCRAFT | | 7,620 | | 7,620 |
| 045 | T-45 SERIES | | 195,475 | | 195,475 |
| 046 | POWER PLANT CHANGES | | 21,521 | | 21,521 |
| 047 | JPATS SERIES | | 27,644 | | 27,644 |
| 048 | AVIATION LIFE SUPPORT MODS | | 15,864 | | 15,864 |

SEC. 4101. PROCUREMENT
(In Thousands of Dollars)

| Line | Item | FY 2019 Request | | House Change | | House Authorized | |
|------|--|-----------------|-----------|--------------|-----------|------------------|-----------|
| | | Qty | Cost | Qty | Cost | Qty | Cost |
| 049 | COMMON ECM EQUIPMENT | | 166,306 | | 25,000 | | 191,306 |
| | Navy UFR: F/A-18E/F Super Hornet Adaptive RADAR countermeasures .. | | | | [25,000] | | |
| 050 | COMMON AVIONICS CHANGES | | 117,551 | | -5,000 | | 112,551 |
| | Program decrease | | | | [-5,000] | | |
| 051 | COMMON DEFENSIVE WEAPON SYSTEM | | 1,994 | | | | 1,994 |
| 052 | ID SYSTEMS | | 40,696 | | | | 40,696 |
| 053 | P-8 SERIES | | 71,251 | | | | 71,251 |
| 054 | MAGTF EW FOR AVIATION | | 11,590 | | | | 11,590 |
| 055 | MQ-8 SERIES | | 37,907 | | | | 37,907 |
| 057 | V-22 (TILT/ROTOR ACFT) OSPREY | | 214,820 | | | | 214,820 |
| 058 | NEXT GENERATION JAMMER (NGJ) | | 952 | | | | 952 |
| 059 | F-35 STOVL SERIES | | 36,618 | | | | 36,618 |
| 060 | F-35 CV SERIES | | 21,236 | | | | 21,236 |
| 061 | QRC | | 101,499 | | | | 101,499 |
| 062 | MQ-4 SERIES | | 48,278 | | | | 48,278 |
| 063 | RQ-21 SERIES | | 6,904 | | | | 6,904 |
| | AIRCRAFT SPARES AND REPAIR PARTS | | | | | | |
| 064 | SPARES AND REPAIR PARTS | | 1,792,920 | | 40,000 | | 1,832,920 |
| | F-35B Spares | | | | [40,000] | | |
| | AIRCRAFT SUPPORT EQUIP & FACILITIES | | | | | | |
| 065 | COMMON GROUND EQUIPMENT | | 421,606 | | -10,000 | | 411,606 |
| | Program decrease | | | | [-10,000] | | |
| 066 | AIRCRAFT INDUSTRIAL FACILITIES | | 24,496 | | | | 24,496 |
| 067 | WAR CONSUMABLES | | 42,108 | | | | 42,108 |
| 068 | OTHER PRODUCTION CHARGES | | 1,444 | | | | 1,444 |
| 069 | SPECIAL SUPPORT EQUIPMENT | | 49,489 | | | | 49,489 |

| | | | | | | |
|-----|--|-------------------|------------|-----------------|------------|-------------------|
| 070 | FIRST DESTINATION TRANSPORTATION | 1,951 | | | | |
| | TOTAL AIRCRAFT PROCUREMENT, NAVY | 19,041,799 | 120 | -327,950 | 120 | 18,713,849 |
| | WEAPONS PROCUREMENT, NAVY | | | | | |
| | MODIFICATION OF MISSILES | | | | | |
| 001 | TRIDENT II MODS | 1,078,750 | | | | 1,078,750 |
| 002 | SUPPORT EQUIPMENT & FACILITIES | 6,998 | | | | 6,998 |
| | MISSILE INDUSTRIAL FACILITIES | | | | | |
| | STRATEGIC MISSILES | | | | | |
| 003 | TOMAHAWK | 98,570 | 198 | 114,800 | 198 | 213,370 |
| | Forward financed in the FY18 Omnibus | | | [-81,000] | | |
| | Program Increase—198 missile | | [198] | [216,000] | | |
| | Shutdown costs early to need | | | [-20,200] | | |
| | TACTICAL MISSILES | | | | | |
| 004 | AMRAAM | 211,058 | 140 | | 140 | 211,058 |
| 005 | SIDEWINDER | 77,927 | 191 | 45,000 | 250 | 122,927 |
| | Navy UFR: additional AIM 9-X missiles | | | [45,000] | | |
| 006 | JSOW | 1,330 | | | | 1,330 |
| 007 | STANDARD MISSILE | 490,210 | 125 | | 125 | 490,210 |
| 008 | ADVANCE PROCUREMENT (CY) | 125,683 | | | | 125,683 |
| 009 | SMALL DIAMETER BOMB II | 91,272 | 750 | | 750 | 91,272 |
| 010 | RAM | 96,221 | 120 | -2,300 | 120 | 93,921 |
| | Excess Production Support | | | [-2,300] | | |
| 011 | JOINT AIR GROUND MISSILE (JAGM) | 24,109 | 75 | | 75 | 24,109 |
| 014 | STAND OFF PRECISION GUIDED MUNITIONS (SOPGM) | 11,378 | 31 | | 31 | 11,378 |
| 015 | AERIAL TARGETS | 137,137 | | | | 137,137 |
| 016 | OTHER MISSILE SUPPORT | 3,318 | | | | 3,318 |
| 017 | LRASM | 81,190 | 25 | 30,000 | 35 | 111,190 |
| | Navy Unfunded Requirement | | | [30,000] | | |
| 018 | LCS OTH MISSILE | 18,156 | 8 | | 8 | 18,156 |
| | MODIFICATION OF MISSILES | | | | | |
| 019 | ESSM | 98,384 | 45 | -2,000 | 45 | 96,384 |

SEC. 4101. PROCUREMENT
(In Thousands of Dollars)

| Line | Item | FY 2019 Request | | House Change | | House Authorized | |
|------|---|-----------------|---------|--------------|----------|------------------|---------|
| | | Qty | Cost | Qty | Cost | Qty | Cost |
| | Excess Production Support | | | | [-2,000] | | |
| 020 | HARPOON MODS | | 14,840 | | | | 14,840 |
| 021 | HARM MODS | | 187,985 | | | | 187,985 |
| | SUPPORT EQUIPMENT & FACILITIES | | | | | | |
| 023 | WEAPONS INDUSTRIAL FACILITIES | | 2,006 | | | | 2,006 |
| 024 | FLEET SATELLITE COMM FOLLOW-ON | | 66,779 | | | | 66,779 |
| | ORDNANCE SUPPORT EQUIPMENT | | | | | | |
| 025 | ORDNANCE SUPPORT EQUIPMENT | | 62,008 | | | | 62,008 |
| | TORPEDOES AND RELATED EQUIP | | | | | | |
| 026 | SSTD | | 6,353 | | | | 6,353 |
| 027 | MK-48 TORPEDO | 45 | 92,616 | 5 | 11,000 | 50 | 103,616 |
| | Navy Unfunded Requirement | | | [5] | [11,000] | | |
| 028 | ASW TARGETS | | 12,324 | | | | 12,324 |
| | MOD OF TORPEDOES AND RELATED EQUIP | | | | | | |
| 029 | MK-54 TORPEDO MODS | | 105,946 | | -10,500 | | 95,446 |
| | HAAWC unit cost growth | | | | [-6,500] | | |
| | Non Recurring Engineering excess growth | | | | [-4,000] | | |
| 030 | MK-48 TORPEDO ADCAP MODS | | 40,005 | | | | 40,005 |
| 031 | QUICKSTRIKE MINE | | 9,758 | | | | 9,758 |
| | SUPPORT EQUIPMENT | | | | | | |
| 032 | TORPEDO SUPPORT EQUIPMENT | | 79,371 | | | | 79,371 |
| 033 | ASW RANGE SUPPORT | | 3,872 | | | | 3,872 |
| | DESTINATION TRANSPORTATION | | | | | | |
| 034 | FIRST DESTINATION TRANSPORTATION | | 3,726 | | | | 3,726 |
| | GUNS AND GUN MOUNTS | | | | | | |
| 035 | SMALL ARMS AND WEAPONS | | 15,067 | | | | 15,067 |

| | | | | | |
|-----|--|------------------|--------------|----------------|------------------|
| | MODIFICATION OF GUNS AND GUN MOUNTS | | | | |
| 036 | CIWS MODS | 63,318 | | 63,318 | |
| 037 | COAST GUARD WEAPONS | 40,823 | | 40,823 | |
| 038 | GUN MOUNT MODS | 74,618 | | 74,618 | |
| 039 | LCS MODULE WEAPONS | 11,350 | 90 | 5,550 | |
| | Mission Module Early to need | | | -5,800 | |
| 041 | AIRBORNE MINE NEUTRALIZATION SYSTEMS | 22,249 | | 22,249 | |
| | SPARES AND REPAIR PARTS | | | | |
| 043 | SPARES AND REPAIR PARTS | 135,688 | | 135,688 | |
| | Unjustified program cost growth | | | -5,000 | |
| | TOTAL WEAPONS PROCUREMENT, NAVY | 3,702,393 | 1,917 | 175,200 | 3,877,593 |
| | | | | | |
| | PROCUREMENT OF AMMO, NAVY & MC | | | | |
| | NAVY AMMUNITION | | | | |
| 001 | GENERAL PURPOSE BOMBS | 79,871 | | 79,871 | |
| 002 | JDAM | 87,900 | | 87,900 | |
| 003 | AIRBORNE ROCKETS, ALL TYPES | 151,431 | 3,688 | 151,431 | 3,688 |
| 004 | MACHINE GUN AMMUNITION | 11,344 | | 11,344 | |
| 005 | PRACTICE BOMBS | 49,471 | | 49,471 | |
| 006 | CARTRIDGES & CART ACTUATED DEVICES | 56,227 | | 56,227 | |
| 007 | AIR EXPENDABLE COUNTERMEASURES | 66,382 | | 66,382 | |
| 008 | JATOS | 2,907 | | 2,907 | |
| 009 | 5 INCH/54 GUN AMMUNITION | 72,657 | | 72,657 | |
| 010 | INTERMEDIATE CALIBER GUN AMMUNITION | 33,613 | | 33,613 | |
| 011 | OTHER SHIP GUN AMMUNITION | 42,142 | | 42,142 | |
| 012 | SMALL ARMS & LANDING PARTY AMMO | 49,888 | | 49,888 | |
| 013 | PYROTECHNIC AND DEMOLITION | 10,931 | | 10,931 | |
| 015 | AMMUNITION LESS THAN \$5 MILLION | 1,106 | | 1,106 | |
| | MARINE CORPS AMMUNITION | | | | |
| 019 | MORTARS | 28,266 | | 28,266 | |
| 021 | DIRECT SUPPORT MUNITIONS | 63,664 | | 63,664 | |
| 022 | INFANTRY WEAPONS AMMUNITION | 59,295 | | 59,295 | |

SEC. 4101. PROCUREMENT
(In Thousands of Dollars)

| Line | Item | FY 2019 Request | | House Change | | House Authorized | |
|------|---|-----------------|------------------|--------------|-------------|------------------|------------------|
| | | Qty | Cost | Qty | Cost | Qty | Cost |
| 026 | COMBAT SUPPORT MUNITIONS | | 31,577 | | | | 31,577 |
| 028 | AMMO MODERNIZATION | | 15,001 | | | | 15,001 |
| 029 | ARTILLERY MUNITIONS | | 86,297 | | | | 86,297 |
| 030 | ITEMS LESS THAN \$5 MILLION | | 6,239 | | | | 6,239 |
| | TOTAL PROCUREMENT OF AMMO, NAVY & MC | 3,688 | 1,006,209 | | | 3,688 | 1,006,209 |
| | SHIPBUILDING AND CONVERSION, NAVY | | | | | | |
| | FLEET BALLISTIC MISSILE SHIPS | | | | | | |
| 001 | ADVANCE PROCUREMENT (CY) | | 3,005,330 | | 82,700 | | 3,088,030 |
| | Accelerated Advance Procurement | | | | [150,000] | | |
| | Forward financed in the FY18 Omnibus for the foundry propeller center | | | | [-19,000] | | |
| | Ordnance Early to Need | | | | [-48,300] | | |
| | OTHER WARSHIPS | | | | | | |
| 002 | CARRIER REPLACEMENT PROGRAM | | 1,598,181 | 1 | -49,100 | 1 | 1,549,081 |
| | Authorize CVN81—One ship | | | [1] | | | |
| | Excess change order rate | | | | [-49,100] | | |
| 004 | VIRGINIA CLASS SUBMARINE | 2 | 4,373,382 | | 938,000 | 2 | 5,311,382 |
| | EQO AP for submarine in FY 2022 and 2023 | | | | [1,003,000] | | |
| | Excess change order rate | | | | [-20,000] | | |
| | Forward financed in the FY18 Omnibus | | | | [-45,000] | | |
| 005 | ADVANCE PROCUREMENT (CY) | | 2,796,401 | | | | 2,796,401 |
| 007 | ADVANCE PROCUREMENT (CY) | | 449,597 | | | | 449,597 |
| 008 | DDG 1000 | | 270,965 | | | | 270,965 |
| 009 | DDG-51 | 3 | 5,253,327 | | | 3 | 4,941,327 |
| | DDG Flight III Multiyear Procurement Savings | | | | [-312,000] | | |
| | Excessive Basic Construction Unit Cost Growth | | | | [-150,000] | | |
| | | | | | [-162,000] | | |

| | | | | | | |
|------|--|-------------------|-----------|----------|------------------|-------------------|
| 010 | ADVANCE PROCUREMENT (CY) | 391,928 | | | | 391,928 |
| 011 | LITTORAL COMBAT SHIP | 646,244 | 1 | | | 1,596,244 |
| | Program Increase—Two ships | | | 2 | 950,000 | |
| | | | | [2] | [950,000] | |
| | AMPHIBIOUS SHIPS | | | | | |
| 012A | ADVANCE PROCUREMENT (CY) | | | | 150,000 | 150,000 |
| | EOQ for LPD Flight II Multi-year Procurement | | | | [150,000] | |
| 013 | EXPEDITIONARY SEA BASE (ESB) | 650,000 | 1 | | | 630,000 |
| | Accelerated contracts learning curve | | | | [-20,000] | |
| | AUXILIARIES, CRAFT AND PRIOR YR PROGRAM COST | | | | | |
| 016 | TAO FLEET OILER | 977,104 | 2 | | | 957,104 |
| | Accelerated contracts learning curve | | | | [-20,000] | |
| 017 | ADVANCE PROCUREMENT (CY) | 75,046 | | | | 75,046 |
| 018 | TOWING, SALVAGE, AND RESCUE SHIP (ATS) | 80,517 | 1 | | | 75,517 |
| | Accelerated contracts learning curve | | | | [-5,000] | |
| 020 | LCU 1700 | 41,520 | 2 | | | 41,520 |
| 021 | OUTFITTING | 634,038 | | | | 589,038 |
| | Outfitting and Post Delivery early to need | | | | [-45,000] | |
| 022 | SHIP TO SHORE CONNECTOR | 325,375 | 5 | | | 507,875 |
| | Program Increase—Three vessels | | | 3 | 182,500 | |
| 023 | SERVICE CRAFT | 72,062 | | | | 72,062 |
| 024 | LCAC SLEP | 23,321 | 1 | | | 23,321 |
| 028 | COMPLETION OF PY SHIPBUILDING PROGRAMS | 207,099 | | | | 207,099 |
| | TOTAL SHIPBUILDING AND CONVERSION, NAVY | 21,871,437 | 18 | 6 | 1,852,100 | 23,723,537 |
| | OTHER PROCUREMENT, NAVY | | | | | |
| | SHIP PROPULSION EQUIPMENT | | | | | |
| 001 | SURFACE POWER EQUIPMENT | 19,700 | | | | 19,700 |
| | GENERATORS | | | | | |
| 003 | SURFACE COMBATANT HM&E | 23,495 | | | | 23,495 |
| | NAVIGATION EQUIPMENT | | | | | |
| 004 | OTHER NAVIGATION EQUIPMENT | 63,330 | | | | 63,330 |
| | OTHER SHIPBOARD EQUIPMENT | | | | | |

SEC. 4101. PROCUREMENT
(In Thousands of Dollars)

| Line | Item | FY 2019 Request | | House Change | | House Authorized | |
|------|---|-----------------|---------|--------------|-----------|------------------|---------|
| | | Qty | Cost | Qty | Cost | Qty | Cost |
| 005 | SUB PERISCOPE, IMAGING AND SUPT EQUIP PROG | | 178,421 | | | | 178,421 |
| 006 | DDG MOD | | 487,999 | | 103,200 | | 591,199 |
| | ANS Installation Unit Cost Growth | | | | [-4,800] | | |
| | Navy Unfunded Requirement | | | | [43,000] | | |
| | Program Increase—One additional Combat System | | | | [65,000] | | |
| 007 | FIREFIGHTING EQUIPMENT | | 28,143 | | | | 28,143 |
| 008 | COMMAND AND CONTROL SWITCHBOARD | | 2,248 | | | | 2,248 |
| 009 | LHA/LHD MIDLIFE | | 37,694 | | | | 37,694 |
| 010 | POLLUTION CONTROL EQUIPMENT | | 20,883 | | | | 20,883 |
| 011 | SUBMARINE SUPPORT EQUIPMENT | | 37,155 | | | | 37,155 |
| 012 | VIRGINIA CLASS SUPPORT EQUIPMENT | | 66,328 | | | | 66,328 |
| 013 | LCS CLASS SUPPORT EQUIPMENT | | 47,241 | | | | 47,241 |
| 014 | SUBMARINE BATTERIES | | 27,987 | | | | 27,987 |
| 015 | LPD CLASS SUPPORT EQUIPMENT | | 65,033 | | | | 65,033 |
| 016 | DDG 1000 CLASS SUPPORT EQUIPMENT | | 89,700 | | | | 89,700 |
| 017 | STRATEGIC PLATFORM SUPPORT EQUIP | | 22,254 | | | | 22,254 |
| 018 | DSSP EQUIPMENT | | 3,629 | | | | 3,629 |
| 019 | CG MODERNIZATION | | 276,446 | | -3,900 | | 272,546 |
| | Integrated Ship Controls Unit Cost Growth | | | | [-3,900] | | |
| 020 | LCAC | | 3,709 | | | | 3,709 |
| 021 | UNDERWATER EOD PROGRAMS | | 78,807 | | -30,400 | | 48,407 |
| | Insufficient transition strategy | | | | [-30,400] | | |
| 022 | ITEMS LESS THAN \$5 MILLION | | 126,865 | | | | 126,865 |
| 023 | CHEMICAL WARFARE DETECTORS | | 2,966 | | | | 2,966 |
| 024 | SUBMARINE LIFE SUPPORT SYSTEM | | 11,968 | | | | 11,968 |
| | REACTOR PLANT EQUIPMENT | | | | | | |

| | | | | |
|-----|--|---------|------------|---------|
| 025 | REACTOR POWER UNITS | 346,325 | -346,325 | 0 |
| | Early to need | | [-346,325] | |
| 026 | REACTOR COMPONENTS | 497,063 | | 497,063 |
| | OCEAN ENGINEERING | | | |
| 027 | DIVING AND SALVAGE EQUIPMENT | 10,706 | | 10,706 |
| | SMALL BOATS | | | |
| 028 | STANDARD BOATS | 49,771 | | 49,771 |
| | PRODUCTION FACILITIES EQUIPMENT | | | |
| 029 | OPERATING FORCES IPE | 225,181 | | 225,181 |
| | OTHER SHIP SUPPORT | | | |
| 031 | LCS COMMON MISSION MODULES EQUIPMENT | 46,732 | | 46,732 |
| 032 | LCS MCM MISSION MODULES | 124,147 | | 124,147 |
| 033 | LCS ASW MISSION MODULES | 57,294 | | 7,394 |
| | Late test event for VDS and MFTA | | -49,900 | |
| 034 | LCS SUW MISSION MODULES | 26,006 | | 15,006 |
| | Surface to Surface MM Early to need | | -11,000 | |
| 035 | LCS IN-SERVICE MODERNIZATION | 70,526 | | 70,526 |
| | LOGISTIC SUPPORT | | | |
| 036 | LSD MIDLIFE & MODERNIZATION | 4,784 | | 4,784 |
| | SHIP SONARS | | | |
| 037 | SPO-9B RADAR | 20,309 | | 20,309 |
| 038 | AMS/QQ-89 SURF ASW COMBAT SYSTEM | 115,459 | | 115,459 |
| 039 | SSN ACOUSTIC EQUIPMENT | 318,189 | | 318,189 |
| 040 | UNDERSEA WARFARE SUPPORT EQUIPMENT | 10,134 | | 10,134 |
| | ASW ELECTRONIC EQUIPMENT | | | |
| 041 | SUBMARINE ACOUSTIC WARFARE SYSTEM | 23,815 | | 23,815 |
| 042 | SSTD | 11,277 | | 11,277 |
| 043 | FIXED SURVEILLANCE SYSTEM | 237,780 | | 207,780 |
| | Forward financed in the FY18 Omnibus | | -30,000 | |
| 044 | SURTASS | 57,872 | | 47,872 |
| | Forward financed in the FY18 Omnibus for SURTASS-E | | -10,000 | |
| | Forward financed in the FY18 Omnibus for SURTASS-E | | [-10,000] | |
| | ELECTRONIC WARFARE EQUIPMENT | | | |

SEC. 4101. PROCUREMENT
(In Thousands of Dollars)

| Line | Item | FY 2019 Request | | House Change | | House Authorized | |
|------|---|-----------------|---------|--------------|-----------|------------------|---------|
| | | Qty | Cost | Qty | Cost | Qty | Cost |
| 045 | AMSLQ-32 | | 420,344 | | -23,100 | | 397,244 |
| | Excess Ship Installation Unit Cost Growth | | | | [-23,100] | | |
| | RECONNAISSANCE EQUIPMENT | | | | | | |
| 046 | SHIPBOARD IW EXPLOIT | | 220,883 | | | | 220,883 |
| 047 | AUTOMATED IDENTIFICATION SYSTEM (AIS) | | 4,028 | | | | 4,028 |
| | OTHER SHIP ELECTRONIC EQUIPMENT | | | | | | |
| 048 | COOPERATIVE ENGAGEMENT CAPABILITY | | 44,173 | | -1,600 | | 42,573 |
| | Excess Production Engineering Support | | | | [-1,600] | | |
| 049 | NAVAL TACTICAL COMMAND SUPPORT SYSTEM (NTCSS) | | 10,991 | | | | 10,991 |
| 050 | ATDLS | | 34,526 | | | | 34,526 |
| 051 | NAVY COMMAND AND CONTROL SYSTEM (NCCS) | | 3,769 | | | | 3,769 |
| 052 | MINESWEEPING SYSTEM REPLACEMENT | | 35,709 | | | | 35,709 |
| 053 | SHALLOW WATER MCM | | 8,616 | | | | 8,616 |
| 054 | NAVSTAR GPS RECEIVERS (SPACE) | | 10,703 | | | | 10,703 |
| 055 | AMERICAN FORCES RADIO AND TV SERVICE | | 2,626 | | | | 2,626 |
| 056 | STRATEGIC PLATFORM SUPPORT EQUIP | | 9,467 | | | | 9,467 |
| | AVIATION ELECTRONIC EQUIPMENT | | | | | | |
| 057 | ASHORE ATC EQUIPMENT | | 70,849 | | | | 70,849 |
| 058 | AFLOAT ATC EQUIPMENT | | 47,890 | | | | 47,890 |
| 059 | ID SYSTEMS | | 26,163 | | | | 26,163 |
| 060 | JOINT PRECISION APPROACH AND LANDING SYSTEM (..... | | 38,094 | | | | 38,094 |
| 061 | NAVAL MISSION PLANNING SYSTEMS | | 11,966 | | | | 11,966 |
| | OTHER SHORE ELECTRONIC EQUIPMENT | | | | | | |
| 062 | TACTICAL/MOBILE C-4I SYSTEMS | | 42,010 | | | | 42,010 |
| 063 | DCGS-N | | 12,896 | | | | 12,896 |
| 064 | CANES | | 423,027 | | | | 423,027 |

| | | | |
|-----|---|----------|---------|
| 065 | RADIAC | 8,175 | 8,175 |
| 066 | CANES-INTELL | 54,465 | 54,465 |
| 067 | GPETE | 5,985 | 5,985 |
| 068 | MAF | 5,413 | 5,413 |
| 069 | INTEG COMBAT SYSTEM TEST FACILITY | 6,251 | 6,251 |
| 070 | EMI CONTROL INSTRUMENTATION | 4,183 | 4,183 |
| 071 | ITEMS LESS THAN \$5 MILLION | 148,350 | 148,350 |
| | SHIPBOARD COMMUNICATIONS | | |
| 072 | SHIPBOARD TACTICAL COMMUNICATIONS | 45,450 | 45,450 |
| 073 | SHIP COMMUNICATIONS AUTOMATION | 105,087 | 105,087 |
| 074 | COMMUNICATIONS ITEMS UNDER \$5M | 41,123 | 41,123 |
| | SUBMARINE COMMUNICATIONS | | |
| 075 | SUBMARINE BROADCAST SUPPORT | 30,897 | 30,897 |
| 076 | SUBMARINE COMMUNICATION EQUIPMENT | 78,580 | 78,580 |
| | SATELLITE COMMUNICATIONS | | |
| 077 | SATELLITE COMMUNICATIONS SYSTEMS | 41,205 | 41,205 |
| 078 | NAVY MULTIBAND TERMINAL (NMT) | 113,885 | 113,885 |
| | SHORE COMMUNICATIONS | | |
| 079 | JOINT COMMUNICATIONS SUPPORT ELEMENT (JCSE) | 4,292 | 4,292 |
| | CRYPTOGRAPHIC EQUIPMENT | | |
| 080 | INFO SYSTEMS SECURITY PROGRAM (ISSP) | 153,526 | 153,526 |
| 081 | MIO INTEL EXPLOITATION TEAM | 951 | 951 |
| | CRYPTOLOGIC EQUIPMENT | | |
| 082 | CRYPTOLOGIC COMMUNICATIONS EQUIP | 14,209 | 14,209 |
| | OTHER ELECTRONIC SUPPORT | | |
| 086 | COAST GUARD EQUIPMENT | 40,713 | 40,713 |
| | SONOBUOYS | | |
| 088 | SONOBUOYS—ALL TYPES | 177,891 | 177,891 |
| | Navy Unfunded Requirement | 38,300 | 38,300 |
| | | [38,300] | |
| | AIRCRAFT SUPPORT EQUIPMENT | | |
| 089 | WEAPONS RANGE SUPPORT EQUIPMENT | 93,864 | 93,864 |
| 090 | AIRCRAFT SUPPORT EQUIPMENT | 111,724 | 111,724 |

SEC. 4101. PROCUREMENT
(In Thousands of Dollars)

| Line | Item | FY 2019 Request | | House Change | | House Authorized | |
|------|---|-----------------|---------|--------------|----------|------------------|---------|
| | | Qty | Cost | Qty | Cost | Qty | Cost |
| 091 | ADVANCED ARRESTING GEAR (AAG) | | 11,054 | | | | 11,054 |
| 092 | METEOROLOGICAL EQUIPMENT | | 21,072 | | | | 21,072 |
| 093 | DCRS/DPL | | 656 | | | | 656 |
| 094 | AIRBORNE MINE COUNTERMEASURES | | 11,299 | | | | 11,299 |
| 095 | LAMPS EQUIPMENT | | 594 | | | | 594 |
| 096 | AVIATION SUPPORT EQUIPMENT | | 39,374 | | | | 39,374 |
| 097 | UMCS-UNMAN CARRIER AVIATION(UCA)MISSION CNTRL | | 35,405 | | | | 35,405 |
| | SHIP GUN SYSTEM EQUIPMENT | | | | | | |
| 098 | SHIP GUN SYSTEMS EQUIPMENT | | 5,337 | | | | 5,337 |
| | SHIP MISSILE SYSTEMS EQUIPMENT | | | | | | |
| 099 | SHIP MISSILE SUPPORT EQUIPMENT | | 213,090 | | -5,000 | | 208,090 |
| | Unjustified Stalker Growth | | | | [-5,000] | | |
| 100 | TOMAHAWK SUPPORT EQUIPMENT | | 92,890 | | | | 92,890 |
| | FBM SUPPORT EQUIPMENT | | | | | | |
| 101 | STRATEGIC MISSILE SYSTEMS EQUIP | | 271,817 | | | | 271,817 |
| | ASW SUPPORT EQUIPMENT | | | | | | |
| 102 | SSN COMBAT CONTROL SYSTEMS | | 129,501 | | -5,500 | | 124,001 |
| | Excessive Unit Cost Growth for Install | | | | [-5,500] | | |
| 103 | ASW SUPPORT EQUIPMENT | | 19,436 | | | | 19,436 |
| | OTHER ORDNANCE SUPPORT EQUIPMENT | | | | | | |
| 104 | EXPLOSIVE ORDNANCE DISPOSAL EQUIP | | 14,258 | | | | 14,258 |
| 105 | ITEMS LESS THAN \$5 MILLION | | 5,378 | | | | 5,378 |
| | OTHER EXPENDABLE ORDNANCE | | | | | | |
| 106 | SUBMARINE TRAINING DEVICE MODS | | 65,543 | | | | 65,543 |
| 107 | SURFACE TRAINING EQUIPMENT | | 230,425 | | | | 230,425 |
| | CIVIL ENGINEERING SUPPORT EQUIPMENT | | | | | | |

| | | | |
|------|--|---------|----------|
| 108 | PASSENGER CARRYING VEHICLES | 4,867 | 4,867 |
| 109 | GENERAL PURPOSE TRUCKS | 2,674 | 2,674 |
| 110 | CONSTRUCTION & MAINTENANCE EQUIP | 20,994 | 20,994 |
| 111 | FIRE FIGHTING EQUIPMENT | 17,189 | 17,189 |
| 112 | TACTICAL VEHICLES | 19,916 | 19,916 |
| 113 | AMPHIBIOUS EQUIPMENT | 7,400 | 7,400 |
| 114 | POLLUTION CONTROL EQUIPMENT | 2,713 | 2,713 |
| 115 | ITEMS UNDER \$5 MILLION | 35,540 | 35,540 |
| 116 | PHYSICAL SECURITY VEHICLES | 1,155 | 1,155 |
| | SUPPLY SUPPORT EQUIPMENT | | |
| 117 | SUPPLY EQUIPMENT | 18,786 | 18,786 |
| 118 | FIRST DESTINATION TRANSPORTATION | 5,375 | 5,375 |
| 119 | SPECIAL PURPOSE SUPPLY SYSTEMS | 580,371 | 580,371 |
| | TRAINING DEVICES | | |
| 120 | TRAINING SUPPORT EQUIPMENT | 3,400 | 3,400 |
| 121 | TRAINING AND EDUCATION EQUIPMENT | 24,283 | 24,283 |
| | Excess Production Support | | -2,100 |
| | | | [-2,100] |
| | COMMAND SUPPORT EQUIPMENT | | |
| 122 | COMMAND SUPPORT EQUIPMENT | 66,681 | 66,681 |
| 123 | MEDICAL SUPPORT EQUIPMENT | 3,352 | 3,352 |
| 125 | NAVAL MIP SUPPORT EQUIPMENT | 1,984 | 1,984 |
| 126 | OPERATING FORCES SUPPORT EQUIPMENT | 15,131 | 15,131 |
| 127 | C4ISR EQUIPMENT | 3,576 | 3,576 |
| 128 | ENVIRONMENTAL SUPPORT EQUIPMENT | 31,902 | 31,902 |
| 129 | PHYSICAL SECURITY EQUIPMENT | 175,436 | 175,436 |
| 130 | ENTERPRISE INFORMATION TECHNOLOGY | 25,393 | 25,393 |
| | OTHER | | |
| 133 | NEXT GENERATION ENTERPRISE SERVICE | 96,269 | 96,269 |
| | CLASSIFIED PROGRAMS | | |
| 133A | CLASSIFIED PROGRAMS | 15,681 | 15,681 |
| | SPARES AND REPAIR PARTS | | |
| 134 | SPARES AND REPAIR PARTS | 326,838 | 326,838 |

SEC. 4101. PROCUREMENT
(In Thousands of Dollars)

| Line | Item | FY 2019 Request | | House Change | | House Authorized | |
|------|--|-----------------|-----------|--------------|-----------|------------------|-----------|
| | | Qty | Cost | Qty | Cost | Qty | Cost |
| | TOTAL OTHER PROCUREMENT, NAVY | | 9,414,355 | | -377,325 | | 9,037,030 |
| | PROCUREMENT, MARINE CORPS | | | | | | |
| | TRACKED COMBAT VEHICLES | | | | | | |
| 001 | AAV7A1 PIP | | 156,249 | | -20,000 | | 136,249 |
| | Program reduction | | | | [-20,000] | | |
| 002 | AMPHIBIOUS COMBAT VEHICLE 1.1 | 30 | 167,478 | | | 30 | 167,478 |
| 003 | LAV PIP | | 43,701 | | | | 43,701 |
| | ARTILLERY AND OTHER WEAPONS | | | | | | |
| 005 | 155MM LIGHTWEIGHT TOWED HOWITZER | | 47,158 | | | | 47,158 |
| 006 | ARTILLERY WEAPONS SYSTEM | | 134,246 | | | | 134,246 |
| 007 | WEAPONS AND COMBAT VEHICLES UNDER \$5 MILLION | | 40,687 | | | | 40,687 |
| | OTHER SUPPORT | | | | | | |
| 008 | MODIFICATION KITS | | 22,904 | | | | 22,904 |
| | GUIDED MISSILES | | | | | | |
| 009 | GROUND BASED AIR DEFENSE | | 18,334 | | | | 18,334 |
| 010 | ANTI-ARMOR MISSILE-JAVELIN | | 3,020 | | | 5 | 3,020 |
| 011 | FAMILY ANTI-ARMOR WEAPON SYSTEMS (FOAWS) | | 13,760 | | | | 13,760 |
| 012 | ANTI-ARMOR MISSILE-TOW | | 59,702 | | | | 59,702 |
| | COMMAND AND CONTROL SYSTEMS | | | | | | |
| 013 | COMMON AVIATION COMMAND AND CONTROL SYSTEM (C) | | 35,467 | | | | 35,467 |
| | REPAIR AND TEST EQUIPMENT | | | | | | |
| 014 | REPAIR AND TEST EQUIPMENT | | 46,081 | | -4,600 | | 41,481 |
| | Program Reduction | | | | [-4,600] | | |
| | OTHER SUPPORT (TEL) | | | | | | |
| 015 | MODIFICATION KITS | | 971 | | | | 971 |

| | | | | | | | | | | |
|------|---|---------|-----------|---------|---|--|--|--|--|--|
| 016 | COMMAND AND CONTROL SYSTEM (NON-TEL) | | | | | | | | | |
| | ITEMS UNDER \$5 MILLION (COMM & ELEC) | 69,203 | -7,000 | 62,203 | | | | | | |
| | Program Reduction | | [-7,000] | | | | | | | |
| 017 | AIR OPERATIONS C2 SYSTEMS | 14,269 | | 14,269 | | | | | | |
| | RADAR + EQUIPMENT (NON-TEL) | | | | | | | | | |
| 018 | RADAR SYSTEMS | 6,694 | | 6,694 | | | | | | |
| 019 | GROUND/AIR TASK ORIENTED RADAR (G/ATOR) | 224,969 | | 224,969 | 6 | | | | | |
| | INTELL/COMM EQUIPMENT (NON-TEL) | | | | | | | | | |
| 021 | GCSS-MC | 1,187 | | 1,187 | | | | | | |
| 022 | FIRE SUPPORT SYSTEM | 60,189 | | 60,189 | | | | | | |
| 023 | INTELLIGENCE SUPPORT EQUIPMENT | 73,848 | | 73,848 | | | | | | |
| | Unjustified request for TSCS Inc 1 | | -6,000 | | | | | | | |
| 025 | UNMANNED AIR SYSTEMS (INTEL) | 3,848 | | 3,848 | | | | | | |
| 026 | DCGS-MC | 16,081 | | 16,081 | | | | | | |
| | OTHER SUPPORT (NON-TEL) | | | | | | | | | |
| 030 | NEXT GENERATION ENTERPRISE NETWORK (NGEN) | 87,120 | | 87,120 | | | | | | |
| 031 | COMMON COMPUTER RESOURCES | 68,914 | | 68,914 | | | | | | |
| 032 | COMMAND POST SYSTEMS | 124,838 | | 124,838 | | | | | | |
| 033 | RADIO SYSTEMS | 279,680 | -15,000 | 264,680 | | | | | | |
| | Program reduction | | [-15,000] | | | | | | | |
| 034 | COMM SWITCHING & CONTROL SYSTEMS | 36,649 | | 36,649 | | | | | | |
| 035 | COMM & ELEC INFRASTRUCTURE SUPPORT | 83,971 | | 83,971 | | | | | | |
| | CLASSIFIED PROGRAMS | | | | | | | | | |
| 035A | CLASSIFIED PROGRAMS | 3,626 | | 3,626 | | | | | | |
| | ADMINISTRATIVE VEHICLES | | | | | | | | | |
| 036 | COMMERCIAL CARGO VEHICLES | 25,441 | | 25,441 | | | | | | |
| | TACTICAL VEHICLES | | | | | | | | | |
| 037 | MOTOR TRANSPORT MODIFICATIONS | 11,392 | | 11,392 | | | | | | |
| 038 | JOINT LIGHT TACTICAL VEHICLE | 607,011 | 214 | 607,011 | | | | | | |
| | Optimize production profile | | [214] | | | | | | | |
| 039 | FAMILY OF TACTICAL TRAILERS | 2,393 | | 2,393 | | | | | | |
| 040 | TRAILERS | 6,540 | | 6,540 | | | | | | |

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SEC. 4101. PROCUREMENT
(In Thousands of Dollars)

| Line | Item | FY 2019 Request | | House Change | | House Authorized | |
|--|---|-----------------|------------------|--------------|---------------|------------------|------------------|
| | | Qty | Cost | Qty | Cost | Qty | Cost |
| ENGINEER AND OTHER EQUIPMENT | | | | | | | |
| 041 | ENVIRONMENTAL CONTROL EQUIP ASSORT | | 496 | | | | 496 |
| 042 | TACTICAL FUEL SYSTEMS | | 54 | | | | 54 |
| 043 | POWER EQUIPMENT ASSORTED | | 21,062 | | | | 21,062 |
| 044 | AMPHIBIOUS SUPPORT EQUIPMENT | | 5,290 | | | | 5,290 |
| 045 | EOD SYSTEMS | | 47,854 | | | | 47,854 |
| MATERIALS HANDLING EQUIPMENT | | | | | | | |
| 046 | PHYSICAL SECURITY EQUIPMENT | | 28,306 | | | | 28,306 |
| GENERAL PROPERTY | | | | | | | |
| 047 | FIELD MEDICAL EQUIPMENT | | 33,513 | | | | 33,513 |
| 048 | TRAINING DEVICES | | 52,040 | | | | 52,040 |
| 049 | FAMILY OF CONSTRUCTION EQUIPMENT | | 36,156 | | 3,500 | | 39,656 |
| | GPS Grade Control Systems (GCS) and Survey Sets | | | | [3,500] | | |
| 050 | FAMILY OF INTERNALLY TRANSPORTABLE VEH (ITV) | | 606 | | | | 606 |
| OTHER SUPPORT | | | | | | | |
| 051 | ITEMS LESS THAN \$5 MILLION | | 11,608 | | | | 11,608 |
| SPARES AND REPAIR PARTS | | | | | | | |
| 053 | SPARES AND REPAIR PARTS | | 25,804 | | | | 25,804 |
| | TOTAL PROCUREMENT, MARINE CORPS | 41 | 2,860,410 | 214 | 19,900 | 255 | 2,880,310 |
| AIRCRAFT PROCUREMENT, AIR FORCE | | | | | | | |
| TACTICAL FORCES | | | | | | | |
| 001 | F-35 | 48 | 4,261,021 | | -83,340 | 48 | 4,177,681 |
| | Production Efficiencies | | | | [-83,340] | | |
| 002 | ADVANCE PROCUREMENT (CY) | | 406,000 | | | | 406,000 |
| OTHER COMBAT AIRCRAFT | | | | | | | |

| | | | | | | |
|-----|---|----|-----------|------|------------|-----------|
| 003 | C-135B | 2 | 222,176 | -2 | -222,176 | 0 |
| | Ahead of need | | | [-2] | [-222,176] | |
| | TACTICAL AIRLIFT | | | | | |
| 004 | C-130J | | 35,858 | | | 35,858 |
| 005 | KC-46A TANKER | 15 | 2,559,911 | -3 | -549,000 | 2,010,911 |
| | Forward financed in the FY18 Omnibus—three aircraft | | | [-3] | [-499,000] | |
| | Interim contractor support early to need | | | | [-50,000] | |
| | OTHER AIRLIFT | | | | | |
| 007 | HC-130J | 1 | 129,437 | | | 129,437 |
| 009 | MC-130J | 6 | 770,201 | | -100,000 | 670,201 |
| | Interim supply support costs unjustified growth | | | | [-100,000] | |
| 010 | ADVANCE PROCUREMENT (CY) | | 218,000 | | | 218,000 |
| | HELICOPTERS | | | | | |
| 012 | COMBAT RESCUE HELICOPTER | 10 | 680,201 | | | 680,201 |
| 014 | MISSION SUPPORT AIRCRAFT | | | | | |
| | CIVIL AIR PATROL A/C | 4 | 2,719 | | | 2,719 |
| | OTHER AIRCRAFT | | | | | |
| 015 | TARGET DRONES | 48 | 139,053 | | | 139,053 |
| 016 | COMPASS CALL MODS | 1 | 108,113 | | | 108,113 |
| 018 | MQ-9 | 8 | 221,707 | 2 | 42,800 | 264,507 |
| | Program increase | | | [2] | [42,800] | |
| | STRATEGIC AIRCRAFT | | | | | |
| 020 | B-2A | | 60,301 | | -23,000 | 37,301 |
| | MOP modifications excess to need | | | | [-23,000] | |
| 021 | B-1B | | 51,290 | | | 51,290 |
| 022 | B-52 | | 105,519 | | -14,700 | 90,819 |
| | Technical adjustment (move to R-173) | | | | [-14,700] | |
| | TACTICAL AIRCRAFT | | | | | |
| 024 | A-10 | | 98,720 | | 65,000 | 163,720 |
| | Additional A-10 wing replacements | | | | [65,000] | |
| 025 | C-130J | | 10,831 | | | 10,831 |
| 026 | F-15 | | 548,109 | | | 548,109 |

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SEC. 4101. PROCUREMENT
(In Thousands of Dollars)

| Line | Item | FY 2019 Request | | House Change | | House Authorized | |
|------|--|-----------------|---------|--------------|----------|------------------|---------|
| | | Qty | Cost | Qty | Cost | Qty | Cost |
| 027 | F-16 | | 324,312 | | | | 324,312 |
| 028 | F-16 | | 11 | | | | 11 |
| 029 | F-22A | | 250,710 | | | | 250,710 |
| 031 | F-35 MODIFICATIONS | | 247,271 | | | | 247,271 |
| 032 | F-15 EPAW | | 147,685 | | 67,200 | | 214,885 |
| | Eagle Passive Active Warning and Survivability System (EPAWSS) | | | | [67,200] | | |
| 033 | INCREMENT 3.2B | | 9,007 | | | | 9,007 |
| 035 | KC-46A TANKER | | 8,547 | | | | 8,547 |
| | AIRLIFT AIRCRAFT | | | | | | |
| 036 | C-5 | | 77,845 | | | | 77,845 |
| 038 | C-17A | | 102,121 | | | | 102,121 |
| 039 | C-21 | | 17,516 | | | | 17,516 |
| 040 | C-32A | | 4,537 | | | | 4,537 |
| 041 | C-37A | | 419 | | | | 419 |
| | TRAINER AIRCRAFT | | | | | | |
| 043 | GLIDER MODS | | 137 | | | | 137 |
| 044 | T-6 | | 22,550 | | | | 22,550 |
| 045 | T-1 | | 21,952 | | | | 21,952 |
| 046 | T-38 | | 70,623 | | | | 70,623 |
| | OTHER AIRCRAFT | | | | | | |
| 047 | U-2 MODS | | 48,774 | | | | 48,774 |
| 048 | KC-10A (ATCA) | | 11,104 | | | | 11,104 |
| 049 | C-12 | | 4,900 | | | | 4,900 |
| 050 | VC-25A MOD | | 36,938 | | | | 36,938 |
| 051 | C-40 | | 251 | | | | 251 |
| 052 | C-130 | | 22,094 | | 129,000 | | 151,094 |

SEC. 4101. PROCUREMENT
(In Thousands of Dollars)

| Line | Item | FY 2019 Request | | House Change | | House Authorized | |
|------|--|-----------------|-------------------|--------------|-----------------|------------------|-------------------|
| | | Qty | Cost | Qty | Cost | Qty | Cost |
| 083 | F-16 | | 11,718 | | -4,000 | | 7,718 |
| | F-16 Line Shutdown | | | | [-4,000] | | |
| 084 | F-22A | | 14,489 | | | | 14,489 |
| 085 | OTHER AIRCRAFT | | 9,928 | | | | 9,928 |
| 086 | RQ-4 POST PRODUCTION CHARGES | | 40,641 | | -37,300 | | 3,341 |
| | RQ-4 Post Production Support | | | | [-37,300] | | |
| | INDUSTRIAL PREPAREDNESS | | | | | | |
| 088 | INDUSTRIAL RESPONSIVENESS | | 17,378 | | | | 17,378 |
| | WAR CONSUMABLES | | | | | | |
| 090 | WAR CONSUMABLES | | 29,342 | | | | 29,342 |
| | OTHER PRODUCTION CHARGES | | | | | | |
| 091 | OTHER PRODUCTION CHARGES | | 1,502,386 | | -109,000 | | 1,393,386 |
| | Classified program adjustment | | | | [-109,000] | | |
| | CLASSIFIED PROGRAMS | | | | | | |
| 095 | CLASSIFIED PROGRAMS | | 28,278 | | | | 28,278 |
| | TOTAL AIRCRAFT PROCUREMENT, AIR FORCE | 143 | 16,206,937 | -2 | -673,516 | 141 | 15,533,421 |
| | MISSILE PROCUREMENT, AIR FORCE | | | | | | |
| | MISSILE REPLACEMENT EQUIPMENT—BALLISTIC | | | | | | |
| 001 | MISSILE REPLACEMENT EQ-BALLISTIC | | 36,786 | | | | 36,786 |
| | TACTICAL | | | | | | |
| 002 | JOINT AIR-SURFACE STANDOFF MISSILE | 312 | 430,708 | | | 312 | 430,708 |
| 003 | LRASMO | 12 | 44,185 | | | 12 | 44,185 |
| 004 | SIDEWINDER (AIM-9X) | 256 | 121,253 | | | 256 | 121,253 |
| 005 | AMRAAM | 220 | 337,886 | | | 220 | 337,886 |
| 006 | PREDATOR HELLFIRE MISSILE | 1,338 | 113,765 | | | 1,338 | 113,765 |

| | | | | | | |
|-----|---|------------------|--------------|------------------|--------------|------------------|
| 007 | SMALL DIAMETER BOMB | 105,034 | 2,917 | 105,034 | 2,917 | 105,034 |
| 008 | SMALL DIAMETER BOMB II | 100,861 | 510 | 100,861 | 510 | 100,861 |
| | INDUSTRIAL FACILITIES | | | | | |
| 009 | INDUSTRI'L PREPAREDNS/POL PREVENTION | 787 | | 787 | | 787 |
| | CLASS IV | | | | | |
| 010 | ICBM FUZE MOD | 15,767 | | 15,767 | | 15,767 |
| 011 | ADVANCE PROCUREMENT (CY) | 4,100 | | 4,100 | | 4,100 |
| 012 | MM III MODIFICATIONS | 129,199 | | 129,199 | | 129,199 |
| 013 | AGM-65D MAYERICK | 288 | | 288 | | 288 |
| 014 | AIR LAUNCH CRUISE MISSILE (ALCM) | 47,632 | | 47,632 | | 47,632 |
| | MISSILE SPARES AND REPAIR PARTS | | | | | |
| 016 | REPLEN SPARES/REPAIR PARTS | 97,481 | | 97,481 | | 97,481 |
| | SPECIAL PROGRAMS | | | | | |
| 018 | SPECIAL UPDATE PROGRAMS | 188,539 | | 188,539 | | 188,539 |
| | CLASSIFIED PROGRAMS | | | | | |
| 019 | CLASSIFIED PROGRAMS | 895,183 | | 895,183 | | 895,183 |
| | TOTAL MISSILE PROCUREMENT, AIR FORCE | 2,669,454 | 5,565 | 2,669,454 | 5,565 | 2,669,454 |
| | SPACE PROCUREMENT, AIR FORCE | | | | | |
| | SPACE PROGRAMS | | | | | |
| 001 | ADVANCED EHF | 29,829 | | 29,829 | | 29,829 |
| 002 | AF SATELLITE COMM SYSTEM | 35,400 | | 35,400 | | 35,400 |
| 003 | COUNTERSPACE SYSTEMS | 1,121 | | 1,121 | | 1,121 |
| 004 | FAMILY OF BEYOND LINE-OF-SIGHT TERMINALS | 27,867 | | 27,867 | | 27,867 |
| 005 | WIDEBAND GAPPILLER SATELLITES(SPACE) | 61,606 | | 61,606 | | 61,606 |
| 006 | GENERAL INFORMATION TECH—SPACE | 3,425 | | 3,425 | | 3,425 |
| 007 | GPS III SPACE SEGMENT | 69,386 | | 69,386 | | 74,386 |
| | GPS backup technology demonstration | | | | 5,000 | |
| | | | | | [5,000] | |
| 008 | GLOBAL POSITIONING (SPACE) | 2,181 | | 2,181 | | 2,181 |
| 009 | INTEG BROADCAST SERV | 16,445 | | 16,445 | | 16,445 |
| 010 | SPACEBORNE EQUIP (COMSEC) | 31,895 | | 31,895 | | 31,895 |
| 012 | MILSATCOM | 11,265 | | 11,265 | | 11,265 |

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SEC. 4101. PROCUREMENT
(In Thousands of Dollars)

| Line | Item | FY 2019 Request | | House Change | | House Authorized | |
|------|---|-----------------|------------------|--------------|--------------|------------------|------------------|
| | | Qty | Cost | Qty | Cost | Qty | Cost |
| 013 | EVOLVED EXPENDABLE LAUNCH CAPABILITY | | 709,981 | | | | 709,981 |
| 014 | EVOLVED EXPENDABLE LAUNCH VEH(SPACE) | 5 | 994,555 | | | 5 | 994,555 |
| 015 | SBIR HIGH (SPACE) | | 138,397 | | | | 138,397 |
| 017 | NUDET DETECTION SYSTEM | | 7,705 | | | | 7,705 |
| 018 | ROCKET SYSTEMS LAUNCH PROGRAM | | 47,609 | | | | 47,609 |
| 019 | SPACE FENCE | | 51,361 | | | | 51,361 |
| 020 | SPACE MODS | | 148,065 | | | | 148,065 |
| 021 | SPACELIFT RANGE SYSTEM SPACE | | 117,637 | | | | 117,637 |
| | SPARES | | | | | | |
| 022 | SPARES AND REPAIR PARTS | | 21,812 | | | | 21,812 |
| | TOTAL SPACE PROCUREMENT, AIR FORCE | 5 | 2,527,542 | | 5,000 | 5 | 2,532,542 |
| | | | | | | | 360 |
| | PROCUREMENT OF AMMUNITION, AIR FORCE | | | | | | |
| | ROCKETS | | | | | | |
| 001 | ROCKETS | | 345,911 | | | | 345,911 |
| | CARTRIDGES | | | | | | |
| 002 | CARTRIDGES | | 163,840 | | | | 163,840 |
| | BOMBS | | | | | | |
| 003 | PRACTICE BOMBS | | 20,876 | | | | 20,876 |
| 004 | GENERAL PURPOSE BOMBS | | 259,308 | | | | 259,308 |
| 005 | MASSIVE ORDNANCE PENETRATOR (MOP) | | 38,111 | | | | 38,111 |
| 006 | JOINT DIRECT ATTACK MUNITION | 7,899 | 234,198 | | | 7,899 | 234,198 |
| 007 | B61 | 250 | 109,292 | | | 250 | 109,292 |
| 008 | ADVANCE PROCUREMENT (CY) | | 52,731 | | | | 52,731 |
| | OTHER ITEMS | | | | | | |
| 009 | CAD/PAD | | 51,455 | | | | 51,455 |

| | | | | |
|-----|---|------------------|---------------|------------------|
| 010 | EXPLOSIVE ORDNANCE DISPOSAL (EOD) | 6,038 | | 6,038 |
| 011 | SPARES AND REPAIR PARTS | 524 | | 524 |
| 012 | MODIFICATIONS | 1,270 | | 1,270 |
| 013 | ITEMS LESS THAN \$5,000,000 | 4,604 | | 4,604 |
| | FLARES | | | |
| 015 | FLARES | 125,286 | | 125,286 |
| | FUZES | | | |
| 016 | FUZES | 109,358 | | 109,358 |
| | SMALL ARMS | | | |
| 017 | SMALL ARMS | 64,502 | | 64,502 |
| | Program decrease | | -5,000 | 59,502 |
| | TOTAL PROCUREMENT OF AMMUNITION, AIR FORCE | 1,587,304 | -5,000 | 1,582,304 |
| | | | 8,149 | 8,149 |
| | OTHER PROCUREMENT, AIR FORCE | | | |
| | PASSENGER CARRYING VEHICLES | | | |
| 001 | PASSENGER CARRYING VEHICLES | 6,949 | -3,500 | 3,449 |
| | Forward financed in the FY18 Omnibus | | [-3,500] | |
| | CARGO AND UTILITY VEHICLES | | | |
| 002 | MEDIUM TACTICAL VEHICLE | 36,002 | -18,000 | 18,002 |
| | Forward financed in the FY18 Omnibus | | [-18,000] | |
| 003 | CAP VEHICLES | 1,022 | | 1,022 |
| 004 | CARGO AND UTILITY VEHICLES | 42,696 | -21,000 | 21,696 |
| | Forward financed in the FY18 Omnibus | | [-21,000] | |
| | SPECIAL PURPOSE VEHICLES | | | |
| 005 | JOINT LIGHT TACTICAL VEHICLE | 30,145 | | 30,145 |
| 006 | SECURITY AND TACTICAL VEHICLES | 1,230 | | 1,230 |
| 007 | SPECIAL PURPOSE VEHICLES | 43,003 | -21,000 | 22,003 |
| | Forward financed in the FY18 Omnibus | | [-21,000] | |
| | FIRE FIGHTING EQUIPMENT | | | |
| 008 | FIRE FIGHTING/CRASH RESCUE VEHICLES | 23,328 | | 23,328 |
| | MATERIALS HANDLING EQUIPMENT | | | |
| 009 | MATERIALS HANDLING VEHICLES | 11,537 | | 11,537 |

SEC. 4101. PROCUREMENT
(In Thousands of Dollars)

| Line | Item | FY 2019 Request | | House Change | | House Authorized | |
|---------------------------------------|---|-----------------|---------|--------------|-----------|------------------|---------|
| | | Qty | Cost | Qty | Cost | Qty | Cost |
| BASE MAINTENANCE SUPPORT | | | | | | | |
| 010 | RUNWAY SNOW REMOV AND CLEANING EQU | | 37,600 | | | | 37,600 |
| 011 | BASE MAINTENANCE SUPPORT VEHICLES | | 104,923 | | -52,000 | | 52,923 |
| | Forward financed in the FY18 Omnibus | | | | [-52,000] | | |
| 012 | COMM SECURITY EQUIPMENT(COMSEC) | | | | | | |
| | COMSEC EQUIPMENT | | 114,372 | | | | 114,372 |
| INTELLIGENCE PROGRAMS | | | | | | | |
| 013 | INTERNATIONAL INTEL TECH & ARCHITECTURES | | 8,290 | | | | 8,290 |
| 014 | INTELLIGENCE TRAINING EQUIPMENT | | 2,099 | | | | 2,099 |
| 015 | INTELLIGENCE COMM EQUIPMENT | | 37,415 | | | | 37,415 |
| ELECTRONICS PROGRAMS | | | | | | | |
| 016 | AIR TRAFFIC CONTROL & LANDING SYS | | 57,937 | | -43,550 | | 14,387 |
| | D-RAPCON Cost Growth | | | | [-43,550] | | |
| 018 | BATTLE CONTROL SYSTEM—FIXED | | 3,012 | | | | 3,012 |
| 019 | THEATER AIR CONTROL SYS IMPROVEMEN | | 19,989 | | | | 19,989 |
| 020 | WEATHER OBSERVATION FORECAST | | 45,020 | | | | 45,020 |
| 021 | STRATEGIC COMMAND AND CONTROL | | 32,836 | | | | 32,836 |
| 022 | CHEYENNE MOUNTAIN COMPLEX | | 12,454 | | | | 12,454 |
| 023 | MISSION PLANNING SYSTEMS | | 14,263 | | | | 14,263 |
| 025 | INTEGRATED STRAT PLAN & ANALY NETWORK (ISPAN) | | 7,769 | | | | 7,769 |
| SPCL COMM-ELECTRONICS PROJECTS | | | | | | | |
| 026 | GENERAL INFORMATION TECHNOLOGY | | 40,450 | | | | 40,450 |
| 027 | AF GLOBAL COMMAND & CONTROL SYS | | 6,619 | | | | 6,619 |
| 028 | MOBILITY COMMAND AND CONTROL | | 10,192 | | | | 10,192 |
| 029 | AIR FORCE PHYSICAL SECURITY SYSTEM | | 159,313 | | -15,900 | | 143,413 |
| | Underexecution | | | | [-15,900] | | |

| | | | | |
|-----|--|----------|--|---------|
| 030 | COMBAT TRAINING RANGES | 132,675 | | 132,675 |
| 031 | MINIMUM ESSENTIAL EMERGENCY COMM N | 140,875 | | 140,875 |
| 032 | WIDE AREA SURVEILLANCE (WAS) | 92,104 | | 92,104 |
| 033 | C3 COUNTERMEASURES | 45,152 | | 45,152 |
| 034 | GCSS-AF FOS | 483 | | 483 |
| 035 | DEFENSE ENTERPRISE ACCOUNTING & MGT SYS | 802 | | 802 |
| 036 | MAINTENANCE REPAIR & OVERHAUL INITIATIVE | 12,207 | | 12,207 |
| 037 | THEATER BATTLE MGT C2 SYSTEM | 7,644 | | 7,644 |
| 038 | AIR & SPACE OPERATIONS CENTER (AOC) | 40,066 | | 40,066 |
| | AIR FORCE COMMUNICATIONS | | | |
| 041 | BASE INFORMATION TRANSPT INFRAST (BITI) WIRED | 22,357 | | 22,357 |
| 042 | AFNET | 102,836 | | 102,836 |
| 043 | JOINT COMMUNICATIONS SUPPORT ELEMENT (JCSE) | 3,145 | | 3,145 |
| 044 | USCENTCOM | 13,194 | | 13,194 |
| | ORGANIZATION AND BASE | | | |
| 045 | TACTICAL C-E EQUIPMENT | 161,231 | | 161,231 |
| 047 | RADIO EQUIPMENT | 12,142 | | 12,142 |
| 048 | CCTV/AUDIOVISUAL EQUIPMENT | 6,505 | | 6,505 |
| 049 | BASE COMM INFRASTRUCTURE | 169,404 | | 169,404 |
| | MODIFICATIONS | | | |
| 050 | COMM ELECT MODS | 10,654 | | 10,654 |
| | PERSONAL SAFETY & RESCUE EQUIP | | | |
| 051 | PERSONAL SAFETY AND RESCUE EQUIPMENT | 51,906 | | 51,906 |
| | DEPOT PLANT +MTRLS HANDLING EQ | | | |
| 052 | MECHANIZED MATERIAL HANDLING EQUIP | 88,298 | | 88,298 |
| | Program reduction | -7,500 | | -7,500 |
| | | [-7,500] | | |
| | BASE SUPPORT EQUIPMENT | | | |
| 053 | BASE PROCURED EQUIPMENT | 17,031 | | 17,031 |
| | Civil Engineers Construction, Surveying, and Mapping Equipment | 5,000 | | 5,000 |
| | | [5,000] | | |
| 054 | ENGINEERING AND EOD EQUIPMENT | 82,635 | | 82,635 |
| 055 | MOBILITY EQUIPMENT | 9,549 | | 9,549 |
| | Program reduction | -3,000 | | -3,000 |
| | | [-3,000] | | |

SEC. 4101. PROCUREMENT
(In Thousands of Dollars)

| Line | Item | FY 2019 Request | | House Change | | House Authorized | |
|------|---|-----------------|-------------------|--------------|-----------------|------------------|-------------------|
| | | Qty | Cost | Qty | Cost | Qty | Cost |
| 056 | BASE MAINTENANCE AND SUPPORT EQUIPMENT | | 24,005 | | -7,000 | | 17,005 |
| | Program reduction | | | | [-7,000] | | |
| | SPECIAL SUPPORT PROJECTS | | | | | | |
| 058 | DARP RC135 | | 26,262 | | | | 26,262 |
| 059 | DCGS-AF | | 448,290 | | -47,800 | | 400,490 |
| | Forward financed in the FY18 Omnibus | | | | [-35,000] | | |
| | Program decrease | | | | [-12,800] | | |
| 061 | SPECIAL UPDATE PROGRAM | | 913,813 | | | | 913,813 |
| | CLASSIFIED PROGRAMS | | | | | | |
| 062 | CLASSIFIED PROGRAMS | | 17,258,069 | | | | 17,258,069 |
| | SPARES AND REPAIR PARTS | | | | | | |
| 063 | SPARES AND REPAIR PARTS | | 86,365 | | | | 86,365 |
| | TOTAL OTHER PROCUREMENT, AIR FORCE | | 20,890,164 | | -235,250 | | 20,654,914 |
| | PROCUREMENT, DEFENSE-WIDE | | | | | | |
| | MAJOR EQUIPMENT, OSD | | | | | | |
| 043 | MAJOR EQUIPMENT, OSD | | 35,295 | | | | 35,295 |
| | MAJOR EQUIPMENT, NSA | | | | | | |
| 042 | MAJOR EQUIPMENT, NSA | | 5,403 | | | | 5,403 |
| | MAJOR EQUIPMENT, WHS | | | | | | |
| 046 | MAJOR EQUIPMENT, WHS | | 497 | | | | 497 |
| | MAJOR EQUIPMENT, DISA | | | | | | |
| 007 | MAJOR EQUIPMENT, DISA | | 21,590 | | | | 21,590 |
| 008 | TELEPORT PROGRAM | | 33,905 | | | | 33,905 |
| 009 | ITEMS LESS THAN \$5 MILLION | | 27,886 | | | | 27,886 |
| 010 | NET CENTRIC ENTERPRISE SERVICES (NCES) | | 1,017 | | | | 1,017 |

| | | | | | |
|-----|---|----|---------|---------|---------|
| 011 | DEFENSE INFORMATION SYSTEM NETWORK | | | 150,674 | |
| 013 | WHITE HOUSE COMMUNICATION AGENCY | | | 94,610 | |
| 014 | SENIOR LEADERSHIP ENTERPRISE | | | 197,246 | |
| 015 | JOINT REGIONAL SECURITY STACKS (JRSS) | | | 140,338 | |
| 016 | JOINT SERVICE PROVIDER | | | 107,182 | |
| | MAJOR EQUIPMENT, DLA | | | | |
| 018 | MAJOR EQUIPMENT | | 5,225 | | |
| | MAJOR EQUIPMENT, DSS | | | | |
| 021 | MAJOR EQUIPMENT | | 1,196 | | |
| | MAJOR EQUIPMENT, DCAA | | | | |
| 001 | ITEMS LESS THAN \$5 MILLION | | 2,542 | | |
| | MAJOR EQUIPMENT, TJS | | | | |
| 044 | MAJOR EQUIPMENT, TJS | | 4,360 | | |
| 045 | MAJOR EQUIPMENT, TJS—CE2T2 | | 904 | | |
| | MAJOR EQUIPMENT, MISSILE DEFENSE AGENCY | | | | |
| 026 | THAAD | 82 | 874,068 | 82 | 874,068 |
| 027 | GROUND BASED MIDCOURSE | 14 | 409,000 | 14 | 409,000 |
| 028 | ADVANCE PROCUREMENT (CY) | | 115,000 | | 115,000 |
| 029 | AEGIS BMD | 43 | 593,488 | 43 | 593,488 |
| 030 | ADVANCE PROCUREMENT (CY) | | 115,206 | | 115,206 |
| 031 | BMD5 AN/TPY-2 RADARS | | 13,185 | | 13,185 |
| 032 | ISRAELI PROGRAMS | | 80,000 | | 80,000 |
| 033 | SHORT RANGE BALLISTIC MISSILE DEFENSE (SRBMD) | | 50,000 | | 50,000 |
| 034 | AEGIS ASHORE PHASE III | | 15,000 | | 15,000 |
| 035 | IRON DOME | | 70,000 | | 70,000 |
| 036 | AEGIS BMD HARDWARE AND SOFTWARE | 28 | 97,057 | 28 | 97,057 |
| | MAJOR EQUIPMENT, DHRA | | | | |
| 003 | PERSONNEL ADMINISTRATION | | 10,630 | | 10,630 |
| | MAJOR EQUIPMENT, DEFENSE THREAT REDUCTION AGENCY | | | | |
| 023 | VEHICLES | | 207 | | 207 |
| 024 | OTHER MAJOR EQUIPMENT | | 5,592 | | 5,592 |
| | MAJOR EQUIPMENT, DODEA | | | | |

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SEC. 4101. PROCUREMENT
(In Thousands of Dollars)

| Line | Item | FY 2019 Request | | House Change | | House Authorized | |
|------|--|-----------------|---------|--------------|------|------------------|---------|
| | | Qty | Cost | Qty | Cost | Qty | Cost |
| 020 | AUTOMATION/EDUCATIONAL SUPPORT & LOGISTICS | | 1,723 | | | | 1,723 |
| | MAJOR EQUIPMENT, DCMA | | | | | | |
| 002 | MAJOR EQUIPMENT | | 3,873 | | | | 3,873 |
| | MAJOR EQUIPMENT, DMACT | | | | | | |
| 019 | MAJOR EQUIPMENT | | 13,106 | | | | 13,106 |
| | CLASSIFIED PROGRAMS | | | | | | |
| 046A | CLASSIFIED PROGRAMS | | 589,691 | | | | 589,691 |
| | AVIATION PROGRAMS | | | | | | |
| 050 | ROTARY WING UPGRADES AND SUSTAINMENT | | 148,351 | | | | 148,351 |
| 051 | UNMANNED ISR | | 57,708 | | | | 57,708 |
| 052 | NON-STANDARD AVIATION | | 18,731 | | | | 18,731 |
| 053 | U-28 | | 32,301 | | | | 32,301 |
| 054 | MH-47 CHINOOK | | 131,033 | | | | 131,033 |
| 055 | CV-22 MODIFICATION | | 32,529 | | | | 32,529 |
| 056 | MQ-9 UNMANNED AERIAL VEHICLE | | 24,621 | | | | 24,621 |
| 057 | PRECISION STRIKE PACKAGE | | 226,965 | | | | 226,965 |
| 058 | AC/AMC-130J | | 165,813 | | | | 165,813 |
| 059 | C-130 MODIFICATIONS | | 80,274 | | | | 80,274 |
| | SHIPBUILDING | | | | | | |
| 060 | UNDERWATER SYSTEMS | | 136,723 | | | | 136,723 |
| | AMMUNITION PROGRAMS | | | | | | |
| 061 | ORDNANCE ITEMS <\$5M | | 357,742 | | | | 357,742 |
| | OTHER PROCUREMENT PROGRAMS | | | | | | |
| 062 | INTELLIGENCE SYSTEMS | | 85,699 | | | | 85,699 |
| 063 | DISTRIBUTED COMMON GROUND/SURFACE SYSTEMS | | 17,863 | | | | 17,863 |
| 064 | OTHER ITEMS <\$5M | | 112,117 | | | | 112,117 |

| | | | | | |
|--|--|----------------|---------------|------------------|--------------------|
| 065 | COMBATANT CRAFT SYSTEMS | 7,313 | | | 7,313 |
| 066 | SPECIAL PROGRAMS | 14,026 | | | 14,026 |
| 067 | TACTICAL VEHICLES | 88,608 | | | 88,608 |
| 068 | WARRIOR SYSTEMS <\$5M | 438,590 | | -5,200 | 433,390 |
| | Link 16 handheld radios for USSOCOM | | | [12,800] | |
| | SAT Deployable Node | | | [-18,000] | |
| 069 | COMBAT MISSION REQUIREMENTS | 19,408 | | | 19,408 |
| 070 | GLOBAL VIDEO SURVEILLANCE ACTIVITIES | 6,281 | | | 6,281 |
| 071 | OPERATIONAL ENHANCEMENTS INTELLIGENCE | 18,509 | | | 18,509 |
| 073 | OPERATIONAL ENHANCEMENTS | 367,433 | | | 367,433 |
| | CBDP | | | | |
| 074 | CHEMICAL BIOLOGICAL SITUATIONAL AWARENESS | 166,418 | | -12,800 | 153,618 |
| | Program decrease | | | [-12,800] | |
| 075 | CB PROTECTION & HAZARD MITIGATION | 144,519 | | | 144,519 |
| | TOTAL PROCUREMENT, DEFENSE-WIDE | 167 | | -18,000 | 167 |
| JOINT URGENT OPERATIONAL NEEDS FUND | | | | | |
| JOINT URGENT OPERATIONAL NEEDS FUND | | | | | |
| 001 | JOINT URGENT OPERATIONAL NEEDS FUND | 100,025 | | -100,025 | 0 |
| | Program decrease | | | [-100,025] | |
| | TOTAL JOINT URGENT OPERATIONAL NEEDS FUND | 100,025 | | -100,025 | 0 |
| TOTAL PROCUREMENT | | | | | |
| | | 30,077 | | 3,061,849 | 133,587,892 |
| | | | 22,177 | 52,254 | |

SEC. 4102. PROCUREMENT FOR OVERSEAS CONTINGENCY OPERATIONS.

SEC. 4102. PROCUREMENT FOR OVERSEAS CONTINGENCY OPERATIONS
(In Thousands of Dollars)

| Line | Item | FY 2019 Request | | House Change | | House Authorized | |
|--------------------------------------|--|-----------------|----------------|--------------|----------------|------------------|----------------|
| | | Qty | Cost | Qty | Cost | Qty | Cost |
| AIRCRAFT PROCUREMENT, ARMY | | | | | | | |
| FIXED WING | | | | | | | |
| 003 | MQ-1 UAV | 6 | 60,000 | | | 6 | 60,000 |
| ROTARY | | | | | | | |
| 011 | UH-60 BLACKHAWK M MODEL (MYP) | 1 | 21,246 | | | 1 | 21,246 |
| 014 | CH-47 HELICOPTER | 2 | 25,000 | | | 2 | 25,000 |
| MODIFICATION OF AIRCRAFT | | | | | | | |
| 017 | MQ-1 PAYLOAD (MIP) | | 11,400 | | | | 11,400 |
| 019 | GRAY EAGLE MODS2 | | 32,000 | | | | 32,000 |
| 020 | MULTI SENSOR ABN RECON (MIP) | | 51,000 | | | | 51,000 |
| 032 | RQ-7 UAV MODS | | 50,868 | | -50,868 | | 0 |
| | Realignment of EDI APS Unit Set from OCO to Base | | | | [-50,868] | | |
| 033 | UAS MODS | | 3,402 | | -3,402 | | 0 |
| | Realignment of EDI APS Unit Set from OCO to Base | | | | [-3,402] | | |
| GROUND SUPPORT AVIONICS | | | | | | | |
| 036 | CMWS | | 84,387 | | | | 84,387 |
| 037 | COMMON INFRARED COUNTERMEASURES (CIRCM) | | 24,060 | | | | 24,060 |
| | TOTAL AIRCRAFT PROCUREMENT, ARMY | 9 | 363,363 | | -54,270 | 9 | 309,093 |
| MISSILE PROCUREMENT, ARMY | | | | | | | |
| SURFACE-TO-AIR MISSILE SYSTEM | | | | | | | |
| 002 | MSE MISSILE | 61 | 260,000 | | -260,000 | 61 | 0 |
| | Realignment of EDI APS Unit Set from OCO to Base | | | | [-260,000] | | |
| AIR-TO-SURFACE MISSILE SYSTEM | | | | | | | |

| | | | | | |
|-----|--|---------------|------------------|---------------|------------------|
| 005 | HELLFIRE SYS SUMMARY | 2,684 | 255,040 | 2,684 | 255,040 |
| | ANTI-TANK/ASSAULT MISSILE SYS | | | | |
| 008 | JAVELIN (AAWS-M) SYSTEM SUMMARY | 75 | 31,120 | 75 | 17,320 |
| | Realignment of EDI APS Unit Set from OCO to Base | | | | |
| 011 | GUIDED MLRS ROCKET (GMLRS) | 7,584 | 624,500 | 7,584 | 624,500 |
| 013 | HIGH MOBILITY ARTILLERY ROCKET SYSTEM (HIMARS) | 24 | 171,138 | 24 | 0 |
| | Realignment of EDI APS Unit Set from OCO to Base | | | | |
| 014 | LETHAL MINIATURE AERIAL MISSILE SYSTEM (LMAMS) | 1,318 | 112,973 | 1,318 | 112,973 |
| | MODIFICATIONS | | | | |
| 016 | ATACMS MODS | | 225,580 | | 145,580 |
| | Realignment of EDI APS Unit Set from OCO to Base | | | | |
| 021 | MLRS MODS | | 122,000 | | 0 |
| | Realignment of EDI APS Unit Set from OCO to Base | | | | |
| | TOTAL MISSILE PROCUREMENT, ARMY | 11,746 | 1,802,351 | 11,746 | 1,155,413 |
| | PROCUREMENT OF W&TCV, ARMY | | | | |
| | TRACKED COMBAT VEHICLES | | | | |
| 001 | BRADLEY PROGRAM | 61 | 205,000 | 61 | 0 |
| | Realignment of EDI APS Unit Set from OCO to Base | | | | |
| 002 | ARMORED MULTI PURPOSE VEHICLE (AMPV) | 66 | 230,359 | 66 | 0 |
| | Realignment of EDI APS Unit Set from OCO to Base | | | | |
| | MODIFICATION OF TRACKED COMBAT VEHICLES | | | | |
| 006 | BRADLEY PROGRAM (MOD) | | 50,000 | | 0 |
| | Realignment of EDI APS Unit Set from OCO to Base | | | | |
| 008 | PALADIN INTEGRATED MANAGEMENT (PIM) | 6 | 67,000 | 6 | 0 |
| | Realignment of EDI APS Unit Set from OCO to Base | | | | |
| 009 | IMPROVED RECOVERY VEHICLE (M88A2 HERCULES) | 12 | 42,354 | 12 | 0 |
| | Realignment of EDI APS Unit Set from OCO to Base | | | | |
| 014 | M1 ABRAMS TANK (MOD) | | 34,000 | | 0 |
| | Realignment of EDI APS Unit Set from OCO to Base | | | | |
| 015 | ABRAMS UPGRADE PROGRAM | 40 | 455,000 | 40 | 0 |
| | Realignment of EDI APS Unit Set from OCO to Base | | | | |

SEC. 4102. PROCUREMENT FOR OVERSEAS CONTINGENCY OPERATIONS
(In Thousands of Dollars)

| Line | Item | FY 2019 Request | | House Change | | House Authorized | |
|--|---|-----------------|------------------|--------------|-------------------|------------------|---------------|
| | | Qty | Cost | Qty | Cost | Qty | Cost |
| WEAPONS & OTHER COMBAT VEHICLES | | | | | | | |
| 018 | M240 MEDIUM MACHINE GUN (7.62MM) Realignment of EDI APS Unit Set from OCO to Base | | 126 | | -126 | | 0 |
| 022 | MORTAR SYSTEMS Realignment of EDI APS Unit Set from OCO to Base | | 11,842 | | [-126] | | 11,662 |
| 025 | CARBINE Realignment of EDI APS Unit Set from OCO to Base | | 1,800 | | -180 | | 0 |
| 027 | COMMON REMOTELY OPERATED WEAPONS STATION Realignment of EDI APS Unit Set from OCO to Base | | 3,378 | | [-1,800] | | 0 |
| 032 | MOD OF WEAPONS AND OTHER COMBAT VEH M2 50 CAL MACHINE GUN MODS Realignment of EDI APS Unit Set from OCO to Base | | 4,920 | | [-1,800] | | 0 |
| 034 | M240 MEDIUM MACHINE GUN MODS Realignment of EDI APS Unit Set from OCO to Base | | 7 | | -7 | | 0 |
| 039 | SUPPORT EQUIPMENT & FACILITIES ITEMS LESS THAN \$5.0M (WOCV-WTCV) Realignment of EDI APS Unit Set from OCO to Base | | 1,397 | | [-7] | | 0 |
| | TOTAL PROCUREMENT OF W&TCV, ARMY | 185 | 1,107,183 | | -1,095,521 | 185 | 11,662 |
| PROCUREMENT OF AMMUNITION, ARMY | | | | | | | |
| 001 | SMALL/MEDIUM CAL AMMUNITION CTG, 5.56MM, ALL TYPES | | 3,392 | | -3,392 | | 0 |
| 002 | CTG, 7.62MM, ALL TYPES Realignment of EDI APS Unit Set from OCO to Base | | 40 | | [-3,392] | | 0 |
| 003 | CTG, HANDGUN, ALL TYPES Realignment of EDI APS Unit Set from OCO to Base | | 17 | | -40 | | 0 |
| | | | | | [-40] | | 0 |
| | | | | | -17 | | 0 |

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(In Thousands of Dollars)

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|--------------------------------------|--|-----------------|---------|--------------|------------|------------------|---------|
| | | Qty | Cost | Qty | Cost | Qty | Cost |
| OTHER PROCUREMENT, ARMY | | | | | | | |
| TACTICAL VEHICLES | | | | | | | |
| 002 | SEMITRAILERS, FLATBED: | | 8,000 | | -8,000 | | 0 |
| | Realignment of EDI APS Unit Set from OCO to Base | | | | [-8,000] | | |
| 003 | AMBULANCE, 4 LITTER, 5/4 TON, 4X4 | | 20,770 | | -20,770 | | 0 |
| | Realignment of EDI APS Unit Set from OCO to Base | | | | [-20,770] | | |
| 010 | FAMILY OF HEAVY TACTICAL VEHICLES (FHTV) | 596 | 115,400 | | -115,400 | 596 | 0 |
| | Realignment of EDI APS Unit Set from OCO to Base | | | | [-115,400] | | |
| 012 | HVY EXPANDED MOBILE TACTICAL TRUCK EXT SERV | | 6,682 | | -6,682 | | 0 |
| | Realignment of EDI APS Unit Set from OCO to Base | | | | [-6,682] | | |
| 013 | TACTICAL WHEELED VEHICLE PROTECTION KITS | | 50,000 | | -50,000 | | 0 |
| | Realignment of EDI APS Unit Set from OCO to Base | | | | [-50,000] | | |
| 014 | MODIFICATION OF IN SVC EQUIP | | 186,377 | | -377 | | 186,000 |
| | Realignment of EDI APS Unit Set from OCO to Base | | | | [-377] | | |
| COMM—SATELLITE COMMUNICATIONS | | | | | | | |
| 028 | TRANSPORTABLE TACTICAL COMMAND COMMUNICATIONS | | 7,100 | | | | 7,100 |
| COMM—COMBAT COMMUNICATIONS | | | | | | | |
| 037 | JOINT TACTICAL RADIO SYSTEM | | 1,560 | | -1,560 | | 0 |
| | Realignment of EDI APS Unit Set from OCO to Base | | | | [-1,560] | | |
| 042 | TRACTOR RIDE | | 13,190 | | | | 13,190 |
| 045 | TACTICAL COMMUNICATIONS AND PROTECTIVE SYSTEM | | 9,549 | | | | 9,549 |
| 047 | COTS COMMUNICATIONS EQUIPMENT | | 22,000 | | -22,000 | | 0 |
| | Realignment of EDI APS Unit Set from OCO to Base | | | | [-22,000] | | |
| COMM—INTELLIGENCE COMM | | | | | | | |
| 050 | CI AUTOMATION ARCHITECTURE (MIP) | | 9,800 | | | | 9,800 |
| INFORMATION SECURITY | | | | | | | |

| | | | | |
|-----|--|---------|----------|---------|
| 055 | COMMUNICATIONS SECURITY (COMSEC) | 3 | -3 | 0 |
| | Realignment of EDI APS Unit Set from OCO to Base | | [-3] | |
| 059 | COMM—LONG HAUL COMMUNICATIONS | 690 | | 690 |
| | BASE SUPPORT COMMUNICATIONS | | | |
| | COMM—BASE COMMUNICATIONS | | | |
| 060 | INFORMATION SYSTEMS | 8,750 | | 8,750 |
| 063 | INSTALLATION INFO INFRASTRUCTURE MOD PROGRAM | 60,337 | -9,050 | 51,287 |
| | Realignment of EDI APS Unit Set from OCO to Base | | [-9,050] | |
| 068 | ELECT EQUIP—TACT INT REL ACT (TIARA) | 37,806 | | 37,806 |
| 070 | DCGS-A (MIP) | 6,926 | -600 | 6,326 |
| | TROJAN (MIP) | | [-600] | |
| | Realignment of EDI APS Unit Set from OCO to Base | | | |
| 071 | MOD OF IN-SVC EQUIP (INTEL SPT) (MIP) | 2,011 | | 2,011 |
| 075 | BIOMETRIC TACTICAL COLLECTION DEVICES (MIP) | 5,370 | | 5,370 |
| | ELECT EQUIP—ELECTRONIC WARFARE (EW) | | | |
| 080 | CREW | 42,651 | | 42,651 |
| 081 | FAMILY OF PERSISTENT SURVEILLANCE CAP. (MIP) | 20,050 | 5,400 | 25,450 |
| | SOUTHCOM UFR: CENTAM Maritime Sensor | | [3,600] | |
| | SOUTHCOM UFR: SIGINT Suite COMSAT RF | | [1,800] | |
| 082 | COUNTERINTELLIGENCE/SECURITY COUNTERMEASURES | 12,974 | | 12,974 |
| | ELECT EQUIP—TACTICAL SURV. (TAC SURV) | | | |
| 085 | NIGHT VISION DEVICES | 463 | -86 | 377 |
| | Realignment of EDI APS Unit Set from OCO to Base | | [-86] | |
| 086 | LONG RANGE ADVANCED SCOUT SURVEILLANCE SYSTEM | 2,861 | -2,861 | 0 |
| | Realignment of EDI APS Unit Set from OCO to Base | | [-2,861] | |
| 087 | SMALL TACTICAL OPTICAL RIFLE MOUNTED MLRF | 60 | | 60 |
| 088 | RADIATION MONITORING SYSTEMS | 11 | -11 | 0 |
| | Realignment of EDI APS Unit Set from OCO to Base | | [-11] | |
| 090 | INDIRECT FIRE PROTECTION FAMILY OF SYSTEMS | 251,062 | -262 | 250,800 |
| | Realignment of EDI APS Unit Set from OCO to Base | | [-262] | |
| 091 | FAMILY OF WEAPON SIGHTS (FWS) | 525 | -525 | 0 |
| | Realignment of EDI APS Unit Set from OCO to Base | | [-525] | |

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| | | Qty | Cost | Qty | Cost | Qty | Cost |
| 094 | JOINT BATTLE COMMAND—PLATFORM (JBC-P) | | 26,146 | | -26,146 | | 0 |
| | Realignment of EDI APS Unit Set from OCO to Base | | | | [-26,146] | | |
| 096 | MOD OF IN-SVC EQUIP (LLDR) | | 4,050 | | -4,050 | | 0 |
| | Realignment of EDI APS Unit Set from OCO to Base | | | | [-4,050] | | |
| 097 | COMPUTER BALLISTICS: LHMCB XM32 | | 960 | | | | 960 |
| 098 | MORTAR FIRE CONTROL SYSTEM | | 7,660 | | | | 7,660 |
| 099 | COUNTERFIRE RADARS | | 165,200 | | | | 165,200 |
| | ELECT EQUIP—AUTOMATION | | | | | | |
| 112 | AUTOMATED DATA PROCESSING EQUIP | | 28,475 | | | | 28,475 |
| | CHEMICAL DEFENSIVE EQUIPMENT | | | | | | |
| 121 | PROTECTIVE SYSTEMS | 27 | | | -27 | | 0 |
| | Realignment of EDI APS Unit Set from OCO to Base | | | | [-27] | | |
| 122 | FAMILY OF NON-LETHAL EQUIPMENT (FNLE) | | 20,200 | | | | 20,200 |
| 123 | BASE DEFENSE SYSTEMS (BDS) | | 39,200 | | | | 39,200 |
| 124 | CBRN DEFENSE | | 2,317 | | -317 | | 2,000 |
| | Realignment of EDI APS Unit Set from OCO to Base | | | | [-317] | | |
| | ENGINEER (NON-CONSTRUCTION) EQUIPMENT | | | | | | |
| 129 | GRND STANDOFF MINE DETECTN SYSM (GSTAMIDS) | | 16,000 | | | | 16,000 |
| 130 | AREA MINE DETECTION SYSTEM (AMDS) | 1 | | | -1 | | 0 |
| | Realignment of EDI APS Unit Set from OCO to Base | | | | [-1] | | |
| 132 | ROBOTIC COMBAT SUPPORT SYSTEM (RCSS) | | 4,850 | | | | 4,850 |
| 136 | REMOTE DEMOLITION SYSTEMS | 1 | | | -1 | | 0 |
| | Realignment of EDI APS Unit Set from OCO to Base | | | | [-1] | | |
| | COMBAT SERVICE SUPPORT EQUIPMENT | | | | | | |
| 139 | HEATERS AND ECUS | | 270 | | | | 270 |
| 141 | PERSONNEL RECOVERY SUPPORT SYSTEM (PRSS) | | 4,300 | | | | 4,300 |

| | | | | | | | |
|-----|--|------------|------------------|--|-----------------|--|------------|
| 142 | GROUND SOLDIER SYSTEM | | | | 1,725 | | |
| 144 | FORCE PROVIDER | | 55,800 | | 55,800 | | |
| 145 | FIELD FEEDING EQUIPMENT | | 1,035 | | 1,035 | | |
| 146 | CARGO AERIAL DEL & PERSONNEL PARACHUTE SYSTEM | | 1,980 | | 1,980 | | |
| | MEDICAL EQUIPMENT | | | | | | |
| 151 | COMBAT SUPPORT MEDICAL | | 17,527 | | 17,527 | | |
| | MAINTENANCE EQUIPMENT | | | | | | |
| 153 | ITEMS LESS THAN \$5.0M (MAINT EQ) | | 268 | | -268 | | 0 |
| | Realignment of EDI APS Unit Set from OCO to Base | | | | [-268] | | |
| | CONSTRUCTION EQUIPMENT | | | | | | |
| 159 | HIGH MOBILITY ENGINEER EXCAVATOR (HMEE) | | 25,700 | | | | 25,700 |
| | GENERATORS | | | | | | |
| 165 | GENERATORS AND ASSOCIATED EQUIP | | 569 | | | | 569 |
| | TEST MEASURE AND DIG EQUIPMENT (TMD) | | | | | | |
| 174 | INTEGRATED FAMILY OF TEST EQUIPMENT (IFTE) | | 9,495 | | -9,495 | | 0 |
| | Realignment of EDI APS Unit Set from OCO to Base | | | | [-9,495] | | |
| | OTHER SUPPORT EQUIPMENT | | | | | | |
| 176 | M25 STABILIZED BINOCULAR | | 33 | | -33 | | 0 |
| | Realignment of EDI APS Unit Set from OCO to Base | | | | [-33] | | |
| 177 | RAPID EQUIPPING SOLDIER SUPPORT EQUIPMENT | | 18,000 | | | | 18,000 |
| 178 | PHYSICAL SECURITY SYSTEMS (OPA3) | | 6,000 | | | | 6,000 |
| 179 | BASE LEVEL COMMON EQUIPMENT | | 2,080 | | | | 2,080 |
| 180 | MODIFICATION OF IN-SVC EQUIPMENT (OPA-3) | | 19,200 | | | | 19,200 |
| | TOTAL OTHER PROCUREMENT, ARMY | 596 | 1,382,047 | | -273,125 | | 596 |
| | AIRCRAFT PROCUREMENT, NAVY | | | | | | |
| | OTHER AIRCRAFT | | | | | | |
| 025 | STUASLO UAV | | 35,065 | | | | 35,065 |
| | MODIFICATION OF AIRCRAFT | | | | | | |
| 032 | SH-60 SERIES | | 4,858 | | | | 4,858 |
| 034 | EP-3 SERIES | | 5,380 | | | | 5,380 |
| 044 | SPECIAL PROJECT AIRCRAFT | | 2,165 | | | | 2,165 |

SEC. 4102. PROCUREMENT FOR OVERSEAS CONTINGENCY OPERATIONS
(In Thousands of Dollars)

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|------|---|-----------------|---------------|--------------|------|------------------|---------------|
| | | Qty | Cost | Qty | Cost | Qty | Cost |
| 049 | COMMON ECM EQUIPMENT | | 9,820 | | | | 9,820 |
| 051 | COMMON DEFENSIVE WEAPON SYSTEM | | 3,206 | | | | 3,206 |
| 061 | QRC | | 2,410 | | | | 2,410 |
| 063 | RQ-21 SERIES | | 17,215 | | | | 17,215 |
| | TOTAL AIRCRAFT PROCUREMENT, NAVY | | 80,119 | | | | 80,119 |
| | WEAPONS PROCUREMENT, NAVY | | | | | | |
| | TACTICAL MISSILES | | | | | | |
| 004 | AMRAAM | 1 | 1,183 | | | 1 | 1,183 |
| 005 | SIDEWINDER | 1 | 381 | | | 1 | 381 |
| 012 | HELLFIRE | 23 | 1,530 | | | 23 | 1,530 |
| 015 | AERIAL TARGETS | | 6,500 | | | | 6,500 |
| | GUNS AND GUN MOUNTS | | | | | | |
| 035 | SMALL ARMS AND WEAPONS | | 1,540 | | | | 1,540 |
| | MODIFICATION OF GUNS AND GUN MOUNTS | | | | | | |
| 038 | GUN MOUNT MODS | | 3,000 | | | | 3,000 |
| | TOTAL WEAPONS PROCUREMENT, NAVY | 25 | 14,134 | | | 25 | 14,134 |
| | PROCUREMENT OF AMMO, NAVY & MC | | | | | | |
| | NAVY AMMUNITION | | | | | | |
| 001 | GENERAL PURPOSE BOMBS | | 62,530 | | | | 62,530 |
| 002 | JDAM | 3,906 | 93,019 | | | 3,906 | 93,019 |
| 003 | AIRBORNE ROCKETS, ALL TYPES | | 2,163 | | | | 2,163 |
| 004 | MACHINE GUN AMMUNITION | | 5,000 | | | | 5,000 |
| 006 | CARTRIDGES & CART ACTUATED DEVICES | | 5,334 | | | | 5,334 |
| 007 | AIR EXPENDABLE COUNTERMEASURES | | 36,580 | | | | 36,580 |

| | | | |
|-----|---|--------------|--------------|
| 008 | JATOS | 747 | 747 |
| 011 | OTHER SHIP GUN AMMUNITION | 2,538 | 2,538 |
| 013 | PYROTECHNIC AND DEMOLITION | 1,807 | 1,807 |
| 015 | AMMUNITION LESS THAN \$5 MILLION | 2,229 | 2,229 |
| | MARINE CORPS AMMUNITION | | |
| 019 | MORTARS | 2,018 | 2,018 |
| 021 | DIRECT SUPPORT MUNITIONS | 632 | 632 |
| 022 | INFANTRY WEAPONS AMMUNITION | 779 | 779 |
| 026 | COMBAT SUPPORT MUNITIONS | 164 | 164 |
| 029 | ARTILLERY MUNITIONS | 31,001 | 31,001 |
| | TOTAL PROCUREMENT OF AMMO, NAVY & MC | 3,906 | 3,906 |
| | OTHER PROCUREMENT, NAVY | | |
| | OTHER SHIPBOARD EQUIPMENT | | |
| 021 | UNDERWATER EOD PROGRAMS | 9,200 | 9,200 |
| | SMALL BOATS | | |
| 028 | STANDARD BOATS | 19,060 | 19,060 |
| | ASW ELECTRONIC EQUIPMENT | | |
| 043 | FIXED SURVEILLANCE SYSTEM | 56,950 | 56,950 |
| | SATELLITE COMMUNICATIONS | | |
| 077 | SATELLITE COMMUNICATIONS SYSTEMS | 3,200 | 3,200 |
| | CRYPTOLOGIC EQUIPMENT | | |
| 082 | CRYPTOLOGIC COMMUNICATIONS EQUIP | 2,000 | 2,000 |
| | SONOBUOYS | | |
| 088 | SONOBUOYS—ALL TYPES | 21,156 | 21,156 |
| | OTHER ORDNANCE SUPPORT EQUIPMENT | | |
| 104 | EXPLOSIVE ORDNANCE DISPOSAL EQUIP | 33,580 | 33,580 |
| | CIVIL ENGINEERING SUPPORT EQUIPMENT | | |
| 108 | PASSENGER CARRYING VEHICLES | 170 | 170 |
| 109 | GENERAL PURPOSE TRUCKS | 400 | 400 |
| 111 | FIRE FIGHTING EQUIPMENT | 770 | 770 |
| 112 | TACTICAL VEHICLES | 7,298 | 7,298 |

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|------|--|-----------------|----------------|--------------|------------|------------------|----------------|
| | | Qty | Cost | Qty | Cost | Qty | Cost |
| | SUPPLY SUPPORT EQUIPMENT | | | | | | |
| 118 | FIRST DESTINATION TRANSPORTATION | | 500 | | | | 500 |
| | COMMAND SUPPORT EQUIPMENT | | | | | | |
| 123 | MEDICAL SUPPORT EQUIPMENT | | 6,500 | | | | 6,500 |
| 128 | ENVIRONMENTAL SUPPORT EQUIPMENT | | 2,200 | | | | 2,200 |
| 129 | PHYSICAL SECURITY EQUIPMENT | | 19,389 | | | | 19,389 |
| | CLASSIFIED PROGRAMS | | | | | | |
| 133A | CLASSIFIED PROGRAMS | | 4,800 | | | | 4,800 |
| | TOTAL OTHER PROCUREMENT, NAVY | | 187,173 | | | | 187,173 |
| | PROCUREMENT, MARINE CORPS | | | | | | |
| | INTELL/COMM EQUIPMENT (NON-TEL) | | | | | | |
| 022 | FIRE SUPPORT SYSTEM | | 5,583 | | | | 5,583 |
| | TACTICAL VEHICLES | | | | | | |
| 037 | MOTOR TRANSPORT MODIFICATIONS | | 44,440 | | | | 44,440 |
| | ENGINEER AND OTHER EQUIPMENT | | | | | | |
| 045 | EOD SYSTEMS | | 8,000 | | | | 8,000 |
| | TOTAL PROCUREMENT, MARINE CORPS | | 58,023 | | | | 58,023 |
| | AIRCRAFT PROCUREMENT, AIR FORCE | | | | | | |
| | OTHER AIRLIFT | | | | | | |
| 007 | HC-130J | 1 | 100,000 | | | 1 | 100,000 |
| | OTHER AIRCRAFT | | | | | | |
| 018 | MQ-9 | 21 | 339,740 | -9 | -192,700 | 12 | 147,040 |
| | Excess attrition aircraft | | | [-9] | [-192,700] | | |
| 019 | RQ-208 PUMA | | 13,500 | | | | 13,500 |

| | | | | | |
|-----|--|--------------|------------------|-----------------|----------------|
| 021 | STRATEGIC AIRCRAFT | | | | |
| | B-1B | 4,000 | 4,000 | | |
| 023 | LARGE AIRCRAFT INFRARED COUNTERMEASURES | 149,778 | 149,778 | | |
| | TACTICAL AIRCRAFT | | | | |
| 024 | A-10 | 10,350 | 10,350 | | |
| | OTHER AIRCRAFT | | | | |
| 047 | U-2 MODS | 7,900 | 7,900 | | |
| 056 | COMPASS CALL MODS | 36,400 | 36,400 | | |
| 061 | E-8 | 13,000 | 13,000 | | |
| 065 | H-60 | 40,560 | 40,560 | | |
| 067 | HC/MC-130 MODIFICATIONS | 87,900 | 87,900 | | |
| 068 | OTHER AIRCRAFT | 53,731 | 53,731 | | |
| 070 | MQ-9 UAS PAYLOADS | 16,000 | 16,000 | | |
| | AIRCRAFT SPARES AND REPAIR PARTS | | | | |
| 072 | INITIAL SPARES/REPAIR PARTS | 91,500 | 91,500 | | |
| | COMMON SUPPORT EQUIPMENT | | | | |
| 073 | AIRCRAFT REPLACEMENT SUPPORT EQUIP | 32,529 | 32,529 | | |
| 074 | OTHER PRODUCTION CHARGES | 22,000 | 22,000 | | |
| | TOTAL AIRCRAFT PROCUREMENT, AIR FORCE | 22 | 1,018,888 | -9 | 13 |
| | | | | -192,700 | |
| | | | | | 826,188 |
| | MISSILE PROCUREMENT, AIR FORCE | | | | |
| | TACTICAL | | | | |
| 002 | JOINT AIR-SURFACE STANDOFF MISSILE | 48 | 61,600 | | 48 |
| 005 | AMRAAM | 2 | 2,600 | | 2 |
| 006 | PREDATOR HELLFIRE MISSILE | 3,000 | 255,000 | | 3,000 |
| 007 | SMALL DIAMETER BOMB | 3,909 | 140,724 | | 3,909 |
| | CLASS IV | | | | |
| 013 | AGM-65D MAVERICK | 33,602 | 33,602 | | 33,602 |
| | TOTAL MISSILE PROCUREMENT, AIR FORCE | 6,959 | 493,526 | | 6,959 |
| | PROCUREMENT OF AMMUNITION, AIR FORCE | | | | |
| | CARTRIDGES | | | | |

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(In Thousands of Dollars)

| Line | Item | FY 2019 Request | | House Change | | House Authorized | |
|------|---|-----------------|------------------|--------------|------|------------------|------------------|
| | | Qty | Cost | Qty | Cost | Qty | Cost |
| 002 | CARTRIDGES | | 29,587 | | | | 29,587 |
| | BOMBS | | | | | | |
| 004 | GENERAL PURPOSE BOMBS | | 551,862 | | | | 551,862 |
| 006 | JOINT DIRECT ATTACK MUNITION | 28,101 | 738,451 | | | 28,101 | 738,451 |
| | FLARES | | | | | | |
| 015 | FLARES | | 12,116 | | | | 12,116 |
| | FUZES | | | | | | |
| 016 | FUZES | | 81,000 | | | | 81,000 |
| | SMALL ARMS | | | | | | |
| 017 | SMALL ARMS | | 8,500 | | | | 8,500 |
| | TOTAL PROCUREMENT OF AMMUNITION, AIR FORCE | 28,101 | 1,421,516 | | | 28,101 | 1,421,516 |
| | OTHER PROCUREMENT, AIR FORCE | | | | | | |
| | PASSENGER CARRYING VEHICLES | | | | | | |
| 001 | PASSENGER CARRYING VEHICLES | | 9,680 | | | | 9,680 |
| | CARGO AND UTILITY VEHICLES | | | | | | |
| 002 | MEDIUM TACTICAL VEHICLE | | 9,680 | | | | 9,680 |
| 004 | CARGO AND UTILITY VEHICLES | | 19,680 | | | | 19,680 |
| | SPECIAL PURPOSE VEHICLES | | | | | | |
| 006 | SECURITY AND TACTICAL VEHICLES | | 24,880 | | | | 24,880 |
| 007 | SPECIAL PURPOSE VEHICLES | | 34,680 | | | | 34,680 |
| | FIRE FIGHTING EQUIPMENT | | | | | | |
| 008 | FIRE FIGHTING/CRASH RESCUE VEHICLES | | 9,736 | | | | 9,736 |
| | MATERIALS HANDLING EQUIPMENT | | | | | | |
| 009 | MATERIALS HANDLING VEHICLES | | 24,680 | | | | 24,680 |
| | BASE MAINTENANCE SUPPORT | | | | | | |

| | | | |
|------|---|------------------|------------------|
| 010 | RUNWAY SNOW REMOV AND CLEANING EQU | 9,680 | 9,680 |
| 011 | BASE MAINTENANCE SUPPORT VEHICLES | 9,680 | 9,680 |
| | INTELLIGENCE PROGRAMS | | |
| 015 | INTELLIGENCE COMM EQUIPMENT | 6,156 | 6,156 |
| | ELECTRONICS PROGRAMS | | |
| 016 | AIR TRAFFIC CONTROL & LANDING SYS | 56,884 | 56,884 |
| | SPCL COMM-ELECTRONICS PROJECTS | | |
| 029 | AIR FORCE PHYSICAL SECURITY SYSTEM | 46,236 | 46,236 |
| 037 | THEATER BATTLE MGT C2 SYSTEM | 2,500 | 2,500 |
| | ORGANIZATION AND BASE | | |
| 045 | TACTICAL C-E EQUIPMENT | 27,911 | 27,911 |
| | PERSONAL SAFETY & RESCUE EQUIP | | |
| 051 | PERSONAL SAFETY AND RESCUE EQUIPMENT | 13,600 | 13,600 |
| | BASE SUPPORT EQUIPMENT | | |
| 053 | BASE PROCURED EQUIPMENT | 28,800 | 28,800 |
| 054 | ENGINEERING AND EOD EQUIPMENT | 53,500 | 53,500 |
| 055 | MOBILITY EQUIPMENT | 78,562 | 78,562 |
| 056 | BASE MAINTENANCE AND SUPPORT EQUIPMENT | 28,055 | 28,055 |
| | SPECIAL SUPPORT PROJECTS | | |
| 059 | DCGS-AF | 2,000 | 2,000 |
| | CLASSIFIED PROGRAMS | | |
| 062 | CLASSIFIED PROGRAMS | 3,229,364 | 3,229,364 |
| | TOTAL OTHER PROCUREMENT, AIR FORCE | 3,725,944 | 3,725,944 |
| | PROCUREMENT, DEFENSE-WIDE | | |
| | MAJOR EQUIPMENT, DISA | | |
| 008 | TELEPORT PROGRAM | 3,800 | 3,800 |
| 017 | DEFENSE INFORMATION SYSTEMS NETWORK | 12,000 | 12,000 |
| | MAJOR EQUIPMENT, DEFENSE THREAT REDUCTION AGENCY | | |
| 025 | COUNTER IED & IMPROVISED THREAT TECHNOLOGIES | 5,534 | 5,534 |
| | CLASSIFIED PROGRAMS | | |
| 046A | CLASSIFIED PROGRAMS | 41,559 | 41,559 |

SEC. 4102. PROCUREMENT FOR OVERSEAS CONTINGENCY OPERATIONS
(In Thousands of Dollars)

| Line | Item | FY 2019 Request | | House Change | | House Authorized | |
|------|---|-----------------|----------------|--------------|----------------|------------------|----------------|
| | | Qty | Cost | Qty | Cost | Qty | Cost |
| | AVIATION PROGRAMS | | | | | | |
| 047 | MANNED ISR | | 5,000 | | | | 5,000 |
| 048 | MC-12 | | 5,000 | | | | 5,000 |
| 049 | MH-60 BLACKHAWK | | 27,600 | | | | 27,600 |
| 051 | UNMANNED ISR | | 17,000 | | | | 17,000 |
| 052 | NON-STANDARD AVIATION | | 13,000 | | | | 13,000 |
| 053 | U-28 | | 51,722 | | | | 51,722 |
| 054 | MH-47 CHINOOK | | 36,500 | | | | 36,500 |
| | AMMUNITION PROGRAMS | | | | | | |
| 061 | ORDNANCE ITEMS <\$5M | | 100,850 | | | | 100,850 |
| | OTHER PROCUREMENT PROGRAMS | | | | | | |
| 062 | INTELLIGENCE SYSTEMS | | 16,500 | | | | 16,500 |
| 064 | OTHER ITEMS <\$5M | | 7,700 | | | | 7,700 |
| 067 | TACTICAL VEHICLES | | 59,891 | | | | 59,891 |
| 068 | WARRIOR SYSTEMS <\$5M | | 21,135 | | | | 21,135 |
| 069 | COMBAT MISSION REQUIREMENTS | | 10,000 | | | | 10,000 |
| 071 | OPERATIONAL ENHANCEMENTS INTELLIGENCE | | 10,805 | | | | 10,805 |
| 073 | OPERATIONAL ENHANCEMENTS | 13 | 126,539 | | | 13 | 126,539 |
| | TOTAL PROCUREMENT, DEFENSE-WIDE | 13 | 572,135 | | | 13 | 572,135 |
| | NATIONAL GUARD AND RESERVE EQUIPMENT | | | | | | |
| 007 | UNDISTRIBUTED | | | | | | |
| | Program increase | | | | 150,000 | | 150,000 |
| | TOTAL NATIONAL GUARD AND RESERVE EQUIPMENT | | | | 150,000 | | 150,000 |

TOTAL PROCUREMENT 52,535 12,782,468 -9 -2,324,215 52,526 10,458,253

TITLE XLII—RESEARCH, DEVELOPMENT, TEST, AND EVALUATION

SEC. 4201. RESEARCH, DEVELOPMENT, TEST, AND EVALUATION.

SEC. 4201. RESEARCH, DEVELOPMENT, TEST, AND EVALUATION (In Thousands of Dollars)

| Line | Program Element | Item | FY 2019 Request | House Change | House Authorized |
|---|-----------------|--|-----------------|--------------|------------------|
| RESEARCH, DEVELOPMENT, TEST & EVAL, ARMY | | | | | |
| BASIC RESEARCH | | | | | |
| 001 | 0601101A | IN-HOUSE LABORATORY INDEPENDENT RESEARCH | 11,585 | | 11,585 |
| 002 | 0601102A | DEFENSE RESEARCH SCIENCES | 276,912 | | 276,912 |
| 003 | 0601103A | UNIVERSITY RESEARCH INITIATIVES | 65,283 | | 65,283 |
| 004 | 0601104A | UNIVERSITY AND INDUSTRY RESEARCH CENTERS | 92,115 | | 92,115 |
| | | SUBTOTAL BASIC RESEARCH | 445,895 | | 445,895 |
| APPLIED RESEARCH | | | | | |
| 005 | 0602105A | MATERIALS TECHNOLOGY | 28,600 | 1,000 | 29,600 |
| | | Conformal batteries and composite armor | | [1,000] | |
| 006 | 0602120A | SENSORS AND ELECTRONIC SURVIVABILITY | 32,366 | 4,000 | 36,366 |
| | | Expand Army Research lab Open Campus project | | [4,000] | |
| 007 | 0602122A | TRACTOR HIP | 8,674 | | 8,674 |
| 008 | 0602126A | TRACTOR JACK | 400 | | 400 |
| 009 | 0602211A | AVIATION TECHNOLOGY | 64,847 | | 64,847 |
| 010 | 0602270A | ELECTRONIC WARFARE TECHNOLOGY | 25,571 | | 25,571 |
| 011 | 0602303A | MISSILE TECHNOLOGY | 50,183 | | 50,183 |
| 012 | 0602307A | ADVANCED WEAPONS TECHNOLOGY | 29,502 | | 29,502 |

| | | | | |
|-----|----------|--|----------------|----------------|
| 013 | 0602308A | ADVANCED CONCEPTS AND SIMULATION | 28,500 | 28,500 |
| 014 | 0602601A | COMBAT VEHICLE AND AUTOMOTIVE TECHNOLOGY | 70,450 | 70,450 |
| 015 | 0602618A | BALLISTICS TECHNOLOGY | 75,541 | 75,541 |
| 016 | 0602622A | CHEMICAL, SMOKE AND EQUIPMENT DEFEATING TECHNOLOGY | 5,032 | 5,032 |
| 017 | 0602623A | JOINT SERVICE SMALL ARMS PROGRAM | 12,394 | 12,394 |
| 018 | 0602624A | WEAPONS AND MUNITIONS TECHNOLOGY | 40,444 | 50,444 |
| | | Accelerate Army railgun development and prototyping | 10,000 | |
| | | | [10,000] | |
| 019 | 0602705A | ELECTRONICS AND ELECTRONIC DEVICES | 58,283 | 58,283 |
| 020 | 0602709A | NIGHT VISION TECHNOLOGY | 29,582 | 29,582 |
| 021 | 0602712A | COUNTERMINE SYSTEMS | 21,244 | 21,244 |
| 022 | 0602716A | HUMAN FACTORS ENGINEERING TECHNOLOGY | 24,131 | 24,131 |
| 023 | 0602720A | ENVIRONMENTAL QUALITY TECHNOLOGY | 13,242 | 13,242 |
| 024 | 0602782A | COMMAND, CONTROL, COMMUNICATIONS TECHNOLOGY | 55,003 | 55,003 |
| 025 | 0602783A | COMPUTER AND SOFTWARE TECHNOLOGY | 14,958 | 14,958 |
| 026 | 0602784A | MILITARY ENGINEERING TECHNOLOGY | 78,159 | 78,159 |
| 027 | 0602785A | MANPOWER/PERSONNEL/TRAINING TECHNOLOGY | 21,862 | 21,862 |
| 028 | 0602786A | WARFIGHTER TECHNOLOGY | 40,566 | 45,566 |
| | | Program increase | 5,000 | |
| | | | [5,000] | |
| 029 | 0602787A | MEDICAL TECHNOLOGY | 90,075 | 90,075 |
| | | SUBTOTAL APPLIED RESEARCH | 919,609 | 939,609 |
| 030 | 0603001A | ADVANCED TECHNOLOGY DEVELOPMENT | 39,338 | 39,338 |
| 031 | 0603002A | WARFIGHTER ADVANCED TECHNOLOGY | 62,496 | 62,496 |
| 032 | 0603003A | MEDICAL ADVANCED TECHNOLOGY | 124,958 | 124,958 |
| 033 | 0603004A | AVIATION ADVANCED TECHNOLOGY | 102,686 | 102,686 |
| 034 | 0603005A | WEAPONS AND MUNITIONS ADVANCED TECHNOLOGY | 119,739 | 119,739 |
| 035 | 0603006A | COMBAT VEHICLE AND AUTOMOTIVE ADVANCED TECHNOLOGY | 13,000 | 13,000 |
| 036 | 0603007A | SPACE APPLICATION ADVANCED TECHNOLOGY | 8,044 | 8,044 |
| 037 | 0603009A | MANPOWER, PERSONNEL AND TRAINING ADVANCED TECHNOLOGY | 22,631 | 22,631 |
| 038 | 0603015A | TRACTOR HIKE | 25,682 | 25,682 |
| 040 | 0603125A | NEXT GENERATION TRAINING & SIMULATION SYSTEMS | 3,762 | 3,762 |
| | | COMBATING TERRORISM—TECHNOLOGY DEVELOPMENT | | |

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39
51

SEC. 4201. RESEARCH, DEVELOPMENT, TEST, AND EVALUATION
(In Thousands of Dollars)

| Line | Program Element | Item | FY 2019 Request | House Change | House Authorized |
|--|-----------------|--|------------------|---------------|------------------|
| 041 | 0603130A | TRACTOR NAIL | 4,896 | | 4,896 |
| 042 | 0603131A | TRACTOR EGGS | 6,041 | | 6,041 |
| 043 | 0603270A | ELECTRONIC WARFARE TECHNOLOGY | 31,491 | | 31,491 |
| 044 | 0603313A | MISSILE AND ROCKET ADVANCED TECHNOLOGY | 61,132 | 10,000 | 71,132 |
| | | Shoot-on-the-Move Technology Development for SHORAD platforms | | [10,000] | |
| 045 | 0603322A | TRACTOR CAGE | 16,845 | | 16,845 |
| 046 | 0603461A | HIGH PERFORMANCE COMPUTING MODERNIZATION PROGRAM | 183,322 | 5,000 | 188,322 |
| | | Enhance and accelerate Army artificial intelligence and machine learning | | [5,000] | |
| 047 | 0603606A | LANDMINE WARFARE AND BARRIER ADVANCED TECHNOLOGY | 11,104 | | 11,104 |
| 048 | 0603607A | JOINT SERVICE SMALL ARMS PROGRAM | 5,885 | | 5,885 |
| 049 | 0603710A | NIGHT VISION ADVANCED TECHNOLOGY | 61,376 | -2,500 | 58,876 |
| | | Program decrease | | [-2,500] | |
| 050 | 0603728A | ENVIRONMENTAL QUALITY TECHNOLOGY DEMONSTRATIONS | 9,136 | | 9,136 |
| 051 | 0603734A | MILITARY ENGINEERING ADVANCED TECHNOLOGY | 25,864 | | 25,864 |
| 052 | 0603772A | ADVANCED TACTICAL COMPUTER SCIENCE AND SENSOR TECHNOLOGY | 34,883 | 5,000 | 39,883 |
| | | Program increase | | [5,000] | |
| 053 | 0603794A | C3 ADVANCED TECHNOLOGY | 52,387 | -2,500 | 49,887 |
| | | Program decrease | | [-2,500] | |
| | | SUBTOTAL ADVANCED TECHNOLOGY DEVELOPMENT | 1,026,698 | 15,000 | 1,041,698 |
| ADVANCED COMPONENT DEVELOPMENT & PROTOTYPES | | | | | |
| 054 | 0603305A | ARMY MISSILE DEFENSE SYSTEMS INTEGRATION | 10,777 | | 10,777 |
| 056 | 0603327A | AIR AND MISSILE DEFENSE SYSTEMS ENGINEERING | 42,802 | 1,000 | 43,802 |
| | | Realignment of EDI APS Unit Set from OCO to Base | | [1,000] | |
| 057 | 0603619A | LANDMINE WARFARE AND BARRIER—ADV DEV | 45,254 | | 45,254 |
| 058 | 0603627A | SMOKE, OBSCURANT AND TARGET DEFEATING SYS-ADV DEV | 22,700 | | 22,700 |
| 059 | 0603639A | TANK AND MEDIUM CALIBER AMMUNITION | 41,974 | 14,000 | 55,974 |

| | | | | |
|-----|----------|---|------------------|------------------|
| 060 | 0603645A | ARMORED SYSTEM MODERNIZATION—ADV DEV | 119,395 | 119,395 |
| 061 | 0603747A | SOLDIER SUPPORT AND SURVIVABILITY | 8,746 | 8,746 |
| 062 | 0603766A | TACTICAL ELECTRONIC SURVEILLANCE SYSTEM—ADV DEV | 35,667 | 35,667 |
| 063 | 0603774A | NIGHT VISION SYSTEMS ADVANCED DEVELOPMENT | 7,350 | 7,350 |
| 064 | 0603779A | ENVIRONMENTAL QUALITY TECHNOLOGY—DEM/VAL | 14,749 | 14,749 |
| 065 | 0603790A | NATO RESEARCH AND DEVELOPMENT | 3,687 | 3,687 |
| 066 | 0603801A | AVIATION—ADV DEV | 10,793 | 10,793 |
| 067 | 0603804A | LOGISTICS AND ENGINEER EQUIPMENT—ADV DEV | 14,248 | 14,248 |
| 068 | 0603807A | MEDICAL SYSTEMS—ADV DEV | 34,284 | 34,284 |
| 069 | 0603827A | SOLDIER SYSTEMS—ADVANCED DEVELOPMENT | 18,044 | 18,044 |
| | | Advanced materials research for personal protective equipment (PPE) | | 10,000 |
| 070 | 0604017A | ROBOTICS DEVELOPMENT | 95,660 | 95,660 |
| 071 | 0604020A | CROSS FUNCTIONAL TEAM (CFT) ADVANCED DEVELOPMENT & PROTOTYPING | 38,000 | 68,000 |
| | | Iron Dome short range air defense experimentation | | [30,000] |
| 072 | 0604100A | ANALYSIS OF ALTERNATIVES | 9,765 | 9,765 |
| 073 | 0604113A | FUTURE TACTICAL UNMANNED AIRCRAFT SYSTEM (FTUAS) | 12,393 | 12,393 |
| 074 | 0604114A | LOWER TIER AIR MISSILE DEFENSE (LTAMD) SENSOR | 120,374 | 120,374 |
| 075 | 0604115A | TECHNOLOGY MATURATION INITIATIVES | 95,347 | 95,347 |
| 076 | 0604117A | MANEUVER—SHORT RANGE AIR DEFENSE (M-SHORAD) | 95,085 | 118,085 |
| | | Realignment of EDI APS Unit Set from OCO to Base | | 23,000 |
| 077 | 0604118A | TRACTOR BEAM | 52,894 | 52,894 |
| 079 | 0604121A | SYNTHETIC TRAINING ENVIRONMENT REFINEMENT & PROTOTYPING | 77,939 | 77,939 |
| 080 | 0604319A | INDIRECT FIRE PROTECTION CAPABILITY INCREMENT 2—INTERCEPT (IFPC2) | 51,030 | 51,030 |
| 081 | 0305251A | CYBERSPACE OPERATIONS FORCES AND FORCE SUPPORT | 65,817 | 65,817 |
| 082 | 1206120A | ASSURED POSITIONING, NAVIGATION AND TIMING (PNT) | 146,300 | 146,300 |
| 083 | 1206308A | ARMY SPACE SYSTEMS INTEGRATION | 38,319 | 38,319 |
| | | SUBTOTAL ADVANCED COMPONENT DEVELOPMENT & PROTOTYPES | 1,329,393 | 1,407,393 |
| | | SYSTEM DEVELOPMENT & DEMONSTRATION | | |
| 084 | 0604201A | AIRCRAFT AVIONICS | 32,293 | 32,293 |

SEC. 4201. RESEARCH, DEVELOPMENT, TEST, AND EVALUATION
(In Thousands of Dollars)

| Line | Program Element | Item | FY 2019 Request | House Change | House Authorized |
|------|-----------------|---|-----------------|--------------|------------------|
| 085 | 0604270A | ELECTRONIC WARFARE DEVELOPMENT | 78,699 | | 78,699 |
| 088 | 0604328A | TRACTOR CAGE | 17,050 | | 17,050 |
| 089 | 0604601A | INFANTRY SUPPORT WEAPONS | 83,155 | | 83,155 |
| 090 | 0604604A | MEDIUM TACTICAL VEHICLES | 3,704 | | 3,704 |
| 091 | 0604611A | JAVELIN | 10,623 | | 10,623 |
| 092 | 0604622A | FAMILY OF HEAVY TACTICAL VEHICLES | 11,950 | | 11,950 |
| 093 | 0604633A | AIR TRAFFIC CONTROL | 12,347 | | 12,347 |
| 095 | 0604642A | LIGHT TACTICAL WHEELED VEHICLES | 8,212 | | 8,212 |
| 096 | 0604645A | ARMORED SYSTEMS MODERNIZATION (ASM)—ENG DEV | 393,613 | | 393,613 |
| 097 | 0604710A | NIGHT VISION SYSTEMS—ENG DEV | 139,614 | | 139,614 |
| 098 | 0604713A | COMBAT FEEDING, CLOTHING, AND EQUIPMENT | 4,507 | | 4,507 |
| 099 | 0604715A | NON-SYSTEM TRAINING DEVICES—ENG DEV | 49,436 | | 49,436 |
| 100 | 0604741A | AIR DEFENSE COMMAND, CONTROL AND INTELLIGENCE—ENG DEV | 95,172 | | 95,172 |
| 101 | 0604742A | CONSTRUCTIVE SIMULATION SYSTEMS DEVELOPMENT | 22,628 | | 22,628 |
| 102 | 0604746A | AUTOMATIC TEST EQUIPMENT DEVELOPMENT | 13,297 | | 13,297 |
| 103 | 0604760A | DISTRIBUTIVE INTERACTIVE SIMULATIONS (DIS)—ENG DEV | 9,145 | | 9,145 |
| 104 | 0604768A | BRILLIANT ANTI-ARMOR SUBMUNITION (BAT) | 9,894 | | 9,894 |
| 105 | 0604780A | COMBINED ARMS TACTICAL TRAINER (CATT) CORE | 21,964 | | 21,964 |
| 106 | 0604798A | BRIGADE ANALYSIS, INTEGRATION AND EVALUATION | 49,288 | | 49,288 |
| 107 | 0604802A | WEAPONS AND MUNITIONS—ENG DEV | 183,100 | | 183,100 |
| 108 | 0604804A | LOGISTICS AND ENGINEER EQUIPMENT—ENG DEV | 79,706 | -3,800 | 75,906 |
| | | Late MSV-L contract award and concurrency | | [-3,800] | |
| 109 | 0604805A | COMMAND, CONTROL, COMMUNICATIONS SYSTEMS—ENG DEV | 15,970 | | 15,970 |
| 110 | 0604807A | MEDICAL MATERIEL/MEDICAL BIOLOGICAL DEFENSE EQUIPMENT—ENG DEV | 44,542 | | 44,542 |
| 111 | 0604808A | LANDMINE WARFARE/BARRIER—ENG DEV | 50,817 | | 50,817 |
| 112 | 0604818A | ARMY TACTICAL COMMAND & CONTROL HARDWARE & SOFTWARE | 178,693 | | 178,693 |
| 113 | 0604820A | RADAR DEVELOPMENT | 39,338 | | 39,338 |

| | | | | |
|-----|----------|---|---------|-----------|
| 114 | 0604822A | GENERAL FUND ENTERPRISE BUSINESS SYSTEM (GFEB5) | 37,851 | 37,851 |
| 115 | 0604823A | FIREFINDER | 45,473 | 45,473 |
| 116 | 0604827A | SOLDIER SYSTEMS—WARRIOR DEMVAL | 10,395 | 10,395 |
| 117 | 0604852A | SUITE OF SURVIVABILITY ENHANCEMENT SYSTEMS—EMD | 69,204 | 55,804 |
| | | Program reduction | | -13,400 |
| | | | | [-13,400] |
| 118 | 0604854A | ARTILLERY SYSTEMS—EMD | 1,781 | 1,781 |
| 119 | 0605013A | INFORMATION TECHNOLOGY DEVELOPMENT | 113,758 | 113,758 |
| 120 | 0605018A | INTEGRATED PERSONNEL AND PAY SYSTEM-ARMY (IPPS-A) | 166,603 | 166,603 |
| 121 | 0605028A | ARMORED MULTI-PURPOSE VEHICLE (AMPV) | 118,239 | 118,239 |
| 122 | 0605029A | INTEGRATED GROUND SECURITY SURVEILLANCE RESPONSE CAPABILITY (GSSR-C) | 3,211 | 3,211 |
| 123 | 0605030A | JOINT TACTICAL NETWORK CENTER (JTNC) | 15,889 | 15,889 |
| 124 | 0605031A | JOINT TACTICAL NETWORK (JTN) | 41,972 | 41,972 |
| 125 | 0605032A | TRACTOR TIRE | 41,166 | 41,166 |
| 126 | 0605033A | GROUND-BASED OPERATIONAL SURVEILLANCE SYSTEM—EXPEDITIONARY (GBOSS-E) | 5,175 | 5,175 |
| 127 | 0605034A | TACTICAL SECURITY SYSTEM (TSS) | 4,496 | 4,496 |
| 128 | 0605035A | COMMON INFRARED COUNTERMEASURES (CIRCM) | 51,178 | 51,178 |
| 129 | 0605036A | COMBATING WEAPONS OF MASS DESTRUCTION (CWMD) | 11,311 | 11,311 |
| 131 | 0605038A | NUCLEAR BIOLOGICAL CHEMICAL RECONNAISSANCE VEHICLE (NBCRV) SENSOR SUITE | 17,154 | 17,154 |
| 132 | 0605041A | DEFENSIVE CYBER TOOL DEVELOPMENT | 36,626 | 36,626 |
| 133 | 0605042A | TACTICAL NETWORK RADIO SYSTEMS (LOW-TIER) | 3,829 | 3,829 |
| 134 | 0605047A | CONTRACT WRITING SYSTEM | 41,928 | 41,928 |
| 135 | 0605049A | MISSILE WARNING SYSTEM MODERNIZATION (MWSM) | 28,276 | 28,276 |
| 136 | 0605051A | AIRCRAFT SURVIVABILITY DEVELOPMENT | 21,965 | 21,965 |
| 137 | 0605052A | INDIRECT FIRE PROTECTION CAPABILITY INC 2—BLOCK 1 | 157,710 | 157,710 |
| 138 | 0605053A | GROUND ROBOTICS | 86,167 | 86,167 |
| 139 | 0605054A | EMERGING TECHNOLOGY INITIATIVES | 42,866 | 68,266 |
| | | Army UFR: program increase | | 25,400 |
| | | | | [25,400] |
| 140 | 0605380A | AMF JOINT TACTICAL RADIO SYSTEM (JTRS) | 15,984 | 15,984 |
| 141 | 0605450A | JOINT AIR-TO-GROUND MISSILE (JAGM) | 11,773 | 11,773 |
| 142 | 0605457A | ARMY INTEGRATED AIR AND MISSILE DEFENSE (AIAMD) | 277,607 | 277,607 |
| 143 | 0605766A | NATIONAL CAPABILITIES INTEGRATION (MIP) | 12,340 | 12,340 |
| 144 | 0605812A | JOINT LIGHT TACTICAL VEHICLE (LTV) ENGINEERING AND MANUFACTURING DEVELOPMENT PH | 2,686 | 2,686 |

SEC. 4201. RESEARCH, DEVELOPMENT, TEST, AND EVALUATION
(In Thousands of Dollars)

| Line | Program Element | Item | FY 2019 Request | House Change | House Authorized |
|------|-----------------|--|------------------|--------------|------------------|
| 145 | 0605830A | AVIATION GROUND SUPPORT EQUIPMENT | 2,706 | | 2,706 |
| 147 | 0303032A | TROJAN—RH12 | 4,521 | | 4,521 |
| 150 | 0304270A | ELECTRONIC WARFARE DEVELOPMENT | 8,922 | | 8,922 |
| 151 | 1205117A | TRACTOR BEARS | 23,170 | | 23,170 |
| | | SUBTOTAL SYSTEM DEVELOPMENT & DEMONSTRATION | 3,192,689 | 8,200 | 3,200,889 |
| | | RD&E MANAGEMENT SUPPORT | | | |
| 152 | 0604256A | THREAT SIMULATOR DEVELOPMENT | 12,835 | | 12,835 |
| 153 | 0604258A | TARGET SYSTEMS DEVELOPMENT | 12,135 | | 12,135 |
| 154 | 0604759A | MAJOR T&E INVESTMENT | 82,996 | | 82,996 |
| 155 | 0605103A | RAND ARROYO CENTER | 19,821 | | 19,821 |
| 156 | 0605301A | ARMY KWAJALEIN ATOLL | 246,574 | | 246,574 |
| 157 | 0605326A | CONCEPTS EXPERIMENTATION PROGRAM | 30,430 | | 30,430 |
| 159 | 0605601A | ARMY TEST RANGES AND FACILITIES | 305,759 | | 305,759 |
| 160 | 0605602A | ARMY TECHNICAL TEST INSTRUMENTATION AND TARGETS | 62,379 | | 62,379 |
| 161 | 0605604A | SURVIVABILITY/LETHALITY ANALYSIS | 40,496 | | 40,496 |
| 162 | 0605606A | AIRCRAFT CERTIFICATION | 3,941 | | 3,941 |
| 163 | 0605702A | METEOROLOGICAL SUPPORT TO RD&E ACTIVITIES | 9,767 | | 9,767 |
| 164 | 0605706A | MATERIEL SYSTEMS ANALYSIS | 21,226 | | 21,226 |
| 165 | 0605709A | EXPLOITATION OF FOREIGN ITEMS | 13,026 | | 13,026 |
| 166 | 0605712A | SUPPORT OF OPERATIONAL TESTING | 52,718 | | 52,718 |
| 167 | 0605716A | ARMY EVALUATION CENTER | 57,049 | | 57,049 |
| 168 | 0605718A | ARMY MODELING & SIM X-CMD COLLABORATION & INTEG | 2,801 | | 2,801 |
| 169 | 0605801A | PROGRAMWIDE ACTIVITIES | 60,942 | | 60,942 |
| 170 | 0605803A | TECHNICAL INFORMATION ACTIVITIES | 29,050 | | 29,050 |
| 171 | 0605805A | MUNITIONS STANDARDIZATION, EFFECTIVENESS AND SAFETY | 42,332 | | 42,332 |
| 172 | 0605857A | ENVIRONMENTAL QUALITY TECHNOLOGY MGMT SUPPORT | 3,216 | | 3,216 |

| | | | | |
|--|----------|---|------------------|------------------|
| 173 | 0605898A | ARMY DIRECT REPORT HEADQUARTERS—R&D - MHA | 54,145 | 54,145 |
| 174 | 0606001A | MILITARY GROUND-BASED CREW TECHNOLOGY | 4,896 | 4,896 |
| 175 | 0606002A | RONALD REAGAN BALLISTIC MISSILE DEFENSE TEST SITE | 63,011 | 63,011 |
| 176 | 0606003A | COUNTERINTEL AND HUMAN INTEL MODERNIZATION | 2,636 | 2,636 |
| 177 | 0606942A | ASSESSMENTS AND EVALUATIONS CYBER VULNERABILITIES | 88,300 | 88,300 |
| | | SUBTOTAL ROT&E MANAGEMENT SUPPORT | 1,322,481 | 1,322,481 |
| OPERATIONAL SYSTEMS DEVELOPMENT | | | | |
| 181 | 0603778A | MLRS PRODUCT IMPROVEMENT PROGRAM | 8,886 | 8,886 |
| 182 | 0603813A | TRACTOR PULL | 4,067 | 4,067 |
| 183 | 0605024A | ANTI-TAMPER TECHNOLOGY SUPPORT | 4,254 | 4,254 |
| 184 | 0607131A | WEAPONS AND MUNITIONS PRODUCT IMPROVEMENT PROGRAMS | 16,022 | 16,022 |
| 185 | 0607133A | TRACTOR SMOKE | 4,577 | 4,577 |
| 186 | 0607134A | LONG RANGE PRECISION FIRES (LRPF) | 186,475 | 186,475 |
| 187 | 0607135A | APACHE PRODUCT IMPROVEMENT PROGRAM | 31,049 | 31,049 |
| 188 | 0607136A | BLACKHAWK PRODUCT IMPROVEMENT PROGRAM | 35,240 | 35,240 |
| 189 | 0607137A | CHINOOK PRODUCT IMPROVEMENT PROGRAM | 157,822 | 157,822 |
| 190 | 0607138A | FIXED WING PRODUCT IMPROVEMENT PROGRAM | 4,189 | 4,189 |
| 191 | 0607139A | IMPROVED TURBINE ENGINE PROGRAM | 192,637 | 192,637 |
| 194 | 0607142A | AVIATION ROCKET SYSTEM PRODUCT IMPROVEMENT AND DEVELOPMENT | 60,860 | 60,860 |
| 195 | 0607143A | UNMANNED AIRCRAFT SYSTEM UNIVERSAL PRODUCTS | 52,019 | 52,019 |
| 196 | 0607665A | FAMILY OF BIOMETRICS | 2,400 | 2,400 |
| 197 | 0607865A | PATRIOT PRODUCT IMPROVEMENT | 65,369 | 65,369 |
| | | Increase PATRIOT improvement efforts | | 25,000 |
| | | | | [25,000] |
| 198 | 0202429A | AEROSTAT JOINT PROJECT—COCOM EXERCISE | 1 | 1 |
| 199 | 0203728A | JOINT AUTOMATED DEEP OPERATION COORDINATION SYSTEM (JADOCs) | 30,954 | 30,954 |
| 200 | 0203735A | COMBAT VEHICLE IMPROVEMENT PROGRAMS | 411,927 | 411,927 |
| 202 | 0203743A | 155MM SELF-PROPELLED HOWITZER IMPROVEMENTS | 40,676 | 40,676 |
| 203 | 0203744A | AIRCRAFT MODIFICATIONS/PRODUCT IMPROVEMENT PROGRAMS | 17,706 | 17,706 |
| 204 | 0203752A | AIRCRAFT ENGINE COMPONENT IMPROVEMENT PROGRAM | 146 | 146 |
| 205 | 0203758A | DIGITIZATION | 6,316 | 6,316 |
| 206 | 0203801A | MISSILE/AIR DEFENSE PRODUCT IMPROVEMENT PROGRAM | 1,643 | 1,643 |
| | | | | 2,000 |

SEC. 4201. RESEARCH, DEVELOPMENT, TEST, AND EVALUATION
(In Thousands of Dollars)

| Line | Program Element | Item | FY 2019 Request | House Change | House Authorized |
|------|-----------------|---|-------------------|----------------|-------------------|
| | | Realignment of EDI APS Unit Set from OCO to Base | | [2,000] | |
| 207 | 0203802A | OTHER MISSILE PRODUCT IMPROVEMENT PROGRAMS | 4,947 | | 4,947 |
| 208 | 0203808A | TRACTOR CARD | 34,050 | | 34,050 |
| 210 | 0205410A | MATERIALS HANDLING EQUIPMENT | 1,464 | | 1,464 |
| 211 | 0205412A | ENVIRONMENTAL QUALITY TECHNOLOGY—OPERATIONAL SYSTEM DEV | 249 | | 249 |
| 212 | 0205456A | LOWER TIER AIR AND MISSILE DEFENSE (AMD) SYSTEM | 79,283 | | 79,283 |
| 213 | 0205778A | GUIDED MULTIPLE-LAUNCH ROCKET SYSTEM (GMLRS) | 154,102 | | 154,102 |
| 216 | 0303028A | SECURITY AND INTELLIGENCE ACTIVITIES | 12,280 | | 12,280 |
| 217 | 0303140A | INFORMATION SYSTEMS SECURITY PROGRAM | 68,533 | | 68,533 |
| 218 | 0303141A | GLOBAL COMBAT SUPPORT SYSTEM | 68,619 | | 68,619 |
| 220 | 0303150A | WMCGS/GLOBAL COMMAND AND CONTROL SYSTEM | 2,034 | | 2,034 |
| 223 | 0305172A | COMBINED ADVANCED APPLICATIONS | 1,500 | | 1,500 |
| 224 | 0305179A | INTEGRATED BROADCAST SERVICE (IBS) | 450 | | 450 |
| 225 | 0305204A | TACTICAL UNMANNED AERIAL VEHICLES | 6,000 | | 6,000 |
| 226 | 0305206A | AIRBORNE RECONNAISSANCE SYSTEMS | 12,416 | 14,000 | 26,416 |
| | | Realignment of EDI APS Unit Set from OCO to Base | | [14,000] | |
| 227 | 0305208A | DISTRIBUTED COMMON GROUND/SURFACE SYSTEMS | 38,667 | | 38,667 |
| 229 | 0305232A | RQ-11 UAV | 6,180 | | 6,180 |
| 230 | 0305233A | RQ-7 UAV | 12,863 | | 12,863 |
| 231 | 0307665A | BIOMETRICS ENABLED INTELLIGENCE | 4,310 | | 4,310 |
| 233 | 0708045A | END ITEM INDUSTRIAL PREPAREDNESS ACTIVITIES | 53,958 | | 53,958 |
| 234 | 1203142A | SATCOM GROUND ENVIRONMENT (SPACE) | 12,119 | | 12,119 |
| 235 | 1208053A | JOINT TACTICAL GROUND SYSTEM | 7,400 | | 7,400 |
| 235A | 9999999999 | CLASSIFIED PROGRAMS | 5,955 | | 5,955 |
| | | SUBTOTAL OPERATIONAL SYSTEMS DEVELOPMENT | 1,922,614 | 41,000 | 1,963,614 |
| | | TOTAL RESEARCH, DEVELOPMENT, TEST & EVAL, ARMY | 10,159,379 | 162,200 | 10,321,579 |

| | | | | |
|-----|----------|--|----------------|---------------|
| | | RESEARCH, DEVELOPMENT, TEST & EVAL, NAVY | | |
| | | BASIC RESEARCH | | |
| 001 | 0601103N | UNIVERSITY RESEARCH INITIATIVES | 119,433 | 10,000 |
| | | Defense University Research Instrumentation Program | | [10,000] |
| 002 | 0601152N | IN-HOUSE LABORATORY INDEPENDENT RESEARCH | 19,237 | |
| 003 | 0601153N | DEFENSE RESEARCH SCIENCES | 458,708 | |
| | | SUBTOTAL BASIC RESEARCH | 597,378 | 10,000 |
| | | APPLIED RESEARCH | | |
| 004 | 0602114N | POWER PROJECTION APPLIED RESEARCH | 14,643 | 14,643 |
| 005 | 0602123N | FORCE PROTECTION APPLIED RESEARCH | 124,049 | 124,049 |
| 006 | 0602131M | MARINE CORPS LANDING FORCE TECHNOLOGY | 59,607 | 59,607 |
| 007 | 0602235N | COMMON PICTURE APPLIED RESEARCH | 36,348 | 5,000 |
| | | Enhance and accelerate Navy artificial intelligence research | | [5,000] |
| 008 | 060236N | WARFIGHTER SUSTAINMENT APPLIED RESEARCH | 56,197 | 56,197 |
| 009 | 0602271N | ELECTROMAGNETIC SYSTEMS APPLIED RESEARCH | 83,800 | 83,800 |
| 010 | 0602435N | OCEAN WARFIGHTING ENVIRONMENT APPLIED RESEARCH | 42,998 | 42,998 |
| 011 | 0602651M | JOINT NON-LETHAL WEAPONS APPLIED RESEARCH | 6,349 | 6,349 |
| 012 | 0602747N | UNDERSEA WARFARE APPLIED RESEARCH | 58,049 | 20,000 |
| | | Academic partnerships for undersea unmanned warfare research and energy technology | | [20,000] |
| 013 | 0602750N | FUTURE NAVAL CAPABILITIES APPLIED RESEARCH | 147,771 | 147,771 |
| 014 | 0602782N | MINE AND EXPEDITIONARY WARFARE APPLIED RESEARCH | 37,545 | 23,500 |
| | | Program increase-one sensor plus integration | | [23,500] |
| 015 | 0602792N | INNOVATIVE NAVAL PROTOTYPES (INP) APPLIED RESEARCH | 159,697 | 10,000 |
| | | Accelerate Navy railgun development and prototyping | | [10,000] |
| 016 | 0602861N | SCIENCE AND TECHNOLOGY MANAGEMENT—ONR FIELD ACTIVITIES | 64,418 | 64,418 |
| | | SUBTOTAL APPLIED RESEARCH | 891,471 | 58,500 |
| | | ADVANCED TECHNOLOGY DEVELOPMENT | | |
| 019 | 0603123N | FORCE PROTECTION ADVANCED TECHNOLOGY | 2,423 | 2,423 |
| 021 | 0603640M | USMC ADVANCED TECHNOLOGY DEMONSTRATION (ATD) | 150,245 | 150,245 |

SEC. 4201. RESEARCH, DEVELOPMENT, TEST, AND EVALUATION
(In Thousands of Dollars)

| Line | Program Element | Item | FY 2019 Request | House Change | House Authorized |
|------|-----------------|---|-----------------|---------------|------------------|
| 022 | 0603651M | JOINT NON-LETHAL WEAPONS TECHNOLOGY DEVELOPMENT | 13,313 | | 13,313 |
| 023 | 0603671N | NAVY ADVANCED TECHNOLOGY DEVELOPMENT (ATD) | 131,502 | | 131,502 |
| 024 | 0603673N | FUTURE NAVAL CAPABILITIES ADVANCED TECHNOLOGY DEVELOPMENT | 232,996 | | 232,996 |
| 025 | 0603680N | MANUFACTURING TECHNOLOGY PROGRAM | 58,657 | | 58,657 |
| 030 | 0603801N | INNOVATIVE NAVAL PROTOTYPES (INP) ADVANCED TECHNOLOGY DEVELOPMENT | 161,859 | 20,000 | 181,859 |
| | | Accelerate Navy railgun development and prototyping | | [20,000] | |
| | | SUBTOTAL ADVANCED TECHNOLOGY DEVELOPMENT | 750,995 | 20,000 | 770,995 |
| | | ADVANCED COMPONENT DEVELOPMENT & PROTOTYPES | | | |
| 031 | 0603207N | AIR/OCEAN TACTICAL APPLICATIONS | 29,747 | | 29,747 |
| 032 | 0603216N | AVIATION SURVIVABILITY | 7,050 | | 7,050 |
| 033 | 0603251N | AIRCRAFT SYSTEMS | 793 | | 793 |
| 034 | 0603254N | ASW SYSTEMS DEVELOPMENT | 7,058 | 5,000 | 12,058 |
| | | Prototyping fiber deployment sonobuoy systems | | [5,000] | |
| 035 | 0603261N | TACTICAL AIRBORNE RECONNAISSANCE | 3,540 | | 3,540 |
| 036 | 0603382N | ADVANCED COMBAT SYSTEMS TECHNOLOGY | 59,741 | | 59,741 |
| 037 | 0603502N | SURFACE AND SHALLOW WATER MINE COUNTERMEASURES | 62,727 | | 62,727 |
| 038 | 0603506N | SURFACE SHIP TORPEDO DEFENSE | 8,570 | 10,000 | 18,570 |
| | | Program increase | | [10,000] | |
| 039 | 0603512N | CARRIER SYSTEMS DEVELOPMENT | 5,440 | | 5,440 |
| 040 | 0603525N | PILOT FISH | 162,222 | | 162,222 |
| 041 | 0603527N | RETRACT LARCH | 11,745 | | 11,745 |
| 042 | 0603536N | RETRACT JUNIPER | 114,265 | | 114,265 |
| 043 | 0603542N | RADIOLOGICAL CONTROL | 740 | | 740 |
| 044 | 0603553N | SURFACE ASW | 1,122 | | 1,122 |
| 045 | 0603561N | ADVANCED SUBMARINE SYSTEM DEVELOPMENT | 109,086 | -20,000 | 89,086 |
| | | Excessive cost growth | | [-7,000] | |

| | | | | |
|-----|----------|---|----------|---------|
| 046 | 0603562N | Prior year inefficiencies impact | | |
| 047 | 0603563N | SUBMARINE TACTICAL WARFARE SYSTEMS | 9,374 | 9,374 |
| 048 | 0603564N | SHIP CONCEPT ADVANCED DESIGN | 89,419 | 89,419 |
| 049 | 0603570N | SHIP PRELIMINARY DESIGN & FEASIBILITY STUDIES | 13,348 | 13,348 |
| 050 | 0603573N | ADVANCED NUCLEAR POWER SYSTEMS | 256,137 | 256,137 |
| 051 | 0603576N | ADVANCED SURFACE MACHINERY SYSTEMS | 22,109 | 22,109 |
| 052 | 0603581N | CHALK EAGLE | 29,744 | 29,744 |
| 053 | 0603582N | LITTORAL COMBAT SHIP (LCS) | 27,997 | 27,997 |
| 054 | 0603595N | COMBAT SYSTEM INTEGRATION | 16,351 | 16,351 |
| | | OHIO REPLACEMENT | 514,846 | 526,846 |
| | | Advanced Submarines Control and Precision Propulsion Module Integration | 12,000 | |
| 055 | 0603596N | LCS MISSION MODULES | [12,000] | 103,633 |
| 056 | 0603597N | AUTOMATED TEST AND ANALYSIS | 7,931 | 7,931 |
| 057 | 0603599N | FRIGATE DEVELOPMENT | 134,772 | 134,772 |
| 058 | 0603609N | CONVENTIONAL MUNITIONS | 9,307 | 9,307 |
| 060 | 0603635M | MARINE CORPS GROUND COMBAT/SUPPORT SYSTEM | 1,828 | 1,828 |
| 061 | 0603654N | JOINT SERVICE EXPLOSIVE ORDNANCE DEVELOPMENT | 43,148 | 43,148 |
| 062 | 0603713N | OCEAN ENGINEERING TECHNOLOGY DEVELOPMENT | 5,915 | 5,915 |
| 063 | 0603721N | ENVIRONMENTAL PROTECTION | 19,811 | 24,811 |
| | | High-Pressure Waterjet Explosive Ordnance Disposal Technology development | 5,000 | |
| 064 | 0603724N | NAVY ENERGY PROGRAM | [5,000] | 25,656 |
| 065 | 0603725N | FACILITIES IMPROVEMENT | 5,301 | 5,301 |
| 066 | 0603734N | CHALK CORAL | 267,985 | 267,985 |
| 067 | 0603739N | NAVY LOGISTIC PRODUCTIVITY | 4,059 | 4,059 |
| 068 | 0603746N | RETRACT MAPLE | 377,878 | 377,878 |
| 069 | 0603748N | LINK PLUMERIA | 381,770 | 381,770 |
| 070 | 0603751N | RETRACT ELM | 60,535 | 60,535 |
| 073 | 0603790N | NATO RESEARCH AND DEVELOPMENT | 9,652 | 9,652 |
| 074 | 0603795N | LAND ATTACK TECHNOLOGY | 15,529 | 15,529 |
| 075 | 0603851M | JOINT NON-LETHAL WEAPONS TESTING | 27,581 | 32,581 |
| | | Joint service adoption of non-lethal weapon technologies | 5,000 | |
| 076 | 0603860N | JOINT PRECISION APPROACH AND LANDING SYSTEMS—DE/MVAL | [5,000] | 101,566 |

SEC. 4201. RESEARCH, DEVELOPMENT, TEST, AND EVALUATION
(In Thousands of Dollars)

| Line | Program Element | Item | FY 2019 Request | House Change | House Authorized |
|------|-----------------|---|------------------|----------------|------------------|
| 077 | 0603925N | DIRECTED ENERGY AND ELECTRIC WEAPON SYSTEMS | 223,344 | -52,000 | 171,344 |
| | | Program decrease | | [-52,000] | |
| 078 | 0604014N | F/A -18 INFRARED SEARCH AND TRACK (IRST) | 108,700 | | 108,700 |
| 079 | 0604027N | DIGITAL WARFARE OFFICE | 26,691 | | 26,691 |
| 080 | 0604028N | SMALL AND MEDIUM UNMANNED UNDERSEA VEHICLES | 16,717 | | 16,717 |
| 081 | 0604029N | UNMANNED UNDERSEA VEHICLE CORE TECHNOLOGIES | 30,187 | | 30,187 |
| 082 | 0604030N | RAPID PROTOTYPING, EXPERIMENTATION AND DEMONSTRATION. | 48,796 | | 48,796 |
| 083 | 0604031N | LARGE UNMANNED UNDERSEA VEHICLES | 92,613 | -21,200 | 71,413 |
| | | Excessive Snakehead LDUUV growth | | [-21,200] | |
| 084 | 0604112N | GERALD R. FORD CLASS NUCLEAR AIRCRAFT CARRIER (CVN 78-80) | 58,121 | 15,000 | 73,121 |
| | | EIMALS software support activity | | [15,000] | |
| 086 | 0604126N | LITTORAL AIRBORNE MCM | 17,622 | | 17,622 |
| 087 | 0604127N | SURFACE MINE COUNTERMEASURES | 18,154 | | 18,154 |
| 088 | 0604272N | TACTICAL AIR DIRECTIONAL INFRARED COUNTERMEASURES (TADIRCM) | 47,278 | | 47,278 |
| 090 | 0604289M | NEXT GENERATION LOGISTICS | 11,081 | | 11,081 |
| 092 | 0604320M | RAPID TECHNOLOGY CAPABILITY PROTOTYPE | 7,107 | | 7,107 |
| 093 | 0604454N | LX (R) | 5,549 | | 5,549 |
| 094 | 0604536N | ADVANCED UNDERSEA PROTOTYPING | 87,669 | | 87,669 |
| 095 | 0604659N | PRECISION STRIKE WEAPONS DEVELOPMENT PROGRAM | 132,818 | | 132,818 |
| 096 | 0604707N | SPACE AND ELECTRONIC WARFARE (SEW) ARCHITECTURE/ENGINEERING SUPPORT | 7,230 | | 7,230 |
| 097 | 0604786N | OFFENSIVE ANTI-SURFACE WARFARE WEAPON DEVELOPMENT | 143,062 | | 143,062 |
| 099 | 0303354N | ASW SYSTEMS DEVELOPMENT—MIP | 8,889 | | 8,889 |
| 100 | 0304240M | ADVANCED TACTICAL UNMANNED AIRCRAFT SYSTEM | 25,291 | -14,950 | 10,341 |
| | | Unjustified cost growth | | [-14,950] | |
| 101 | 0304240N | ADVANCED TACTICAL UNMANNED AIRCRAFT SYSTEM | 9,300 | | 9,300 |
| 102 | 0304270N | ELECTRONIC WARFARE DEVELOPMENT—MIP | 466 | | 466 |
| | | SUBTOTAL ADVANCED COMPONENT DEVELOPMENT & PROTOTYPES | 4,293,713 | -56,150 | 4,237,563 |

| | | | | | |
|-----|----------|--|---------|-----------|---------|
| 103 | 0603208N | SYSTEM DEVELOPMENT & DEMONSTRATION | | | |
| | | TRAINING SYSTEM AIRCRAFT | 12,798 | 1,000 | 13,798 |
| | | TH-57 follow-on training system development | | [1,000] | |
| 104 | 0604212N | OTHER HELO DEVELOPMENT | 32,128 | | 32,128 |
| 105 | 0604214M | AV-8B AIRCRAFT—ENG DEV | 46,363 | | 46,363 |
| 107 | 0604215N | STANDARDS DEVELOPMENT | 3,771 | | 3,771 |
| 108 | 0604216N | MULTI-MISSION HELICOPTER UPGRADE DEVELOPMENT | 16,611 | | 16,611 |
| 109 | 0604218N | AIR/OCEAN EQUIPMENT ENGINEERING | 17,368 | | 17,368 |
| 110 | 0604221N | P-3 MODERNIZATION PROGRAM | 2,134 | | 2,134 |
| 111 | 0604230N | WARFARE SUPPORT SYSTEM | 9,729 | | 9,729 |
| 112 | 0604231N | TACTICAL COMMAND SYSTEM | 57,688 | | 57,688 |
| 113 | 0604234N | ADVANCED HAWKEYE | 223,565 | | 215,565 |
| | | Forward financed in the FY18 Omnibus | | -8,000 | |
| | | Program increase—IFF range improvement | | [-10,000] | |
| | | Program increase—IFF range improvement | | [2,000] | |
| 114 | 0604245M | H-1 UPGRADES | 58,097 | | 58,097 |
| 116 | 0604261N | ACOUSTIC SEARCH SENSORS | 42,485 | | 42,485 |
| 117 | 0604262N | V-22A | 143,079 | | 143,079 |
| 118 | 0604264N | AIR CREW SYSTEMS DEVELOPMENT | 20,980 | | 20,980 |
| 119 | 0604269N | EA-18 | 147,419 | | 147,419 |
| 120 | 0604270N | ELECTRONIC WARFARE DEVELOPMENT | 89,824 | 31,600 | 121,424 |
| | | Navy UFR: EA-18G offensive airborne electronic attack special mission pods | | [31,600] | |
| 121 | 0604273M | EXECUTIVE HELO DEVELOPMENT | 245,064 | | 245,064 |
| 123 | 0604274N | NEXT GENERATION JAMMER (NGJ) | 459,529 | | 459,529 |
| 124 | 0604280N | JOINT TACTICAL RADIO SYSTEM—NAVY (JTRS-NAVY) | 3,272 | | 3,272 |
| 125 | 0604282N | NEXT GENERATION JAMMER (NGJ) INCREMENT II | 115,253 | | 115,253 |
| 126 | 0604307N | SURFACE COMBATANT COMBAT SYSTEM ENGINEERING | 397,403 | -20,000 | 377,403 |
| | | ACB 20 unexecutable growth | | [-20,000] | |
| 127 | 0604311N | LPD-17 CLASS SYSTEMS INTEGRATION | 939 | | 939 |
| 128 | 0604329N | SMALL DIAMETER BOMB (SDB) | 104,448 | | 104,448 |
| 129 | 0604366N | STANDARD MISSILE IMPROVEMENTS | 165,881 | 15,000 | 180,881 |
| | | XFU electronics unit integration | | [15,000] | |

SEC. 4201. RESEARCH, DEVELOPMENT, TEST, AND EVALUATION
(In Thousands of Dollars)

| Line | Program Element | Item | FY 2019 Request | House Change | House Authorized |
|------|-----------------|---|-----------------|--------------|------------------|
| 130 | 0604373N | AIRBORNE MCM | 10,831 | | 10,831 |
| 131 | 0604378N | NAVAL INTEGRATED FIRE CONTROL—COUNTER AIR SYSTEMS ENGINEERING | 33,429 | -6,900 | 26,529 |
| | | Excess overhead | | [-6,900] | |
| 132 | 0604501N | ADVANCED ABOVE WATER SENSORS | 35,635 | | 35,635 |
| 133 | 0604503N | SSN-688 AND TRIDENT MODERNIZATION | 126,932 | | 126,932 |
| 134 | 0604504N | AIR CONTROL | 62,448 | | 62,448 |
| 135 | 0604512N | SHIPBOARD AVIATION SYSTEMS | 9,710 | | 9,710 |
| 136 | 0604518N | COMBAT INFORMATION CENTER CONVERSION | 19,303 | | 19,303 |
| 137 | 0604522N | AIR AND MISSILE DEFENSE RADAR (AMDR) SYSTEM | 27,059 | | 27,059 |
| 138 | 0604530N | ADVANCED ARRESTING GEAR (AAG) | 184,106 | | 184,106 |
| 139 | 0604558N | NEW DESIGN SSN | 148,233 | -21,400 | 126,833 |
| | | Excess cost growth | | [-21,400] | |
| 140 | 0604562N | SUBMARINE TACTICAL WARFARE SYSTEM | 60,824 | | 60,824 |
| 141 | 0604567N | SHIP CONTRACT DESIGN LIVE FIRE T&E | 60,062 | | 60,062 |
| 142 | 0604574N | NAVY TACTICAL COMPUTER RESOURCES | 4,642 | | 4,642 |
| 144 | 0604601N | MINE DEVELOPMENT | 25,756 | | 25,756 |
| 145 | 0604610N | LIGHTWEIGHT TORPEDO DEVELOPMENT | 95,147 | | 95,147 |
| 146 | 0604654N | JOINT SERVICE EXPLOSIVE ORDNANCE DEVELOPMENT | 7,107 | | 7,107 |
| 147 | 0604703N | PERSONNEL, TRAINING, SIMULATION, AND HUMAN FACTORS | 6,539 | | 6,539 |
| 148 | 0604727N | JOINT STANDOFF WEAPON SYSTEMS | 441 | | 441 |
| 149 | 0604755N | SHIP SELF DEFENSE (DETECT & CONTROL) | 180,391 | | 180,391 |
| 150 | 0604756N | SHIP SELF DEFENSE (ENGAGE: HARD KILL) | 178,538 | | 178,538 |
| 151 | 0604757N | SHIP SELF DEFENSE (ENGAGE: SOFT KILL/EW) | 120,507 | | 120,507 |
| 152 | 0604761N | INTELLIGENCE ENGINEERING | 29,715 | | 29,715 |
| 153 | 0604771N | MEDICAL DEVELOPMENT | 8,095 | | 8,095 |
| 154 | 0604777N | NAVIGATION/ID SYSTEM | 121,026 | | 121,026 |
| 155 | 0604800M | JOINT STRIKE FIGHTER (JSF)—EMD | 66,566 | | 66,566 |

| | | | | |
|-----|----------|---|------------------|-----------------|
| 156 | 0604800N | JOINT STRIKE FIGHTER (JSF)—EMD | 65,494 | 65,494 |
| 159 | 0605013M | INFORMATION TECHNOLOGY DEVELOPMENT | 14,005 | 14,005 |
| 160 | 0605013N | INFORMATION TECHNOLOGY DEVELOPMENT | 268,567 | 268,567 |
| 161 | 0605024N | ANTI-TAMPER TECHNOLOGY SUPPORT | 5,618 | 5,618 |
| 162 | 0605212M | CH-53K RDTE | 326,945 | 326,945 |
| 164 | 0605215N | MISSION PLANNING | 32,714 | 32,714 |
| 165 | 0605217N | COMMON AVIONICS | 51,486 | 51,486 |
| 166 | 0605220N | SHIP TO SHORE CONNECTOR (SSC) | 1,444 | 1,444 |
| 167 | 0605327N | T-AO 205 CLASS | 1,298 | 1,298 |
| 168 | 0605414N | UNMANNED CARRIER AVIATION (UCA) | 718,942 | 718,942 |
| | | Insufficient Air Vehicle budget justification | -116,900 | -116,900 |
| 169 | 0605450M | JOINT AIR-TO-GROUND MISSILE (JAGM) | 5,000 | [-116,900] |
| | | JAGM-F for USN and USMC | 6,759 | 5,000 |
| 171 | 0605500N | MULTI-MISSION MARITIME AIRCRAFT (MMA) | 37,296 | 37,296 |
| 172 | 0605504N | MULTI-MISSION MARITIME (MMA) INCREMENT III | 160,389 | 160,389 |
| 173 | 0605611M | MARINE CORPS ASSAULT VEHICLES SYSTEM DEVELOPMENT & DEMONSTRATION | 98,223 | 98,223 |
| 174 | 0605813M | JOINT LIGHT TACTICAL VEHICLE (LTV) SYSTEM DEVELOPMENT & DEMONSTRATION | 2,260 | 2,260 |
| 175 | 0204202N | DDG-1000 | 161,264 | 161,264 |
| 180 | 0304785N | TACTICAL CRYPTOLOGIC SYSTEMS | 44,098 | 44,098 |
| 182 | 0306250M | CYBER OPERATIONS TECHNOLOGY DEVELOPMENT | 6,808 | 6,808 |
| | | SUBTOTAL SYSTEM DEVELOPMENT & DEMONSTRATION | 6,042,480 | -120,600 |
| | | | | [5,000] |
| 183 | 0604256N | MANAGEMENT SUPPORT | 94,576 | 94,576 |
| 184 | 0604258N | THREAT SIMULATOR DEVELOPMENT | 10,981 | 10,981 |
| 185 | 0604759N | TARGET SYSTEMS DEVELOPMENT | 77,014 | 77,014 |
| | | MAJOR T&E INVESTMENT | | 6,000 |
| | | Program increase | | [6,000] |
| 186 | 0605126N | JOINT THEATER AIR AND MISSILE DEFENSE ORGANIZATION | 48 | 48 |
| 187 | 0605152N | STUDIES AND ANALYSIS SUPPORT—NAVY | 3,942 | 3,942 |
| 188 | 0605154N | CENTER FOR NAVAL ANALYSES | 48,797 | 48,797 |
| 189 | 0605285N | NEXT GENERATION FIGHTER | 5,000 | 5,000 |
| 191 | 0605804N | TECHNICAL INFORMATION SERVICES | 1,029 | 1,029 |

SEC. 4201. RESEARCH, DEVELOPMENT, TEST, AND EVALUATION
(In Thousands of Dollars)

| Line | Program Element | Item | FY 2019 Request | House Change | House Authorized |
|--|-----------------|--|------------------|--------------|------------------|
| 192 | 0605853N | MANAGEMENT, TECHNICAL & INTERNATIONAL SUPPORT | 87,565 | | 87,565 |
| 193 | 0605856N | STRATEGIC TECHNICAL SUPPORT | 4,231 | | 4,231 |
| 194 | 0605861N | RDT&E SCIENCE AND TECHNOLOGY MANAGEMENT | 1,072 | | 1,072 |
| 195 | 0605863N | RDT&E SHIP AND AIRCRAFT SUPPORT | 97,471 | | 97,471 |
| 196 | 0605864N | TEST AND EVALUATION SUPPORT | 373,834 | | 373,834 |
| 197 | 0605865N | OPERATIONAL TEST AND EVALUATION CAPABILITY | 21,554 | | 21,554 |
| 198 | 0605866N | NAVY SPACE AND ELECTRONIC WARFARE (SEW) SUPPORT | 16,227 | | 16,227 |
| 200 | 0605873M | MARINE CORPS PROGRAM WIDE SUPPORT | 24,303 | | 24,303 |
| 201 | 0605898N | MANAGEMENT HQ—R&D | 43,262 | | 43,262 |
| 202 | 0606355N | WARFARE INNOVATION MANAGEMENT | 41,918 | | 41,918 |
| 203 | 0606942M | ASSESSMENTS AND EVALUATIONS CYBER VULNERABILITIES | 7,000 | | 7,000 |
| 204 | 0606942N | ASSESSMENTS AND EVALUATIONS CYBER VULNERABILITIES | 48,800 | | 48,800 |
| 205 | 0305327N | INSIDER THREAT | 1,682 | | 1,682 |
| 206 | 0902498N | MANAGEMENT HEADQUARTERS (DEPARTMENTAL SUPPORT ACTIVITIES) | 1,579 | | 1,579 |
| 208 | 1206867N | SEW SURVEILLANCE/RECONNAISSANCE SUPPORT | 8,684 | | 8,684 |
| | | SUBTOTAL MANAGEMENT SUPPORT | 1,020,569 | 6,000 | 1,026,569 |
| OPERATIONAL SYSTEMS DEVELOPMENT | | | | | |
| 210 | 0604227N | HARPOON MODIFICATIONS | 5,426 | | 5,426 |
| 211 | 0604840M | F-35 C2D2 | 259,122 | | 259,122 |
| 212 | 0604840N | F-35 C2D2 | 252,360 | | 252,360 |
| 213 | 0607658N | COOPERATIVE ENGAGEMENT CAPABILITY (CEC) | 130,515 | -11,200 | 119,315 |
| | | Excess cost growth | | [-11,200] | |
| 214 | 0607700N | DEPLOYABLE JOINT COMMAND AND CONTROL | 3,127 | | 3,127 |
| 215 | 0101221N | STRATEGIC SUB & WEAPONS SYSTEM SUPPORT | 157,679 | 9,000 | 166,679 |
| | | Project 2228, technical applications, systems engineering modeling and simulation capability and tool development. | | [9,000] | |

| | | | | | |
|-----|----------|--|---------|-----------|---------|
| 216 | 0101224N | SSBN SECURITY TECHNOLOGY PROGRAM | 43,198 | -4,000 | 39,198 |
| | | Excess program growth | | [-4,000] | |
| 217 | 0101226N | SUBMARINE ACOUSTIC WARFARE DEVELOPMENT | 11,311 | | 11,311 |
| 218 | 0101402N | NAVY STRATEGIC COMMUNICATIONS | 39,313 | | 39,313 |
| 219 | 0204136N | F/A-18 SQUADRONS | 193,086 | 7,500 | 200,586 |
| | | Engine noise reduction engineering | | [2,500] | |
| | | JAGM-F for USN and USMC | | [5,000] | |
| 220 | 0204163N | FLEET TELECOMMUNICATIONS (TACTICAL) | 25,014 | | 25,014 |
| 221 | 0204228N | SURFACE SUPPORT | 11,661 | | 11,661 |
| 222 | 0204229N | TOMAHAWK AND TOMAHAWK MISSION PLANNING CENTER (TMPC) | 282,395 | | 282,395 |
| 223 | 0204311N | INTEGRATED SURVEILLANCE SYSTEM | 36,959 | | 36,959 |
| 224 | 0204313N | SHIP-TOWED ARRAY SURVEILLANCE SYSTEMS | 15,454 | | 15,454 |
| 225 | 0204413N | AMPHIBIOUS TACTICAL SUPPORT UNITS (DISPLACEMENT CRAFT) | 6,073 | | 6,073 |
| 226 | 0204460M | GROUND/AIR TASK ORIENTED RADAR (G/ATOR) | 45,029 | | 45,029 |
| 227 | 0204571N | CONSOLIDATED TRAINING SYSTEMS DEVELOPMENT | 104,903 | | 104,903 |
| 228 | 0204574N | CRYPTOLOGIC DIRECT SUPPORT | 4,544 | | 4,544 |
| 229 | 0204575N | ELECTRONIC WARFARE (EW) READINESS SUPPORT | 66,889 | | 66,889 |
| 230 | 0205601N | HARM IMPROVEMENT | 120,762 | | 120,762 |
| 231 | 0205604N | TACTICAL DATA LINKS | 104,696 | | 104,696 |
| 232 | 0205620N | SURFACE ASW COMBAT SYSTEM INTEGRATION | 28,421 | | 28,421 |
| 233 | 0205632N | MK-48 ADCAP | 94,155 | -25,600 | 68,555 |
| | | Excessive TI-I cost growth | | [-25,600] | |
| 234 | 0205633N | AVIATION IMPROVEMENTS | 121,805 | 15,000 | 136,805 |
| | | Navy UFR: F/A-18E/F Super Hornet engine enhancements | | [15,000] | |
| 235 | 0205675N | OPERATIONAL NUCLEAR POWER SYSTEMS | 117,028 | | 117,028 |
| 236 | 0206313M | MARINE CORPS COMMUNICATIONS SYSTEMS | 174,779 | | 174,779 |
| 237 | 0206335M | COMMON AVIATION COMMAND AND CONTROL SYSTEM (CAC2S) | 4,826 | | 4,826 |
| 238 | 0206623M | MARINE CORPS GROUND COMBAT/SUPPORTING ARMS SYSTEMS | 97,152 | | 97,152 |
| 239 | 0206624M | MARINE CORPS COMBAT SERVICES SUPPORT | 30,156 | | 30,156 |
| 240 | 0206625M | USMC INTELLIGENCE/ELECTRONIC WARFARE SYSTEMS (MIP) | 39,976 | | 39,976 |
| 241 | 0206629M | AMPHIBIOUS ASSAULT VEHICLE | 22,637 | | 22,637 |
| 242 | 0207161N | TACTICAL AIM MISSILES | 40,121 | | 40,121 |

SEC. 4201. RESEARCH, DEVELOPMENT, TEST, AND EVALUATION
(In Thousands of Dollars)

| Line | Program Element | Item | FY 2019 Request | House Change | House Authorized |
|------|-----------------|---|-------------------|----------------|-------------------|
| 243 | 0207163N | ADVANCED MEDIUM RANGE AIR-TO-AIR MISSILE (AMRAAM) | 32,473 | | 32,473 |
| 249 | 0303138N | CONSOLIDATED AFLOAT NETWORK ENTERPRISE SERVICES (CANES) | 23,697 | | 23,697 |
| 250 | 0303140N | INFORMATION SYSTEMS SECURITY PROGRAM | 44,228 | | 44,228 |
| 252 | 0305192N | MILITARY INTELLIGENCE PROGRAM (MIP) ACTIVITIES | 6,081 | | 6,081 |
| 253 | 0305204N | TACTICAL UNMANNED AERIAL VEHICLES | 8,529 | | 8,529 |
| 254 | 0305205N | UAS INTEGRATION AND INTEROPERABILITY | 41,212 | | 41,212 |
| 255 | 0305208M | DISTRIBUTED COMMON GROUND/SURFACE SYSTEMS | 7,687 | | 7,687 |
| 256 | 0305208N | DISTRIBUTED COMMON GROUND/SURFACE SYSTEMS | 42,846 | | 42,846 |
| 257 | 0305220N | MQ-4C TRITON | 14,395 | | 14,395 |
| 258 | 0305231N | MQ-8 UAV | 9,843 | | 9,843 |
| 259 | 0305232M | RQ-11 UAV | 524 | | 524 |
| 260 | 0305234N | SMALL (LEVEL 0) TACTICAL UAS (STUASLO) | 5,360 | | 5,360 |
| 261 | 0305239M | RQ-21A | 10,914 | | 10,914 |
| 262 | 0305241N | MULTI-INTELLIGENCE SENSOR DEVELOPMENT | 81,231 | | 81,231 |
| 263 | 0305242M | UNMANNED AERIAL SYSTEMS (UAS) PAYLOADS (MIP) | 5,956 | | 5,956 |
| 264 | 0305421N | RQ-4 MODERNIZATION | 219,894 | -3,000 | 216,894 |
| | | Program decrease | | [-3,000] | |
| 265 | 0308601N | MODELING AND SIMULATION SUPPORT | 7,097 | | 7,097 |
| 266 | 0702207N | DEPOT MAINTENANCE (NON-IF) | 36,560 | | 36,560 |
| 267 | 0708730N | MARITIME TECHNOLOGY (MARITECH) | 7,284 | | 7,284 |
| 268 | 1203109N | SATELLITE COMMUNICATIONS (SPACE) | 39,174 | | 39,174 |
| 268A | 9999999999 | CLASSIFIED PROGRAMS | 1,549,503 | | 1,549,503 |
| | | SUBTOTAL OPERATIONAL SYSTEMS DEVELOPMENT | 4,885,060 | -12,300 | 4,872,760 |
| | | TOTAL RESEARCH, DEVELOPMENT, TEST & EVAL, NAVY | 18,481,666 | -94,550 | 18,387,116 |
| | | RESEARCH, DEVELOPMENT, TEST & EVAL, AF | | | |

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| Line | Program Element | Item | FY 2019 Request | House Change | House Authorized |
|--|-----------------|---|-----------------|---------------|------------------|
| 018 | 0603203F | ADVANCED AEROSPACE SENSORS | 39,968 | | 39,968 |
| 019 | 0603211F | AEROSPACE TECHNOLOGY DEV/DEMO | 121,002 | | 121,002 |
| 020 | 0603216F | AEROSPACE PROPULSION AND POWER TECHNOLOGY | 115,462 | 10,000 | 125,462 |
| | | Laser power system enhancement | | [10,000] | |
| 021 | 0603270F | ELECTRONIC COMBAT TECHNOLOGY | 55,319 | | 55,319 |
| 022 | 0603401F | ADVANCED SPACECRAFT TECHNOLOGY | 54,895 | | 54,895 |
| 023 | 0603444F | MAUI SPACE SURVEILLANCE SYSTEM (MSSS) | 10,674 | | 10,674 |
| 024 | 0603456F | HUMAN EFFECTIVENESS ADVANCED TECHNOLOGY DEVELOPMENT | 36,463 | 10,000 | 46,463 |
| | | Autonomous life support system development | | [10,000] | |
| 025 | 0603601F | CONVENTIONAL WEAPONS TECHNOLOGY | 194,981 | | 194,981 |
| 026 | 0603605F | ADVANCED WEAPONS TECHNOLOGY | 43,368 | | 43,368 |
| 027 | 0603680F | MANUFACTURING TECHNOLOGY PROGRAM | 42,025 | 5,000 | 47,025 |
| | | Academic and industrial partnerships for aerospace materials | | [5,000] | |
| 028 | 0603788F | BATTLESACE KNOWLEDGE DEVELOPMENT AND DEMONSTRATION | 51,064 | 13,300 | 64,364 |
| | | Additional facility engineering research and development | | [8,300] | |
| | | Enhance and accelerate Air Force artificial intelligence research | | [5,000] | |
| | | SUBTOTAL ADVANCED TECHNOLOGY DEVELOPMENT | 814,797 | 53,300 | 868,097 |
| ADVANCED COMPONENT DEVELOPMENT & PROTOTYPES | | | | | |
| 030 | 0603260F | INTELLIGENCE ADVANCED DEVELOPMENT | 5,568 | | 5,568 |
| 032 | 0603742F | COMBAT IDENTIFICATION TECHNOLOGY | 18,194 | | 18,194 |
| 033 | 0603790F | NATO RESEARCH AND DEVELOPMENT | 2,305 | | 2,305 |
| 035 | 0603851F | INTERCONTINENTAL BALLISTIC MISSILE—DEM/VAL | 41,856 | | 41,856 |
| 037 | 0604015F | LONG RANGE STRIKE—BOMBER | 2,314,196 | | 2,314,196 |
| 038 | 0604201F | INTEGRATED AVIONICS PLANNING AND DEVELOPMENT | 14,894 | | 14,894 |
| 039 | 0604257F | ADVANCED TECHNOLOGY AND SENSORS | 34,585 | | 34,585 |
| 040 | 0604288F | NATIONAL AIRBORNE OPS CENTER (NAOC) RECAP | 9,740 | | 9,740 |

| | | | | | |
|-----|----------|--|-----------|-----------|-----------|
| 041 | 0604317F | TECHNOLOGY TRANSFER | 12,960 | | 12,960 |
| 042 | 0604327F | HARD AND DEEPLY BURIED TARGET DEFEAT SYSTEM (HDBTDS) PROGRAM | 71,501 | | 71,501 |
| 043 | 0604414F | CYBER RESILIENCY OF WEAPON SYSTEMS-ACS | 62,618 | | 62,618 |
| 046 | 0604776F | DEPLOYMENT & DISTRIBUTION ENTERPRISE R&D | 28,350 | | 28,350 |
| 048 | 0604858F | TECH TRANSITION PROGRAM | 1,186,075 | 15,000 | 1,201,075 |
| | | Competitively Awarded Transition Programs | | [5,000] | |
| | | Non-engine development technology | | [10,000] | |
| 049 | 0605230F | GROUND BASED STRATEGIC DETERRENT | 345,041 | 69,400 | 414,441 |
| | | Accelerated execution of program | | [69,400] | |
| 050 | 0207110F | NEXT GENERATION AIR DOMINANCE | 503,997 | -90,000 | 413,997 |
| | | Ahead of need | | [-90,000] | |
| 051 | 0207455F | THREE DIMENSIONAL LONG-RANGE RADAR (3DELRR) | 40,326 | | 40,326 |
| 052 | 0208099F | UNIFIED PLATFORM (UP) | 29,800 | | 29,800 |
| 054 | 0305236F | COMMON DATA LINK EXECUTIVE AGENT (CDL EA) | 41,880 | | 41,880 |
| 055 | 0305601F | MISSION PARTNER ENVIRONMENTS | 10,074 | | 10,074 |
| 056 | 0306250F | CYBER OPERATIONS TECHNOLOGY DEVELOPMENT | 253,825 | | 253,825 |
| 057 | 0306415F | ENABLED CYBER ACTIVITIES | 16,325 | | 16,325 |
| 059 | 0901410F | CONTRACTING INFORMATION TECHNOLOGY SYSTEM | 17,577 | | 17,577 |
| 060 | 1203164F | NAVSTAR GLOBAL POSITIONING SYSTEM (USER EQUIPMENT) (SPACE) | 286,629 | | 286,629 |
| 061 | 1203710F | EO/IR WEATHER SYSTEMS | 7,940 | | 7,940 |
| 062 | 1206422F | WEATHER SYSTEM FOLLOW-ON | 138,052 | 10,000 | 148,052 |
| | | Commercial weather data pilot | | [10,000] | |
| 063 | 1206425F | SPACE SITUATION AWARENESS SYSTEMS | 39,338 | | 39,338 |
| 064 | 1206434F | MIDTERM POLAR MILSATCOM SYSTEM | 383,113 | | 383,113 |
| 065 | 1206438F | SPACE CONTROL TECHNOLOGY | 91,018 | 15,000 | 106,018 |
| | | NTS-3 Payload | | [15,000] | |
| 066 | 1206730F | SPACE SECURITY AND DEFENSE PROGRAM | 45,542 | 4,000 | 49,542 |
| | | Allied launch services | | [4,000] | |
| 067 | 1206760F | PROTECTED TACTICAL ENTERPRISE SERVICE (PTES) | 51,419 | | 51,419 |
| 068 | 1206761F | PROTECTED TACTICAL SERVICE (PTS) | 29,776 | | 29,776 |
| 069 | 1206855F | PROTECTED SATCOM SERVICES (PSCS)—AGGREGATED | 29,379 | | 29,379 |
| 070 | 1206857F | OPERATIONALLY RESPONSIVE SPACE | 366,050 | -119,000 | 247,050 |

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|------|-----------------|---|------------------|----------------|------------------|
| | | Space RCO Advanced Solar Power—early to need | | [-119,000] | |
| | | SUBTOTAL ADVANCED COMPONENT DEVELOPMENT & PROTOTYPES | 6,529,943 | -95,600 | 6,434,343 |
| | | SYSTEM DEVELOPMENT & DEMONSTRATION | | | |
| 071 | 0604200F | FUTURE ADVANCED WEAPON ANALYSIS & PROGRAMS | 39,602 | | 39,602 |
| 072 | 0604201F | INTEGRATED AVIONICS PLANNING AND DEVELOPMENT | 58,531 | | 58,531 |
| 073 | 0604222F | NUCLEAR WEAPONS SUPPORT | 4,468 | | 4,468 |
| 074 | 0604270F | ELECTRONIC WARFARE DEVELOPMENT | 1,909 | | 1,909 |
| 075 | 0604281F | TACTICAL DATA NETWORKS ENTERPRISE | 207,746 | | 207,746 |
| 076 | 0604287F | PHYSICAL SECURITY EQUIPMENT | 14,421 | | 14,421 |
| 077 | 0604329F | SMALL DIAMETER BOMB (SDB)—EMD | 73,158 | 20,000 | 93,158 |
| | | SDB II cost reduction initiatives | | [20,000] | |
| 081 | 0604429F | AIRBORNE ELECTRONIC ATTACK | 7,153 | | 7,153 |
| 083 | 0604602F | ARMAMENT/ORDNANCE DEVELOPMENT | 58,590 | | 58,590 |
| 084 | 0604604F | SUBMUNITIONS | 2,990 | | 2,990 |
| 085 | 0604617F | AGILE COMBAT SUPPORT | 20,028 | | 20,028 |
| 086 | 0604618F | JOINT DIRECT ATTACK MUNITION | 15,787 | | 15,787 |
| 087 | 0604706F | LIFE SUPPORT SYSTEMS | 8,919 | | 8,919 |
| 088 | 0604735F | COMBAT TRAINING RANGES | 35,895 | 27,000 | 62,895 |
| | | Advanced threat radar system | | [27,000] | |
| 089 | 0604800F | F-35—EMD | 69,001 | | 69,001 |
| 091 | 0604932F | LONG RANGE STANDOFF WEAPON | 614,920 | 85,000 | 699,920 |
| | | Accelerated execution of program | | [85,000] | |
| 092 | 0604933F | ICBM FUZE MODERNIZATION | 172,902 | | 172,902 |
| 097 | 0605221F | KC-46 | 88,170 | | 88,170 |
| 098 | 0605223F | ADVANCED PILOT TRAINING | 265,465 | | 265,465 |
| 099 | 0605229F | COMBAT RESCUE HELICOPTER | 457,652 | | 457,652 |

| | | | | | |
|---------------------------|----------|--|------------------|----------------|------------------|
| 105 | 0605830F | ACQ WORKFORCE- GLOBAL BATTLE MGMT | 3,617 | 623,000 | 3,617 |
| 106 | 0605931F | B-2 DEFENSIVE MANAGEMENT SYSTEM | 261,758 | [623,000] | 261,758 |
| 107 | 0101125F | NUCLEAR WEAPONS MODERNIZATION | 91,907 | | 91,907 |
| 108 | 0207171F | F-15 EPAWSS | 137,095 | | 137,095 |
| 109 | 0207328F | STAND IN ATTACK WEAPON | 43,175 | | 43,175 |
| 110 | 0207423F | ADVANCED COMMUNICATIONS SYSTEMS | 14,888 | | 14,888 |
| 111 | 0207701F | FULL COMBAT MISSION TRAINING | 1,015 | | 1,015 |
| 115 | 0307581F | JSTARS RECAP | | 623,000 | 623,000 |
| | | JSTARS recap EMD execution | | | |
| 116 | 0401310F | C-32 EXECUTIVE TRANSPORT RECAPITALIZATION | 7,943 | | 7,943 |
| 117 | 0401319F | PRESIDENTIAL AIRCRAFT RECAPITALIZATION (PAR) | 673,032 | | 673,032 |
| 118 | 0701212F | AUTOMATED TEST SYSTEMS | 13,653 | | 13,653 |
| 119 | 1203176F | COMBAT SURVIVOR EVADER LOCATOR | 939 | | 939 |
| 120 | 1203269F | GPS IIIC | 451,889 | | 451,889 |
| 121 | 1203940F | SPACE SITUATION AWARENESS OPERATIONS | 46,668 | | 46,668 |
| 122 | 1206421F | COUNTERSPACE SYSTEMS | 20,676 | | 20,676 |
| 123 | 1206425F | SPACE SITUATION AWARENESS SYSTEMS | 134,463 | | 134,463 |
| 124 | 1206426F | SPACE FENCE | 20,215 | | 20,215 |
| 125 | 1206431F | ADVANCED EHF MILSATCOM (SPACE) | 151,506 | | 151,506 |
| 126 | 1206432F | POLAR MILSATCOM (SPACE) | 27,337 | | 27,337 |
| 127 | 1206433F | WIDEBAND GLOBAL SATCOM (SPACE) | 3,970 | | 3,970 |
| 128 | 1206441F | SPACE BASED INFRARED SYSTEM (SBIRS) HIGH EMD | 60,565 | | 60,565 |
| 129 | 1206442F | EVOLVED SBIRS | 643,126 | | 643,126 |
| 130 | 1206853F | EVOLVED EXPENDABLE LAUNCH VEHICLE PROGRAM (SPACE)—EMD | 245,447 | | 245,447 |
| | | SUBTOTAL SYSTEM DEVELOPMENT & DEMONSTRATION | 5,272,191 | 755,000 | 6,027,191 |
| MANAGEMENT SUPPORT | | | | | |
| 131 | 0604256F | THREAT SIMULATOR DEVELOPMENT | 34,256 | | 34,256 |
| 132 | 0604759F | MAJOR T&E INVESTMENT | 91,844 | | 91,844 |
| 133 | 0605101F | RAND PROJECT AIR FORCE | 34,614 | | 34,614 |
| 135 | 0605712F | INITIAL OPERATIONAL TEST & EVALUATION | 18,043 | | 18,043 |
| 136 | 0605807F | TEST AND EVALUATION SUPPORT | 692,784 | 31,900 | 724,684 |

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|------|-----------------|--|------------------|---------------|------------------|
| | | Test range modernization | | [31,900] | |
| 137 | 0605826F | ACQ WORKFORCE- GLOBAL POWER | 233,924 | | 233,924 |
| 138 | 0605827F | ACQ WORKFORCE- GLOBAL VIG & COMBAT SYS | 263,488 | | 263,488 |
| 139 | 0605828F | ACQ WORKFORCE- GLOBAL REACH | 153,591 | | 153,591 |
| 140 | 0605829F | ACQ WORKFORCE- CYBER, NETWORK, & BUS SYS | 232,315 | | 232,315 |
| 141 | 0605830F | ACQ WORKFORCE- GLOBAL BATTLE MGMT | 169,868 | | 169,868 |
| 142 | 0605831F | ACQ WORKFORCE- CAPABILITY INTEGRATION | 226,219 | | 226,219 |
| 143 | 0605832F | ACQ WORKFORCE- ADVANCED PRGM TECHNOLOGY | 38,400 | | 38,400 |
| 144 | 0605833F | ACQ WORKFORCE- NUCLEAR SYSTEMS | 125,761 | | 125,761 |
| 147 | 0605898F | MANAGEMENT HQ—R&D | 10,642 | | 10,642 |
| 148 | 0605976F | FACILITIES RESTORATION AND MODERNIZATION—TEST AND EVALUATION SUPPORT | 162,216 | | 162,216 |
| 149 | 0605978F | FACILITIES SUSTAINMENT—TEST AND EVALUATION SUPPORT | 28,888 | | 28,888 |
| 150 | 0606017F | REQUIREMENTS ANALYSIS AND MATURATION | 35,285 | | 35,285 |
| 153 | 0308602F | ENTERPRISE INFORMATION SERVICES (EIS) | 20,545 | | 20,545 |
| 154 | 0702806F | ACQUISITION AND MANAGEMENT SUPPORT | 12,367 | | 12,367 |
| 155 | 0804731F | GENERAL SKILL TRAINING | 1,448 | | 1,448 |
| 157 | 1001004F | INTERNATIONAL ACTIVITIES | 3,998 | | 3,998 |
| 158 | 1206116F | SPACE TEST AND TRAINING RANGE DEVELOPMENT | 23,254 | | 23,254 |
| 159 | 1206392F | SPACE AND MISSILE CENTER (SMC) CIVILIAN WORKFORCE | 169,912 | | 169,912 |
| 160 | 1206398F | SPACE & MISSILE SYSTEMS CENTER—MHA | 10,508 | | 10,508 |
| 161 | 1206860F | ROCKET SYSTEMS LAUNCH PROGRAM (SPACE) | 19,721 | 10,000 | 29,721 |
| | | Rocket systems launch program | | [10,000] | |
| 162 | 1206864F | SPACE TEST PROGRAM (STP) | 25,620 | 50,000 | 75,620 |
| | | Blackjack project | | [50,000] | |
| | | SUBTOTAL MANAGEMENT SUPPORT | 2,839,511 | 91,900 | 2,931,411 |

OPERATIONAL SYSTEMS DEVELOPMENT

| | | | | |
|-----|----------|--|----------|---------|
| 165 | 0604233F | SPECIALIZED UNDERGRADUATE FLIGHT TRAINING | 11,344 | 11,344 |
| 167 | 0605018F | AF INTEGRATED PERSONNEL AND PAY SYSTEM (AF-IPPS) | 47,287 | 47,287 |
| 168 | 0605024F | ANTI-TAMPER TECHNOLOGY EXECUTIVE AGENCY | 32,770 | 32,770 |
| 169 | 0605117F | FOREIGN MATERIEL ACQUISITION AND EXPLOITATION | 68,368 | 68,368 |
| 170 | 0605278F | HC/MC-130 RECAP RDT&E | 32,574 | 32,574 |
| 171 | 0606018F | NC3 INTEGRATION | 26,112 | 26,112 |
| 172 | 0606942F | ASSESSMENTS AND EVALUATIONS CYBER VULNERABILITIES | 99,100 | 99,100 |
| 173 | 0101113F | B-52 SQUADRONS | 14,700 | 295,114 |
| | | Technical adjustment | [14,700] | |
| 174 | 0101122F | AIR-LAUNCHED CRUISE MISSILE (ALCM) | 5,955 | 5,955 |
| 175 | 0101126F | B-1B SQUADRONS | 76,030 | 76,030 |
| 176 | 0101127F | B-2 SQUADRONS | 105,561 | 105,561 |
| 177 | 0101213F | MINUTEMAN SQUADRONS | 156,047 | 156,047 |
| 179 | 0101316F | WORLDWIDE JOINT STRATEGIC COMMUNICATIONS | 10,442 | 10,442 |
| 180 | 0101324F | INTEGRATED STRATEGIC PLANNING & ANALYSIS NETWORK | 22,833 | 22,833 |
| 181 | 0101328F | ICBM REENTRY VEHICLES | 18,412 | 18,412 |
| 183 | 0102110F | UH-1H REPLACEMENT PROGRAM | 288,022 | 288,022 |
| 184 | 0102326F | REGION/SECTOR OPERATION CONTROL CENTER MODERNIZATION PROGRAM | 9,252 | 9,252 |
| 186 | 0205219F | MQ-9 UAV | 115,345 | 115,345 |
| 188 | 0207131F | A-10 SQUADRONS | 26,738 | 26,738 |
| 189 | 0207133F | F-16 SQUADRONS | 191,564 | 191,564 |
| 190 | 0207134F | F-15E SQUADRONS | 192,883 | 242,883 |
| | | ALQ-128 EW suite for ANG units | 50,000 | |
| | | MANNED DESTRUCTIVE SUPPRESSION | [50,000] | |
| 191 | 0207136F | F-22A SQUADRONS | 15,238 | 15,238 |
| 192 | 0207138F | Program reduction | 603,553 | 583,853 |
| | | F-35 SQUADRONS | 549,501 | |
| | | TACTICAL AIM MISSILES | 37,230 | |
| 194 | 0207161F | ADVANCED MEDIUM RANGE AIR-TO-AIR MISSILE (AMRAAM) | 61,393 | 61,393 |
| 196 | 0207227F | COMBAT RESCUE—PARARESCUE | 647 | 647 |
| 198 | 0207249F | PRECISION ATTACK SYSTEMS PROCUREMENT | 14,891 | 14,891 |
| 199 | 0207253F | COMPASS CALL | 13,901 | 13,901 |

SEC. 4201. RESEARCH, DEVELOPMENT, TEST, AND EVALUATION
(In Thousands of Dollars)

| Line | Program Element | Item | FY 2019 Request | House Change | House Authorized |
|------|-----------------|--|-----------------|--------------|------------------|
| 200 | 0207268F | AIRCRAFT ENGINE COMPONENT IMPROVEMENT PROGRAM | 121,203 | | 121,203 |
| 202 | 0207325F | JOINT AIR-TO-SURFACE STANDOFF MISSILE (JASSM) | 60,062 | | 60,062 |
| 203 | 0207410F | AIR & SPACE OPERATIONS CENTER (AOC) | 106,102 | -26,500 | 79,602 |
| | | Unjustified request | | [-26,500] | |
| 204 | 0207412F | CONTROL AND REPORTING CENTER (CRC) | 6,413 | | 6,413 |
| 205 | 0207417F | AIRBORNE WARNING AND CONTROL SYSTEM (AWACS) | 120,664 | -41,800 | 78,864 |
| | | Program reduction | | [-5,800] | |
| | | Radar controller program delay | | [-36,000] | |
| 206 | 0207418F | TACTICAL AIRBORNE CONTROL SYSTEMS | 2,659 | | 2,659 |
| 208 | 0207431F | COMBAT AIR INTELLIGENCE SYSTEM ACTIVITIES | 10,316 | | 10,316 |
| 209 | 0207444F | TACTICAL AIR CONTROL PARTY-MOD | 6,149 | | 6,149 |
| 210 | 0207448F | C2ISR TACTICAL DATA LINK | 1,738 | | 1,738 |
| 211 | 0207452F | DCAPES | 13,297 | | 13,297 |
| 212 | 0207573F | NATIONAL TECHNICAL NUCLEAR FORENSICS | 1,788 | | 1,788 |
| 213 | 0207581F | JOINT SURVEILLANCE/TARGET ATTACK RADAR SYSTEM (JSTARS) | 14,888 | | 14,888 |
| 214 | 0207590F | SEEK EAGLE | 24,699 | | 24,699 |
| 215 | 0207601F | USAF MODELING AND SIMULATION | 17,078 | | 17,078 |
| 216 | 0207605F | WARGAMING AND SIMULATION CENTERS | 6,141 | | 6,141 |
| 218 | 0207697F | DISTRIBUTED TRAINING AND EXERCISES | 4,225 | | 4,225 |
| 219 | 0208006F | MISSION PLANNING SYSTEMS | 63,653 | | 63,653 |
| 220 | 0208007F | TACTICAL DECEPTION | 6,949 | | 6,949 |
| 221 | 0208087F | AF OFFENSIVE CYBERSPACE OPERATIONS | 40,526 | | 40,526 |
| 222 | 0208088F | AF DEFENSIVE CYBERSPACE OPERATIONS | 24,166 | | 24,166 |
| 223 | 0208097F | JOINT CYBER COMMAND AND CONTROL (UCC2) | 13,000 | | 13,000 |
| 224 | 0208099F | UNIFIED PLATFORM (UP) | 28,759 | | 28,759 |
| 229 | 0301017F | GLOBAL SENSOR INTEGRATED ON NETWORK (GSIN) | 3,579 | | 3,579 |
| 230 | 0301112F | NUCLEAR PLANNING AND EXECUTION SYSTEM (NPES) | 29,620 | | 29,620 |

| | | | | | |
|-----|----------|---|---------|-----------|---------|
| 237 | 0301401F | AIR FORCE SPACE AND CYBER NON-TRADITIONAL ISR FOR BATTLESPACE AWARENESS | 6,633 | | 6,633 |
| 238 | 0302015F | E-4B NATIONAL AIRBORNE OPERATIONS CENTER (NAOC) | 57,758 | | 57,758 |
| 240 | 0303131F | MINIMUM ESSENTIAL EMERGENCY COMMUNICATIONS NETWORK (MEECN) | 99,088 | | 99,088 |
| 241 | 0303133F | HIGH FREQUENCY RADIO SYSTEMS | 51,612 | | 51,612 |
| 242 | 0303140F | INFORMATION SYSTEMS SECURITY PROGRAM | 34,612 | | 34,612 |
| 244 | 0303142F | GLOBAL FORCE MANAGEMENT—DATA INITIATIVE | 2,170 | | 2,170 |
| 246 | 0304260F | AIRBORNE SIGINT ENTERPRISE | 106,873 | 3,000 | 109,873 |
| | | SIGINT single-pod development | | [3,000] | |
| 247 | 0304310F | COMMERCIAL ECONOMIC ANALYSIS | 3,472 | | 3,472 |
| 250 | 0305015F | C2 AIR OPERATIONS SUITE—C2 INFO SERVICES | 8,608 | | 8,608 |
| 251 | 0305020F | CCMD INTELLIGENCE INFORMATION TECHNOLOGY | 1,586 | | 1,586 |
| 252 | 0305099F | GLOBAL AIR TRAFFIC MANAGEMENT (GATM) | 4,492 | | 4,492 |
| 254 | 0305111F | WEATHER SERVICE | 26,942 | | 26,942 |
| 255 | 0305114F | AIR TRAFFIC CONTROL, APPROACH, AND LANDING SYSTEM (ATCAL) | 6,271 | 2,500 | 8,771 |
| | | Augmentation of air surveillance and early warning radar systems | | [2,500] | |
| 256 | 0305116F | AERIAL TARGETS | 8,383 | | 8,383 |
| 259 | 0305128F | SECURITY AND INVESTIGATIVE ACTIVITIES | 418 | | 418 |
| 261 | 0305146F | DEFENSE JOINT COUNTERINTELLIGENCE ACTIVITIES | 3,845 | | 3,845 |
| 268 | 0305202F | DRAGON U-2 | 48,518 | 17,000 | 65,518 |
| | | EO/IR sensor upgrades | | [17,000] | |
| 270 | 0305206F | AIRBORNE RECONNAISSANCE SYSTEMS | 175,334 | | 175,334 |
| | | Gorgon Stare | | [10,800] | |
| | | Program reduction | | [-10,800] | |
| 271 | 0305207F | MANNED RECONNAISSANCE SYSTEMS | 14,223 | | 14,223 |
| 272 | 0305208F | DISTRIBUTED COMMON GROUND/SURFACE SYSTEMS | 24,554 | | 24,554 |
| 273 | 0305220F | RQ-4 UAV | 221,690 | -9,800 | 211,890 |
| | | RQ-4 infrastructure unjustified request | | [-9,800] | |
| 274 | 0305221F | NETWORK-CENTRIC COLLABORATIVE TARGETING | 14,288 | | 14,288 |
| 275 | 0305238F | NATO AGS | 51,527 | | 51,527 |
| 276 | 0305240F | SUPPORT TO DCGS ENTERPRISE | 26,579 | | 26,579 |
| 278 | 0305600F | INTERNATIONAL INTELLIGENCE TECHNOLOGY AND ARCHITECTURES | 8,464 | | 8,464 |
| 280 | 0305881F | RAPID CYBER ACQUISITION | 4,303 | | 4,303 |

SEC. 4201. RESEARCH, DEVELOPMENT, TEST, AND EVALUATION
(In Thousands of Dollars)

| Line | Program Element | Item | FY 2019 Request | House Change | House Authorized |
|------|-----------------|--|-----------------|--------------|------------------|
| 284 | 0305984F | PERSONNEL RECOVERY COMMAND & CTRL (PRC2) | 2,466 | | 2,466 |
| 285 | 0307577F | INTELLIGENCE MISSION DATA (IMD) | 4,117 | | 4,117 |
| 287 | 0401115F | C-130 AIRLIFT SQUADRON | 105,988 | | 105,988 |
| 288 | 0401119F | C-5 AIRLIFT SQUADRONS (IF) | 25,071 | | 25,071 |
| 289 | 0401130F | C-17 AIRCRAFT (IF) | 48,299 | | 48,299 |
| 290 | 0401132F | C-130J PROGRAM | 15,409 | | 15,409 |
| 291 | 0401134F | LARGE AIRCRAFT IR COUNTERMEASURES (LAIRCIM) | 4,334 | | 4,334 |
| 292 | 0401218F | KC-135S | 3,493 | | 3,493 |
| 293 | 0401219F | KC-10S | 6,569 | | 6,569 |
| 294 | 0401314F | OPERATIONAL SUPPORT AIRLIFT | 3,172 | | 3,172 |
| 295 | 0401318F | CV-22 | 18,502 | | 18,502 |
| 296 | 0401840F | AMC COMMAND AND CONTROL SYSTEM | 1,688 | | 1,688 |
| 297 | 0408011F | SPECIAL TACTICS / COMBAT CONTROL | 2,541 | | 2,541 |
| 298 | 0702207F | DEPOT MAINTENANCE (NON-IF) | 1,897 | | 1,897 |
| 299 | 0708055F | MAINTENANCE, REPAIR & OVERHAUL SYSTEM | 50,933 | | 50,933 |
| 300 | 0708610F | LOGISTICS INFORMATION TECHNOLOGY (LOGIT) | 13,787 | | 13,787 |
| 301 | 0708611F | SUPPORT SYSTEMS DEVELOPMENT | 4,497 | | 4,497 |
| 302 | 0804743F | OTHER FLIGHT TRAINING | 2,022 | | 2,022 |
| 303 | 0808716F | OTHER PERSONNEL ACTIVITIES | 108 | | 108 |
| 304 | 0901202F | JOINT PERSONNEL RECOVERY AGENCY | 2,023 | | 2,023 |
| 305 | 0901218F | CIVILIAN COMPENSATION PROGRAM | 3,772 | | 3,772 |
| 306 | 0901220F | PERSONNEL ADMINISTRATION | 6,358 | | 6,358 |
| 307 | 0901226F | AIR FORCE STUDIES AND ANALYSIS AGENCY | 1,418 | | 1,418 |
| 308 | 0901538F | FINANCIAL MANAGEMENT INFORMATION SYSTEMS DEVELOPMENT | 99,734 | | 99,734 |
| 309 | 1201921F | SERVICE SUPPORT TO STRATCOM—SPACE ACTIVITIES | 14,161 | | 14,161 |
| 310 | 1202247F | AF TENCAP | 26,986 | | 26,986 |
| 311 | 1203001F | FAMILY OF ADVANCED BLOS TERMINALS (FAB-T) | 80,168 | | 80,168 |

| | | | | | |
|------|------------|--|-------------------|-------------------|-----------------|
| 312 | 1203110F | SATELLITE CONTROL NETWORK (SPACE) | 17,808 | 17,808 | |
| 314 | 1203165F | NAVSTAR GLOBAL POSITIONING SYSTEM (SPACE AND CONTROL SEGMENTS) | 8,937 | 8,937 | |
| 315 | 1203173F | SPACE AND MISSILE TEST AND EVALUATION CENTER | 59,935 | 59,935 | |
| 316 | 1203174F | SPACE INNOVATION, INTEGRATION AND RAPID TECHNOLOGY DEVELOPMENT | 21,019 | 21,019 | |
| 317 | 1203179F | INTEGRATED BROADCAST SERVICE (IBS) | 8,568 | 8,568 | |
| 318 | 1203182F | SPACELIFT RANGE SYSTEM (SPACE) | 10,641 | 10,641 | |
| 319 | 1203265F | GPS III SPACE SEGMENT | 144,543 | 144,543 | |
| 320 | 1203400F | SPACE SUPERIORITY INTELLIGENCE | 16,278 | 16,278 | |
| 321 | 1203614F | JSPOC MISSION SYSTEM | 72,256 | 72,256 | |
| 322 | 1203620F | NATIONAL SPACE DEFENSE CENTER | 42,209 | 42,209 | |
| 325 | 1203913F | NUDET DETECTION SYSTEM (SPACE) | 19,778 | 19,778 | |
| 326 | 1203940F | SPACE SITUATION AWARENESS OPERATIONS | 19,572 | 19,572 | |
| 327 | 1206423F | GLOBAL POSITIONING SYSTEM III—OPERATIONAL CONTROL SEGMENT | 513,235 | 513,235 | |
| 327A | 9999999999 | CLASSIFIED PROGRAMS | 16,534,124 | 16,390,224 | -143,900 |
| | | Classified adjustment | | | [-40,000] |
| | | Forward financed in the FY18 Omnibus | | | [-89,900] |
| | | PDSA staff reduction | | | [-14,000] |
| | | SUBTOTAL OPERATIONAL SYSTEMS DEVELOPMENT | 22,891,740 | 22,737,240 | -154,500 |
| | | TOTAL RESEARCH, DEVELOPMENT, TEST & EVAL, AF | 40,178,343 | 40,872,443 | 694,100 |
| | | RESEARCH, DEVELOPMENT, TEST & EVAL, DW | | | |
| | | BASIC RESEARCH | | | |
| 001 | 0601000BR | DTRA BASIC RESEARCH | 37,023 | 37,023 | |
| 002 | 0601101E | DEFENSE RESEARCH SCIENCES | 422,130 | 416,130 | -6,000 |
| | | Program decrease | | | [-6,000] |
| 003 | 0601110D8Z | BASIC RESEARCH INITIATIVES | 42,702 | 42,702 | |
| 004 | 0601117E | BASIC OPERATIONAL MEDICAL RESEARCH SCIENCE | 47,825 | 47,825 | |
| 005 | 0601120D8Z | NATIONAL DEFENSE EDUCATION PROGRAM | 85,919 | 85,919 | |
| 006 | 0601228D8Z | HISTORICAL BLACK COLLEGES AND UNIVERSITIES/MINORITY INSTITUTIONS | 30,412 | 40,412 | 10,000 |
| | | Program increase | | | [10,000] |
| 007 | 0601384BP | CHEMICAL AND BIOLOGICAL DEFENSE PROGRAM | 42,103 | 42,103 | |

SEC. 4201. RESEARCH, DEVELOPMENT, TEST, AND EVALUATION
(In Thousands of Dollars)

| Line | Program Element | Item | FY 2019 Request | House Change | House Authorized |
|------|-----------------|---|------------------|--------------|------------------|
| | | SUBTOTAL BASIC RESEARCH | 708,114 | 4,000 | 712,114 |
| | | APPLIED RESEARCH | | | |
| 008 | 0602000D8Z | JOINT MUNITIONS TECHNOLOGY | 19,170 | | 19,170 |
| 009 | 0602115E | BIOMEDICAL TECHNOLOGY | 101,300 | | 101,300 |
| 011 | 060234D8Z | LINCOLN LABORATORY RESEARCH PROGRAM | 51,596 | | 51,596 |
| 012 | 060251D8Z | APPLIED RESEARCH FOR THE ADVANCEMENT OF S&T PRIORITIES | 60,688 | | 60,688 |
| 013 | 0602303E | INFORMATION & COMMUNICATIONS TECHNOLOGY | 395,317 | | 395,317 |
| 014 | 0602383E | BIOLOGICAL WARFARE DEFENSE | 38,640 | | 38,640 |
| 015 | 0602384BP | CHEMICAL AND BIOLOGICAL DEFENSE PROGRAM | 192,674 | | 192,674 |
| 016 | 0602668D8Z | CYBER SECURITY RESEARCH | 14,969 | | 14,969 |
| 017 | 0602702E | TACTICAL TECHNOLOGY | 335,466 | | 335,466 |
| 018 | 0602715E | MATERIALS AND BIOLOGICAL TECHNOLOGY | 226,898 | | 226,898 |
| 019 | 0602716E | ELECTRONICS TECHNOLOGY | 333,847 | | 333,847 |
| 020 | 0602718BR | COUNTER WEAPONS OF MASS DESTRUCTION APPLIED RESEARCH | 161,151 | | 161,151 |
| 021 | 0602751D8Z | SOFTWARE ENGINEERING INSTITUTE (SEI) APPLIED RESEARCH | 9,300 | | 9,300 |
| 022 | 11604018B | SOF TECHNOLOGY DEVELOPMENT | 35,921 | | 35,921 |
| | | SUBTOTAL APPLIED RESEARCH | 1,976,937 | | 1,976,937 |
| | | ADVANCED TECHNOLOGY DEVELOPMENT | | | |
| 023 | 0603000D8Z | JOINT MUNITIONS ADVANCED TECHNOLOGY | 25,598 | | 25,598 |
| 024 | 0603122D8Z | COMBATING TERRORISM TECHNOLOGY SUPPORT | 125,271 | | 125,271 |
| 025 | 0603133D8Z | FOREIGN COMPARATIVE TESTING | 24,532 | | 24,532 |
| 027 | 0603160BR | COUNTER WEAPONS OF MASS DESTRUCTION ADVANCED TECHNOLOGY DEVELOPMENT | 299,858 | | 299,858 |
| 028 | 0603176C | ADVANCED CONCEPTS AND PERFORMANCE ASSESSMENT | 13,017 | | 13,017 |
| 029 | 0603178C | WEAPONS TECHNOLOGY | | 10,000 | 10,000 |
| | | Accelerate hypersonic defense capability | | [10,000] | |

| | | | | | |
|-----|------------|--|---------|-----------|---------|
| 031 | 0603180C | ADVANCED RESEARCH | 20,365 | 20,000 | 40,365 |
| | | Accelerate hypersonic defense capability | | [20,000] | |
| 032 | 0603225D8Z | JOINT DOD-DOE MUNITIONS TECHNOLOGY DEVELOPMENT | 18,644 | | 18,644 |
| 034 | 0603286E | ADVANCED AEROSPACE SYSTEMS | 277,603 | | 277,603 |
| 035 | 0603287E | SPACE PROGRAMS AND TECHNOLOGY | 254,671 | | 254,671 |
| 036 | 0603288D8Z | ANALYTIC ASSESSMENTS | 19,472 | | 19,472 |
| 037 | 0603289D8Z | ADVANCED INNOVATIVE ANALYSIS AND CONCEPTS | 37,263 | | 37,263 |
| 038 | 0603291D8Z | ADVANCED INNOVATIVE ANALYSIS AND CONCEPTS—MHA | 13,621 | | 13,621 |
| 039 | 0603294C | COMMON KILL VEHICLE TECHNOLOGY | 189,753 | -89,000 | 100,753 |
| | | Early to need | | [-89,000] | |
| 040 | 0603342D8W | DEFENSE INNOVATION UNIT EXPERIMENTAL (DIUX) | 29,364 | | 29,364 |
| 041 | 0603375D8Z | TECHNOLOGY INNOVATION | 83,143 | | 83,143 |
| 042 | 0603384BF | CHEMICAL AND BIOLOGICAL DEFENSE PROGRAM—ADVANCED DEVELOPMENT | 142,826 | | 142,826 |
| 043 | 0603527D8Z | RETRACT LARCH | 161,128 | | 161,128 |
| 044 | 0603618D8Z | JOINT ELECTRONIC ADVANCED TECHNOLOGY | 12,918 | | 12,918 |
| 045 | 0603648D8Z | JOINT CAPABILITY TECHNOLOGY DEMONSTRATIONS | 106,049 | | 106,049 |
| 046 | 0603662D8Z | NETWORKED COMMUNICATIONS CAPABILITIES | 12,696 | | 12,696 |
| 047 | 0603680D8Z | DEFENSE-WIDE MANUFACTURING SCIENCE AND TECHNOLOGY PROGRAM | 114,637 | | 114,637 |
| 048 | 0603680S | MANUFACTURING TECHNOLOGY PROGRAM | 49,667 | | 49,667 |
| 049 | 0603699D8Z | EMERGING CAPABILITIES TECHNOLOGY DEVELOPMENT | 48,338 | | 48,338 |
| 050 | 0603712S | GENERIC LOGISTICS R&D TECHNOLOGY DEMONSTRATIONS | 11,778 | | 11,778 |
| 052 | 0603716D8Z | STRATEGIC ENVIRONMENTAL RESEARCH PROGRAM | 76,514 | | 76,514 |
| 053 | 0603720S | MICROELECTRONICS TECHNOLOGY DEVELOPMENT AND SUPPORT | 168,931 | | 168,931 |
| 054 | 0603727D8Z | JOINT WARFIGHTING PROGRAM | 5,992 | | 5,992 |
| 055 | 0603739E | ADVANCED ELECTRONICS TECHNOLOGIES | 111,099 | | 111,099 |
| 056 | 0603760E | COMMAND, CONTROL AND COMMUNICATIONS SYSTEMS | 185,984 | | 185,984 |
| 057 | 0603766E | NETWORK-CENTRIC WARFARE TECHNOLOGY | 438,569 | | 438,569 |
| 058 | 0603767E | SENSOR TECHNOLOGY | 190,128 | | 190,128 |
| 059 | 0603769D8Z | DISTRIBUTED LEARNING ADVANCED TECHNOLOGY DEVELOPMENT | 13,564 | | 13,564 |
| 060 | 0603781D8Z | SOFTWARE ENGINEERING INSTITUTE | 15,050 | | 15,050 |
| 061 | 0603826D8Z | QUICK REACTION SPECIAL PROJECTS | 69,626 | | 69,626 |
| 062 | 0603833D8Z | ENGINEERING SCIENCE & TECHNOLOGY | 19,415 | | 19,415 |

SEC. 4201. RESEARCH, DEVELOPMENT, TEST, AND EVALUATION
(In Thousands of Dollars)

| Line | Program Element | Item | FY 2019 Request | House Change | House Authorized |
|--|-----------------|--|------------------|----------------|------------------|
| 063 | 0603924D8Z | HIGH ENERGY LASER ADVANCED TECHNOLOGY PROGRAM | 69,533 | | 69,533 |
| 064 | 0603941D8Z | TEST & EVALUATION SCIENCE & TECHNOLOGY | 96,389 | | 96,389 |
| 065 | 0604055D8Z | OPERATIONAL ENERGY CAPABILITY IMPROVEMENT | 40,582 | | 40,582 |
| 066 | 0303310D8Z | CWMD SYSTEMS | 26,644 | | 26,644 |
| 067 | 1160402BB | SOF ADVANCED TECHNOLOGY DEVELOPMENT | 79,380 | | 79,380 |
| | | SUBTOTAL ADVANCED TECHNOLOGY DEVELOPMENT | 3,699,612 | -59,000 | 3,640,612 |
| ADVANCED COMPONENT DEVELOPMENT AND PROTOTYPES | | | | | |
| 068 | 0603161D8Z | NUCLEAR AND CONVENTIONAL PHYSICAL SECURITY EQUIPMENT RDT&E ADC&P | 28,140 | | 28,140 |
| 069 | 0603600D8Z | WALKOFF | 92,222 | | 92,222 |
| 070 | 0603821D8Z | ACQUISITION ENTERPRISE DATA & INFORMATION SERVICES | 2,506 | | 2,506 |
| 071 | 0603851D8Z | ENVIRONMENTAL SECURITY TECHNICAL CERTIFICATION PROGRAM | 40,016 | | 40,016 |
| 072 | 0603881C | BALLISTIC MISSILE DEFENSE TERMINAL DEFENSE SEGMENT | 214,173 | 145,000 | 359,173 |
| | | Accelerate USFK JEON delivery | | [100,000] | |
| | | Address cyber threats | | [45,000] | |
| 073 | 0603882C | BALLISTIC MISSILE DEFENSE MIDCOURSE DEFENSE SEGMENT | 926,359 | -200,000 | 726,359 |
| | | Address cyber threats | | [8,000] | |
| | | Forward financed in the FY18 Omnibus | | [-208,000] | |
| 074 | 0603884BP | CHEMICAL AND BIOLOGICAL DEFENSE PROGRAM—DEMIVAL | 129,886 | | 129,886 |
| 075 | 0603884C | BALLISTIC MISSILE DEFENSE SENSORS | 220,876 | 25,000 | 245,876 |
| | | Accelerate USFK JEON delivery | | [20,000] | |
| | | Address cyber threats | | [5,000] | |
| 076 | 0603890C | BMD ENABLING PROGRAMS | 540,926 | | 540,926 |
| 077 | 0603891C | SPECIAL PROGRAMS—MDA | 422,348 | | 422,348 |
| 078 | 0603892C | AEGIS BMD | 767,539 | | 767,539 |
| 081 | 0603896C | BALLISTIC MISSILE DEFENSE COMMAND AND CONTROL, BATTLE MANAGEMENT AND COMMUNICATI | 475,168 | 8,000 | 483,168 |
| | | Address cyber threats | | [8,000] | |

| | | | | | |
|------|------------|---|-----------|-----------|-----------|
| 082 | 0603898C | BALLISTIC MISSILE DEFENSE JOINT WARRIGHTER SUPPORT | 48,767 | 48,767 | |
| 083 | 0603904C | MISSILE DEFENSE INTEGRATION & OPERATIONS CENTER (MDIOC) | 54,925 | 54,925 | |
| 084 | 0603906C | REGARDING TRENCH | 16,916 | 16,916 | |
| 085 | 0603907C | SEA BASED X-BAND RADAR (SBX) | 149,715 | 149,715 | |
| | | Forward financed in the FY18 Omnibus | | | -33,000 |
| | | | | | [-33,000] |
| 086 | 0603913C | ISRAELI COOPERATIVE PROGRAMS | 300,000 | 300,000 | |
| 087 | 0603914C | BALLISTIC MISSILE DEFENSE TEST | 365,681 | 365,681 | |
| | | Accelerate USFK JEON delivery | | | 65,000 |
| | | Address cyber threats | | | [50,000] |
| 088 | 0603915C | BALLISTIC MISSILE DEFENSE TARGETS | 517,852 | 517,852 | |
| | | Accelerate USFK JEON delivery | | | [15,000] |
| | | Address cyber threats | | | -26,500 |
| | | Forward financed in the FY18 Omnibus | | | [4,500] |
| | | | | | [5,000] |
| | | | | | [-36,000] |
| 089 | 0603920D8Z | HUMANITARIAN DEMINING | 11,347 | 11,347 | |
| 090 | 0603923D8Z | COALITION WARFARE | 8,528 | 8,528 | |
| 091 | 0604016D8Z | DEPARTMENT OF DEFENSE CORROSION PROGRAM | 3,477 | 3,477 | |
| 092 | 0604115C | TECHNOLOGY MATURATION INITIATIVES | 148,822 | 148,822 | |
| | | Address cyber threats | | | 55,000 |
| | | Continue directed energy and boost phase intercept efforts | | | [5,000] |
| 093 | 0604132D8Z | MISSILE DEFEAT PROJECT | 58,607 | 58,607 | |
| 094 | 0604134BR | COUNTER IMPROVISED-THREAT DEMONSTRATION, PROTOTYPE DEVELOPMENT, AND TESTING | 12,993 | 12,993 | |
| 095 | 0604181C | HYPERSONIC DEFENSE | 120,444 | 120,444 | |
| | | Accelerate hypersonic defense capability | | | 10,000 |
| 096 | 0604250D8Z | ADVANCED INNOVATIVE TECHNOLOGIES | 1,431,702 | 1,431,702 | |
| | | Program reduction | | | [10,000] |
| 097 | 0604294D8Z | TRUSTED & ASSURED MICROELECTRONICS | 233,142 | 233,142 | |
| 098 | 0604331D8Z | RAPID PROTOTYPING PROGRAM | 99,333 | 99,333 | |
| 098A | 0604342D8Z | DEFENSE TECHNOLOGY OFFSET | | | -50,000 |
| | | Directed energy | | | [-50,000] |
| 099 | 0604400D8Z | DEPARTMENT OF DEFENSE (DOD) UNMANNED SYSTEM COMMON DEVELOPMENT | 3,781 | 3,781 | |
| 100 | 0604673C | PACIFIC DISCRIMINATING RADAR | 95,765 | 95,765 | |
| 101 | 0604682D8Z | WARGAMING AND SUPPORT FOR STRATEGIC ANALYSIS (SSA) | 3,768 | 3,768 | |

SEC. 4201. RESEARCH, DEVELOPMENT, TEST, AND EVALUATION
(In Thousands of Dollars)

| Line | Program Element | Item | FY 2019 Request | House Change | House Authorized |
|---|-----------------|---|------------------|--------------|------------------|
| 103 | 0604826J | JOINT C5 CAPABILITY DEVELOPMENT, INTEGRATION AND INTEROPERABILITY ASSESSMENTS | 22,435 | | 22,435 |
| 104 | 0604873C | LONG RANGE DISCRIMINATION RADAR (LRDR) | 164,562 | | 164,562 |
| 105 | 0604874C | IMPROVED HOMELAND DEFENSE INTERCEPTORS | 561,220 | -139,400 | 421,820 |
| | | Forward financed in the FY18 Omnibus | | [-139,400] | |
| 106 | 0604876C | BALLISTIC MISSILE DEFENSE TERMINAL DEFENSE SEGMENT TEST | 61,017 | | 61,017 |
| 107 | 0604878C | AEGIS BMD TEST | 95,756 | | 95,756 |
| 108 | 0604879C | BALLISTIC MISSILE DEFENSE SENSOR TEST | 81,001 | | 81,001 |
| 109 | 0604880C | LAND-BASED SM-3 (LBSM3) | 27,692 | 150 | 27,842 |
| | | Retain Poland CHUs | | [150] | |
| 111 | 0604887C | BALLISTIC MISSILE DEFENSE MIDCOURSE SEGMENT TEST | 81,934 | -9,300 | 72,634 |
| | | Forward financed in the FY18 Omnibus | | [-9,300] | |
| 112 | 0604894C | MULTI-OBJECT KILL VEHICLE | 8,256 | | 8,256 |
| 113 | 0300206R | ENTERPRISE INFORMATION TECHNOLOGY SYSTEMS | 2,600 | | 2,600 |
| 114 | 0303191D8Z | JOINT ELECTROMAGNETIC TECHNOLOGY (JET) PROGRAM | 3,104 | | 3,104 |
| 115 | 0305103C | CYBER SECURITY INITIATIVE | 985 | | 985 |
| 116 | 1206893C | SPACE TRACKING & SURVEILLANCE SYSTEM | 36,955 | | 36,955 |
| 117 | 1206895C | BALLISTIC MISSILE DEFENSE SYSTEM SPACE PROGRAMS | 16,484 | 58,000 | 74,484 |
| | | Address cyber threats | | [8,000] | |
| | | Develop space sensor architecture | | [50,000] | |
| | | SUBTOTAL ADVANCED COMPONENT DEVELOPMENT AND PROTOTYPES | 8,709,725 | 7,950 | 8,717,675 |
| SYSTEM DEVELOPMENT AND DEMONSTRATION | | | | | |
| 118 | 0604161D8Z | NUCLEAR AND CONVENTIONAL PHYSICAL SECURITY EQUIPMENT RDT&E SDD | 8,333 | | 8,333 |
| 119 | 0604165D8Z | PROMPT GLOBAL STRIKE CAPABILITY DEVELOPMENT | 263,414 | 150,000 | 413,414 |
| | | Accelerate program | | [150,000] | |
| 120 | 0604384BP | CHEMICAL AND BIOLOGICAL DEFENSE PROGRAM—EMD | 388,701 | | 388,701 |
| 121 | 0604771D8Z | JOINT TACTICAL INFORMATION DISTRIBUTION SYSTEM (JTIDS) | 19,503 | | 19,503 |

| | | | | |
|---------------------------|------------|--|----------------|----------------|
| 122 | 0605000BR | COUNTER WEAPONS OF MASS DESTRUCTION SYSTEMS DEVELOPMENT | 6,163 | 6,163 |
| 123 | 0605013BL | INFORMATION TECHNOLOGY DEVELOPMENT | 11,988 | 11,988 |
| 124 | 0605021SE | HOMELAND PERSONNEL SECURITY INITIATIVE | 296 | 296 |
| 125 | 0605022D8Z | DEFENSE EXPORTABILITY PROGRAM | 1,489 | 1,489 |
| 126 | 0605027D8Z | OSD(C) IT DEVELOPMENT INITIATIVES | 9,590 | 9,590 |
| 127 | 0605070S | DOD ENTERPRISE SYSTEMS DEVELOPMENT AND DEMONSTRATION | 3,173 | 3,173 |
| 128 | 0605075D8Z | DCMO POLICY AND INTEGRATION | 2,105 | 2,105 |
| 129 | 0605080S | DEFENSE AGENCY INITIATIVES (DAI)—FINANCIAL SYSTEM | 21,156 | 21,156 |
| 130 | 0605090S | DEFENSE RETIRED AND ANNUITANT PAY SYSTEM (DRAS) | 10,731 | 10,731 |
| 132 | 0605210D8Z | DEFENSE-WIDE ELECTRONIC PROCUREMENT CAPABILITIES | 6,374 | 6,374 |
| 133 | 0605294D8Z | TRUSTED & ASSURED MICROELECTRONICS | 56,178 | 56,178 |
| 134 | 0303141K | GLOBAL COMBAT SUPPORT SYSTEM | 2,512 | 2,512 |
| 135 | 0305304D8Z | DOD ENTERPRISE ENERGY INFORMATION MANAGEMENT (E2IM) | 2,435 | 2,435 |
| 136 | 0305310D8Z | CWMD SYSTEMS: SYSTEM DEVELOPMENT AND DEMONSTRATION | 17,048 | 17,048 |
| | | SUBTOTAL SYSTEM DEVELOPMENT AND DEMONSTRATION | 831,189 | 150,000 |
| MANAGEMENT SUPPORT | | | | |
| 137 | 0604774D8Z | DEFENSE READINESS REPORTING SYSTEM (DRRS) | 6,661 | 6,661 |
| 138 | 0604875D8Z | JOINT SYSTEMS ARCHITECTURE DEVELOPMENT | 4,088 | 4,088 |
| 139 | 0604940D8Z | CENTRAL TEST AND EVALUATION INVESTMENT DEVELOPMENT (CTEIP) | 258,796 | 258,796 |
| 140 | 0604942D8Z | ASSESSMENTS AND EVALUATIONS | 31,356 | 31,356 |
| 141 | 0605001E | MISSION SUPPORT | 65,646 | 65,646 |
| 142 | 0605100D8Z | JOINT MISSION ENVIRONMENT TEST CAPABILITY (JMETC) | 84,184 | 84,184 |
| 143 | 0605104D8Z | TECHNICAL STUDIES, SUPPORT AND ANALYSIS | 22,576 | 22,576 |
| 144 | 0605126J | JOINT INTEGRATED AIR AND MISSILE DEFENSE ORGANIZATION (JIAMDO) | 52,565 | 42,565 |
| | | Unjustified program growth | | -10,000 |
| | | | | [-10,000] |
| 146 | 0605142D8Z | SYSTEMS ENGINEERING | 38,872 | 38,872 |
| 147 | 0605151D8Z | STUDIES AND ANALYSIS SUPPORT—OSD | 3,534 | 3,534 |
| 148 | 0605161D8Z | NUCLEAR MATTERS-PHYSICAL SECURITY | 5,050 | 5,050 |
| 149 | 0605170D8Z | SUPPORT TO NETWORKS AND INFORMATION INTEGRATION | 11,450 | 11,450 |
| 150 | 0605200D8Z | GENERAL SUPPORT TO USD (INTELLIGENCE) | 1,693 | 1,693 |
| 151 | 0605384BP | CHEMICAL AND BIOLOGICAL DEFENSE PROGRAM | 102,883 | 102,883 |

SEC. 4201. RESEARCH, DEVELOPMENT, TEST, AND EVALUATION
(In Thousands of Dollars)

| Line | Program Element | Item | FY 2019 Request | House Change | House Authorized |
|------|-----------------|---|------------------|----------------|------------------|
| 159 | 0605790D8Z | SMALL BUSINESS INNOVATION RESEARCH (SBIR)/ SMALL BUSINESS TECHNOLOGY TRANSFER | 2,545 | | 2,545 |
| 160 | 0605798D8Z | DEFENSE TECHNOLOGY ANALYSIS | 24,487 | | 24,487 |
| 161 | 0605801KA | DEFENSE TECHNICAL INFORMATION CENTER (DTIC) | 56,853 | | 56,853 |
| 162 | 0605803SE | R&D IN SUPPORT OF DOD ENLISTMENT, TESTING AND EVALUATION | 24,914 | | 24,914 |
| 163 | 0605804D8Z | DEVELOPMENT TEST AND EVALUATION | 20,179 | | 20,179 |
| 164 | 0605898E | MANAGEMENT HQ—R&D | 13,643 | | 13,643 |
| 165 | 060598KA | MANAGEMENT HQ—DEFENSE TECHNICAL INFORMATION CENTER (DTIC) | 4,124 | | 4,124 |
| 166 | 0606100D8Z | BUDGET AND PROGRAM ASSESSMENTS | 5,768 | | 5,768 |
| 167 | 0606225D8Z | ODNA TECHNOLOGY AND RESOURCE ANALYSIS | 1,030 | | 1,030 |
| 168 | 0606589D8W | DEFENSE DIGITAL SERVICE (DDS) DEVELOPMENT SUPPORT | 1,000 | | 1,000 |
| 169 | 0606942C | ASSESSMENTS AND EVALUATIONS CYBER VULNERABILITIES | 3,400 | | 3,400 |
| 170 | 0606942S | ASSESSMENTS AND EVALUATIONS CYBER VULNERABILITIES | 4,000 | | 4,000 |
| 171 | 0203345D8Z | DEFENSE OPERATIONS SECURITY INITIATIVE (DOSI) | 3,008 | | 3,008 |
| 172 | 0204571J | JOINT STAFF ANALYTICAL SUPPORT | 6,658 | | 6,658 |
| 175 | 0303166J | SUPPORT TO INFORMATION OPERATIONS (IO) CAPABILITIES | 652 | | 652 |
| 176 | 0303260D8Z | DEFENSE MILITARY DECEPTION PROGRAM OFFICE (DMDPO) | 1,005 | | 1,005 |
| 177 | 0305172K | COMBINED ADVANCED APPLICATIONS | 21,363 | | 21,363 |
| 180 | 0305245D8Z | INTELLIGENCE CAPABILITIES AND INNOVATION INVESTMENTS | 109,529 | | 109,529 |
| 181 | 0306310D8Z | CWMD SYSTEMS: RDT&E MANAGEMENT SUPPORT | 1,244 | | 1,244 |
| 184 | 0804768J | COCOM EXERCISE ENGAGEMENT AND TRAINING TRANSFORMATION (CE2T2)—NON-MHA | 42,940 | | 42,940 |
| 185 | 0901598C | MANAGEMENT HQ—MDA | 28,626 | | 28,626 |
| 187 | 0903235K | JOINT SERVICE PROVIDER (JSP) | 5,104 | | 5,104 |
| 188A | 9999999999 | CLASSIFIED PROGRAMS | 45,604 | | 45,604 |
| | | SUBTOTAL MANAGEMENT SUPPORT | 1,117,030 | -10,000 | 1,107,030 |
| 189 | 0604130V | OPERATIONAL SYSTEM DEVELOPMENT ENTERPRISE SECURITY SYSTEM (ESS) | 9,750 | | 9,750 |

| | | | | |
|-----|------------|--|---------|----------|
| 190 | 0605127T | REGIONAL INTERNATIONAL OUTREACH (RIO) AND PARTNERSHIP FOR PEACE INFORMATION MANA | 1,855 | 1,855 |
| 191 | 0605147T | OVERSEAS HUMANITARIAN ASSISTANCE SHARED INFORMATION SYSTEM (OHASIS) | 304 | 304 |
| 192 | 0607210D8Z | INDUSTRIAL BASE ANALYSIS AND SUSTAINMENT SUPPORT | 10,376 | 10,376 |
| 193 | 0607310D8Z | CWMD SYSTEMS: OPERATIONAL SYSTEMS DEVELOPMENT | 5,915 | 5,915 |
| 194 | 0607327T | GLOBAL THEATER SECURITY COOPERATION MANAGEMENT INFORMATION SYSTEMS (G-TSCMIS) | 5,869 | 5,869 |
| 195 | 0607384BP | CHEMICAL AND BIOLOGICAL DEFENSE (OPERATIONAL SYSTEMS DEVELOPMENT) | 48,741 | 48,741 |
| 196 | 0208043J | PLANNING AND DECISION AID SYSTEM (PDAS) | 3,037 | 3,037 |
| 197 | 0208045K | C4I INTEROPERABILITY | 62,814 | 62,814 |
| 203 | 0302019K | DEFENSE INFO INFRASTRUCTURE ENGINEERING AND INTEGRATION | 16,561 | 16,561 |
| 204 | 0303126K | LONG-HAUL COMMUNICATIONS—DCS | 14,769 | 14,769 |
| 205 | 0303131K | MINIMUM ESSENTIAL EMERGENCY COMMUNICATIONS NETWORK (MEECN) | 17,579 | 17,579 |
| 207 | 0303136G | KEY MANAGEMENT INFRASTRUCTURE (KMI) | 31,737 | 31,737 |
| 208 | 0303140D8Z | INFORMATION SYSTEMS SECURITY PROGRAM | 7,940 | 7,940 |
| | | Expand cyber scholarship program | | 10,000 |
| | | | | [10,000] |
| 209 | 0303140G | INFORMATION SYSTEMS SECURITY PROGRAM | 229,252 | 229,252 |
| 210 | 0303140K | INFORMATION SYSTEMS SECURITY PROGRAM | 19,611 | 19,611 |
| 211 | 0303150K | GLOBAL COMMAND AND CONTROL SYSTEM | 46,900 | 46,900 |
| 212 | 0303153K | DEFENSE SPECTRUM ORGANIZATION | 7,570 | 7,570 |
| 213 | 0303228K | JOINT INFORMATION ENVIRONMENT (JIE) | 7,947 | 7,947 |
| 215 | 0303430K | FEDERAL INVESTIGATIVE SERVICES INFORMATION TECHNOLOGY | 39,400 | 39,400 |
| 224 | 0305186D8Z | POLICY R&D PROGRAMS | 6,262 | 6,262 |
| 225 | 0305199D8Z | NET CENTRICITY | 16,780 | 16,780 |
| 227 | 0305208BB | DISTRIBUTED COMMON GROUND/SURFACE SYSTEMS | 6,286 | 6,286 |
| 230 | 0305208K | DISTRIBUTED COMMON GROUND/SURFACE SYSTEMS | 2,970 | 2,970 |
| 233 | 0305327V | INSIDER THREAT | 5,954 | 5,954 |
| 234 | 0305387D8Z | HOMELAND DEFENSE TECHNOLOGY TRANSFER PROGRAM | 2,198 | 2,198 |
| 240 | 0307577D8Z | INTELLIGENCE MISSION DATA (IMD) | 6,889 | 6,889 |
| 242 | 0708012K | LOGISTICS SUPPORT ACTIVITIES | 1,317 | 1,317 |
| 243 | 0708012S | PACIFIC DISASTER CENTERS | 1,770 | 1,770 |
| 244 | 0708047S | DEFENSE PROPERTY ACCOUNTABILITY SYSTEM | 1,805 | 1,805 |
| 246 | 1105219BB | MQ-9 UAV | 18,403 | 18,403 |
| 248 | 1160403BB | AVIATION SYSTEMS | 184,993 | 179,993 |
| | | | | -5,000 |

SEC. 4201. RESEARCH, DEVELOPMENT, TEST, AND EVALUATION
(In Thousands of Dollars)

| Line | Program Element | Item | FY 2019 Request | House Change | House Authorized |
|------|-----------------|---|-------------------|----------------|-------------------|
| | | Realignment of funds | | [-5,000] | |
| 249 | 1160405BB | INTELLIGENCE SYSTEMS DEVELOPMENT | 10,625 | | 10,625 |
| 250 | 1160408BB | OPERATIONAL ENHANCEMENTS | 102,307 | | 102,307 |
| 251 | 1160431BB | WARRIOR SYSTEMS | 46,942 | | 46,942 |
| 252 | 1160432BB | SPECIAL PROGRAMS | 2,479 | | 2,479 |
| 253 | 1160434BB | UNMANNED ISR | 27,270 | | 27,270 |
| 254 | 1160480BB | SOF TACTICAL VEHICLES | 1,121 | | 1,121 |
| 255 | 1160483BB | MARITIME SYSTEMS | 42,471 | | 42,471 |
| 256 | 1160489BB | GLOBAL VIDEO SURVEILLANCE ACTIVITIES | 4,780 | | 4,780 |
| 257 | 1160490BB | OPERATIONAL ENHANCEMENTS INTELLIGENCE | 12,176 | | 12,176 |
| 258 | 1203610K | TELEPORT PROGRAM | 2,323 | | 2,323 |
| 258A | 99999999999 | CLASSIFIED PROGRAMS | 3,877,898 | | 3,877,898 |
| | | SUBTOTAL OPERATIONAL SYSTEM DEVELOPMENT | 4,973,946 | 5,000 | 4,978,946 |
| | | TOTAL RESEARCH, DEVELOPMENT, TEST & EVAL, DW | 22,016,553 | 97,950 | 22,114,503 |
| | | OPERATIONAL TEST & EVAL, DEFENSE | | | |
| | | MANAGEMENT SUPPORT | | | |
| 001 | 06051180TE | OPERATIONAL TEST AND EVALUATION | 85,685 | | 85,685 |
| 002 | 06051310TE | LIVE FIRE TEST AND EVALUATION | 64,332 | | 64,332 |
| 003 | 06058140TE | OPERATIONAL TEST ACTIVITIES AND ANALYSES | 70,992 | | 70,992 |
| | | SUBTOTAL MANAGEMENT SUPPORT | 221,009 | | 221,009 |
| | | TOTAL OPERATIONAL TEST & EVAL, DEFENSE | 221,009 | | 221,009 |
| | | TOTAL RDT&E | 91,056,950 | 859,700 | 91,916,650 |

SEC. 4202. RESEARCH, DEVELOPMENT, TEST, AND EVALUATION FOR OVERSEAS CONTINGENCY OPERATIONS.

SEC. 4202. RESEARCH, DEVELOPMENT, TEST, AND EVALUATION FOR OVERSEAS CONTINGENCY OPERATIONS
(In Thousands of Dollars)

| Line | Program Element | Item | FY 2019 Request | House Change | House Authorized |
|--|-----------------|---|-----------------|----------------|------------------|
| ADVANCED COMPONENT DEVELOPMENT & PROTOTYPES | | | | | |
| 056 | 0603327A | AIR AND MISSILE DEFENSE SYSTEMS ENGINEERING | 1,000 | -1,000 | |
| | | Realignment of EDI APS Unit Set from OCO to Base | | [-1,000] | |
| 058 | 0603627A | SMOKE, OBSCURANT AND TARGET DEFEATING SYS-ADV DEV | 1,500 | | 1,500 |
| 061 | 0603747A | SOLDIER SUPPORT AND SURVIVABILITY | 3,000 | | 3,000 |
| 076 | 0604117A | MANEUVER—SHORT RANGE AIR DEFENSE (M-SHORAD) | 23,000 | -23,000 | |
| | | Realignment of EDI APS Unit Set from OCO to Base | | [-23,000] | |
| | | SUBTOTAL ADVANCED COMPONENT DEVELOPMENT & PROTOTYPES | 28,500 | -24,000 | 4,500 |
| SYSTEM DEVELOPMENT & DEMONSTRATION | | | | | |
| 088 | 0604328A | TRACTOR CAGE | 12,000 | | 12,000 |
| 100 | 0604741A | AIR DEFENSE COMMAND, CONTROL AND INTELLIGENCE—ENG DEV | 119,300 | | 119,300 |
| 125 | 0605032A | TRACTOR TIRE | 66,760 | | 66,760 |
| 128 | 0605035A | COMMON INFRARED COUNTERMEASURES (CIRCUM) | 2,670 | | 2,670 |
| 136 | 0605051A | AIRCRAFT SURVIVABILITY DEVELOPMENT | 34,933 | | 34,933 |
| 147 | 0303032A | TROJAN—RH12 | 1,200 | | 1,200 |
| | | SUBTOTAL SYSTEM DEVELOPMENT & DEMONSTRATION | 236,863 | | 236,863 |
| OPERATIONAL SYSTEMS DEVELOPMENT | | | | | |
| 184 | 0607131A | WEAPONS AND MUNITIONS PRODUCT IMPROVEMENT PROGRAMS | 2,548 | | 2,548 |
| 185 | 0607133A | TRACTOR SMOKE | 7,780 | | 7,780 |
| 206 | 0203801A | MISSILE/AIR DEFENSE PRODUCT IMPROVEMENT PROGRAM | 2,000 | -2,000 | |
| | | Realignment of EDI APS Unit Set from OCO to Base | | [-2,000] | |
| 209 | 0205402A | INTEGRATED BASE DEFENSE—OPERATIONAL SYSTEM DEV | 8,000 | | 8,000 |

SEC. 4202. RESEARCH, DEVELOPMENT, TEST, AND EVALUATION FOR OVERSEAS CONTINGENCY OPERATIONS
(In Thousands of Dollars)

| Line | Program Element | Item | FY 2019 Request | House Change | House Authorized |
|------|-----------------|---|-----------------|----------------|------------------|
| 216 | 0303028A | SECURITY AND INTELLIGENCE ACTIVITIES | 23,199 | | 23,199 |
| 226 | 0305206A | AIRBORNE RECONNAISSANCE SYSTEMS | 14,000 | -14,000 | |
| | | Realignment of EDI APS Unit Set from OCO to Base | | [-14,000] | |
| 231 | 0307665A | BIOMETRICS ENABLED INTELLIGENCE | 2,214 | | 2,214 |
| | | SUBTOTAL OPERATIONAL SYSTEMS DEVELOPMENT | 59,741 | -16,000 | 43,741 |
| | | TOTAL RESEARCH, DEVELOPMENT, TEST & EVAL, ARMY | 325,104 | -40,000 | 285,104 |
| | | ADVANCED COMPONENT DEVELOPMENT & PROTOTYPES | | | |
| 041 | 0603527N | RETRACT LARCH | 18,000 | | 18,000 |
| 061 | 0603654N | JOINT SERVICE EXPLOSIVE ORDNANCE DEVELOPMENT | 13,900 | | 13,900 |
| 074 | 0603795N | LAND ATTACK TECHNOLOGY | 1,400 | | 1,400 |
| | | SUBTOTAL ADVANCED COMPONENT DEVELOPMENT & PROTOTYPES | 33,300 | | 33,300 |
| | | SYSTEM DEVELOPMENT & DEMONSTRATION | | | |
| 149 | 0604755N | SHIP SELF DEFENSE (DETECT & CONTROL) | 1,100 | | 1,100 |
| | | SUBTOTAL SYSTEM DEVELOPMENT & DEMONSTRATION | 1,100 | | 1,100 |
| | | OPERATIONAL SYSTEMS DEVELOPMENT | | | |
| 236 | 0206313M | MARINE CORPS COMMUNICATIONS SYSTEMS | 16,130 | | 16,130 |
| 268A | 9999999999 | CLASSIFIED PROGRAMS | 117,282 | | 117,282 |
| | | SUBTOTAL OPERATIONAL SYSTEMS DEVELOPMENT | 133,412 | | 133,412 |
| | | TOTAL RESEARCH, DEVELOPMENT, TEST & EVAL, NAVY | 167,812 | | 167,812 |
| | | ADVANCED COMPONENT DEVELOPMENT & PROTOTYPES | | | |
| 065 | 1206438F | SPACE CONTROL TECHNOLOGY | 1,100 | | 1,100 |

| | | | | |
|------|------------|---|----------------|----------------|
| 070 | 1206857F | OPERATIONALLY RESPONSIVE SPACE | 12,395 | 12,395 |
| | | SUBTOTAL ADVANCED COMPONENT DEVELOPMENT & PROTOTYPES | 13,495 | 13,495 |
| | | OPERATIONAL SYSTEMS DEVELOPMENT | | |
| 186 | 0205219F | MQ-9 UAV | 4,500 | 4,500 |
| 187 | 0205671F | JOINT COUNTER RCIED ELECTRONIC WARFARE | 4,000 | 4,000 |
| 188 | 0207131F | A-10 SQUADRONS | 1,000 | 1,000 |
| 217 | 0207610F | BATTLEFIELD ABN COMM NODE (BACN) | 42,349 | 42,349 |
| 228 | 0208288F | INTEL DATA APPLICATIONS | 1,200 | 1,200 |
| 254 | 0305111F | WEATHER SERVICE | 3,000 | 3,000 |
| 268 | 0305202F | DRAGON U-2 | 22,100 | 22,100 |
| 272 | 0305208F | DISTRIBUTED COMMON GROUND/SURFACE SYSTEMS | 29,500 | 29,500 |
| 310 | 1202247F | AF TENCAP | 5,000 | 5,000 |
| 327A | 9999999999 | CLASSIFIED PROGRAMS | 188,127 | 188,127 |
| | | SUBTOTAL OPERATIONAL SYSTEMS DEVELOPMENT | 300,776 | 300,776 |
| | | TOTAL RESEARCH, DEVELOPMENT, TEST & EVAL, AF | 314,271 | 314,271 |
| | | ADVANCED TECHNOLOGY DEVELOPMENT | | |
| 024 | 0603122D8Z | COMBATING TERRORISM TECHNOLOGY SUPPORT | 25,000 | 25,000 |
| 026 | 0603134BR | COUNTER IMPROVISED-THREAT SIMULATION | 13,648 | 13,648 |
| | | SUBTOTAL ADVANCED TECHNOLOGY DEVELOPMENT | 38,648 | 38,648 |
| | | ADVANCED COMPONENT DEVELOPMENT AND PROTOTYPES | | |
| 094 | 0604134BR | COUNTER IMPROVISED-THREAT DEMONSTRATION, PROTOTYPE DEVELOPMENT, AND TESTING | 242,668 | 242,668 |
| | | SUBTOTAL ADVANCED COMPONENT DEVELOPMENT AND PROTOTYPES | 242,668 | 242,668 |
| | | OPERATIONAL SYSTEM DEVELOPMENT | | |
| 250 | 1160408BB | OPERATIONAL ENHANCEMENTS | 3,632 | 3,632 |
| 251 | 1160431BB | WARRIOR SYSTEMS | 11,040 | 11,040 |
| 253 | 1160434BB | UNMANNED ISR | 11,700 | 11,700 |
| 254 | 1160480BB | SOF TACTICAL VEHICLES | 725 | 725 |

SEC. 4202. RESEARCH, DEVELOPMENT, TEST, AND EVALUATION FOR OVERSEAS CONTINGENCY OPERATIONS
(In Thousands of Dollars)

| Line | Program Element | Item | FY 2019 Request | House Change | House Authorized |
|------|-----------------|--|-----------------|--------------|------------------|
| 258A | 9999999999 | CLASSIFIED PROGRAMS | 192,131 | | 192,131 |
| | | SUBTOTAL OPERATIONAL SYSTEM DEVELOPMENT | 219,228 | | 219,228 |
| | | TOTAL RESEARCH, DEVELOPMENT, TEST & EVAL, DW | 500,544 | | 500,544 |
| | | TOTAL RDT&E | 1,307,731 | -40,000 | 1,267,731 |

TITLE XLIII—OPERATION AND MAINTENANCE

SEC. 4301. OPERATION AND MAINTENANCE.

SEC. 4301. OPERATION AND MAINTENANCE (In Thousands of Dollars)

| Line | Item | FY 2019 Request | House Change | House Authorized |
|--|---|--------------------|-----------------|---------------------|
| OPERATION & MAINTENANCE, ARMY | | | | |
| OPERATING FORCES | | | | |
| 010 | MANEUVER UNITS | 2,076,360 | -445,300 | 1,631,060 |
| | Readiness restoration | | [9,400] | |
| | Realign OCO requirements from Base to OCO | | [-454,700] | |
| 020 | MODULAR SUPPORT BRIGADES | 107,946 | 1,800 | 109,746 |
| | Readiness restoration | | [1,800] | |
| 030 | ECHELONS ABOVE BRIGADE | 732,485 | -143,970 | 588,515 |
| | Readiness restoration | | [7,600] | |
| | Realign OCO requirements from Base to OCO | | [-151,570] | |
| 040 | THEATER LEVEL ASSETS | 1,169,508 | -224,200 | 945,308 |
| | Readiness restoration | | [18,300] | |
| | Realign OCO requirements from Base to OCO | | [-242,500] | |
| 050 | LAND FORCES OPERATIONS SUPPORT | 1,180,460 | 17,500 | 1,197,960 |
| | Readiness restoration | | [17,500] | |
| 060 | AVIATION ASSETS | 1,467,500 | 17,800 | 1,485,300 |
| | Readiness restoration | | [17,800] | |
| 070 | FORCE READINESS OPERATIONS SUPPORT | 4,285,211 | -604,260 | 3,680,951 |
| | Female personal protective equipment | | [2,000] | |
| | Realign OCO requirements from Base to OCO | | [-606,260] | |
| 080 | LAND FORCES SYSTEMS READINESS | 482,201 | | 482,201 |

SEC. 4301. OPERATION AND MAINTENANCE
(In Thousands of Dollars)

| Line | Item | FY 2019 Request | House Change | House Authorized |
|---------------------|--|-------------------|-------------------|-------------------|
| 090 | LAND FORCES DEPOT MAINTENANCE | 1,536,851 | -161,620 | 1,375,231 |
| | Readiness restoration | | [111,200] | |
| | Realign OCO requirements from Base to OCO | | [-272,820] | |
| 100 | BASE OPERATIONS SUPPORT | 8,274,299 | -606,260 | 7,668,039 |
| | Realign OCO requirements from Base to OCO | | [-606,260] | |
| 110 | FACILITIES SUSTAINMENT | 3,516,859 | -1,018,881 | 2,497,978 |
| | 85% Sustainment | | [175,469] | |
| | Capability Output Level 3 Funding | | [25,000] | |
| | Realignment of FSRM funds to new RM and Demo lines | | [-1,219,350] | |
| 111 | FACILITIES RESTORATION & MODERNIZATION | 1,054,140 | 1,054,140 | 1,054,140 |
| | Realignment of FSRM funds to new RM and Demo lines | | [1,054,140] | |
| 112 | FACILITIES DEMOLITION | 215,210 | 215,210 | 215,210 |
| | Program increase | | [50,000] | |
| | Realignment of FSRM funds to new RM and Demo lines | | [165,210] | |
| 120 | MANAGEMENT AND OPERATIONAL HEADQUARTERS | 438,733 | | 438,733 |
| 180 | US AFRICA COMMAND | 231,518 | | 231,518 |
| 190 | US EUROPEAN COMMAND | 150,268 | | 150,268 |
| 200 | US SOUTHERN COMMAND | 195,964 | | 195,964 |
| 210 | US FORCES KOREA | 59,625 | | 59,625 |
| | SUBTOTAL OPERATING FORCES | 25,905,788 | -1,898,041 | 24,007,747 |
| MOBILIZATION | | | | |
| 220 | STRATEGIC MOBILITY | 370,941 | | 370,941 |
| 230 | ARMY PREPOSITIONED STOCKS | 573,560 | 158,753 | 732,313 |
| | Realignment of EDI APS Unit Set from OCO to Base | | [158,753] | |
| 240 | INDUSTRIAL PREPAREDNESS | 7,678 | | 7,678 |
| | SUBTOTAL MOBILIZATION | 952,179 | 158,753 | 1,110,932 |

| | | | |
|-----|---|------------------|------------------|
| | TRAINING AND RECRUITING | | |
| 250 | OFFICER ACQUISITION | 135,832 | 135,832 |
| 260 | RECRUIT TRAINING | 54,819 | 54,819 |
| 270 | ONE STATION UNIT TRAINING | 69,599 | 69,599 |
| 280 | SENIOR RESERVE OFFICERS TRAINING CORPS | 518,998 | 518,998 |
| 290 | SPECIALIZED SKILL TRAINING | 1,020,073 | 1,020,073 |
| 300 | FLIGHT TRAINING | 1,082,190 | 1,082,190 |
| 310 | PROFESSIONAL DEVELOPMENT EDUCATION | 220,399 | 220,399 |
| 320 | TRAINING SUPPORT | 611,482 | 611,482 |
| 330 | RECRUITING AND ADVERTISING | 698,962 | 698,962 |
| 340 | EXAMINING | 162,049 | 162,049 |
| 350 | OFF-DUTY AND VOLUNTARY EDUCATION | 215,622 | 215,622 |
| 360 | CIVILIAN EDUCATION AND TRAINING | 176,914 | 176,914 |
| 370 | JUNIOR RESERVE OFFICER TRAINING CORPS | 174,430 | 174,430 |
| | SUBTOTAL TRAINING AND RECRUITING | 5,141,369 | 5,141,369 |
| | ADMIN & SRWIDE ACTIVITIES | | |
| 390 | SERVICEWIDE TRANSPORTATION | 588,047 | 588,047 |
| | Realign OCO requirements from Base to OCO | -151,600 | -151,600 |
| | [-151,600] | | |
| 400 | CENTRAL SUPPLY ACTIVITIES | 931,462 | 931,462 |
| 410 | LOGISTIC SUPPORT ACTIVITIES | 696,114 | 696,114 |
| 420 | AMMUNITION MANAGEMENT | 461,637 | 461,637 |
| 430 | ADMINISTRATION | 447,564 | 447,564 |
| 440 | SERVICEWIDE COMMUNICATIONS | 2,069,127 | 2,069,127 |
| 450 | MANPOWER MANAGEMENT | 261,021 | 261,021 |
| 460 | OTHER PERSONNEL SUPPORT | 379,541 | 379,541 |
| 470 | OTHER SERVICE SUPPORT | 1,699,767 | 1,699,767 |
| 480 | ARMY CLAIMS ACTIVITIES | 192,686 | 192,686 |
| 490 | REAL ESTATE MANAGEMENT | 240,917 | 240,917 |
| 500 | FINANCIAL MANAGEMENT AND AUDIT READINESS | 291,569 | 291,569 |
| 510 | INTERNATIONAL MILITARY HEADQUARTERS | 442,656 | 442,656 |

SEC. 4301. OPERATION AND MAINTENANCE
(In Thousands of Dollars)

| Line | Item | FY 2019 Request | House Change | House Authorized |
|------|--|-------------------|-------------------|-------------------|
| 520 | MISC. SUPPORT OF OTHER NATIONS | 48,251 | 10,000 | 58,251 |
| | NATO Cooperative Cyber Defense Center of Excellence | | [5,000] | |
| | NATO Strategic Communications Center of Excellence | | [5,000] | |
| 565 | CLASSIFIED PROGRAMS | 1,259,622 | | 1,259,622 |
| | SUBTOTAL ADMIN & SRWIDE ACTIVITIES | 10,009,981 | -141,600 | 9,868,381 |
| | UNDISTRIBUTED | | | |
| 570 | UNDISTRIBUTED | | -894,500 | -894,500 |
| | Foreign Currency adjustments | | [-210,300] | |
| | Historical unobligated balances | | [-694,200] | |
| | Simulators and other technologies to reduce the use of live animal tissue for medical training | | [10,000] | |
| | SUBTOTAL UNDISTRIBUTED | | -894,500 | -894,500 |
| | TOTAL OPERATION & MAINTENANCE, ARMY | 42,009,317 | -2,775,388 | 39,233,929 |
| | OPERATION & MAINTENANCE, ARMY RES | | | |
| | OPERATING FORCES | | | |
| 010 | MODULAR SUPPORT BRIGADES | 13,867 | | 13,867 |
| 020 | ECHELONS ABOVE BRIGADE | 536,438 | | 536,438 |
| 030 | THEATER LEVEL ASSETS | 113,225 | | 113,225 |
| 040 | LAND FORCES OPERATIONS SUPPORT | 551,141 | | 551,141 |
| 050 | AVIATION ASSETS | 89,073 | | 89,073 |
| 060 | FORCE READINESS OPERATIONS SUPPORT | 409,531 | | 409,531 |
| 070 | LAND FORCES SYSTEMS READINESS | 101,411 | | 101,411 |
| 080 | LAND FORCES DEPOT MAINTENANCE | 60,114 | | 60,114 |
| 090 | BASE OPERATIONS SUPPORT | 595,728 | | 595,728 |
| 100 | FACILITIES SUSTAINMENT | 304,658 | -41,593 | 263,065 |

| | | | | | |
|-----|--|------------------|--|--|------------------|
| | Realignment of FSRM funds to new RM and Demo lines | | | | |
| | Sustainment recovery | | | | [-71,593] |
| | | | | | [30,000] |
| | FACILITIES RESTORATION & MODERNIZATION | | | | 49,176 |
| | Realignment of FSRM funds to new RM and Demo lines | | | | [49,176] |
| 101 | FACILITIES DEMOLITION | | | | 22,417 |
| 102 | Realignment of FSRM funds to new RM and Demo lines | | | | [22,417] |
| 110 | MANAGEMENT AND OPERATIONAL HEADQUARTERS | 22,175 | | | 22,175 |
| | SUBTOTAL OPERATING FORCES | 2,797,361 | | | 2,827,361 |
| | ADMIN & SRVWD ACTIVITIES | | | | |
| 120 | SERVICEWIDE TRANSPORTATION | 11,832 | | | 11,832 |
| 130 | ADMINISTRATION | 18,218 | | | 18,218 |
| 140 | SERVICEWIDE COMMUNICATIONS | 25,069 | | | 25,069 |
| 150 | MANPOWER MANAGEMENT | 6,248 | | | 6,248 |
| 160 | RECRUITING AND ADVERTISING | 58,181 | | | 58,181 |
| | SUBTOTAL ADMIN & SRVWD ACTIVITIES | 119,548 | | | 119,548 |
| | TOTAL OPERATION & MAINTENANCE, ARMY RES | 2,916,909 | | | 2,946,909 |
| | OPERATION & MAINTENANCE, ARNG | | | | |
| | OPERATING FORCES | | | | |
| 010 | MANEUVER UNITS | 810,269 | | | 810,269 |
| 020 | MODULAR SUPPORT BRIGADES | 193,402 | | | 193,402 |
| 030 | ECHELONS ABOVE BRIGADE | 753,815 | | | 753,815 |
| 040 | THEATER LEVEL ASSETS | 84,124 | | | 84,124 |
| 050 | LAND FORCES OPERATIONS SUPPORT | 31,881 | | | 31,881 |
| 060 | AVIATION ASSETS | 973,874 | | | 973,874 |
| 070 | FORCE READINESS OPERATIONS SUPPORT | 784,086 | | | 784,086 |
| 080 | LAND FORCES SYSTEMS READINESS | 51,353 | | | 51,353 |
| 090 | LAND FORCES DEPOT MAINTENANCE | 221,633 | | | 221,633 |
| 100 | BASE OPERATIONS SUPPORT | 1,129,942 | | | 1,129,942 |
| 110 | FACILITIES SUSTAINMENT | 919,947 | | | 888,760 |
| | | | | | -31,187 |

SEC. 4301. OPERATION AND MAINTENANCE
(In Thousands of Dollars)

| Line | Item | FY 2019 Request | House Change | House Authorized |
|------|--|------------------|---------------|------------------|
| | Realignment of FSRM funds to new RM and Demo lines | | [-101,187] | |
| | Sustainment recovery | | [70,000] | |
| 111 | FACILITIES RESTORATION & MODERNIZATION | | 85,859 | 85,859 |
| | Realignment of FSRM funds to new RM and Demo lines | | [85,859] | |
| 112 | FACILITIES DEMOLITION | | 15,328 | 15,328 |
| | Realignment of FSRM funds to new RM and Demo lines | | [-15,328] | |
| 120 | MANAGEMENT AND OPERATIONAL HEADQUARTERS | 1,010,524 | | 1,010,524 |
| | SUBTOTAL OPERATING FORCES | 6,964,850 | 70,000 | 7,034,850 |
| | ADMIN & SRVWD ACTIVITIES | | | |
| 130 | SERVICEWIDE TRANSPORTATION | 10,017 | | 10,017 |
| 140 | ADMINISTRATION | 72,746 | | 72,746 |
| 150 | SERVICEWIDE COMMUNICATIONS | 83,105 | | 83,105 |
| 160 | MANPOWER MANAGEMENT | 10,678 | | 10,678 |
| 170 | OTHER PERSONNEL SUPPORT | 254,753 | | 254,753 |
| 180 | REAL ESTATE MANAGEMENT | 3,146 | | 3,146 |
| | SUBTOTAL ADMIN & SRVWD ACTIVITIES | 434,445 | | 434,445 |
| | TOTAL OPERATION & MAINTENANCE, ARNG | 7,399,295 | 70,000 | 7,469,295 |
| | OPERATION & MAINTENANCE, NAVY | | | |
| | OPERATING FORCES | | | |
| 010 | MISSION AND OTHER FLIGHT OPERATIONS | 5,372,399 | | 5,372,399 |
| 020 | FLEET AIR TRAINING | 2,023,351 | -8,758 | 2,014,593 |
| | Advanced skills management | | [-8,758] | |
| 030 | AVIATION TECHNICAL DATA & ENGINEERING SERVICES | 56,225 | | 56,225 |
| 040 | AIR OPERATIONS AND SAFETY SUPPORT | 156,081 | | 156,081 |

| | | | | |
|-----|--|-----------|------------|-----------|
| 050 | AIR SYSTEMS SUPPORT | 682,379 | | 682,379 |
| 060 | AIRCRAFT DEPOT MAINTENANCE | 1,291,156 | 37,400 | 1,291,156 |
| | Readiness restoration | | [37,400] | |
| 070 | AIRCRAFT DEPOT OPERATIONS SUPPORT | 66,649 | | 66,649 |
| 080 | AVIATION LOGISTICS | 939,368 | 6,400 | 945,768 |
| | Readiness restoration | | [6,400] | |
| 090 | MISSION AND OTHER SHIP OPERATIONS | 4,439,566 | | 4,439,566 |
| 100 | SHIP OPERATIONS SUPPORT & TRAINING | 997,663 | | 997,663 |
| 110 | SHIP DEPOT MAINTENANCE | 8,751,526 | 148,600 | 8,900,126 |
| | Readiness restoration | | [116,600] | |
| | Western Pacific Dry Dock capability | | [32,000] | |
| 120 | SHIP DEPOT OPERATIONS SUPPORT | 2,168,876 | | 2,168,876 |
| 130 | COMBAT COMMUNICATIONS AND ELECTRONIC WARFARE | 1,349,593 | | 1,349,593 |
| 150 | SPACE SYSTEMS AND SURVEILLANCE | 215,255 | | 215,255 |
| 160 | WARFARE TACTICS | 632,446 | | 632,446 |
| 170 | OPERATIONAL METEOROLOGY AND OCEANOGRAPHY | 373,046 | | 373,046 |
| 180 | EQUIPMENT MAINTENANCE AND DEPOT OPERATIONS SUPPORT | 1,452,075 | | 1,452,075 |
| 190 | COMBATANT COMMANDERS CORE OPERATIONS | 153,719 | | 153,719 |
| 210 | COMBATANT COMMANDERS DIRECT MISSION SUPPORT | 63,039 | | 63,039 |
| 220 | MILITARY INFORMATION SUPPORT OPERATIONS | 89,339 | | 89,339 |
| 230 | FLEET BALLISTIC MISSILE | 8,475 | | 8,475 |
| 240 | WEAPONS MAINTENANCE | 424,088 | | 424,088 |
| 260 | Insufficient budget justification for submarine acoustic systems | 1,361,947 | | 1,361,947 |
| 280 | Other weapon systems support | 823,952 | -4,500 | 819,452 |
| | Enterprise information | | [-4,500] | |
| 290 | Facilities sustainment | 494,101 | | 494,101 |
| 300 | 85% Sustainment | 921,936 | | 921,936 |
| 310 | Capability Output Level 3 Funding | 2,040,389 | | 2,040,389 |
| | Project oversight (Unjustified Growth) | | -328,167 | |
| | Realignment of FSRM funds to new RM and Demo lines | | [101,000] | |
| | | | [20,000] | |
| | | | [-85,420] | |
| | | | [-363,747] | |

SEC. 4301. OPERATION AND MAINTENANCE
(In Thousands of Dollars)

| Line | Item | FY 2019 Request | House Change | House Authorized |
|------|--|-------------------|-----------------|-------------------|
| 311 | FACILITIES RESTORATION & MODERNIZATION | | 243,745 | 243,745 |
| | Realignment of FSRM funds to new RM and Demo lines | | [243,745] | |
| 312 | FACILITIES DEMOLITION | | 160,002 | 160,002 |
| | Program increase | | [40,000] | |
| | Realignment of FSRM funds to new RM and Demo lines | | [120,002] | |
| 320 | BASE OPERATING SUPPORT | 4,414,753 | | 4,414,753 |
| | SUBTOTAL OPERATING FORCES | 41,725,992 | 254,722 | 41,980,714 |
| | MOBILIZATION | | | |
| 330 | SHIP PREPOSITIONING AND SURGE | 549,142 | -148,597 | 400,545 |
| | Realign DoD Mobilization Alternation to NDSF | | [-20,858] | |
| | Realign LG Med Spd RO/RO Maintenance to NDSF | | [-127,739] | |
| 340 | READY RESERVE FORCE | 310,805 | -310,805 | |
| | Realign Ready Reserve Forces to NDSF | | [-310,805] | |
| 360 | SHIP ACTIVATIONS/INACTIVATIONS | 161,150 | | 161,150 |
| 370 | EXPEDITIONARY HEALTH SERVICES SYSTEMS | 120,338 | -72,350 | 47,988 |
| | Realign T-AH Maintenance to NDSF | | [-72,350] | |
| 390 | COAST GUARD SUPPORT | 24,097 | | 24,097 |
| | SUBTOTAL MOBILIZATION | 1,165,532 | -531,752 | 633,780 |
| | TRAINING AND RECRUITING | | | |
| 400 | OFFICER ACQUISITION | 145,481 | | 145,481 |
| 410 | RECRUIT TRAINING | 9,637 | | 9,637 |
| 420 | RESERVE OFFICERS TRAINING CORPS | 149,687 | | 149,687 |
| 430 | SPECIALIZED SKILL TRAINING | 879,557 | | 879,557 |
| 450 | PROFESSIONAL DEVELOPMENT EDUCATION | 184,436 | 1,700 | 186,136 |
| | Naval Sea Cadets | | [1,700] | |

| | | | |
|-----|--|------------------|-------------------|
| 460 | TRAINING SUPPORT | 223,159 | 223,159 |
| 470 | RECRUITING AND ADVERTISING | 181,086 | 181,086 |
| 480 | OFF-DUTY AND VOLUNTARY EDUCATION | 96,006 | 96,006 |
| 490 | CIVILIAN EDUCATION AND TRAINING | 72,083 | 72,083 |
| 500 | JUNIOR ROTC | 54,156 | 54,156 |
| | SUBTOTAL TRAINING AND RECRUITING | 1,995,288 | 1,995,288 |
| | ADMIN & SRVWD ACTIVITIES | | |
| 510 | ADMINISTRATION | 1,089,964 | 1,089,964 |
| 530 | CIVILIAN MANPOWER AND PERSONNEL MANAGEMENT | 164,074 | 164,074 |
| 540 | MILITARY MANPOWER AND PERSONNEL MANAGEMENT | 418,350 | 418,350 |
| 580 | SERVICEWIDE TRANSPORTATION | 167,106 | 167,106 |
| 600 | PLANNING, ENGINEERING, AND PROGRAM SUPPORT | 333,556 | 333,556 |
| 610 | ACQUISITION, LOGISTICS, AND OVERSIGHT | 663,690 | 663,690 |
| 650 | INVESTIGATIVE AND SECURITY SERVICES | 705,087 | 705,087 |
| 765 | CLASSIFIED PROGRAMS | 574,994 | 574,994 |
| | SUBTOTAL ADMIN & SRVWD ACTIVITIES | 4,116,821 | 4,116,821 |
| | UNDISTRIBUTED | | |
| 770 | UNDISTRIBUTED | -398,100 | -398,100 |
| | Foreign Currency adjustments | [-55,100] | |
| | Historical unobligated balances | [-343,000] | |
| | SUBTOTAL UNDISTRIBUTED | -398,100 | -398,100 |
| | TOTAL OPERATION & MAINTENANCE, NAVY | -673,430 | 48,330,203 |
| | OPERATION & MAINTENANCE, MARINE CORPS | | |
| | OPERATING FORCES | | |
| 010 | OPERATIONAL FORCES | 873,320 | 885,720 |
| | Additional parts & spares to support intermediate & organizational maintenance | [8,200] | |
| | Additional training requirements | [4,200] | |
| 020 | FIELD LOGISTICS | 1,094,187 | 1,094,187 |

SEC. 4301. OPERATION AND MAINTENANCE
(In Thousands of Dollars)

| Line | Item | FY 2019 Request | House Change | House Authorized |
|------|--|------------------|----------------|------------------|
| 030 | DEPOT MAINTENANCE | 314,182 | 26,900 | 341,082 |
| | Readiness restoration | | [26,900] | |
| 040 | MARITIME PREPOSITIONING | 98,136 | | 98,136 |
| 050 | CYBERSPACE ACTIVITIES | 183,546 | | 183,546 |
| 060 | FACILITIES SUSTAINMENT | 832,636 | -86,282 | 746,354 |
| | 85% Sustainment | | [42,400] | |
| | Capability Output Level 3 Funding | | [10,000] | |
| | Realignment of FSRM funds to new RM and Demo lines | | [-138,682] | |
| 061 | FACILITIES RESTORATION & MODERNIZATION | | 61,469 | 61,469 |
| | Realignment of FSRM funds to new RM and Demo lines | | [61,469] | |
| 062 | FACILITIES DEMOLITION | | 107,213 | 107,213 |
| | Program increase | | [30,000] | |
| | Realignment of FSRM funds to new RM and Demo lines | | [77,213] | |
| 070 | BASE OPERATING SUPPORT | 2,151,390 | | 2,151,390 |
| | SUBTOTAL OPERATING FORCES | 5,547,397 | 121,700 | 5,669,097 |
| | TRAINING AND RECRUITING | | | |
| 080 | RECRUIT TRAINING | 16,453 | | 16,453 |
| 090 | OFFICER ACQUISITION | 1,144 | | 1,144 |
| 100 | SPECIALIZED SKILL TRAINING | 106,360 | | 106,360 |
| 110 | PROFESSIONAL DEVELOPMENT EDUCATION | 46,096 | | 46,096 |
| 120 | TRAINING SUPPORT | 389,751 | | 389,751 |
| 130 | RECRUITING AND ADVERTISING | 201,662 | | 201,662 |
| 140 | OFF-DUTY AND VOLUNTARY EDUCATION | 32,461 | | 32,461 |
| 150 | JUNIOR ROTC | 24,217 | | 24,217 |
| | SUBTOTAL TRAINING AND RECRUITING | 818,144 | | 818,144 |

| | | | | |
|-----|--|----------------|------------------|------------------|
| 160 | ADMIN & SRVWD ACTIVITIES | | | |
| 170 | SERVICEWIDE TRANSPORTATION | 29,735 | 29,735 | 29,735 |
| 225 | ADMINISTRATION | 386,375 | 386,375 | 386,375 |
| | CLASSIFIED PROGRAMS | 50,859 | 50,859 | 50,859 |
| | SUBTOTAL ADMIN & SRVWD ACTIVITIES | 466,969 | 466,969 | 466,969 |
| 230 | UNDISTRIBUTED | | | |
| | UNDISTRIBUTED | -43,600 | -43,600 | -43,600 |
| | Foreign Currency adjustments | [-13,600] | | |
| | Historical unobligated balances | [-30,000] | | |
| | SUBTOTAL UNDISTRIBUTED | -43,600 | | -43,600 |
| | TOTAL OPERATION & MAINTENANCE, MARINE CORPS | 78,100 | 6,832,510 | 6,910,610 |

| | | | | |
|-----|--|----------|---------|---------|
| | OPERATION & MAINTENANCE, NAVY RES | | | |
| | OPERATING FORCES | | | |
| 010 | MISSION AND OTHER FLIGHT OPERATIONS | 569,584 | 569,584 | 569,584 |
| 020 | INTERMEDIATE MAINTENANCE | 6,902 | 6,902 | 6,902 |
| 030 | AIRCRAFT DEPOT MAINTENANCE | 109,776 | 109,776 | 109,776 |
| 040 | AIRCRAFT DEPOT OPERATIONS SUPPORT | 538 | 538 | 538 |
| 050 | AVIATION LOGISTICS | 18,888 | 18,888 | 18,888 |
| 060 | SHIP OPERATIONS SUPPORT & TRAINING | 574 | 574 | 574 |
| 070 | COMBAT COMMUNICATIONS | 17,561 | 17,561 | 17,561 |
| 080 | COMBAT SUPPORT FORCES | 121,070 | 121,070 | 121,070 |
| 090 | CYBERSPACE ACTIVITIES | 337 | 337 | 337 |
| 100 | ENTERPRISE INFORMATION | 23,964 | 23,964 | 23,964 |
| 110 | FACILITIES SUSTAINMENT | 41,151 | 41,151 | 41,151 |
| | Realignment of FSRM funds to new RM and Demo lines | 4,795 | 4,795 | 4,795 |
| | Sustainment recovery | [-5,205] | | |
| | Facilities Restoration & Modernization | [10,000] | | |
| 111 | FACILITIES RESTORATION & MODERNIZATION | 3,205 | 3,205 | 3,205 |
| | Realignment of FSRM funds to new RM and Demo lines | [3,205] | | |
| 112 | FACILITIES DEMOLITION | 2,000 | 2,000 | 2,000 |

SEC. 4301. OPERATION AND MAINTENANCE
(In Thousands of Dollars)

| Line | Item | FY 2019 Request | House Change | House Authorized |
|------|--|------------------|---------------|------------------|
| 120 | Realignment of FSRM funds to new RM and Demo lines | | [2,000] | |
| | BASE OPERATING SUPPORT | 103,562 | | 103,562 |
| | SUBTOTAL OPERATING FORCES | 1,009,112 | 10,000 | 1,019,112 |
| | ADMIN & SRWD ACTIVITIES | | | |
| 130 | ADMINISTRATION | 1,868 | | 1,868 |
| 140 | MILITARY MANPOWER AND PERSONNEL MANAGEMENT | 12,849 | | 12,849 |
| 160 | ACQUISITION AND PROGRAM MANAGEMENT | 3,177 | | 3,177 |
| | SUBTOTAL ADMIN & SRWD ACTIVITIES | 17,894 | | 17,894 |
| | TOTAL OPERATION & MAINTENANCE, NAVY RES | 1,027,006 | 10,000 | 1,037,006 |
| | OPERATION & MAINTENANCE, MC RESERVE | | | |
| | OPERATING FORCES | | | |
| 010 | OPERATING FORCES | 99,173 | 8,700 | 107,873 |
| | Additional training requirements | | [8,700] | |
| 020 | DEPOT MAINTENANCE | 19,430 | | 19,430 |
| 030 | FACILITIES SUSTAINMENT | 39,962 | -14,296 | 25,666 |
| | Realignment of FSRM funds to new RM and Demo lines | | [-22,296] | |
| | Sustainment recovery | | [8,000] | |
| 031 | FACILITIES RESTORATION & MODERNIZATION | | 22,296 | 22,296 |
| | Realignment of FSRM funds to new RM and Demo lines | | [22,296] | |
| 040 | BASE OPERATING SUPPORT | 101,829 | | 101,829 |
| | SUBTOTAL OPERATING FORCES | 260,394 | 16,700 | 277,094 |
| | ADMIN & SRWD ACTIVITIES | | | |
| 050 | ADMINISTRATION | 11,176 | | 11,176 |

| | | | |
|-----|--|-----------|------------|
| | SUBTOTAL ADMIN & SRVWD ACTIVITIES | 11,176 | 11,176 |
| | TOTAL OPERATION & MAINTENANCE, MC RESERVE | 271,570 | 288,270 |
| | OPERATION & MAINTENANCE, AIR FORCE | | |
| | OPERATING FORCES | | |
| 010 | PRIMARY COMBAT FORCES | 758,178 | 758,178 |
| 020 | COMBAT ENHANCEMENT FORCES | 1,509,027 | 1,509,027 |
| 030 | AIR OPERATIONS TRAINING (OJT, MAINTAIN SKILLS) | 1,323,330 | 1,323,330 |
| 040 | DEPOT PURCHASE EQUIPMENT MAINTENANCE | 3,511,830 | 3,596,330 |
| | Readiness restoration | | 84,500 |
| | Restoration of U-2 Tail #80-1099 | | [46,500] |
| | FACILITIES SUSTAINMENT | 2,892,705 | 2,621,824 |
| | 85% Sustainment | | [38,000] |
| | Capability Output Level 3 Funding | | [-270,881] |
| | Realignment of FSRM funds to new RM and Demo lines | | [152,000] |
| | Realignment of FSRM funds to new RM and Demo lines | | [23,000] |
| | Realignment of FSRM funds to new RM and Demo lines | | [-445,881] |
| 051 | FACILITIES RESTORATION & MODERNIZATION | | 420,861 |
| | Realignment of FSRM funds to new RM and Demo lines | | [420,861] |
| 052 | FACILITIES DEMOLITION | | 67,020 |
| | Program increase | | [42,000] |
| | Realignment of FSRM funds to new RM and Demo lines | | [25,020] |
| 060 | CONTRACTOR LOGISTICS SUPPORT AND SYSTEM SUPPORT | 7,613,084 | 7,687,884 |
| | Readiness restoration | | 74,800 |
| | FLYING HOUR PROGRAM | | [74,800] |
| 070 | FLYING HOUR PROGRAM | 4,345,208 | 4,345,208 |
| 080 | BASE SUPPORT | 5,989,215 | 5,989,215 |
| 090 | GLOBAL C3I AND EARLY WARNING | 928,023 | 928,023 |
| 100 | OTHER COMBAT OPS SPT PROGRAMS | 1,080,956 | 1,080,956 |
| 110 | CYBERSPACE ACTIVITIES | 879,032 | 879,032 |
| 130 | LAUNCH FACILITIES | 183,777 | 183,777 |
| 140 | SPACE CONTROL SYSTEMS | 404,072 | 404,072 |
| 170 | US NORTHCOM/NORAD | 187,375 | 187,375 |
| 180 | US STRATCOM | 529,902 | 529,902 |

SEC. 4301. OPERATION AND MAINTENANCE
(In Thousands of Dollars)

| Line | Item | FY 2019 Request | House Change | House Authorized |
|------|---|-------------------|----------------|-------------------|
| 190 | US CYBERCOM | 329,474 | | 329,474 |
| 200 | US CENTCOM | 166,024 | | 166,024 |
| 210 | US SOCOM | 723 | | 723 |
| 220 | US TRANSCOM | 535 | | 535 |
| 225 | CLASSIFIED PROGRAMS | 1,164,810 | | 1,164,810 |
| | SUBTOTAL OPERATING FORCES | 33,797,280 | 376,300 | 34,173,580 |
| | MOBILIZATION | | | |
| 230 | AIRLIFT OPERATIONS | 1,307,695 | | 1,307,695 |
| 240 | MOBILIZATION PREPAREDNESS | 144,417 | | 144,417 |
| | SUBTOTAL MOBILIZATION | 1,452,112 | | 1,452,112 |
| | TRAINING AND RECRUITING | | | |
| 280 | OFFICER ACQUISITION | 133,187 | | 133,187 |
| 290 | RECRUIT TRAINING | 25,041 | | 25,041 |
| 300 | RESERVE OFFICERS TRAINING CORPS (ROTC) | 117,338 | | 117,338 |
| 330 | SPECIALIZED SKILL TRAINING | 401,996 | | 401,996 |
| 340 | FLIGHT TRAINING | 477,064 | | 477,064 |
| 350 | PROFESSIONAL DEVELOPMENT EDUCATION | 276,423 | | 276,423 |
| 360 | TRAINING SUPPORT | 95,948 | | 95,948 |
| 380 | RECRUITING AND ADVERTISING | 154,530 | | 154,530 |
| 390 | EXAMINING | 4,132 | | 4,132 |
| 400 | OFF-DUTY AND VOLUNTARY EDUCATION | 223,150 | | 223,150 |
| 410 | CIVILIAN EDUCATION AND TRAINING | 209,497 | | 209,497 |
| 420 | JUNIOR ROTC | 59,908 | | 59,908 |
| | SUBTOTAL TRAINING AND RECRUITING | 2,178,214 | | 2,178,214 |

| | | | |
|-----|--|------------------|------------------|
| 430 | ADMIN & SRVWD ACTIVITIES | | |
| | LOGISTICS OPERATIONS | 681,788 | 681,788 |
| 440 | TECHNICAL SUPPORT ACTIVITIES | 117,812 | 117,812 |
| 480 | ADMINISTRATION | 953,102 | 953,102 |
| 490 | SERVICEWIDE COMMUNICATIONS | 358,389 | 358,389 |
| 500 | OTHER SERVICEWIDE ACTIVITIES | 1,194,862 | 1,194,862 |
| 510 | CIVIL AIR PATROL | 29,594 | 29,594 |
| 540 | INTERNATIONAL SUPPORT | 74,959 | 74,959 |
| 545 | CLASSIFIED PROGRAMS | 1,222,456 | 1,222,456 |
| | SUBTOTAL ADMIN & SRVWD ACTIVITIES | 4,632,962 | 4,632,962 |

| | | | |
|-----|---------------------------------------|-----------------|-----------------|
| 550 | UNDISTRIBUTED | | |
| | UNDISTRIBUTED | -455,200 | -455,200 |
| | Foreign Currency adjustments | [-104,500] | |
| | Historical unobligated balances | [-350,700] | |
| | SUBTOTAL UNDISTRIBUTED | -455,200 | -455,200 |

TOTAL OPERATION & MAINTENANCE, AIR FORCE **42,060,568**

| | | | |
|-----|--|-----------|-----------|
| 010 | OPERATION & MAINTENANCE, AF RESERVE | | |
| | OPERATING FORCES | | |
| | PRIMARY COMBAT FORCES | 1,853,437 | 1,853,437 |
| 020 | MISSION SUPPORT OPERATIONS | 205,369 | 205,369 |
| 030 | DEPOT PURCHASE EQUIPMENT MAINTENANCE | 345,576 | 347,476 |
| | Readiness restoration | 1,900 | |
| | FACILITIES SUSTAINMENT | [1,900] | |
| 040 | Realignment of FSRM funds to new RM and Demo lines | 2,367 | 123,103 |
| | Sustainment recovery | [-27,633] | |
| | Realignment of FSRM funds to new RM and Demo lines | [30,000] | |
| 041 | FACILITIES RESTORATION & MODERNIZATION | 27,633 | 27,633 |
| | Realignment of FSRM funds to new RM and Demo lines | [27,633] | |
| 050 | CONTRACTOR LOGISTICS SUPPORT AND SYSTEM SUPPORT | 18,700 | 259,939 |
| | Readiness restoration | [18,700] | |

SEC. 4301. OPERATION AND MAINTENANCE
(In Thousands of Dollars)

| Line | Item | FY 2019 Request | House Change | House Authorized |
|------|---|------------------|---------------|------------------|
| 060 | BASE SUPPORT | 385,922 | | 385,922 |
| | SUBTOTAL OPERATING FORCES | 3,152,279 | 50,600 | 3,202,879 |
| | ADMINISTRATION AND SERVICEWIDE ACTIVITIES | | | |
| 070 | ADMINISTRATION | 71,188 | | 71,188 |
| 080 | RECRUITING AND ADVERTISING | 19,429 | | 19,429 |
| 090 | MILITARY MANPOWER AND PERS MGMT (ARPC) | 9,386 | | 9,386 |
| 100 | OTHER PERS SUPPORT (DISABILITY COMP) | 7,512 | | 7,512 |
| 110 | AUDIOVISUAL | 440 | | 440 |
| | SUBTOTAL ADMINISTRATION AND SERVICEWIDE ACTIVITIES | 107,955 | | 107,955 |
| | TOTAL OPERATION & MAINTENANCE, AF RESERVE | 3,260,234 | 50,600 | 3,310,834 |
| | OPERATION & MAINTENANCE, ANG | | | |
| | OPERATING FORCES | | | |
| 010 | AIRCRAFT OPERATIONS | 2,619,940 | | 2,619,940 |
| 020 | MISSION SUPPORT OPERATIONS | 623,265 | | 623,265 |
| 030 | DEPOT PURCHASE EQUIPMENT MAINTENANCE | 748,287 | | 748,287 |
| 040 | FACILITIES SUSTAINMENT | 303,792 | | 289,700 |
| | Realignment of FSRM funds to new RM and Demo lines | | -14,092 | |
| | Sustainment recovery | | [-34,092] | |
| | Realignment of FSRM funds to new RM and Demo lines | | [20,000] | |
| 041 | FACILITIES RESTORATION & MODERNIZATION | 31,696 | | 31,696 |
| | Realignment of FSRM funds to new RM and Demo lines | | [31,696] | |
| 042 | FACILITIES DEMOLITION | 2,396 | | 2,396 |
| | Realignment of FSRM funds to new RM and Demo lines | | [2,396] | |
| 050 | CONTRACTOR LOGISTICS SUPPORT AND SYSTEM SUPPORT | 1,061,759 | | 1,064,759 |
| | Readiness restoration | | 3,000 | |
| | Readiness restoration | | [3,000] | |

| | | | | |
|-----|--|------------------|-----------------|------------------|
| 060 | BASE SUPPORT | 988,333 | 900 | 989,233 |
| | Readiness restoration | | [900] | |
| | SUBTOTAL OPERATING FORCES | 6,345,376 | 23,900 | 6,369,276 |
| | ADMINISTRATION AND SERVICE-WIDE ACTIVITIES | | | |
| 070 | ADMINISTRATION | 45,711 | | 45,711 |
| 080 | RECRUITING AND ADVERTISING | 36,535 | | 36,535 |
| | SUBTOTAL ADMINISTRATION AND SERVICE-WIDE ACTIVITIES | 82,246 | | 82,246 |
| | TOTAL OPERATION & MAINTENANCE, ANG | 6,427,622 | 23,900 | 6,451,522 |
| | OPERATION AND MAINTENANCE, DEFENSE-WIDE | | | |
| | OPERATING FORCES | | | |
| 010 | JOINT CHIEFS OF STAFF | 430,215 | | 430,215 |
| 020 | JOINT CHIEFS OF STAFF—CE2TZ | 602,186 | | 602,186 |
| 040 | SPECIAL OPERATIONS COMMAND/OPERATING FORCES | 5,389,250 | | 5,215,250 |
| | Civilian pay ahead of need | | -174,000 | |
| | Communications | | [-20,000] | |
| | DCGS-SOF | | [-10,000] | |
| | MC-12 ahead of need | | [-33,300] | |
| | Program decrease | | [-100,000] | |
| | SUBTOTAL OPERATING FORCES | 6,421,651 | -174,000 | 6,247,651 |
| | TRAINING AND RECRUITING | | | |
| 050 | DEFENSE ACQUISITION UNIVERSITY | 181,601 | -9,100 | 172,501 |
| | Efficiencies within the 4th estate | | [-9,100] | |
| 060 | JOINT CHIEFS OF STAFF | 96,565 | | 96,565 |
| 070 | SPECIAL OPERATIONS COMMAND/TRAINING AND RECRUITING | 370,583 | | 370,583 |
| | SUBTOTAL TRAINING AND RECRUITING | 648,749 | -9,100 | 639,649 |
| | ADMIN & SRWIDE ACTIVITIES | | | |
| 080 | CIVIL MILITARY PROGRAMS | 166,131 | 20,000 | 186,131 |

SEC. 4301. OPERATION AND MAINTENANCE
(In Thousands of Dollars)

| Line | Item | FY 2019 Request | House Change | House Authorized |
|------|--|-----------------|--------------|------------------|
| 100 | STARBASE | | [20,000] | |
| | DEFENSE CONTRACT AUDIT AGENCY | 625,633 | -31,300 | 594,333 |
| | Efficiencies within the 4th estate | | [-31,300] | |
| 110 | DEFENSE CONTRACT MANAGEMENT AGENCY | 1,465,354 | -73,300 | 1,392,054 |
| | Efficiencies within the 4th estate | | [-73,300] | |
| 120 | DEFENSE HUMAN RESOURCES ACTIVITY | 859,923 | -43,000 | 816,923 |
| | Efficiencies within the 4th estate | | [-43,000] | |
| 130 | DEFENSE INFORMATION SYSTEMS AGENCY | 2,106,930 | -105,300 | 2,001,630 |
| | Efficiencies within the 4th estate | | [-105,300] | |
| 150 | DEFENSE LEGAL SERVICES AGENCY | 27,403 | -1,400 | 26,003 |
| | Efficiencies within the 4th estate | | [-1,400] | |
| 160 | DEFENSE LOGISTICS AGENCY | 379,275 | 6,475 | 385,750 |
| | Efficiencies within the 4th estate | | [-19,000] | |
| | Program increase for the Procurement Technical Assistance Program (PTAP) | | [25,475] | |
| 170 | DEFENSE MEDIA ACTIVITY | 207,537 | -10,400 | 197,137 |
| | Efficiencies within the 4th estate | | [-10,400] | |
| 180 | DEFENSE PERSONNEL ACCOUNTING AGENCY | 130,696 | | 130,696 |
| 190 | DEFENSE SECURITY COOPERATION AGENCY | 754,711 | | 754,711 |
| 200 | DEFENSE SECURITY SERVICE | 789,175 | | 789,175 |
| 220 | DEFENSE TECHNOLOGY SECURITY ADMINISTRATION | 34,951 | -1,700 | 33,251 |
| | Efficiencies within the 4th estate | | [-1,700] | |
| 230 | DEFENSE THREAT REDUCTION AGENCY | 553,329 | | 553,329 |
| 250 | DEPARTMENT OF DEFENSE EDUCATION ACTIVITY | 2,892,284 | 50,000 | 2,942,284 |
| | Impact Aid | | [40,000] | |
| | Impact Aid for Children with Severe Disabilities | | [10,000] | |
| 260 | MISSILE DEFENSE AGENCY | 499,817 | | 499,817 |
| 280 | OFFICE OF ECONOMIC ADJUSTMENT | 70,035 | 96,500 | 166,535 |

| | | | | |
|-----|---|-------------------|-----------------|-------------------|
| 290 | Defense Community Infrastructure Program | | [100,000] | |
| | Efficiencies within the 4th estate | | [-3,500] | |
| | OFFICE OF THE SECRETARY OF DEFENSE | 1,519,655 | 11,000 | 1,530,655 |
| | CDC PPOS/PFOA Health Study Increment | | [7,000] | |
| | Contract support for ACCM oversight as directed by Sec. 1062 of FY17 NDAA | | [5,000] | |
| | Efficiencies within the 4th estate | | [-76,000] | |
| | Establish Artificial Intelligence commission | | [10,000] | |
| | Funds to support the Global Engagement Center | | [60,000] | |
| | Initial capital for Department of Defense World War II Commemoration Fund | | [2,000] | |
| | Training of qualified personnel to join the staff of the Boards of Corrections for Military and Naval Records | | [3,000] | |
| 300 | SPECIAL OPERATIONS COMMAND/ADMIN & SVC-WIDE ACTIVITIES | 97,787 | | 97,787 |
| 310 | WASHINGTON HEADQUARTERS SERVICES | 456,407 | -68,500 | 387,907 |
| | Efficiencies within the 4th estate | | [-68,500] | |
| 315 | CLASSIFIED PROGRAMS | 15,645,192 | | 15,645,192 |
| | SUBTOTAL ADMIN & SRVWIDE ACTIVITIES | 29,282,225 | -150,925 | 29,131,300 |
| 320 | UNDISTRIBUTED | | | |
| | Foreign Currency adjustments | | -411,800 | -411,800 |
| | Historical unobligated balances | | [-26,400] | |
| | SUBTOTAL UNDISTRIBUTED | | -411,800 | -411,800 |
| | TOTAL OPERATION AND MAINTENANCE, DEFENSE-WIDE | 36,352,625 | -745,825 | 35,606,800 |
| 010 | US COURT OF APPEALS FOR ARMED FORCES, DEF ADMINISTRATION AND ASSOCIATED ACTIVITIES | | | |
| | US COURT OF APPEALS FOR THE ARMED FORCES, DEFENSE | 14,662 | | 14,662 |
| | SUBTOTAL ADMINISTRATION AND ASSOCIATED ACTIVITIES | 14,662 | | 14,662 |
| | TOTAL US COURT OF APPEALS FOR ARMED FORCES, DEF | 14,662 | | 14,662 |
| | DOD ACQUISITION WORKFORCE DEVELOPMENT FUND | | | |

SEC. 4301. OPERATION AND MAINTENANCE
(In Thousands of Dollars)

| Line | Item | FY 2019 Request | House Change | House Authorized |
|------|---|-----------------|---------------|------------------|
| | ACQUISITION WORKFORCE DEVELOPMENT | | | |
| 010 | ACQ WORKFORCE DEV FD | 400,000 | | 400,000 |
| | SUBTOTAL ACQUISITION WORKFORCE DEVELOPMENT | 400,000 | | 400,000 |
| | TOTAL DOD ACQUISITION WORKFORCE DEVELOPMENT FUND | 400,000 | | 400,000 |
| | OVERSEAS HUMANITARIAN, DISASTER, AND CIVIC AID | | | |
| | HUMANITARIAN ASSISTANCE | | | |
| 010 | OVERSEAS HUMANITARIAN, DISASTER AND CIVIC AID | 107,663 | | 107,663 |
| | SUBTOTAL HUMANITARIAN ASSISTANCE | 107,663 | | 107,663 |
| | TOTAL OVERSEAS HUMANITARIAN, DISASTER, AND CIVIC AID | 107,663 | | 107,663 |
| | COOPERATIVE THREAT REDUCTION ACCOUNT | | | |
| | FSU THREAT REDUCTION | | | |
| 010 | FORMER SOVIET UNION (FSU) THREAT REDUCTION | 335,240 | | 335,240 |
| | SUBTOTAL FSU THREAT REDUCTION | 335,240 | | 335,240 |
| | TOTAL COOPERATIVE THREAT REDUCTION ACCOUNT | 335,240 | | 335,240 |
| | ENVIRONMENTAL RESTORATION, ARMY | | | |
| | DEPARTMENT OF THE ARMY | | | |
| 060 | ENVIRONMENTAL RESTORATION, ARMY | 203,449 | 10,000 | 213,449 |
| | PFOA/PFOA remediation increase | | [10,000] | |
| | SUBTOTAL DEPARTMENT OF THE ARMY | 203,449 | 10,000 | 213,449 |
| | TOTAL ENVIRONMENTAL RESTORATION, ARMY | 203,449 | 10,000 | 213,449 |

| | | | | | |
|-----|---|--------------------|-------------------|--------------------|--|
| 080 | ENVIRONMENTAL RESTORATION, NAVY DEPARTMENT OF THE NAVY | | | | |
| | ENVIRONMENTAL RESTORATION, NAVY | 329,253 | 10,000 | 339,253 | |
| | PFOS/PFOA remediation increase | | [10,000] | | |
| | SUBTOTAL DEPARTMENT OF THE NAVY | 329,253 | 10,000 | 339,253 | |
| | TOTAL ENVIRONMENTAL RESTORATION, NAVY | 329,253 | 10,000 | 339,253 | |
| 100 | ENVIRONMENTAL RESTORATION, AIR FORCE DEPARTMENT OF THE AIR FORCE | | | | |
| | ENVIRONMENTAL RESTORATION, AIR FORCE | 296,808 | 50,000 | 346,808 | |
| | PFOS/PFOA remediation increase | | [50,000] | | |
| | SUBTOTAL DEPARTMENT OF THE AIR FORCE | 296,808 | 50,000 | 346,808 | |
| | TOTAL ENVIRONMENTAL RESTORATION, AIR FORCE | 296,808 | 50,000 | 346,808 | |
| 120 | ENVIRONMENTAL RESTORATION, DEFENSE DEFENSE-WIDE | | | | |
| | ENVIRONMENTAL RESTORATION, DEFENSE | 8,926 | | 8,926 | |
| | SUBTOTAL DEFENSE-WIDE | 8,926 | | 8,926 | |
| | TOTAL ENVIRONMENTAL RESTORATION, DEFENSE | 8,926 | | 8,926 | |
| 140 | ENVIRONMENTAL RESTORATION FORMERLY USED SITES DEFENSE-WIDE | | | | |
| | ENVIRONMENTAL RESTORATION FORMERLY USED SITES | 212,346 | | 212,346 | |
| | SUBTOTAL DEFENSE-WIDE | 212,346 | | 212,346 | |
| | TOTAL ENVIRONMENTAL RESTORATION FORMERLY USED SITES | 212,346 | | 212,346 | |
| | TOTAL OPERATION & MAINTENANCE | 199,469,636 | -3,924,243 | 195,545,393 | |

SEC. 4302. OPERATION AND MAINTENANCE FOR OVERSEAS CONTINGENCY OPERATIONS.

SEC. 4302. OPERATION AND MAINTENANCE FOR OVERSEAS CONTINGENCY OPERATIONS
(In Thousands of Dollars)

| Line | Item | FY 2019 Request | House Change | House Authorized |
|--|--|-----------------|--------------|------------------|
| OPERATION & MAINTENANCE, ARMY | | | | |
| OPERATING FORCES | | | | |
| 010 | MANEUVER UNITS | 1,179,339 | 454,700 | 1,634,039 |
| | Realign OCO requirements from Base to OCO | | [454,700] | |
| 030 | ECHELONS ABOVE BRIGADE | 25,983 | 151,570 | 177,553 |
| | Realign OCO requirements from Base to OCO | | [151,570] | |
| 040 | THEATER LEVEL ASSETS | 2,189,916 | 242,500 | 2,432,416 |
| | Realign OCO requirements from Base to OCO | | [242,500] | |
| 050 | LAND FORCES OPERATIONS SUPPORT | 188,609 | | 188,609 |
| 060 | AVIATION ASSETS | 120,787 | | 120,787 |
| 070 | FORCE READINESS OPERATIONS SUPPORT | 3,867,286 | 606,260 | 4,473,546 |
| | Realign OCO requirements from Base to OCO | | [606,260] | |
| 080 | LAND FORCES SYSTEMS READINESS | 550,068 | | 550,068 |
| 090 | LAND FORCES DEPOT MAINTENANCE | 195,873 | 272,820 | 468,693 |
| | Realign OCO requirements from Base to OCO | | [272,820] | |
| 100 | BASE OPERATIONS SUPPORT | 109,560 | 606,260 | 715,820 |
| | Realign OCO requirements from Base to OCO | | [606,260] | |
| 110 | FACILITIES SUSTAINMENT | 60,807 | | 60,807 |
| 140 | ADDITIONAL ACTIVITIES | 5,992,222 | | 5,992,222 |
| 150 | COMMANDERS EMERGENCY RESPONSE PROGRAM | 10,000 | | 10,000 |
| 160 | RESET | 1,036,454 | | 1,036,454 |
| 180 | US AFRICA COMMAND | 248,796 | 15,000 | 263,796 |
| | Contract personnel recovery/casualty evacuation in AFRICOM | | [15,000] | |
| 190 | US EUROPEAN COMMAND | 98,127 | | 98,127 |

| | | | | |
|-----|--|-------------------|------------------|-------------------|
| 200 | US SOUTHERN COMMAND | 2,550 | | 2,550 |
| | SUBTOTAL OPERATING FORCES | 15,876,377 | 2,349,110 | 18,225,487 |
| 230 | MOBILIZATION | | | |
| | ARMY PREPOSITIONED STOCKS | 158,753 | -158,753 | 0 |
| | Realignment of EDI AFS Unit Set from OCO to Base | | [-158,753] | |
| | SUBTOTAL MOBILIZATION | 158,753 | -158,753 | 0 |
| 390 | ADMIN & SRWIDE ACTIVITIES | | | |
| | SERVICEWIDE TRANSPORTATION | 712,230 | 151,600 | 863,830 |
| | Realign OCO requirements from Base to OCO | | [151,600] | |
| 400 | CENTRAL SUPPLY ACTIVITIES | 44,168 | | 44,168 |
| 410 | LOGISTIC SUPPORT ACTIVITIES | 5,300 | | 5,300 |
| 420 | AMMUNITION MANAGEMENT | 38,597 | | 38,597 |
| 460 | OTHER PERSONNEL SUPPORT | 109,019 | | 109,019 |
| 490 | REAL ESTATE MANAGEMENT | 191,786 | | 191,786 |
| 565 | CLASSIFIED PROGRAMS | 1,074,270 | | 1,074,270 |
| | SUBTOTAL ADMIN & SRWIDE ACTIVITIES | 2,175,370 | 151,600 | 2,326,970 |
| 570 | UNDISTRIBUTED | | | |
| | UNDISTRIBUTED | | -27,900 | -27,900 |
| | Historical unobligated balances | | [-27,900] | |
| | SUBTOTAL UNDISTRIBUTED | | -27,900 | -27,900 |
| | TOTAL OPERATION & MAINTENANCE, ARMY | 18,210,500 | 2,314,057 | 20,524,557 |
| 020 | OPERATION & MAINTENANCE, ARMY RES | | | |
| | OPERATING FORCES | | | |
| | ECHELONS ABOVE BRIGADE | 20,700 | | 20,700 |
| 060 | FORCE READINESS OPERATIONS SUPPORT | 700 | | 700 |
| 090 | BASE OPERATIONS SUPPORT | 20,487 | | 20,487 |
| | SUBTOTAL OPERATING FORCES | 41,887 | | 41,887 |

SEC. 4302. OPERATION AND MAINTENANCE FOR OVERSEAS CONTINGENCY OPERATIONS
(In Thousands of Dollars)

| Line | Item | FY 2019 Request | House Change | House Authorized |
|------|--|------------------|--------------|------------------|
| | TOTAL OPERATION & MAINTENANCE, ARMY RES | 41,887 | | 41,887 |
| | OPERATION & MAINTENANCE, ARNG | | | |
| | OPERATING FORCES | | | |
| 010 | MANEUVER UNITS | 42,519 | | 42,519 |
| 020 | MODULAR SUPPORT BRIGADES | 778 | | 778 |
| 030 | ECHELONS ABOVE BRIGADE | 12,093 | | 12,093 |
| 040 | THEATER LEVEL ASSETS | 708 | | 708 |
| 060 | AVIATION ASSETS | 28,135 | | 28,135 |
| 070 | FORCE READINESS OPERATIONS SUPPORT | 5,908 | | 5,908 |
| 100 | BASE OPERATIONS SUPPORT | 18,877 | | 18,877 |
| 120 | MANAGEMENT AND OPERATIONAL HEADQUARTERS | 956 | | 956 |
| | SUBTOTAL OPERATING FORCES | 109,974 | | 109,974 |
| | ADMIN & SRVWD ACTIVITIES | | | |
| 150 | SERVICEWIDE COMMUNICATIONS | 755 | | 755 |
| | SUBTOTAL ADMIN & SRVWD ACTIVITIES | 755 | | 755 |
| | TOTAL OPERATION & MAINTENANCE, ARNG | 110,729 | | 110,729 |
| | AFGHAN NATIONAL ARMY | | | |
| 090 | SUSTAINMENT | 1,522,777 | | 1,522,777 |
| 100 | INFRASTRUCTURE | 137,732 | | 137,732 |
| 110 | EQUIPMENT AND TRANSPORTATION | 71,922 | | 71,922 |
| 120 | TRAINING AND OPERATIONS | 175,846 | | 175,846 |
| | SUBTOTAL AFGHAN NATIONAL ARMY | 1,908,277 | | 1,908,277 |

| | | | |
|-----|--|------------------|------------------|
| 130 | AFGHAN NATIONAL POLICE | | |
| | SUSTAINMENT | 527,554 | 527,554 |
| 140 | INFRASTRUCTURE | 42,984 | 42,984 |
| 150 | EQUIPMENT AND TRANSPORTATION | 14,554 | 14,554 |
| 160 | TRAINING AND OPERATIONS | 181,922 | 181,922 |
| | SUBTOTAL AFGHAN NATIONAL POLICE | 767,014 | 767,014 |
| | AFGHAN AIR FORCE | | |
| 170 | SUSTAINMENT | 942,279 | 942,279 |
| 180 | INFRASTRUCTURE | 30,350 | 30,350 |
| 190 | EQUIPMENT AND TRANSPORTATION | 572,310 | 572,310 |
| 200 | TRAINING AND OPERATIONS | 277,191 | 277,191 |
| | SUBTOTAL AFGHAN AIR FORCE | 1,822,130 | 1,822,130 |
| | AFGHAN SPECIAL SECURITY FORCES | | |
| 210 | SUSTAINMENT | 353,734 | 353,734 |
| 220 | INFRASTRUCTURE | 43,132 | 43,132 |
| 230 | EQUIPMENT AND TRANSPORTATION | 151,790 | 151,790 |
| 240 | TRAINING AND OPERATIONS | 153,373 | 153,373 |
| | SUBTOTAL AFGHAN SPECIAL SECURITY FORCES | 702,029 | 702,029 |
| | TOTAL AFGHANISTAN SECURITY FORCES FUND | 5,199,450 | 5,199,450 |
| | COUNTER-ISIS TRAIN AND EQUIP FUND | | |
| | COUNTER-ISIS TRAIN AND EQUIP FUND (CTEF) | | |
| 010 | IRAQ | 850,000 | 850,000 |
| 020 | SYRIA | 300,000 | 300,000 |
| 030 | OTHER | 250,000 | 250,000 |
| | SUBTOTAL COUNTER-ISIS TRAIN AND EQUIP FUND (CTEF) | 1,400,000 | 1,400,000 |
| | TOTAL COUNTER-ISIS TRAIN AND EQUIP FUND | 1,400,000 | 1,400,000 |

SEC. 4302. OPERATION AND MAINTENANCE FOR OVERSEAS CONTINGENCY OPERATIONS
(In Thousands of Dollars)

| Line | Item | FY 2019 Request | House Change | House Authorized |
|--|--|------------------|--------------|------------------|
| OPERATION & MAINTENANCE, NAVY | | | | |
| OPERATING FORCES | | | | |
| 010 | MISSION AND OTHER FLIGHT OPERATIONS | 435,507 | | 435,507 |
| 030 | AVIATION TECHNICAL DATA & ENGINEERING SERVICES | 800 | | 800 |
| 040 | AIR OPERATIONS AND SAFETY SUPPORT | 9,394 | | 9,394 |
| 050 | AIR SYSTEMS SUPPORT | 193,384 | | 193,384 |
| 060 | AIRCRAFT DEPOT MAINTENANCE | 173,053 | | 173,053 |
| 070 | AIRCRAFT DEPOT OPERATIONS SUPPORT | 3,524 | | 3,524 |
| 080 | AVIATION LOGISTICS | 60,219 | | 60,219 |
| 090 | MISSION AND OTHER SHIP OPERATIONS | 942,960 | | 942,960 |
| 100 | SHIP OPERATIONS SUPPORT & TRAINING | 20,236 | | 20,236 |
| 110 | SHIP DEPOT MAINTENANCE | 1,022,647 | | 1,022,647 |
| 130 | COMBAT COMMUNICATIONS AND ELECTRONIC WARFARE | 59,553 | | 59,553 |
| 160 | WARFARE TACTICS | 16,651 | | 16,651 |
| 170 | OPERATIONAL METEOROLOGY AND OCEANOGRAPHY | 31,118 | | 31,118 |
| 180 | COMBAT SUPPORT FORCES | 635,560 | | 635,560 |
| 190 | EQUIPMENT MAINTENANCE AND DEPOT OPERATIONS SUPPORT | 4,334 | | 4,334 |
| 220 | COMBATANT COMMANDERS DIRECT MISSION SUPPORT | 24,800 | | 24,800 |
| 240 | CYBERSPACE ACTIVITIES | 355 | | 355 |
| 280 | WEAPONS MAINTENANCE | 493,033 | | 493,033 |
| 290 | OTHER WEAPON SYSTEMS SUPPORT | 12,780 | | 12,780 |
| 310 | FACILITIES SUSTAINMENT | 67,321 | | 67,321 |
| 320 | BASE OPERATING SUPPORT | 211,394 | | 211,394 |
| | SUBTOTAL OPERATING FORCES | 4,418,623 | | 4,418,623 |
| MOBILIZATION | | | | |

| | | | |
|-----|--|------------------|------------------|
| 370 | EXPEDITIONARY HEALTH SERVICES SYSTEMS | 12,902 | 12,902 |
| 390 | COAST GUARD SUPPORT | 165,000 | 165,000 |
| | SUBTOTAL MOBILIZATION | 177,902 | 177,902 |
| | TRAINING AND RECRUITING | | |
| 430 | SPECIALIZED SKILL TRAINING | 51,138 | 51,138 |
| | SUBTOTAL TRAINING AND RECRUITING | 51,138 | 51,138 |
| | ADMIN & SRVWD ACTIVITIES | | |
| 510 | ADMINISTRATION | 4,145 | 4,145 |
| 540 | MILITARY MANPOWER AND PERSONNEL MANAGEMENT | 7,503 | 7,503 |
| 580 | SERVICEWIDE TRANSPORTATION | 69,297 | 69,297 |
| 610 | ACQUISITION, LOGISTICS, AND OVERSIGHT | 10,912 | 10,912 |
| 650 | INVESTIGATIVE AND SECURITY SERVICES | 1,559 | 1,559 |
| 765 | CLASSIFIED PROGRAMS | 16,076 | 16,076 |
| | SUBTOTAL ADMIN & SRVWD ACTIVITIES | 109,492 | 109,492 |
| | TOTAL OPERATION & MAINTENANCE, NAVY | 4,757,155 | 4,757,155 |
| | OPERATION & MAINTENANCE, MARINE CORPS | | |
| | OPERATING FORCES | | |
| 010 | OPERATIONAL FORCES | 734,505 | 734,505 |
| 020 | FIELD LOGISTICS | 212,691 | 212,691 |
| 030 | DEPOT MAINTENANCE | 53,040 | 53,040 |
| 070 | BASE OPERATING SUPPORT | 23,047 | 23,047 |
| | SUBTOTAL OPERATING FORCES | 1,023,283 | 1,023,283 |
| | TRAINING AND RECRUITING | | |
| 120 | TRAINING SUPPORT | 30,459 | 30,459 |
| | SUBTOTAL TRAINING AND RECRUITING | 30,459 | 30,459 |
| | ADMIN & SRVWD ACTIVITIES | | |

SEC. 4302. OPERATION AND MAINTENANCE FOR OVERSEAS CONTINGENCY OPERATIONS
(In Thousands of Dollars)

| Line | Item | FY 2019 Request | House Change | House Authorized |
|------|--|------------------|--------------|------------------|
| 160 | SERVICEWIDE TRANSPORTATION | 61,400 | | 61,400 |
| 170 | ADMINISTRATION | 2,108 | | 2,108 |
| 225 | CLASSIFIED PROGRAMS | 4,650 | | 4,650 |
| | SUBTOTAL ADMIN & SRVWD ACTIVITIES | 68,158 | | 68,158 |
| | TOTAL OPERATION & MAINTENANCE, MARINE CORPS | 1,121,900 | | 1,121,900 |
| | OPERATION & MAINTENANCE, NAVY RES | | | |
| | OPERATING FORCES | | | |
| 020 | INTERMEDIATE MAINTENANCE | 500 | | 500 |
| 030 | AIRCRAFT DEPOT MAINTENANCE | 11,400 | | 11,400 |
| 080 | COMBAT SUPPORT FORCES | 13,737 | | 13,737 |
| | SUBTOTAL OPERATING FORCES | 25,637 | | 25,637 |
| | TOTAL OPERATION & MAINTENANCE, NAVY RES | 25,637 | | 25,637 |
| | OPERATION & MAINTENANCE, MC RESERVE | | | |
| | OPERATING FORCES | | | |
| 010 | OPERATING FORCES | 2,550 | | 2,550 |
| 040 | BASE OPERATING SUPPORT | 795 | | 795 |
| | SUBTOTAL OPERATING FORCES | 3,345 | | 3,345 |
| | TOTAL OPERATION & MAINTENANCE, MC RESERVE | 3,345 | | 3,345 |
| | OPERATION & MAINTENANCE, AIR FORCE | | | |
| | OPERATING FORCES | | | |
| 010 | PRIMARY COMBAT FORCES | 166,274 | | 166,274 |

| | | | |
|-----|---|------------------|------------------|
| 020 | COMBAT ENHANCEMENT FORCES | 1,492,580 | 1,492,580 |
| 030 | AIR OPERATIONS TRAINING (OUT, MAINTAIN SKILLS) | 110,237 | 110,237 |
| 040 | DEPOT PURCHASE EQUIPMENT MAINTENANCE | 209,996 | 209,996 |
| 050 | FACILITIES SUSTAINMENT | 92,412 | 92,412 |
| 060 | CONTRACTOR LOGISTICS SUPPORT AND SYSTEM SUPPORT | 1,289,693 | 1,289,693 |
| 070 | FLYING HOUR PROGRAM | 2,355,264 | 2,355,264 |
| 080 | BASE SUPPORT | 1,141,718 | 1,141,718 |
| 090 | GLOBAL C3I AND EARLY WARNING | 13,537 | 13,537 |
| 100 | OTHER COMBAT OPS SPT PROGRAMS | 224,713 | 224,713 |
| 110 | CYBERSPACE ACTIVITIES | 17,353 | 17,353 |
| 120 | TACTICAL INTEL AND OTHER SPECIAL ACTIVITIES | 36,098 | 36,098 |
| 130 | LAUNCH FACILITIES | 385 | 385 |
| 140 | SPACE CONTROL SYSTEMS | 38,966 | 38,966 |
| 170 | US NORTHCOM/NORAD | 725 | 725 |
| 180 | US STRATCOM | 2,056 | 2,056 |
| 190 | US CYBERCOM | 35,189 | 35,189 |
| 200 | US CENTCOM | 162,691 | 162,691 |
| 210 | US SOCOM | 19,000 | 19,000 |
| | SUBTOTAL OPERATING FORCES | 7,408,887 | 7,408,887 |
| | MOBILIZATION | | |
| 230 | AIRLIFT OPERATIONS | 1,287,659 | 1,287,659 |
| 240 | MOBILIZATION PREPAREDNESS | 107,064 | 107,064 |
| | SUBTOTAL MOBILIZATION | 1,394,723 | 1,394,723 |
| | TRAINING AND RECRUITING | | |
| 280 | OFFICER ACQUISITION | 300 | 300 |
| 290 | RECRUIT TRAINING | 340 | 340 |
| 330 | SPECIALIZED SKILL TRAINING | 25,327 | 25,327 |
| 340 | FLIGHT TRAINING | 844 | 844 |
| 350 | PROFESSIONAL DEVELOPMENT EDUCATION | 1,199 | 1,199 |
| 360 | TRAINING SUPPORT | 1,320 | 1,320 |

SEC. 4302. OPERATION AND MAINTENANCE FOR OVERSEAS CONTINGENCY OPERATIONS
(In Thousands of Dollars)

| Line | Item | FY 2019 Request | House Change | House Authorized |
|------|--|------------------|--------------|------------------|
| | SUBTOTAL TRAINING AND RECRUITING | 29,330 | | 29,330 |
| | ADMIN & SRVWD ACTIVITIES | | | |
| 430 | LOGISTICS OPERATIONS | 154,485 | | 154,485 |
| 440 | TECHNICAL SUPPORT ACTIVITIES | 13,608 | | 13,608 |
| 480 | ADMINISTRATION | 4,814 | | 4,814 |
| 490 | SERVICEWIDE COMMUNICATIONS | 131,123 | | 131,123 |
| 500 | OTHER SERVICEWIDE ACTIVITIES | 97,471 | | 97,471 |
| 540 | INTERNATIONAL SUPPORT | 240 | | 240 |
| 545 | CLASSIFIED PROGRAMS | 51,108 | | 51,108 |
| | SUBTOTAL ADMIN & SRVWD ACTIVITIES | 452,849 | | 452,849 |
| | TOTAL OPERATION & MAINTENANCE, AIR FORCE | 9,285,789 | | 9,285,789 |
| | OPERATION & MAINTENANCE, AF RESERVE | | | |
| 030 | OPERATING FORCES | | | |
| | DEPOT PURCHASE EQUIPMENT MAINTENANCE | 51,000 | | 51,000 |
| 060 | BASE SUPPORT | 9,500 | | 9,500 |
| | SUBTOTAL OPERATING FORCES | 60,500 | | 60,500 |
| | TOTAL OPERATION & MAINTENANCE, AF RESERVE | 60,500 | | 60,500 |
| | OPERATION & MAINTENANCE, ANG | | | |
| 020 | OPERATING FORCES | | | |
| | MISSION SUPPORT OPERATIONS | 3,560 | | 3,560 |
| 060 | BASE SUPPORT | 12,310 | | 12,310 |
| | SUBTOTAL OPERATING FORCES | 15,870 | | 15,870 |

| | | | |
|-----|--|------------------|------------------|
| | TOTAL OPERATION & MAINTENANCE, ANG | 15,870 | 15,870 |
| | OPERATION AND MAINTENANCE, DEFENSE-WIDE | | |
| | OPERATING FORCES | | |
| 010 | JOINT CHIEFS OF STAFF | 28,671 | 28,671 |
| 040 | SPECIAL OPERATIONS COMMAND/OPERATING FORCES | 3,733,161 | 3,733,161 |
| | SUBTOTAL OPERATING FORCES | 3,761,832 | 3,761,832 |
| | ADMIN & SRWIDE ACTIVITIES | | |
| 100 | DEFENSE CONTRACT AUDIT AGENCY | 1,781 | 1,781 |
| 110 | DEFENSE CONTRACT MANAGEMENT AGENCY | 21,723 | 21,723 |
| 130 | DEFENSE INFORMATION SYSTEMS AGENCY | 111,702 | 111,702 |
| 150 | DEFENSE LEGAL SERVICES AGENCY | 127,023 | 127,023 |
| 170 | DEFENSE MEDIA ACTIVITY | 14,377 | 14,377 |
| 190 | DEFENSE SECURITY COOPERATION AGENCY | 2,208,442 | 2,008,442 |
| | Transfer of funds to Ukraine Security Assistance fund | | -200,000 |
| | | | [-200,000] |
| 230 | DEFENSE THREAT REDUCTION AGENCY | 302,250 | 302,250 |
| 250 | DEPARTMENT OF DEFENSE EDUCATION ACTIVITY | 31,620 | 31,620 |
| 290 | OFFICE OF THE SECRETARY OF DEFENSE | 16,579 | 16,579 |
| 310 | WASHINGTON HEADQUARTERS SERVICES | 7,766 | 7,766 |
| 315 | CLASSIFIED PROGRAMS | 1,944,813 | 1,944,813 |
| | SUBTOTAL ADMIN & SRWIDE ACTIVITIES | 4,788,076 | 4,588,076 |
| | TOTAL OPERATION AND MAINTENANCE, DEFENSE-WIDE | 8,549,908 | 8,349,908 |
| | UKRAINE SECURITY ASSISTANCE | | |
| 010 | UKRAINE SECURITY ASSISTANCE | 250,000 | 250,000 |
| | Program increase for defensive lethal assistance | [50,000] | [50,000] |
| | Transfer of funds from the Defense Security Cooperation Agency | [200,000] | [200,000] |
| | SUBTOTAL UKRAINE SECURITY ASSISTANCE | 250,000 | 250,000 |

| SEC. 4302. OPERATION AND MAINTENANCE FOR OVERSEAS CONTINGENCY OPERATIONS (In Thousands of Dollars) | | | | |
|---|---|-----------------|--------------|------------------|
| Line | Item | FY 2019 Request | House Change | House Authorized |
| | TOTAL UKRAINE SECURITY ASSISTANCE | | 250,000 | 250,000 |
| | TOTAL OPERATION & MAINTENANCE | 48,782,670 | 2,364,057 | 51,146,727 |

TITLE XLIV—MILITARY PERSONNEL

SEC. 4401. MILITARY PERSONNEL.

| SEC. 4401. MILITARY PERSONNEL (In Thousands of Dollars) | | | |
|---|--------------------|-----------------|---------------------|
| Item | FY 2019 Request | House Change | House Authorized |
| Military Personnel Appropriations | 140,689,301 | -700,500 | 139,988,801 |
| Control Grade Increase | | [7,000] | |
| Foreign Currency adjustments | | [-218,000] | |
| Historical unobligated balance | | [-761,500] | |
| Permanently reverse BAH reduction for Military Housing Privatization Initiative | | [275,000] | |
| Program decrease | | [-3,000] | |
| Medicare-Eligible Retiree Health Fund Contributions | 7,533,090 | | 7,533,090 |
| Total, Military Personnel | 148,222,391 | -700,500 | 147,521,891 |

SEC. 4402. MILITARY PERSONNEL FOR OVERSEAS CONTINGENCY OPERATIONS.

| SEC. 4402. MILITARY PERSONNEL FOR OVERSEAS CONTINGENCY OPERATIONS (In Thousands of Dollars) | | | |
|--|--------------------|-----------------|---------------------|
| Item | FY 2019 Request | House Change | House Authorized |
| Military Personnel Appropriations | 4,660,661 | | 4,660,661 |

TITLE XLV—OTHER AUTHORIZATIONS

SEC. 4501. OTHER AUTHORIZATIONS.

SEC. 4501. OTHER AUTHORIZATIONS (In Thousands of Dollars)

| Item | FY 2019 Request | House Change | House Authorized |
|---|--------------------|-----------------|---------------------|
| WORKING CAPITAL FUND, ARMY | | | |
| ARMY ARSENALS INITIATIVE | 59,002 | | 59,002 |
| ARMY SUPPLY MANAGEMENT | 99,763 | | 99,763 |
| TOTAL WORKING CAPITAL FUND, ARMY | 158,765 | | 158,765 |
| WORKING CAPITAL FUND, AIR FORCE | | | |
| WORKING CAPITAL FUND | 69,054 | | 69,054 |
| TOTAL WORKING CAPITAL FUND, AIR FORCE | 69,054 | | 69,054 |
| WORKING CAPITAL FUND, DEFENSE-WIDE | | | |
| WORKING CAPITAL FUND SUPPORT | 48,096 | | 48,096 |
| TOTAL WORKING CAPITAL FUND, DEFENSE-WIDE | 48,096 | | 48,096 |
| WORKING CAPITAL FUND, DECA | | | |
| WORKING CAPITAL FUND SUPPORT | 1,266,200 | | 1,266,200 |
| TOTAL WORKING CAPITAL FUND, DECA | 1,266,200 | | 1,266,200 |
| NATIONAL DEFENSE SEALIFT FUND | | | |
| SURGE SEALIFT RECAPITALIZATION | | 200,000 | 200,000 |
| Program increase—one used vessel | | [200,000] | |
| LG MED SPD RO/RO MAINTENANCE | | 127,739 | 127,739 |

| | | | |
|---|----------------|----------------|----------------|
| Transfer from OMN | [127,739] | | |
| DOD MOBILIZATION ALTERATIONS | 20,858 | | 20,858 |
| Transfer from OMN | [20,858] | | |
| TAH MAINTENANCE | 157,350 | | 157,350 |
| Service Life Extension of USNS Comfort (TAH 20) | [85,000] | | |
| Transfer from OMN | [72,350] | | |
| READY RESERVE AND PREPOSITIONING FORCE | 310,805 | | 310,805 |
| Transfer from OMN | [310,805] | | |
| TOTAL NATIONAL DEFENSE SEALIFT FUND | 816,752 | | 816,752 |
| CHEM AGENTS & MUNITIONS DESTRUCTION | | | |
| OPERATION & MAINTENANCE | | 105,997 | 105,997 |
| RDT&E | | 886,728 | 886,728 |
| PROCUREMENT | | 1,091 | 1,091 |
| TOTAL CHEM AGENTS & MUNITIONS DESTRUCTION | | 993,816 | 993,816 |
| DRUG INTERDICTION & CTR-DRUG ACTIVITIES, DEF | | | |
| DRUG INTERDICTION AND COUNTER-DRUG ACTIVITIES, DEFENSE | | 547,171 | 547,171 |
| Combating opioid trafficking and abuse | 20,000 | | |
| DRUG DEMAND REDUCTION PROGRAM | [20,000] | | |
| NATIONAL GUARD COUNTER-DRUG PROGRAM | | 117,900 | 117,900 |
| DRUG INTERDICTION AND COUNTER-DRUG ACTIVITIES, DEFENSE | | 117,178 | 117,178 |
| | | 5,276 | 5,276 |
| TOTAL DRUG INTERDICTION & CTR-DRUG ACTIVITIES, DEF | 20,000 | 787,525 | 807,525 |
| OFFICE OF THE INSPECTOR GENERAL | | | |
| OPERATION & MAINTENANCE | | 327,611 | 327,611 |
| Program increase | 5,000 | | |
| PROCUREMENT | [5,000] | | |
| RDT&E | | 1,602 | 1,602 |
| | | 60 | 60 |
| TOTAL OFFICE OF THE INSPECTOR GENERAL | 5,000 | 329,273 | 334,273 |
| DEFENSE HEALTH PROGRAM | | | |

SEC. 4501. OTHER AUTHORIZATIONS
(In Thousands of Dollars)

| Item | FY 2019 Request | House Change | House Authorized |
|--|-----------------|--------------|------------------|
| OPERATION & MAINTENANCE | | | |
| IN-HOUSE CARE | 9,738,569 | | 9,738,569 |
| PRIVATE SECTOR CARE | 15,103,735 | | 15,103,735 |
| CONSOLIDATED HEALTH SUPPORT | 2,107,961 | | 2,107,961 |
| INFORMATION MANAGEMENT | 2,039,878 | | 2,039,878 |
| MANAGEMENT ACTIVITIES | 307,629 | | 307,629 |
| EDUCATION AND TRAINING | 756,778 | | 756,778 |
| BASE OPERATIONS/COMMUNICATIONS | 2,090,845 | | 2,090,845 |
| RD&E | | | |
| RESEARCH | 11,386 | | 11,386 |
| EXPLORATORY DEVELOPMENT | 75,010 | 5,000 | 80,010 |
| Simulators and other technologies to reduce the use of live animal tissue for medical training | | [5,000] | |
| ADVANCED DEVELOPMENT | 275,258 | 5,000 | 280,258 |
| Simulators and other technologies to reduce the use of live animal tissue for medical training | | [5,000] | |
| DEMONSTRATION/VALIDATION | 117,529 | 5,000 | 122,529 |
| Simulators and other technologies to reduce the use of live animal tissue for medical training | | [5,000] | |
| ENGINEERING DEVELOPMENT | 151,985 | 25,000 | 176,985 |
| FDA approved devices to detect and monitor traumatic brain injury | | [10,000] | |
| Freeze-dried platelet derived hemostatic agents | | [10,000] | |
| Simulators and other technologies to reduce the use of live animal tissue for medical training | | [5,000] | |
| MANAGEMENT AND SUPPORT | 63,755 | | 63,755 |
| CAPABILITIES ENHANCEMENT | 15,714 | | 15,714 |
| PROCUREMENT | | | |
| INITIAL OUTFITTING | 33,056 | | 33,056 |
| REPLACEMENT & MODERNIZATION | 343,424 | | 343,424 |
| DOD HEALTHCARE MANAGEMENT SYSTEM MODERNIZATION | 496,680 | | 496,680 |
| UNDISTRIBUTED | | | |

| | | | |
|---|-------------------|----------------|-------------------|
| UNDISTRIBUTED | | | |
| Foreign Currency adjustments | -492,500 | | -492,500 |
| Historical unobligated balances | [-22,100] | | |
| | [-470,400] | | |
| TOTAL DEFENSE HEALTH PROGRAM | 33,729,192 | | 33,276,692 |
| TOTAL OTHER AUTHORIZATIONS | 37,381,921 | 389,252 | 37,771,173 |

SEC. 4502. OTHER AUTHORIZATIONS FOR OVERSEAS CONTINGENCY OPERATIONS.

SEC. 4502. OTHER AUTHORIZATIONS FOR OVERSEAS CONTINGENCY OPERATIONS
(In Thousands of Dollars)

| Item | FY 2019 Request | House Change | House Authorized |
|---|-----------------|--------------|------------------|
| WORKING CAPITAL FUND, ARMY | | | |
| ARMY SUPPLY MANAGEMENT | 6,600 | | 6,600 |
| TOTAL WORKING CAPITAL FUND, ARMY | 6,600 | | 6,600 |
| WORKING CAPITAL FUND, AIR FORCE | | | |
| WORKING CAPITAL FUND | 8,590 | | 8,590 |
| TOTAL WORKING CAPITAL FUND, AIR FORCE | 8,590 | | 8,590 |
| DRUG INTERDICTION & CTR-DRUG ACTIVITIES, DEF | | | |
| DRUG INTERDICTION AND COUNTER-DRUG ACTIVITIES, DEFENSE | 153,100 | | 153,100 |
| TOTAL DRUG INTERDICTION & CTR-DRUG ACTIVITIES, DEF | 153,100 | | 153,100 |
| OFFICE OF THE INSPECTOR GENERAL | | | |
| OPERATION & MAINTENANCE | 24,692 | | 24,692 |
| TOTAL OFFICE OF THE INSPECTOR GENERAL | 24,692 | | 24,692 |
| DEFENSE HEALTH PROGRAM | | | |
| OPERATION & MAINTENANCE | | | |
| IN-HOUSE CARE | 72,627 | | 72,627 |
| PRIVATE SECTOR CARE | 277,066 | | 277,066 |
| CONSOLIDATED HEALTH SUPPORT | 2,375 | | 2,375 |
| TOTAL DEFENSE HEALTH PROGRAM | 352,068 | | 352,068 |
| TOTAL OTHER AUTHORIZATIONS | 545,050 | | 545,050 |

TITLE XLVI—MILITARY CONSTRUCTION

SEC. 4601. MILITARY CONSTRUCTION.

SEC. 4601. MILITARY CONSTRUCTION (In Thousands of Dollars)

| Account | State/ Country | Installation | Project Title | FY 2019 Request | House Change | House Agreement |
|---------|-------------------|-----------------------------|---|--------------------|-----------------|--------------------|
| Army | Alabama | Anniston Army Depot | Weapon Maintenance Shop | 5,200 | | 5,200 |
| Army | California | Fort Irwin | Multipurpose Range Complex | 29,000 | | 29,000 |
| Army | Colorado | Fort Carson | Vehicle Maintenance Shop | 77,000 | | 77,000 |
| Army | Georgia | Fort Gordon | Cyber Instructional Fac and Network Ctr | 99,000 | | 99,000 |
| Army | Germany | East Camp Grafenwoehr | Mission Training Complex | 31,000 | | 31,000 |
| Army | Hawaii | Fort Shafter | Command and Control Facility, Incr 4 | 105,000 | -10,000 | 95,000 |
| Army | Honduras | Soto Cano Air Base | Barracks | 21,000 | | 21,000 |
| Army | Indiana | Crane Army Ammunition Plant | Railcar Holding Area | 16,000 | | 16,000 |
| Army | Kentucky | Fort Campbell | Microgrid and Power Plant | 0 | 18,000 | 18,000 |
| Army | Kentucky | Fort Campbell | Vehicle Maintenance Shop | 32,000 | | 32,000 |
| Army | Kentucky | Fort Knox | Digital Air/Ground Integration Range | 26,000 | | 26,000 |
| Army | Korea | Camp Tango | Command and Control Facility | 17,500 | | 17,500 |
| Army | Kuwait | Camp Arifjan | Vehicle Maintenance Shop | 44,000 | | 44,000 |
| Army | Maryland | Fort Meade | Cantonment Area Roads | 0 | 16,500 | 16,500 |
| Army | New Jersey | Picatinny Arsenal | Munitions Disassembly Complex | 41,000 | | 41,000 |
| Army | New Mexico | White Sands Missile Range | Information Systems Facility | 40,000 | | 40,000 |
| Army | New York | U.S. Military Academy | Engineering Center | 95,000 | | 95,000 |
| Army | New York | U.S. Military Academy | Parking Structure | 65,000 | | 65,000 |
| Army | North Carolina | Fort Bragg | Dining Facility | 10,000 | | 10,000 |
| Army | South Carolina | Fort Jackson | Trainee Barracks Complex 3, Ph2 | 52,000 | | 52,000 |
| Army | Texas | Fort Bliss | Supply Support Activity | 24,000 | | 24,000 |
| Army | Texas | Fort Hood | Supply Support Activity | 0 | 9,600 | 9,600 |

SEC. 4601. MILITARY CONSTRUCTION
(In Thousands of Dollars)

| Account | State/ Country | Installation | Project Title | FY 2019 Request | House Change | House Agreement |
|---------|--|-------------------------------------|---|--------------------|-----------------|--------------------|
| Army | Worldwide Unspecified | Unspecified Worldwide Locations | Force Protection and Safety | 0 | 50,000 | 50,000 |
| Army | Worldwide Unspecified | Unspecified Worldwide Locations | Host Nation Support | 34,000 | | 34,000 |
| Army | Worldwide Unspecified | Unspecified Worldwide Locations | Planning and Design | 76,068 | | 76,068 |
| Army | Worldwide Unspecified | Unspecified Worldwide Locations | Unspecified Minor Construction | 72,000 | | 72,000 |
| | Military Construction, Army Total | | | 1,011,768 | 84,100 | 1,095,868 |
| Navy | Arizona | Camp Navajo | Missile Motor Magazines and U&SI | 0 | 14,800 | 14,800 |
| Navy | Bahamas | Andros Island | AUTEC Austere Quarters | 31,050 | | 31,050 |
| Navy | Bahrain | SW Asia | Fleet Maintenance Facility & TOC | 26,340 | | 26,340 |
| Navy | California | Camp Pendleton | AAV-ACV Maintenance & Warehouse Facility | 49,410 | | 49,410 |
| Navy | California | Camp Pendleton | Electrical Upgrades | 4,020 | | 4,020 |
| Navy | California | Camp Pendleton | Full Motion Trainer Facility | 10,670 | | 10,670 |
| Navy | California | Camp Pendleton | Potable Water Distribution Improvements | 47,230 | | 47,230 |
| Navy | California | Camp Pendleton | Supply Warehouse SOL-West | 0 | 16,600 | 16,600 |
| Navy | California | Marine Corps Air Station Miramar | Airfield Security Improvements | 11,500 | | 11,500 |
| Navy | California | Marine Corps Air Station Miramar | F-35 Vertical Landing Pads and Taxiway | 20,480 | | 20,480 |
| Navy | California | Naval Air Station Lemoore | Communications Line Ops to Admin | 0 | 14,900 | 14,900 |
| Navy | California | Naval Air Station Lemoore | F-35 Maintenance Hangar | 112,690 | | 112,690 |
| Navy | California | Naval Base Coronado | Aircraft Paint Complex | 0 | 78,800 | 78,800 |
| Navy | California | Naval Base Coronado | CNV-22B Airfield Improvements | 77,780 | | 77,780 |
| Navy | California | Naval Base San Diego | Harbor Drive Switching Station | 48,440 | | 48,440 |
| Navy | California | Naval Base San Diego | LCS Mission Module Readiness Center | 0 | 19,500 | 19,500 |
| Navy | California | Naval Base San Diego | Pier 8 Replacement | 108,100 | | 48,747 |
| Navy | California | Naval Base Ventura | Directed Energy Systems Intergration Lab | 22,150 | -59,353 | 22,150 |
| Navy | California | Naval Base Ventura | Missile Assembly Build & High Explosive Mag | 31,010 | | 31,010 |

| | California | Naval Weapons Station Seal Beach | Causeway, Boat Channel & Turning Basin | 117,830 | 117,830 | 117,830 |
|------|----------------------|---------------------------------------|--|---------|---------|---------|
| Navy | California | Naval Weapons Station Seal Beach | Causeway, Boat Channel & Turning Basin | 0 | 21,800 | 21,800 |
| Navy | California | Naval Weapons Station Seal Beach | Missile Magazines | 0 | 21,800 | 21,800 |
| Navy | Cuba | Naval Station Guantanamo Bay | Consolidated Fire Station | 0 | 19,700 | 19,700 |
| Navy | Cuba | Naval Station Guantanamo Bay | Solid Waste Management Facility | 85,000 | | 85,000 |
| Navy | District Of Columbia | Naval Observatory | Master Time Clocks & Operations Facility | 115,600 | -55,600 | 60,000 |
| Navy | Florida | Naval Air Station Whiting Field | Air Traffic Control Tower (North Field) | 0 | 10,000 | 10,000 |
| Navy | Florida | Naval Station Mayport | LCS Operational Training Facility Addition | 29,110 | | 29,110 |
| Navy | Florida | Naval Station Mayport | LCS Support Facility | 82,350 | | 82,350 |
| Navy | Georgia | Marine Corps Base Albany | Welding and Body Repair Shop Facility | 0 | 31,900 | 31,900 |
| Navy | Germany | Panzer Kaserne | MARFORCER HQ Modernization and Expansion | 43,950 | | 43,950 |
| Navy | Guam | Joint Region Marianas | ACE Gym & Dining | 27,910 | | 27,910 |
| Navy | Guam | Joint Region Marianas | Earth Covered Magazines | 52,270 | | 52,270 |
| Navy | Guam | Joint Region Marianas | Machine Gun Range | 141,287 | -71,287 | 70,000 |
| Navy | Guam | Joint Region Marianas | Ordnance Ops | 22,020 | | 22,020 |
| Navy | Guam | Joint Region Marianas | Unaccompanied Enlisted Housing | 36,170 | | 36,170 |
| Navy | Guam | Naval Base Guam | X-Ray Wharf Improvements (Berth 2) | 0 | 75,600 | 75,600 |
| Navy | Hawaii | Joint Base Pearl Harbor-Hickam | Drydock Waterfront Facility | 45,000 | | 45,000 |
| Navy | Hawaii | Joint Base Pearl Harbor-Hickam | Water Transmission Line | 78,320 | | 78,320 |
| Navy | Hawaii | Marine Corps Base Hawaii | Corrosion Control Hangar | 66,100 | | 66,100 |
| Navy | Japan | Kadena Air Base | Tactical Operations Center | 9,049 | | 9,049 |
| Navy | Maine | Portsmouth Naval Yard | Dry Dock #1 Superflood Basin | 109,960 | -58,321 | 51,639 |
| Navy | Maine | Portsmouth Naval Yard | Extend Portal Crane Rail | 39,725 | | 39,725 |
| Navy | Mississippi | Naval Construction Battalion Center | Expeditionary Combat Skills Student Berthing | 0 | 22,300 | 22,300 |
| Navy | North Carolina | Camp Lejeune | 2nd Radio BN Complex, Phase 2 | 0 | 51,300 | 51,300 |
| Navy | North Carolina | Marine Corps Air Station Cherry Point | Aircraft Maintenance Hangar | 133,970 | -73,970 | 60,000 |
| Navy | North Carolina | Marine Corps Air Station Cherry Point | Flightline Utility Modernization | 106,860 | -51,860 | 55,000 |

SEC. 4601, MILITARY CONSTRUCTION
(In Thousands of Dollars)

| Account | State/ Country | Installation | Project Title | FY 2019 Request | House Change | House Agreement |
|--|-----------------------|---|--|--------------------|-----------------|--------------------|
| Navy | Pennsylvania | Naval Support Activity Philadelphia | Submarine Propulsor Manufacturing Support Facility | 71,050 | | 71,050 |
| Navy | South Carolina | Marine Corps Air Station Beaufort | Cryogenics Facility | 0 | 6,300 | 6,300 |
| Navy | South Carolina | Marine Corps Air Station Beaufort | Recycling/Hazardous Waste Facility | 9,517 | | 9,517 |
| Navy | South Carolina | Marine Corps Recruit Depot, Parris Island | Range Improvements & Modernization, Phase 2 | 35,190 | | 35,190 |
| Navy | Utah | Hill Air Force Base | D5 Missile Motor Receipt/Storage Facility | 105,520 | -50,520 | 55,000 |
| Navy | Virginia | Marine Corps Base Quantico | Ammunition Supply Point Upgrade, Phase 2 | 0 | 13,100 | 13,100 |
| Navy | Virginia | Marine Corps Base Quantico | TBS Fire Station | 21,980 | -21,980 | 0 |
| Navy | Virginia | Portsmouth | Ships Maintenance Facility | 26,120 | | 26,120 |
| Navy | Washington | Bangor | Pier and Maintenance Facility | 88,960 | | 88,960 |
| Navy | Washington | Naval Air Station Whidbey Island | Fleet Support Facility | 19,450 | | 19,450 |
| Navy | Washington | Naval Air Station Whidbey Island | Next Generation Jammer Facility | 7,930 | | 7,930 |
| Navy | Worldwide Unspecified | Unspecified Worldwide Locations | Force Protection and Safety | 0 | 50,000 | 50,000 |
| Navy | Worldwide Unspecified | Unspecified Worldwide Locations | Planning and Design | 185,542 | -8,000 | 177,542 |
| Navy | Worldwide Unspecified | Unspecified Worldwide Locations | Unspecified Minor Construction | 28,579 | | 28,579 |
| Military Construction, Navy Total | | | | 2,543,189 | -4,291 | 2,538,898 |
| AF | Alaska | Eielson Air Force Base | F-35 Aircraft Maintenance Unit Admin Facility | 6,800 | | 6,800 |
| AF | Alaska | Eielson Air Force Base | F-35 Conventional Munitions Maintenance Facility | 15,500 | | 15,500 |
| AF | Alaska | Eielson Air Force Base | F-35A CATM Range | 19,000 | | 19,000 |
| AF | Alaska | Eielson Air Force Base | F-35A School Age Facility | 22,500 | | 22,500 |
| AF | Arizona | Davis Monthan Air Force Base | AGE Facility | 0 | 15,000 | 15,000 |

| | | | | | | |
|----|-----------------|---------------------------------|--|---------|----------|---------|
| AF | Arizona | Luke Air Force Base | F-35A Aircraft Maintenance Unit Facility | 23,000 | | 23,000 |
| AF | Arizona | Luke Air Force Base | F-35A Squad Ops #6 | 17,000 | | 17,000 |
| AF | Arkansas | Little Rock Air Force Base | Dormitory - 168 PN | 0 | 26,000 | 26,000 |
| AF | Florida | Eglin Air Force Base | F-35A Integrated Trng Center Academics Bldg | 34,863 | | 34,863 |
| AF | Florida | Eglin Air Force Base | F-35A Student Dormitory II | 28,000 | | 28,000 |
| AF | Florida | MacDill Air Force Base | KC135 Beddown Add Flight Simulator Training | 3,100 | | 3,100 |
| AF | Florida | Patrick Air Force Base | Main Gate | 0 | 9,000 | 9,000 |
| AF | Guam | Joint Region Marianas | Hayman Munitions Storage Iglous MSA 2 | 9,800 | | 9,800 |
| AF | Louisiana | Barksdale Air Force Base | Entrance Road and Gate Complex | 0 | 12,250 | 12,250 |
| AF | Mariana Islands | Timian | APR—Cargo Pad with Taxiway Extension | 46,000 | | 46,000 |
| AF | Mariana Islands | Timian | APR—Maintenance Support Facility | 4,700 | | 4,700 |
| AF | Maryland | Joint Base Andrews | Child Development Center | 0 | 13,000 | 13,000 |
| AF | Maryland | Joint Base Andrews | MWD Facility | 0 | 8,000 | 8,000 |
| AF | Maryland | Joint Base Andrews | PAR Relocate Haz Cargo Pad and EOD Range | 37,000 | | 37,000 |
| AF | Maryland | Joint Base Andrews | Presidential Aircraft Recap Complex, Inc. 2 | 154,000 | -30,884 | 123,116 |
| AF | Massachusetts | Hanscom Air Force Base | MIT-Lincoln Laboratory (West Lab CSL/MIF) | 225,000 | -185,000 | 40,000 |
| AF | Nebraska | Offutt Air Force Base | Parking Lot, USSTRATCOM | 9,500 | | 9,500 |
| AF | Nevada | Creech Air Force Base | MQ-9 CPIP GCS Operations Facility | 28,000 | | 28,000 |
| AF | Nevada | Creech Air Force Base | MQ-9 CPIP Operations & Command Center Fac. | 31,000 | | 31,000 |
| AF | Nevada | Nellis Air Force Base | CRH Simulator | 5,900 | | 5,900 |
| AF | New Mexico | Holloman Air Force Base | MQ-9 FTU Ops Facility | 85,000 | | 85,000 |
| AF | New Mexico | Kirtland Air Force Base | Wyoming Gate Upgrade for Anti-terrorism Compliance. | 0 | 7,000 | 7,000 |
| AF | New York | Rome Lab | Anti-Terrorism Perimeter Security / Entry Control Point. | 0 | 14,200 | 14,200 |
| AF | North Dakota | Minot Air Force Base | Consolidated Helo/TRF Ops/AMU and Alert Fac | 66,000 | | 66,000 |
| AF | Ohio | Wright-Patterson Air Force Base | ADAL Intelligence Production Complex (NASIC) | 116,100 | -55,100 | 61,000 |
| AF | Oklahoma | Altus Air Force Base | KC-46A FTU/FTC Simulator Facility Ph 3 | 12,000 | | 12,000 |
| AF | Oklahoma | Tinker Air Force Base | KC-46A Depot Fuel Maintenance Hangar | 85,000 | | 85,000 |
| AF | Oklahoma | Tinker Air Force Base | KC-46A Depot Maintenance Hangar | 81,000 | | 81,000 |
| AF | Qatar | Al Udeid | Flightline Support Facilities | 30,400 | -30,400 | 0 |
| AF | Qatar | Al Udeid | Personnel Deployment Processing Facility | 40,000 | -40,000 | 0 |

SEC. 4601. MILITARY CONSTRUCTION
(In Thousands of Dollars)

| Account | State/ Country | Installation | Project Title | FY 2019 Request | House Change | House Agreement |
|----------|-----------------------|----------------------------------|--|--------------------|-----------------|--------------------|
| AF | South Carolina | Shaw Air Force Base | CPIP MQ-9 MCE GROUP | 53,000 | | 53,000 |
| AF | Texas | Joint Base San Antonio | BMT Recruit Dormitory 6 | 25,000 | | 25,000 |
| AF | United Kingdom | RAF Lakenheath | F-35A 6 Bay Hangar | 39,036 | | 39,036 |
| AF | United Kingdom | RAF Lakenheath | F-35A ADAL Conventional Munitions MX | 9,204 | | 9,204 |
| AF | United Kingdom | RAF Lakenheath | F-35A ADAL Parts Store | 13,926 | | 13,926 |
| AF | United Kingdom | RAF Lakenheath | F-35A AGE Facility | 12,449 | | 12,449 |
| AF | United Kingdom | RAF Lakenheath | F-35A Dorm | 29,541 | | 29,541 |
| AF | United Kingdom | RAF Lakenheath | F-35A Fuel System Maintenance Dock 2 Bay | 16,880 | | 16,880 |
| AF | United Kingdom | RAF Lakenheath | F-35A Parking Apron | 27,431 | | 27,431 |
| AF | Utah | Hill Air Force Base | Composite Aircraft Antenna Calibration Fac | 0 | 26,000 | 26,000 |
| AF | Washington | Fairchild—White Bluff | ADAL JPRA C2 Mission Support Facility | 0 | 14,000 | 14,000 |
| AF | Worldwide Classified | Classified Location | TACMOR—Utilities and Infrastructure Support | 18,000 | | 18,000 |
| AF | Worldwide Unspecified | Unspecified Worldwide Locations | Force Protection and Safety | 0 | 50,000 | 50,000 |
| AF | Worldwide Unspecified | Various Worldwide Locations | Planning and Design | 206,577 | -8,000 | 198,577 |
| AF | Worldwide Unspecified | Various Worldwide Locations | Unspecified Minor Military Construction | 38,500 | | 38,500 |
| | | | Military Construction, AF Total | 1,725,707 | -154,934 | 1,570,773 |
| Def-Wide | Alaska | Clear Air Force Station | Long Range Discrim Radar Sys Complex Ph2 | 174,000 | -44,000 | 130,000 |
| Def-Wide | Alaska | Fort Greely | Missile Field #1 Expansion | 8,000 | -8,000 | 0 |
| Def-Wide | Alaska | Joint Base Elmendorf-Richardson | Operations Facility Replacement | 14,000 | | 14,000 |
| Def-Wide | Arkansas | Little Rock Air Force Base | Hydrant Fuel System Alterations | 14,000 | | 14,000 |
| Def-Wide | Belgium | Chievres Air Base | Europe West District Superintendent's Office | 14,305 | | 14,305 |
| Def-Wide | California | Camp Pendleton | SOF EOD Facility—West | 3,547 | | 3,547 |
| Def-Wide | California | Camp Pendleton | SOF Human Performance Training Center—West | 9,049 | | 9,049 |
| Def-Wide | California | Defense Distribution Depot—Tracy | Main Access Control Point Upgrades | 18,800 | | 18,800 |
| Def-Wide | California | Naval Base Coronado | SOF ATC Applied Instruction Facility | 14,819 | | 14,819 |

| | | | | | |
|----------|------------------|----------------------------------|---|---------|---------|
| Def-Wide | California | Naval Base Coronado | SOF ATC Training Facility | 18,329 | 18,329 |
| Def-Wide | California | Naval Base Coronado | SOF Close Quarters Combat Facility | 12,768 | 12,768 |
| Def-Wide | California | Naval Base Coronado | SOF NSWG-1 Operations Support Facility | 25,172 | 25,172 |
| Def-Wide | Colorado | Fort Carson | SOF Human Performance Training Center | 15,297 | 15,297 |
| Def-Wide | Colorado | Fort Carson | SOF Mountaineering Facility | 9,000 | 9,000 |
| Def-Wide | Conus Classified | Classified Location | Battalion Complex, PH2 | 49,222 | 49,222 |
| Def-Wide | Cuba | Naval Base Guantanamo Bay | Working Dog Treatment Facility Replacement | 9,080 | 9,080 |
| Def-Wide | Germany | Baumholder | SOF Joint Parachute Rigging Facility | 11,504 | 11,504 |
| Def-Wide | Germany | Kaiserlautern Air Base | Kaiserslautern Middle School | 99,955 | 99,955 |
| Def-Wide | Germany | Rhine Ordnance Barracks | Medical Center Replacement Inc. 8 | 319,589 | 319,589 |
| Def-Wide | Germany | Weisbaden | Clay Kaserne Elementary School | 56,048 | 56,048 |
| Def-Wide | Japan | Camp Mctureous | Bechtel Elementary School | 94,851 | 94,851 |
| Def-Wide | Japan | Iwakuni | Fuel Pier | 33,200 | 33,200 |
| Def-Wide | Japan | Kadena Air Base | Truck Unload Facilities | 21,400 | 21,400 |
| Def-Wide | Japan | Yokosuka | Kinnick High School | 170,386 | 170,386 |
| Def-Wide | Kentucky | Fort Campbell | Ft Campbell Middle School | 62,634 | 62,634 |
| Def-Wide | Kentucky | Fort Campbell | SOF Air/Ground Integ. Urban Live Fire Range | 9,091 | 9,091 |
| Def-Wide | Kentucky | Fort Campbell | SOF Logistics Support Operations Facility | 5,435 | 5,435 |
| Def-Wide | Kentucky | Fort Campbell | SOF Multi-Use Helicopter Training Facility | 5,138 | 5,138 |
| Def-Wide | Maine | Kittery | Consolidated Warehouse Replacement | 11,600 | 11,600 |
| Def-Wide | Maryland | Fort Meade | Mission Support Operations Warehouse Facility | 30,000 | 30,000 |
| Def-Wide | Maryland | Fort Meade | NSAW Recapitalize Building #2 Inc 4 | 218,000 | 218,000 |
| Def-Wide | Maryland | Fort Meade | NSAW Recapitalize Building #3 Inc 1 | 99,000 | 99,000 |
| Def-Wide | Missouri | St Louis | Next NGA West (N2W) Complex Phase 1 Inc. 2 | 213,600 | 181,000 |
| Def-Wide | Missouri | St Louis | Next NGA West (N2W) Complex Phase 2 Inc. 1 | 110,000 | 110,000 |
| Def-Wide | New Jersey | Joint Base McGuire-Dix-Lakehurst | Hot Cargo Hydrant System Replacement | 10,200 | 10,200 |
| Def-Wide | North Carolina | Fort Bragg | SOF Replace Training Maze and Tower | 12,109 | 12,109 |
| Def-Wide | North Carolina | Fort Bragg | SOF SERE Resistance Training Lab. Complex | 20,257 | 20,257 |
| Def-Wide | North Carolina | New River | Amb Care Center/Dental Clinic Replacement | 32,580 | 32,580 |
| Def-Wide | Oklahoma | Mcalester | Bulk Diesel System Replacement | 7,000 | 7,000 |
| Def-Wide | Texas | Joint Base San Antonio | Energy Aerospace Operations Facility | 10,200 | 10,200 |

SEC. 4601. MILITARY CONSTRUCTION
(In Thousands of Dollars)

| Account | State/ Country | Installation | Project Title | FY 2019 Request | House Change | House Agreement |
|----------|-----------------------|-----------------------------------|---|--------------------|-----------------|--------------------|
| Def-Wide | Texas | Red River Army Depot | General Purpose Warehouse | 71,500 | | 71,500 |
| Def-Wide | United Kingdom | Croughton RAF | Ambulatory Care Center Addition/Alteration | 10,000 | -10,000 | 0 |
| Def-Wide | Virginia | Fort A.P. Hill | Training Campus | 11,734 | | 11,734 |
| Def-Wide | Virginia | Fort Belvoir | Human Performance Training Center | 6,127 | | 6,127 |
| Def-Wide | Virginia | Humphreys Engineer Center | Maintenance and Supply Facility | 20,257 | | 20,257 |
| Def-Wide | Virginia | Joint Base Langley-Eustis | Fuel Facilities Replacement | 6,900 | | 6,900 |
| Def-Wide | Virginia | Joint Base Langley-Eustis | Ground Vehicle Fueling Facility Replacement | 5,800 | | 5,800 |
| Def-Wide | Virginia | Pentagon | Exterior Infrastruc. & Security Improvements | 23,650 | | 23,650 |
| Def-Wide | Virginia | Pentagon | North Village VACP & Fencing | 12,200 | | 12,200 |
| Def-Wide | Virginia | Training Center Dam Neck | SOF Magazines | 8,959 | | 8,959 |
| Def-Wide | Washington | Joint Base Lewis-McChord | Refueling Facility | 26,200 | -10,000 | 26,200 |
| Def-Wide | Worldwide Unspecified | Unspecified Worldwide Locations | Contingency Construction | 10,000 | | 0 |
| Def-Wide | Worldwide Unspecified | Unspecified Worldwide Locations | Energy Resilience and Conserv. Invest. Prog. | 150,000 | 15,000 | 165,000 |
| Def-Wide | Worldwide Unspecified | Unspecified Worldwide Locations | ERCIP Design | 10,000 | | 10,000 |
| Def-Wide | Worldwide Unspecified | Unspecified Worldwide Locations | Exercise Related Minor Construction | 12,479 | | 12,479 |
| Def-Wide | Worldwide Unspecified | Unspecified Worldwide Locations | Planning and Design | 86,941 | | 86,941 |
| Def-Wide | Worldwide Unspecified | Unspecified Worldwide Locations | Unspecified Minor Construction | 31,642 | | 31,642 |
| Def-Wide | Worldwide Unspecified | Various Worldwide Locations | Planning & Design | 42,705 | | 42,705 |
| Def-Wide | Worldwide Unspecified | Various Worldwide Locations | Planning and Design | 55,699 | | 55,699 |
| Def-Wide | Worldwide Unspecified | Various Worldwide Locations | Unspecified Minor Construction | 17,366 | | 17,366 |
| | | | Military Construction, Def-Wide Total | 2,693,324 | -219,986 | 2,473,338 |
| NATO | Worldwide Unspecified | Nato Security Investment Pro-gram | Nato Security Investment Program | 171,064 | | 171,064 |
| | | | NATO Security Investment Program Total | 171,064 | 0 | 171,064 |

| | | | | | |
|----------|-----------------------|---|--|----------------|---------------|
| Army NG | Alaska | Joint Base Elmendorf-Richardson | United States Property & Fiscal Office | 27,000 | 27,000 |
| Army NG | Illinois | Marseilles Training Center | Automated Record Fire Range | 5,000 | 5,000 |
| Army NG | Montana | Malta | National Guard Readiness Center | 15,000 | 15,000 |
| Army NG | Nevada | North Las Vegas | National Guard Readiness Center | 32,000 | 32,000 |
| Army NG | New Hampshire | Pembroke | National Guard Readiness Center | 12,000 | 12,000 |
| Army NG | North Dakota | Fargo | National Guard Readiness Center | 32,000 | 32,000 |
| Army NG | Ohio | Camp Ravenna | Automated Multipurpose Machine Gun Range | 7,400 | 7,400 |
| Army NG | Oklahoma | Lexington | Aircraft Vehicle Storage Building | 0 | 11,000 |
| Army NG | South Dakota | Rapid City | National Guard Readiness Center | 15,000 | 15,000 |
| Army NG | Worldwide Unspecified | Unspecified Worldwide Locations | Planning and Design | 16,622 | 16,622 |
| Army NG | Worldwide Unspecified | Unspecified Worldwide Locations | Unspecified Minor Construction | 18,100 | 18,100 |
| | | Military Construction, Army National Guard Total | | 180,122 | 11,000 |
| Army Res | California | Fort Irwin | ECS Modified TEMF / Warehouse | 34,000 | 34,000 |
| Army Res | Washington | Yakima Training Center | ECS Modified TEMF | 0 | 23,000 |
| Army Res | Wisconsin | Fort McCoy | Transient Training Barracks | 23,000 | 23,000 |
| Army Res | Worldwide Unspecified | Unspecified Worldwide Locations | Planning and Design | 5,855 | 5,855 |
| Army Res | Worldwide Unspecified | Unspecified Worldwide Locations | Unspecified Minor Construction | 2,064 | 2,064 |
| | | Military Construction, Army Reserve Total | | 64,919 | 23,000 |
| N/MC Res | California | Naval Weapons Station Seal Beach | Reserve Training Center | 21,740 | 21,740 |
| N/MC Res | Georgia | Fort Benning | Reserve Training Center | 13,630 | 13,630 |
| N/MC Res | Pennsylvania | Pittsburgh | Reserve Training Center | 0 | 0 |
| N/MC Res | Worldwide Unspecified | Unspecified Worldwide Locations | Planning & Design | 4,695 | 4,695 |
| N/MC Res | Worldwide Unspecified | Unspecified Worldwide Locations | Unspecified Minor Construction | 3,000 | 3,000 |
| | | Military Construction, Naval Reserve Total | | 43,065 | 0 |
| Air NG | California | Channel Islands Air National Guard Station | Construct C-130J Flight Simulator Facility | 8,000 | 8,000 |
| Air NG | Hawaii | Joint Base Pearl Harbor-Hickam | Construct Addition to F-22 LO/CRF B3408 | 17,000 | 17,000 |

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(In Thousands of Dollars)

| Account | State/ Country | Installation | Project Title | FY 2019 Request | House Change | House Agreement |
|---------|-----------------------|--|---|--------------------|-----------------|--------------------|
| Air NG | Illinois | Greater Peoria Regional Airport | Construct New Fire Crash/Rescue Station | 9,000 | | 9,000 |
| Air NG | Louisiana | New Orleans | NORTHCOM—Construct Alert Apron | 15,000 | | 15,000 |
| Air NG | Louisiana | New Orleans | NORTHCOM—Construct Alert Facilities | 0 | 24,000 | 24,000 |
| Air NG | Minnesota | Duluth International Airport | Construct Small Arms Range | 0 | 8,000 | 8,000 |
| Air NG | Montana | Great Falls International Airport | Construct Aircraft Apron | 0 | 9,000 | 9,000 |
| Air NG | New York | Francis S. Gabreski Airport | Security Forces/Comm. Training Facility | 20,000 | | 20,000 |
| Air NG | Ohio | Mansfield Lahm Airport | Replace Fire Station | 0 | 13,000 | 13,000 |
| Air NG | Ohio | Rickenbacker International Air- port | Construct Small Arms Range | 0 | 8,000 | 8,000 |
| Air NG | Pennsylvania | Fort Indiantown Gap | Replace Operations Training/Dining Hall | 8,000 | | 8,000 |
| Air NG | Virginia | Joint Base Langley-Eustis | Construct Cyber Ops Facility | 10,000 | | 10,000 |
| Air NG | Worldwide Unspecified | Unspecified Worldwide Locations | Unspecified Minor Construction | 23,626 | | 23,626 |
| Air NG | Worldwide Unspecified | Various Worldwide Locations | Planning and Design | 18,500 | | 18,500 |
| | | Military Construction, Air National Guard Total | | 129,126 | 62,000 | 191,126 |
| AF Res | Florida | Patrick Air Force Base | HC-130J Mx Hanger | 0 | 24,000 | 24,000 |
| AF Res | Indiana | Grisson Air Reserve Base | Add/Alter Aircraft Maintenance Hangar | 12,100 | | 12,100 |
| AF Res | Indiana | Grisson Air Reserve Base | Aerial Port Facility | 0 | 9,400 | 9,400 |
| AF Res | Massachusetts | Westover Air Reserve Base | Regional ISO Mx Hanger | 0 | 42,600 | 42,600 |
| AF Res | Minnesota | Minneapolis-St Paul Inter- national Airport | Small Arms Range | 9,000 | | 9,000 |
| AF Res | Mississippi | Keesler Air Force Base | Aeromedical Staging Squadron Facility | 4,550 | | 4,550 |
| AF Res | New York | Niagara Falls International Air- port | Physical Fitness Center | 14,000 | | 14,000 |
| AF Res | Ohio | Youngstown Air Rserve Station | Relocation Main Gate | 0 | 8,800 | 8,800 |
| AF Res | Texas | Naval Air Station Joint Reserve Base Fort Worth | Munitions Training/Admin Facility | 3,100 | | 3,100 |

| | | | | | |
|-------------|---|---------------------------------|---|----------------|----------|
| AF Res | Worldwide Unspecified | Unspecified Worldwide Locations | Planning & Design | 4,055 | 4,055 |
| AF Res | Worldwide Unspecified | Unspecified Worldwide Locations | Unspecified Minor Construction | 3,358 | 3,358 |
| | Military Construction, Air Force Reserve Total | | | 50,163 | 84,800 |
| FH Con Army | Germany | Baumholder | Family Housing Improvements | 32,000 | 32,000 |
| FH Con Army | Italy | Vicenza | Family Housing New Construction | 95,134 | 95,134 |
| FH Con Army | Korea | Camp Humphreys | Family Housing New Construction Incr 3 | 85,000 | 85,000 |
| FH Con Army | Korea | Camp Walker | Family Housing Replacement Construction | 68,000 | 68,000 |
| FH Con Army | Puerto Rico | Fort Buchanan | Family Housing Replacement Construction | 26,000 | 26,000 |
| FH Con Army | Wisconsin | Fort McCoy | Family Housing New Construction | 6,200 | 6,200 |
| FH Con Army | Worldwide Unspecified | Unspecified Worldwide Locations | Family Housing P & D | 18,326 | 18,326 |
| | Family Housing Construction, Army Total | | | 330,660 | 0 |
| FH Ops Army | Worldwide Unspecified | Unspecified Worldwide Locations | Furnishings | 15,842 | 15,842 |
| FH Ops Army | Worldwide Unspecified | Unspecified Worldwide Locations | Housing Privatization Support | 18,801 | 1,500 |
| FH Ops Army | Worldwide Unspecified | Unspecified Worldwide Locations | Leasing | 161,252 | 161,252 |
| FH Ops Army | Worldwide Unspecified | Unspecified Worldwide Locations | Maintenance | 75,530 | 75,530 |
| FH Ops Army | Worldwide Unspecified | Unspecified Worldwide Locations | Management | 36,302 | 34,802 |
| FH Ops Army | Worldwide Unspecified | Unspecified Worldwide Locations | Miscellaneous | 408 | 408 |
| FH Ops Army | Worldwide Unspecified | Unspecified Worldwide Locations | Services | 10,502 | 10,502 |
| FH Ops Army | Worldwide Unspecified | Unspecified Worldwide Locations | Utilities | 57,872 | 57,872 |
| | Family Housing Operation And Maintenance, Army Total | | | 376,509 | 0 |
| FH Con Navy | Mariana Islands | Guam | Replace Anderson Housing PH III | 83,441 | 83,441 |
| FH Con Navy | Worldwide Unspecified | Unspecified Worldwide Locations | Design, Washington DC | 4,502 | 4,502 |
| FH Con Navy | Worldwide Unspecified | Unspecified Worldwide Locations | Improvements, Washington DC | 16,638 | 16,638 |
| | Family Housing Construction, Navy And Marine Corps Total | | | 104,581 | 0 |
| FH Ops Navy | Worldwide Unspecified | Unspecified Worldwide Locations | Furnishings | 16,395 | 16,395 |
| FH Ops Navy | Worldwide Unspecified | Unspecified Worldwide Locations | Housing Privatization Support | 21,767 | 1,500 |
| FH Ops Navy | Worldwide Unspecified | Unspecified Worldwide Locations | Leasing | 62,515 | 62,515 |
| FH Ops Navy | Worldwide Unspecified | Unspecified Worldwide Locations | Maintenance | 86,328 | 86,328 |

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(In Thousands of Dollars)

| Account | State/ Country | Installation | Project Title | FY 2019 Request | House Change | House Agreement |
|--|-----------------------|---------------------------------|-------------------------------|--------------------|-----------------|--------------------|
| FH Ops Navy | Worldwide Unspecified | Unspecified Worldwide Locations | Management | 50,870 | -1,500 | 49,370 |
| FH Ops Navy | Worldwide Unspecified | Unspecified Worldwide Locations | Miscellaneous | 148 | | 148 |
| FH Ops Navy | Worldwide Unspecified | Unspecified Worldwide Locations | Services | 16,261 | | 16,261 |
| FH Ops Navy | Worldwide Unspecified | Unspecified Worldwide Locations | Utilities | 60,252 | | 60,252 |
| Family Housing Operation And Maintenance, Navy And Marine Corps Total | | | | 314,536 | 0 | 314,536 |
| FH Con AF | Worldwide Unspecified | Unspecified Worldwide Locations | Construction Improvements | 75,247 | | 75,247 |
| FH Con AF | Worldwide Unspecified | Unspecified Worldwide Locations | Planning & Design | 3,199 | | 3,199 |
| Family Housing Construction, Air Force Total | | | | 78,446 | 0 | 78,446 |
| FH Ops AF | Worldwide Unspecified | Unspecified Worldwide Locations | Furnishings | 30,645 | | 30,645 |
| FH Ops AF | Worldwide Unspecified | Unspecified Worldwide Locations | Housing Privatization Support | 22,205 | 1,500 | 23,705 |
| FH Ops AF | Worldwide Unspecified | Unspecified Worldwide Locations | Leasing | 15,832 | | 15,832 |
| FH Ops AF | Worldwide Unspecified | Unspecified Worldwide Locations | Maintenance | 129,763 | | 129,763 |
| FH Ops AF | Worldwide Unspecified | Unspecified Worldwide Locations | Management | 54,423 | -1,500 | 52,923 |
| FH Ops AF | Worldwide Unspecified | Unspecified Worldwide Locations | Miscellaneous | 2,171 | | 2,171 |
| FH Ops AF | Worldwide Unspecified | Unspecified Worldwide Locations | Services | 13,669 | | 13,669 |
| FH Ops AF | Worldwide Unspecified | Unspecified Worldwide Locations | Utilities | 48,566 | | 48,566 |
| Family Housing Operation And Maintenance, Air Force Total | | | | 317,274 | 0 | 317,274 |
| FH Ops DW | Worldwide Unspecified | Unspecified Worldwide Locations | Furnishings | 1,060 | | 1,060 |
| FH Ops DW | Worldwide Unspecified | Unspecified Worldwide Locations | Leasing | 51,278 | | 51,278 |
| FH Ops DW | Worldwide Unspecified | Unspecified Worldwide Locations | Maintenance | 1,663 | | 1,663 |
| FH Ops DW | Worldwide Unspecified | Unspecified Worldwide Locations | Management | 155 | | 155 |
| FH Ops DW | Worldwide Unspecified | Unspecified Worldwide Locations | Services | 2 | | 2 |
| FH Ops DW | Worldwide Unspecified | Unspecified Worldwide Locations | Utilities | 4,215 | | 4,215 |
| Family Housing Operation And Maintenance, Defense-Wide Total | | | | 58,373 | 0 | 58,373 |

| | | | | | | |
|------|---|--|------------------------------|-------------------|-----------------|-------------------|
| FHIF | Worldwide Unspecified | Unspecified Worldwide Locations | Administrative Expenses—FHIF | 1,653 | 1,653 | |
| | DOD Family Housing Improvement Fund Total | | | 1,653 | 0 | 1,653 |
| UHIF | Worldwide Unspecified | Unaccompanied Housing Improvement Fund | Administrative Expenses—UHIF | 600 | | 600 |
| | Unaccompanied Housing Improvement Fund Total | | | 600 | 0 | 600 |
| BRAC | Worldwide Unspecified | Unspecified Worldwide Locations | Base Realignment and Closure | 62,796 | 18,110 | 80,906 |
| BRAC | Worldwide Unspecified | Unspecified Worldwide Locations | Base Realignment and Closure | 151,839 | 19,110 | 170,949 |
| BRAC | Worldwide Unspecified | Unspecified Worldwide Locations | Base Realignment and Closure | 52,903 | 18,110 | 71,013 |
| | Base Realignment and Closure Total | | | 267,538 | 55,330 | 322,868 |
| PYS | Prior Year Savings | Prior Year Savings | Prior Year Savings | 0 | -71,158 | -71,158 |
| | Prior Year Savings Total | | | 0 | -71,158 | -71,158 |
| | Total, Military Construction | | | 10,462,617 | -130,139 | 10,332,478 |

SEC. 4602. MILITARY CONSTRUCTION FOR OVERSEAS CONTINGENCY OPERATIONS.

SEC. 4602. MILITARY CONSTRUCTION FOR OVERSEAS CONTINGENCY OPERATIONS
(In Thousands of Dollars)

| Account | State/ Country | Installation | Project Title | FY 2019 Request | House Change | House Agreement |
|---------|----------------------------|---------------------------------|--|--------------------|-----------------|--------------------|
| Army | Bulgaria | Nevo Selo | EDI: Ammunition Holding Area | 5,200 | | 5,200 |
| Army | Cuba | Guantanamo Bay | High Value Detention Facility | 69,000 | -69,000 | 0 |
| Army | Poland | Drawsko Pomorski Training Area | EDI: Staging Area | 17,000 | | 17,000 |
| Army | Poland | Powidz Air Base | EDI: Ammunition Storage Facility | 52,000 | | 52,000 |
| Army | Poland | Powidz Air Base | EDI: Bulk Fuel Storage | 21,000 | | 21,000 |
| Army | Poland | Powidz Air Base | EDI: Rail Extension & Railroad | 14,000 | | 14,000 |
| Army | Poland | Zagan Training Area | EDI: Rail Extension and Railroad | 6,400 | | 6,400 |
| Army | Poland | Zagan Training Area | EDI: Staging Area | 34,000 | | 34,000 |
| Army | Romania | Mihail Kogalniceanu | EDI: Explosives & Ammo Load/Unload Apron | 21,651 | | 21,651 |
| Army | Worldwide Unspec- ified | Unspecified Worldwide Locations | EDI: Planning and Design | 20,999 | | 20,999 |
| | | | Military Construction, Army Total | 261,250 | -69,000 | 192,250 |
| Navy | Greece | Souda Bay | EDI: Joint Mobility Processing Center | 41,650 | | 41,650 |
| Navy | Greece | Souda Bay | EDI: Marathi Logistics Support Center | 6,200 | | 6,200 |
| Navy | Italy | Sigonella | EDI: P-8A Taxiway | 66,050 | | 66,050 |
| Navy | Spain | Rota | EDI: Port Operations Facilities | 21,590 | | 21,590 |
| Navy | United Kingdom | Lossiemouth | EDI: P-8 Base Improvements | 79,130 | | 79,130 |
| Navy | Worldwide Unspec- ified | Unspecified Worldwide Locations | EDI: Planning and Design | 12,700 | | 12,700 |
| | | | Military Construction, Navy Total | 227,320 | 0 | 227,320 |
| AF | Germany | Ramstein AB | EDI: KMC DABS-FEV/RH Storage Warehouses | 119,000 | | 119,000 |
| AF | Norway | Rygge | EDI: Construct Taxiway | 13,800 | | 13,800 |
| AF | Qatar | Al Udeid | Flight line Support Facilities | 0 | 30,400 | 30,400 |

| | | | | | | |
|----------|-----------------------|--|--|----------------|---------------|----------------|
| AF | Qatar | Al Udeid | Personnel Deployment Processing Facility | 0 | 40,000 | 40,000 |
| AF | Slovakia | Malacky | EDl: Regional Munitions Storage Area | 59,000 | | 59,000 |
| AF | United Kingdom | RAF Fairford | EDl: Construct DABS-FEY Storage | 87,000 | | 87,000 |
| AF | United Kingdom | RAF Fairford | EDl: Munitions Holding Area | 19,000 | | 19,000 |
| AF | Worldwide Unspecified | Unspecified Worldwide Locations | EDl: Planning & Design Funds | 48,000 | -1,400 | 46,600 |
| | | Military Construction, Air Force Total | | 345,800 | 69,000 | 414,800 |
| Def-Wide | Estonia | Unspecified Estonia | EDl: SOF Operations Facility | 6,100 | | 6,100 |
| Def-Wide | Estonia | Unspecified Estonia | EDl: SOF Training Facility | 9,600 | | 9,600 |
| Def-Wide | Qatar | Al Udeid | Trans-Regional Logistics Complex | 60,000 | | 60,000 |
| Def-Wide | Worldwide Unspecified | Unspecified Worldwide Locations | EDl: Planning and Design | 7,100 | | 7,100 |
| Def-Wide | Worldwide Unspecified | Various Worldwide Locations | EDl: Planning and Design | 4,250 | | 4,250 |
| | | Military Construction, Defense-Wide Total | | 87,050 | 0 | 87,050 |
| | | Total, Military Construction | | 921,420 | 0 | 921,420 |

TITLE XLVII—DEPARTMENT OF ENERGY NATIONAL SECURITY PROGRAMS

SEC. 4701. DEPARTMENT OF ENERGY NATIONAL SECURITY PROGRAMS.

SEC. 4701. DEPARTMENT OF ENERGY NATIONAL SECURITY PROGRAMS (In Thousands of Dollars)

| Program | FY 2019 Request | House Change | House Authorized |
|--|--------------------|-----------------|---------------------|
| Discretionary Summary By Appropriation | | | |
| Energy And Water Development, And Related Agencies | | | |
| Appropriation Summary: | | | |
| Energy Programs | | | |
| Nuclear Energy | 136,090 | 0 | 136,090 |
| Atomic Energy Defense Activities | | | |
| National nuclear security administration: | | | |
| Weapons activities | 11,017,078 | 198,000 | 11,215,078 |
| Defense nuclear nonproliferation | 1,862,825 | 127,000 | 1,989,825 |
| Naval reactors | 1,788,618 | 0 | 1,788,618 |
| Federal salaries and expenses | 422,529 | -18,000 | 404,529 |
| Total, National nuclear security administration | 15,091,050 | 307,000 | 15,398,050 |
| Environmental and other defense activities: | | | |
| Defense environmental cleanup | 5,630,217 | 50,000 | 5,680,217 |
| Other defense activities | 853,300 | 0 | 853,300 |
| Defense nuclear waste disposal | 30,000 | 0 | 30,000 |
| Total, Environmental & other defense activities | 6,513,517 | 50,000 | 6,563,517 |

| | | | |
|---|------------------|----------|------------------|
| Total, Atomic Energy Defense Activities | 21,604,567 | 357,000 | 21,961,567 |
| Total, Discretionary Funding | 21,740,657 | 357,000 | 22,097,657 |
| Nuclear Energy | | | |
| Idaho statewide safeguards and security | 136,090 | | 136,090 |
| Total, Nuclear Energy | 136,090 | 0 | 136,090 |
| Weapons Activities | | | |
| Directed stockpile work | | | |
| Life extension programs and major alterations | | | |
| B61-12 Life extension program | 794,049 | | 794,049 |
| W76-1 Life extension program | 48,888 | | 48,888 |
| W88 Alt 370 | 304,285 | | 304,285 |
| W80-4 Life extension program | 654,766 | | 654,766 |
| IW-1 | 53,000 | | 53,000 |
| W76-2 Warhead modification program | 65,000 | | 65,000 |
| Total, Life extension programs and major alterations | 1,919,988 | 0 | 1,919,988 |
| Stockpile systems | | | |
| B61 Stockpile systems | 64,547 | | 64,547 |
| W76 Stockpile systems | 94,300 | | 94,300 |
| W78 Stockpile systems | 81,329 | | 81,329 |
| W80 Stockpile systems | 80,204 | | 80,204 |
| B83 Stockpile systems | 35,082 | | 35,082 |
| W87 Stockpile systems | 83,107 | | 83,107 |
| W88 Stockpile systems | 180,913 | | 180,913 |
| Total, Stockpile systems | 619,482 | 0 | 619,482 |
| Weapons dismantlement and disposition | | | |
| Operations and maintenance | 56,000 | | 56,000 |
| Stockpile services | | | |

SEC. 4701. DEPARTMENT OF ENERGY NATIONAL SECURITY PROGRAMS
(In Thousands of Dollars)

| Program | FY 2019 Request | House Change | House Authorized |
|--|------------------|---------------|------------------|
| Production support | 512,916 | -4,000 | 508,916 |
| Program decrease | | [-4,000] | |
| Research and development support | 38,129 | | 38,129 |
| R&D certification and safety | 216,582 | -2,000 | 214,582 |
| Program decrease | | [-2,000] | |
| Management, technology, and production | 300,736 | -2,000 | 298,736 |
| Program decrease | | [-2,000] | |
| Total, Stockpile services | 1,068,363 | -8,000 | 1,060,363 |
| Strategic materials | | | |
| Uranium sustainment | 87,182 | | 87,182 |
| Plutonium sustainment | 361,282 | | 361,282 |
| Tritium sustainment | 205,275 | | 205,275 |
| Lithium sustainment | 29,135 | | 29,135 |
| Domestic uranium enrichment | 100,704 | | 100,704 |
| Strategic materials sustainment | 218,794 | | 218,794 |
| Total, Strategic materials | 1,002,372 | 0 | 1,002,372 |
| Total, Directed stockpile work | 4,666,205 | -8,000 | 4,658,205 |
| Research, development, test and evaluation (RD&E) | | | |
| Science | | | |
| Advanced certification | 57,710 | | 57,710 |
| Primary assessment technologies | 95,057 | -2,000 | 93,057 |
| Program decrease | | [-2,000] | |
| Dynamic materials properties | 131,000 | -3,000 | 128,000 |
| Program decrease | | [-3,000] | |
| Advanced radiography | 32,544 | | 32,544 |

| | | | |
|---|----------------|----------------|---------------|
| Secondary assessment technologies | 77,553 | 77,553 | |
| Academic alliances and partnerships | 53,364 | 53,364 | |
| Enhanced Capabilities for Subcritical Experiments | 117,632 | 117,632 | |
| Total, Science | 564,860 | 564,860 | -5,000 |
| Engineering | | | |
| Enhanced surety | 43,226 | 43,226 | |
| Weapon systems engineering assessment technology | 27,536 | 27,536 | |
| Nuclear survivability | 48,230 | 48,230 | |
| Enhanced surveillance | 58,375 | 58,375 | |
| Stockpile Responsiveness | 34,000 | 34,000 | 6,000 |
| Program increase | | | [6,000] |
| Total, Engineering | 211,367 | 211,367 | 6,000 |
| Inertial confinement fusion ignition and high yield | | | |
| Ignition | 22,434 | 22,434 | 20,000 |
| Maintain sustainable levels | | | [20,000] |
| Support of other stockpile programs | 17,397 | 17,397 | 4,000 |
| Maintain sustainable levels | | | [4,000] |
| Diagnostics, cryogenics and experimental support | 51,453 | 51,453 | 10,000 |
| Maintain sustainable levels | | | [10,000] |
| Pulsed power inertial confinement fusion | 8,310 | 8,310 | |
| Facility operations and target production | 319,333 | 319,333 | 15,000 |
| Maintain sustainable levels | | | [15,000] |
| Total, Inertial confinement fusion and high yield | 418,927 | 418,927 | 49,000 |
| Advanced simulation and computing | | | |
| Advanced simulation and computing | 656,401 | 656,401 | |
| Construction: | | | |
| 18-D-670, Exascale Class Computer Cooling Equipment, LANL | 24,000 | 24,000 | |
| 18-D-620, Exascale Computing Facility Modernization Project, LLNL | 23,000 | 23,000 | |
| Total, Construction | 47,000 | 47,000 | 0 |

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SEC. 4701. DEPARTMENT OF ENERGY NATIONAL SECURITY PROGRAMS
(In Thousands of Dollars)

| Program | FY 2019 Request | House Change | House Authorized |
|---|--------------------|-----------------|---------------------|
| Total, Advanced simulation and computing | 703,401 | 0 | 703,401 |
| Advanced manufacturing | | | |
| Additive manufacturing | 17,447 | | 17,447 |
| Component manufacturing development | 48,477 | | 48,477 |
| Process technology development | 30,914 | | 30,914 |
| Total, Advanced manufacturing | 96,838 | 0 | 96,838 |
| Total, RDT&E | 1,995,393 | 50,000 | 2,045,393 |
| Infrastructure and operations | | | |
| Operations of facilities | 891,000 | | 891,000 |
| Safety and environmental operations | 115,000 | | 115,000 |
| Maintenance and repair of facilities | 365,000 | 39,000 | 404,000 |
| Address high-priority repair needs and preventive maintenance | | [39,000] | |
| Recapitalization: | | | |
| Infrastructure and safety | 431,631 | 67,000 | 498,631 |
| Support high-priority deferred maintenance | | [67,000] | |
| Capability based investments | 109,057 | 4,000 | 113,057 |
| Program increase | | [4,000] | |
| Total, Recapitalization | 540,688 | 71,000 | 611,688 |
| Construction: | | | |
| 19-D-670, 138kV Power Transmission System Replacement, MNSS | 6,000 | | 6,000 |
| 19-D-660, Lithium Production Capability, Y-12 | 19,000 | | 19,000 |
| 18-D-680, Material Staging Facility, Pantex | 0 | 24,000 | 24,000 |
| 18-D-650, Tritium Production Capability, SRS | 27,000 | | 27,000 |
| 17-D-710, West End Protected Area reduction Project, Y-12 | 0 | 9,000 | 9,000 |

| | | |
|---|-------------------|----------------|
| 17-D-640, UIa Complex Enhancements Project, NNS | 53,000 | 53,000 |
| 16-D-515, Albuquerque complex project | 47,953 | 47,953 |
| 14-D-710, DAF Argus project, NNS | 0 | 2,000 |
| 06-D-141 Uranium processing facility Y-12, Oak Ridge, TN | 703,000 | 703,000 |
| 04-D-125 Chemistry and metallurgy research facility replacement project, LANL | 235,095 | 235,095 |
| Total, Construction | 1,091,048 | 35,000 |
| Total, Infrastructure and operations | 3,002,736 | 145,000 |
| Secure transportation asset | | |
| Operations and equipment | 176,617 | 176,617 |
| Program direction | 102,022 | 102,022 |
| Total, Secure transportation asset | 278,639 | 0 |
| Defense nuclear security | | |
| Operations and maintenance | 690,638 | 11,000 |
| Physical security infrastructure recapitalization and CSTART | | [11,000] |
| Total, Defense nuclear security | 690,638 | 11,000 |
| Information technology and cybersecurity | 221,175 | 221,175 |
| Legacy contractor pensions | 162,292 | 162,292 |
| Total, Weapons Activities | 11,017,078 | 198,000 |
| Defense Nuclear Nonproliferation | | |
| Defense Nuclear Nonproliferation Programs | | |
| Global material security | | |
| International nuclear security | 46,339 | 46,339 |
| Domestic radiological security | 90,764 | 90,764 |
| International radiological security | 59,576 | 59,576 |
| Nuclear smuggling detection and deterrence | 140,429 | 140,429 |
| Total, Global material security | 337,108 | 0 |

SEC. 4701. DEPARTMENT OF ENERGY NATIONAL SECURITY PROGRAMS
(In Thousands of Dollars)

| Program | FY 2019 Request | House Change | House Authorized |
|--|------------------|----------------|------------------|
| Material management and minimization | | | |
| HEU reactor conversion | 98,300 | | 98,300 |
| Nuclear material removal | 32,925 | | 32,925 |
| Material disposition | 200,869 | | 200,869 |
| Total, Material management & minimization | 332,094 | 0 | 332,094 |
| Nonproliferation and arms control | 129,703 | | 129,703 |
| Defense nuclear nonproliferation R&D | 456,095 | 12,000 | 468,095 |
| Acceleration of low-yield detection experiments | | [6,000] | |
| Future nuclear proliferation challenges, including 3D printing | | [6,000] | |
| Nonproliferation Construction: | | | |
| 18-D-150 Surplus Plutonium Disposition Project | 59,000 | | 59,000 |
| 99-D-143 Mixed Oxide (MOX) Fuel Fabrication Facility, SRS | 220,000 | 115,000 | 335,000 |
| Total, Nonproliferation construction | 279,000 | 115,000 | 394,000 |
| Total, Defense Nuclear Nonproliferation Programs | 1,534,000 | 127,000 | 1,661,000 |
| Legacy contractor pensions | 28,640 | | 28,640 |
| Nuclear counterterrorism and incident response program | 319,185 | | 319,185 |
| Use of prior year balances | -19,000 | | -19,000 |
| Total, Defense Nuclear Nonproliferation | 1,862,825 | 127,000 | 1,989,825 |
| Naval Reactors | | | |
| Naval reactors development | 514,951 | | 514,951 |
| Columbia-Class reactor systems development | 138,000 | | 138,000 |
| S8G Prototype refueling | 250,000 | | 250,000 |

| | | |
|--|------------------|------------------|
| Naval reactors operations and infrastructure | 525,764 | 525,764 |
| Construction: | | |
| 19-D-930, KS Overhead Piping | 10,994 | 10,994 |
| 17-D-911, BL Fire System Upgrade | 13,200 | 13,200 |
| 14-D-901 Spent fuel handling recapitalization project, NRF | 287,000 | 287,000 |
| Total, Construction | 311,194 | 311,194 |
| Program direction | 48,709 | 48,709 |
| Total, Naval Reactors | 1,788,618 | 1,788,618 |
| | | |
| Federal Salaries And Expenses | | |
| Program direction | 422,529 | 422,529 |
| Program decrease | -18,000 | -18,000 |
| Total, Office Of The Administrator | 404,529 | 404,529 |
| | | |
| Defense Environmental Cleanup | | |
| Closure sites: | | |
| Closure sites administration | 4,889 | 4,889 |
| | | |
| Richland: | | |
| River corridor and other cleanup operations | 89,577 | 89,577 |
| Central plateau remediation | 562,473 | 612,473 |
| Accelerated remediation of 300-296 waste site | 50,000 | 50,000 |
| Richland community and regulatory support | 5,121 | 5,121 |
| Construction: | | |
| 18-D-404 WESF Modifications and Capsule Storage | 1,000 | 1,000 |
| Total, Construction | 1,000 | 1,000 |
| Total, Hanford site | 658,171 | 708,171 |
| | | |
| Office of River Protection: | | |
| Waste Treatment Immobilization Plant Commissioning | 15,000 | 15,000 |

SEC. 4701. DEPARTMENT OF ENERGY NATIONAL SECURITY PROGRAMS
(In Thousands of Dollars)

| Program | FY 2019 Request | House Change | House Authorized |
|---|------------------|--------------|------------------|
| Rad liquid tank waste stabilization and disposition | 677,460 | | 677,460 |
| Construction: | | | |
| 15-D-409 Low activity waste pretreatment system, ORP | 56,053 | | 56,053 |
| 01-D-416 A-D WTP Subprojects A-D | 675,000 | | 675,000 |
| 01-D-416 E—Pretreatment Facility | 15,000 | | 15,000 |
| Total, Construction | 746,053 | 0 | 746,053 |
| Total, Office of River protection | 1,438,513 | 0 | 1,438,513 |
| Idaho National Laboratory: | | | |
| SNF stabilization and disposition—2012 | 17,000 | | 17,000 |
| Solid waste stabilization and disposition | 148,387 | | 148,387 |
| Radioactive liquid tank waste stabilization and disposition | 137,739 | | 137,739 |
| Soil and water remediation—2035 | 42,900 | | 42,900 |
| Idaho community and regulatory support | 3,200 | | 3,200 |
| Total, Idaho National Laboratory | 349,226 | 0 | 349,226 |
| NNSA sites and Nevada off-sites | | | |
| Lawrence Livermore National Laboratory | 1,704 | | 1,704 |
| Nuclear facility D & D | | | |
| Separations Process Research Unit | 15,000 | | 15,000 |
| Nevada | 60,136 | | 60,136 |
| Sandia National Laboratories | 2,600 | | 2,600 |
| Los Alamos National Laboratory | 191,629 | | 191,629 |
| Total, NNSA sites and Nevada off-sites | 271,069 | 0 | 271,069 |

Oak Ridge Reservation:
OR Nuclear facility D & D

| | | |
|---|----------------|----------------|
| OR-0041—D&D - Y-12 | 30,214 | 30,214 |
| OR-0042—D&D -ORNL | 60,007 | 60,007 |
| Total, OR Nuclear facility D & D | 90,221 | 90,221 |
| U233 Disposition Program | 45,000 | 45,000 |
| OR cleanup and waste disposition | | |
| OR cleanup and disposition | 67,000 | 67,000 |
| Construction: | | |
| 17-D-401 On-site waste disposal facility | 5,000 | 5,000 |
| 14-D-403 Outfall 200 Mercury Treatment Facility | 11,274 | 11,274 |
| Total, Construction | 16,274 | 16,274 |
| Total, OR cleanup and waste disposition | 83,274 | 83,274 |
| OR community & regulatory support | 4,711 | 4,711 |
| OR technology development and deployment | 3,000 | 3,000 |
| Total, Oak Ridge Reservation | 226,206 | 226,206 |
| Savannah River Sites: | | |
| Nuclear Material Management | 351,331 | 351,331 |
| Environmental Cleanup | | |
| Environmental Cleanup | 166,105 | 166,105 |
| Construction: | | |
| 18-D-402, Emergency Operations Center | 1,259 | 1,259 |
| Total, Environmental Cleanup | 167,364 | 167,364 |
| SR community and regulatory support | 4,749 | 4,749 |
| Radioactive liquid tank waste stabilization and disposition | 805,686 | 805,686 |
| Construction: | | |
| 18-D-401, SDU #8/9 | 37,450 | 37,450 |
| 17-D-402—Saltstone Disposal Unit #7 | 41,243 | 41,243 |

SEC. 4701. DEPARTMENT OF ENERGY NATIONAL SECURITY PROGRAMS
(In Thousands of Dollars)

| Program | FY 2019 Request | House Change | House Authorized |
|--|------------------|--------------|------------------|
| 05-D-405 Salt waste processing facility, Savannah River Site | 65,000 | | 65,000 |
| Total, Construction | 143,693 | 0 | 143,693 |
| Total, Savannah River site | 1,472,823 | 0 | 1,472,823 |
| Waste Isolation Pilot Plant | | | |
| Operations and maintenance | 220,000 | | 220,000 |
| Central characterization project | 19,500 | | 19,500 |
| Critical Infrastructure Repair/Replacement | 46,695 | | 46,695 |
| Transportation | 25,500 | | 25,500 |
| Construction: | | | |
| 15-D-411 Safety significant confinement ventilation system, WIPP | 84,212 | | 84,212 |
| 15-D-412 Exhaust shaft, WIPP | 1,000 | | 1,000 |
| Total, Construction | 85,212 | 0 | 85,212 |
| Total, Waste Isolation Pilot Plant | 396,907 | 0 | 396,907 |
| Program direction | 300,000 | | 300,000 |
| Program support | 6,979 | | 6,979 |
| Minority Serving Institution Partnership | 6,000 | | 6,000 |
| Safeguards and Security | | | |
| Oak Ridge Reservation | 14,023 | | 14,023 |
| Paducah | 15,577 | | 15,577 |
| Portsmouth | 15,078 | | 15,078 |
| Richland/Hanford Site | 86,686 | | 86,686 |
| Savannah River Site | 183,357 | | 183,357 |
| Waste Isolation Pilot Project | 6,580 | | 6,580 |
| West Valley | 3,133 | | 3,133 |
| Total, Safeguards and Security | 324,434 | 0 | 324,434 |

| | | | |
|--|------------------|---------------|------------------|
| Technology development | 25,000 | | 25,000 |
| HQEF-0040—Excess Facilities | 150,000 | | 150,000 |
| Total, Defense Environmental Cleanup | 5,630,217 | 50,000 | 5,680,217 |
| Other Defense Activities | | | |
| Environment, health, safety and security | | | |
| Environment, health, safety and security | 135,194 | | 135,194 |
| Program direction | 70,653 | | 70,653 |
| Total, Environment, Health, safety and security | 205,847 | 0 | 205,847 |
| Independent enterprise assessments | | | |
| Independent enterprise assessments | 24,068 | | 24,068 |
| Program direction | 52,702 | | 52,702 |
| Total, Independent enterprise assessments | 76,770 | 0 | 76,770 |
| Specialized security activities | 254,378 | | 254,378 |
| Office of Legacy Management | | | |
| Legacy management | 140,575 | | 140,575 |
| Program direction | 18,302 | | 18,302 |
| Total, Office of Legacy Management | 158,877 | 0 | 158,877 |
| Defense related administrative support | | | |
| Chief financial officer | 48,484 | | 48,484 |
| Chief information officer | 96,793 | | 96,793 |
| Project management oversight and Assessments | 8,412 | | 8,412 |
| Total, Defense related administrative support | 153,689 | 0 | 153,689 |
| Office of hearings and appeals | 5,739 | | 5,739 |
| Subtotal, Other defense activities | 855,300 | 0 | 855,300 |
| Rescission of prior year balances (OHA) | -2,000 | | -2,000 |
| Total, Other Defense Activities | 853,300 | 0 | 853,300 |

SEC. 4701. DEPARTMENT OF ENERGY NATIONAL SECURITY PROGRAMS
(In Thousands of Dollars)

| Program | FY 2019 Request | House Change | House Authorized |
|--|-----------------|--------------|------------------|
| Defense Nuclear Waste Disposal | | | |
| Yucca mountain and interim storage | 30,000 | | 30,000 |
| Total, Defense Nuclear Waste Disposal | 30,000 | 0 | 30,000 |

DEPARTMENT OF DEFENSE AUTHORIZATION REQUEST

The Department of Defense requested legislation, in accordance with the program of the President, as illustrated by the correspondence set out below:

MARCH 9, 2018.

Hon. PAUL D. RYAN,
Speaker of the House of Representatives,
Washington, DC.

DEAR MR. SPEAKER: Enclosed please find a draft of proposed legislation, titled the "National Defense Authorization Act for Fiscal Year 2019", which the Department of Defense requests be enacted during the second session of the 115th Congress.

The purpose of each provision in the proposed bill is stated in the accompanying section-by-section analysis.

The Department is currently working with the Administration on additional legislative initiatives, which the Department hopes to transmit to Congress for its consideration in the coming weeks.

The Office of Management and Budget advises that there is no objection, from the standpoint of the Administration's program, to the presenting of these legislative proposals for your consideration and the consideration of Congress.

Sincerely,

ROBERT R. HOOD.

Enclosure: As Stated.

MARCH 16, 2018.

Hon. PAUL D. RYAN,
Speaker of the House of Representatives,
Washington, DC.

DEAR MR. SPEAKER: Enclosed please find additional legislative proposals that the Department of Defense requests be enacted during the second session of the 115th Congress. The purpose of each proposal is stated in the accompanying section-by-section analysis. The Department submits these proposals as a follow-on to the earlier transmittal of our request for enactment of proposed legislation titled the "National Defense Authorization Act for Fiscal Year 2019".

The Department is currently working with the Administration on additional legislative initiatives, which the Department hopes to transmit to Congress for its consideration in the coming weeks.

The Office of Management and Budget advises that there is no objection, from the standpoint of the Administration's program, to the presenting of these legislative proposals for your consideration and the consideration of Congress.

Sincerely,

ROBERT R. HOOD.

Enclosure: As Stated.

MARCH 26, 2018.

Hon. PAUL D. RYAN,
Speaker of the House of Representatives,
Washington, DC.

DEAR MR. SPEAKER: Enclosed please find additional legislative proposals that the Department of Defense requests be enacted during the second session of the 115th Congress. The purpose of each proposal is stated in the accompanying section-by-section analysis. The Department submits these proposals as a follow-on to the earlier transmittal of our request for enactment of proposed legislation titled the "National Defense Authorization Act for Fiscal Year 2019".

The Department is currently working with the Administration on additional legislative initiatives, which the Department hopes to transmit to Congress for its consideration in the coming weeks.

The Office of Management and Budget advises that there is no objection, from the standpoint of the Administration's program, to the presenting of these legislative proposals for your consideration and the consideration of Congress.

Sincerely,

ROBERT R. HOOD.

Enclosure: As Stated.

APRIL 3, 2018.

Hon. PAUL D. RYAN,
Speaker of the House of Representatives,
Washington, DC.

DEAR MR. SPEAKER: Enclosed please find additional legislative proposals that the Department of Defense requests be enacted during the second session of the 115th Congress. The purpose of each proposal is stated in the accompanying section-by-section analysis. The Department submits these proposals as a follow-on to the earlier transmittal of our request for enactment of proposed legislation titled the "National Defense Authorization Act for Fiscal Year 2019".

The Department is currently working with the Administration on additional legislative initiatives, which the Department hopes to transmit to Congress for its consideration in the coming weeks.

The Office of Management and Budget advises that there is no objection, from the standpoint of the Administration's program, to the presenting of these legislative proposals for your consideration and the consideration of Congress.

Sincerely,

ROBERT R. HOOD.

Enclosure: As Stated.

APRIL 13, 2018.

Hon. PAUL D. RYAN,
Speaker of the House of Representatives,
Washington, DC.

DEAR MR. SPEAKER: Enclosed please find additional legislative proposals that the Department of Defense requests be enacted dur-

ing the second session of the 115th Congress. The purpose of each proposal is stated in the accompanying section-by-section analysis. The Department submits these proposals as a follow-on to the earlier transmittal of our request for enactment of proposed legislation titled the "National Defense Authorization Act for Fiscal Year 2019".

The Department is currently working with the Administration on additional legislative initiatives, which the Department hopes to transmit to Congress for its consideration in the coming weeks.

The Office of Management and Budget advises that there is no objection, from the standpoint of the Administration's program, to the presenting of these legislative proposals for your consideration and the consideration of Congress.

Sincerely,

ROBERT R. HOOD.

Enclosure: As Stated.

COMMUNICATIONS FROM OTHER COMMITTEES

HOUSE OF REPRESENTATIVES,
COMMITTEE ON THE BUDGET,
Washington, DC, May 10, 2018.

Hon. WILLIAM M. "MAC" THORNBERRY,
*Chairman, Committee on Armed Services,
House of Representatives, Washington, DC.*

DEAR CHAIRMAN THORNBERRY: I am writing regarding H.R. 5515, the National Defense Authorization Act for Fiscal Year 2019. This legislation contains subject matter within the jurisdiction of the Committee on the Budget. However, in order to expedite floor consideration of this important legislation, the Committee waives consideration of the bill.

The Committee on the Budget takes this action only with the understanding that the Committee's jurisdictional interests over this and similar legislation are in no way diminished or altered. I also ask that the Committee on the Budget be appropriately consulted and involved as this bill or similar legislation moves forward so that the Committee may address any remaining issues that fall within its jurisdiction.

The Committee also reserves the right to seek appointment to any House-Senate conference on this legislation and requests your support if such a request is made. I would appreciate your response to this letter, confirming this understanding with respect to H.R. 5515 and would ask that a copy of our exchange of letters on this matter be included in the Congressional Record during House Floor consideration. Thank you for your attention to these matters.

Sincerely,

STEVE WOMACK,
Chairman.

HOUSE OF REPRESENTATIVES,
COMMITTEE ON ARMED SERVICES,
Washington, DC, May 14, 2018.

Hon. STEVE WOMACK,
*Chairman, Committee on the Budget,
House of Representatives, Washington, DC.*

DEAR MR. CHAIRMAN: Thank you for your letter regarding H.R. 5515, the National Defense Authorization Act for Fiscal Year 2019. I agree that the Committee on the Budget has valid jurisdictional claims to certain provisions in this important legislation, and I am most appreciative of your decision not to request a referral in the interest of expediting consideration of the bill. I agree that by foregoing a sequential referral, the Committee on the Budget is not waiving its jurisdiction. Further, this exchange of letters will be included in the committee report on the bill.

Sincerely,

WILLIAM M. "MAC" THORNBERRY,
Chairman.

HOUSE OF REPRESENTATIVES,
COMMITTEE ON ENERGY AND COMMERCE,
Washington, DC, May 11, 2018.

Hon. WILLIAM M. "MAC" THORNBERRY,
*Chairman, Committee on Armed Services,
House of Representatives, Washington, DC.*

DEAR CHAIRMAN THORNBERRY: I write in regard to H.R. 5515, the "National Defense Authorization Act for Fiscal Year 2019." Although the Committee on Energy and Commerce has jurisdictional interests in the bill, I wanted to notify you that we will forgo action on the bill so that it may proceed expeditiously to the House floor for consideration.

This is done with the understanding that the Committee on Energy and Commerce's jurisdictional interests over this and similar legislation are in no way diminished or altered. In addition, the Committee reserves the right to seek conferees on H.R. 5515 and requests your support when such a request is made.

I would appreciate your response confirming this understanding with respect to H.R. 5515 and ask that a copy of our exchange of letters on this matter be included in the *Congressional Record* during consideration of the bill on the House floor.

Sincerely,

GREG WALDEN,
Chairman.

HOUSE OF REPRESENTATIVES,
COMMITTEE ON ARMED SERVICES,
Washington, DC, May 14, 2018.

Hon. GREG WALDEN,
*Chairman, Committee on Energy and Commerce,
House of Representatives, Washington, DC.*

DEAR MR. CHAIRMAN: Thank you for your letter regarding H.R. 5515, the National Defense Authorization Act for Fiscal Year 2019. I agree that the Committee on Energy and Commerce has valid jurisdictional claims to certain provisions in this important legislation, and I am most appreciative of your decision not to request a referral in the interest of expediting consideration of the bill. I agree that by foregoing a sequential referral, the Committee on Energy and Commerce is not waiving its jurisdiction. Further, this exchange of letters will be included in the committee report on the bill.

Sincerely,

WILLIAM M. "MAC" THORNBERRY,
Chairman.

HOUSE OF REPRESENTATIVES,
COMMITTEE ON FINANCIAL SERVICES,
Washington, DC, May 14, 2018.

Hon. WILLIAM M. "MAC" THORNBERRY,
*Chairman, Committee on Armed Services,
House of Representatives, Washington, DC.*

DEAR CHAIRMAN THORNBERRY: I am writing to you regarding H.R. 5515, the National Defense Authorization Act for Fiscal Year 2019. There are certain provisions of H.R. 5515 which fall within the Rule X jurisdiction of the Committee on Financial Services.

In the interest of permitting your committee to have the House expeditiously consider H.R. 5515, I am writing to waive this Committee's right to sequential referral. I do so with the understanding that by waiving consideration of the bill the Committee on Financial Services does not waive any future jurisdictional claim over the subject matters contained in H.R. 5515 which fall within its Rule X jurisdiction. I request that you urge the Speaker to name members of the Committee on Financial Services to any conference committee which is named to consider such provisions.

Please place this letter into the committee report on H.R. 5515 and into the *Congressional Record* during consideration of the measure on the House floor. Thank you for your attention to these important matters.

Sincerely,

JEB HENSARLING,
Chairman.

HOUSE OF REPRESENTATIVES,
COMMITTEE ON ARMED SERVICES,
Washington, DC, May 14, 2018.

Hon. JEB HENSARLING,
Chairman, Committee on Financial Services
House of Representatives, Washington, DC.

DEAR MR. CHAIRMAN: Thank you for your letter regarding H.R. 5515, the National Defense Authorization Act for Fiscal Year 2019. I agree that the Committee on Financial Services has valid jurisdictional claims to certain provisions in this important legislation, and I am most appreciative of your decision not to request a referral in the interest of expediting consideration of the bill. I agree that by foregoing a sequential referral, the Committee on Financial Services is not waiving its jurisdiction. Further, this exchange of letters will be included in the committee report on the bill.

Sincerely,

WILLIAM M. "MAC" THORNBERRY,
Chairman.

HOUSE OF REPRESENTATIVES,
COMMITTEE ON FOREIGN AFFAIRS,
Washington, DC, May 14, 2018.

Hon. WILLIAM M. "MAC" THORNBERRY,
Chairman, Committee on Armed Services,
House of Representatives, Washington, DC.

DEAR MR. CHAIRMAN: I write to confirm our mutual understanding regarding H.R. 5515, the National Defense Authorization Act for Fiscal Year 2019, which contains substantial matter that falls within the Rule X legislative jurisdiction of the Foreign Affairs Committee. I appreciate the cooperation that allowed us to work out mutually agreeable text on numerous matters prior to your markup.

Based on that cooperation and our associated understandings, the Foreign Affairs Committee will not seek a sequential referral or object to floor consideration of the bill text approved at your Committee markup. This decision in no way diminishes or alters the jurisdictional interests of the Foreign Affairs Committee in this bill, any subsequent amendments, or similar legislation. I request your support for the appointment of House Foreign Affairs conferees during any House-Senate conference on this legislation.

Finally, I respectfully request that you include this letter and your response in your committee report on the bill and in the *Congressional Record* during consideration of H.R. 5515 on the House floor.

Sincerely,

EDWARD R. ROYCE,
Chairman.

HOUSE OF REPRESENTATIVES,
COMMITTEE ON ARMED SERVICES,
Washington, DC, May 14, 2018.

Hon. EDWARD R. ROYCE,
*Chairman, Committee on Foreign Affairs,
House of Representatives, Washington, DC.*

DEAR MR. CHAIRMAN: Thank you for your letter regarding H.R. 5515, the National Defense Authorization Act for Fiscal Year 2019. I agree that the Committee on Foreign Affairs has valid jurisdictional claims to certain provisions in this important legislation, and I am most appreciative of your decision not to request a referral in the interest of expediting consideration of the bill. I agree that by foregoing a sequential referral, the Committee on Foreign Affairs is not waiving its jurisdiction. Further, this exchange of letters will be included in the committee report on the bill.

Sincerely,

WILLIAM M. "MAC" THORNBERRY,
Chairman.

HOUSE OF REPRESENTATIVES,
COMMITTEE ON HOMELAND SECURITY,
Washington, DC, May 10, 2018.

Hon. WILLIAM M. "MAC" THORNBERRY,
*Chairman, Committee on Armed Services,
House of Representatives, Washington, DC.*

DEAR MR. THORNBERRY: I am writing to you concerning H.R. 5515, the National Defense Authorization Act for Fiscal Year 2019. There are certain provisions in this legislation which fall within the Rule X jurisdiction of the Committee on Homeland Security.

In the interest of permitting your committee to proceed expeditiously to floor consideration of this important bill, I am willing to waive this committee's right to sequential referral. However, I do so with the understanding that by waiving consideration of the bill, the Committee on Homeland Security does not waive any future jurisdictional claim over the subject matters contained in the bill which fall within its Rule X jurisdiction. I request that you urge the Speaker to name members of this committee to any conference committee which is named to consider such provisions.

Please place this letter into the committee report on H.R. 5515 and into the *Congressional Record* during consideration of the measure on the House floor. Thank you for the cooperative spirit in which you and your staff have worked regarding this matter and others between our respective committees.

Sincerely,

MICHAEL T. McCAUL,
Chairman.

HOUSE OF REPRESENTATIVES,
COMMITTEE ON ARMED SERVICES,
Washington, DC, May 14, 2018.

Hon. MICHAEL T. MCCAUL,
*Chairman, Committee on Homeland Security,
House of Representatives, Washington, DC.*

DEAR MR. CHAIRMAN: Thank you for your letter regarding H.R. 5515, the National Defense Authorization Act for Fiscal Year 2019. I agree that the Committee on Homeland Security has valid jurisdictional claims to certain provisions in this important legislation, and I am most appreciative of your decision not to request a referral in the interest of expediting consideration of the bill. I agree that by foregoing a sequential referral, the Committee on Homeland Security is not waiving its jurisdiction. Further, this exchange of letters will be included in the committee report on the bill.

Sincerely,

WILLIAM M. "MAC" THORNBERRY,
Chairman.

HOUSE OF REPRESENTATIVES,
COMMITTEE ON THE JUDICIARY,
Washington, DC, May 14, 2018.

Hon. WILLIAM M. "MAC" THORNBERRY,
*Chairman, Committee on Armed Services,
House of Representatives, Washington, DC.*

DEAR CHAIRMAN THORNBERRY: I write with respect to H.R. 5515, the "National Defense Authorization Act for Fiscal Year 2019." As a result of your having consulted with us on provisions within H.R. 5515 that fall within the Rule X jurisdiction of the Committee on the Judiciary, I forego any further consideration of this bill so that it may proceed expeditiously to the House floor for consideration.

The Judiciary Committee takes this action with our mutual understanding that by foregoing consideration of H.R. 5515 at this time, we do not waive any jurisdiction over subject matter contained in this or similar legislation and that our committee will be appropriately consulted and involved as this bill or similar legislation moves forward so that we may address any remaining issues in our jurisdiction. Our committee also reserves the right to seek appointment of an appropriate number of conferees to any House-Senate conference involving this or similar legislation and asks that you support any such request.

I would appreciate a response to this letter confirming this understanding with respect to H.R. 5515 and would ask that a copy of our exchange of letters on this matter be included your committee report and in the *Congressional Record* during floor consideration of H.R. 5515.

Sincerely,

BOB GOODLATTE,
Chairman.

HOUSE OF REPRESENTATIVES,
COMMITTEE ON ARMED SERVICES,
Washington, DC, May 14, 2018.

Hon. BOB GOODLATTE,
*Chairman, Committee on the Judiciary,
House of Representatives, Washington, DC.*

DEAR MR. CHAIRMAN: Thank you for your letter regarding H.R. 5515, the National Defense Authorization Act for Fiscal Year 2019. I agree that the Committee on the Judiciary has valid jurisdictional claims to certain provisions in this important legislation, and I am most appreciative of your decision not to request a referral in the interest of expediting consideration of the bill. I agree that by foregoing a sequential referral, the Committee on the Judiciary is not waiving its jurisdiction. Further, this exchange of letters will be included in the committee report on the bill.

Sincerely,

WILLIAM M. "MAC" THORNBERRY,
Chairman.

HOUSE OF REPRESENTATIVES,
COMMITTEE ON NATURAL RESOURCES,
Washington, DC, May 14, 2018.

Hon. WILLIAM M. "MAC" THORNBERRY,
*Chairman, Committee on Armed Services,
House of Representatives, Washington, DC.*

DEAR MR. THORNBERRY: I am writing to you concerning the bill H.R. 5515, the National Defense Authorization Act for Fiscal Year 2019. There are certain provisions in the legislation which fall within the Rule X jurisdiction of the Committee on Natural Resources.

In the interest of permitting your committee to proceed expeditiously to floor consideration of this important bill, I am willing to waive this committee's right to sequential referral. I do so with the understanding that by waiving consideration of the bill the Committee on Natural Resources does not waive any future jurisdictional claim over the subject matters contained in the bill which fall within its Rule X jurisdiction. I request that you urge the Speaker to name members of this committee to any conference committee which is named to consider such provisions.

Please place this letter into the committee report on H.R. 5515 and into the Congressional Record during consideration of the measure on the House floor. Thank you for the cooperative spirit in which you have worked regarding this matter and others between our respective committees.

Sincerely,

ROB BISHOP,
Chairman.

HOUSE OF REPRESENTATIVES,
COMMITTEE ON ARMED SERVICES,
Washington, DC, May 14, 2018.

Hon. ROB BISHOP,
*Chairman, Committee on Natural Resources,
House of Representatives, Washington, DC.*

DEAR MR. CHAIRMAN: Thank you for your letter regarding H.R. 5515, the National Defense Authorization Act for Fiscal Year 2019. I agree that the Committee on Natural Resources has valid jurisdictional claims to certain provisions in this important legislation, and I am most appreciative of your decision not to request a referral in the interest of expediting consideration of the bill. I agree that by foregoing a sequential referral, the Committee on Natural Resources is not waiving its jurisdiction. Further, this exchange of letters will be included in the committee report on the bill.

Sincerely,

WILLIAM M. "MAC" THORNBERRY,
Chairman.

HOUSE OF REPRESENTATIVES,
COMMITTEE ON OVERSIGHT AND GOVERNMENT REFORM,
Washington, DC, May 14, 2018.

HON. WILLIAM M. "MAC" THORNBERRY,
*Chairman, Committee on Armed Services,
House of Representatives, Washington, DC.*

DEAR MR. CHAIRMAN: I write concerning H.R. 5515, *the National Defense Authorization Act for Fiscal Year 2019*. This bill contains provisions within the jurisdiction of the Committee on Oversight and Government Reform. As a result of your having consulted with me concerning the provisions of the bill that fall within our Rule X jurisdiction, I agree to forgo consideration of the bill, so the bill may proceed expeditiously to the House floor.

The Committee takes this action with our mutual understanding that by foregoing consideration of H.R. 5515 we do not waive any jurisdiction over the subject matter contained in this or similar legislation, and we will be appropriately consulted and involved as the bill or similar legislation moves forward so we may address any remaining issues within our Rule X jurisdiction. Further, I request your support for the appointment of conferees from the Committee on Oversight and Government Reform during any House-Senate conference on this or related legislation.

Finally, I would appreciate a response confirming this understanding and ask that a copy of our exchange of letters on this matter be included in the bill report filed by the Committee on Armed Services, as well as in the *Congressional Record* during floor consideration thereof.

Sincerely,

TREY GOWDY,
Chairman.

HOUSE OF REPRESENTATIVES,
 COMMITTEE ON ARMED SERVICES,
Washington, DC, May 14, 2018.

Hon. TREY GOWDY,
*Chairman, Committee on Oversight and Government Reform,
 House of Representatives, Washington, DC.*

DEAR MR. CHAIRMAN: Thank you for your letter regarding H.R. 5515, the National Defense Authorization Act for Fiscal Year 2019. I agree that the Committee on Oversight and Government Reform has valid jurisdictional claims to certain provisions in this important legislation, and I am most appreciative of your decision not to request a referral in the interest of expediting consideration of the bill. I agree that by foregoing a sequential referral, the Committee on Oversight and Government Reform is not waiving its jurisdiction. Further, this exchange of letters will be included in the committee report on the bill.

Sincerely,

WILLIAM M. "MAC" THORNBERRY,
Chairman.

HOUSE OF REPRESENTATIVES,
 COMMITTEE ON SCIENCE, SPACE, AND TECHNOLOGY,
Washington, DC, May 14, 2018.

Hon. WILLIAM M. "MAC" THORNBERRY,
*Chairman, Committee on Armed Services,
 House of Representatives, Washington, DC.*

DEAR MR. THORNBERRY: I am writing to you concerning the bill H.R. 5515, the National Defense Authorization Act for Fiscal Year 2019. There are certain provisions in the legislation which fall within the Rule X jurisdiction of the Committee on Science, Space, and Technology.

In the interest of permitting your committee to proceed expeditiously to floor consideration of this important bill, I am willing to waive this committee's right to sequential referral. I do so with the understanding that by waiving consideration of the bill the Committee on Science, Space, and Technology does not waive any future jurisdictional claim over the subject matters contained in the bill which fall within its Rule X jurisdiction. I request that you urge the Speaker to name members of this committee to any conference committee which is named to consider such provisions.

Please place this letter into the committee report on H.R. 5515 and into the Congressional Record during consideration of the measure on the House floor. Thank you for the cooperative spirit in which you have worked regarding this matter and others between our respective committees.

Sincerely,

LAMAR SMITH,
Chairman.

HOUSE OF REPRESENTATIVES,
COMMITTEE ON ARMED SERVICES,
Washington, DC, May 14, 2018.

Hon. LAMAR SMITH,
*Chairman, Committee on Science, Space, and Technology,
House of Representatives, Washington, DC.*

DEAR MR. CHAIRMAN: Thank you for your letter regarding H.R. 5515, the National Defense Authorization Act for Fiscal Year 2019. I agree that the Committee on Science, Space, and Technology has valid jurisdictional claims to certain provisions in this important legislation, and I am most appreciative of your decision not to request a referral in the interest of expediting consideration of the bill. I agree that by foregoing a sequential referral, the Committee on Science, Space, and Technology is not waiving its jurisdiction. Further, this exchange of letters will be included in the Congressional Record.

Sincerely,

WILLIAM M. "MAC" THORNBERRY,
Chairman.

HOUSE OF REPRESENTATIVES,
COMMITTEE ON SMALL BUSINESS,
Washington, DC, May 10, 2018.

Hon. WILLIAM M. "MAC" THORNBERRY,
*Chairman, Committee on Armed Services,
House of Representatives, Washington, DC.*

DEAR CHAIRMAN THORNBERRY: I write to confirm our mutual understanding regarding H.R. 5515, the National Defense Authorization Act for Fiscal Year 2019. This legislation contains subject matter within the jurisdiction of the House of Representatives' Committee on Small Business. However, in order to expedite floor consideration of this important legislation, the Committee waives consideration of the bill.

The House of Representatives' Committee on Small Business takes this action only with the understanding that the committee's jurisdictional interests over this and similar legislation are in no way diminished or altered.

The Committee also reserves the right to seek appointment to any House-Senate conference on this legislation and requests your support if such a request is made. Finally, I would appreciate your including this letter in the Congressional Record during consideration of H.R. 5515 on the House Floor. Thank you for your cooperative spirit in which you have worked on these issues and others between our respective committees.

Sincerely,

STEVE CHABOT,
Chairman.

HOUSE OF REPRESENTATIVES,
COMMITTEE ON ARMED SERVICES,
Washington, DC, May 14, 2018.

Hon. STEVE CHABOT,
*Chairman, Committee on Small Business,
House of Representatives, Washington, DC.*

DEAR MR. CHAIRMAN: Thank you for your letter regarding H.R. 5515, the National Defense Authorization Act for Fiscal Year 2019. I agree that the Committee on Small Business has valid jurisdictional claims to certain provisions in this important legislation, and I am most appreciative of your decision not to request a referral in the interest of expediting consideration of the bill. I agree that by foregoing a sequential referral, the Committee on Small Business is not waiving its jurisdiction. Further, this exchange of letters will be included in the committee report on the bill.

Sincerely,

WILLIAM M. "MAC" THORNBERRY,
Chairman.

HOUSE OF REPRESENTATIVES,
COMMITTEE ON TRANSPORTATION AND INFRASTRUCTURE,
Washington, DC, May 14, 2018.

Hon. WILLIAM M. "MAC" THORNBERRY,
*Chairman, Committee on Armed Services,
House of Representatives, Washington, DC.*

DEAR MR. THORNBERRY: I am writing to you concerning the jurisdictional interest of the Committee on Transportation and Infrastructure in matters being considered in H.R. 5515, the *National Defense Authorization Act for Fiscal Year 2019*.

Our committee recognizes the importance of H.R. 5515 and the need for the legislation to move expeditiously. Therefore, while we have a valid claim to jurisdiction over the bill, I do not intend to request a sequential referral. This, of course, is conditional on our mutual understanding that nothing in this legislation or my decision to forego a sequential referral waives, reduces or otherwise affects the jurisdiction of the Committee on Transportation and Infrastructure, and that a copy of this letter and your response acknowledging our jurisdictional interest will be included in the Committee Report and as part of the Congressional Record during consideration of this bill by the House.

The Committee on Transportation and Infrastructure also asks that you support our request to be conferees on the provisions over which we have jurisdiction during any House-Senate conference.

Thank you for your consideration in this matter.

Sincerely,

BILL SHUSTER,
Chairman.

HOUSE OF REPRESENTATIVES,
COMMITTEE ON ARMED SERVICES,
Washington, DC, May 14, 2018.

Hon. BILL SHUSTER,
*Chairman, Committee on Transportation and Infrastructure,
House of Representatives, Washington, DC.*

DEAR MR. CHAIRMAN: Thank you for your letter regarding H.R. 5515, the National Defense Authorization Act for Fiscal Year 2019. I agree that the Committee on Transportation and Infrastructure has valid jurisdictional claims to certain provisions in this important legislation, and I am most appreciative of your decision not to request a referral in the interest of expediting consideration of the bill. I agree that by foregoing a sequential referral, the Committee on Transportation and Infrastructure is not waiving its jurisdiction. Further, this exchange of letters will be included in the committee report on the bill.

Sincerely,

WILLIAM M. "MAC" THORNBERRY,
Chairman.

HOUSE OF REPRESENTATIVES,
COMMITTEE ON VETERANS' AFFAIRS,
Washington, DC, May 9, 2018.

Hon. WILLIAM M. "MAC" THORNBERRY,
*Chairman, Committee on Armed Services,
House of Representatives, Washington, DC.*

DEAR CHAIRMAN THORNBERRY: I write to confirm our mutual understanding regarding H.R. 5515, the National Defense Authorization Act for Fiscal Year 2019. This legislation contains subject matter within the jurisdiction of the Committee on Veterans' Affairs. However, in order to expedite floor consideration of this important legislation, the committee waives consideration of the bill.

The Committee on Veterans' Affairs takes this action only with the understanding that the committee's jurisdictional interests over this and similar legislation are in no way diminished or altered.

The committee also reserves the right to seek appointment to any House-Senate conference on this legislation and requests your support if such a request is made. Finally, I would appreciate your including this letter in the Committee Report and as part of the Congressional Record during consideration of H.R. 5515 on the House Floor.

Thank you for your attention to these matters.

Sincerely,

DAVID P. ROE, M.D.,
Chairman.

HOUSE OF REPRESENTATIVES,
COMMITTEE ON ARMED SERVICES,
Washington, DC, May 14, 2018.

Hon. DAVID P. ROE, M.D.,
*Chairman, Committee on Veterans' Affairs,
House of Representatives, Washington, DC.*

DEAR MR. CHAIRMAN: Thank you for your letter regarding H.R. 5515, the National Defense Authorization Act for Fiscal Year 2019. I agree that the Committee on Veterans' Affairs has valid jurisdictional claims to certain provisions in this important legislation, and I am most appreciative of your decision not to request a referral in the interest of expediting consideration of the bill. I agree that by foregoing a sequential referral, the Committee on Veterans' Affairs is not waiving its jurisdiction. Further, this exchange of letters will be included in the committee report on the bill.

Sincerely,

WILLIAM M. "MAC" THORNBERRY,
Chairman.

HOUSE OF REPRESENTATIVES,
COMMITTEE ON WAYS AND MEANS,
Washington, DC, May 14, 2018.

Hon. WILLIAM M. "MAC" THORNBERRY,
*Chairman, Committee on Armed Services,
House of Representatives, Washington, DC.*

DEAR CHAIRMAN THORNBERRY: I am writing with respect to the jurisdictional interest of the Committee on Ways and Means in matters being considered in H.R. 5515, the National Defense Authorization Act for Fiscal Year 2019.

As a result of your having consulted with us on provisions in H.R. 5515 that fall within the Rule X jurisdiction of the Committee on Ways and Means, I agree to waive formal consideration of this bill so that it may move expeditiously to the floor. The Committee on Ways and Means takes this action with the mutual understanding that we do not waive any jurisdiction over the subject matter contained in this or similar legislation, and the Committee will be appropriately consulted and involved as the bill or similar legislation moves forward so that we may address any remaining issues that fall within our jurisdiction. The Committee also reserves the right to seek appointment of an appropriate number of conferees to any House-Senate conference involving this or similar legislation, and requests your support for such request.

Finally, I would appreciate your response to this letter confirming this understanding, and would ask that a copy of our exchange of letters on this matter be included in the Congressional Record during floor consideration of H.R. 5515.

Sincerely,

KEVIN BRADY,
Chairman.

HOUSE OF REPRESENTATIVES,
COMMITTEE ON ARMED SERVICES,
Washington, DC, May 14, 2018.

Hon. KEVIN BRADY,
*Chairman, Committee on Ways and Means,
House of Representatives, Washington, DC.*

DEAR MR. CHAIRMAN: Thank you for your letter regarding H.R. 5515, the National Defense Authorization Act for Fiscal Year 2019. I agree that the Committee on Ways and Means has valid jurisdictional claims to certain provisions in this important legislation, and I am most appreciative of your decision not to request a referral in the interest of expediting consideration of the bill. I agree that by foregoing a sequential referral, the Committee on Ways and Means is not waiving its jurisdiction. Further, this exchange of letters will be included in the committee report on the bill.

Sincerely,

WILLIAM M. "MAC" THORNBERRY,
Chairman.

CONGRESSIONAL BUDGET OFFICE ESTIMATE

In compliance with clause 3(c)(3) of rule XIII of the House of Representatives, the cost estimate prepared by the Congressional Budget Office and submitted pursuant to section 402 of the Congressional Budget Act of 1974 is as follows:

CONGRESSIONAL BUDGET OFFICE PRELIMINARY COST ESTIMATE

MAY 14, 2018.

Hon. MAC THORNBERRY
*Chairman, Committee on Armed Services,
House of Representatives, Washington, DC.*

DEAR MR. CHAIRMAN: The Congressional Budget Office has completed a preliminary estimate of the direct spending and revenue effects of H.R. 5515, the National Defense Authorization Act for Fiscal Year 2019, as ordered reported by the House Committee on Armed Services on May 10, 2018. This preliminary estimate is based on the Committee Print 115-70 of H.R. 5515 that was posted to the website of the House Committee on Rules on May 11, 2018. CBO's complete cost estimate for H.R. 5515, including discretionary costs, will be provided shortly.

Several provisions of the legislation would have insignificant effects (some positive; some negative) on direct spending. Those budgetary changes would result primarily from provisions that would:

- Authorize the Department of Defense to accept and spend contributions for specific purposes,
- Increase eligibility for military retirement, and
- Change the timing of small amounts of outlays from appropriations that are currently available.

On a preliminary basis, CBO estimates that enacting H.R. 5515 would affect net direct spending by less than \$500,000 over the 2019–2028 period.

The bill also would increase certain civil and criminal fines and would impose sanctions on entities that engage in certain transactions with Russia. Those fines and penalties, which are classified as revenues, would total less than \$500,000 over the next 10 years, CBO estimates. Because enacting the bill would affect direct spending and revenues, pay-as-you-go procedures apply.

If you wish further details on this estimate, we will be pleased to provide them. The CBO staff contact is David Newman, who can be reached at 226–2840.

Sincerely,

KEITH HALL,
Director.

STATEMENT REQUIRED BY THE CONGRESSIONAL BUDGET ACT

Pursuant to clause (3)(c)(2) of rule XIII of the Rules of the House of Representatives, and section 308(a) of the Congressional Budget Act of 1974 (Public Law 93–344):

(1) this legislation does not provide budget authority subject to an allocation made pursuant to section 302(b) of Public Law 93–344;

(2) the Congressional Budget Office (CBO) Estimate included in this report pursuant to clause (3)(c)(3) of rule XIII of the Rules of the House of Representatives contains CBO’s projection of how this legislation will affect the levels of budget authority, budget outlays, revenues, and tax expenditures for fiscal year 2019 and for the ensuing 5 fiscal years; and

(3) the CBO Estimate does not identify any new budget authority for assistance to state and local governments by this measure at the time that this report was filed.

COMMITTEE COST ESTIMATE

Pursuant to clause (3)(d)(2)(B) of rule XIII of the Rules of the House of Representatives, the Congressional Budget Office Estimate included in this report satisfies the requirement for the committee to include an estimate by the committee of the costs incurred in carrying out this bill.

ADVISORY OF EARMARKS

The committee finds that H.R. 5515, the National Defense Authorization Act for Fiscal Year 2019, as reported, does not contain any congressional earmarks, limited tax benefits, or limited tariff benefits as defined in clause 9 of rule XXI of the Rules of the House of Representatives.

OVERSIGHT FINDINGS

With respect to clause 3(c)(1) of rule XIII of the Rules of the House of Representatives, this legislation results from hearings and other oversight activities conducted by the committee pursuant

to clause 2(b)(1) of rule X. The findings are reflected in the body of this report.

GENERAL PERFORMANCE GOALS AND OBJECTIVES

With respect to clause 3(c)(4) of rule XIII of the Rules of the House of Representatives, the general goal and objective of H.R. 5515 is to maintain our national defense, to prepare the warfighter for current and future threats, and to do so in a fiscally responsible manner.

Our country continues to face national security challenges: the Russian Federation continues its overt and covert attempts to undermine democratic institutions and the international rules-based order; the People's Republic of China is pursuing a foreign policy that is increasingly aggressive toward U.S. interests; the Islamic Republic of Iran is seeking to destabilize areas in the Middle East; the Democratic People's Republic of Korea maintains a nuclear program that undermines peace and security in East Asia; and terrorist groups continue to threaten U.S. citizens at home and abroad.

This legislation is a continuation of the efforts of the Committee on Armed Services to provide for the common defense by responding to these, and other, national security challenges. The bill provides \$617.1 billion to support core Department of Defense requirements, a number consistent with the President's Budget Request and the Bipartisan Budget Act of 2018 (Public Law 115–123). It also includes an additional \$69.0 billion of Overseas Contingency Operations, also matching the request. This includes money to fully fund the 2.6 percent pay raise for troops, to expand funding for maintenance and readiness, and to deter America's adversaries.

This bill also seeks to continue the committee's focus on reform to create savings by cutting unnecessary waste. This legislation includes numerous reforms to streamline the Department of Defense. The bill reforms the definition of commercial item to simplify Government purchasing, requires the Department to examine its bureaucracy to identify redundant activities for potential savings, and begins a process of updating acquisition statutes to reduce unnecessary confusion and red tape.

This bill continues the committee's work to ensure the military is both adequately resourced and prepared to maintain our national defense, and thereby fulfills the committee's duties under Article I, Section 8, of the Constitution.

STATEMENT OF FEDERAL MANDATES

Pursuant to section 423 of Public Law 104–4, this legislation contains no Federal mandates with respect to state, local, and tribal governments, nor with respect to the private sector. Similarly, the bill provides no Federal intergovernmental mandates.

FEDERAL ADVISORY COMMITTEE STATEMENT

Consistent with the requirements of section 5(b) of the Federal Advisory Committee Act, the committee finds that the functions of the proposed advisory committee authorized in the bill are not currently being nor could they be performed by one or more agencies,

an advisory committee already in existence or by enlarging the mandate of an existing advisory committee.

APPLICABILITY TO THE LEGISLATIVE BRANCH

The committee finds that this legislation does not relate to the terms and conditions of employment or access to public services or accommodations within the meaning of section 102(b)(3) of the Congressional Accountability Act (Public Law 104-1).

DUPLICATION OF FEDERAL PROGRAMS

No provision of H.R. 5515 establishes or reauthorizes a program of the Federal Government known to be duplicative of another Federal program, a program that was included in any report from the Government Accountability Office to Congress pursuant to section 21 of Public Law 111-139, or a program related to a program identified in the most recent Catalog of Federal Domestic Assistance.

DISCLOSURE OF DIRECTED RULE MAKINGS

The committee estimates that H.R. 5515 requires three instances of directed rule makings. They are contained in the following provisions:

- (1) section 582
- (2) section 830; and
- (3) section 1610.

COMMITTEE VOTES

In accordance with clause 3(b) of rule XIII of the Rules of the House of Representatives, record votes were taken with respect to the committee's consideration of H.R. 5515. The record of these votes is contained in the following pages.

The committee ordered H.R. 5515 to be reported to the House with a favorable recommendation by a vote of 60-1, a quorum being present.

COMMITTEE ON ARMED SERVICES

ROLL CALL VOTE NO. 1

H.R. 5515

On Hanabusa Log 301—Clarifies command and control relationship as it relates to surface force readiness.

| Member | Aye | No | Present | Member | Aye | No | Present |
|------------------------------|-----------|-----------|----------|-----------------------|-----|----|---------|
| Mr. Thornberry | | x | | Mr. Smith | x | | |
| Mr. Jones | | | | Mr. Brady | x | | |
| Mr. Wilson | | x | | Mrs. Davis | x | | |
| Mr. LoBiondo | | x | | Mr. Langevin | x | | |
| Mr. Bishop | | x | | Mr. Larsen | x | | |
| Mr. Turner | | x | | Mr. Cooper | | | |
| Mr. Rogers | | x | | Ms. Bordallo | x | | |
| Mr. Shuster | | x | | Mr. Courtney | x | | |
| Mr. Conaway | | x | | Ms. Tsongas | x | | |
| Mr. Lamborn | | x | | Mr. Garamendi | x | | |
| Mr. Wittman | | x | | Ms. Speier | x | | |
| Mr. Hunter | | x | | Mr. Veasey | x | | |
| Mr. Coffman | | x | | Ms. Gabbard | x | | |
| Mrs. Hartzler | | x | | Mr. O'Rourke | x | | |
| Mr. Scott | | x | | Mr. Norcross | x | | |
| Mr. Brooks | | x | | Mr. Gallego | x | | |
| Mr. Cook | | x | | Mr. Moulton | x | | |
| Dr. Wenstrup | | x | | Ms. Hanabusa | x | | |
| Mr. Byrne | | x | | Ms. Shea-Porter | x | | |
| Mr. Graves | | x | | Ms. Rosen | x | | |
| Ms. Stefanik | | x | | Mr. McEachin | | x | |
| Ms. McSally | | x | | Mr. Carbajal | x | | |
| Mr. Knight | | x | | Mr. Brown | x | | |
| Mr. Russell | | x | | Mrs. Murphy | x | | |
| Dr. DesJarlais | | x | | Mr. Khanna | x | | |
| Dr. Abraham | | x | | Mr. O'Halleran | x | | |
| Mr. Kelly | | x | | Mr. Suozzi | x | | |
| Mr. Gallagher | | x | | Mr. Panetta | x | | |
| Mr. Gaetz | | x | | | | | |
| Mr. Bacon | | x | | | | | |
| Mr. Banks | | x | | | | | |
| Ms. Cheney | | x | | | | | |
| Mr. Hice | | x | | | | | |
| Mr. Mitchell | | x | | | | | |
| Roll Call Vote Total: | 26 | 34 | 0 | | | | |

COMMITTEE ON ARMED SERVICES

ROLL CALL VOTE NO. 2

H.R. 5515

On Russell Log 323—Treatment of leases of non-excess property entered into with insured depository institutions.

| Member | Aye | No | Present | Member | Aye | No | Present |
|------------------------------|-----------|-----------|----------|-----------------------|-----|----|---------|
| Mr. Thornberry | x | | | Mr. Smith | | x | |
| Mr. Jones | | | | Mr. Brady | | | x |
| Mr. Wilson | x | | | Mrs. Davis | | | x |
| Mr. LoBiondo | | x | | Mr. Langevin | | | x |
| Mr. Bishop | | x | | Mr. Larsen | | | x |
| Mr. Turner | x | | | Mr. Cooper | | | x |
| Mr. Rogers | x | | | Ms. Bordallo | | | x |
| Mr. Shuster | x | | | Mr. Courtney | | | x |
| Mr. Conaway | x | | | Ms. Tsongas | | | x |
| Mr. Lamborn | x | | | Mr. Garamendi | | | x |
| Mr. Wittman | x | | | Ms. Speier | | | x |
| Mr. Hunter | x | | | Mr. Veasey | | | x |
| Mr. Coffman | x | | | Ms. Gabbard | | | x |
| Mrs. Hartzler | x | | | Mr. O'Rourke | | | x |
| Mr. Scott | | x | | Mr. Norcross | | | x |
| Mr. Brooks | | x | | Mr. Gallego | | | x |
| Mr. Cook | | x | | Mr. Moulton | x | | |
| Dr. Wenstrup | x | | | Ms. Hanabusa | | | x |
| Mr. Byrne | x | | | Ms. Shea-Porter | x | | |
| Mr. Graves | x | | | Ms. Rosen | | | x |
| Ms. Stefanik | x | | | Mr. McEachin | | | x |
| Ms. McSally | x | | | Mr. Carbajal | | | x |
| Mr. Knight | x | | | Mr. Brown | x | | |
| Mr. Russell | x | | | Mrs. Murphy | | | x |
| Dr. DesJarlais | x | | | Mr. Khanna | | | x |
| Dr. Abraham | x | | | Mr. O'Halleran | | | x |
| Mr. Kelly | x | | | Mr. Suozzi | x | | |
| Mr. Gallagher | x | | | Mr. Panetta | x | | |
| Mr. Gaetz | x | | | | | | |
| Mr. Bacon | x | | | | | | |
| Mr. Banks | x | | | | | | |
| Ms. Cheney | x | | | | | | |
| Mr. Hice | x | | | | | | |
| Mr. Mitchell | x | | | | | | |
| Roll Call Vote Total: | 33 | 28 | 0 | | | | |

COMMITTEE ON ARMED SERVICES

ROLL CALL VOTE NO. 3

H.R. 5515

On Russell Log 328—Transfer or possession of defense items for national defense purposes.

| Member | Aye | No | Present | Member | Aye | No | Present |
|------------------------------|-----------|-----------|----------|-----------------------|-----|----|---------|
| Mr. Thornberry | x | | | Mr. Smith | | x | |
| Mr. Jones | | | | Mr. Brady | | x | |
| Mr. Wilson | x | | | Mrs. Davis | | x | |
| Mr. LoBiondo | x | | | Mr. Langevin | | x | |
| Mr. Bishop | x | | | Mr. Larsen | | x | |
| Mr. Turner | x | | | Mr. Cooper | | x | |
| Mr. Rogers | x | | | Ms. Bordallo | | x | |
| Mr. Shuster | x | | | Mr. Courtney | | x | |
| Mr. Conaway | x | | | Ms. Tsongas | | x | |
| Mr. Lamborn | x | | | Mr. Garamendi | | x | |
| Mr. Wittman | x | | | Ms. Speier | | x | |
| Mr. Hunter | x | | | Mr. Veasey | x | | |
| Mr. Coffman | x | | | Ms. Gabbard | | x | |
| Mrs. Hartzler | x | | | Mr. O'Rourke | x | | |
| Mr. Scott | x | | | Mr. Norcross | | | |
| Mr. Brooks | x | | | Mr. Gallego | | x | |
| Mr. Cook | x | | | Mr. Moulton | x | | |
| Dr. Wenstrup | x | | | Ms. Hanabusa | | x | |
| Mr. Byrne | x | | | Ms. Shea-Porter | | x | |
| Mr. Graves | x | | | Ms. Rosen | | x | |
| Ms. Stefanik | x | | | Mr. McEachin | | x | |
| Ms. McSally | x | | | Mr. Carbajal | | x | |
| Mr. Knight | x | | | Mr. Brown | | x | |
| Mr. Russell | x | | | Mrs. Murphy | | x | |
| Dr. DesJarlais | x | | | Mr. Khanna | | x | |
| Dr. Abraham | x | | | Mr. O'Halleran | | x | |
| Mr. Kelly | x | | | Mr. Suozzi | | x | |
| Mr. Gallagher | x | | | Mr. Panetta | | x | |
| Mr. Gaetz | x | | | | | | |
| Mr. Bacon | x | | | | | | |
| Mr. Banks | x | | | | | | |
| Ms. Cheney | x | | | | | | |
| Mr. Hice | x | | | | | | |
| Mr. Mitchell | x | | | | | | |
| Roll Call Vote Total: | 36 | 24 | 0 | | | | |

COMMITTEE ON ARMED SERVICES

ROLL CALL VOTE NO. 4

H.R. 5515

On O'Halleran Log 282—Requires the Secretary of Defense to submit reports, on a quarterly basis, to HASC detailing direct and indirect costs to DOD in support of travel by senior executive officials on military aircraft.

| Member | Aye | No | Present | Member | Aye | No | Present |
|------------------------------|-----------|-----------|----------|-----------------------|-----|----|---------|
| Mr. Thornberry | | x | | Mr. Smith | x | | |
| Mr. Jones | | | | Mr. Brady | x | | |
| Mr. Wilson | | x | | Mrs. Davis | x | | |
| Mr. LoBiondo | | x | | Mr. Langevin | x | | |
| Mr. Bishop | | x | | Mr. Larsen | x | | |
| Mr. Turner | | x | | Mr. Cooper | x | | |
| Mr. Rogers | | x | | Ms. Bordallo | x | | |
| Mr. Shuster | | x | | Mr. Courtney | x | | |
| Mr. Conaway | | x | | Ms. Tsongas | x | | |
| Mr. Lamborn | | x | | Mr. Garamendi | x | | |
| Mr. Wittman | | x | | Ms. Speier | x | | |
| Mr. Hunter | | x | | Mr. Veasey | x | | |
| Mr. Coffman | | x | | Ms. Gabbard | x | | |
| Mrs. Hartzler | | x | | Mr. O'Rourke | x | | |
| Mr. Scott | | x | | Mr. Norcross | x | | |
| Mr. Brooks | | x | | Mr. Gallego | x | | |
| Mr. Cook | | x | | Mr. Moulton | x | | |
| Dr. Wenstrup | | x | | Ms. Hanabusa | x | | |
| Mr. Byrne | | x | | Ms. Shea-Porter | x | | |
| Mr. Graves | | x | | Ms. Rosen | x | | |
| Ms. Stefanik | | x | | Mr. McEachin | x | | |
| Ms. McSally | | x | | Mr. Carbajal | x | | |
| Mr. Knight | x | | | Mr. Brown | x | | |
| Mr. Russell | | x | | Mrs. Murphy | x | | |
| Dr. DesJarlais | | x | | Mr. Khanna | x | | |
| Dr. Abraham | | x | | Mr. O'Halleran | x | | |
| Mr. Kelly | | x | | Mr. Suozzi | x | | |
| Mr. Gallagher | | x | | Mr. Panetta | x | | |
| Mr. Gaetz | | x | | | | | |
| Mr. Bacon | x | | | | | | |
| Mr. Banks | | x | | | | | |
| Ms. Cheney | | x | | | | | |
| Mr. Hice | | x | | | | | |
| Mr. Mitchell | | x | | | | | |
| Roll Call Vote Total: | 30 | 31 | 0 | | | | |

COMMITTEE ON ARMED SERVICES

ROLL CALL VOTE NO. 5

H.R. 5515

On Speier Log 054r2—Randomizes selection of members for military courts-martial panels allowing for rank and theater of operations considerations.

| Member | Aye | No | Present | Member | Aye | No | Present |
|------------------------------|-----------|-----------|----------|-----------------------|-----|----|---------|
| Mr. Thornberry | | x | | Mr. Smith | x | | |
| Mr. Jones | | | | Mr. Brady | x | | |
| Mr. Wilson | | x | | Mrs. Davis | | x | |
| Mr. LoBiondo | | x | | Mr. Langevin | x | | |
| Mr. Bishop | | x | | Mr. Larsen | | x | |
| Mr. Turner | | x | | Mr. Cooper | x | | |
| Mr. Rogers | | x | | Ms. Bordallo | x | | |
| Mr. Shuster | | x | | Mr. Courtney | x | | |
| Mr. Conaway | | x | | Ms. Tsongas | x | | |
| Mr. Lamborn | | x | | Mr. Garamendi | x | | |
| Mr. Wittman | | x | | Ms. Speier | x | | |
| Mr. Hunter | | x | | Mr. Veasey | x | | |
| Mr. Coffman | | x | | Ms. Gabbard | x | | |
| Mrs. Hartzler | | x | | Mr. O'Rourke | x | | |
| Mr. Scott | | x | | Mr. Norcross | x | | |
| Mr. Brooks | | x | | Mr. Gallego | x | | |
| Mr. Cook | | x | | Mr. Moulton | x | | |
| Dr. Wenstrup | | x | | Ms. Hanabusa | x | | |
| Mr. Byrne | | x | | Ms. Shea-Porter | x | | |
| Mr. Graves | | x | | Ms. Rosen | x | | |
| Ms. Stefanik | | x | | Mr. McEachin | x | | |
| Ms. McCally | | x | | Mr. Carbajal | x | | |
| Mr. Knight | | x | | Mr. Brown | x | | |
| Mr. Russell | | x | | Mrs. Murphy | x | | |
| Dr. DesJarlais | | x | | Mr. Khanna | x | | |
| Dr. Abraham | | x | | Mr. O'Halleran | x | | |
| Mr. Kelly | | x | | Mr. Suozzi | x | | |
| Mr. Gallagher | | x | | Mr. Panetta | x | | |
| Mr. Gaetz | | x | | | | | |
| Mr. Bacon | | x | | | | | |
| Mr. Banks | | x | | | | | |
| Ms. Cheney | | x | | | | | |
| Mr. Hice | | x | | | | | |
| Mr. Mitchell | | x | | | | | |
| Roll Call Vote Total: | 26 | 35 | 0 | | | | |

COMMITTEE ON ARMED SERVICES

ROLL CALL VOTE NO. 6

H.R. 5515

On Veasey Log 080r1—Directs the Secretary of Defense to provide a report on the feasibility of tracking the number of veterans who have served in the Armed Forces, as well as service member dependents who have been deported from the U.S.

| Member | Aye | No | Present | Member | Aye | No | Present |
|------------------------------|-----------|-----------|----------|-----------------------|-----|----|---------|
| Mr. Thornberry | | x | | Mr. Smith | x | | |
| Mr. Jones | | | | Mr. Brady | x | | |
| Mr. Wilson | | x | | Mrs. Davis | x | | |
| Mr. LoBiondo | | x | | Mr. Langevin | x | | |
| Mr. Bishop | | x | | Mr. Larsen | x | | |
| Mr. Turner | | x | | Mr. Cooper | x | | |
| Mr. Rogers | | x | | Ms. Bordallo | x | | |
| Mr. Shuster | | x | | Mr. Courtney | x | | |
| Mr. Conaway | | x | | Ms. Tsongas | x | | |
| Mr. Lamborn | | x | | Mr. Garamendi | x | | |
| Mr. Wittman | | x | | Ms. Speier | x | | |
| Mr. Hunter | | x | | Mr. Veasey | x | | |
| Mr. Coffman | x | | | Ms. Gabbard | x | | |
| Mrs. Hartzler | | x | | Mr. O'Rourke | x | | |
| Mr. Scott | | x | | Mr. Norcross | x | | |
| Mr. Brooks | | x | | Mr. Gallego | x | | |
| Mr. Cook | | x | | Mr. Moulton | x | | |
| Dr. Wenstrup | | x | | Ms. Hanabusa | x | | |
| Mr. Byrne | | x | | Ms. Shea-Porter | x | | |
| Mr. Graves | | x | | Ms. Rosen | x | | |
| Ms. Stefanik | | x | | Mr. McEachin | x | | |
| Ms. McSally | | x | | Mr. Carbajal | x | | |
| Mr. Knight | | x | | Mr. Brown | x | | |
| Mr. Russell | | x | | Mrs. Murphy | x | | |
| Dr. DesJarlais | | x | | Mr. Khanna | x | | |
| Dr. Abraham | | x | | Mr. O'Halleran | x | | |
| Mr. Kelly | | x | | Mr. Suozzi | x | | |
| Mr. Gallagher | | x | | Mr. Panetta | x | | |
| Mr. Gaetz | | x | | | | | |
| Mr. Bacon | | x | | | | | |
| Mr. Banks | | x | | | | | |
| Ms. Cheney | | x | | | | | |
| Mr. Hice | | x | | | | | |
| Mr. Mitchell | | x | | | | | |
| Roll Call Vote Total: | 29 | 32 | 0 | | | | |

COMMITTEE ON ARMED SERVICES

ROLL CALL VOTE NO. 7

H.R. 5515

On Gallego Log 336r1—Permit granting of reenlistment waivers to individuals who attest to using marijuana.

| Member | Aye | No | Present | Member | Aye | No | Present |
|------------------------------|-----------|-----------|----------|-----------------------|-----|----|---------|
| Mr. Thornberry | | x | | Mr. Smith | x | | |
| Mr. Jones | | | | Mr. Brady | x | | |
| Mr. Wilson | | x | | Mrs. Davis | x | | |
| Mr. LoBiondo | | x | | Mr. Langevin | x | | |
| Mr. Bishop | | x | | Mr. Larsen | x | | |
| Mr. Turner | | x | | Mr. Cooper | x | | |
| Mr. Rogers | | x | | Ms. Bordallo | x | | |
| Mr. Shuster | | x | | Mr. Courtney | x | | |
| Mr. Conaway | | x | | Ms. Tsongas | x | | |
| Mr. Lamborn | | x | | Mr. Garamendi | x | | |
| Mr. Wittman | | x | | Ms. Speier | x | | |
| Mr. Hunter | | x | | Mr. Veasey | x | | |
| Mr. Coffman | | x | | Ms. Gabbard | x | | |
| Mrs. Hartzler | | x | | Mr. O'Rourke | x | | |
| Mr. Scott | | x | | Mr. Norcross | x | | |
| Mr. Brooks | | x | | Mr. Gallego | x | | |
| Mr. Cook | | x | | Mr. Moulton | x | | |
| Dr. Wenstrup | | x | | Ms. Hanabusa | x | | |
| Mr. Byrne | | x | | Ms. Shea-Porter | x | | |
| Mr. Graves | | x | | Ms. Rosen | x | | |
| Ms. Stefanik | | x | | Mr. McEachin | x | | |
| Ms. McSally | | x | | Mr. Carbajal | x | | |
| Mr. Knight | | x | | Mr. Brown | x | | |
| Mr. Russell | | x | | Mrs. Murphy | x | | |
| Dr. DesJarlais | | x | | Mr. Khanna | x | | |
| Dr. Abraham | | x | | Mr. O'Halleran | x | | |
| Mr. Kelly | | x | | Mr. Suozzi | x | | |
| Mr. Gallagher | | x | | Mr. Panetta | x | | |
| Mr. Gaetz | x | | | | | | |
| Mr. Bacon | | x | | | | | |
| Mr. Banks | | x | | | | | |
| Ms. Cheney | | x | | | | | |
| Mr. Hice | | x | | | | | |
| Mr. Mitchell | | x | | | | | |
| Roll Call Vote Total: | 29 | 32 | 0 | | | | |

COMMITTEE ON ARMED SERVICES

ROLL CALL VOTE NO. 8

H.R. 5515

On Rogers Log 028—Expresses Congress' support for and endorsement of the Administration's recent Nuclear Posture Review.

| Member | Aye | No | Present | Member | Aye | No | Present |
|------------------------------|-----------|-----------|----------|-----------------------|-----|----|---------|
| Mr. Thornberry | x | | | Mr. Smith | | x | |
| Mr. Jones | | | | Mr. Brady | | x | |
| Mr. Wilson | x | | | Mrs. Davis | | x | |
| Mr. LoBiondo | x | | | Mr. Langevin | | x | |
| Mr. Bishop | x | | | Mr. Larsen | | x | |
| Mr. Turner | x | | | Mr. Cooper | | x | |
| Mr. Rogers | x | | | Ms. Bordallo | | x | |
| Mr. Shuster | x | | | Mr. Courtney | | x | |
| Mr. Conaway | x | | | Ms. Tsongas | | x | |
| Mr. Lamborn | x | | | Mr. Garamendi | | x | |
| Mr. Wittman | x | | | Ms. Speier | | x | |
| Mr. Hunter | x | | | Mr. Veasey | | x | |
| Mr. Coffman | x | | | Ms. Gabbard | | x | |
| Mrs. Hartzler | x | | | Mr. O'Rourke | | x | |
| Mr. Scott | x | | | Mr. Norcross | | x | |
| Mr. Brooks | x | | | Mr. Gallego | | x | |
| Mr. Cook | x | | | Mr. Moulton | | x | |
| Dr. Wenstrup | x | | | Ms. Hanabusa | | x | |
| Mr. Byrne | x | | | Ms. Shea-Porter | | x | |
| Mr. Graves | x | | | Ms. Rosen | | x | |
| Ms. Stefanik | x | | | Mr. McEachin | | x | |
| Ms. McSally | x | | | Mr. Carbajal | | x | |
| Mr. Knight | x | | | Mr. Brown | | x | |
| Mr. Russell | x | | | Mrs. Murphy | | x | |
| Dr. DesJarlais | x | | | Mr. Khanna | | x | |
| Dr. Abraham | x | | | Mr. O'Halleran | | x | |
| Mr. Kelly | x | | | Mr. Suozzi | | x | |
| Mr. Gallagher | x | | | Mr. Panetta | | x | |
| Mr. Gaetz | x | | | | | | |
| Mr. Bacon | x | | | | | | |
| Mr. Banks | x | | | | | | |
| Ms. Cheney | x | | | | | | |
| Mr. Hice | x | | | | | | |
| Mr. Mitchell | x | | | | | | |
| Roll Call Vote Total: | 33 | 28 | 0 | | | | |

COMMITTEE ON ARMED SERVICES

ROLL CALL VOTE NO. 9

H.R. 5515

On Larsen Log 070—Provides CJCS with waiver authority of the prohibitions related to ICBMs in section 1645 of the bill.

| Member | Aye | No | Present | Member | Aye | No | Present |
|------------------------------|-----------|-----------|----------|-----------------------|-----|----|---------|
| Mr. Thornberry | | x | | Mr. Smith | x | | |
| Mr. Jones | | | | Mr. Brady | x | | |
| Mr. Wilson | | x | | Mrs. Davis | x | | |
| Mr. LoBiondo | | x | | Mr. Langevin | x | | |
| Mr. Bishop | | x | | Mr. Larsen | x | | |
| Mr. Turner | | x | | Mr. Cooper | x | | |
| Mr. Rogers | | x | | Ms. Bordallo | x | | |
| Mr. Shuster | | x | | Mr. Courtney | x | | |
| Mr. Conaway | | x | | Ms. Tsongas | x | | |
| Mr. Lamborn | | x | | Mr. Garamendi | x | | |
| Mr. Wittman | | x | | Ms. Speier | x | | |
| Mr. Hunter | | x | | Mr. Veasey | x | | |
| Mr. Coffman | | x | | Ms. Gabbard | x | | |
| Mrs. Hartzler | | x | | Mr. O'Rourke | x | | |
| Mr. Scott | | x | | Mr. Norcross | x | | |
| Mr. Brooks | | x | | Mr. Gallego | x | | |
| Mr. Cook | | x | | Mr. Moulton | x | | |
| Dr. Wenstrup | | x | | Ms. Hanabusa | x | | |
| Mr. Byrne | | x | | Ms. Shea-Porter | x | | |
| Mr. Graves | | x | | Ms. Rosen | x | | |
| Ms. Stefanik | | x | | Mr. McEachin | x | | |
| Ms. McSally | | x | | Mr. Carbajal | x | | |
| Mr. Knight | | x | | Mr. Brown | x | | |
| Mr. Russell | | x | | Mrs. Murphy | x | | |
| Dr. DesJarlais | | x | | Mr. Khanna | x | | |
| Dr. Abraham | | x | | Mr. O'Halleran | x | | |
| Mr. Kelly | | x | | Mr. Suozzi | x | | |
| Mr. Gallagher | | x | | Mr. Panetta | x | | |
| Mr. Gaetz | | x | | | | | |
| Mr. Bacon | | x | | | | | |
| Mr. Banks | | x | | | | | |
| Ms. Cheney | | x | | | | | |
| Mr. Hice | | x | | | | | |
| Mr. Mitchell | | x | | | | | |
| Roll Call Vote Total: | 28 | 33 | 0 | | | | |

COMMITTEE ON ARMED SERVICES

ROLL CALL VOTE NO. 10

H.R. 5515

On Langevin Log 420—Perfecting Amendment to the Substitute
Amendment offered by Mr. Byrne (Log 414).

| Member | Aye | No | Present | Member | Aye | No | Present |
|------------------------------|-----------|-----------|----------|-----------------------|-----|----|---------|
| Mr. Thornberry | | x | | Mr. Smith | x | | |
| Mr. Jones | | | | Mr. Brady | x | | |
| Mr. Wilson | | x | | Mrs. Davis | x | | |
| Mr. LoBiondo | | x | | Mr. Langevin | x | | |
| Mr. Bishop | | x | | Mr. Larsen | x | | |
| Mr. Turner | | x | | Mr. Cooper | x | | |
| Mr. Rogers | | x | | Ms. Bordallo | x | | |
| Mr. Shuster | | x | | Mr. Courtney | x | | |
| Mr. Conaway | | x | | Ms. Tsongas | x | | |
| Mr. Lamborn | | x | | Mr. Garamendi | x | | |
| Mr. Wittman | | x | | Ms. Speier | x | | |
| Mr. Hunter | | x | | Mr. Veasey | x | | |
| Mr. Coffman | | x | | Ms. Gabbard | x | | |
| Mrs. Hartzler | | x | | Mr. O'Rourke | x | | |
| Mr. Scott | | x | | Mr. Norcross | x | | |
| Mr. Brooks | | x | | Mr. Gallego | x | | |
| Mr. Cook | | x | | Mr. Moulton | x | | |
| Dr. Wenstrup | | x | | Ms. Hanabusa | x | | |
| Mr. Byrne | | x | | Ms. Shea-Porter | x | | |
| Mr. Graves | | x | | Ms. Rosen | x | | |
| Ms. Stefanik | | x | | Mr. McEachin | x | | |
| Ms. McSally | | x | | Mr. Carbajal | x | | |
| Mr. Knight | | x | | Mr. Brown | x | | |
| Mr. Russell | | x | | Mrs. Murphy | x | | |
| Dr. DesJarlais | | x | | Mr. Khanna | x | | |
| Dr. Abraham | | x | | Mr. O'Halleran | x | | |
| Mr. Kelly | | x | | Mr. Suozzi | x | | |
| Mr. Gallagher | | x | | Mr. Panetta | x | | |
| Mr. Gaetz | | x | | | | | |
| Mr. Bacon | | x | | | | | |
| Mr. Banks | | x | | | | | |
| Ms. Cheney | | x | | | | | |
| Mr. Hice | | x | | | | | |
| Mr. Mitchell | | x | | | | | |
| Roll Call Vote Total: | 28 | 33 | 0 | | | | |

COMMITTEE ON ARMED SERVICES

ROLL CALL VOTE NO. 11

H.R. 5515

On Gallego Log 406—Strikes section 1109.

| Member | Aye | No | Present | Member | Aye | No | Present |
|------------------------------|-----------|-----------|----------|-----------------------|-----|----|---------|
| Mr. Thornberry | | x | | Mr. Smith | x | | |
| Mr. Jones | | | | Mr. Brady | x | | |
| Mr. Wilson | | x | | Mrs. Davis | x | | |
| Mr. LoBiondo | | x | | Mr. Langevin | x | | |
| Mr. Bishop | | x | | Mr. Larsen | x | | |
| Mr. Turner | | x | | Mr. Cooper | x | | |
| Mr. Rogers | | x | | Ms. Bordallo | x | | |
| Mr. Shuster | | x | | Mr. Courtney | x | | |
| Mr. Conaway | | x | | Ms. Tsongas | x | | |
| Mr. Lamborn | | x | | Mr. Garamendi | x | | |
| Mr. Wittman | | x | | Ms. Speier | x | | |
| Mr. Hunter | | x | | Mr. Veasey | x | | |
| Mr. Coffman | | x | | Ms. Gabbard | | | |
| Mrs. Hartzler | | x | | Mr. O'Rourke | x | | |
| Mr. Scott | | x | | Mr. Norcross | x | | |
| Mr. Brooks | | x | | Mr. Gallego | x | | |
| Mr. Cook | | x | | Mr. Moulton | x | | |
| Dr. Wenstrup | | x | | Ms. Hanabusa | x | | |
| Mr. Byrne | | x | | Ms. Shea-Porter | x | | |
| Mr. Graves | | x | | Ms. Rosen | x | | |
| Ms. Stefanik | | x | | Mr. McEachin | x | | |
| Ms. McSally | | x | | Mr. Carbajal | x | | |
| Mr. Knight | | x | | Mr. Brown | x | | |
| Mr. Russell | | x | | Mrs. Murphy | x | | |
| Dr. DesJarlais | | x | | Mr. Khanna | x | | |
| Dr. Abraham | | x | | Mr. O'Halleran | x | | |
| Mr. Kelly | | x | | Mr. Suozzi | x | | |
| Mr. Gallagher | | x | | Mr. Panetta | x | | |
| Mr. Gaetz | | x | | | | | |
| Mr. Bacon | | x | | | | | |
| Mr. Banks | | x | | | | | |
| Ms. Cheney | | x | | | | | |
| Mr. Hice | | x | | | | | |
| Mr. Mitchell | | x | | | | | |
| Roll Call Vote Total: | 27 | 33 | 0 | | | | |

COMMITTEE ON ARMED SERVICES

ROLL CALL VOTE NO. 12

H.R. 5515

On Bishop Log 221r2—Provision does not allow for listing of the Greater Sage Grouse, Lesser Prairie Chicken and American Burying Beetle under ESA for a 10-year period.

| Member | Aye | No | Present | Member | Aye | No | Present |
|------------------------------|-----------|-----------|----------|-----------------------|-----|----|---------|
| Mr. Thornberry | x | | | Mr. Smith | | x | |
| Mr. Jones | | | | Mr. Brady | | x | |
| Mr. Wilson | x | | | Mrs. Davis | | x | |
| Mr. LoBiondo | x | | | Mr. Langevin | | x | |
| Mr. Bishop | x | | | Mr. Larsen | | x | |
| Mr. Turner | x | | | Mr. Cooper | | x | |
| Mr. Rogers | x | | | Ms. Bordallo | | x | |
| Mr. Shuster | x | | | Mr. Courtney | | x | |
| Mr. Conaway | x | | | Ms. Tsongas | | x | |
| Mr. Lamborn | x | | | Mr. Garamendi | | x | |
| Mr. Wittman | x | | | Ms. Speier | | x | |
| Mr. Hunter | x | | | Mr. Veasey | | x | |
| Mr. Coffman | x | | | Ms. Gabbard | | x | |
| Mrs. Hartzler | x | | | Mr. O'Rourke | | x | |
| Mr. Scott | x | | | Mr. Norcross | | x | |
| Mr. Brooks | x | | | Mr. Gallego | | x | |
| Mr. Cook | x | | | Mr. Moulton | | x | |
| Dr. Wenstrup | x | | | Ms. Hanabusa | | x | |
| Mr. Byrne | x | | | Ms. Shea-Porter | | x | |
| Mr. Graves | x | | | Ms. Rosen | | x | |
| Ms. Stefanik | x | | | Mr. McEachin | | x | |
| Ms. McCally | x | | | Mr. Carbajal | | x | |
| Mr. Knight | x | | | Mr. Brown | | x | |
| Mr. Russell | x | | | Mrs. Murphy | | x | |
| Dr. DesJarlais | x | | | Mr. Khanna | | x | |
| Dr. Abraham | x | | | Mr. O'Halleran | | x | |
| Mr. Kelly | x | | | Mr. Suozzi | | x | |
| Mr. Gallagher | x | | | Mr. Panetta | | x | |
| Mr. Gaetz | x | | | | | | |
| Mr. Bacon | x | | | | | | |
| Mr. Banks | x | | | | | | |
| Ms. Cheney | x | | | | | | |
| Mr. Hice | x | | | | | | |
| Mr. Mitchell | x | | | | | | |
| Roll Call Vote Total: | 33 | 28 | 0 | | | | |

COMMITTEE ON ARMED SERVICES

ROLL CALL VOTE NO. 13

H.R. 5515

On Brown Log 053r3—Strikes subsection (a), section 913, and requires a study on the feasibility and advisability of the transfer of DISA services and functions, which addresses the impact on jobs.

| Member | Aye | No | Present | Member | Aye | No | Present |
|------------------------------|-----------|-----------|----------|-----------------------|-----|----|---------|
| Mr. Thornberry | | x | | Mr. Smith | x | | |
| Mr. Jones | | | | Mr. Brady | x | | |
| Mr. Wilson | | x | | Mrs. Davis | x | | |
| Mr. LoBiondo | | x | | Mr. Langevin | x | | |
| Mr. Bishop | | x | | Mr. Larsen | x | | |
| Mr. Turner | | x | | Mr. Cooper | x | | |
| Mr. Rogers | | x | | Ms. Bordallo | x | | |
| Mr. Shuster | | x | | Mr. Courtney | x | | |
| Mr. Conaway | | x | | Ms. Tsongas | x | | |
| Mr. Lamborn | | x | | Mr. Garamendi | x | | |
| Mr. Wittman | | x | | Ms. Speier | x | | |
| Mr. Hunter | | x | | Mr. Veasey | x | | |
| Mr. Coffman | | x | | Ms. Gabbard | x | | |
| Mrs. Hartzler | | x | | Mr. O'Rourke | x | | |
| Mr. Scott | | x | | Mr. Norcross | x | | |
| Mr. Brooks | | x | | Mr. Gallego | x | | |
| Mr. Cook | | x | | Mr. Moulton | x | | |
| Dr. Wenstrup | | x | | Ms. Hanabusa | x | | |
| Mr. Byrne | | x | | Ms. Shea-Porter | x | | |
| Mr. Graves | | x | | Ms. Rosen | x | | |
| Ms. Stefanik | | x | | Mr. McEachin | x | | |
| Ms. McCally | | x | | Mr. Carbajal | x | | |
| Mr. Knight | | x | | Mr. Brown | x | | |
| Mr. Russell | x | | | Mrs. Murphy | x | | |
| Dr. DesJarlais | | x | | Mr. Khanna | x | | |
| Dr. Abraham | | x | | Mr. O'Halleran | x | | |
| Mr. Kelly | | x | | Mr. Suozzi | x | | |
| Mr. Gallagher | | x | | Mr. Panetta | x | | |
| Mr. Gaetz | | x | | | | | |
| Mr. Bacon | | x | | | | | |
| Mr. Banks | | x | | | | | |
| Ms. Cheney | | x | | | | | |
| Mr. Hice | | x | | | | | |
| Mr. Mitchell | | x | | | | | |
| Roll Call Vote Total: | 29 | 32 | 0 | | | | |

COMMITTEE ON ARMED SERVICES

ROLL CALL VOTE NO. 14

H.R. 5515

On Knight Log 371—Strikes subsection (e) of section 913 regarding TRMC.

| Member | Aye | No | Present | Member | Aye | No | Present |
|------------------------------|-----------|-----------|----------|-----------------------|-----|----|---------|
| Mr. Thornberry | | x | | Mr. Smith | | x | |
| Mr. Jones | | | | Mr. Brady | x | | |
| Mr. Wilson | | x | | Mrs. Davis | x | | |
| Mr. LoBiondo | | x | | Mr. Langevin | x | | |
| Mr. Bishop | | x | | Mr. Larsen | x | | |
| Mr. Turner | | x | | Mr. Cooper | | x | |
| Mr. Rogers | | x | | Ms. Bordallo | x | | |
| Mr. Shuster | | x | | Mr. Courtney | x | | |
| Mr. Conaway | | x | | Ms. Tsongas | x | | |
| Mr. Lamborn | | x | | Mr. Garamendi | x | | |
| Mr. Wittman | | x | | Ms. Speier | x | | |
| Mr. Hunter | | x | | Mr. Veasey | x | | |
| Mr. Coffman | | x | | Ms. Gabbard | x | | |
| Mrs. Hartzler | | x | | Mr. O'Rourke | x | | |
| Mr. Scott | x | | | Mr. Norcross | x | | |
| Mr. Brooks | | x | | Mr. Gallego | x | | |
| Mr. Cook | | x | | Mr. Moulton | x | | |
| Dr. Wenstrup | | x | | Ms. Hanabusa | x | | |
| Mr. Byrne | | x | | Ms. Shea-Porter | x | | |
| Mr. Graves | | x | | Ms. Rosen | x | | |
| Ms. Stefanik | | x | | Mr. McEachin | x | | |
| Ms. McSally | | x | | Mr. Carbajal | x | | |
| Mr. Knight | x | | | Mr. Brown | x | | |
| Mr. Russell | x | | | Mrs. Murphy | x | | |
| Dr. DesJarlais | x | | | Mr. Khanna | x | | |
| Dr. Abraham | x | | | Mr. O'Halleran | x | | |
| Mr. Kelly | | x | | Mr. Suozzi | x | | |
| Mr. Gallagher | | x | | Mr. Panetta | x | | |
| Mr. Gaetz | x | | | | | | |
| Mr. Bacon | x | | | | | | |
| Mr. Banks | | x | | | | | |
| Ms. Cheney | | x | | | | | |
| Mr. Hice | | x | | | | | |
| Mr. Mitchell | | x | | | | | |
| Roll Call Vote Total: | 33 | 28 | 0 | | | | |

COMMITTEE ON ARMED SERVICES

ROLL CALL VOTE NO. 15

H.R. 5515

On Khanna Log 310r1—Limits funds for U.S. refueling of non-U.S. military aircraft for missions against the Houthis in Yemen.

| Member | Aye | No | Present | Member | Aye | No | Present |
|------------------------------|-----------|-----------|----------|-----------------------|-----|----|---------|
| Mr. Thornberry | | x | | Mr. Smith | x | | |
| Mr. Jones | | | | Mr. Brady | x | | |
| Mr. Wilson | | x | | Mrs. Davis | x | | |
| Mr. LoBiondo | | x | | Mr. Langevin | x | | |
| Mr. Bishop | | x | | Mr. Larsen | x | | |
| Mr. Turner | | x | | Mr. Cooper | x | | |
| Mr. Rogers | | x | | Ms. Bordallo | x | | |
| Mr. Shuster | | x | | Mr. Courtney | x | | |
| Mr. Conaway | | x | | Ms. Tsongas | x | | |
| Mr. Lamborn | | x | | Mr. Garamendi | x | | |
| Mr. Wittman | | x | | Ms. Speier | x | | |
| Mr. Hunter | | x | | Mr. Veasey | | x | |
| Mr. Coffman | | x | | Ms. Gabbard | x | | |
| Mrs. Hartzler | | x | | Mr. O'Rourke | x | | |
| Mr. Scott | | x | | Mr. Norcross | | x | |
| Mr. Brooks | | x | | Mr. Gallego | x | | |
| Mr. Cook | | x | | Mr. Moulton | | x | |
| Dr. Wenstrup | | x | | Ms. Hanabusa | x | | |
| Mr. Byrne | | x | | Ms. Shea-Porter | x | | |
| Mr. Graves | | x | | Ms. Rosen | | x | |
| Ms. Stefanik | | x | | Mr. McEachin | | x | |
| Ms. McSally | | x | | Mr. Carbajal | x | | |
| Mr. Knight | | x | | Mr. Brown | x | | |
| Mr. Russell | | x | | Mrs. Murphy | | x | |
| Dr. DesJarlais | | x | | Mr. Khanna | x | | |
| Dr. Abraham | | x | | Mr. O'Halleran | | x | |
| Mr. Kelly | | x | | Mr. Suozzi | | x | |
| Mr. Gallagher | | x | | Mr. Panetta | | x | |
| Mr. Gaetz | | x | | | | | |
| Mr. Bacon | | x | | | | | |
| Mr. Banks | | x | | | | | |
| Ms. Cheney | | x | | | | | |
| Mr. Hice | | x | | | | | |
| Mr. Mitchell | | x | | | | | |
| Roll Call Vote Total: | 19 | 42 | 0 | | | | |

COMMITTEE ON ARMED SERVICES

ROLL CALL VOTE NO. 16

H.R. 5515

On Brown Log 025r1—Requires a report to Congress containing a comprehensive strategy for any National Guard deployments to the southern land border.

| Member | Aye | No | Present | Member | Aye | No | Present |
|------------------------------|-----------|-----------|----------|-----------------------|-----|----|---------|
| Mr. Thornberry | | x | | Mr. Smith | x | | |
| Mr. Jones | | | | Mr. Brady | x | | |
| Mr. Wilson | | x | | Mrs. Davis | x | | |
| Mr. LoBiondo | | x | | Mr. Langevin | x | | |
| Mr. Bishop | | x | | Mr. Larsen | x | | |
| Mr. Turner | | x | | Mr. Cooper | x | | |
| Mr. Rogers | | x | | Ms. Bordallo | x | | |
| Mr. Shuster | | x | | Mr. Courtney | x | | |
| Mr. Conaway | | x | | Ms. Tsongas | x | | |
| Mr. Lamborn | | x | | Mr. Garamendi | x | | |
| Mr. Wittman | | x | | Ms. Speier | x | | |
| Mr. Hunter | | x | | Mr. Veasey | x | | |
| Mr. Coffman | | x | | Ms. Gabbard | x | | |
| Mrs. Hartzler | | x | | Mr. O'Rourke | x | | |
| Mr. Scott | | x | | Mr. Norcross | x | | |
| Mr. Brooks | | x | | Mr. Gallego | x | | |
| Mr. Cook | | x | | Mr. Moulton | x | | |
| Dr. Wenstrup | | x | | Ms. Hanabusa | x | | |
| Mr. Byrne | | x | | Ms. Shea-Porter | x | | |
| Mr. Graves | | x | | Ms. Rosen | x | | |
| Ms. Stefanik | | x | | Mr. McEachin | x | | |
| Ms. McCally | | x | | Mr. Carbajal | x | | |
| Mr. Knight | | x | | Mr. Brown | x | | |
| Mr. Russell | | x | | Mrs. Murphy | x | | |
| Dr. DesJarlais | | x | | Mr. Khanna | x | | |
| Dr. Abraham | | x | | Mr. O'Halleran | x | | |
| Mr. Kelly | | x | | Mr. Suozzi | x | | |
| Mr. Gallagher | | x | | Mr. Panetta | x | | |
| Mr. Gaetz | | x | | | | | |
| Mr. Bacon | | x | | | | | |
| Mr. Banks | | x | | | | | |
| Ms. Cheney | | x | | | | | |
| Mr. Hice | | x | | | | | |
| Mr. Mitchell | | x | | | | | |
| Roll Call Vote Total: | 28 | 33 | 0 | | | | |

COMMITTEE ON ARMED SERVICES

ROLL CALL VOTE NO. 17

H.R. 5515

On Smith Log 149—Strikes authorizing language and funding for the low-yield D5 missile warhead. Redirects funding (\$65.0M) to Army readiness.

| Member | Aye | No | Present | Member | Aye | No | Present |
|------------------------------|-----------|-----------|----------|-----------------------|-----|----|---------|
| Mr. Thornberry | | x | | Mr. Smith | x | | |
| Mr. Jones | | | | Mr. Brady | x | | |
| Mr. Wilson | | x | | Mrs. Davis | x | | |
| Mr. LoBiondo | | x | | Mr. Langevin | x | | |
| Mr. Bishop | | x | | Mr. Larsen | x | | |
| Mr. Turner | | x | | Mr. Cooper | x | | |
| Mr. Rogers | | x | | Ms. Bordallo | x | | |
| Mr. Shuster | | x | | Mr. Courtney | x | | |
| Mr. Conaway | | x | | Ms. Tsongas | x | | |
| Mr. Lamborn | | x | | Mr. Garamendi | x | | |
| Mr. Wittman | | x | | Ms. Speier | x | | |
| Mr. Hunter | | x | | Mr. Veasey | x | | |
| Mr. Coffman | | x | | Ms. Gabbard | x | | |
| Mrs. Hartzler | | x | | Mr. O'Rourke | x | | |
| Mr. Scott | | x | | Mr. Norcross | x | | |
| Mr. Brooks | | x | | Mr. Gallego | x | | |
| Mr. Cook | | x | | Mr. Moulton | x | | |
| Dr. Wenstrup | | x | | Ms. Hanabusa | x | | |
| Mr. Byrne | | x | | Ms. Shea-Porter | x | | |
| Mr. Graves | | x | | Ms. Rosen | x | | |
| Ms. Stefanik | | x | | Mr. McEachin | x | | |
| Ms. McCally | | x | | Mr. Carbajal | x | | |
| Mr. Knight | | x | | Mr. Brown | x | | |
| Mr. Russell | | x | | Mrs. Murphy | x | | |
| Dr. DesJarlais | | x | | Mr. Khanna | x | | |
| Dr. Abraham | | x | | Mr. O'Halleran | x | | |
| Mr. Kelly | | x | | Mr. Suozzi | x | | |
| Mr. Gallagher | | x | | Mr. Panetta | x | | |
| Mr. Gaetz | | x | | | | | |
| Mr. Bacon | | x | | | | | |
| Mr. Banks | | x | | | | | |
| Ms. Cheney | | x | | | | | |
| Mr. Hice | | x | | | | | |
| Mr. Mitchell | | x | | | | | |
| Roll Call Vote Total: | 28 | 33 | 0 | | | | |

COMMITTEE ON ARMED SERVICES

ROLL CALL VOTE NO. 18

H.R. 5515

On Davis Log 127—Reduces LRSO and GBSO funding to President's Budget levels and uses additional funds for aviation readiness.

| Member | Aye | No | Present | Member | Aye | No | Present |
|------------------------------|-----------|-----------|----------|-----------------------|-----|----|---------|
| Mr. Thornberry | | x | | Mr. Smith | x | | |
| Mr. Jones | | | | Mr. Brady | x | | |
| Mr. Wilson | | x | | Mrs. Davis | x | | |
| Mr. LoBiondo | | x | | Mr. Langevin | x | | |
| Mr. Bishop | | x | | Mr. Larsen | x | | |
| Mr. Turner | | x | | Mr. Cooper | x | | |
| Mr. Rogers | | x | | Ms. Bordallo | x | | |
| Mr. Shuster | | x | | Mr. Courtney | x | | |
| Mr. Conaway | | x | | Ms. Tsongas | x | | |
| Mr. Lamborn | | x | | Mr. Garamendi | x | | |
| Mr. Wittman | | x | | Ms. Speier | x | | |
| Mr. Hunter | | x | | Mr. Veasey | x | | |
| Mr. Coffman | | x | | Ms. Gabbard | x | | |
| Mrs. Hartzler | | x | | Mr. O'Rourke | x | | |
| Mr. Scott | | x | | Mr. Norcross | x | | |
| Mr. Brooks | | x | | Mr. Gallego | x | | |
| Mr. Cook | | x | | Mr. Moulton | x | | |
| Dr. Wenstrup | | x | | Ms. Hanabusa | x | | |
| Mr. Byrne | | x | | Ms. Shea-Porter | x | | |
| Mr. Graves | | x | | Ms. Rosen | x | | |
| Ms. Stefanik | | x | | Mr. McEachin | x | | |
| Ms. McCally | | x | | Mr. Carbajal | x | | |
| Mr. Knight | | x | | Mr. Brown | x | | |
| Mr. Russell | | x | | Mrs. Murphy | x | | |
| Dr. DesJarlais | | x | | Mr. Khanna | x | | |
| Dr. Abraham | | x | | Mr. O'Halleran | x | | |
| Mr. Kelly | | x | | Mr. Suozzi | x | | |
| Mr. Gallagher | | x | | Mr. Panetta | x | | |
| Mr. Gaetz | | x | | | | | |
| Mr. Bacon | | x | | | | | |
| Mr. Banks | | x | | | | | |
| Ms. Cheney | | x | | | | | |
| Mr. Hice | | x | | | | | |
| Mr. Mitchell | | x | | | | | |
| Roll Call Vote Total: | 28 | 33 | 0 | | | | |

COMMITTEE ON ARMED SERVICES

ROLL CALL VOTE NO. 19

H.R. 5515

On the motion by Mr. Wilson to report the bill H.R. 5515 as amended favorably to the House, with a recommendation that it do pass.

| Member | Aye | No | Present | Member | Aye | No | Present |
|------------------------------|-----------|----------|----------|-----------------------|-----|----|---------|
| Mr. Thornberry | x | | | Mr. Smith | x | | |
| Mr. Jones | | | | Mr. Brady | x | | |
| Mr. Wilson | x | | | Mrs. Davis | x | | |
| Mr. LoBiondo | x | | | Mr. Langevin | x | | |
| Mr. Bishop | x | | | Mr. Larsen | x | | |
| Mr. Turner | x | | | Mr. Cooper | x | | |
| Mr. Rogers | x | | | Ms. Bordallo | x | | |
| Mr. Shuster | x | | | Mr. Courtney | x | | |
| Mr. Conaway | x | | | Ms. Tsongas | x | | |
| Mr. Lamborn | x | | | Mr. Garamendi | x | | |
| Mr. Wittman | x | | | Ms. Speier | x | | |
| Mr. Hunter | x | | | Mr. Veasey | x | | |
| Mr. Coffman | x | | | Ms. Gabbard | | x | |
| Mrs. Hartzler | x | | | Mr. O'Rourke | x | | |
| Mr. Scott | x | | | Mr. Norcross | x | | |
| Mr. Brooks | x | | | Mr. Gallego | x | | |
| Mr. Cook | x | | | Mr. Moulton | x | | |
| Dr. Wenstrup | x | | | Ms. Hanabusa | x | | |
| Mr. Byrne | x | | | Ms. Shea-Porter | x | | |
| Mr. Graves | x | | | Ms. Rosen | x | | |
| Ms. Stefanik | x | | | Mr. McEachin | x | | |
| Ms. McSally | x | | | Mr. Carbajal | x | | |
| Mr. Knight | x | | | Mr. Brown | x | | |
| Mr. Russell | x | | | Mrs. Murphy | x | | |
| Dr. DesJarlais | x | | | Mr. Khanna | x | | |
| Dr. Abraham | x | | | Mr. O'Halleran | x | | |
| Mr. Kelly | x | | | Mr. Suozzi | x | | |
| Mr. Gallagher | x | | | Mr. Panetta | x | | |
| Mr. Gaetz | x | | | | | | |
| Mr. Bacon | x | | | | | | |
| Mr. Banks | x | | | | | | |
| Ms. Cheney | x | | | | | | |
| Mr. Hice | x | | | | | | |
| Mr. Mitchell | x | | | | | | |
| Roll Call Vote Total: | 60 | 1 | 0 | | | | |

CHANGES IN EXISTING LAW MADE BY THE BILL, AS REPORTED

The committee has taken steps to make available the analysis of changes in existing law made by the bill, as required by clause 3(e)

of rule XIII of the Rules of the House of Representatives, and will make the analysis available as soon as possible.

ADDITIONAL VIEWS OF MR. LARSEN

The Fiscal Year (FY) 2019 National Defense Authorization Act (NDAA) addresses many of the threats the nation faces in a clear and constructive manner. I am pleased that many of my proposals were included in the bill, including \$50 million in budget authority for DoD Supplemental Impact Aid, a pilot program intended to address combat-related infertility, and accelerating research into quieter jet engines. I will work with Chairman Thornberry and Ranking Member Smith to ensure these and other priorities remain in the final text of the legislation.

However, there is one area where I believe the FY 19 NDAA is particularly deficient, and I intend to work with my colleagues in the House and the Senate to address these concerns before this bill becomes law. In its current form, the FY 19 NDAA authorizes funding for new low-yield nuclear weapons proposed by the 2018 Nuclear Posture Review (NPR). But the NPR fails to make a convincing case for the utility of these weapons, and fails to address legitimate concerns about the consequences of fielding these new nuclear capabilities.

The NPR recommends fielding of two new low-yield nuclear weapons: a version of the existing D5 submarine launched ballistic missile (SLBM) and a nuclear-armed sea launched cruise missile (SLCM). The FY 2019 NDAA authorizes \$65 million for development of the low-yield D5.

While supporters of this program have been emphatic that these new weapons will not lower the nuclear threshold, the arguments for their development advanced in the NPR and in this committee have contradicted this assertion. The NPR envisions a scenario where the Russians use a low-yield weapon because they believe this action would not be met with a nuclear response because the U.S. lacks a tailored deterrent and the President would be unwilling to use a strategic nuclear weapon. With the development of new low-yield weapons, the NPR asserts, the U.S. could now use low yield weapons to deter low yield weapons, and America would no longer be self-deterred. This is dangerous thinking.

First, the U.S. already possesses low-yield nuclear weapons, including the variable yield B-61. If these weapons are not effective deterrents, this Committee should examine why before exploring new capabilities. Second, the NPR implies a scenario where both parties respond to a nuclear detonation by taking the time to determine the size and yield of the weapon employed before deciding whether and how to respond. In reality, escalation would be difficult, if not impossible to avoid. And finally, this concept of operations employs the sub-based leg of the triad, the most survivable leg, in the opening stages of a nuclear conflict, putting submarines at risk conducting a mission they were not intended for.

Additionally, the Committee considered this legislation prior to the release of the forthcoming Ballistic Missile Defense Review (BMDR). Based on comments from the President and other members of the administration, I believe it is reasonable to anticipate a significant change to the role of missile defense in national security.

Missile defense and the nuclear deterrent both play a pivotal role in strategic stability. I am concerned that too often this committee treats these as two separate issues. America's adversaries consider both our missile defense and strategic deterrent when planning. This committee should as well.

When the BMDR is released, it is my hope that this committee will evaluate the report not only discretely, but based on the combined effect on strategic stability of both the BMDR and NPR.

I commend Chairman Thornberry and Ranking Member Smith for their leadership on this legislation and this committee, and look forward to working with them further on the FY 19 NDAA.

RICK LARSEN.

CONGRESSMAN JOHN GARAMENDI'S ADDITIONAL VIEWS
FOR H.R. 5515, THE NATIONAL DEFENSE AUTHORIZATION
ACT FOR FISCAL YEAR 2019

I congratulate Chairman Thornberry and Ranking Member Smith on the passage of the committee mark for the 58th National Defense Authorization Act. I also appreciate the efforts of the House Armed Services Committee to prepare a committee mark that aims to ensure that our men and women in uniform have the means to protect our nation and advance American interests. However, there are several areas of concern that I have with this bill, and I look forward to our continued work to improve this critically important legislation.

One of the most concerning elements of this bill is the endorsement of the Trump Administration's Nuclear Posture Review (NPR). In addition to the planned modernization of our current force structure, the NPR proposes the development of supplemental capabilities, namely a low-yield warhead for submarine-launched ballistic missiles (SLBM) and a sea-launched cruise missile (SLCM). Not only does this bill repeal a 15-year ban on developing and producing low-yield nuclear warheads absent Congressional authorization, but it also authorizes \$65 million for the development of such. Fielding low-yield warheads on SLBMs will dramatically alter the way in which we utilize our nuclear submarine force, greatly increasing the risk of miscalculation and further fueling a dangerous arms race. We must thoughtfully consider the potential impact these weapons will have on strategic stability.

Furthermore, we're already on track to spend \$1.2 trillion over the next thirty years to operate, maintain, and recapitalize our nuclear arsenal, and that figure does not include the "supplemental capabilities" described in the recent NPR. I remain deeply concerned that excessive nuclear weapons spending will put significant pressure on the rest of the procurement budget in the middle of next decade when other areas of our national defense will also require recapitalization.

Lastly, while I am pleased that there are already several provisions in the bill that promote U.S. shipbuilding, I believe this bill could go much further. It is in the national security interests of the U.S. to maintain our domestic manufacturing base. Buy America requirements ensure we have a domestic, reliable source of critical equipment, and I will continue working with my colleagues to strengthen these key requirements.

As the process continues, I look forward to working on these important issues with my colleagues on the Armed Services Committee.

JOHN GARAMENDI.

DISSENTING VIEWS

Section 314: To prohibit the Greater Sage Grouse and Lesser Prairie Chicken from being listed under the Endangered Species Act (ESA) for a period of 10 years and to reverse a 1989 determination of endangered status for the American Burying Beetle, and for other purposes.

Section 314 of the National Defense Authorization Act as reported out of the House Armed Services Committee prohibits the Greater Sage Grouse and Lesser Prairie Chicken from being listed under the Endangered Species Act (ESA) for a period of 10 years, reverses a 1989 determination of endangered status for the American Burying Beetle, and would further exempt this provision from judicial review.

ESA listing decisions should be made with the best-available-science and not by a Congressional mandate. Sections 314 undermine science-based decision-making and State and Federal cooperative efforts to protect imperiled species. Furthermore, Section 314 set a terrible precedent for the management of species in need of conservation by having Congress micromanage specific species.

Pursuant to the Rules of the House of Representatives, the House Natural Resources Committee—not the House Armed Services Committee—has jurisdiction over wildlife and conservation, so it is only appropriate that any proposed legislative changes pertaining to the ESA, wildlife, or conservation go through the appropriate authorizing committee.

The language should be struck from the bill as it is non-germane. The Department of Defense has stated that it already has sufficient statutory authorities to protect the interest of the Department and its training and readiness activities. We should not jeopardize the progress of this bill with unnecessary environmental riders.

NIKI TSONGAS.
A. DONALD MCEACHIN.
JACKIE SPEIER.
ANTHONY G. BROWN.

DISSENTING VIEWS OF CONGRESSWOMAN COLLEEN
HANABUSA ON SECTION 903 OF THE NATIONAL DEFENSE
AUTHORIZATION ACT FOR FISCAL YEAR 2019

I congratulate Chairman Thornberry and Ranking Member Smith on the passage of the committee mark for the 57th National Defense Authorization Act. However, I dissent with this bill's change in the command and control in the most challenging area, the Indo-Asia-Pacific.

Let there be no question, we are all saddened and distressed by the deaths of our sailors who were on the USS *Fitzgerald* and the USS *John McCain*. This resulted with the Comprehensive Review of Recent Surface Force Incidents (CR) by Admiral Philip S. Davidson for the Chief of Naval Operations. Admiral Davidson has been recently confirmed as the new Commander of Pacific Command (PACOM). The Secretary of the Navy subsequently tasked Michael Bayer and Admiral Roughead (Ret. and former CNO) with a Strategic Readiness Review (SRR) of tragic incidents involving the 7th Fleet. The SRR independently examined the findings of the CR and concurred in most part with one exception being the establishment of "a single Echelon II" to determine the readiness of the force structure.

The SRR stated clearly that it does not concur with the recommendation to "[e]stablish a single Echelon II higher headquarters responsible for the readiness generation of all Navy forces." It instead made recommendations that would "meet the same objective, while retaining separate fleet responsibilities and authorities for managing readiness in the east and west coast fleets."

It is important to note that in April of 2018 as part of his confirmation hearing, Admiral Davidson states that "[he] would not support any changes to command and control of Naval Forces in the Pacific that would limit the speed, flexibility, and agility of a response or place into question U.S. resolve and commitment to the Indo-Pacific."

The amendment I offered identified as "Hanabusa 301" did exactly what the SRR recommended. The amendment provided that "the Secretary of the Navy may not make available for tasking by an operational commander any vessel, including any forward deployed naval vessel, until the Commander of Surface Forces Atlantic submits to the Commander of the United States Fleet Forces Command or the Commander of Surface Forces Pacific submits to the Commander of the United States Pacific Fleet, as appropriate based on the region to which such vessel is proposed to be tasked, certification that such surface vessel in properly manned, trained, and equipped." In the present geopolitical climate that the United States of America and its military finds itself in, no area presents the threats to our democracy as the Indo-Asia-Pacific region. The

PACOM AOR is just about fifty-five percent of this earth's surface. The actions of North Korea, China, and Russia have caused us all to have heightened concerns.

The initial language, which gave to the Asia-Pacific Region its command and control structure was called the "Inouye Amendment" and has existed since May of 2005. There is no one who is as respected or decorated as Senator Daniel K. Inouye. He clearly understood what was needed for the U.S. to meet the challenges that the PACOM AOR would present. My amendment brings into line the need for the speed, flexibility and agility that this region requires, while also addressing command and control structure improvements recommended by the CR and SRR—a position clearly advocated by the new PACOM Commander. I look forward to working with this committee to ensure that the necessary tools and command and control structure is in place to ensure the success of the new PACOM Commander in the largest AOR of this military.

COLLEEN HANABUSA.

DISSENTING VIEWS—SECTION 312 OF H.R. 5515: NATIONAL
DEFENSE AUTHORIZATION ACT FOR FISCAL YEAR 2019

Section 312 of the National Defense Authorization Act would amend the Marine Mammal Protection Act to require the Department of Defense to obtain authorizations from the National Marine Fisheries Service (NMFS) every ten years, instead of the current five-year requirement, for activities that can harm marine mammals.

Section 312 is not required for military readiness and national security, yet it will weaken essential protections for whales, dolphins, and other marine mammals.

Enacted 45 years ago with strong bipartisan support, the MMPA protects marine mammals from “take,” meaning human activities that “hunt, harass, capture, or kill” these iconic species of ocean wildlife. The law applies in U.S. waters and to U.S. citizens and conveyances on the high seas. Due to the protections provided by this bedrock conservation statute, no marine mammals in U.S. waters have subsequently gone extinct, and some species that once suffered severe declines have increased in numbers.

The Department of Defense is required under the MMPA to obtain authorizations from the NMFS every five years for activities that can harm marine mammals, most notably the Navy’s use of sonar and underwater explosives for training and military readiness purposes. The purpose of these authorizations is to ensure that the activities conducted by the Navy do not undermine the health of marine mammal populations, and to establish mitigation measures to achieve the “least practicable adverse impact” on the affected species.

The law requires frequent reviews because marine mammals—especially whales, dolphins, and porpoises, which live exclusively in the ocean—are difficult to study and monitor in the wild. These animals live for decades, reproduce slowly, and often range over great distances. A 2007 study by NMFS biologists found that scientists would be unlikely to detect precipitous declines in most of the country’s marine mammal populations at current levels of monitoring.

Section 312 would extend the authorization period for Department of Defense activities from five years to 10 years under the MMPA, curtailing critical oversight of the Navy’s impacts, which are already considerable. During its most recent round of environmental reviews, the Navy has estimated that over five years it would kill more than 250 whales and other marine mammals, cause permanent injury to another 3,000, and disrupt foraging and other vital behaviors more than 30 million times.

The Navy has conducted ground-breaking research on marine mammals and acoustics in recent years to comply with the MMPA. This research has helped ensure that the best-available-science is

used to review Navy activities and improve mitigation of harm to marine mammals. These research activities and mitigation measures should be increased and strengthened, rather than weakened or removed.

The MMPA already contains ample accommodations for national security. It was amended in 2003 to limit mitigation of military readiness activities to what is “practicable,” taking into account personnel safety, practicability of implementation, and effects on military readiness. The Navy’s requests for authorization to harm marine mammals have never been rejected. Furthermore, the MMPA provides a two-year exemption from compliance that the Secretary of Defense can invoke, at his discretion, for national security purposes, and can renew for subsequent two-year intervals as needed.

We are, as you know, deeply committed to our nation’s national security. We also believe it is necessary and achievable to protect our natural heritage, and therefore we oppose the inclusion of Section 312 in the FY19 National Defense Authorization Act.

JIMMY PANETTA.
A. DONALD MCEACHIN.
JACKIE SPEIER.
ANTHONY G. BROWN.
COLLEEN HANABUSA.
THOMAS R. SUOZZI.
RUBEN GALLEGGO.

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Testimony of
Jim Holmes
Before the
Military Construction and Veterans Affairs Subcommittee
of the
House Committee on Appropriations
On
PFAS Contamination at Patrick Air Force Base
March 11, 2020

Thank you for the opportunity to testify. My name is Jim Holmes and I recently retired from the United States Army Reserve. During my twenty-five plus years I served both on active duty and in the reserve component, performing multiple combat deployments that ranged from Operation Desert Shield / Desert Storm to Operation Iraqi Freedom. From the day I enlisted on December 8, 1988 I knew that there was certain risk associated with my service in the Armed Forces. I knew that I was signing a contract that require me to risk my own physical health, mental health, personal safety and up to my life in defense of the Nation. I fully understood and willingly accepted these risks. What I did not sign up for is the risking of my daughter's health, wellbeing and ultimately her life as a result of my service.

On January 10, 2018 I was flying Hurricane Maria recovery missions when I received a phone call from my family doctor that would forever change the lives of myself, my wife and my daughter. My wife took Kaela to the Eye doctor because she was having blurred vision. We thought she just needed new glasses. What we found out is that Kaela had an extremely rare and aggressive form of brain cancer called DIPG. DIPG is a form of brain cancer that forms inside the brain stem and affects 150-300 children annually in the United States. It is difficult to treat and 100 percent fatal.

Kaela was a beautiful, intelligent, loving daughter who loved her Army family with all her heart. She made a positive impact on everyone she ever encountered, excelled in school and never disappointed me once in her seventeen years of life.

Kaela bravely fought the cancer for fifteen months. During this time, she displayed a mental and physical toughness that few people in this world know. Unfortunately, on March 29, 2019, three days after her seventeenth birthday, Kaela passed away with my wife, our family dog and myself at her side.

What hurt almost as bad as Kaela's passing was finding out a few months after her death that her cancer was possibly caused by a water contamination at Patrick Air Force Base, Florida. We had lived on South Housing at Patrick from 2004-2005 and at Central Housing from 2008-2013. Kaela also attended Sea Park Elementary for five years, went to the Patrick Air Force Base after school program and Satellite High School all of which are in Satellite Beach, FL just south of the Base.

Not once in the sixteen years we've lived in the Patrick Air Force Base/Satellite Beach, FL area were we ever made aware that the ground water was severely contaminated with a hazardous substance called PFAS. The Air Force and 45th Space Wing never publicly disclosed to those of us living on and around Patrick that their own water samples had shown that they were 57,000 times above the EPA's safe drinking water level of 70 parts per trillion. The failure to disclose such critical information show a complete lack of care for the health and safety of the service members, dependents and civilians that live on and around Patrick Air Force Base.

The PFAS contamination at Patrick has been attributed to the reckless deployment of Aqueous Film-Forming Foam Concentrates (AFFF) during training exercises over the past forty years. The Department of Defense created and patented AFFF in the late 1960's and knew by the early 1970's that it was toxic to fish and by the 1980's it was also shown to be toxic to animals. By the 2000's PFAS was found to be building up in our blood. During this time the residents of Satellite Beach, Fl have experienced a much higher rate of brain and breast cancers than the general population. Even as residents were raising alarms over the high rate of cancer in the local area the Air Force stood quiet.

Fortunately, Congress stepped in recently and banned the use of AFFF during training exercises. This is a commonsense action that should have been taken by the Department of Defense decades ago. The fact that congress had to make the DOD discontinue using AFFF in training exercises once again shows the DOD's complete lack of concern for the health of the general public.

The next step in this PFAS journey is to make the water safe for the service members, dependents and civilian population that resides around Patrick Air Force Base. The Air Force will lead you to believe that all is well because they use City of Melbourne water. What they don't tell you is that the infrastructure at Patrick Air Force Base and Satellite Beach is extremely old. Broken water mains happen regularly on the base and Beach side communities. Each time a drop in water pressure occurs the pipes are flooded with this toxic mess. The Air Force and the City of Melbourne currently do not test the water after pressure drops to ensure that PFAS levels are below the EPA's 70 parts per trillion safe drinking level. This once again shows an extreme lack of concern for the health and care for all that reside around Patrick Air Force Base.

The people of Satellite Beach, FL need Congress to immediately ban all use of AFFF firefighting foams that contain PFAS and PFBS and force the United States Air Force to take responsibility for polluting our water with toxic chemicals over the years. Every home in Satellite Beach, Patrick Air Force Base and Cocoa Beach, FL should be equipped with a point of entry filtration system, provided through a pilot program funded by the federal government, to ensure that safe

drinking water is being provided after water main brakes, routine system maintenance and pressure drops.

The time since Kaela passed away has been difficult. I lost my only child due to being poisoned by the same military that I faithfully served and fought for. When I learned of the connection of PFAS and Kaela's cancer I got rid of all my awards, certificates and uniforms. The only thing I own with a military connection is my retired ID card. I will have to live the rest of my life knowing that my decision to serve in the military and reside on a United States Air Force Base resulted in the death of my beautiful daughter. I pray that no other service member will ever have to unknowingly sacrifice the life of their child by serving their country.

Thank you for the opportunity to testify and allow my families tragedy to be heard. When Kaela was born on March 26, 2002 the War on Terror had just begun. My biggest worry was that I would be injured or killed in combat and that Kaela would grow up without a father. I spent every free moment I had building a lifelong connection with my daughter and making sure that she knew for certain that her father loved her. I trained hard, bought life insurance and did my best to ensure that she would be taken cared of if something happened to me. I never imagined that she would be the one paying the ultimate price for my service.

116TH CONGRESS }
1st Session

HOUSE OF REPRESENTATIVES

{ REPORT
116-xxx

NATIONAL DEFENSE AUTHORIZATION ACT
FOR FISCAL YEAR 2020

CONFERENCE REPORT

TO ACCOMPANY

S. 1790



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NATIONAL DEFENSE AUTHORIZATION ACT FOR 2020

_____, 2019.—Ordered to be printed

Mr. Smith of Washington, from the committee of conference,
submitted the following

CONFERENCE REPORT

[To accompany S. 1790]

The committee of conference on the disagreeing votes of the two Houses on the amendment of the House to the bill (S. 1790), to authorize appropriations for fiscal year 2020 for military activities of the Department of Defense, for military construction, and for defense activities of the Department of Energy, to prescribe military personnel strengths for such fiscal year, and for other purposes, having met, after full and free conference, have agreed to recommend and do recommend to their respective Houses as follows:

That the Senate recede from its disagreement to the amendment of the House and agree to the same with an amendment as follows:

In lieu of the matter proposed to be inserted by the House amendment, insert the following:

1 **SECTION 1. SHORT TITLE.**

2 This Act may be cited as the “National Defense Au-
3 thorization Act for Fiscal Year 2020”.

4 **SEC. 2. ORGANIZATION OF ACT INTO DIVISIONS; TABLE OF**
5 **CONTENTS.**

6 (a) DIVISIONS.—This Act is organized into four divi-
7 sions as follows:

8 (1) Division A—Department of Defense Au-
9 thorizations.

10 (2) Division B—Military Construction Author-
11 izations.

12 (3) Division C—Department of Energy Na-
13 tional Security Authorizations and Other Authoriza-
14 tions.

15 (4) Division D—Funding Tables.

16 (5) Division E—Intelligence Authorizations for
17 Fiscal Years 2018, 2019, and 2020.

18 (6) Division F—Other Matters.

19 (b) TABLE OF CONTENTS.—The table of contents for
20 this Act is as follows:

- Sec. 1. Short title.
- Sec. 2. Organization of Act into divisions; table of contents.
- Sec. 3. Congressional defense committees.
- Sec. 4. Budgetary effects of this Act.

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- Sec. 122. Modification of annual report on cost targets for certain aircraft carriers.
- Sec. 123. Refueling and complex overhauls of the U.S.S. John C. Stennis and U.S.S. Harry S. Truman.
- Sec. 124. Ford class aircraft carrier support for F-35C aircraft.
- Sec. 125. Prohibition on use of funds for reduction of aircraft carrier force structure.
- Sec. 126. Modification of prohibition on availability of funds for Navy waterborne security barriers.
- Sec. 127. LHA Replacement Amphibious Assault Ship Program.
- Sec. 128. Strategic sealift fleet vessel.
- Sec. 129. Design and construction of amphibious transport dock designated LPD-31.
- Sec. 130. Limitation on availability of funds for the Littoral Combat Ship.
- Sec. 131. Limitation on the next new class of Navy large surface combatants.
- Sec. 132. Limitation on availability of funds pending quarterly updates on the CH-53K King Stallion helicopter program.
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- Sec. 145. Limitation on availability of funds for F-15EX aircraft.
- Sec. 146. Limitation on availability of funds for VC-25B aircraft.
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- Sec. 148. Limitation on availability of funds for retirement of RC-135 aircraft.
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- Sec. 150. Air Force plan for Combat Rescue Helicopter fielding.
- Sec. 151. Report on feasibility of multiyear contract for procurement of JASSM-ER missiles.
- Sec. 152. Report on aircraft fleet of the Civil Air Patrol.
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- Sec. 162. Relief from contractors for failure to deliver ready-for-issue spare parts for the F-35 aircraft program.
- Sec. 163. Limitation on availability of funds for reallocation of Turkish F-35A aircraft to the United States.
- Sec. 164. Requirement to establish the use of an Agile DevOps software development solution as an alternative for Joint Strike Fighter Autonomic Logistics Information System.
- Sec. 165. F-35 sustainment cost.
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- Sec. 167. Other reports on the F-35 aircraft program.
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- Sec. 212. Updates to the Department of Defense personnel management authority to attract experts in science and engineering.
- Sec. 213. Establishment of joint reserve detachment of the Defense Innovation Unit.
- Sec. 214. Research and educational programs and activities for Historically Black Colleges and Universities and Minority-Serving Institutions of Higher Education.
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- Sec. 216. Joint hypersonics transition office.
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- Sec. 227. Administration of manufacturing innovation institutes funded by the Department of Defense.

- Sec. 228. Research program on foreign malign influence operations.
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- Sec. 230. Policy on the talent management of digital expertise and software professionals.
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- Sec. 259. Commercial edge computing technologies and best practices for Department of Defense warfighting systems.
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- Sec. 264. Independent study on optimizing resources allocated to Combating Terrorism Technical Support Office.
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- Sec. 316. Modification of Department of Defense environmental restoration authorities to include Federal Government facilities used by National Guard.
- Sec. 317. Use of operational energy cost savings of Department of Defense.
- Sec. 318. Sale of electricity from alternate energy and cogeneration production facilities.
- Sec. 319. Energy resilience programs and activities.
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- Sec. 321. Transfer authority for funding of study and assessment on health implications of per- and polyfluoroalkyl substances contamination in drinking water by Agency for Toxic Substances and Disease Registry.
- Sec. 322. Replacement of fluorinated aqueous film-forming foam with fluorine-free fire-fighting agent.
- Sec. 323. Prohibition of uncontrolled release of fluorinated aqueous film-forming foam at military installations.
- Sec. 324. Prohibition on use of fluorinated aqueous film forming foam for training exercises.
- Sec. 325. Real-time sound-monitoring at Navy installations where tactical fighter aircraft operate.
- Sec. 326. Development of extreme weather vulnerability and risk assessment tool.
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- Sec. 334. Information relating to locations of burn pit use.
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- Sec. 529. Strategic plan for diversity and inclusion.
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- Sec. 550A. Policies and procedures on registration at military installations of civilian protective orders applicable to members of the Armed Forces assigned to such installations and certain other individuals.
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1 **SEC. 3. CONGRESSIONAL DEFENSE COMMITTEES.**

2 In this Act, the term “congressional defense commit-
3 tees” has the meaning given that term in section
4 101(a)(16) of title 10, United States Code.

5 **SEC. 4. BUDGETARY EFFECTS OF THIS ACT.**

6 The budgetary effects of this Act, for the purposes
7 of complying with the Statutory Pay-As-You-Go Act of
8 2010, shall be determined by reference to the latest state-
9 ment titled “Budgetary Effects of PAYGO Legislation”
10 for this Act, jointly submitted for printing in the Congres-
11 sional Record by the Chairmen of the House and Senate
12 Budget Committees, provided that such statement has
13 been submitted prior to the vote on passage in the House
14 acting first on the conference report or amendment be-
15 tween the Houses.

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Sec. 151. Report on feasibility of multiyear contract for procurement of JASSM-ER missiles.

Sec. 152. Report on aircraft fleet of the Civil Air Patrol.

Sec. 153. Sense of Congress on the light attack aircraft initiative of the Air Force.

Subtitle E—Defense-wide, Joint, and Multiservice Matters

Sec. 161. Economic order quantity contracting and buy-to-budget acquisition for F-35 aircraft program.

Sec. 162. Relief from contractors for failure to deliver ready-for-issue spare parts for the F-35 aircraft program.

Sec. 163. Limitation on availability of funds for reallocation of Turkish F-35A aircraft to the United States.

Sec. 164. Requirement to establish the use of an Agile DevOps software development solution as an alternative for Joint Strike Fighter Autonomous Logistics Information System.

Sec. 165. F-35 sustainment cost.

Sec. 166. Reports on the progress and performance of the F-35 aircraft program.

Sec. 167. Other reports on the F-35 aircraft program.

Sec. 168. Limitation on availability of funds for communications systems lacking certain resiliency features.

Sec. 169. Repeal of tactical unmanned vehicle common data link requirement.

1 **Subtitle A—Authorization Of**
2 **Appropriations**

3 **SEC. 101. AUTHORIZATION OF APPROPRIATIONS.**

4 Funds are hereby authorized to be appropriated for
5 fiscal year 2020 for procurement for the Army, the Navy
6 and the Marine Corps, the Air Force, and Defense-wide
7 activities, as specified in the funding table in section 4101.

8 **Subtitle B—Army Programs**

9 **SEC. 111. AUTHORITY OF THE SECRETARY OF THE ARMY**
10 **TO WAIVE CERTAIN LIMITATIONS RELATED**
11 **TO THE DISTRIBUTED COMMON GROUND**
12 **SYSTEM-ARMY INCREMENT 1.**

13 Section 113(d) of the National Defense Authorization
14 Act for Fiscal Year 2017 (Public Law 114–328; 130 Stat.
15 2028) is amended by striking “Secretary of Defense” both
16 places it appears and inserting “Secretary of the Army”.

1 **Subtitle C—Navy Programs**

2 **SEC. 121. FORD-CLASS AIRCRAFT CARRIER COST LIMITA-**
3 **TION BASELINES.**

4 (a) IN GENERAL.—Chapter 863 of title 10, United
5 States Code, is amended by adding at the end the fol-
6 lowing new section:

7 **“§ 8692. Ford-class aircraft carriers: cost limitation**
8 **baselines**

9 “(a) LIMITATION.—The total amounts obligated or
10 expended from funds authorized to be appropriated or oth-
11 erwise made available for Shipbuilding and Conversion,
12 Navy, or for any other procurement account, may not ex-
13 ceed the following amounts for the following aircraft car-
14 riers:

15 “(1) \$13,224,000,000 for the construction of
16 the aircraft carrier designated CVN–78.

17 “(2) \$11,398,000,000 for the construction of
18 the aircraft carrier designated CVN–79.

19 “(3) \$12,202,000,000 for the construction of
20 the aircraft carrier designated CVN–80.

21 “(4) \$12,451,000,000 for the construction of
22 the aircraft carrier designated CVN–81.

23 “(b) EXCLUSION OF BATTLE AND INTERIM SPARES
24 FROM COST LIMITATION.—The Secretary of the Navy

1 shall exclude from the determination of the amounts set
2 forth in subsection (a) the costs of the following items:

3 “(1) CVN-78 class battle spares.

4 “(2) Interim spares.

5 “(3) Increases attributable to economic inflation
6 after December 1, 2018, not otherwise included in
7 the amounts listed in subsection (a).

8 “(c) WRITTEN NOTICE AND BRIEFING ON CHANGE
9 IN AMOUNT.—The Secretary of the Navy may adjust an
10 amount listed in subsection (a) not fewer than 15 days
11 after submitting written notice and providing a briefing
12 to the congressional defense committees, each of which
13 shall include the amount and rationale of any change and
14 the resulting amount after such change.”.

15 (b) CLERICAL AMENDMENT.—The table of sections
16 at the beginning of chapter 863 of such title is amended
17 by inserting after the item relating to section 8691 the
18 following new item:

“8692. Ford-class aircraft carriers: cost limitation baselines.”.

19 (c) REPEAL OF SUPERSEDED PROVISION.—Section
20 122 of the John Warner National Defense Authorization
21 Act for Fiscal Year 2007 (Public Law 109-364; 120 Stat.
22 2104) is repealed.

1 **SEC. 122. MODIFICATION OF ANNUAL REPORT ON COST**
2 **TARGETS FOR CERTAIN AIRCRAFT CAR-**
3 **RIERS.**

4 Section 126(c) of the National Defense Authorization
5 Act for Fiscal Year 2017 (Public Law 114–328; 130 Stat.
6 2035) is amended—

7 (1) in the subsection heading, by striking “AND
8 CVN–80” and inserting “, CVN–80, AND CVN–81”;

9 (2) in paragraph (1)—

10 (A) by striking “2021” and inserting
11 “2032”; and

12 (B) by striking “costs described in sub-
13 section (b) for the CVN–79 and CVN–80” and
14 inserting “cost targets for the CVN–79, the
15 CVN–80, and the CVN–81”; and

16 (3) in paragraph (2)—

17 (A) in the matter preceding subparagraph
18 (A), by striking “ and the CVN–80” and insert-
19 ing “, the CVN–80, and the CVN–81”

20 (B) in subparagraph (A), by striking
21 “costs described in subsection (b)” and insert-
22 ing “cost targets”;

23 (C) in subparagraph (F), by striking
24 “costs specified in subsection (b)” and inserting
25 “cost targets”; and

1 (D) in subparagraph (G), by striking
2 “costs specified in subsection (b)” and inserting
3 “cost targets”.

4 **SEC. 123. REFUELING AND COMPLEX OVERHAULS OF THE**
5 **U.S.S. JOHN C. STENNIS AND U.S.S. HARRY S.**
6 **TRUMAN.**

7 (a) REFUELING AND COMPLEX OVERHAUL.—The
8 Secretary of the Navy shall carry out the nuclear refueling
9 and complex overhaul of the U.S.S. John C. Stennis
10 (CVN-74) and U.S.S. Harry S. Truman (CVN-75).

11 (b) USE OF INCREMENTAL FUNDING.—With respect
12 to any contract entered into under subsection (a) for the
13 nuclear refueling and complex overhauls of the U.S.S.
14 John C. Stennis (CVN-74) and U.S.S. Harry S. Truman
15 (CVN-75), the Secretary may use incremental funding for
16 a period not to exceed six years after advance procurement
17 funds for such nuclear refueling and complex overhaul ef-
18 fort are first obligated.

19 (c) CONDITION FOR OUT-YEAR CONTRACT PAY-
20 MENTS.—Any contract entered into under subsection (a)
21 shall provide that any obligation of the United States to
22 make a payment under the contract for a fiscal year after
23 fiscal year 2020 is subject to the availability of appropria-
24 tions for that purpose for that later fiscal year.

1 **SEC. 124. FORD CLASS AIRCRAFT CARRIER SUPPORT FOR**
2 **F-35C AIRCRAFT.**

3 Before completing the post-shakedown availability of
4 the Ford class aircraft carrier designated CVN-79, the
5 Secretary of the Navy shall ensure that the aircraft carrier
6 is capable of operating and deploying with the F-35C air-
7 craft.

8 **SEC. 125. PROHIBITION ON USE OF FUNDS FOR REDUCTION**
9 **OF AIRCRAFT CARRIER FORCE STRUCTURE.**

10 None of the funds authorized to be appropriated by
11 this Act or otherwise made available for fiscal year 2020
12 for the Department of Defense may be obligated or ex-
13 pended to reduce the number of operational aircraft car-
14 riers of the Navy below the number specified in section
15 8062(b) of title 10, United States Code.

16 **SEC. 126. MODIFICATION OF PROHIBITION ON AVAIL-**
17 **ABILITY OF FUNDS FOR NAVY WATERBORNE**
18 **SECURITY BARRIERS.**

19 Section 130 of the John S. McCain National Defense
20 Authorization Act for Fiscal Year 2019 (Public Law 115-
21 232) is amended—

22 (1) in subsection (a) by striking “for fiscal year
23 2019 may be obligated or expended to procure leg-
24 acy waterborne security barriers for Navy ports”
25 and inserting “for fiscal year 2019 or fiscal year
26 2020 may be obligated or expended to procure leg-

1 acy waterborne security barriers for Navy ports, in-
2 cluding as replacements for legacy barriers”;

3 (2) in subsection (c)(1), by inserting “of not
4 more than 30 percent” after “replacement”; and

5 (3) by adding at the end the following new sub-
6 section:

7 “(d) NOTIFICATION.—Not later than 15 days after
8 an exception is made pursuant to subsection (c)(2), the
9 Secretary of the Navy shall submit a written notification
10 to the congressional defense committees that includes—

11 “(1) the name and position of the government
12 official who determined exigent circumstances exist;

13 “(2) a description of the exigent circumstances;
14 and

15 “(3) a description of how waterborne security
16 will be maintained until new waterborne security
17 barriers are procured and installed.”.

18 **SEC. 127. LHA REPLACEMENT AMPHIBIOUS ASSAULT SHIP**
19 **PROGRAM.**

20 (a) **AUTHORITY TO USE INCREMENTAL FUNDING.—**

21 The Secretary of the Navy may enter into and incremen-
22 tally fund a contract for detail design and construction
23 of the LHA replacement ship designated LHA 9 and, sub-
24 ject to subsection (b), funds for payments under the con-
25 tract may be provided from amounts authorized to be ap-

1 appropriated for the Department of Defense for Shipbuilding
2 and Conversion, Navy, for fiscal years 2019 through 2025.

3 (b) **CONDITION FOR OUT-YEAR CONTRACT PAY-**
4 **MENTS.**—A contract entered into under subsection (a)
5 shall provide that any obligation of the United States to
6 make a payment under the contract for any subsequent
7 fiscal year is subject to the availability of appropriations
8 for that purpose for such subsequent fiscal year.

9 (c) **REPEAL OF OBSOLETE AUTHORITY.**—Section
10 125 of the John Warner National Defense Authorization
11 Act for Fiscal Year 2007 (Public Law 109–364; 120 Stat.
12 2106) is repealed.

13 **SEC. 128. STRATEGIC SEALIFT FLEET VESSEL.**

14 (a) **IN GENERAL.**—Subject to the availability of ap-
15 propriations, the Secretary of the Navy shall seek to enter
16 into a contract for the construction of one sealift vessel.

17 (b) **DELIVERY DATE.**—The contract entered into
18 under subsection (a) shall specify a delivery date for the
19 sealift vessel of not later than September 30, 2026.

20 (c) **DESIGN AND CONSTRUCTION REQUIREMENTS.**—

21 (1) **USE OF EXISTING DESIGN.**—The design of
22 the sealift vessel shall be based on a domestic or for-
23 eign design that exists as of the date of the enact-
24 ment of this Act.

1 (2) COMMERCIAL STANDARDS AND PRAC-
2 TICES.—Subject to paragraph (1), the sealift vessel
3 may be constructed using commercial design stand-
4 ards and commercial construction practices that are
5 consistent with the best interests of the Federal
6 Government.

7 (3) DOMESTIC SHIPYARD.—The sealift vessel
8 shall be constructed in a shipyard that is located in
9 the United States.

10 (d) CERTIFICATE AND ENDORSEMENT.—The sealift
11 vessel shall meet the requirements necessary to receive a
12 certificate of documentation and a coastwise endorsement
13 under chapter 121 of title 46, United States Code, and the
14 Secretary of the Navy shall ensure that the completed ves-
15 sel receives such a certificate and endorsement.

16 (e) EXECUTIVE AGENT.—

17 (1) IN GENERAL.—The Secretary of the Navy
18 may seek to enter into a contract or other agreement
19 with a private-sector entity under which the entity
20 may act as executive agent for the Secretary for pur-
21 poses of the contract under subsection (a).

22 (2) RESPONSIBILITIES.—The executive agent
23 described in paragraph (1) may be responsible for—

24 (A) selecting a shipyard for the construc-
25 tion of the sealift vessel;

1 (B) managing and overseeing the construc-
2 tion of the sealift vessel; and

3 (C) such other matters as the Secretary of
4 the Navy determines to be appropriate

5 (f) USE OF INCREMENTAL FUNDING.—With respect
6 to the contract entered into under subsection (a), the Sec-
7 retary of the Navy may use incremental funding to make
8 payments under the contract.

9 (g) SEALIFT VESSEL DEFINED.—In this section, the
10 term “sealift vessel” means the sealift vessel constructed
11 pursuant to the contract entered into under subsection (a).

12 **SEC. 129. DESIGN AND CONSTRUCTION OF AMPHIBIOUS**
13 **TRANSPORT DOCK DESIGNATED LPD-31.**

14 (a) IN GENERAL.—Using funds authorized to be ap-
15 propriated for the Department of Defense for Shipbuilding
16 and Conversion, Navy, the Secretary of the Navy may
17 enter into a contract, beginning with the fiscal year 2020
18 program year, for the design and construction of the am-
19 phibious transport dock designated LPD-31.

20 (b) USE OF INCREMENTAL FUNDING.—With respect
21 to the contract entered into under subsection (a), the Sec-
22 retary may use incremental funding to make payments
23 under the contract.

24 (c) CONDITION FOR OUT-YEAR CONTRACT PAY-
25 MENTS.—The contract entered into under subsection (a)

1 shall provide that any obligation of the United States to
2 make a payment under such contract for any fiscal year
3 after fiscal year 2020 is subject to the availability of ap-
4 propriations for that purpose for such later fiscal year.

5 **SEC. 130. LIMITATION ON AVAILABILITY OF FUNDS FOR**
6 **THE LITTORAL COMBAT SHIP.**

7 (a) LIMITATIONS.—None of the funds authorized to
8 be appropriated by this Act for fiscal year 2020 for the
9 Department of Defense may be used to exceed, and the
10 Department may not otherwise exceed, the total procure-
11 ment quantity of thirty-five Littoral Combat Ships, unless
12 the Under Secretary of Defense for Acquisition and
13 Sustainment submits to the congressional defense commit-
14 tees the certification described in subsection (b).

15 (b) CERTIFICATION.—The certification described in
16 this subsection is a certification by the Under Secretary
17 that awarding a contract for the procurement of a Littoral
18 Combat Ship that exceeds the total procurement quantity
19 listed in revision five of the Littoral Combat Ship acqui-
20 sition strategy—

21 (1) is in the national security interests of the
22 United States;

23 (2) will not result in exceeding the low-rate ini-
24 tial production quantity approved in the Littoral

1 Combat Ship acquisition strategy in effect as of the
2 date of the certification; and

3 (3) is necessary to maintain a full and open
4 competition for the Guided Missile Frigate
5 (FFG(X)) with a single source award in fiscal year
6 2020.

7 **SEC. 131. LIMITATION ON THE NEXT NEW CLASS OF NAVY**
8 **LARGE SURFACE COMBATANTS.**

9 (a) IN GENERAL.—Milestone B approval may not be
10 granted for the next new class of Navy large surface com-
11 batants unless the class of Navy large surface combatants
12 incorporates prior to such approval—

13 (1) design changes identified during the full du-
14 ration of the combat system ship qualification trials
15 and operational test periods of the first Arleigh
16 Burke-class destroyer in the Flight III configuration
17 to complete such events; and

18 (2) final results of test programs of engineering
19 development models or prototypes for critical sys-
20 tems specified by the Senior Technical Authority
21 pursuant to section 8669b of title 10, United States
22 Code, as added by section 1034 of this Act, in their
23 final form, fit, and function and in a realistic envi-
24 ronment, which shall include a land-based engineer-
25 ing site for the propulsion system.

1 (b) LIMITATION.—The Secretary of the Navy may
2 not release a detail design or construction request for pro-
3 posals or obligate funds from the Shipbuilding and Con-
4 version, Navy account for the next new class of Navy large
5 surface combatants until the class of Navy large surface
6 combatants receives Milestone B approval and the mile-
7 stone decision authority notifies the congressional defense
8 committees, in writing, of the actions taken to comply with
9 the requirements under subsection (a).

10 (c) DEFINITIONS.—In this section:

11 (1) The term “Milestone B approval” has the
12 meaning given the term in section 2366(e)(7) of title
13 10, United States Code.

14 (2) The term “milestone decision authority”
15 means the official within the Department of Defense
16 designated with the overall responsibility and au-
17 thority for acquisition decisions for the program, in-
18 cluding authority to approve entry of the program
19 into the next phase of the acquisition process.

20 (3) The term “large surface combatants”
21 means Navy surface ships that are designed pri-
22 marily to engage in attacks against airborne, sur-
23 face, subsurface, and shore targets, excluding frig-
24 ates and littoral combat ships.

1 **SEC. 132. LIMITATION ON AVAILABILITY OF FUNDS PEND-**
2 **ING QUARTERLY UPDATES ON THE CH-53K**
3 **KING STALLION HELICOPTER PROGRAM.**

4 (a) **LIMITATION.**—Of the funds authorized to be ap-
5 propriated by this Act or otherwise made available for fis-
6 cal year 2020 for aircraft procurement, Navy, for the CH-
7 53K King Stallion helicopter program, not more than 50
8 percent may be obligated or expended until a period of
9 30 days has elapsed following the date on which the Sec-
10 retary of the Navy provides the first briefing required
11 under subsection (b).

12 (b) **QUARTERLY BRIEFINGS REQUIRED.**—

13 (1) **IN GENERAL.**—Beginning not later than 30
14 days after the date of the enactment of this Act, and
15 on a quarterly basis thereafter through the end of
16 fiscal year 2022, the Secretary of the Navy shall
17 provide to the Committees on Armed Services of the
18 Senate and the House of Representatives a briefing
19 on the progress of the CH-53K King Stallion heli-
20 copter program.

21 (2) **ELEMENTS.**—Each briefing under para-
22 graph (1) shall include, with respect to the CH-53K
23 King Stallion helicopter program, the following:

24 (A) An overview of the program schedule.

25 (B) A statement of the total cost of the
26 program as of the date of the briefing, includ-

1 ing the costs of development, testing, and pro-
2 duction.

3 (C) A comparison of the total cost of the
4 program relative to the approved acquisition
5 program baseline.

6 (D) An assessment of flight testing under
7 the program, including identification of the
8 number of test events that have been conducted
9 on-time in accordance with the joint integrated
10 program schedule.

11 (E) An update on the correction of tech-
12 nical deficiencies under the program, includ-
13 ing—

14 (i) identification of the technical defi-
15 ciencies that have been corrected as of the
16 date of the briefing;

17 (ii) identification of the technical defi-
18 ciencies that have been discovered, but not
19 corrected, as of such date;

20 (iii) an estimate of the total cost of
21 correcting technical deficiencies under the
22 program; and

23 (iv) an explanation of any significant
24 deviations from the testing and program
25 schedule that are anticipated due to the

1 discovery and correction of technical defi-
2 ciencies.

3 **SEC. 133. LIMITATION ON AVAILABILITY OF FUNDS FOR**
4 **VH-92A HELICOPTER.**

5 (a) LIMITATION.—Of the funds authorized to be ap-
6 propriated by this Act or otherwise made available for fis-
7 cal year 2020 for procurement for the VH-92A helicopter,
8 not more than 80 percent may be obligated or expended
9 until the date on which the Secretary of Navy submits to
10 the Committees on Armed Services of the Senate and the
11 House of Representatives the report required under sub-
12 section (b).

13 (b) REPORT REQUIRED.—The Secretary of the Navy
14 shall submit to the Committees on Armed Services of the
15 Senate and the House of Representatives a report assess-
16 ing the status of the VH-92A helicopter program indus-
17 trial base and the potential impact of proposed manufac-
18 turing base changes on the acquisition program. The re-
19 port shall include a description of—

20 (1) estimated effects on the manufacturing
21 readiness level of the VH-92 program due to poten-
22 tial changes to the program manufacturing base;

23 (2) the estimated costs and assessment of cost
24 risk to the program due to potential changes to the
25 program manufacturing base;

1 (3) any estimated schedule impacts, including
2 impacts on delivery dates for the remaining low-rate
3 initial production lots and full rate production, re-
4 sulting from any changes to the manufacturing base;

5 (4) an assessment of the effect of changes to
6 the manufacturing base on VH-92A sustainment;
7 and

8 (5) the impact of such changes on production
9 and sustainment capacity for the MH-60 and CH-
10 53K helicopters of the Navy.

11 **SEC. 134. REPORT ON CARRIER WING AND AVIATION COM-**
12 **BAT ELEMENT COMPOSITION.**

13 (a) IN GENERAL.—Not later than May 1, 2020, the
14 Secretary of the Navy shall submit to the congressional
15 defense committees a report on the optimal composition
16 of the carrier air wing (CVW) on aircraft carriers and
17 aviation combat element (ACE) embarked on amphibious
18 ships in 2030 and 2040, including alternative force design
19 concepts.

20 (b) ELEMENTS.—The report required under sub-
21 section (a) shall include the following elements for the
22 CVW and ACE:

23 (1) Analysis and justification for the Depart-
24 ment of the Navy's stated goal of a 50/50 mix of 4th
25 and 5th generation aircraft for 2030.

1 (2) Analysis and justification for an optimal
2 mix of aircraft for 2040.

3 (3) A plan for incorporating unmanned aerial
4 vehicles and associated communication capabilities to
5 effectively implement the future force design.

6 (4) Analysis of the support equipment require-
7 ment for each aircraft type and the space needed to
8 accommodate such equipment.

9 (5) A description of existing and potential ship
10 designs or design changes that would enable greater
11 commonality and interoperability of embarked naval
12 aircraft, including aircraft arresting gear and launch
13 catapults.

14 (c) BRIEFING.—Not later than March 1, 2020, the
15 Secretary of the Navy shall provide the congressional de-
16 fense committees a briefing on the report required under
17 subsection (a).

18 **Subtitle D—Air Force Programs**

19 **SEC. 141. MODIFICATION OF REQUIREMENT TO PRESERVE** 20 **CERTAIN C-5 AIRCRAFT.**

21 Section 141(d) of the National Defense Authorization
22 Act for Fiscal Year 2013 (Public Law 112–239; 126 Stat.
23 1661) is amended—

24 (1) in paragraph (1), by striking “until the date
25 that is 30 days after the date on which the briefing

1 under section 144(b) of the National Defense Au-
2 thorization Act for Fiscal Year 2018 is provided to
3 the congressional defense committees” and inserting
4 “until the date that is 30 days after the date on
5 which the final report and briefing required under
6 section 1712(c)(2) of the National Defense Author-
7 ization Act for Fiscal Year 2020 have each been pro-
8 vided to the congressional defense committees”; and
9 (2) in paragraph (2)(A), by striking “can be re-
10 turned to service” and inserting “is inducted into or
11 maintained in type 1000 recallable storage”.

12 **SEC. 142. OC-135B AIRCRAFT RECAPITALIZATION PRO-**
13 **GRAM.**

14 The Secretary of the Air Force shall ensure that any
15 request for proposals for the procurement of an OC-135B
16 aircraft under a recapitalization program for such aircraft
17 meets the requirements for full and open competition as
18 set forth in section 2304 of title 10, United States Code,
19 and includes, as part of such request for proposals, consid-
20 eration of proposals for the provision of new production
21 aircraft and recently manufactured aircraft.

1 **SEC. 143. REQUIREMENT TO ALIGN AIR FORCE AVIATION**
2 **FORCE STRUCTURE WITH NATIONAL DE-**
3 **FENSE STRATEGY.**

4 (a) **REQUIRED SUBMISSION OF STRATEGY.**—Not
5 later than March 1, 2020, the Secretary of the Air Force
6 shall submit to the congressional defense committees an
7 aviation force structure acquisition strategy that aligns
8 with the stated capability and capacity requirements of the
9 Department of the Air Force to meet the National Defense
10 Strategy.

11 (b) **ALIGNMENT WITH STRATEGY.**—The Secretary of
12 the Air Force may not deviate from the strategy submitted
13 under subsection (a) until—

14 (1) the Secretary receives a waiver from the
15 Secretary of Defense, in consultation with the Chair-
16 man of the Joint Chiefs of Staff; and

17 (2) the Secretary of Defense provides the con-
18 gressional defense committees with the waiver ap-
19 proval documentation.

20 **SEC. 144. PROHIBITION ON AVAILABILITY OF FUNDS FOR**
21 **REDUCTION IN KC-10 PRIMARY MISSION AIR-**
22 **CRAFT INVENTORY.**

23 None of the funds authorized to be appropriated by
24 this Act or otherwise made available for fiscal year 2020
25 for the Air Force may be obligated or expended to reduce

1 the number of KC-10 aircraft in the primary mission air-
2 craft inventory of the Air Force.

3 **SEC. 145. LIMITATION ON AVAILABILITY OF FUNDS FOR F-**
4 **15EX AIRCRAFT.**

5 (a) LIMITATION.—Except as provided in subsection
6 (b), none of the funds authorized to be appropriated by
7 this Act or otherwise made available for fiscal year 2020
8 for the Air Force may be obligated or expended to procure
9 any F-15EX aircraft, other than the first two prototypes
10 of such aircraft, until a period of 15 days has elapsed fol-
11 lowing the date on which the Secretary of the Air Force
12 submits to the congressional defense committees a report
13 on the following topics relating to the F-15EX program:

- 14 (1) Acquisition strategy.
15 (2) Cost and schedule estimates.
16 (3) Test and evaluation strategy.
17 (4) Logistics strategy.
18 (5) Post-production fielding strategy.

19 (b) EXCEPTION FOR LONG-LEAD ITEMS.—

20 (1) IN GENERAL.—Notwithstanding subsection
21 (a), the Secretary of the Air Force may use the
22 funds described in paragraph (2) to procure long-
23 lead items for up to six additional F-15EX aircraft
24 beyond the first two prototypes of such aircraft.

1 Air Force notifies the congressional defense committees of
2 the intent of the Secretary to authorize such work.

3 (b) EXCEPTION.—The limitation under subsection
4 (a) shall not apply to over and above work carried out—

5 (1) to repair or replace items damaged during
6 the testing of the VC–25B aircraft; or

7 (2) to make changes necessary to meet oper-
8 ational requirements.

9 (c) DEFINITIONS.—In this section:

10 (1) The term “operational requirements” means
11 any of the operational requirements for the VC–25B
12 aircraft described in the capability development doc-
13 ument or the system requirements document for the
14 Presidential Aircraft Recapitalization Program.

15 (2) The term “over and above work” means
16 work performed pursuant to line 0012 (CLIN 0012)
17 of the contract for Presidential Aircraft Recapital-
18 ization entered into between the Department of the
19 Air Force and the Boeing Company (contract num-
20 ber FA8625–16–C–6599).

21 **SEC. 147. LIMITATION ON AVAILABILITY OF FUNDS FOR**
22 **RC–26B AIRCRAFT.**

23 (a) LIMITATION.—Except as provided in subsection
24 (b), none of the funds authorized to be appropriated by
25 this Act or otherwise made available for fiscal year 2020

1 for the Air Force may be obligated or expended to retire,
2 divest, realign, or place in storage or on backup aircraft
3 inventory status, or prepare to retire, divest, realign, or
4 place in storage or backup inventory status, any RC-26B
5 aircraft until the date on which the Secretary of the Air
6 Force submits to the congressional defense committees—

7 (1) the report required under subsection (c);

8 and

9 (2) the certification required under subsection
10 (d).

11 (b) EXCEPTION.—The limitation in subsection (a)
12 shall not apply to individual RC-26B aircraft that the
13 Secretary of the Air Force determines, on a case-by-case
14 basis, to be no longer mission capable because of mishaps
15 or other damage.

16 (c) REPORT REQUIRED.—Not later than 90 days
17 after the date of the enactment of this Act, the Secretary
18 of the Air Force shall submit to the congressional defense
19 committees a report that includes the following:

20 (1) A survey of any requirements for the Air
21 Force to provide intelligence, surveillance, and re-
22 connaissance support to other military forces and
23 civil authorities that the Air Force and the Air Na-
24 tional Guard meet using the RC-26B aircraft.

1 (2) An assessment of the extent to which such
2 requirements are appropriate for the Air Force to
3 fulfill.

4 (3) The manner in which the Secretary would
5 meet such requirements if the RC-26B aircraft were
6 to be retired.

7 (4) A comparison of costs and effectiveness of
8 alternative means of providing intelligence, surveil-
9 lance, and reconnaissance support to other military
10 forces and civil authorities.

11 (5) An assessment of the utility of entering into
12 one or more memoranda of agreement with other
13 military forces and civil authorities to govern the
14 process for providing intelligence, surveillance, and
15 reconnaissance support to those forces and authori-
16 ties.

17 (d) CERTIFICATION REQUIRED.—Not later than 60
18 days after the date on which the Secretary of the Air
19 Force submits the report required under subsection (c),
20 the Secretary shall certify to the congressional defense
21 committees—

22 (1) whether there are requirements for the Air
23 Force to provide intelligence, surveillance, and re-
24 connaissance support to other military forces and

1 civil authorities that the Air Force meets using the
2 RC-26B aircraft; and

3 (2) whether the Secretary has identified meth-
4 ods of meeting such requirements that are more ef-
5 fective and more efficient than meeting such require-
6 ments through the use of the RC-26B aircraft.

7 **SEC. 148. LIMITATION ON AVAILABILITY OF FUNDS FOR RE-**
8 **TIREMENT OF RC-135 AIRCRAFT.**

9 (a) LIMITATION.—Except as provided in subsection
10 (b), none of the funds authorized to be appropriated by
11 this Act or otherwise made available for fiscal year 2020
12 for the Air Force may be obligated or expended to retire,
13 or prepare to retire, any RC-135 aircraft until a period
14 of 60 days has elapsed following the date on which the
15 Secretary of Defense certifies to the congressional defense
16 committees that—

17 (1) technologies other than the RC-135 aircraft
18 provide capacity and capabilities equivalent to the
19 capacity and capabilities of the RC-135 aircraft;
20 and

21 (2) the capacity and capabilities of such other
22 technologies meet the requirements of combatant
23 commanders with respect to indications and warn-
24 ing, intelligence preparation of the operational envi-

1 (1) IN GENERAL.—The Secretary of the Air
2 Force may not transfer any low-rate initial produc-
3 tion F-35 aircraft for use as aggressor aircraft until
4 the Chief of Staff of the Air Force submits to the
5 congressional defense committees a comprehensive
6 plan and report on the strategy for modernizing its
7 organic aggressor fleet.

8 (2) ELEMENTS.—The report required under
9 paragraph (1) shall include the following elements:

10 (A) Potential locations for F-35A aggressor
11 aircraft, including an analysis of installa-
12 tions that—

13 (i) have the size and availability of
14 airspace necessary to meet flying oper-
15 ations requirements;

16 (ii) have sufficient capacity and avail-
17 ability of range space;

18 (iii) are capable of hosting advanced-
19 threat training exercises; and

20 (iv) meet or require minimal addition
21 to the environmental requirements associ-
22 ated with the basing action.

23 (B) An analysis of the potential cost and
24 benefits of expanding aggressor squadrons cur-

1 rently operating 18 Primary Assigned Aircraft
2 (PAA) to a level of 24 PAA each.

3 (C) An analysis of the cost and timelines
4 associated with modernizing the current Air
5 Force aggressor squadrons to include upgrading
6 aircraft radar, infrared search-and-track sys-
7 tems, radar warning receiver, tactical datalink,
8 threat-representative jamming pods, and other
9 upgrades necessary to provide a realistic ad-
10 vanced adversary threat.

11 **SEC. 150. AIR FORCE PLAN FOR COMBAT RESCUE HELI-**
12 **COPTER FIELDING.**

13 (a) SENSE OF CONGRESS.—It is the sense of Con-
14 gress that, given delays to Operational Loss Replacement
15 (OLR) program fielding and the on-time fielding of Com-
16 bat Rescue Helicopter (CRH), the Air National Guard
17 should retain additional HH–60G helicopters at Air Na-
18 tional Guard locations to meet their recommended primary
19 aircraft authorized (PAA) per the Air Force’s June 2018
20 report on Air National Guard HH–60 requirements.

21 (b) REPORT ON FIELDING PLAN.—

22 (1) IN GENERAL.—Not later than 45 days after
23 the date of the enactment of this Act, the Secretary
24 of the Air Force shall submit to the congressional

1 defense committees a report on its fielding plan for
2 the CRH program.

3 (2) ELEMENTS.—The report required under
4 paragraph (1) shall include the following elements:

5 (A) A description of the differences in ca-
6 pabilities between the HH-60G, OLR, and
7 CRH helicopters.

8 (B) A description of the costs and risks as-
9 sociated with changing the CRH fielding plan
10 to reduce or eliminate inventory shortfalls.

11 (C) A description of the measures for ac-
12 celerating the program available within the cur-
13 rent contract.

14 (D) A description of the operational risks
15 and benefits associated with fielding the CRH
16 to the active component first, including—

17 (i) how the differing fielding plan may
18 affect deployment schedules;

19 (ii) what capabilities active-component
20 units deploying with the CRH will have
21 that reserve component units deploying
22 with OLR will not; and

23 (iii) an analysis of the potential costs
24 and benefits that could result from accel-
25 erating CRH fielding to all units through

1 additional funding in the future years de-
2 fense program.

3 (c) REPORT ON TRAINING PLAN.—

4 (1) IN GENERAL.—Not later than 45 days after
5 the date of the enactment of this Act, the Secretary
6 of the Air Force shall submit to the congressional
7 defense committees a report on the plan to sustain
8 training for initial-entry reserve component HH–
9 60G pilots once the active component of the Air
10 Force has received all of its CRH helicopters.

11 (2) ELEMENTS.—The report required under
12 paragraph (1) shall include the following elements:

13 (A) Projected reserve component aircrew
14 initial HH–60G/OLR qualification training re-
15 quirements, by year.

16 (B) The number of legacy HH–60G/OLR
17 helicopters required to continue providing initial
18 HH–60G qualification training through the
19 150th Special Operations Wing at Kirtland Air
20 Force Base.

21 (C) The number of personnel required to
22 continue providing initial HH–60G/OLR quali-
23 fication training through the 150th Special Op-
24 erations Wing at Kirtland Air Force Base.

1 (D) The number of flying hours required
2 per pilot to perform “differences training” at
3 home station for initial entry HH–60 pilots re-
4 ceiving CRH training at Kirtland Air Force
5 Base to become qualified in the HH–60G/OLR
6 at their home station.

7 (E) The projected effect of using local fly-
8 ing training hours at reserve component units
9 on overall unit training readiness and ability to
10 meet Ready Aircrew Program requirements.

11 **SEC. 151. REPORT ON FEASIBILITY OF MULTIYEAR CON-**
12 **TRACT FOR PROCUREMENT OF JASSM-ER**
13 **MISSILES.**

14 (a) IN GENERAL.—Not later than March 31, 2020,
15 the Secretary of the Air Force shall submit a report to
16 the congressional defense committees assessing the feasi-
17 bility of entering into a multiyear contract for procure-
18 ment of JASSM–ER missiles starting in fiscal year 2022.

19 (b) ELEMENTS.—The report required under sub-
20 section (a) shall include the following elements:

21 (1) An initial assessment of cost savings to the
22 Air Force from a multiyear contract.

23 (2) An analysis of at least two different
24 multiyear contract options that vary in either dura-
25 tion or quantity, at least one of which assumes a

1 maximum procurement of 550 missiles per year for
2 5 years.

3 (3) An assessment of how a multiyear contract
4 will impact the industrial base.

5 (4) An assessment of how a multiyear contract
6 will impact the Long Range Anti-Ship Missile.

7 (5) An assessment of how a multiyear contract
8 will impact the ability of the Air Force to develop
9 additional capabilities for the JASSM-ER missile.

10 **SEC. 152. REPORT ON AIRCRAFT FLEET OF THE CIVIL AIR**
11 **PATROL.**

12 (a) REPORT.—Not later than 90 days after the date
13 of the enactment of this Act, the Secretary of the Air
14 Force shall submit to the congressional defense commit-
15 tees a report on the aircraft fleet of the Civil Air Patrol.

16 (b) ELEMENTS.—The report required by subsection
17 (a) shall include an assessment of each of the following:

18 (1) Whether the number of aircraft, types of
19 aircraft, and operating locations that comprise the
20 Civil Air Patrol fleet are suitable for the missions
21 and responsibilities assigned to the Civil Air Patrol,
22 including—

23 (A) flight proficiency and training;

24 (B) operational mission training; and

1 (C) support for cadet orientation and cadet
2 flight training programs in the Civil Air Patrol
3 wing of each State.

4 (2) The ideal overall size of the Civil Air Patrol
5 aircraft fleet, including a description of the factors
6 used to determine that ideal size.

7 (3) The process used by the Civil Air Patrol
8 and the Air Force to determine the number and lo-
9 cation of aircraft operating locations and whether
10 State Civil Air Patrol wing commanders are appro-
11 priately involved in that process.

12 (4) The process used by the Civil Air Patrol,
13 the Air Force, and other relevant entities to deter-
14 mine the type and number of aircraft that are need-
15 ed to support the emergency, operational, and train-
16 ing missions of the Civil Air Patrol.

17 **SEC. 153. SENSE OF CONGRESS ON THE LIGHT ATTACK AIR-**
18 **CRAFT INITIATIVE OF THE AIR FORCE.**

19 It is the sense of the Congress that—

20 (1) The United States Special Operations Com-
21 mand has a mission requirement to support foreign
22 internal defense training and a light attack aircraft
23 platform could potentially facilitate meeting that re-
24 quirement.

1 (2) The Secretary of the Air Force should co-
2 ordinate with the Commander of the United States
3 Special Operations Command to assess how general
4 purpose forces and special operations forces can le-
5 verage the light attack aircraft phase three experi-
6 mentation activities of the Air Force.

7 (3) The Secretary of the Air Force, in coordina-
8 tion with the Commander of the United States Spe-
9 cial Operations Command, should explore options for
10 coordinating light attack aircraft experiment activi-
11 ties between general purpose forces and special oper-
12 ations forces to maximize efficiency and effectiveness
13 and to further the mission requirements of both
14 forces, including options to transfer a portion of
15 funds authorized for Air Force light attack aircraft
16 experiments to procure aircraft for supporting the
17 combat air advisor mission of the Special Operations
18 Command.

19 **Subtitle E—Defense-wide, Joint,**
20 **and Multiservice Matters**

21 **SEC. 161. ECONOMIC ORDER QUANTITY CONTRACTING AND**
22 **BUY-TO-BUDGET ACQUISITION FOR F-35 AIR-**
23 **CRAFT PROGRAM.**

24 (a) ECONOMIC ORDER QUANTITY CONTRACT AU-
25 THORITY.—

1 (1) IN GENERAL.—Subject to paragraphs (2)
2 through (4), from amounts made available for obli-
3 gation under the F-35 aircraft program, the Sec-
4 retary of Defense may enter into one or more con-
5 tracts, beginning with the fiscal year 2020 program
6 year, for the procurement of economic order quan-
7 tities of material and equipment that has completed
8 formal hardware qualification testing for the F-35
9 aircraft program for use in procurement contracts to
10 be awarded for such program during fiscal years
11 2021, 2022, and 2023.

12 (2) LIMITATION.—The total amount obligated
13 under all contracts entered into under paragraph (1)
14 shall not exceed \$574,000,000.

15 (3) PRELIMINARY FINDINGS.—Before entering
16 into a contract under paragraph (1), the Secretary
17 of Defense shall make each of the following findings
18 with respect to such contract:

19 (A) The use of such a contract will result
20 in significant savings of the total anticipated
21 costs of carrying out the program through an-
22 nual contracts.

23 (B) The minimum need for the property to
24 be procured is expected to remain substantially
25 unchanged during the contemplated contract

1 period in terms of production rate, procurement
2 rate, and total quantities.

3 (C) There is a reasonable expectation that,
4 throughout the contemplated contract period,
5 the Secretary will request funding for the con-
6 tract at the level required to avoid contract can-
7 cellation.

8 (D) That there is a stable, certified, and
9 qualified design for the property to be procured
10 and that the technical risks and redesign risks
11 associated with such property are low.

12 (E) The estimates of both the cost of the
13 contract and the anticipated cost avoidance
14 through the use of an economic order quantity
15 contract are realistic.

16 (F) Entering into the contract will pro-
17 mote the national security interests of the
18 United States.

19 (4) CERTIFICATION REQUIREMENT.—The Sec-
20 retary of Defense may not enter into a contract
21 under paragraph (1) until a period of 30 days has
22 elapsed following the date on which the Secretary
23 certifies to the congressional defense committees, in
24 writing, that each of the following conditions is sat-
25 isfied:

1 (A) A sufficient number of end items of
2 the system being acquired under such contract
3 have been delivered at or within the most re-
4 cently available estimates of the program acqui-
5 sition unit cost or procurement unit cost for
6 such system to determine that the estimates of
7 the unit costs are realistic.

8 (B) During the fiscal year in which such
9 contract is to be awarded, sufficient funds will
10 be available to perform the contract in such fis-
11 cal year, and the future-years defense program
12 submitted to Congress under section 221 of
13 title 10, United States Code, for that fiscal year
14 will include the funding required to execute the
15 program without cancellation.

16 (C) The contract is a fixed-price type con-
17 tract.

18 (D) The proposed contract provides for
19 production at not less than minimum economic
20 rates given the existing tooling and facilities.

21 (E) The Secretary has determined that
22 each of the conditions described in subpara-
23 graphs (A) through (F) of paragraph (3) will be
24 met by such contract and has provided the

1 basis for such determination to the congres-
2 sional defense committees.

3 (b) BUY-TO-BUDGET ACQUISITION.—Subject to sec-
4 tion 2308 of title 10, United States Code, the Secretary
5 of Defense may procure a quantity of F-35 aircraft in
6 excess of the quantity authorized by this Act.

7 **SEC. 162. RELIEF FROM CONTRACTORS FOR FAILURE TO**
8 **DELIVER READY-FOR-ISSUE SPARE PARTS**
9 **FOR THE F-35 AIRCRAFT PROGRAM.**

10 (a) REQUIREMENT TO SEEK RELIEF.—Consistent
11 with the findings and recommendations of the Inspector
12 General of the Department of Defense in the report titled
13 “Audit of F-35 Ready-For-Issue Spare Parts and
14 Sustainment Performance Incentive Fees” (DODIG–
15 2019–094) and dated June 13, 2019, the Secretary of De-
16 fense shall seek relief, as described in subsection (b), from
17 prime contractors that delivered noncompliant ready-for-
18 issue spare parts pursuant a contract under the F-35 air-
19 craft program.

20 (b) RELIEF DESCRIBED.—The relief sought by the
21 Secretary of Defense under subsection (a) may include the
22 following:

23 (1) Specific performance.

24 (2) Compensation for costs incurred by the De-
25 partment of Defense as a result of the contractor’s

1 failure to deliver compliant ready-for-issue spare
2 parts under the contract.

3 (3) Any other form of remediation or compensa-
4 tion the Secretary determines to be appropriate.

5 (c) RULE OF CONSTRUCTION.—Nothing in this sec-
6 tion shall be construed—

7 (1) to alter the terms of a contract under the
8 F-35 aircraft program; or

9 (2) to authorize the Secretary of Defense to
10 seek forms of relief beyond those otherwise available
11 under law.

12 **SEC. 163. LIMITATION ON AVAILABILITY OF FUNDS FOR RE-**
13 **ALLOCATION OF TURKISH F-35A AIRCRAFT**
14 **TO THE UNITED STATES.**

15 (a) LIMITATION.—None of the funds authorized to
16 be appropriated by this Act or otherwise made available
17 for fiscal year 2020 for the Air Force may be obligated
18 or expended to procure a covered F-35A aircraft for the
19 United States Air Force until a period of 15 days has
20 elapsed following the date on which the Secretary of De-
21 fense certifies to the congressional defense committees
22 that—

23 (1) ancillary mission equipment, initial spare
24 parts and materials, technical data, and publications

1 will be procured for each covered F-35A aircraft de-
2 livered to the Air Force; and

3 (2) each such aircraft will be delivered to the
4 Air Force in a common configuration that may be
5 operated and integrated within the fleet of F-35A
6 aircraft of the Air Force.

7 (b) COVERED F-35A AIRCRAFT DEFINED.—In this
8 section, the term “covered F-35A aircraft” means an F-
9 35A aircraft previously procured by or on behalf of the
10 Government of the Republic of Turkey in F-35 production
11 lot 12, 13, or 14.

12 **SEC. 164. REQUIREMENT TO ESTABLISH THE USE OF AN**
13 **AGILE DEVOPS SOFTWARE DEVELOPMENT**
14 **SOLUTION AS AN ALTERNATIVE FOR JOINT**
15 **STRIKE FIGHTER AUTONOMIC LOGISTICS IN-**
16 **FORMATION SYSTEM.**

17 (a) COMPETITIVE ANALYSIS.—The Secretary of De-
18 fense shall conduct a competitive analysis of the perform-
19 ance and design architecture enhancement efforts between
20 the currently fielded Autonomic logistics Information Sys-
21 tem, Autonomic Logistics Information System-Next, and
22 the Department of the Air Force Agile Development Oper-
23 ations Madhatter initiative efforts, including system tech-
24 nology transition opportunities and timelines.

1 (c) BRIEFING.—Not later than September 30, 2020,
2 the Secretary of Defense shall provide the congressional
3 defense committees a briefing on the findings of the com-
4 petitive analysis carried out under subsection (a).

5 **SEC. 165. F-35 SUSTAINMENT COST.**

6 (a) QUARTERLY UPDATE.—The Under Secretary of
7 Defense for Acquisition and Sustainment shall include in
8 the quarterly report required under section 155 of the
9 John S. McCain National Defense Authorization Act for
10 Fiscal Year 2019 (Public Law 115–232)—

11 (1) sustainment cost data related to the F–35
12 program, including a comparison in itemized format
13 of the cost of legacy aircraft and the cost of the F–
14 35 program, based on a standardized set of criteria;
15 and

16 (2) an evaluation and metrics on the extent to
17 which the goals developed pursuant to subsection (b)
18 are being achieved.

19 (b) COST REDUCTION PLAN.—

20 (1) IN GENERAL.—The Under Secretary of De-
21 fense for Acquisition and Sustainment shall develop
22 and implement a plan for achieving significant re-
23 ductions in the costs to operate, maintain, and sus-
24 tain the F–35 system.

1 (2) ELEMENTS.—The plan required under
2 paragraph (1) shall include the following elements:

3 (A) Specific changes in the management
4 and execution of operation and support (O&S)
5 cost elements to engender continuous and meas-
6 urable process improvements.

7 (B) Specific actions the Department will
8 implement in the near, mid, and long terms to
9 reduce O&S costs.

10 (C) Firm and achievable timelines for im-
11 plementing the specific actions and process
12 changes.

13 (3) REPORT.—Not later than 180 days after
14 the date of the enactment of this Act, the Under
15 Secretary shall submit to the congressional defense
16 committees a report on the baseline plan developed
17 pursuant to paragraph (1).

18 **SEC. 166. REPORTS ON THE PROGRESS AND PERFORMANCE**
19 **OF THE F-35 AIRCRAFT PROGRAM.**

20 (a) F-35 BLOCK 4 AND CONTINUOUS CAPABILITY
21 DEVELOPMENT AND DELIVERY PROGRAM.—The Sec-
22 retary of Defense shall include with the annual report re-
23 quired by section 224(d) of the National Defense Author-
24 ization Act for Fiscal Year 2017 (Public Law 114–328;
25 130 Stat. 2059) an integrated master schedule and past

1 performance assessment for each planned phase of the F–
2 35 Block 4 Upgrade and Continuous Capability Develop-
3 ment and Delivery Program.

4 (b) COMPTROLLER GENERAL REPORTS.—

5 (1) ANNUAL REPORT REQUIRED.—Not later
6 than 30 days after the date on which the budget of
7 the President is submitted to Congress under section
8 1105(a) of title 31, United States Code, for each of
9 fiscal years 2021 through 2025, the Comptroller
10 General of the United States shall submit to the
11 congressional defense committees a report on the F–
12 35 aircraft program.

13 (2) ELEMENTS.—Each report under paragraph
14 (1) shall include, with respect to the F–35 aircraft
15 program, the following:

16 (A) An assessment of the progress of man-
17 ufacturing processes improvement under the
18 program.

19 (B) The progress and results of the F–35
20 Block 4 Upgrade and Continuous Capability
21 Development and Delivery Program and other
22 follow-on modernization development and test-
23 ing efforts.

1 (C) An assessment of the Department's
2 schedule for delivering software upgrades in six-
3 month, scheduled increments.

4 (D) The progress and results of any other
5 significant hardware development and fielding
6 efforts necessary for the F-35 Block 4 Upgrade
7 and Continuous Capability Development and
8 Delivery Program.

9 (E) Any other issues the Comptroller Gen-
10 eral determines to be appropriate.

11 (c) F-35 BLOCK 4 DEFINED.—In this section, the
12 term “F-35 Block 4 Upgrade and Continuous Capability
13 Development and Delivery Program” means Block 4 capa-
14 bility upgrades for the F-35 aircraft program as described
15 in the Selected Acquisition Report for the program sub-
16 mitted to Congress in March 2019, pursuant to section
17 2432 of title 10, United States Code.

18 **SEC. 167. OTHER REPORTS ON THE F-35 AIRCRAFT PRO-**
19 **GRAM.**

20 (a) REPORT ON F-35 RELIABILITY AND MAINTAIN-
21 ABILITY METRICS.—The Secretary of Defense shall sub-
22 mit to the congressional defense committees a report on
23 the reliability and maintainability metrics for the F-35
24 aircraft. The report shall include the following:

1 (1) The results of a review and assessment,
2 conducted by the program office for the F-35 air-
3 craft program, of the reliability and maintainability
4 metrics for the aircraft as set forth in the most re-
5 cent operational requirements document for the pro-
6 gram.

7 (2) A determination of whether the reliability
8 and maintainability metrics for the aircraft, as set
9 forth in the most recent operational requirements
10 document for the program, are feasible and attain-
11 able, and what changes, if any, will be made to up-
12 date the metrics.

13 (3) A certification that the program office for
14 the F-35 aircraft program has revised the reliability
15 and maintainability improvement plan for the air-
16 craft—

17 (A) to identify specific and measurable re-
18 liability and maintainability objectives in the
19 improvement plan guidance; and

20 (B) to identify and document which
21 projects included in the improvement plan will
22 achieve the objectives identified under subpara-
23 graph (A).

1 (b) REPORT ON F-35 BLOCK 4 UPGRADE AND CON-
2 TINUOUS CAPABILITY DEVELOPMENT AND DELIVERY
3 PROGRAM.—

4 (1) IN GENERAL.—The Secretary of Defense
5 shall submit to the congressional defense committees
6 a report on the F-35 Block 4 Upgrade and Contin-
7 uous Capability Development and Delivery Program.
8 The report shall include the following:

9 (A) The results of the independent cost es-
10 timate for the Program conducted by the Direc-
11 tor of Cost Assessment and Program Evalua-
12 tion.

13 (B) An approved test and evaluation mas-
14 ter plan that addresses the adequacy of testing
15 resources, testing aircraft shortfalls, and testing
16 funding.

17 (C) A review of the feasibility and schedule
18 of the continuous capability development and
19 delivery strategy for fielding technologies under
20 the Program as conducted by the Under Sec-
21 retary of Defense for Research and Engineer-
22 ing.

23 (2) F-35 BLOCK 4 DEFINED.—In this sub-
24 section, the term “F-35 Block 4 Upgrade and Con-
25 tinuous Capability Development and Delivery Pro-

1 gram” has the meaning given that term in section
2 166.

3 (c) REPORT ON F-35 AUTONOMIC LOGISTICS INFOR-
4 MATION SYSTEM.—The Secretary of Defense shall submit
5 to the congressional defense committees a report on the
6 autonomic logistics information system of the F-35 air-
7 craft. The report shall include a description of each of the
8 following:

9 (1) All shortfalls, capability gaps, and defi-
10 ciencies in the system that have been identified as
11 of the date of the enactment of this Act.

12 (2) The strategy and performance requirements
13 that will be implemented to improve the system.

14 (3) The strategy, implementation plan, sched-
15 ule, and estimated costs of developing and fielding—

16 (A) the next generation of the system; or

17 (B) future increments of the system.

18 (d) F-35 LIFE-CYCLE COST ESTIMATES.—

19 (1) JOINT COST ESTIMATE.—The Secretary of
20 the Air Force and the Secretary of the Navy shall
21 jointly develop a joint service cost estimate for the
22 life-cycle costs of the F-35 aircraft program.

23 (2) INDEPENDENT COST ESTIMATE.—The Di-
24 rector of Cost Assessment and Program Evaluation

1 shall develop an independent cost estimate for the
2 life-cycle costs of the F-35 aircraft program.

3 (e) DEADLINE FOR SUBMITTAL.—The reports re-
4 quired under subsections (a) through (d) shall be sub-
5 mitted to the congressional defense committees not later
6 than 180 days after the date of the enactment of this Act.

7 **SEC. 168. LIMITATION ON AVAILABILITY OF FUNDS FOR**
8 **COMMUNICATIONS SYSTEMS LACKING CER-**
9 **TAIN RESILIENCY FEATURES.**

10 (a) IN GENERAL.—Except as provided under sub-
11 section (b), none of the funds authorized to be appro-
12 priated by this Act or otherwise made available for fiscal
13 year 2020 for the Department of Defense may be obli-
14 gated or expended for the procurement of a current or
15 future Department of Defense communications program
16 of record, and the Department may not otherwise procure
17 a current or future communications program of record,
18 unless the communications equipment—

19 (1) mitigates geolocation of a transmission that
20 would allow a like echelon enemy force to target the
21 user;

22 (2) securely communicates classified informa-
23 tion in a contested communications environment
24 that includes operationally representative jamming;

1 tion and Sustainment shall submit to the congress-
2 sional defense committees a report on the status of
3 the Common Data Link program and plans to meet
4 new and emerging manned and unmanned intel-
5 ligence, surveillance, and reconnaissance (ISR) vehi-
6 cle secure and interoperable communication require-
7 ments.

8 (2) ELEMENTS.—The report required under
9 paragraph (1) shall include the following elements:

10 (A) A description of each Common Data
11 Link (CDL) waveform in use and which plat-
12 forms or systems utilize each CDL waveform.

13 (B) A list of manned and unmanned ISR
14 platforms or systems in development requiring
15 networked, secure, low latency communications,
16 and an assessment of the suitability of CDL to
17 meet the requirements of each planned pro-
18 gram.

19 (C) A description of in-progress or planned
20 technology development efforts to address net-
21 working requirements for manned and un-
22 manned ISR systems operating in contested
23 and denied environments.

1 (b) REPEAL.—Section 157 of the National Defense
2 Authorization Act for Fiscal Year 2013 (Public Law 112–
3 239; 126 Stat. 1667) is hereby repealed.

4 **TITLE II—RESEARCH, DEVELOP-**
5 **MENT, TEST, AND EVALUA-**
6 **TION**

Subtitle A—Authorization of Appropriations

Sec. 201. Authorization of appropriations.

Subtitle B—Program Requirements, Restrictions, and Limitations

Sec. 211. Program on enhancement of preparation of dependents of members of Armed Forces for careers in science, technology, engineering, and mathematics.

Sec. 212. Updates to the Department of Defense personnel management authority to attract experts in science and engineering.

Sec. 213. Establishment of joint reserve detachment of the Defense Innovation Unit.

Sec. 214. Research and educational programs and activities for Historically Black Colleges and Universities and Minority-Serving Institutions of Higher Education.

Sec. 215. Modification of authority for prizes for advanced technology achievements.

Sec. 216. Joint hypersonics transition office.

Sec. 217. Modification of proof of concept commercialization program.

Sec. 218. Modification of authority and addition of technology areas for expedited access to technical talent.

Sec. 219. Expansion of coordination in support of national security innovation and entrepreneurial education.

Sec. 220. Modification of defense quantum information science and technology research and development program.

Sec. 221. Understanding of investments in artificial intelligence and development of capabilities by adversaries.

Sec. 222. Advisory role of JASON scientific advisory group.

Sec. 223. Direct Air Capture and Blue Carbon Removal Technology Program.

Sec. 224. Requiring defense microelectronics products and services meet trusted supply chain and operational security standards.

Sec. 225. Development and acquisition strategy to procure secure, low probability of detection data link network capability.

Sec. 226. Establishment of secure next-generation wireless network (5G) infrastructure for the Nevada Test and Training Range and base infrastructure.

Sec. 227. Administration of manufacturing innovation institutes funded by the Department of Defense.

Sec. 228. Research program on foreign malign influence operations.

Sec. 229. Diversification of the research and engineering workforce of the Department of Defense.

- Sec. 230. Policy on the talent management of digital expertise and software professionals.
- Sec. 231. Digital engineering capability to automate testing and evaluation.
- Sec. 232. Process to align policy formulation and emerging technology development.
- Sec. 233. Improvement of the Strategic Capabilities Office of the Department of Defense.
- Sec. 234. Pilot program on enhanced civics education.
- Sec. 235. Technology and national security fellowship.
- Sec. 236. Documentation relating to the Advanced Battle Management System.
- Sec. 237. Sensor data integration for fifth generation aircraft.
- Sec. 238. Sense of Congress on future vertical lift technologies.
- Sec. 239. Use of funds for Strategic Environmental Research Program, Environmental Security Technical Certification Program, and Operational Energy Capability Improvement.
- Sec. 240. Limitation and report on Indirect Fire Protection Capability Increment 2 capability.

Subtitle C—Plans, Reports, and Other Matters

- Sec. 251. Master plan for implementation of authorities relating to science and technology reinvention laboratories.
- Sec. 252. Infrastructure to support research, development, test, and evaluation missions.
- Sec. 253. Energetics plan.
- Sec. 254. Strategy and implementation plan for fifth generation information and communications technologies.
- Sec. 255. Department-wide software science and technology strategy.
- Sec. 256. Artificial intelligence education strategy.
- Sec. 257. Cyber science and technology activities roadmap and reports.
- Sec. 258. Report on B-52 commercial engine replacement program.
- Sec. 259. Commercial edge computing technologies and best practices for Department of Defense warfighting systems.
- Sec. 260. Biannual report on the Joint Artificial Intelligence Center.
- Sec. 261. Quarterly updates on the Optionally Manned Fighting Vehicle program.
- Sec. 262. National Study on Defense Research At Historically Black Colleges and Universities and Other Minority Institutions.
- Sec. 263. Study on national security emerging biotechnologies for the Department of Defense.
- Sec. 264. Independent study on optimizing resources allocated to Combating Terrorism Technical Support Office.
- Sec. 265. Independent assessment of electronic warfare plans and programs.
- Sec. 266. Technical correction to Global Research Watch Program.

1 **Subtitle A—Authorization of** 2 **Appropriations**

3 **SEC. 201. AUTHORIZATION OF APPROPRIATIONS.**

4 Funds are hereby authorized to be appropriated for
5 fiscal year 2020 for the use of the Department of Defense

1 for research, development, test, and evaluation, as speci-
2 fied in the funding table in section 4201.

3 **Subtitle B—Program Requirements, Restrictions, and Limita-**
4 **ments, Restrictions, and Limita-**
5 **tions**

6 **SEC. 211. PROGRAM ON ENHANCEMENT OF PREPARATION**
7 **OF DEPENDENTS OF MEMBERS OF ARMED**
8 **FORCES FOR CAREERS IN SCIENCE, TECH-**
9 **NOLOGY, ENGINEERING, AND MATHEMATICS.**

10 (a) PROGRAM REQUIRED.—Chapter 111 of title 10,
11 United States Code, is amended by inserting after section
12 2192a the following new section:

13 **“§ 2192b. Program on enhancement of preparation of**
14 **dependents of members of armed forces**
15 **for careers in science, technology, engi-**
16 **neering, and mathematics**

17 “(a) PROGRAM REQUIRED.—The Secretary of De-
18 fense shall carry out a program to—

19 “(1) enhance the preparation of students at
20 covered schools for careers in science, technology,
21 engineering, and mathematics; and

22 “(2) provide assistance to teachers at covered
23 schools to enhance preparation described in para-
24 graph (1).

1 “(b) COORDINATION.—In carrying out the program,
2 the Secretary shall coordinate with the following:

3 “(1) The Secretaries of the military depart-
4 ments.

5 “(2) The Secretary of Education.

6 “(3) The National Science Foundation.

7 “(4) Other organizations as the Secretary of
8 Defense considers appropriate.

9 “(c) ACTIVITIES.—Activities under the program may
10 include the following:

11 “(1) Establishment of targeted internships and
12 cooperative research opportunities at defense labora-
13 tories and other technical centers for students and
14 teachers at covered schools.

15 “(2) Establishment of scholarships and fellow-
16 ships for students at covered schools.

17 “(3) Efforts and activities that improve the
18 quality of science, technology, engineering, and
19 mathematics educational and training opportunities
20 for students and teachers at covered schools, includ-
21 ing with respect to improving the development of
22 curricula at covered schools.

23 “(4) Development of travel opportunities, dem-
24 onstrations, mentoring programs, and informal

1 science education for students and teachers at cov-
2 ered schools.

3 “(d) METRICS.—The Secretary shall establish out-
4 come-based metrics and internal and external assessments
5 to evaluate the merits and benefits of activities conducted
6 under the program with respect to the needs of the De-
7 partment of Defense.

8 “(e) COVERED SCHOOLS DEFINED.—In this section,
9 the term ‘covered schools’ means elementary or secondary
10 schools at which the Secretary determines a significant
11 number of dependents of members of the armed forces are
12 enrolled.”.

13 (b) CLERICAL AMENDMENT.—The table of sections
14 at the beginning of such chapter is amended by inserting
15 after the item relating to section 2192a the following new
16 item:

“2192b. Program on enhancement of preparation of dependents of members of
armed forces for careers in science, technology, engineering,
and mathematics.”.

17 (c) CONFORMING REPEAL.—Section 233 of the Carl
18 Levin and Howard P. “Buck” McKeon National Defense
19 Authorization Act for Fiscal Year 2015 (Public Law 113–
20 291; 10 U.S.C. 2193a note) is repealed.

1 **SEC. 212. UPDATES TO THE DEPARTMENT OF DEFENSE**
2 **PERSONNEL MANAGEMENT AUTHORITY TO**
3 **ATTRACT EXPERTS IN SCIENCE AND ENGI-**
4 **NEERING.**

5 (a) IN GENERAL.—Subsection (a) of section 1599h
6 of title 10, United States Code, is amended by adding at
7 the end the following new paragraph:

8 “(6) JOINT ARTIFICIAL INTELLIGENCE CEN-
9 TER.—The Director of the Joint Artificial Intel-
10 ligence Center may carry out a program of personnel
11 management authority provided in subsection (b) in
12 order to facilitate recruitment of eminent experts in
13 science or engineering for the Center. The authority
14 to carry out the program under this paragraph shall
15 terminate on December 31, 2024.”

16 (b) SCOPE OF APPOINTMENT AUTHORITY.—Sub-
17 section (b)(1) of such section is amended—

18 (1) in subparagraph (D), by striking “and” at
19 the end;

20 (2) in subparagraph (E), by adding “and” at
21 the end; and

22 (3) by adding at the end the following new sub-
23 paragraph:

24 “(F) in the case of the Joint Artificial In-
25 telligence Center, appoint scientists and engi-

1 neers to a total of not more than 5 scientific
2 and engineering positions in the Center;”.

3 (c) **EXTENSION OF TERMS OF APPOINTMENT.**—Sub-
4 section (c)(2) of such section is amended by striking “or
5 the Defense Innovation Unit Experimental” and inserting
6 “the Defense Innovation Unit, or the Joint Artificial Intel-
7 ligence Center”.

8 (d) **UPDATE TO ORGANIZATIONAL NAME.**—Such sec-
9 tion is further amended—

10 (1) in subsection (a)(5)—

11 (A) in the subsection heading by striking
12 “DIUX” and inserting “DIU”; and

13 (B) by striking “Experimental”; and

14 (2) in subsection (b)(1)(E), by striking “Exper-
15 imental”.

16 **SEC. 213. ESTABLISHMENT OF JOINT RESERVE DETACH-**
17 **MENT OF THE DEFENSE INNOVATION UNIT.**

18 (a) **IN GENERAL.**—

19 (1) **ESTABLISHMENT OF JOINT RESERVE DE-**
20 **TACHMENT OF THE DEFENSE INNOVATION UNIT.**—

21 Chapter 139 of title 10, United States Code, is
22 amended by inserting after section 2358a the fol-
23 lowing new section:

1 **“§ 2358b. Joint reserve detachment of the Defense In-**
2 **novation Unit**

3 “(a) ESTABLISHMENT.—The Secretary of Defense, in
4 consultation with the Secretaries of the military depart-
5 ments, may establish a joint reserve detachment (referred
6 to in this section as the ‘Detachment’) composed of mem-
7 bers of the reserve components described in subsection (b)
8 to be assigned to each office of the Defense Innovation
9 Unit to—

10 “(1) support engagement and collaboration with
11 private-sector industry and the community sur-
12 rounding the location of such office; and

13 “(2) to accelerate the use and adoption of com-
14 mercially-developed technologies for national security
15 purposes.

16 “(b) MEMBERS.—Each Secretary of a military de-
17 partment shall select for the Detachment, and make ef-
18 forts to retain, members of the reserve components who
19 possess relevant private-sector experience in the fields of
20 business, acquisition, intelligence, engineering, technology
21 transfer, science, mathematics, program management, lo-
22 gistics, cybersecurity, or such other fields as determined
23 by the Under Secretary of Defense for Research and Engi-
24 neering.

25 “(c) DUTIES.—The Detachment shall have the fol-
26 lowing duties:

1 “(1) Providing the Department of Defense
2 with—

3 “(A) expertise on and analysis of commer-
4 cially-developed technologies;

5 “(B) commercially-developed technologies
6 to be used as alternatives for technologies in
7 use by the Department; and

8 “(C) opportunities for greater engagement
9 and collaboration between the Department and
10 private-sector industry on innovative tech-
11 nologies.

12 “(2) On an ongoing basis—

13 “(A) partnering with the military depart-
14 ments, the combatant commands, and other De-
15 partment of Defense organizations to—

16 “(i) identify and rapidly prototype
17 commercially-developed technologies; and

18 “(ii) use alternative contracting mech-
19 anisms to procure such technologies;

20 “(B) increasing awareness of—

21 “(i) the work of the Defense Innova-
22 tion Unit; and

23 “(ii) the technology requirements of
24 the Department of Defense as identified in
25 the National Defense Science and Tech-

1 nology Strategy developed under section
2 218 of the John S. McCain National De-
3 fense Authorization Act for Fiscal Year
4 2019 (Public Law 115–232; 132 Stat.
5 1679); and

6 “(C) using the investment in research and
7 development made by private-sector industry in
8 assessing and developing dual-use technologies.

9 “(3) Carrying out other activities as directed by
10 the Under Secretary of Defense for Research and
11 Engineering.

12 “(d) JOINT DUTY.—Assignment to a Detachment
13 shall not qualify as a joint duty assignment, as defined
14 in section 668(b)(1) of title 10, United States Code, unless
15 approved by the Secretary of Defense.”.

16 (2) CLERICAL AMENDMENT.—The table of sec-
17 tions at the beginning of such chapter is amended
18 by inserting after the item relating to section 2358a
19 the following new item:

“2358b. Joint reserve detachment of the Defense Innovation Unit.”.

20 (b) IMPLEMENTATION REPORT.—Not later than 120
21 days after the date of the enactment of this Act, the Under
22 Secretary of Defense for Research and Engineering, in
23 consultation with the Director of the Defense Innovation
24 Unit and the Secretaries of the military departments, shall

1 submit to the congressional defense committees a report
2 that includes—

3 (1) an organizational plan and the estimated
4 costs for establishing the joint reserve detachment
5 required under section 2358b of title 10, United
6 States Code (as added by subsection (a)); and

7 (2) a timeline specifying when such detachment
8 will attain initial operational capability and full oper-
9 ational capability, respectively.

10 **SEC. 214. RESEARCH AND EDUCATIONAL PROGRAMS AND**
11 **ACTIVITIES FOR HISTORICALLY BLACK COL-**
12 **LEGES AND UNIVERSITIES AND MINORITY-**
13 **SERVING INSTITUTIONS OF HIGHER EDU-**
14 **CATION.**

15 Section 2362 of title 10, United States Code, is
16 amended—

17 (1) by redesignating subsections (d) and (e) as
18 subsections (e) and (f), respectively; and

19 (2) by inserting after subsection (c) the fol-
20 lowing new subsection:

21 “(d) INCENTIVES.—The Secretary of Defense may
22 develop incentives to encourage research and educational
23 collaborations between covered educational institutions
24 and other institutions of higher education.”.

1 **SEC. 215. MODIFICATION OF AUTHORITY FOR PRIZES FOR**
2 **ADVANCED TECHNOLOGY ACHIEVEMENTS.**

3 Section 2374a(a) of title 10, United States Code, is
4 amended by striking “Assistant Secretary of Defense for
5 Research and Engineering” and inserting “Under Sec-
6 retary of Defense for Research and Engineering, the
7 Under Secretary of Defense for Acquisition and
8 Sustainment,”.

9 **SEC. 216. JOINT HYPERSONICS TRANSITION OFFICE.**

10 Section 218 of the John Warner National Defense
11 Authorization Act for Fiscal Year 2007 (Public Law 109–
12 364; 10 U.S.C. 2358 note) is amended—

13 (1) in subsection (a), by striking “the program
14 required under subsection (b), and shall” and insert-
15 ing “the program and activities described in sub-
16 sections (b) through (f), and shall”;

17 (2) by redesignating subsections (c) through (e)
18 as subsections (d) through (f), respectively;

19 (3) by inserting after subsection (b) the fol-
20 lowing new subsection (c):

21 “(c) UNIVERSITY EXPERTISE.—

22 “(1) ARRANGEMENT WITH INSTITUTIONS OF
23 HIGHER EDUCATION.—Using the authority specified
24 in section 217 of the National Defense Authorization
25 Act for Fiscal Year 2018 (Public Law 115–91; 10
26 U.S.C. 2358 note) or another similar authority, the

1 Office shall seek to enter into an arrangement with
2 one or more institutions of higher education (as de-
3 fined in section 101 of the Higher Education Act of
4 1965 (20 U.S.C. 1001)) under which such institu-
5 tions may provide the Office with—

6 “(A) access to research, technology devel-
7 opment, and workforce development expertise to
8 support the mission of the Office; and

9 “(B) foundational and applied hypersonic
10 research, development, and workforce support
11 in areas that the Office determines to be rel-
12 evant for the Department of Defense.

13 “(2) AVAILABILITY OF INFORMATION.—The Of-
14 fice shall ensure that the results of any research and
15 reports produced pursuant to an arrangement under
16 paragraph (1) are made available to the Federal
17 Government, the private sector, academia, and inter-
18 national partners consistent with appropriate secu-
19 rity classification guidance.”;

20 (4) in subsection (d), as so redesignated—

21 (A) in paragraph (4), by striking the
22 comma before the period; and

23 (B) in paragraph (5), by striking “certified
24 under subsection (e) as being consistent with
25 the roadmap under subsection (d)” and insert-

1 ing “certified under subsection (f) as being con-
2 sistent with the roadmap under subsection (e)”;
3 (5) in subsection (e), as so redesignated, by
4 adding at the end the following new paragraph:

5 “(4) SUBMITTAL TO CONGRESS.—

6 “(A) INITIAL SUBMISSION.—Not later than
7 180 days after the date of the enactment of this
8 paragraph, the Secretary of Defense shall sub-
9 mit to the congressional defense committees the
10 most recent roadmap developed under para-
11 graph (1).

12 “(B) SUBSEQUENT SUBMISSIONS.—The
13 Secretary of Defense shall submit to the con-
14 gressional defense committees each roadmap re-
15 vised under paragraph (1) together with the
16 budget submitted to Congress under section
17 1105 of title 31, United States Code, for the
18 fiscal year concerned.”; and

19 (6) in subsection (f), as so redesignated—

20 (A) by striking “subsection (d)” each place
21 it appears and inserting “subsection (e)”;

22 (B) in paragraph (3), by striking “2016”
23 and inserting “2026”.

1 **SEC. 217. MODIFICATION OF PROOF OF CONCEPT COMMER-**
2 **IALIZATION PROGRAM.**

3 (a) **EXTENSION OF PROGRAM.**—Section 1603(g) of
4 the National Defense Authorization Act for Fiscal Year
5 2014 (Public Law 113–66; 10 U.S.C. 2359 note) is
6 amended by striking “2019” and inserting “2024”.

7 (b) **ADDITIONAL IMPROVEMENTS.**—Section 1603 of
8 such Act, as amended by subsection (a), is further amend-
9 ed—

10 (1) in the section heading, by inserting “**OF**
11 **DUAL-USE TECHNOLOGY**” after “**COMMER-**
12 **IALIZATION**”;

13 (2) in subsection (a)—

14 (A) by inserting “of Dual-Use Technology”
15 after “Commercialization”; and

16 (B) by inserting “with a focus on priority
17 defense technology areas that attract public and
18 private sector funding, as well as private sector
19 investment capital, including from venture cap-
20 ital firms in the United States,” before “in ac-
21 cordance”;

22 (3) in subsection (c)(4)(A)(iv), by inserting “,
23 which may include access to venture capital” after
24 “award”;

25 (4) by striking subsection (d);

1 (5) by redesignating subsection (e) as sub-
2 section (d);

3 (6) by inserting after subsection (d), as so re-
4 designated, the following new subsection (e):

5 “(e) AUTHORITIES.—In carrying out this section, the
6 Secretary may use the following authorities:

7 “(1) Section 1599g of title 10 of the United
8 States Code, relating to public-private talent ex-
9 changes.

10 “(2) Section 2368 of such title, relating to Cen-
11 ters for Science, Technology, and Engineering Part-
12 nerships.

13 “(3) Section 2374a of such title, relating to
14 prizes for advanced technology achievements.

15 “(4) Section 2474 of such title, relating to Cen-
16 ters of Industrial and Technical Excellence.

17 “(5) Section 2521 of such title, relating to the
18 Manufacturing Technology Program.

19 “(6) Section 225 of the National Defense Au-
20 thorization Act for Fiscal Year 2018 (Public Law
21 115–91; 10 U.S.C. 2359 note).

22 “(7) Section 1711 of such Act (Public Law
23 115–91; 10 U.S.C. 2505 note), relating to a pilot
24 program on strengthening manufacturing in the de-
25 fense industrial base.

1 “(8) Section 12 of the Stevenson-Wydler Tech-
2 nology Innovation Act of 1980 (15 U.S.C. 3710a)
3 and section 6305 of title 31, United States Code, re-
4 lating to cooperative research and development
5 agreements.”.

6 (7) by striking subsection (f); and

7 (8) by redesignating subsection (g) as sub-
8 section (f).

9 **SEC. 218. MODIFICATION OF AUTHORITY AND ADDITION OF**
10 **TECHNOLOGY AREAS FOR EXPEDITED AC-**
11 **CESS TO TECHNICAL TALENT.**

12 (a) **MODIFICATION OF AUTHORITY.**—Subsection
13 (a)(1) of section 217 of the National Defense Authoriza-
14 tion Act for Fiscal Year 2018 (Public Law 115–91; 10
15 U.S.C. 2358 note) is amended by striking “The Secretary
16 of Defense shall, acting through the secretaries of the mili-
17 tary departments, establish” and inserting “Not later than
18 180 days after the date of the enactment of the National
19 Defense Authorization Act for Fiscal Year 2020, the Sec-
20 retary of Defense shall direct the secretaries of the mili-
21 tary departments to establish”.

22 (b) **ADDITIONAL TECHNOLOGY AREAS.**—Subsection
23 (e) of such section is amended—

24 (1) by redesignating paragraph (27) as para-
25 graph (30); and

1 (2) by inserting after paragraph (26) the fol-
2 lowing new paragraph (27):

3 “(27) Rapid prototyping.

4 “(28) Infrastructure resilience.

5 “(29) Hypersonics.”.

6 **SEC. 219. EXPANSION OF COORDINATION IN SUPPORT OF**
7 **NATIONAL SECURITY INNOVATION AND EN-**
8 **TREPRENEURIAL EDUCATION.**

9 Section 225(e) of the National Defense Authorization
10 Act for Fiscal Year 2018 (Public Law 115–91; 10 U.S.C.
11 2359 note) is amended by adding at the end the following
12 new paragraph:

13 “(18) The Lab-Embedded Entrepreneurship
14 Programs of the Department of Energy.”.

15 **SEC. 220. MODIFICATION OF DEFENSE QUANTUM INFORMA-**
16 **TION SCIENCE AND TECHNOLOGY RESEARCH**
17 **AND DEVELOPMENT PROGRAM.**

18 Section 234 of the John S. McCain National Defense
19 Authorization Act for Fiscal Year 2019 (Public Law 115–
20 232; 10 U.S.C. 2358 note) is amended—

21 (1) in subsection (b)—

22 (A) in paragraph (2), by striking “private
23 sector entities” and inserting “private sector
24 and international entities”; and

1 (B) in paragraph (6), by striking “facilities
2 and infrastructure” and inserting “facilities,
3 workforce, and infrastructure”;

4 (2) in subsection (c)—

5 (A) in paragraph (2), by striking “quan-
6 tum sciences;” and inserting “quantum infor-
7 mation sciences, including through consultation
8 with—

9 “(A) the National Quantum Coordination
10 Office;

11 “(B) the subcommittee on Quantum Infor-
12 mation Science of the National Science and
13 Technology Council;

14 “(C) other organizations and elements of
15 the Department of Defense;

16 “(D) other Federal agencies; and

17 “(E) appropriate private sector organiza-
18 tions;”;

19 (B) by redesignating paragraphs (3) and
20 (4) as paragraphs (6) and (7), respectively;

21 (C) by inserting after paragraph (2), the
22 following new paragraphs:

23 “(3) in consultation with the entities listed in
24 paragraph (2), develop plans for—

1 “(A) the development of the quantum in-
2 formation science and technology workforce;

3 “(B) enhancing awareness of quantum in-
4 formation science and technology;

5 “(C) reducing the risk of cybersecurity
6 threats posed by quantum information science
7 technology; and

8 “(D) development of ethical guidelines for
9 the use of quantum information science tech-
10 nology;

11 “(4) in consultation with the National Institute
12 of Standards and Technology and other appropriate
13 Federal entities, develop a quantum information
14 science taxonomy and standards and requirements
15 for quantum information technology;

16 “(5) support efforts to increase the technology
17 readiness level of quantum information science tech-
18 nologies under development in the United States;”;

19 (D) in paragraph (6), as so redesignated,
20 by striking “quantum science” and inserting
21 “quantum information science”; and

22 (E) in paragraph (7), as so redesignated,
23 by striking “for meeting the long-term chal-
24 lenges and achieving the specific technical

1 goals” and inserting “for carrying out the pro-
2 gram under subsection (a)”;

3 (3) by redesignating subsection (d) as sub-
4 section (e);

5 (4) by inserting after subsection (c) the fol-
6 lowing new subsection (d):

7 “(d) QUANTUM INFORMATION SCIENCE RESEARCH
8 CENTERS.—The Secretary of each military department
9 may establish or designate a defense laboratory or estab-
10 lish activities to engage with appropriate public and pri-
11 vate sector organizations, including academic organiza-
12 tions, to enhance and accelerate the research, develop-
13 ment, and deployment of quantum information sciences
14 and quantum information science-enabled technologies
15 and systems. The Secretary of Defense shall ensure that
16 not less than one such laboratory or center is established
17 or designated.”; and

18 (5) in paragraph (2) of subsection (e), as so re-
19 designated—

20 (A) in subparagraph (A), by inserting “in-
21 formation” before “sciences”;

22 (B) in subparagraph (B),

23 (i) by inserting “information” before
24 “sciences”; and

1 (ii) by inserting “, including a discus-
2 sion of likely impacts of quantum informa-
3 tion science and technology on military ca-
4 pabilities” before the period at the end;

5 (C) in subparagraph (C), by inserting “in-
6 formation” before “sciences”;

7 (D) by redesignating subparagraph (E) as
8 subparagraph (F); and

9 (E) by striking subparagraph (D) and in-
10 sserting the following new subparagraphs:

11 “(D) A description of the activities carried
12 out in accordance with this section, including,
13 for each such activity—

14 “(i) a roadmap for the activity;

15 “(ii) a summary of the funding pro-
16 vided for the activity; and

17 “(iii) an estimated timeline for the de-
18 velopment and military deployment of
19 quantum technologies supported through
20 the activity.

21 “(E) A description of the efforts of the De-
22 partment of Defense to update classification
23 and cybersecurity practices relating to quantum
24 technology, including—

1 “(i) security processes and require-
2 ments for engagement with allied coun-
3 tries; and

4 “(ii) a plan for security-cleared gov-
5 ernment and contractor workforce develop-
6 ment.”.

7 **SEC. 221. UNDERSTANDING OF INVESTMENTS IN ARTIFI-**
8 **CIAL INTELLIGENCE AND DEVELOPMENT OF**
9 **CAPABILITIES BY ADVERSARIES.**

10 Section 238(c)(2)(I) of the John S. McCain National
11 Defense Authorization Act for Fiscal Year 2019 (Public
12 Law 115–232) is amended—

13 (1) in clause (i), by striking “; and” and insert-
14 ing a semicolon;

15 (2) in clause (ii), by striking the period at the
16 end and inserting “; and”; and

17 (3) by adding at the end the following new
18 clause:

19 “(iii) that appropriate entities in the
20 Department are reviewing all open source
21 publications from both the United States
22 and outside the United States that con-
23 tribute to, affect, or advance—

24 “(I) artificial intelligence re-
25 search and development; or

1 “(II) the understanding of the
2 Secretary concerning the investments
3 by adversaries of the United States in
4 artificial intelligence and the develop-
5 ment by such adversaries of capabili-
6 ties relating to artificial intelligence.”.

7 **SEC. 222. ADVISORY ROLE OF JASON SCIENTIFIC ADVISORY**
8 **GROUP.**

9 (a) ONGOING ENGAGEMENT OF CERTAIN SCIENTIFIC
10 ADVISORY PERSONNEL.—

11 (1) IN GENERAL.—The Secretary of Defense
12 shall seek to engage the members of the inde-
13 pendent, private scientific advisory group known as
14 “JASON” as advisory personnel to provide advice,
15 on an ongoing basis, on matters involving science,
16 technology, and national security, including methods
17 to defeat existential and technologically-amplified
18 threats to national security.

19 (2) AVAILABILITY TO OTHER FEDERAL AGEN-
20 CIES.—At the request of a Federal agency outside
21 the Department of Defense, the Secretary of De-
22 fense shall seek to make personnel engaged under
23 paragraph (1) available to such agency for the pur-
24 pose of providing advice to the agency on the mat-
25 ters described in such subsection.

1 (b) ARRANGEMENT FOR CONDUCT OF NATIONAL SE-
2 CURITY STUDIES AND ANALYSIS.—

3 (1) IN GENERAL.—Pursuant to subsection (a),
4 the Secretary of Defense, acting through the Under
5 Secretary of Defense for Acquisition and
6 Sustainment, shall seek to enter into an arrange-
7 ment under which JASON may provide national se-
8 curity research studies and other analyses to the De-
9 partment of Defense and other Federal agencies to
10 meet mission requirements and agency needs.

11 (2) FORM OF ARRANGEMENT.—The arrange-
12 ment entered into under paragraph (1) shall be in
13 a form the Under Secretary of Defense for Acquisi-
14 tion and Sustainment determines to be appropriate
15 for the Department of Defense, which may include
16 a contract, a grant, a cooperative agreement, the use
17 of other transaction authority under section 2371 of
18 title 10, United States Code, or another such ar-
19 rangement.

20 (3) TIMING OF ARRANGEMENT.—The Secretary
21 of Defense shall seek to enter into the arrangement
22 under paragraph (1) not later than 120 days after
23 the date of the enactment of this Act.

24 (4) TERMS OF ARRANGEMENT.—The arrange-
25 ment entered into under paragraph (1) shall—

1 (A) if specifically negotiated as part of the
2 arrangement, provide for the Department of
3 Defense to reimburse the entity supporting
4 JASON for all or a portion of the overhead
5 costs incurred in support of the arrangement;

6 (B) allow Federal Government entities out-
7 side the Department of Defense with respon-
8 sibilities relating to national security to seek to
9 engage JASON to perform individual studies
10 relating to national security matters as part of
11 the arrangement; and

12 (C) require that a Federal agency that en-
13 gages JASON to perform a study under the ar-
14 rangement will fully fund such study, including
15 a proportional percentage to the total overhead
16 costs incurred under the arrangement.

17 (5) LIMITATION ON TERMINATION.—

18 (A) IN GENERAL.—The Secretary of De-
19 fense may not terminate the arrangement under
20 paragraph (1) until a period of 180 days has
21 elapsed following the date on which the Sec-
22 retary—

23 (i) notifies the congressional defense
24 committees of the intent of the Secretary
25 to terminate the arrangement; and

1 (ii) submits the report required under
2 subparagraph (B).

3 (B) REPORT REQUIRED.—

4 (i) IN GENERAL.—If the Secretary of
5 Defense determines that the arrangement
6 under paragraph (1) should be terminated,
7 the Secretary shall submit to the congress-
8 sional defense committees a report on the
9 proposed termination of the arrangement.

10 (ii) ELEMENTS.—The report required
11 under clause (i) shall include the following:

12 (I) A summary of the execution
13 of research projects conducted by
14 JASON over the four fiscal years pre-
15 ceding the date of the report, includ-
16 ing the projects requested by the De-
17 partment of Defense and the projects
18 requested by other Federal agencies.

19 (II) An analysis of the costs to
20 the Department of Defense of main-
21 taining the arrangement under which
22 JASON provided national security re-
23 search studies, including any overhead
24 costs incurred by the Department or
25 shared among Federal agencies over

1 the four fiscal years preceding the
2 date of the report.

3 (III) A timeline for the potential
4 transition or termination of the activi-
5 ties, functions, and expertise provided
6 by JASON under the arrangement.

7 (IV) An assessment of the impact
8 that the termination of the arrange-
9 ment with JASON will have on de-
10 fense research studies and analytical
11 capabilities, including a mitigation
12 plan that identifies where alternative
13 and comparable scientific advice and
14 expertise is available and a compari-
15 son of the costs associated with each
16 alternative.

17 (iii) FORM OF REPORT.—The report
18 required under clause (i) may be submitted
19 in unclassified or classified form.

20 (6) ANNUAL SUMMARY REPORT.—Not later
21 than March 1 of each year beginning after the date
22 of the enactment of this Act, the Secretary of De-
23 fense shall submit to the congressional defense com-
24 mittees a report that includes—

1 (A) a summary of expenditures made
2 under the arrangement with JASON under
3 paragraph (1); and

4 (B) a summary of the studies and other
5 activities carried out by JASON pursuant to
6 such arrangement in the preceding calendar
7 year.

8 **SEC. 223. DIRECT AIR CAPTURE AND BLUE CARBON RE-**
9 **MOVAL TECHNOLOGY PROGRAM.**

10 (a) PROGRAM REQUIRED.—

11 (1) IN GENERAL.—The Secretary of Defense, in
12 coordination with the Secretary of Homeland Secu-
13 rity, the Secretary of Energy, and the heads of such
14 other Federal agencies as the Secretary of Defense
15 considers appropriate, shall carry out a program on
16 research, development, testing, evaluation, study,
17 and demonstration of technologies related to blue
18 carbon capture and direct air capture.

19 (2) PROGRAM GOALS.—The goals of the pro-
20 gram established under paragraph (1) are as follows:

21 (A) To develop technologies that capture
22 carbon dioxide from seawater and the air to
23 turn such carbon dioxide into clean fuels to en-
24 hance fuel and energy security.

1 (B) To develop and demonstrate tech-
2 nologies that capture carbon dioxide from sea-
3 water and the air to reuse such carbon dioxide
4 to create products for military uses.

5 (C) To develop direct air capture tech-
6 nologies for use—

7 (i) at military installations or facilities
8 of the Department of Defense; or

9 (ii) in modes of transportation by the
10 Navy or the Coast Guard.

11 (3) PHASES.—The program established under
12 paragraph (1) shall be carried out in two phases as
13 follows:

14 (A) The first phase shall consist of re-
15 search and development and shall be carried out
16 as described in subsection (b).

17 (B) The second phase shall consist of test-
18 ing and evaluation and shall be carried out as
19 described in subsection (c), if the Secretary de-
20 termines that the results of the research and
21 development phase justify implementing the
22 testing and evaluation phase.

23 (4) DESIGNATION.—The program established
24 under paragraph (1) shall be known as the “Direct
25 Air Capture and Blue Carbon Removal Technology

1 Program” (in this section referred to as the “Pro-
2 gram”).

3 (b) RESEARCH AND DEVELOPMENT PHASE.—

4 (1) IN GENERAL.—During the research and de-
5 velopment phase of the Program, the Secretary of
6 Defense shall conduct research and development in
7 pursuit of the goals set forth in subsection (a)(2).

8 (2) DIRECT AIR CAPTURE.—The research and
9 development phase of the Program may include, with
10 respect to direct air capture, a front end engineering
11 and design study that includes an evaluation of di-
12 rect air capture designs to produce fuel for use—

13 (A) at military installations or facilities of
14 the Department of Defense; or

15 (B) in modes of transportation by the
16 Navy or the Coast Guard.

17 (3) COMMENCEMENT.—The Secretary shall
18 commence carrying out the research and develop-
19 ment phase of the Program not later than 90 days
20 after the date of the enactment of this Act.

21 (4) GRANTS AUTHORIZED.—The Secretary may
22 carry out the research and development phase of the
23 Program through the award of grants to private per-
24 sons and eligible laboratories.

1 (5) REPORT REQUIRED.—Not later than 180
2 days after the date of the completion of the research
3 and development phase of the Program, the Sec-
4 retary shall submit to Congress a report on the re-
5 search and development carried out under the Pro-
6 gram.

7 (c) TESTING AND EVALUATION PHASE.—

8 (1) IN GENERAL.—During the testing and eval-
9 uation phase of the Program, the Secretary shall, in
10 pursuit of the goals set forth in subsection (a)(2),
11 conduct tests and evaluations of the technologies re-
12 searched and developed during the research and de-
13 velopment phase of the Program.

14 (2) DIRECT AIR CAPTURE.—The testing and
15 evaluation phase of the Program may include dem-
16 onstration projects for direct air capture to produce
17 fuels for use—

18 (A) at military installations or facilities of
19 the Department of Defense; or

20 (B) in modes of transportation by the
21 Navy or the Coast Guard.

22 (3) COMMENCEMENT.—Subject to subsection
23 (a)(3)(B), the Secretary shall commence carrying
24 out the testing and evaluation phase of the Program
25 on the date of the completion of the research and

1 development phase described in subsection (b), ex-
2 cept that the testing and evaluation phase of the
3 Program with respect to direct air capture may com-
4 mence at such time after a front end engineering
5 and design study demonstrates to the Secretary that
6 commencement of such phase is appropriate.

7 (4) GRANTS AUTHORIZED.—The Secretary may
8 carry out the testing and evaluation phase of the
9 Program through the award of grants to private per-
10 sons and eligible laboratories.

11 (5) LOCATIONS.—The Secretary shall carry out
12 the testing and evaluation phase of the Program at
13 military installations or facilities of the Department
14 of Defense.

15 (6) REPORT REQUIRED.—Not later than Sep-
16 tember 30, 2026, the Secretary shall submit to Con-
17 gress a report on the findings of the Secretary with
18 respect to the effectiveness of the technologies tested
19 and evaluated under the Program.

20 (d) DEFINITIONS.—In this section:

21 (1) The term “blue carbon capture” means the
22 removal of dissolved carbon dioxide from seawater
23 through engineered or inorganic processes, including
24 filters, membranes, or phase change systems.

1 (2)(A) The term “direct air capture”, with re-
2 spect to a facility, technology, or system, means that
3 the facility, technology, or system uses carbon cap-
4 ture equipment to capture carbon dioxide directly
5 from the air.

6 (B) The term “direct air capture” does not in-
7 clude any facility, technology, or system that cap-
8 tures carbon dioxide—

9 (i) that is deliberately released from a nat-
10 urally occurring subsurface spring; or

11 (ii) using natural photosynthesis.

12 (3) The term “eligible laboratory” means—

13 (A) a National Laboratory (as defined in
14 section 2 of the Energy Policy Act of 2005 (42
15 U.S.C. 15801));

16 (B) a science and technology reinvention
17 laboratory designated under section 1105 of the
18 National Defense Authorization Act for Fiscal
19 Year 2010 (Public Law 111–84; 10 U.S.C.
20 2358 note);

21 (C) the Major Range and Test Facility
22 Base (as defined in section 2358a(f) of title 10,
23 United States Code); or

24 (D) any other facility that supports the re-
25 search, development, test, and evaluation activi-

1 ties of the Department of Defense or the De-
2 partment of Energy.

3 **SEC. 224. REQUIRING DEFENSE MICROELECTRONICS**
4 **PRODUCTS AND SERVICES MEET TRUSTED**
5 **SUPPLY CHAIN AND OPERATIONAL SECURITY**
6 **STANDARDS.**

7 (a) PURCHASES.—To protect the United States from
8 intellectual property theft and to ensure national security
9 and public safety in the application of new generations of
10 wireless network technology and microelectronics, begin-
11 ning no later than January 1, 2023, the Secretary of De-
12 fense shall ensure that each microelectronics product or
13 service that the Department of Defense purchases on or
14 after such date meets the applicable trusted supply chain
15 and operational security standards established pursuant to
16 subsection (b), except in a case in which the Department
17 seeks to purchase a microelectronics product or service
18 but—

19 (1) no such product or service is available for
20 purchase that meets such standards; or

21 (2) no such product or service is available for
22 purchase that—

23 (A) meets such standards; and

24 (B) is available at a price that the Sec-
25 retary does not consider prohibitively expensive.

1 (b) TRUSTED SUPPLY CHAIN AND OPERATIONAL SE-
2 CURITY STANDARDS.—

3 (1) STANDARDS REQUIRED.—(A) Not later
4 than January 1, 2021, the Secretary shall establish
5 trusted supply chain and operational security stand-
6 ards for the purchase of microelectronics products
7 and services by the Department.

8 (B) For purposes of this section, a trusted sup-
9 ply chain and operational security standard—

10 (i) is a standard that systematizes best
11 practices relevant to—

12 (I) manufacturing location;

13 (II) company ownership;

14 (III) workforce composition;

15 (IV) access during manufacturing,
16 suppliers' design, sourcing, manufacturing,
17 packaging, and distribution processes;

18 (V) reliability of the supply chain; and

19 (VI) other matters germane to supply
20 chain and operational security; and

21 (ii) is not a military standard (also known
22 as “MIL-STD”) or a military specification (also
23 known as “MIL-SPEC”) for microelectronics
24 that—

1 (I) specifies individual features for
2 Department of Defense microelectronics; or

3 (II) otherwise inhibits the acquisition
4 by the Department of securely manufac-
5 tured, commercially-available products.

6 (2) CONSULTATION REQUIRED.—In developing
7 standards under paragraph (1), the Secretary shall
8 consult with the following:

9 (A) The Secretary of Homeland Security,
10 the Secretary of State, the Secretary of Com-
11 merce, and the Director of the National Insti-
12 tute of Standards and Technology.

13 (B) Suppliers of microelectronics products
14 and services from the United States and allies
15 and partners of the United States.

16 (C) Representatives of major United States
17 industry sectors that rely on a trusted supply
18 chain and the operational security of microelec-
19 tronics products and services.

20 (D) Representatives of the United States
21 insurance industry.

22 (3) TIERS OF TRUST AND LEVELS OF SECURITY
23 AUTHORIZED.—In carrying out paragraph (1), the
24 Secretary may establish tiers and levels of trust and
25 security within the supply chain and operational se-

1 security standards for microelectronics products and
2 services.

3 (4) GENERAL APPLICABILITY.—The standards
4 established pursuant to paragraph (1) shall be, to
5 the greatest extent practicable, generally applicable
6 to the trusted supply chain and operational security
7 needs and use cases of the United States Govern-
8 ment and commercial industry, such that the stand-
9 ards could be widely adopted by government agen-
10 cies, commercial industry, and allies and partners of
11 the United States as the basis for procuring micro-
12 electronics products and services.

13 (5) ANNUAL REVIEW.—Not later than October
14 1 of each year, the Secretary shall, in consultation
15 with persons and entities set forth under paragraph
16 (2), review the standards established pursuant to
17 paragraph (1) and issue updates or modifications as
18 the Secretary considers necessary or appropriate.

19 (c) ENSURING ABILITY TO SELL COMMERCIALY.—

20 (1) IN GENERAL.—The Secretary shall, to the
21 greatest extent practicable, ensure that suppliers of
22 microelectronics products and services for the De-
23 partment of Defense subject to subsection (a) are
24 able and incentivized to sell products commercially
25 and to governments of allies and partners of the

1 United States that are produced on the same pro-
2 duction lines as the microelectronics products sup-
3 plied to the Department of Defense.

4 (2) EFFECT OF REQUIREMENTS AND ACQUI-
5 TIONS.—The Secretary shall, to the greatest extent
6 practicable, ensure that the requirements of the De-
7 partment and the acquisition by the Department of
8 microelectronics enable the success of a dual-use
9 microelectronics industry.

10 (d) MAINTAINING COMPETITION AND INNOVATION.—
11 The Secretary shall take such actions as the Secretary
12 considers necessary and appropriate, within the Sec-
13 retary's authorized activities to maintain the health of the
14 defense industrial base, to ensure that—

15 (1) providers of microelectronics products and
16 services that meet the standards established under
17 subsection (b) are exposed to competitive market
18 pressures to achieve competitive pricing and sus-
19 tained innovation; and

20 (2) the industrial base of microelectronics prod-
21 ucts and services that meet the standards estab-
22 lished under subsection (b) includes providers manu-
23 facturing in the United States or in countries that
24 are allies or partners of the United States.

1 **SEC. 225. DEVELOPMENT AND ACQUISITION STRATEGY TO**
2 **PROCURE SECURE, LOW PROBABILITY OF DE-**
3 **TECTION DATA LINK NETWORK CAPABILITY.**

4 (a) STRATEGY REQUIRED.—Not later than March 1,
5 2020, the Chief of Staff of the Air Force, the Chief of
6 Naval Operations, and the Chief of Staff of the Army shall
7 jointly submit to the congressional defense committees a
8 joint development and acquisition strategy to procure a
9 secure, low probability of detection data link network ca-
10 pability, with the ability to effectively operate in hostile
11 jamming environments while preserving the low observ-
12 ability characteristics of the relevant platforms, including
13 both existing and planned platforms.

14 (b) NETWORK CHARACTERISTICS.—The data link
15 network capability to be procured pursuant to the develop-
16 ment and acquisition strategy submitted under subsection
17 (a) shall—

18 (1) ensure that any network made with such ca-
19 pability will be low risk and affordable, with minimal
20 impact or change to existing host platforms and
21 minimal overall integration costs;

22 (2) use a non-proprietary and open systems ap-
23 proach compatible with the Rapid Capabilities Office
24 Open Mission Systems initiative of the Air Force,
25 the Future Airborne Capability Environment initia-

1 tive of the Navy, and the Modular Open Systems Ar-
2 chitecture initiative of the Army; and

3 (3) provide for an architecture to connect, with
4 operationally relevant throughput and latency—

5 (A) fifth-generation combat aircraft;

6 (B) fifth-generation and fourth-generation
7 combat aircraft;

8 (C) fifth-generation and fourth-generation
9 combat aircraft and appropriate support air-
10 craft and other network nodes for command,
11 control, communications, intelligence, surveil-
12 lance, and reconnaissance purposes; and

13 (D) fifth-generation and fourth-generation
14 combat aircraft and their associated network-
15 enabled precision weapons.

16 (c) LIMITATION.—Of the funds authorized to be ap-
17 propriated by this Act for fiscal year 2020 for operation
18 and maintenance for the Office of the Secretary of the
19 Air Force, for operation and maintenance for the Office
20 of the Secretary of the Navy, and for operations and main-
21 tenance for the Office of the Secretary of the Army, not
22 more than 50 percent may be obligated or expended until
23 the date that is 15 days after the date on which the Chief
24 of Staff of the Air Force, the Chief of Naval Operations,
25 and the Chief of Staff of the Army, respectively, submit

1 the development and acquisition strategy required by sub-
2 section (a).

3 **SEC. 226. ESTABLISHMENT OF SECURE NEXT-GENERATION**
4 **WIRELESS NETWORK (5G) INFRASTRUCTURE**
5 **FOR THE NEVADA TEST AND TRAINING**
6 **RANGE AND BASE INFRASTRUCTURE.**

7 (a) ESTABLISHMENT REQUIRED.—Not later than
8 one year after the date of the enactment of this Act, the
9 Secretary of Defense shall establish secure fifth-generation
10 wireless network components and capabilities at no fewer
11 than two Department of Defense installations in accord-
12 ance with this section.

13 (b) INSTALLATIONS.—

14 (1) LOCATIONS.—The Secretary shall establish
15 components and capabilities under subsection (a) at
16 the following:

17 (A) The Nevada Test and Training Range,
18 which shall serve as a Major Range and Test
19 Facility Base (MRTFB) for fifth-generation
20 wireless networking.

21 (B) Such Department installations or
22 other installations as the Secretary considers
23 appropriate for the purpose set forth in para-
24 graph (2).

1 (2) PURPOSE.—The purpose of the establish-
2 ment of components and capabilities under sub-
3 section (a) at the locations described in paragraph
4 (1) of this subsection is to demonstrate the fol-
5 lowing:

6 (A) The potential military utility of high
7 bandwidth, scalable, and low latency fifth-gen-
8 eration wireless networking technology.

9 (B) Advanced security technology that is
10 applicable to fifth-generation networks as well
11 as legacy Department command and control
12 networks.

13 (C) Secure interoperability with fixed and
14 wireless systems (legacy and future systems).

15 (D) Enhancements such as spectrum and
16 waveform diversity, frequency hopping and
17 spreading, and beam forming for military re-
18 quirements.

19 (E) Technology for dynamic network slic-
20 ing for specific use cases and applications re-
21 quiring varying levels of latency, scale, and
22 throughput.

23 (F) Technology for dynamic spectrum
24 sharing and network isolation.

1 (G) Base infrastructure installation of high
2 bandwidth, scalable, and low latency fifth-gen-
3 eration wireless networking technology.

4 (H) Applications for secure fifth-genera-
5 tion wireless network capabilities for the De-
6 partment, such as the following:

7 (i) Interactive augmented reality or
8 synthetic training environments.

9 (ii) Internet of things devices.

10 (iii) Autonomous systems.

11 (iv) Advanced manufacturing through
12 the following:

13 (I) Department-sponsored centers
14 for manufacturing innovation (as de-
15 fined in section 34(c) of the National
16 Institute of Standards and Tech-
17 nology Act (15 U.S.C. 278s(e))).

18 (II) Department research and de-
19 velopment organizations.

20 (III) Manufacturers in the de-
21 fense industrial base of the United
22 States.

1 **SEC. 227. ADMINISTRATION OF MANUFACTURING INNOVA-**
2 **TION INSTITUTES FUNDED BY THE DEPART-**
3 **MENT OF DEFENSE.**

4 (a) IN GENERAL.—The Secretary of Defense shall
5 make such changes to the administration of covered insti-
6 tutes so as—

7 (1) to encourage covered institutes to leverage
8 existing workforce development programs across the
9 Federal Government and State governments in order
10 to build successful workforce development programs;

11 (2) to develop metrics to evaluate the workforce
12 development performed by the covered institutes, in-
13 cluding metrics on job quality, career pathways,
14 wages and benefits, and efforts to support veterans,
15 and progress in aligning workforce skillsets with the
16 current and long-term needs of the Department of
17 Defense and the defense industrial base;

18 (3) to allow metrics to vary between covered in-
19 stitutes and be updated and evaluated continuously
20 in order to more accurately evaluate covered insti-
21 tutes with different goals and missions;

22 (4) to encourage covered institutes to consider
23 developing technologies that were previously funded
24 by Federal Government investment for early-stage
25 research and development and expand cross-govern-

1 ment coordination and collaboration to achieve this
2 goal;

3 (5) to provide an opportunity for increased De-
4 partment of Defense input and oversight from sen-
5 ior-level military and civilian personnel on future
6 technology roadmaps produced by covered institutes;

7 (6) to reduce the barriers to collaboration be-
8 tween and among multiple covered institutes;

9 (7) to use contracting vehicles that can increase
10 flexibility, reduce barriers for contracting with sub-
11 ject-matter experts and small and medium enter-
12 prises, enhance partnerships between covered insti-
13 tutes, and reduce the time to award contracts at
14 covered institutes; and

15 (8) to overcome barriers to the adoption of
16 manufacturing processes and technologies developed
17 by the covered institutes by the defense and com-
18 mercial industrial base, particularly small and me-
19 dium enterprises, by engaging with public and pri-
20 vate sector partnerships and appropriate government
21 programs and activities, including the Hollings Man-
22 ufacturing Extension Partnership.

23 (b) COORDINATION WITH OTHER ACTIVITIES.—The
24 Secretary shall carry out this section in coordination with
25 activities undertaken under—

1 (1) the Manufacturing Technology Program es-
2 tablished under section 2521 of title 10, United
3 States Code;

4 (2) the Manufacturing Engineering Education
5 Program established under section 2196 of such
6 title;

7 (3) the Defense Manufacturing Community
8 Support Program established under section 846 of
9 the John S. McCain National Defense Authorization
10 Act for Fiscal Year 2019 (Public Law 115–232);

11 (4) manufacturing initiatives of the Secretary of
12 Commerce, the head of the National Office of the
13 Manufacturing USA Network, the Secretary of En-
14 ergy, and such other government and private sector
15 organizations as the Secretary of Defense considers
16 appropriate; and

17 (5) such other activities as the Secretary con-
18 siders appropriate.

19 (c) DEFINITION OF COVERED INSTITUTE.—In this
20 section, the term “covered institute” means a manufac-
21 turing innovation institute that is funded by the Depart-
22 ment of Defense.

1 **SEC. 228. RESEARCH PROGRAM ON FOREIGN MALIGN IN-**
2 **FLUENCE OPERATIONS.**

3 (a) PROGRAM AUTHORIZED.—The Secretary of De-
4 fense, acting through the Under Secretary of Defense for
5 Research and Engineering, may carry out a research pro-
6 gram on foreign malign influence operations as part of the
7 university research programs of the Department of De-
8 fense.

9 (b) PROGRAM OBJECTIVES.—The objectives of a re-
10 search program carried out under subsection (a) should
11 include the following:

12 (1) Enhance the understanding of foreign ma-
13 lign influence operations, including activities con-
14 ducted on social media platforms.

15 (2) Facilitate the analysis of publicly available
16 or voluntarily provided indicators of foreign malign
17 influence operations.

18 (3) Promote collaborative research and informa-
19 tion exchange with relevant entities within the De-
20 partment of Defense and with other agencies or non-
21 governmental organizations relating to foreign ma-
22 lign influence operations, as appropriate.

23 (c) NOTICE TO CONGRESS.—Not later than 30 days
24 before initiating a research program under subsection (a),
25 the Secretary of Defense shall submit to the congressional

1 defense committees notice of the intent of the Secretary
2 to initiate such a program, which shall include—

3 (1) a detailed description of the program and
4 any related research activities;

5 (2) the estimated cost and duration of the pro-
6 gram; and

7 (3) any other matters the Secretary determines
8 to be relevant.

9 **SEC. 229. DIVERSIFICATION OF THE RESEARCH AND ENGI-**
10 **NEERING WORKFORCE OF THE DEPARTMENT**
11 **OF DEFENSE.**

12 (a) ASSESSMENT REQUIRED.—

13 (1) IN GENERAL.—The Secretary of Defense,
14 acting through the Under Secretary of Defense for
15 Research and Engineering and in consultation with
16 the Under Secretary of Defense for Personnel and
17 Readiness, shall conduct an assessment of critical
18 skillsets required across, and the diversity of, the re-
19 search and engineering workforce of the Department
20 of Defense, including the science and technology re-
21 invention laboratories, to support emerging and fu-
22 ture warfighter technologies.

23 (2) ELEMENTS.—The assessment required by
24 paragraph (1) shall include analysis of the following:

1 (A) The percentage of women and minori-
2 ties employed in the research and engineering
3 workforce of the Department of Defense as of
4 the date of the assessment.

5 (B) Of the individuals hired into the re-
6 search and engineering workforce of the De-
7 partment in the five years preceding the date of
8 the assessment, the percentage of such individ-
9 uals who are women and minorities.

10 (C) The effectiveness of existing hiring, re-
11 cruitment, and retention incentives for women
12 and minorities in the research and engineering
13 workforce of the Department.

14 (D) The effectiveness of the Department in
15 recruiting women and minorities into the lab-
16 oratory workforce after such individuals com-
17 plete work on Department-funded research,
18 projects, grant projects, fellowships, and STEM
19 programs.

20 (E) The geographical diversity of the work-
21 force across various geographic regions.

22 (b) PLAN REQUIRED.—

23 (1) IN GENERAL.—Based on the results of the
24 assessment conducted under subsection (a), the Sec-
25 retary of Defense, acting through the Under Sec-

1 retary of Defense for Research and Engineering and
2 in consultation with the Secretaries of the military
3 departments, shall develop and implement a plan to
4 diversify and strengthen the research and engineer-
5 ing workforce of the Department of Defense.

6 (2) ELEMENTS.—The plan required by para-
7 graph (1) shall—

8 (A) align with science and technology
9 strategy priorities of the Department of De-
10 fense, including the emerging and future
11 warfighter technology requirements identified
12 by the Department;

13 (B) except as provided in subsection (c)(2),
14 set forth steps for the implementation of each
15 recommendation included in the 2013 report of
16 the RAND corporation titled “First Steps To-
17 ward Improving DoD STEM Workforce Diver-
18 sity”;

19 (C) harness the full range of the Depart-
20 ment’s STEM programs and other Department
21 sponsored programs to develop and attract top
22 talent;

23 (D) use existing authorities to attract and
24 retain students, academics, and other talent;

1 (E) establish and use contracts, agree-
2 ments, or other arrangements with institutions
3 of higher education (as defined in section 101
4 of the Higher Education Act of 1965 (20
5 U.S.C. 1001)), including historically black col-
6 leges and universities and other minority-serv-
7 ing institutions (as described in section 371(a)
8 of such Act (20 U.S.C. 1067q(a)) to enable
9 easy and efficient access to research and re-
10 searchers for Government sponsored basic and
11 applied research and studies at each institution,
12 including contracts, agreements, and other au-
13 thorized arrangements such as those authorized
14 under—

15 (i) section 217 of the National De-
16 fense Authorization Act for Fiscal Year
17 2018 (Public Law 115–91; 10 U.S.C. 2358
18 note); and

19 (ii) such other authorities as the Sec-
20 retary determines to be appropriate; and

21 (F) include recommendations for changes
22 in authorities, regulations, policies, or any other
23 relevant areas that would support the achieve-
24 ment of the goals set forth in the plan.

1 (3) SUBMITTAL TO CONGRESS.—Not later than
2 one year after the date of the enactment of this Act,
3 the Secretary of Defense shall submit to the con-
4 gressional defense committees a report that in-
5 cludes—

6 (A) the plan developed under paragraph
7 (1); and

8 (B) with respect to each recommendation
9 described in paragraph (2)(B) that the Sec-
10 retary has implemented or expects to imple-
11 ment—

12 (i) a summary of actions that have
13 been taken to implement the recommenda-
14 tion; and

15 (ii) a schedule, with specific mile-
16 stones, for completing the implementation
17 of the recommendation.

18 (c) DEADLINE FOR IMPLEMENTATION.—

19 (1) IN GENERAL.—Except as provided in para-
20 graph (2), not later than 18 months after the date
21 of the enactment of this Act the Secretary of De-
22 fense shall carry out activities to implement the plan
23 developed under subsection (b).

24 (2) EXCEPTION FOR IMPLEMENTATION OF CER-
25 TAIN RECOMMENDATIONS.—

1 (A) DELAYED IMPLEMENTATION.—The
2 Secretary of Defense may commence implemen-
3 tation of a recommendation described in sub-
4 section (b)(2)(B) after the date specified in
5 paragraph (1) if the Secretary provides the con-
6 gressional defense committees with a specific
7 justification for the delay in implementation of
8 such recommendation on or before such date.

9 (B) NONIMPLEMENTATION.—The Sec-
10 retary of Defense may opt not to implement a
11 recommendation described in subsection
12 (b)(2)(B) if the Secretary provides to the con-
13 gressional defense committees, on or before the
14 date specified in paragraph (1)—

15 (i) a specific justification for the deci-
16 sion not to implement the recommendation;
17 and

18 (ii) a summary of the alternative ac-
19 tions the Secretary plans to take to ad-
20 dress the issues underlying the rec-
21 ommendation.

22 (d) STEM DEFINED.—In this section, the term
23 “STEM” means science, technology, engineering, and
24 mathematics.

1 **SEC. 230. POLICY ON THE TALENT MANAGEMENT OF DIG-**
2 **ITAL EXPERTISE AND SOFTWARE PROFES-**
3 **SIONALS.**

4 (a) POLICY.—

5 (1) IN GENERAL.—It shall be a policy of the
6 Department of Defense to promote and maintain
7 digital expertise and software development as core
8 competencies of civilian and military workforces of
9 the Department, and as a capability to support the
10 National Defense Strategy, which policy shall be
11 achieved by—

12 (A) the recruitment, development, and
13 incentivization of retention in and to the civilian
14 and military workforce of the Department of in-
15 dividuals with aptitude, experience, proficient
16 expertise, or a combination thereof in digital ex-
17 pertise and software development;

18 (B) at the discretion of the Secretaries of
19 the military departments, the development and
20 maintenance of civilian and military career
21 tracks related to digital expertise, and related
22 digital competencies for members of the Armed
23 Forces, including the development and mainte-
24 nance of training, education, talent manage-
25 ment, incentives, and promotion policies in sup-

1 port of members at all levels of such career
2 tracks; and

3 (C) the development and application of ap-
4 propriate readiness standards and metrics to
5 measure and report on the overall capability,
6 capacity, utilization, and readiness of digital en-
7 gineering professionals to develop and deliver
8 operational capabilities and employ modern
9 business practices.

10 (2) DIGITAL ENGINEERING DEFINED.—For
11 purposes of this section, the term “digital engineer-
12 ing” means the discipline and set of skills involved
13 in the creation, processing, transmission, integra-
14 tion, and storage of digital data, including data
15 science, machine learning, software engineering,
16 software product management, and artificial intel-
17 ligence product management.

18 (b) IMPLEMENTATION PLAN.—Not later than May 1,
19 2020, the Secretary of Defense shall submit to the Com-
20 mittees on Armed Services of the Senate and the House
21 of Representatives a plan that describes how the Depart-
22 ment of Defense will execute the policy described in sub-
23 section (a).

24 (c) RESPONSIBILITY.—

1 (1) APPOINTMENT OF OFFICER.—Not later
2 than 270 days after the date of enactment of this
3 Act, the Secretary of Defense may appoint a civilian
4 official responsible for the development and imple-
5 mentation of the policy and implementation plan set
6 forth in subsections (a) and (b), respectively. The of-
7 ficial shall be known as the “Chief Digital Engineer-
8 ing Recruitment and Management Officer of the De-
9 partment of Defense”.

10 (2) EXPIRATION OF APPOINTMENT.—The ap-
11 pointment of the Officer under paragraph (1) shall
12 expire on September 30, 2024.

13 **SEC. 231. DIGITAL ENGINEERING CAPABILITY TO AUTO-**
14 **MATE TESTING AND EVALUATION.**

15 (a) DIGITAL ENGINEERING CAPABILITY.—

16 (1) IN GENERAL.—The Secretary of Defense
17 shall establish a digital engineering capability to be
18 used—

19 (A) for the development and deployment of
20 digital engineering models for use in the de-
21 fense acquisition process; and

22 (B) to provide testing infrastructure and
23 software to support automated approaches for
24 testing, evaluation, and deployment throughout
25 the defense acquisition process.

1 (2) REQUIREMENTS.—The capability developed
2 under subsection (a) shall meet the following re-
3 quirements:

4 (A) The capability will be accessible to,
5 and useable by, individuals throughout the De-
6 partment of Defense who have responsibilities
7 relating to capability design, development, test-
8 ing, evaluation, and operation.

9 (B) The capability will provide for the de-
10 velopment, validation, use, curation, and main-
11 tenance of technically accurate digital systems,
12 models of systems, subsystems, and their com-
13 ponents, at the appropriate level of fidelity to
14 ensure that test activities adequately simulate
15 the environment in which a system will be de-
16 ployed.

17 (C) The capability will include software to
18 automate testing throughout the program life
19 cycle, including to satisfy developmental test re-
20 quirements and operational test requirements.
21 Such software may be developed in accordance
22 with the authorities provided under section 800,
23 and shall support—

24 (i) security testing that includes vul-
25 nerability scanning and penetration testing

1 performed by individuals, including threat-
2 based red team exploitations and assess-
3 ments with zero-trust assumptions; and

4 (ii) high-confidence distribution of
5 software to the field on a time-bound, re-
6 peatable, frequent, and iterative basis.

7 (b) DEMONSTRATION ACTIVITIES.—

8 (1) IN GENERAL.—In developing the capability
9 required under subsection (a), the Secretary of De-
10 fense shall carry out activities to demonstrate digital
11 engineering approaches to automated testing that—

12 (A) enable continuous software develop-
13 ment and delivery;

14 (B) satisfy developmental test require-
15 ments for the software-intensive programs of
16 the Department of Defense; and

17 (C) satisfy operational test and evaluation
18 requirements for such programs.

19 (2) PROGRAM SELECTION.—Not later than 180
20 days after the date of the enactment of this Act, the
21 Secretary of Defense shall assess and select not
22 fewer than four and not more than ten programs of
23 the Department of Defense to participate in the
24 demonstration activities under paragraph (1), in-
25 cluding—

1 (A) at least one program participating in
2 the pilot program authorized under section 873
3 of the National Defense Authorization Act for
4 Fiscal Year 2018 (Public Law 115–91; 10
5 U.S.C. 2223a note);

6 (B) at least one program participating in
7 the pilot program authorized under section 874
8 of such Act (Public Law 115–91; 10 U.S.C.
9 2302 note);

10 (C) at least one major defense acquisition
11 program (as defined in section 2430 of title 10,
12 United States Code);

13 (D) at least one command and control pro-
14 gram;

15 (E) at least one defense business system
16 (as defined in section 2222(i) of title 10, United
17 States Code); and

18 (F) at least one program from each mili-
19 tary service.

20 (3) **ADDITIONAL REQUIREMENTS.**—As part of
21 the demonstration activities under paragraph (1),
22 the Secretary shall—

23 (A) conduct a comparative analysis that
24 assesses the risks and benefits of the digital en-
25 gineering supported automated testing ap-

1 proaches of the programs participating in the
2 demonstration activities relative to traditional
3 testing approaches that are not supported by
4 digital engineering;

5 (B) ensure that the intellectual property
6 strategy for each of the programs participating
7 in the demonstration activities is best aligned to
8 meet the goals of the program; and

9 (C) develop a workforce and infrastructure
10 plan to support any new policies and guidance
11 implemented in connection with the demonstra-
12 tion activities, including any policies and guid-
13 ance implemented after the completion of such
14 activities.

15 (c) POLICIES AND GUIDANCE REQUIRED.—Not later
16 than one year after the date of the enactment of this Act,
17 based on the results of the demonstration activities carried
18 out under subsection (b), the Secretary of Defense shall
19 issue or modify policies and guidance to—

20 (1) promote the use of digital engineering capa-
21 bilities for development and for automated testing;
22 and

23 (2) address roles, responsibilities, and proce-
24 dures relating to such capabilities.

25 (d) STEERING COMMITTEE.—

1 (1) IN GENERAL.—The Secretary of Defense
2 shall establish a steering committee to assist the
3 Secretary in carrying out subsections (a) through
4 (c).

5 (2) MEMBERSHIP.—The steering committee
6 shall be composed of the following members or their
7 designees:

8 (A) The Under Secretary of Defense for
9 Research and Engineering.

10 (B) The Under Secretary of Defense for
11 Acquisition and Sustainment.

12 (C) The Chief Information Officer.

13 (D) The Director of Operational Test and
14 Evaluation.

15 (E) The Director of Cost Assessment and
16 Program Evaluation.

17 (F) The Service Acquisition Executives.

18 (G) The Service testing commands.

19 (H) The Director of the Defense Digital
20 Service.

21 (e) REPORTS REQUIRED.—

22 (1) IMPLEMENTATION.—Not later than March
23 15, 2020, the Secretary of Defense shall submit to
24 the congressional defense committees a report on the
25 progress of the Secretary in implementing sub-

1 sections (a) through (c). The report shall include an
2 explanation of how the results of the demonstration
3 activities carried out under subsection (b) will be in-
4 corporated into the policy and guidance required
5 under subsection (c), particularly the policy and
6 guidance of the members of the steering committee
7 established under subsection (d).

8 (2) LEGISLATIVE RECOMMENDATIONS.—Not
9 later than October 15, 2020, the Secretary of De-
10 fense shall provide to the congressional defense com-
11 mittees a briefing that identifies any changes to ex-
12 isting law that may be necessary to facilitate the im-
13 plementation of subsections (a) through (c).

14 (f) INDEPENDENT ASSESSMENT.—

15 (1) IN GENERAL.—Not later than March 15,
16 2021, the Defense Innovation Board and the De-
17 fense Science Board shall jointly complete an inde-
18 pendent assessment of the progress of the Secretary
19 in implementing subsections (a) through (c). The
20 Secretary of Defense shall ensure that the Defense
21 Innovation Board and the Defense Science Board
22 have access to the resources, data, and information
23 necessary to complete the assessment.

24 (2) INFORMATION TO CONGRESS.—Not later
25 than 30 days after the date on which the assessment

1 under paragraph (1) is completed, the Defense Inno-
2 vation Board and the Defense Science Board shall
3 jointly provide to the congressional defense commit-
4 tees—

5 (A) a report summarizing the assessment;

6 and

7 (B) a briefing on the findings of the as-
8 sessment.

9 **SEC. 232. PROCESS TO ALIGN POLICY FORMULATION AND**
10 **EMERGING TECHNOLOGY DEVELOPMENT.**

11 (a) **ALIGNMENT OF POLICY AND TECHNOLOGICAL**
12 **DEVELOPMENT.**—Not later than 180 days after the date
13 of the enactment of this Act, the Secretary of Defense
14 shall establish a process to ensure that the policies of the
15 Department of Defense relating to emerging technology
16 are formulated and updated continuously as such tech-
17 nology is developed by the Department.

18 (b) **ELEMENTS.**—As part of the process established
19 under subsection (a), the Secretary shall—

20 (1) specify the role of each covered official in
21 ensuring that the formulation of policies relating to
22 emerging technology is carried out concurrently with
23 the development of such technology; and

24 (2) incorporate procedures for the continuous
25 legal review of—

1 (A) weapons and other defense systems
2 that incorporate or use emerging technology;
3 and

4 (B) treaties that may be affected by such
5 technology.

6 (c) BRIEFING REQUIRED.—Not later than 30 days
7 after the date on which the Secretary of Defense estab-
8 lishes the process required under subsection (a), the Sec-
9 retary shall provide to the congressional defense commit-
10 tees a briefing on such process.

11 (d) DEFINITIONS.—In this section:

12 (1) The term “covered official” means the fol-
13 lowing:

14 (A) The Chairman of the Joint Chiefs of
15 Staff.

16 (B) The Under Secretary of Defense for
17 Research and Engineering.

18 (C) The Under Secretary of Defense for
19 Acquisition and Sustainment.

20 (D) The Under Secretary of Defense for
21 Policy.

22 (E) The commanders of combatant com-
23 mands with responsibilities involving the use of
24 weapons or other defense systems that incor-

1 (3) DELEGATION.—In exercising authority and
2 direction over the Office under subsection (a), the
3 Deputy Secretary of Defense may delegate adminis-
4 trative, management, and other duties to the Direc-
5 tor of the Defense Advanced Research Projects
6 Agency, as needed, to effectively and efficiently exe-
7 cute the mission of the Office.

8 (b) CROSS-FUNCTIONAL TEAMS.—

9 (1) ESTABLISHMENT.—Not later than 180 days
10 after the date of enactment of this Act, the Deputy
11 Secretary of Defense shall establish the following
12 cross-functional teams to improve the effectiveness
13 of the Office:

14 (A) A transition cross-functional team to
15 improve the efficiency and effectiveness with
16 which the programs of the Office may be
17 transitioned into—

18 (i) research and development pro-
19 grams of the military services and other
20 agencies of the Department of Defense;
21 and

22 (ii) programs of such services and
23 agencies in operational use.

24 (B) A technical cross functional team to
25 improve the continuous technical assessment

1 (3) Interest in employment, and careers, in
2 public service.

3 (4) Understanding of United States law, his-
4 tory, and Government.

5 (5) The ability of participants to collaborate
6 and compromise with others to solve problems.

7 (c) CONSIDERATIONS.—In carrying out the pilot pro-
8 gram, the Secretary of Defense shall consider innovative
9 approaches for improving civics education.

10 (d) METRICS AND EVALUATIONS.—The Secretary of
11 Defense shall establish metrics and undertake evaluations
12 to determine the effectiveness of the pilot program, includ-
13 ing each of the activities carried out under subsection (e).

14 (e) TYPES OF SUPPORT AUTHORIZED.—Under the
15 pilot program the Secretary of Defense—

16 (1) shall provide support to eligible entities to
17 address, at a minimum—

18 (A) the development or modification of
19 curricula relating to civics education;

20 (B) classroom activities, thesis projects, in-
21 dividual or team projects, internships, or com-
22 munity service activities relating to civics;

23 (C) collaboration with government entities,
24 nonprofit organizations, or consortia of such en-

1 tities and organizations to provide participants
2 with civics-related experiences;

3 (D) civics-related faculty development pro-
4 grams;

5 (E) recruitment of educators who are high-
6 ly qualified in civics education to teach civics or
7 to assist with the development of curricula for
8 civics education;

9 (F) presentation of seminars, workshops,
10 and training for the development of skills asso-
11 ciated with civic engagement;

12 (G) activities that enable participants to
13 interact with government officials and entities;

14 (H) expansion of civics education programs
15 and outreach for members of the Armed
16 Forces, dependents and children of such mem-
17 bers, and employees of the Department of De-
18 fense; and

19 (I) opportunities for participants to obtain
20 work experience in fields relating to civics; and

21 (2) may provide any other form of support the
22 Secretary determines to be appropriate to enhance
23 the civics education taught by eligible entities.

24 (f) REPORT.—Not later than 180 days after the con-
25 clusion of the first full academic year during which the

1 pilot program is carried out, the Secretary of Defense shall
2 submit to the congressional defense committees a report
3 that includes—

4 (1) a description of the pilot program, including
5 the a description of the specific activities carried out
6 under subsection (e); and

7 (2) the metrics and evaluations used to assess
8 the effectiveness of the program as required under
9 subsection (d).

10 (g) DEFINITIONS.—In this section:

11 (1) The term “civics education program” means
12 an educational program that provides participants
13 with—

14 (A) knowledge of law, government, and the
15 rights of citizens; and

16 (B) skills that enable participants to re-
17 sponsibly participate in democracy.

18 (2) The term “eligible entity” means any of fol-
19 lowing:

20 (A) A local education agency that hosts a
21 unit of the Junior Reserve Officers’ Training
22 Corps.

23 (B) A school operated by the Department
24 of Defense Education Activity.

1 **SEC. 235. TECHNOLOGY AND NATIONAL SECURITY FELLOW-**
2 **SHIP.**

3 (a) FELLOWSHIP PROGRAM.—

4 (1) IN GENERAL.—The Secretary of Defense,
5 acting through the Under Secretary of Defense for
6 Research and Engineering, may establish a civilian
7 fellowship program designed to place eligible individ-
8 uals within the Department of Defense and Con-
9 gress to increase the number of national security
10 professionals with science, technology, engineering,
11 and mathematics credentials employed by the De-
12 partment.

13 (2) DESIGNATION.—The fellowship program es-
14 tablished under paragraph (1) shall be known as the
15 “Technology and National Security Fellowship” (in
16 this section referred to as the “fellows program”).

17 (3) ASSIGNMENTS.—Each individual selected
18 for participation in the fellows program shall be as-
19 signed to a one year position within—

20 (A) the Department of Defense; or

21 (B) a congressional office with emphasis
22 on defense and national security matters.

23 (4) PAY AND BENEFITS.—To the extent prac-
24 ticable, each individual assigned to a position under
25 paragraph (3)—

1 (A) shall be compensated at a rate of basic
2 pay that is equivalent to the rate of basic pay
3 payable for a position at level 10 of the General
4 Schedule; and

5 (B) shall be treated as an employee of the
6 United States during the assignment.

7 (b) ELIGIBLE INDIVIDUALS.—

8 (1) ELIGIBILITY FOR DOD ASSIGNMENT.—Sub-
9 ject to subsection (e), an individual eligible for an
10 assignment in the Department of Defense under
11 subsection (a)(3)(A) is an individual who—

12 (A) is a citizen of the United States; and

13 (B) either—

14 (i) expects to be awarded a bachelor's
15 degree, associate's degree, or graduate de-
16 gree that, as determined by the Secretary,
17 focuses on science, technology, engineering,
18 or mathematics course work not later than
19 180 days after the date on which the indi-
20 vidual submits an application for participa-
21 tion in the fellows program;

22 (ii) possesses a bachelor's degree, as-
23 sociate's degree, or graduate degree that,
24 as determined by the Secretary, focuses on

1 science, technology, engineering, or mathe-
2 matics course work; or

3 (iii) is an employee of the Department
4 of Defense and possesses a bachelor's de-
5 gree, associate's degree, or graduate degree
6 that, as determined by the Secretary, fo-
7 cuses on science, technology, engineering,
8 or mathematics course work.

9 (2) ELIGIBILITY FOR CONGRESSIONAL ASSIGN-
10 MENT.—Subject to subsection (e), an individual eli-
11 gible for an assignment in a congressional office
12 under subsection (a)(3)(B) is an individual who—

13 (A) meets the requirements specified in
14 paragraph (1); and

15 (B) has not less than 3 years of relevant
16 work experience in the field of science, tech-
17 nology, engineering, or mathematics.

18 (c) APPLICATION.—Each individual seeking to par-
19 ticipate in the fellows program shall submit to the Sec-
20 retary an application therefor at such time and in such
21 manner as the Secretary shall specify.

22 (d) COORDINATION.—In carrying out this section, the
23 Secretary may consider working through the following en-
24 tities:

25 (1) The National Security Innovation Network.

1 (2) Universities.

2 (3) Science and technology reinvention labora-
3 tories and test and evaluation centers of the Depart-
4 ment of Defense.

5 (4) Other organizations of the Department of
6 Defense or public and private sector organizations,
7 as determined appropriate by the Secretary.

8 (e) MODIFICATIONS TO FELLOWS PROGRAM.—The
9 Secretary may modify the terms and procedures of the fel-
10 lows program in order to better achieve the goals of the
11 program and to support workforce needs of the Depart-
12 ment of Defense.

13 (f) CONSULTATION.—The Secretary may consult with
14 the heads of the agencies, components, and other elements
15 of the Department of Defense, Members and committees
16 of Congress, and such institutions of higher education and
17 private entities engaged in work on national security and
18 emerging technologies as the Secretary considers appro-
19 priate for purposes of the fellows program, including with
20 respect to assignments in the fellows program.

21 **SEC. 236. DOCUMENTATION RELATING TO THE ADVANCED**
22 **BATTLE MANAGEMENT SYSTEM.**

23 (a) DOCUMENTATION REQUIRED.—Not later than
24 the date specified in subsection (b), the Secretary of the
25 Air Force shall submit to the congressional defense com-

1 mitted the following documentation relating to the Ad-
2 vanced Battle Management System:

3 (1) A list that identifies each program, project,
4 and activity that contributes to the architecture of
5 the Advanced Battle Management System.

6 (2) The final analysis of alternatives for the
7 Advanced Battle Management System.

8 (3) The requirements for the networked data
9 architecture necessary for the Advanced Battle Man-
10 agement System to provide multidomain command
11 and control and battle management capabilities and
12 a development schedule for such architecture.

13 (b) DATE SPECIFIED.—The date specified in this
14 subsection is the earlier of—

15 (1) the date that is 180 days after the date on
16 which the final analysis of alternatives for the Ad-
17 vanced Battle Management System is completed; or

18 (2) June 1, 2020.

19 (c) ADVANCED BATTLE MANAGEMENT SYSTEM DE-
20 FINED.—In this section, the term “Advanced Battle Man-
21 agement System” means the Advanced Battle Manage-
22 ment System of Systems capability of the Air Force, in-
23 cluding each program, project, and activity that contrib-
24 utes to such capability.

1 **SEC. 237. SENSOR DATA INTEGRATION FOR FIFTH GENERA-**
2 **TION AIRCRAFT.**

3 (a) F-35 SENSOR DATA.—The Secretary of Defense
4 shall ensure that—

5 (1) information collected by the passive and ac-
6 tive on-board sensors of the F-35 Joint Strike
7 Fighter aircraft is capable of being shared, in real
8 time, with joint service users in cases in which the
9 Joint Force Commander determines that sharing
10 such information would be operationally advan-
11 tageous; and

12 (2) the Secretary has developed achievable, ef-
13 fective, and suitable concepts and supporting tech-
14 nical architectures to collect, store, manage, and dis-
15 seminate information collected by such sensors.

16 (b) GAO STUDY AND REPORT.—

17 (1) STUDY.—The Comptroller General of the
18 United States shall conduct a study of the sensor
19 data collection and dissemination capability of fifth
20 generation aircraft of the Department of Defense.

21 (2) ELEMENTS.—The study required by para-
22 graph (1) shall include an assessment of the fol-
23 lowing—

24 (A) the extent to which the Department
25 has established doctrinal, organizational, or
26 technological methods of managing the large

1 amount of sensor data that is currently col-
2 lected and which may be collected by existing
3 and planned advanced fifth generation aircraft;

4 (B) the status of the existing sensor data
5 collection, storage, dissemination, and manage-
6 ment capability and capacity of fifth generation
7 aircraft, including the F-35, the F-22, and the
8 B-21; and

9 (C) the ability of the F-35 aircraft and
10 other fifth generation aircraft to share informa-
11 tion collected by the aircraft in real-time with
12 other joint service users as described in sub-
13 section (a)(1).

14 (3) STUDY RESULTS.—

15 (A) INTERIM BRIEFING.—Not later than
16 180 days after the date of the enactment of this
17 Act, the Comptroller General shall provide to
18 the congressional defense committees a briefing
19 on the preliminary findings of the study con-
20 ducted under this subsection.

21 (B) FINAL RESULTS.—The Comptroller
22 General shall provide the final results of the
23 study conducted under this subsection to the
24 congressional defense committees at such time
25 and in such format as is mutually agreed upon

1 by the committees and the Comptroller General
2 at the time of the briefing under subparagraph
3 (A).

4 **SEC. 238. SENSE OF CONGRESS ON FUTURE VERTICAL LIFT**
5 **TECHNOLOGIES.**

6 It is the sense of Congress that the Army should con-
7 tinue to invest in research, development, test, and evalua-
8 tion programs to mature future vertical lift technologies,
9 including programs to improve pilot situational awareness,
10 increase flight operations safety, and reduce operation and
11 maintenance costs.

12 **SEC. 239. USE OF FUNDS FOR STRATEGIC ENVIRONMENTAL**
13 **RESEARCH PROGRAM, ENVIRONMENTAL SE-**
14 **CURITY TECHNICAL CERTIFICATION PRO-**
15 **GRAM, AND OPERATIONAL ENERGY CAPA-**
16 **BILITY IMPROVEMENT.**

17 Of the funds authorized to be appropriated for fiscal
18 year 2020 for the use of the Department of Defense for
19 research, development, test, and evaluation, as specified
20 in the funding table in section 4201 for the Strategic En-
21 vironmental Research Program, Operational Energy Ca-
22 pability Improvement, and the Environmental Security
23 Technical Certification Program, the Secretary of Defense
24 shall, acting through the Under Secretary of Defense for
25 Acquisition and Sustainment, expend amounts as follows:

1 (1) Not less than \$10,000,000 on the develop-
2 ment and demonstration of long duration on-site en-
3 ergy battery storage for distributed energy assets.

4 (2) Not less than \$10,000,000 on the develop-
5 ment, demonstration, and validation of non-fluorine
6 based firefighting foams.

7 (3) Not less than \$10,000,000 on the develop-
8 ment, demonstration, and validation of secure
9 microgrids for both installations and forward oper-
10 ating bases.

11 (4) Not less than \$1,000,000 on the develop-
12 ment, demonstration, and validation of technologies
13 that can harvest potable water from air.

14 **SEC. 240. LIMITATION AND REPORT ON INDIRECT FIRE**
15 **PROTECTION CAPABILITY INCREMENT 2 CA-**
16 **PABILITY.**

17 (a) LIMITATION AND REPORT ON INDIRECT FIRE
18 PROTECTION CAPABILITY INCREMENT 2.—Not more than
19 50 percent of the funds authorized to be appropriated by
20 this Act or otherwise made available for fiscal year 2020
21 for the Army may be obligated or expended for research,
22 development, test, and evaluation for the Indirect Fire
23 Protection Capability Increment 2 capability until the Sec-
24 retary of the Army submits to the congressional defense

1 committees a report on the Indirect Fire Protection Capa-
2 bility Increment 2 program that contains the following:

3 (1) An assessment of whether the requirements
4 previously established for the enduring program
5 meet the anticipated threat at the time of planned
6 initial operating capability and fully operating capa-
7 bility.

8 (2) A list of candidate systems considered to
9 meet the Indirect Fire Protection Capability Incre-
10 ment 2 enduring requirement, including those field-
11 ed or in development by the Army and other ele-
12 ments of the Department of Defense.

13 (3) An assessment of each candidate system's
14 capability against representative threats.

15 (4) An assessment of other relevant specifica-
16 tions of each candidate system, including cost of de-
17 velopment, cost per round if applicable, technological
18 maturity, and logistics and sustainment.

19 (5) A plan for how the Army will integrate the
20 chosen system or systems into the Integrated Air
21 and Missile Defense Battle Command System.

22 (6) An assessment of the results of the per-
23 formance, test, evaluation, integration, and inter-
24 operability of batteries one and two of the interim
25 solution.

1 (b) NOTIFICATION REQUIRED.—Not later than 10
2 days after the date on which the President submits the
3 annual budget request of the President for fiscal year
4 2021 pursuant to section 1105 of title 31, United States
5 Code, the Secretary of the Defense shall, without delega-
6 tion, submit to the congressional defense committees a no-
7 tification identifying the military services or agencies that
8 will be responsible for the conduct of air and missile de-
9 fense in support of joint campaigns as it applies to defense
10 against current and emerging missile threats. The notifi-
11 cation shall identify the applicable programs of record to
12 address such threats, including each class of cruise missile
13 threat.

14 **Subtitle C—Plans, Reports, and**
15 **Other Matters**

16 **SEC. 251. MASTER PLAN FOR IMPLEMENTATION OF AU-**
17 **THORITIES RELATING TO SCIENCE AND**
18 **TECHNOLOGY REINVENTION LABORATORIES.**

19 (a) PLAN REQUIRED.—The Secretary of Defense,
20 jointly with the Secretaries of the military departments
21 and in consultation with the Under Secretary of Defense
22 for Research and Engineering, shall develop a master plan
23 for using existing authorities to strengthen and modernize
24 the workforce and capabilities of the science and tech-
25 nology reinvention laboratories of the Department of De-

1 fense (referred to in this section as the “laboratories”) to
2 enhance the ability of the laboratories to execute missions
3 in the most efficient and effective manner.

4 (b) ELEMENTS.—The master plan required under
5 subsection (a) shall include, with respect to the labora-
6 tories, the following:

7 (1) A summary of hiring and staffing defi-
8 ciencies at laboratories, by location, and the effect of
9 such deficiencies on the ability of the laboratories—

10 (A) to meet existing and future require-
11 ments of the Department of Defense; and

12 (B) to recruit and retain qualified per-
13 sonnel.

14 (2) A summary of existing and emerging mili-
15 tary research, development, test, and evaluation mis-
16 sion areas requiring the use of the laboratories.

17 (3) An explanation of the laboratory staffing
18 capabilities required for each mission area identified
19 under paragraph (2).

20 (4) Identification of specific projects, including
21 hiring efforts and management reforms, that will be
22 carried out—

23 (A) to address the deficiencies identified in
24 paragraph (1); and

1 (B) to support the existing and emerging
2 mission areas identified in paragraph (2).

3 (5) For each project identified under paragraph
4 (4)—

5 (A) a summary of the plan for the project;

6 (B) a description of the resources that will
7 be applied to the project; and

8 (C) a schedule of required investments that
9 will be made as part of the project.

10 (6) A description of how the Department, in-
11 cluding each military department concerned, will
12 carry out the projects identified in paragraph (4)
13 using existing authorities.

14 (7) Identification of any statutory, regulatory,
15 or management-related barriers to implementing the
16 master plan and a description of policy and legisla-
17 tive options that may be applied to address such
18 barriers.

19 (c) CONSULTATION.—In developing the master plan
20 required under subsection (a), the Secretary of Defense,
21 the Secretaries of the military departments, and the
22 Under Secretary of Defense for Research and Engineering
23 shall consult with—

24 (1) the Service Acquisition Executives with re-
25 sponsibilities relevant to the laboratories;

1 (2) the commander of each military command
2 with responsibilities relating to research and engi-
3 neering that is affected by the master plan; and

4 (3) any other officials determined to be relevant
5 by the Secretary of Defense, the Secretaries of the
6 military departments, and the Under Secretary of
7 Defense for Research and Engineering.

8 (d) FINAL REPORT.—Not later than October 30,
9 2020, the Secretary of Defense, jointly with the Secre-
10 taries of the military departments and in consultation with
11 the Under Secretary of Defense for Research and Engi-
12 neering, shall submit to the congressional defense commit-
13 tees—

14 (1) the master plan developed under subsection
15 (a);

16 (2) a report on the activities carried out under
17 this section; and

18 (3) a report that identifies any barriers that
19 prevent the full use and implementation of existing
20 authorities, including any barriers presented by the
21 policies, authorities, and activities of—

22 (A) organizations and elements of the De-
23 partment of Defense; and

24 (B) organizations outside the Department.

1 **SEC. 252. INFRASTRUCTURE TO SUPPORT RESEARCH, DE-**
2 **VELOPMENT, TEST, AND EVALUATION MIS-**
3 **SIONS.**

4 (a) **MASTER PLAN REQUIRED.**—The Secretary of
5 Defense, acting through the Under Secretary of Defense
6 for Research and Engineering and in coordination with
7 the Secretaries of the military departments, shall develop
8 and implement a master plan that addresses the research,
9 development, test, and evaluation infrastructure and mod-
10 ernization requirements of the Department of Defense, in-
11 cluding the science and technology reinvention laboratories
12 and the facilities of the Major Range and Test Facility
13 Base.

14 (b) **ELEMENTS.**—The master plan required under
15 subsection (a) shall include, with respect to the research,
16 development, test, and evaluation infrastructure of the De-
17 partment of Defense, the following:

18 (1) A summary of deficiencies in the infrastruc-
19 ture, by location, and the effect of the deficiencies
20 on the ability of the Department—

21 (A) to meet current and future military re-
22 quirements identified in the National Defense
23 Strategy;

24 (B) to support science and technology de-
25 velopment and acquisition programs; and

1 (C) to recruit and train qualified per-
2 sonnel.

3 (2) A summary of existing and emerging mili-
4 tary research, development, test, and evaluation mis-
5 sion areas, by location, that require modernization
6 investments in the infrastructure—

7 (A) to improve operations in a manner
8 that may benefit all users;

9 (B) to enhance the overall capabilities of
10 the research, development, test, and evaluation
11 infrastructure, including facilities and re-
12 sources;

13 (C) to improve safety for personnel and fa-
14 cilities; and

15 (D) to reduce the long-term cost of oper-
16 ation and maintenance.

17 (3) Identification of specific infrastructure
18 projects that are required to address the infrastruc-
19 ture deficiencies identified under paragraph (1) or to
20 support the existing and emerging mission areas
21 identified under paragraph (2).

22 (4) For each project identified under paragraph
23 (3)—

24 (A) a description of the scope of work;

25 (B) a cost estimate;

1 (C) a summary of the plan for the project;

2 (D) an explanation of the level of priority
3 that will be given to the project; and

4 (E) a schedule of required infrastructure
5 investments.

6 (5) A description of how the Department, in-
7 cluding each military department concerned, will
8 carry out the infrastructure projects identified in
9 paragraph (3) using the range of authorities and
10 methods available to the Department, including—

11 (A) military construction authority under
12 section 2802 of title 10, United States Code;

13 (B) unspecified minor military construction
14 authority under section 2805(a) of such title;

15 (C) laboratory revitalization authority
16 under section 2805(d) of such title;

17 (D) the authority to carry out facility re-
18 pair projects, including the conversion of exist-
19 ing facilities, under section 2811 of such title;

20 (E) the authority provided under the De-
21 fense Laboratory Modernization Pilot Program
22 under section 2803 of the National Defense Au-
23 thorization Act for Fiscal Year 2016 (Public
24 Law 114–92; 10 U.S.C. 2358 note);

1 (F) methods that leverage funding from
2 entities outside the Department, including pub-
3 lic-private partnerships, enhanced use leases
4 and real property exchanges;

5 (G) the authority to conduct commercial
6 test and evaluation activities at a Major Range
7 and Test Facility Installation, under section
8 2681 of title 10, United States Code; and

9 (H) any other authorities and methods de-
10 termined to be appropriate by the Secretary of
11 Defense.

12 (6) Identification of any regulatory or policy
13 barriers to the effective and efficient implementation
14 of the master plan.

15 (c) CONSULTATION AND COORDINATION.—In devel-
16 oping and implementing the plan required under sub-
17 section (a), the Secretary of Defense shall—

18 (1) consult with existing and anticipated cus-
19 tomers and users of the capabilities of the Major
20 Range and Test Facility Base and science and tech-
21 nology reinvention laboratories;

22 (2) ensure consistency with the science and
23 technology roadmaps and strategies of the Depart-
24 ment of Defense and the Armed Forces; and

1 (3) ensure consistency with the strategic plan
2 for test and evaluation resources required by section
3 196(d) of title 10, United States Code.

4 (d) SUBMITTAL TO CONGRESS.—Not later than Jan-
5 uary 1, 2021, the Secretary of Defense, in coordination
6 with the Secretaries of the military departments, shall
7 submit to the congressional defense committees the master
8 plan developed under subsection (a).

9 (e) RESEARCH, DEVELOPMENT, TEST, AND EVALUA-
10 TION INFRASTRUCTURE DEFINED.—In this section, the
11 term “research, development, test, and evaluation infra-
12 structure” means the infrastructure of—

13 (1) the science and technology reinvention lab-
14 oratories (as designated under section 1105 of the
15 National Defense Authorization Act for Fiscal Year
16 2010 (Public Law 111–84; 10 U.S.C. 2358 note));

17 (2) the Major Range and Test Facility Base (as
18 defined in section 2358a(f)(3) of title 10, United
19 States Code); and

20 (3) other facilities that support the research de-
21 velopment, test, and evaluation activities of the De-
22 partment.

23 **SEC. 253. ENERGETICS PLAN.**

24 (a) PLAN REQUIRED.—The Under Secretary of De-
25 fense for Research and Engineering shall, in coordination

1 (1) a strategy for harnessing fifth generation
2 (commonly known as “5G”) information and com-
3 munications technologies to enhance military capa-
4 bilities, maintain a technological advantage on the
5 battlefield, and accelerate the deployment of new
6 commercial products and services enabled by 5G net-
7 works throughout the Department of Defense; and

8 (2) a plan for implementing the strategy devel-
9 oped under paragraph (1).

10 (b) ELEMENTS.—The strategy required under sub-
11 section (a) shall include the following elements:

12 (1) Adoption and use of secure fourth genera-
13 tion (commonly known as “4G”) communications
14 technologies and the transition to advanced and se-
15 cure 5G communications technologies for military
16 applications and for military infrastructure.

17 (2) Science, technology, research, and develop-
18 ment efforts to facilitate the advancement and adop-
19 tion of 5G technology and new uses of 5G systems,
20 subsystems, and components, including—

21 (A) 5G testbeds for developing military
22 and dual-use applications; and

23 (B) spectrum-sharing technologies and
24 frameworks.

1 (3) Strengthening engagement and outreach
2 with industry, academia, international partners, and
3 other departments and agencies of the Federal Gov-
4 ernment on issues relating to 5G technology and the
5 deployment of such technology, including develop-
6 ment of a common industrial base for secure micro-
7 electronics.

8 (4) Defense industrial base supply chain risk,
9 management, and opportunities.

10 (5) Preserving the ability of the Joint Force to
11 achieve objectives in a contested and congested spec-
12 trum environment.

13 (6) Strengthening the ability of the Joint Force
14 to conduct full spectrum operations that enhance the
15 military advantages of the United States.

16 (7) Securing the information technology and
17 weapon systems of the Department against malicious
18 activity.

19 (8) Advancing the deployment of secure 5G net-
20 works nationwide.

21 (9) Such other matters as the Secretary of De-
22 fense determines to be relevant.

23 (c) CONSULTATION.—In developing the strategy and
24 implementation plan required under subsection (a), the
25 Secretary of Defense shall consult with the following:

1 (1) The Chief Information Officer of the De-
2 partment of Defense.

3 (2) The Under Secretary of Defense for Re-
4 search and Engineering.

5 (3) The Under Secretary of Defense for Acqui-
6 sition and Sustainment.

7 (4) The Under Secretary of Defense for Intel-
8 ligence.

9 (5) Service Acquisition Executives of each mili-
10 tary service.

11 (d) PERIODIC BRIEFINGS.—

12 (1) IN GENERAL.—Not later than March 15,
13 2020, and not less frequently than once every three
14 months thereafter through March 15, 2022, the Sec-
15 retary of Defense shall provide to the congressional
16 defense committees a briefing on the development
17 and implementation of the strategy required under
18 subsection (a), including an explanation of how the
19 Department of Defense—

20 (A) is using secure 5G wireless network
21 technology;

22 (B) is reshaping the Department's policy
23 for producing and procuring secure microelec-
24 tronics; and

1 (C) is working in the interagency and
2 internationally to develop common policies and
3 approaches.

4 (2) ELEMENTS.—Each briefing under para-
5 graph (1) shall include information on—

6 (A) efforts to ensure a secure supply chain
7 for 5G wireless network equipment and micro-
8 electronics;

9 (B) the continued availability of electro-
10 magnetic spectrum for warfighting needs;

11 (C) planned implementation of 5G wireless
12 network infrastructure in warfighting networks,
13 base infrastructure, defense-related manufac-
14 turing, and logistics;

15 (D) steps taken to work with allied and
16 partner countries to protect critical networks
17 and supply chains; and

18 (E) such other topics as the Secretary of
19 Defense considers relevant.

20 **SEC. 255. DEPARTMENT-WIDE SOFTWARE SCIENCE AND**
21 **TECHNOLOGY STRATEGY.**

22 (a) DESIGNATION OF SENIOR OFFICIAL.—Not later
23 than 180 days after the date of the enactment of this Act,
24 the Secretary of Defense, acting through the Under Sec-
25 retary of Defense for Research and Engineering and in

1 consultation with the Under Secretary of Defense for Ac-
2 quisition and Sustainment and appropriate public and pri-
3 vate sector organizations, shall designate a single official
4 or existing entity within the Department of Defense as
5 the official or entity (as the case may be) with principal
6 responsibility for guiding the development of science and
7 technology activities related to next generation software
8 and software reliant systems for the Department, includ-
9 ing—

10 (1) research and development activities on new
11 technologies for the creation of highly secure, scal-
12 able, reliable, time-sensitive, and mission-critical
13 software;

14 (2) research and development activities on new
15 approaches and tools to software development and
16 deployment, testing, integration, and next generation
17 software management tools to support the rapid in-
18 sertation of such software into defense systems;

19 (3) foundational scientific research activities to
20 support advances in software;

21 (4) technical workforce and infrastructure to
22 support defense science and technology and software
23 needs and mission requirements;

24 (5) providing capabilities, including tech-
25 nologies, systems, and technical expertise to support

1 improved acquisition of software reliant business and
2 warfighting systems; and

3 (6) providing capabilities, including tech-
4 nologies, systems, and technical expertise to support
5 defense operational missions which are reliant on
6 software.

7 (b) DEVELOPMENT OF STRATEGY.—The official or
8 entity designated under subsection (a) shall develop a De-
9 partment-wide strategy for the research and development
10 of next generation software and software reliant systems
11 for the Department of Defense, including strategies for—

12 (1) types of software-related activities within
13 the science and technology portfolio of the Depart-
14 ment;

15 (2) investment in new approaches to software
16 development and deployment, and next generation
17 management tools;

18 (3) ongoing research and other support of aca-
19 demic, commercial, and development community ef-
20 forts to innovate the software development, engineer-
21 ing, and testing process, automated testing, assur-
22 ance and certification for safety and mission critical
23 systems, large scale deployment, and sustainment;

1 (4) to the extent practicable, implementing or
2 continuing the implementation of the recommenda-
3 tions set forth in—

4 (A) the final report of the Defense Innova-
5 tion Board submitted to the congressional de-
6 fense committees under section 872 of the Na-
7 tional Defense Authorization Act for Fiscal
8 Year 2018 (Public Law 115–91; 131 Stat.
9 1497);

10 (B) the final report of the Defense Science
11 Board Task Force on the Design and Acquisi-
12 tion of Software for Defense Systems described
13 in section 868 of the John S. McCain National
14 Defense Authorization Act for Fiscal Year 2019
15 (Public Law 115–232; 10 U.S.C. 2223 note);
16 and

17 (C) other relevant studies on software re-
18 search, development, and acquisition activities
19 of the Department of Defense.

20 (5) supporting the acquisition, technology devel-
21 opment, testing, assurance, and certification and
22 operational needs of the Department through the de-
23 velopment of capabilities, including personnel and re-
24 search and production infrastructure, and programs
25 in—

1 (A) the science and technology reinvention
2 laboratories (as designated under section 1105
3 of the National Defense Authorization Act for
4 Fiscal Year 2010 (Public Law 111–84; 10
5 U.S.C. 2358 note));

6 (B) the facilities of the Major Range and
7 Test Facility Base (as defined in section
8 2358a(f)(3) of title 10, United States Code);

9 (C) the Defense Advanced Research
10 Projects Agency; and

11 (D) universities, federally funded research
12 and development centers, and service organiza-
13 tions with activities in software engineering;
14 and

15 (6) the transition of relevant capabilities and
16 technologies to relevant programs of the Depart-
17 ment, including software-reliant cyber-physical sys-
18 tems, tactical systems, enterprise systems, and busi-
19 ness systems.

20 (e) SUBMITTAL TO CONGRESS.—Not later than one
21 year after the date of the enactment of this Act, the offi-
22 cial or entity designated under subsection (a) shall submit
23 to the congressional defense committees the strategy de-
24 veloped under subsection (b).

1 **SEC. 256. ARTIFICIAL INTELLIGENCE EDUCATION STRAT-**
2 **EGY.**

3 (a) STRATEGY REQUIRED.—

4 (1) IN GENERAL.—The Secretary of Defense
5 shall develop a strategy for educating
6 servicemembers in relevant occupational fields on
7 matters relating to artificial intelligence.

8 (2) ELEMENTS.—The strategy developed under
9 subsection (a) shall include a curriculum designed to
10 give servicemembers a basic knowledge of artificial
11 intelligence. The curriculum shall include instruction
12 in—

13 (A) artificial intelligence design;

14 (B) software coding;

15 (C) potential military applications for arti-
16 ficial intelligence;

17 (D) the impact of artificial intelligence on
18 military strategy and doctrine;

19 (E) artificial intelligence decisionmaking
20 via machine learning and neural networks;

21 (F) ethical issues relating to artificial in-
22 telligence;

23 (G) the potential biases of artificial intel-
24 ligence;

25 (H) potential weakness in artificial intel-
26 ligence technology;

1 (I) opportunities and risks; and

2 (J) any other matters the Secretary of De-
3 fense determines to be relevant.

4 (b) IMPLEMENTATION PLAN.—The Secretary of De-
5 fense shall develop a plan for implementing the strategy
6 developed under subsection (a).

7 (c) SUBMITTAL TO CONGRESS.—Not later than 270
8 days after the date of the enactment of this Act, the Sec-
9 retary of Defense shall submit to the congressional defense
10 committees—

11 (1) the strategy developed under subsection (a);
12 and

13 (2) the implementation plan developed under
14 subsection (b).

15 **SEC. 257. CYBER SCIENCE AND TECHNOLOGY ACTIVITIES**

16 **ROADMAP AND REPORTS.**

17 (a) ROADMAP FOR SCIENCE AND TECHNOLOGY AC-
18 TIVITIES TO SUPPORT DEVELOPMENT OF CYBER CAPA-
19 BILITIES.—

20 (1) ROADMAP REQUIRED.—The Secretary of
21 Defense, acting through the Under Secretary of De-
22 fense for Research and Engineering, shall develop a
23 roadmap for science and technology activities of the
24 Department of Defense to support development of

1 cyber capabilities to meet Department needs and
2 missions.

3 (2) GOAL OF CONSISTENCY.—The Secretary
4 shall develop the roadmap required by paragraph (1)
5 to ensure consistency with appropriate Federal inter-
6 agency, industry, and academic activities.

7 (3) SCOPE.—The roadmap required by para-
8 graph (1) shall—

9 (A) cover the development of capabilities
10 that will likely see operational use within the
11 next 25 years or earlier; and

12 (B) address cyber operations and cyberse-
13 curity.

14 (4) CONSULTATION.—The Secretary shall de-
15 velop the roadmap required by paragraph (1) in con-
16 sultation with the following:

17 (A) The Chief Information Officer of the
18 Department.

19 (B) The secretaries and chiefs of the mili-
20 tary departments.

21 (C) The Director of Operational Test and
22 Evaluation.

23 (D) The Commander of the United States
24 Cyber Command.

1 (E) The Director of the National Security
2 Agency.

3 (F) The Director of the Defense Informa-
4 tion Systems Agency.

5 (G) The Director of the Defense Advanced
6 Research Projects Agency.

7 (H) The Director of the Defense Digital
8 Service.

9 (I) Such interagency partners as the Sec-
10 retary considers appropriate.

11 (5) FORM.—The Secretary shall develop the
12 roadmap required by paragraph (1) in unclassified
13 form, but may include a classified annex.

14 (6) PUBLICATION.—The Secretary shall make
15 available to the public the unclassified form of the
16 roadmap developed pursuant to paragraph (1).

17 (b) ANNUAL REPORT ON CYBER SCIENCE AND
18 TECHNOLOGY ACTIVITIES.—

19 (1) ANNUAL REPORTS REQUIRED.—In fiscal
20 years 2021, 2022, and 2023, the Under Secretary of
21 Defense for Research and Engineering shall submit
22 to the congressional defense committees a report on
23 the science and technology activities within the De-
24 partment of Defense relating to cyber matters dur-

1 ing the previous fiscal year, the current fiscal year,
2 and the following fiscal year.

3 (2) CONTENTS.—Each report submitted pursu-
4 ant to paragraph (1) shall include, for the period
5 covered by the report, a description and listing of
6 the science and technology activities of the Depart-
7 ment relating to cyber matters, including the fol-
8 lowing:

9 (A) Extramural science and technology ac-
10 tivities.

11 (B) Intramural science and technology ac-
12 tivities.

13 (C) Major and minor military construction
14 activities.

15 (D) Major prototyping and demonstration
16 programs.

17 (E) A list of agreements and activities to
18 transition capabilities to acquisition activities,
19 including—

20 (i) national security systems;

21 (ii) business systems; and

22 (iii) enterprise and network systems.

23 (F) Efforts to enhance the national tech-
24 nical cybersecurity workforce, including specific

1 programs to support education, training, intern-
2 ships, and hiring.

3 (G) Efforts to perform cooperative activi-
4 ties with international partners.

5 (H) Efforts under the Small Business In-
6 novation Research and the Small Business
7 Technology Transfer Program, including esti-
8 mated amounts to be expected in the following
9 fiscal year.

10 (I) Efforts to encourage partnerships be-
11 tween the Department of Defense and univer-
12 sities participating in the National Centers of
13 Academic Excellence in Cyber Operations and
14 Cyber Defense.

15 (3) TIMING.—Each report submitted pursuant
16 to paragraph (1) shall be submitted concurrently
17 with the annual budget request of the President sub-
18 mitted pursuant to section 1105 of title 31, United
19 States Code.

20 (4) FORM.—The report submitted under para-
21 graph (1) shall be submitted in unclassified form,
22 but may include a classified annex.

1 **SEC. 258. REPORT ON B-52 COMMERCIAL ENGINE REPLACE-**
2 **MENT PROGRAM.**

3 (a) DOCUMENTATION REQUIRED.—The Secretary of
4 the Air Force shall submit to the congressional defense
5 committees a report on the B-52 commercial engine re-
6 placement program of the Air Force.

7 (b) CONTENTS.—The report submitted under sub-
8 section (a) shall include the following:

9 (1) The acquisition strategy of the Secretary
10 for the program.

11 (2) The cost and schedule estimates of the Sec-
12 retary for the program.

13 (3) The key performance parameters or equiva-
14 lent requirements document for the program.

15 (4) The test and evaluation strategy of the Sec-
16 retary for the program.

17 (5) The logistics strategy of the Secretary for
18 the program.

19 (6) The post-production fielding strategy of the
20 Secretary for the program.

21 (7) An assessment of the potential for the com-
22 mercial engine replacement to achieve nuclear sys-
23 tem certification.

24 (c) LIMITATION.—Of the funds authorized to be ap-
25 propriated by this Act or otherwise made available for fis-
26 cal year 2020 for the Air Force, not more than 75 percent

1 may be obligated or expended until the date on which the
2 Secretary of the Air Force submits to the congressional
3 defense committees the report required by subsection (a).

4 **SEC. 259. COMMERCIAL EDGE COMPUTING TECHNOLOGIES**
5 **AND BEST PRACTICES FOR DEPARTMENT OF**
6 **DEFENSE WARFIGHTING SYSTEMS.**

7 (a) REPORT REQUIRED.—Not later than 120 days
8 after the date of the enactment of this Act, the Under
9 Secretary of Defense for Acquisition and Sustainment
10 shall submit to the congressional defense committees a re-
11 port on commercial edge computing technologies and best
12 practices for Department of Defense warfighting systems.

13 (b) CONTENTS.—The report submitted under sub-
14 section (a) shall include the following:

15 (1) Identification of initial warfighting system
16 programs of record that will benefit most from accel-
17 erated insertion of commercial edge computing tech-
18 nologies and best practices, resulting in significant
19 near-term improvement in system performance and
20 mission capability.

21 (2) The plan of the Department of Defense to
22 provide additional funding for the systems identified
23 in paragraph (1) to achieve fielding of accelerated
24 commercial edge computing technologies before or
25 during fiscal year 2021.

1 (3) The plan of the Department to identify,
2 manage, and provide additional funding for commer-
3 cial edge computing technologies more broadly over
4 the next four fiscal years where appropriate for—

5 (A) command, control, communications,
6 and intelligence systems;

7 (B) logistics systems; and

8 (C) other mission-critical systems.

9 (4) A detailed description of the policies, proce-
10 dures, budgets, and accelerated acquisition and con-
11 tracting mechanisms of the Department for near-
12 term insertion of commercial edge computing tech-
13 nologies and best practices into military mission-crit-
14 ical systems.

15 **SEC. 260. BIENNIAL REPORT ON THE JOINT ARTIFICIAL IN-**
16 **TELLIGENCE CENTER.**

17 (a) **REPORTS REQUIRED.**—Not later than 180 days
18 after the date of the enactment of this Act and biennially
19 thereafter through the end of 2023, the Secretary of De-
20 fense shall submit to the congressional defense committees
21 a report on the Joint Artificial Intelligence Center (re-
22 ferred to in this section as the “Center”).

23 (b) **ELEMENTS.**—Each report under subsection (a)
24 shall include the following:

1 (1) Information relating to the mission and ob-
2 jectives of the Center.

3 (2) A description of the National Mission Initia-
4 tives, Component Mission Initiatives, and any other
5 initiatives of the Center, including a description of—

6 (A) the activities carried out under the ini-
7 tiatives;

8 (B) any investments made or contracts en-
9 tered into under the initiatives; and

10 (C) the progress of the initiatives.

11 (3) A description of how the Center has sought
12 to leverage lessons learned, share best practices,
13 avoid duplication of efforts, and transition artificial
14 intelligence research efforts into operational capabili-
15 ties by—

16 (A) collaborating with other organizations
17 and elements of the Department of Defense, in-
18 cluding the Defense Agencies and the military
19 departments; and

20 (B) deconflicting the activities of the Cen-
21 ter with the activities of other organizations
22 and elements of the Department.

23 (4) A description of any collaboration be-
24 tween—

1 (A) the Center and the private sector, na-
2 tional laboratories, and academia; and

3 (B) the Center and international allies and
4 partners.

5 (5) The total number of military, contractor,
6 and civilian personnel who are employed by the Cen-
7 ter, assigned to the Center, and performing func-
8 tions in support of the Center.

9 (6) A description of the organizational structure
10 and staffing of the Center.

11 (7) A detailed description of the frameworks,
12 metrics, and capabilities established to measure the
13 effectiveness of the Center and the Center's invest-
14 ments in the National Mission Initiatives and Com-
15 ponent Mission Initiatives.

16 (8) A description of any new policies, stand-
17 ards, or guidance relating to artificial intelligence
18 that have been issued by the Chief Information Offi-
19 cer of the Department.

20 (9) Identification of any ethical guidelines ap-
21 plicable to the use of artificial intelligence by the
22 Department.

23 (10) A description of any steps taken by the
24 Center to protect systems that use artificial intel-
25 ligence from any attempts to misrepresent or alter

1 information used or provided by artificial intel-
2 ligence.

3 (c) JOINT ARTIFICIAL INTELLIGENCE CENTER DE-
4 FINED.—In this section, the term “Joint Artificial Intel-
5 ligence Center” means the Joint Artificial Intelligence
6 Center of the Department of Defense established pursuant
7 to section 238 of the John S. McCain National Defense
8 Authorization Act for Fiscal Year 2019 (Public Law 115–
9 232; 10 U.S.C. 2358 note).

10 **SEC. 261. QUARTERLY UPDATES ON THE OPTIONALLY**
11 **MANNED FIGHTING VEHICLE PROGRAM.**

12 (a) IN GENERAL.—Beginning not later than Decem-
13 ber 1, 2019, and on a quarterly basis thereafter through
14 October 1, 2022, the Assistant Secretary shall provide to
15 the Committees on Armed Services of the Senate and the
16 House of Representatives a briefing on the progress of the
17 Optionally Manned Fighting Vehicle program of the
18 Army.

19 (b) ELEMENTS.—Each briefing under subsection (a)
20 shall include, with respect to the Optionally Manned
21 Fighting Vehicle program, the following elements:

22 (1) An overview of funding for the program, in-
23 cluding identification of—

24 (A) any obligations and expenditures that
25 have been made under the program; and

1 (B) any obligations and expenditures that
2 are planned for the program.

3 (2) An overview of the program schedule.

4 (3) An assessment of the status of the program
5 with respect to—

6 (A) the development and approval of tech-
7 nical requirements;

8 (B) technological maturity;

9 (C) testing;

10 (D) delivery; and

11 (E) program management.

12 (4) Any other matters that the Assistant Sec-
13 retary considers relevant to a full understanding of
14 the status and plans of the program.

15 (c) ASSISTANT SECRETARY DEFINED.—In this sec-
16 tion, the term “Assistant Secretary” means the Assistant
17 Secretary of the Army for Acquisition, Logistics, and
18 Technology (or the designee of the Assistant Secretary),
19 in consultation with the Commander of the Army Futures
20 Command (or the designee of the Commander).

1 **SEC. 262. NATIONAL STUDY ON DEFENSE RESEARCH AT**
2 **HISTORICALLY BLACK COLLEGES AND UNI-**
3 **VERSITIES AND OTHER MINORITY INSTITU-**
4 **TIONS.**

5 (a) **STUDY REQUIRED.**—The Secretary of Defense
6 shall seek to enter into an agreement with the National
7 Academies of Sciences, Engineering, and Medicine (re-
8 ferred to in this section as the “National Academies”)
9 under which the National Academies will conduct a study
10 on the status of defense research at covered institutions
11 and the methods and means necessary to advance research
12 capacity at covered institutions to comprehensively ad-
13 dress the national security and defense needs of the
14 United States.

15 (b) **DESIGNATION.**—The study conducted under sub-
16 section (a) shall be known as the “National Study on De-
17 fense Research At Historically Black Colleges and Univer-
18 sities and Other Minority Institutions”.

19 (c) **ELEMENTS.**—The study conducted under sub-
20 section (a) shall include an examination of each of the fol-
21 lowing:

22 (1) The degree to which covered institutions are
23 successful in competing for and executing Depart-
24 ment of Defense contracts and grants for defense re-
25 search.

1 (2) Best practices for advancing the capacity of
2 covered institutions to compete for and conduct re-
3 search programs related to national security and de-
4 fense.

5 (3) The advancements and investments nec-
6 essary to elevate covered institutions to R2 status or
7 R1 status on the Carnegie Classification of Institu-
8 tions of Higher Education, consistent with the cri-
9 teria of the classification system.

10 (4) The facilities and infrastructure for defense-
11 related research at covered institutions as compared
12 to the facilities and infrastructure at institutions
13 classified as R1 status on the Carnegie Classification
14 of Institutions of Higher Education.

15 (5) Incentives to attract, recruit, and retain
16 leading research faculty to covered institutions.

17 (6) Best practices of institutions classified as
18 R1 status on the Carnegie Classification of Institu-
19 tions of Higher Education, including best practices
20 with respect to—

21 (A) the establishment of a distinct legal
22 entity to—

23 (i) enter into contracts or receive
24 grants from the Department;

1 (ii) lay the groundwork for future re-
2 search opportunities;

3 (iii) develop research proposals;

4 (iv) engage with defense research
5 funding organizations; and

6 (v) execute the administration of
7 grants; and

8 (B) determining the type of legal entity, if
9 any, to establish for the purposes described in
10 subparagraph (A).

11 (7) The ability of covered institutions to de-
12 velop, protect, and commercialize intellectual prop-
13 erty created through defense-related research.

14 (8) The total amount of defense research fund-
15 ing awarded to all institutions of higher education,
16 including covered institutions, through contracts and
17 grants for each of fiscal years 2010 through 2019
18 and, with respect to each such institution—

19 (A) whether the institution established a
20 distinct legal entity to enter into contracts or
21 receive grants from the Department and, if so,
22 the type of legal entity that was established;

23 (B) the total value of contracts and grants
24 awarded to the institution of higher education
25 for each of fiscal years 2010 through 2019;

1 (C) the overhead rate of the institution of
2 higher education for fiscal year 2019;

3 (D) the institution's classification on the
4 Carnegie Classification of Institutions of Higher
5 Education; and

6 (E) whether the institution qualifies as a
7 covered institution.

8 (9) Recommendations for strengthening and en-
9 hancing the programs executed under section 2362
10 of title 10, United States Code.

11 (10) Recommendations to enhance the capacity
12 of covered institutions to transition research prod-
13 ucts into defense acquisition programs or commer-
14 cialization.

15 (11) Previous executive or legislative actions by
16 the Federal Government to address imbalances in
17 Federal research funding, including such programs
18 as the Defense Established Program to Stimulate
19 Competitive Research (commonly known as
20 "DEPSCoR").

21 (12) The effectiveness of the Department in at-
22 tracting and retaining students specializing in
23 science, technology, engineering, and mathematics
24 fields from covered institutions for the Department's
25 programs on emerging capabilities and technologies.

1 (13) Recommendations for the development of
2 incentives to encourage research and educational col-
3 laborations between covered institutions and other
4 institutions of higher education.

5 (14) Any other matters the Secretary of De-
6 fense determines to be relevant to advancing the de-
7 fense research capacity of covered institutions.

8 (d) REPORTS.—

9 (1) INITIAL REPORT.—Not later than 180 days
10 after the date of the enactment of this Act, the Sec-
11 retary of Defense shall submit to the President and
12 the appropriate congressional committees an initial
13 report that includes—

14 (A) the findings of the study conducted
15 under subsection (a); and

16 (B) any recommendations that the Na-
17 tional Academies may have for action by the ex-
18 ecutive branch and Congress to improve the
19 participation of covered institutions in Depart-
20 ment of Defense research and any actions that
21 may be carried out to expand the research ca-
22 pacity of such institutions.

23 (2) FINAL REPORT.—Not later than December
24 31, 2021, the Secretary of Defense shall submit to
25 the President and the appropriate congressional

1 committees a comprehensive report on the results of
2 the study required under subsection (a).

3 (3) FORM OF REPORTS.—Each report sub-
4 mitted under this subsection shall be made publicly
5 available.

6 (e) IMPLEMENTATION REQUIRED.—

7 (1) IN GENERAL.—Except as provided in para-
8 graph (2), not later than March 1, 2022, the Sec-
9 retary of Defense shall commence implementation of
10 each recommendation included in the final report
11 submitted under subsection (d)(2).

12 (2) EXCEPTIONS.—

13 (A) DELAYED IMPLEMENTATION.—The
14 Secretary of Defense may commence implemen-
15 tation of a recommendation described para-
16 graph (1) later than March 1, 2022, if—

17 (i) the Secretary submits to the con-
18 gressional defense committees written no-
19 tice of the intent of the Secretary to delay
20 implementation of the recommendation;
21 and

22 (ii) includes, as part of such notice, a
23 specific justification for the delay in imple-
24 menting the recommendation.

1 (B) NONIMPLEMENTATION.—The Sec-
2 retary of Defense may elect not to implement a
3 recommendation described in paragraph (1),
4 if—

5 (i) the Secretary submits to the con-
6 gressional defense committees written no-
7 tice of the intent of the Secretary not to
8 implement the recommendation; and

9 (ii) includes, as part of such notice—

10 (I) the reasons for the Sec-
11 retary's decision not to implement the
12 recommendation; and

13 (II) a summary of alternative ac-
14 tions the Secretary will carry out to
15 address the purposes underlying the
16 recommendation.

17 (3) IMPLEMENTATION PLAN.—For each rec-
18 ommendation that the Secretary implements under
19 this subsection, the Secretary shall submit to the
20 congressional defense committees an implementation
21 plan that includes—

22 (A) a summary of actions that have been,
23 or will be, carried out to implement the rec-
24 ommendation; and

1 (B) a schedule, with specific milestones,
2 for completing the implementation of the rec-
3 ommendation.

4 (f) LIST OF COVERED INSTITUTIONS.—The Sec-
5 retary of Defense, in consultation with the Secretary of
6 Education and the Presidents of the National Academies,
7 shall make available a list identifying each covered institu-
8 tion examined as part of the study under subsection (a).
9 The list shall be made available on a publicly accessible
10 website and shall be updated not less frequently than once
11 annually until the date on which the final report is sub-
12 mitted under subsection (d)(2).

13 (g) DEFINITIONS.—In this section:

14 (1) The term “appropriate congressional com-
15 mittees” means—

16 (A) the congressional defense committees;

17 (B) the Committee on Health, Education,
18 Labor, and Pensions of the Senate; and

19 (C) the Committee on Education and
20 Labor of the House of Representatives.

21 (2) The term “covered institution” means—

22 (A) a part B institution (as that term is
23 defined in section 322(2) of the Higher Edu-
24 cation Act of 1965 (20 U.S.C. 1061(2)); or

1 (B) any other institution of higher edu-
2 cation (as that term is defined in section 101
3 of such Act (20 U.S.C. 1001)) at which not less
4 than 50 percent of the total student enrollment
5 consists of students from ethnic groups that are
6 underrepresented in the fields of science and
7 engineering.

8 **SEC. 263. STUDY ON NATIONAL SECURITY EMERGING BIO-**
9 **TECHNOLOGIES FOR THE DEPARTMENT OF**
10 **DEFENSE.**

11 (a) STUDY REQUIRED.—

12 (1) IN GENERAL.—Not later than 30 days after
13 the date of the enactment of this Act, the Secretary
14 of Defense shall direct the Defense Science Board to
15 carry out a study on emerging biotechnologies perti-
16 nent to national security.

17 (2) PARTICIPATION.—Participants in the study
18 shall include the following:

19 (A) Such members of the Board as the
20 Chairman of the Board considers appropriate
21 for the study.

22 (B) Such additional temporary members or
23 contracted support as the Secretary—

1 (i) selects from those recommended by
2 the Chairman for purposes of the study;
3 and

4 (ii) considers to have significant tech-
5 nical, policy, or military expertise.

6 (3) ELEMENTS.—The study conducted pursu-
7 ant to paragraph (1) shall include the following:

8 (A) A review of the military understanding
9 and relevancy of applications of emerging bio-
10 technologies to national security requirements
11 of the Department of Defense, including—

12 (i) a review of all research and devel-
13 opment relating to emerging biotech-
14 nologies within the Department of Defense,
15 including areas that demand further pri-
16 ority and investment;

17 (ii) a review of interagency coopera-
18 tion and collaboration on research and de-
19 velopment relating to emerging biotech-
20 nologies between—

21 (I) the Department;

22 (II) other departments and agen-
23 cies in the Federal Government; and

24 (III) appropriate private sector
25 entities that are involved in research

1 and development relating to emerging
2 biotechnologies;

3 (iii) an assessment of current bio-
4 technology research in the commercial sec-
5 tor, institutions of higher education, the
6 intelligence community, and civilian agen-
7 cies of the Federal Government relevant to
8 critical Department of Defense applications
9 of this research;

10 (iv) an assessment of the potential na-
11 tional security risks of emerging biotech-
12 nologies, including risks relating to foreign
13 powers advancing their use of emerging
14 biotechnologies for military applications
15 and other purposes faster than the Depart-
16 ment; and

17 (v) an assessment of the knowledge
18 base of the Department with respect to
19 emerging biotechnologies, including sci-
20 entific expertise and infrastructure in the
21 Department and the capacity of the De-
22 partment to integrate emerging biotech-
23 nologies into its operational concepts, capa-
24 bilities, and forces.

1 (B) An assessment of the technical basis
2 within the Department used to inform the intel-
3 ligence community of the Department's collec-
4 tion and analysis needs relating to emerging
5 biotechnologies.

6 (C) Development of a recommendation on
7 a definition of emerging biotechnologies, as ap-
8 propriate for the Department.

9 (D) Development of such recommendations
10 as the Board may have for legislative or admin-
11 istrative action relating to national security
12 emerging biotechnologies for the Department.

13 (4) ACCESS TO INFORMATION.—The Secretary
14 shall provide the Board with timely access to appro-
15 priate information, data, resources, and analysis so
16 that the Board may conduct a thorough and inde-
17 pendent analysis as required under this section.

18 (5) REPORT.—(A) Not later than one year after
19 the date on which the Secretary directs the Board
20 to conduct the study pursuant to paragraph (1), the
21 Board shall transmit to the Secretary a final report
22 on the study.

23 (B) Not later than 30 days after the date on
24 which the Secretary receives the final report under
25 subparagraph (A), the Secretary shall submit to the

1 congressional defense committees such report and
2 such comments as the Secretary considers appro-
3 priate.

4 (b) BRIEFING REQUIRED.—Not later than 90 days
5 after the date of the enactment of this Act, the Secretary
6 of Defense shall provide the congressional defense commit-
7 tees a briefing on potential national security risks of
8 emerging biotechnologies, including risks relating to for-
9 eign powers advancing their use of emerging biotech-
10 nologies for military applications and other purposes fast-
11 er than the Department.

12 **SEC. 264. INDEPENDENT STUDY ON OPTIMIZING RE-**
13 **SOURCES ALLOCATED TO COMBATING TER-**
14 **RORISM TECHNICAL SUPPORT OFFICE.**

15 (a) INDEPENDENT STUDY.—Not later than 30 days
16 after the date of the enactment of this Act, the Secretary
17 of Defense shall seek to enter into a contract with a feder-
18 ally funded research and development center under which
19 the center will conduct a study on the optimal use of re-
20 sources allocated to the Combating Terrorism Technical
21 Support Office.

22 (b) ELEMENTS OF STUDY.—In carrying out the
23 study referred to in subsection (a), the federally funded
24 research and development center with which the Secretary
25 enters into a contract under such subsection shall—

1 (1) evaluate the current mission and organiza-
2 tion of the Combating Terrorism Technical Support
3 Office and its relation to the objectives outlined in
4 the National Defense Strategy;

5 (2) assess the extent to which the activities of
6 the Combating Terrorism Technical Support Office
7 are complementary to and coordinated with other
8 relevant activities by other Department of Defense
9 entities, including activities of the Under Secretary
10 of Defense for Research and Engineering, the Under
11 Secretary of Defense for Acquisition and
12 Sustainment, United States Special Operations
13 Command, and the military departments; and

14 (3) identify opportunities to improve the effi-
15 ciency and effectiveness of the Combating Terrorism
16 Technical Support Office, including through in-
17 creased coordination, realignment, or consolidation
18 with other entities of the Department of Defense, if
19 appropriate.

20 (c) SUBMISSION TO DEPARTMENT OF DEFENSE.—

21 Not later than 180 days after the date of the enactment
22 of this Act, the federally funded research and development
23 center that conducts the study under subsection (a) shall
24 submit to the Secretary of Defense a report on the results
25 of the study in both classified and unclassified form.

1 (d) SUBMISSION TO CONGRESS.—Not later than 30
2 days after the date on which the Secretary of Defense re-
3 ceives the report under subsection (c), the Secretary shall
4 submit to the congressional defense committees an
5 unaltered copy of the report in both classified and unclas-
6 sified form, and such comments as the Secretary may have
7 with respect to the report.

8 **SEC. 265. INDEPENDENT ASSESSMENT OF ELECTRONIC**
9 **WARFARE PLANS AND PROGRAMS.**

10 (a) ASSESSMENT.—Not later than 120 days after the
11 date of the enactment of this Act and pursuant to the ar-
12 rangement entered into under section 222, the Secretary
13 of Defense shall seek to engage the private scientific advi-
14 sory group known as “JASON” to carry out an inde-
15 pendent assessment of electronic warfare plans and pro-
16 grams.

17 (b) ELEMENTS.—In carrying out the assessment
18 under subsection (a), JASON shall—

19 (1) assess the strategies, programs, order of
20 battle, and doctrine of the Department of Defense
21 related to the electronic warfare mission area and
22 electromagnetic spectrum operations;

23 (2) assess the strategies, programs, order of
24 battle, and doctrine of potential adversaries, such as

1 China, Iran, and the Russian Federation, related to
2 the such mission area and operations;

3 (3) develop recommendations for improvements
4 to the strategies, programs, and doctrine of the De-
5 partment of Defense in order to enable the United
6 States to achieve and maintain superiority in the
7 electromagnetic spectrum in future conflicts; and

8 (4) develop recommendations for the Secretary
9 of Defense, Congress, and such other Federal enti-
10 ties as JASON considers appropriate, including rec-
11 ommendations for—

12 (A) closing technical, policy, or resource
13 gaps;

14 (B) improving cooperation and appropriate
15 integration within the Department of Defense
16 entities;

17 (C) improving cooperation between the
18 United States and other countries and inter-
19 national organizations as appropriate; and

20 (D) such other important matters identi-
21 fied by JASON that are directly relevant to the
22 strategies of the Department of Defense de-
23 scribed in paragraph (3).

1 (c) LIAISONS.—The Secretary of Defense shall ap-
2 point appropriate liaisons to JASON to support the timely
3 conduct of the services covered by this section.

4 (d) MATERIALS.—The Secretary of Defense shall
5 provide access to JASON to materials relevant to the serv-
6 ices covered by this section, consistent with the protection
7 of sources and methods and other critically sensitive infor-
8 mation.

9 (e) CLEARANCES.—The Secretary of Defense shall
10 ensure that appropriate members and staff of JASON
11 have the necessary clearances, obtained in an expedited
12 manner, to conduct the services covered by this section.

13 (f) REPORT.—Not later than October 1, 2020, the
14 Secretary of Defense shall submit to the congressional de-
15 fense committees a report on the results of the assessment
16 carried out under subsection (a), including—

17 (1) the results of the assessment with respect to
18 each element described in subsection (b);

19 (2) the recommendations developed by JASON
20 pursuant to such subsection.

21 (g) RELATIONSHIP TO OTHER LAW.—The assess-
22 ment required under subsection (a) is separate and inde-
23 pendent from the assessment described in section 255 of
24 the John S. McCain National Defense Authorization Act
25 for Fiscal Year 2019 (Public Law 115–232; 132 Stat.

1 1705) and shall be carried out without regard to any
2 agreement entered into under that section or the results
3 of any assessment conducted pursuant to such agreement.

4 **SEC. 266. TECHNICAL CORRECTION TO GLOBAL RESEARCH**
5 **WATCH PROGRAM.**

6 Section 2365 of title 10, United States Code, is
7 amended—

8 (1) in subsections (a) and (d)(2), by striking
9 “Assistant Secretary of Defense for Research and
10 Engineering” both places it appears and inserting
11 “Under Secretary of Defense for Research and En-
12 gineering”;

13 (2) in subsections (d)(3) and (e), by striking
14 “Assistant Secretary” both places it appears and in-
15 serting “Under Secretary of Defense for Research
16 and Engineering”; and

17 (3) in subsection (d), by striking “Assistant
18 Secretary” both places it appears and inserting
19 “Under Secretary”.

20 **TITLE III—OPERATION AND**
21 **MAINTENANCE**

Subtitle A—Authorization of Appropriations

Sec. 301. Authorization of appropriations.

Subtitle B—Energy and Environment

Sec. 311. Timeline for Clearinghouse review of applications for energy projects
that may have an adverse impact on military operations and
readiness.

- Sec. 312. Authority to accept contributions of funds from applicants for energy projects for mitigation of impacts on military operations and readiness.
- Sec. 313. Use of proceeds from sale of recyclable materials.
- Sec. 314. Disposal of recyclable materials.
- Sec. 315. Department of Defense improvement of previously conveyed utility systems serving military installations.
- Sec. 316. Modification of Department of Defense environmental restoration authorities to include Federal Government facilities used by National Guard.
- Sec. 317. Use of operational energy cost savings of Department of Defense.
- Sec. 318. Sale of electricity from alternate energy and cogeneration production facilities.
- Sec. 319. Energy resilience programs and activities.
- Sec. 320. Technical and grammatical corrections and repeal of obsolete provisions relating to energy.
- Sec. 321. Transfer authority for funding of study and assessment on health implications of per- and polyfluoroalkyl substances contamination in drinking water by Agency for Toxic Substances and Disease Registry.
- Sec. 322. Replacement of fluorinated aqueous film-forming foam with fluorine-free fire-fighting agent.
- Sec. 323. Prohibition of uncontrolled release of fluorinated aqueous film-forming foam at military installations.
- Sec. 324. Prohibition on use of fluorinated aqueous film forming foam for training exercises.
- Sec. 325. Real-time sound-monitoring at Navy installations where tactical fighter aircraft operate.
- Sec. 326. Development of extreme weather vulnerability and risk assessment tool.
- Sec. 327. Removal of barriers that discourage investments to increase military installation resilience.
- Sec. 328. Budgeting of Department of Defense relating to extreme weather.
- Sec. 329. Prohibition on Perfluoroalkyl Substances and Polyfluoroalkyl Substances in Meals Ready-to-Eat Food Packaging.
- Sec. 330. Disposal of materials containing per- and polyfluoroalkyl substances or aqueous film-forming foam.
- Sec. 331. Agreements to share monitoring data relating to perfluoroalkyl and polyfluoroalkyl substances and other contaminants of concern.
- Sec. 332. Cooperative agreements with States to address contamination by perfluoroalkyl and polyfluoroalkyl substances.
- Sec. 333. Plan to phase out use of burn pits.
- Sec. 334. Information relating to locations of burn pit use.
- Sec. 335. Data quality review of radium testing conducted at certain locations of the Department of the Navy.
- Sec. 336. Reimbursement of Environmental Protection Agency for certain costs in connection with the Twin Cities Army Ammunition Plant, Minnesota.
- Sec. 337. Pilot program for availability of working-capital funds for increased combat capability through energy optimization.
- Sec. 338. Report on efforts to reduce high energy intensity at military installations.

Subtitle C—Treatment of Contaminated Water Near Military Installations

- Sec. 341. Short title.
- Sec. 342. Definitions.
- Sec. 343. Provision of water uncontaminated with perfluorooctanoic acid (PFOA) and perfluorooctane sulfonate (PFOS) for agricultural purposes.
- Sec. 344. Acquisition of real property by Air Force.
- Sec. 345. Remediation plan.

Subtitle D—Logistics and Sustainment

- Sec. 351. Materiel readiness metrics and objectives.
- Sec. 352. Clarification of authority regarding use of working-capital funds for unspecified minor military construction projects related to revitalization and recapitalization of defense industrial base facilities.
- Sec. 353. Modification to limitation on length of overseas forward deployment of naval vessels.
- Sec. 354. Extension of temporary installation reutilization authority for arsenals, depots, and plants.
- Sec. 355. F-35 Joint Strike Fighter sustainment.
- Sec. 356. Report on strategic policy for prepositioned materiel and equipment.
- Sec. 357. Pilot program to train skilled technicians in critical shipbuilding skills.
- Sec. 358. Requirement for military department inter-service depot maintenance.
- Sec. 359. Strategy to improve infrastructure of certain depots of the Department of Defense.

Subtitle E—Reports

- Sec. 361. Readiness reporting.
- Sec. 362. Technical correction to deadline for transition to Defense Readiness Reporting System Strategic.
- Sec. 363. Report on Navy ship depot maintenance budget.
- Sec. 364. Report on Runit Dome.
- Sec. 365. Prohibition on subjective upgrades by commanders of unit ratings in monthly readiness reporting on military units.
- Sec. 366. Requirement to include foreign language proficiency in readiness reporting systems of Department of Defense.

Subtitle F—Other Matters

- Sec. 371. Prevention of encroachment on military training routes and military operations areas.
- Sec. 372. Expansion and enhancement of authorities on transfer and adoption of military animals.
- Sec. 373. Extension of authority for Secretary of Defense to use Department of Defense reimbursement rate for transportation services provided to certain non-Department of Defense entities.
- Sec. 374. Extension of authority of Secretary of Transportation to issue non-premium aviation insurance.
- Sec. 375. Defense personal property program.
- Sec. 376. Public events about Red Hill Bulk Fuel Storage Facility.
- Sec. 377. Sense of Congress regarding Innovative Readiness Training program.
- Sec. 378. Detonation chambers for explosive ordnance disposal.

1 **Subtitle A—Authorization of**
2 **Appropriations**

3 **SEC. 301. AUTHORIZATION OF APPROPRIATIONS.**

4 Funds are hereby authorized to be appropriated for
5 fiscal year 2020 for the use of the Armed Forces and other
6 activities and agencies of the Department of Defense for
7 expenses, not otherwise provided for, for operation and
8 maintenance, as specified in the funding table in section
9 4301.

10 **Subtitle B—Energy and**
11 **Environment**

12 **SEC. 311. TIMELINE FOR CLEARINGHOUSE REVIEW OF AP-**
13 **PLICATIONS FOR ENERGY PROJECTS THAT**
14 **MAY HAVE AN ADVERSE IMPACT ON MILI-**
15 **TARY OPERATIONS AND READINESS.**

16 Section 183a(c)(1) of title 10, United States Code,
17 is amended by striking “60 days” and inserting “75
18 days”.

19 **SEC. 312. AUTHORITY TO ACCEPT CONTRIBUTIONS OF**
20 **FUNDS FROM APPLICANTS FOR ENERGY**
21 **PROJECTS FOR MITIGATION OF IMPACTS ON**
22 **MILITARY OPERATIONS AND READINESS.**

23 Section 183a(f) of title 10, United States Code, is
24 amended by striking “for a project filed with the Secretary

1 of Transportation pursuant to section 44718 of title 49”
2 and inserting “for an energy project”.

3 **SEC. 313. USE OF PROCEEDS FROM SALE OF RECYCLABLE**
4 **MATERIALS.**

5 Section 2577(c) of title 10, United States Code, is
6 amended by striking “\$2,000,000” and inserting
7 “\$10,000,000”.

8 **SEC. 314. DISPOSAL OF RECYCLABLE MATERIALS.**

9 Section 2577(a) of title 10, United States Code, is
10 amended by adding at the end the following new para-
11 graph:

12 “(3) In this section, the term ‘recyclable materials’
13 may include any quality recyclable material provided to
14 the Department by a State or local government entity, if
15 such material is authorized by the Office of the Secretary
16 of Defense and identified in the regulations prescribed
17 under paragraph (1).”.

18 **SEC. 315. DEPARTMENT OF DEFENSE IMPROVEMENT OF**
19 **PREVIOUSLY CONVEYED UTILITY SYSTEMS**
20 **SERVING MILITARY INSTALLATIONS.**

21 Section 2688 of title 10, United States Code, is
22 amended—

23 (1) by redesignating subsection (k) as sub-
24 section (l); and

1 (2) by inserting after subsection (j) the fol-
2 lowing new subsection (k):

3 “(k) IMPROVEMENT OF CONVEYED UTILITY SYS-
4 TEMS.—In the case of a utility system that is conveyed
5 under this section and that only provides utility services
6 to a military installation, the Secretary concerned may use
7 amounts authorized to be appropriated for military con-
8 struction to improve the reliability, resilience, efficiency,
9 physical security, or cybersecurity of the utility system.”.

10 **SEC. 316. MODIFICATION OF DEPARTMENT OF DEFENSE**
11 **ENVIRONMENTAL RESTORATION AUTHORI-**
12 **TIES TO INCLUDE FEDERAL GOVERNMENT**
13 **FACILITIES USED BY NATIONAL GUARD.**

14 (a) IN GENERAL.—Section 2707 of title 10, United
15 States Code, is amended by adding at the end the fol-
16 lowing new subsection:

17 “(e) AUTHORITY FOR NATIONAL GUARD
18 PROJECTS.—Notwithstanding subsection (a) of this sec-
19 tion and section 2701(c)(1) of this title, the Secretary con-
20 cerned may use funds described in subsection (c) to carry
21 out an environmental restoration project at a facility in
22 response to perfluorooctanoic acid or perfluorooctane
23 sulfonate contamination under this chapter or
24 CERCLA.”.

1 (b) DEFINITION OF FACILITY.—Section 2700(2) of
2 such title is amended—

3 (1) by striking “The terms” and inserting “(A)
4 The terms”; and

5 (2) by adding at the end the following new sub-
6 paragraph:

7 “(B) The term ‘facility’ includes real property
8 that is owned by, leased to, or otherwise possessed
9 by the United States at locations at which military
10 activities are conducted under this title or title 32
11 (including real property owned or leased by the Fed-
12 eral Government that is licensed to and operated by
13 a State for training for the National Guard).”.

14 (c) INCLUSION OF POLLUTANTS AND CONTAMINANTS
15 IN ENVIRONMENTAL RESPONSE ACTIONS.—Section
16 2701(c) of such title is amended by inserting “or pollut-
17 ants or contaminants” after “hazardous substances” each
18 place it appears.

19 (d) SAVINGS CLAUSE.—Nothing in this section, or
20 the amendments made by this section, shall affect any re-
21 quirement or authority under the Comprehensive Environ-
22 mental Response, Compensation, and Liability Act of
23 1980 (42 U.S.C. 9601 et seq.).

1 **SEC. 317. USE OF OPERATIONAL ENERGY COST SAVINGS OF**
2 **DEPARTMENT OF DEFENSE.**

3 Section 2912 of title 10, United States Code, is
4 amended—

5 (1) in subsection (a), by striking “subsection
6 (b)” and inserting “subsection (b) or (c), as the case
7 may be,”;

8 (2) in subsection (b), in the matter preceding
9 paragraph (1), by striking “The Secretary of De-
10 fense” and inserting “Except as provided in sub-
11 section (c) with respect to operational energy cost
12 savings, the Secretary of Defense”;

13 (3) by redesignating subsection (c) as sub-
14 section (d); and

15 (4) by inserting after subsection (b) the fol-
16 lowing new subsection (c):

17 “(c) USE OF OPERATIONAL ENERGY COST SAV-
18 INGS.—The amount that remains available for obligation
19 under subsection (a) that relates to operational energy
20 cost savings realized by the Department shall be used for
21 the implementation of additional operational energy resil-
22 ience, efficiencies, mission assurance, energy conservation,
23 or energy security within the department, agency, or in-
24 strumentality that realized that savings.”.

1 **SEC. 318. SALE OF ELECTRICITY FROM ALTERNATE EN-**
2 **ERGY AND COGENERATION PRODUCTION FA-**
3 **CILITIES.**

4 Section 2916(b)(3)(B) of title 10, United States
5 Code, is amended—

6 (1) by striking “shall be available” and all that
7 follows and inserting “shall be provided directly to
8 the commander of the military installation in which
9 the geothermal energy resource is located to be used
10 for—”; and

11 (2) by adding at the end the following new
12 clauses:

13 “(i) military construction projects de-
14 scribed in paragraph (2) that benefit the mili-
15 tary installation where the geothermal energy
16 resource is located; or

17 “(ii) energy or water security projects
18 that—

19 “(I) benefit the military installation
20 where the geothermal energy resource is lo-
21 cated;

22 “(II) the commander of the military
23 installation determines are necessary; and

24 “(III) are directly coordinated with
25 local area energy or groundwater governing
26 authorities.”.

1 **SEC. 319. ENERGY RESILIENCE PROGRAMS AND ACTIVI-**
2 **TIES.**

3 (a) **MODIFICATION OF ANNUAL ENERGY MANAGE-**
4 **MENT AND RESILIENCE REPORT.**—Section 2925(a) of
5 title 10, United States Code, is amended—

6 (1) in the subsection heading, by inserting
7 “AND READINESS” after “MISSION ASSURANCE”;

8 (2) in the matter preceding paragraph (1), by
9 inserting “The Secretary shall ensure that mission
10 operators of critical facilities provide to personnel of
11 military installations any information necessary for
12 the completion of such report.” after “by the Sec-
13 retary.”;

14 (3) in paragraph (4), in the matter preceding
15 subparagraph (A), by striking “megawatts” and in-
16 serting “electric and thermal loads”; and

17 (4) in paragraph (5), by striking “megawatts”
18 and inserting “electric and thermal loads”.

19 (b) **FUNDING FOR ENERGY PROGRAM OFFICES.**—

20 (1) **IN GENERAL.**—Not later than 180 days
21 after the date of the enactment of this Act, the Sec-
22 retaries of the military departments shall submit to
23 the congressional defense committees a report stat-
24 ing whether the program offices specified in para-
25 graph (2) are funded—

1 (A) at proper levels to ensure that the en-
2 ergy resilience requirements of the Department
3 of Defense are met; and

4 (B) at levels that are not less than in any
5 previous fiscal year.

6 (2) PROGRAM OFFICES SPECIFIED.—The pro-
7 gram offices specified in this paragraph are the fol-
8 lowing:

9 (A) The Power Reliability Enhancement
10 Program of the Army.

11 (B) The Office of Energy Initiatives of the
12 Army.

13 (C) The Office of Energy Assurance of the
14 Air Force.

15 (D) The Resilient Energy Program Office
16 of the Navy.

17 (3) FUNDING PLAN.—

18 (A) IN GENERAL.—The Secretaries of the
19 military departments shall include in the report
20 submitted under paragraph (1) a funding plan
21 for the next five fiscal years beginning after the
22 date of the enactment of this Act to ensure that
23 funding levels are, at a minimum, maintained
24 during that period.

1 (B) ELEMENTS.—The funding plan under
2 subparagraph (A) shall include, for each fiscal
3 year covered by the plan, an identification of
4 the amounts to be used for the accomplishment
5 of energy resilience goals and objectives.

6 (c) ESTABLISHMENT OF TARGETS FOR WATER
7 USE.—The Secretary of Defense shall, where life-cycle
8 cost-effective, improve water use efficiency and manage-
9 ment by the Department of Defense, including storm
10 water management, by—

11 (1) installing water meters and collecting and
12 using water balance data of buildings and facilities
13 to improve water conservation and management;

14 (2) reducing industrial, landscaping, and agri-
15 cultural water consumption in gallons by two percent
16 annually through fiscal year 2030 relative to a base-
17 line of such consumption by the Department in fiscal
18 year 2010; and

19 (3) installing appropriate sustainable infra-
20 structure features on installations of the Depart-
21 ment to help with storm water and wastewater man-
22 agement.

1 **SEC. 320. TECHNICAL AND GRAMMATICAL CORRECTIONS**
2 **AND REPEAL OF OBSOLETE PROVISIONS RE-**
3 **LATING TO ENERGY.**

4 (a) TECHNICAL AND GRAMMATICAL CORRECTIONS.—

5 (1) TECHNICAL CORRECTIONS.—Title 10,
6 United States Code, is amended—

7 (A) in section 2913(c), by striking “gov-
8 ernment” and inserting “government or”; and

9 (B) in section 2926(d)(1), in the second
10 sentence, by striking “Defense Agencies” and
11 inserting “the Defense Agencies”.

12 (2) GRAMMATICAL CORRECTIONS.—Such title is
13 further amended—

14 (A) in section 2922a(d), by striking “resil-
15 ience are prioritized and included” and insert-
16 ing “energy resilience are included as critical
17 factors”; and

18 (B) in section 2925(a)(3), by striking “im-
19 pacting energy” and all that follows through
20 the period at the end and inserting “degrading
21 energy resilience at military installations (ex-
22 cluding planned outages for maintenance rea-
23 sons), whether caused by on- or off-installation
24 disruptions, including the total number of out-
25 ages and their locations, the duration of each
26 outage, the financial effect of each outage,

1 whether or not the mission was affected, the
2 downtimes (in minutes or hours) the mission
3 can afford based on mission requirements and
4 risk tolerances, the responsible authority man-
5 aging the utility, and measures taken to miti-
6 gate the outage by the responsible authority.”.

7 (b) CLARIFICATION OF APPLICABILITY OF CON-
8 FLICTING AMENDMENTS MADE BY 2018 DEFENSE AU-
9 THORIZATION ACT.—Section 2911(e) of such title is
10 amended—

11 (1) by striking paragraphs (1) and (2) and in-
12 serting the following new paragraphs:

13 “(1) Opportunities to reduce the current rate of
14 consumption of energy, the future demand for en-
15 ergy, and the requirement for the use of energy.

16 “(2) Opportunities to enhance energy resilience
17 to ensure the Department of Defense has the ability
18 to prepare for and recover from energy disruptions
19 that affect mission assurance on military installa-
20 tions.”; and

21 (2) by striking the second paragraph (13).

22 (c) CONFORMING AND CLERICAL AMENDMENTS.—

23 (1) HEADING AMENDMENT.—The heading of
24 section 2926 of such title is amended to read as fol-
25 lows:

1 **“§ 2926. Operational energy”.**

2 (2) CLERICAL AMENDMENT.—The table of sec-
3 tions at the beginning of chapter 173 of such title
4 is amended by striking the item relating to section
5 2926 and inserting the following new item:

“2926. Operational energy.”.

6 **SEC. 321. TRANSFER AUTHORITY FOR FUNDING OF STUDY**
7 **AND ASSESSMENT ON HEALTH IMPLICATIONS**
8 **OF PER- AND POLYFLUOROALKYL SUB-**
9 **STANCES CONTAMINATION IN DRINKING**
10 **WATER BY AGENCY FOR TOXIC SUBSTANCES**
11 **AND DISEASE REGISTRY.**

12 Section 316(a)(2)(B)(ii) of the National Defense Au-
13 thorization Act for Fiscal Year 2018 (Public Law 115–
14 91; 131 Stat. 1350), as amended by section 315(a) of the
15 John S. McCain National Defense Authorization Act for
16 Fiscal Year 2019 (Public Law 115–232), is amended by
17 striking “2019 and 2020” and inserting “2019, 2020, and
18 2021”.

19 **SEC. 322. REPLACEMENT OF FLUORINATED AQUEOUS**
20 **FILM-FORMING FOAM WITH FLUORINE-FREE**
21 **FIRE-FIGHTING AGENT.**

22 (a) USE OF FLUORINE-FREE FOAM AT MILITARY IN-
23 STALLATIONS.—

24 (1) MILITARY SPECIFICATION.—Not later than
25 January 31, 2023, the Secretary of the Navy shall

1 publish a military specification for a fluorine-free
2 fire-fighting agent for use at all military installa-
3 tions and ensure that such agent is available for use
4 by not later than October 1, 2023.

5 (2) REPORT TO CONGRESS.—Concurrent with
6 publication of the military specification under para-
7 graph (1), the Secretary of Defense shall submit to
8 the congressional defense committees a report con-
9 taining a detailed plan for implementing the transi-
10 tion to a fluorine-free fire-fighting agent by not later
11 than October 1, 2023. The report shall include—

12 (A) a detailed description of the progress
13 of the Department of Defense to identify a fluo-
14 rine-free fire-fighting agent for use as a re-
15 placement fire-fighting agent at military instal-
16 lations;

17 (B) a description of any technology and
18 equipment required to implement the replace-
19 ment fire-fighting agent;

20 (C) funding requirements, by fiscal year, to
21 implement the replacement fire-fighting agent,
22 including funding for the procurement of a re-
23 placement fire-fighting agent, required equip-
24 ment, and infrastructure improvements;

1 (D) a detailed timeline of remaining re-
2 quired actions to implement such replacement.

3 (b) LIMITATION.—No amount authorized to be ap-
4 propriated or otherwise made available for the Depart-
5 ment of Defense may be obligated or expended after Octo-
6 ber 1, 2023, to procure fire-fighting foam that contains
7 in excess of one part per billion of perfluoroalkyl sub-
8 stances and polyfluoroalkyl substances.

9 (c) PROHIBITION ON USE.—Fluorinated aqueous
10 film-forming foam may not be used at any military instal-
11 lation on or after the earlier of the following dates:

12 (1) October 1, 2024.

13 (2) The date on which the Secretary determines
14 that compliance with the prohibition under this sub-
15 section is possible.

16 (d) EXEMPTION FOR SHIPBOARD USE.—Subsections
17 (b) and (c) shall not apply to firefighting foam for use
18 solely onboard ocean-going vessels.

19 (e) WAIVER.—

20 (1) IN GENERAL.—Subject to the limitations
21 under paragraph (2), the Secretary of Defense may
22 waive the prohibition under subsection (c) with re-
23 spect to the use of fluorinated aqueous film-forming
24 foam, if, by not later than 60 days prior to issuing
25 the waiver, the Secretary—

1 (A) provides to the congressional defense
2 committees a briefing on the basis for the waiv-
3 er and the progress to develop and field a fluo-
4 rine-free fire-fighting agent that meets the mili-
5 tary specifications issued pursuant to sub-
6 section (a), which includes—

7 (i) detailed data on the progress made
8 to identify a replacement fluorine-free fire-
9 fighting agent;

10 (ii) a description of the range of tech-
11 nology and equipment-based solutions ana-
12 lyzed to implement replacement;

13 (iii) a description of the funding, by
14 fiscal year, applied towards research, devel-
15 opment, test, and evaluation of replace-
16 ment firefighting agents and equipment-
17 based solutions;

18 (iv) a description of any completed
19 and projected infrastructure changes;

20 (v) a description of acquisition actions
21 made in support of developing and fielding
22 the fluorine-free fire-fighting agent;

23 (vi) an updated timeline for the com-
24 pletion of the transition to use of the fluo-
25 rine-free fire-fighting agent; and

1 (vii) a list of the categories of installa-
2 tion infrastructure or specific mobile fire-
3 fighting equipment sets that require the
4 waiver along with the justification;

5 (B) submits to the congressional defense
6 committees certification in writing, that—

7 (i) the waiver is necessary for either
8 installation infrastructure, mobile fire-
9 fighting equipment, or both;

10 (ii) the waiver is necessary for the
11 protection of life and safety;

12 (iii) no agent or equipment solutions
13 are available that meet the military specific
14 issued pursuant to subsection (a);

15 (iv) the military specification issued
16 pursuant to subsection (a) is still valid and
17 does not require revision; and

18 (v) includes details of the measures in
19 place to minimize the release of and expo-
20 sure to fluorinated compounds in
21 fluorinated aqueous film-forming foam;
22 and

23 (C) provides for public notice of the waiv-
24 er.

1 (2) LIMITATION.—The following limitations
2 apply to a waiver issued under this subsection:

3 (A) Such a waiver shall apply for a period
4 that does not exceed one year.

5 (B) The Secretary may extend such a
6 waiver once for an additional period that does
7 not exceed one year, if the requirements under
8 paragraph (1) are met as of the date of the ex-
9 tension of the waiver.

10 (C) The authority to grant a waiver under
11 this subsection may not be delegated below the
12 level of the Secretary of Defense.

13 (f) DEFINITIONS.—In this section:

14 (1) The term “perfluoroalkyl substances”
15 means aliphatic substances for which all of the H
16 atoms attached to C atoms in the nonfluorinated
17 substance from which they are notionally derived
18 have been replaced by F atoms, except those H
19 atoms whose substitution would modify the nature of
20 any functional groups present.

21 (2) The term “polyfluoroalkyl substances”
22 means aliphatic substances for which all H atoms
23 attached to at least one (but not all) C atoms have
24 been replaced by F atoms, in such a manner that

1 they contain the perfluoroalkyl moiety C_nF_{2n+1} __
2 (for example, $C_8F_{17}CH_2CH_2OH$).

3 **SEC. 323. PROHIBITION OF UNCONTROLLED RELEASE OF**
4 **FLUORINATED AQUEOUS FILM-FORMING**
5 **FOAM AT MILITARY INSTALLATIONS.**

6 (a) PROHIBITION.—Except as provided by subsection
7 (b), the Secretary of Defense shall prohibit the uncon-
8 trolled release of fluorinated aqueous film-forming foam
9 (hereinafter in this section referred to as “AFFF”) at
10 military installations.

11 (b) EXCEPTIONS.—Notwithstanding subsection (a),
12 fluorinated AFFF may be released at military installa-
13 tions as follows:

14 (1) AFFF may be released for purposes of an
15 emergency response.

16 (2) A non-emergency release of AFFF may be
17 made for the purposes of testing of equipment or
18 training of personnel, if complete containment, cap-
19 ture, and proper disposal mechanisms are in place to
20 ensure no AFFF is released into the environment.

1 **SEC. 324. PROHIBITION ON USE OF FLUORINATED AQUE-**
2 **OUS FILM FORMING FOAM FOR TRAINING EX-**
3 **ERCISES.**

4 The Secretary of Defense shall prohibit the use of
5 fluorinated aqueous film forming foam for training exer-
6 cises at military installations.

7 **SEC. 325. REAL-TIME SOUND-MONITORING AT NAVY IN-**
8 **STALLATIONS WHERE TACTICAL FIGHTER**
9 **AIRCRAFT OPERATE.**

10 (a) MONITORING.—The Secretary of the Navy shall
11 conduct real-time sound-monitoring at no fewer than two
12 Navy installations and their associated outlying landing
13 fields on the west coast of the United States where Navy
14 combat coded F/A-18, E/A-18G, or F-35 aircraft are
15 based and operate and noise contours have been developed
16 through noise modeling. Sound monitoring under such
17 study shall be conducted—

18 (1) during times of high, medium, and low ac-
19 tivity over the course of a 12-month period; and

20 (2) along and in the vicinity of flight paths used
21 to approach and depart the selected installations and
22 their outlying landing fields.

23 (b) PLAN FOR ADDITIONAL MONITORING.—Not later
24 than 90 days after the date of the enactment of this Act,
25 the Secretary of the Navy shall submit to the congres-
26 sional defense committees a plan for real-time sound moni-

1 toring described in subsection (a) in the vicinity of train-
2 ing areas predominantly overflowed by tactical fighter air-
3 craft from the selected installations and outlying landing
4 fields, including training areas that consist of real prop-
5 erty administered by the Federal Government (including
6 Department of Defense, Department of Interior, and De-
7 partment of Agriculture), State and local governments,
8 and privately owned land with the permission of the
9 owner.

10 (c) REPORT REQUIRED.—Not later than December
11 1, 2020, the Secretary of the Navy shall submit to the
12 congressional defense committees a report on the moni-
13 toring required under subsection (a). Such report shall in-
14 clude—

15 (1) the results of such monitoring;

16 (2) a comparison of such monitoring and the
17 noise contours previously developed with the analysis
18 and modeling methods previously used;

19 (3) an overview of any changes to the analysis
20 and modeling process that have been made or are
21 being considered as a result of the findings of such
22 monitoring; and

23 (4) any other matters that the Secretary deter-
24 mines appropriate.

1 (d) PUBLIC AVAILABILITY OF MONITORING RE-
2 SULTS.—The Secretary shall make the results of the moni-
3 toring required under subsection (a) publicly available on
4 a website of the Department of Defense.

5 **SEC. 326. DEVELOPMENT OF EXTREME WEATHER VULNER-**
6 **ABILITY AND RISK ASSESSMENT TOOL.**

7 (a) IN GENERAL.—The Secretary of Defense shall
8 consult with the entities described in subsection (b) to de-
9 termine whether an existing climate vulnerability and risk
10 assessment tool is available or can be adapted to be used
11 to quantify the risks associated with extreme weather
12 events and the impact of such events on networks, sys-
13 tems, installations, facilities, and other assets to inform
14 mitigation planning and infrastructure development.

15 (b) CONSULTATION.—In determining the availability
16 of an appropriate tool to use or adapt for use under sub-
17 section (a), the Secretary shall consult with the Adminis-
18 trator of the Environmental Protection Agency, the Sec-
19 retary of Energy, the Secretary of the Interior, the Admin-
20 istrator of the National Oceanic and Atmospheric Admin-
21 istration, the Administrator of the Federal Emergency
22 Management Agency, the Commander of the Army Corps
23 of Engineers, the Administrator of the National Aero-
24 nautics and Space Administration, a federally funded re-
25 search and development center, and the heads of such

1 other relevant Federal agencies as the Secretary of De-
2 fense determines appropriate.

3 (c) BEST AVAILABLE SCIENCE.—Before choosing a
4 tool for use or adaptation for use under subsection (a),
5 the Secretary shall obtain from a federally funded research
6 and development center with which the Secretary has con-
7 sulted under subsection (b) a certification in writing that
8 the tool relies on the best publicly available science for
9 the prediction of extreme weather risk and effective miti-
10 gation of that risk.

11 (d) REPORT.—Not later than one year after the date
12 of the enactment of this Act, the Secretary shall submit
13 to the congressional defense committees a report on the
14 implementation of this section. Such report shall include—

15 (1) in the case that a tool has been chosen
16 under subsection (a) before the date of the submittal
17 of the report, a description of the tool and how such
18 tool will be used by the Department; or

19 (2) in the case that the Secretary determines
20 that no available tool meets the requirements of the
21 Department as described in subsection (a) or is
22 readily adaptable for use, a plan for the development
23 of such a tool, including the estimated cost and
24 timeframe for development of such a tool.

1 **SEC. 327. REMOVAL OF BARRIERS THAT DISCOURAGE IN-**
2 **VESTMENTS TO INCREASE MILITARY INSTAL-**
3 **LATION RESILIENCE.**

4 (a) IN GENERAL.—The Secretary of Defense shall—

5 (1) identify and seek to remove barriers that
6 discourage investments to increase military installa-
7 tion resilience;

8 (2) reform policies and programs that uninten-
9 tionally increased the vulnerability of systems to re-
10 lated extreme weather events; and

11 (3) develop, and update at least once every four
12 years, an adaptation plan to assess how climate im-
13 pacts affected the ability of the Department of De-
14 fense to accomplish its mission, and the short-and
15 long- term actions the Department can take to en-
16 sure military installation resilience.

17 (b) MILITARY INSTALLATION RESILIENCE.—In this
18 section, the term “military installation resilience” has the
19 meaning given such term in section 101(e)(8) of title 10,
20 United States Code.

21 **SEC. 328. BUDGETING OF DEPARTMENT OF DEFENSE RE-**
22 **LATING TO EXTREME WEATHER.**

23 (a) IN GENERAL.—The Secretary of Defense shall in-
24 clude in the annual budget submission of the President
25 under section 1105(a) of title 31, United States Code—

1 (1) a dedicated budget line item for adaptation
2 to, and mitigation of, effects of extreme weather on
3 military networks, systems, installations, facilities,
4 and other assets and capabilities of the Department
5 of Defense; and

6 (2) an estimate of the anticipated adverse im-
7 pacts to the readiness of the Department and the fi-
8 nancial costs to the Department during the year cov-
9 ered by the budget of the loss of, or damage to, mili-
10 tary networks, systems, installations, facilities, and
11 other assets and capabilities of the Department, in-
12 cluding loss of or obstructed access to training
13 ranges, as a result extreme weather events.

14 (b) DISAGGREGATION OF IMPACTS AND COSTS.—The
15 estimate under subsection (a)(2) shall set forth the ad-
16 verse readiness impacts and financial costs under that
17 subsection by military department, Defense Agency, and
18 other component or element of the Department.

19 (c) EXTREME WEATHER DEFINED.—In this section,
20 the term “extreme weather” means recurrent flooding,
21 drought, desertification, wildfires, and thawing perma-
22 frost.

1 **SEC. 329. PROHIBITION ON PERFLUOROALKYL SUB-**
2 **STANCES AND POLYFLUOROALKYL SUB-**
3 **STANCES IN MEALS READY-TO-EAT FOOD**
4 **PACKAGING.**

5 (a) PROHIBITION.—Not later than October 1, 2021,
6 the Director of the Defense Logistics Agency shall ensure
7 that any food contact substances that are used to assemble
8 and package meals ready-to-eat (MREs) procured by the
9 Defense Logistics Agency do not contain any
10 perfluoroalkyl substances or polyfluoroalkyl substances.

11 (b) DEFINITIONS.—In this section:

12 (1) PERFLUOROALKYL SUBSTANCE.—The term
13 “perfluoroalkyl substance” means a man-made
14 chemical of which all of the carbon atoms are fully
15 fluorinated carbon atoms.

16 (2) POLYFLUOROALKYL SUBSTANCE.—The
17 term “polyfluoroalkyl substance” means a man-made
18 chemical containing a mix of fully fluorinated carbon
19 atoms, partially fluorinated carbon atoms, and
20 nonfluorinated carbon atoms.

21 **SEC. 330. DISPOSAL OF MATERIALS CONTAINING PER- AND**
22 **POLYFLUOROALKYL SUBSTANCES OR AQUE-**
23 **OUS FILM-FORMING FOAM.**

24 (a) IN GENERAL.—The Secretary of Defense shall
25 ensure that when materials containing per- and
26 polyfluoroalkyl substances (referred to in this section as

1 “PFAS”) or aqueous film forming foam (referred to in
2 this section as “AFFF”) are disposed—

3 (1) all incineration is conducted at a tempera-
4 ture range adequate to break down PFAS chemicals
5 while also ensuring the maximum degree of reduc-
6 tion in emission of PFAS, including elimination of
7 such emissions where achievable;

8 (2) all incineration is conducted in accordance
9 with the requirements of the Clean Air Act (42 USC
10 7401 et seq.), including controlling hydrogen fluo-
11 ride;

12 (3) any materials containing PFAS that are
13 designated for disposal are stored in accordance with
14 the requirement under part 264 of title 40, Code of
15 Federal Regulations; and

16 (4) all incineration is conducted at a facility
17 that has been permitted to receive waste regulated
18 under subtitle C of the Solid Waste Disposal Act (42
19 USC 6921 et seq.).

20 (b) SCOPE OF APPLICATION.—The requirements in
21 subsection (a) only apply to all legacy AFFF formulations
22 containing PFAS, materials contaminated by AFFF re-
23 lease, and spent filters or other PFAS contaminated mate-
24 rials resulting from site remediation or water filtration
25 that—

1 (1) have been used by the Department of De-
2 fense or a military department; or

3 (2) are being discarded for disposal by means
4 of incineration by the Department of Defense or a
5 military department; or

6 (3) are being removed from sites or facilities
7 owned or operated by the Department of Defense.

8 **SEC. 331. AGREEMENTS TO SHARE MONITORING DATA RE-**
9 **LATING TO PERFLUOROALKYL AND**
10 **POLYFLUOROALKYL SUBSTANCES AND**
11 **OTHER CONTAMINANTS OF CONCERN.**

12 (a) IN GENERAL.—The Secretary of Defense shall
13 seek to enter into agreements with municipalities or mu-
14 nicipal drinking water utilities located adjacent to military
15 installations under which both the Secretary and the mu-
16 nicipalities and utilities would share monitoring data relat-
17 ing to perfluoroalkyl substances, polyfluoroalkyl sub-
18 stances, and other emerging contaminants of concern col-
19 lected at the military installation.

20 (b) PUBLICLY AVAILABLE WEBSITE.—The Secretary
21 of Defense shall maintain a publicly available website that
22 provides a clearinghouse for information about the expo-
23 sure of members of the Armed Forces, their families, and
24 their communities to per- and polyfluoroalkyl substances.
25 The information provided on the website shall include in-

1 formation on testing, clean-up, and recommended avail-
2 able treatment methodologies.

3 (c) PUBLIC COMMUNICATION.—An agreement under
4 subsection (a) does not negate the responsibility of the
5 Secretary to communicate with the public about drinking
6 water contamination from perfluoroalkyl substances,
7 polyfluoroalkyl substances, and other contaminants.

8 (d) MILITARY INSTALLATION DEFINED.—In this sec-
9 tion, the term “military installation” has the meaning
10 given that term in section 2801(c) of title 10, United
11 States Code.

12 **SEC. 332. COOPERATIVE AGREEMENTS WITH STATES TO**
13 **ADDRESS CONTAMINATION BY**
14 **PERFLUOROALKYL AND POLYFLUOROALKYL**
15 **SUBSTANCES.**

16 (a) COOPERATIVE AGREEMENTS.—

17 (1) IN GENERAL.—Upon request from the Gov-
18 ernor or chief executive of a State, the Secretary of
19 Defense shall work expeditiously, pursuant to section
20 2701(d) of title 10, United States Code, to finalize
21 a cooperative agreement, or amend an existing coop-
22 erative agreement to address testing, monitoring, re-
23 moval, and remedial actions relating to the contami-
24 nation or suspected contamination of drinking, sur-
25 face, or ground water from PFAS originating from

1 activities of the Department of Defense by providing
2 the mechanism and funding for the expedited review
3 and approval of documents of the Department re-
4 lated to PFAS investigations and remedial actions
5 from an active or decommissioned military installa-
6 tion, including a facility of the National Guard.

7 (2) MINIMUM STANDARDS.—A cooperative
8 agreement finalized or amended under paragraph
9 (1) shall meet or exceed the most stringent of the
10 following standards for PFAS in any environmental
11 media:

12 (A) An enforceable State standard, in ef-
13 fect in that State, for drinking, surface, or
14 ground water, as described in section
15 121(d)(2)(A)(ii) of the Comprehensive Environ-
16 mental Response, Compensation, and Liability
17 Act of 1980 (42 U.S.C. 9621(d)(2)(A)(ii)).

18 (B) An enforceable Federal standard for
19 drinking, surface, or ground water, as described
20 in section 121(d)(2)(A)(i) of the Comprehensive
21 Environmental Response, Compensation, and
22 Liability Act of 1980 (42 U.S.C.
23 9621(d)(2)(A)(i)).

1 (C) A health advisory under section
2 1412(b)(1)(F) of the Safe Drinking Water Act
3 (42 U.S.C. 300g-1(b)(1)(F)).

4 (3) OTHER AUTHORITY.—In addition to the re-
5 quirements for a cooperative agreement under para-
6 graph (1), when otherwise authorized to expend
7 funds for the purpose of addressing ground or sur-
8 face water contaminated by a perfluorinated com-
9 pound, the Secretary of Defense may, to expend
10 those funds, enter into a grant agreement, coopera-
11 tive agreement, or contract with—

12 (A) the local water authority with jurisdic-
13 tion over the contamination site, including—

14 (i) a public water system (as defined
15 in section 1401 of the Safe Drinking
16 Water Act (42 U.S.C. 300f)); and

17 (ii) a publicly owned treatment works
18 (as defined in section 212 of the Federal
19 Water Pollution Control Act (33 U.S.C.
20 1292)); or

21 (B) a State, local, or Tribal government.

22 (b) REPORT.—Beginning on February 1, 2020, if a
23 cooperative agreement is not finalized or amended under
24 subsection (a) within one year after the request from the
25 Governor or chief executive under that subsection, and an-

1 nually thereafter, the Secretary of Defense shall submit
2 to the appropriate committees and Members of Congress
3 a report—

4 (1) explaining why the agreement has not been
5 finalized or amended, as the case may be; and

6 (2) setting forth a projected timeline for final-
7 izing or amending the agreement.

8 (c) DEFINITIONS.—In this section:

9 (1) APPROPRIATE COMMITTEES AND MEMBERS
10 OF CONGRESS.—The term “appropriate committees
11 and Members of Congress” means—

12 (A) the congressional defense committees;

13 (B) the Senators who represent a State
14 impacted by PFAS contamination described in
15 subsection (a)(1); and

16 (C) the Members of the House of Rep-
17 resentatives who represent a district impacted
18 by such contamination.

19 (2) FULLY FLUORINATED CARBON ATOM.—The
20 term “fully fluorinated carbon atom” means a car-
21 bon atom on which all the hydrogen substituents
22 have been replaced by fluorine.

23 (3) PFAS.—The term “PFAS” means
24 perfluoroalkyl and polyfluoroalkyl substances that

1 are man-made chemicals with at least one fully
2 fluorinated carbon atom.

3 (4) STATE.—The term “State” has the mean-
4 ing given the term in section 101 of the Comprehen-
5 sive Environmental Response, Compensation, and
6 Liability Act of 1980 (42 U.S.C. 9601).

7 **SEC. 333. PLAN TO PHASE OUT USE OF BURN PITS.**

8 Not later than one year after the date of the enact-
9 ment of this Act, the Secretary of Defense shall submit
10 to the congressional defense committees a plan to phase
11 out the use of the burn pits identified in the Department
12 of Defense Open Burn Pit Report to Congress dated April
13 2019.

14 **SEC. 334. INFORMATION RELATING TO LOCATIONS OF**
15 **BURN PIT USE.**

16 The Secretary of Defense shall provide to the Sec-
17 retary of Veterans Affairs and to Congress a list of all
18 locations where open-air burn pits have been used by the
19 Secretary of Defense, for the purposes of augmenting the
20 research, healthcare delivery, disability compensation, and
21 other activities of the Secretary of Veterans Affairs.

1 **SEC. 335. DATA QUALITY REVIEW OF RADIUM TESTING**
2 **CONDUCTED AT CERTAIN LOCATIONS OF THE**
3 **DEPARTMENT OF THE NAVY.**

4 (a) REVIEW OF RADIUM TESTING.—Except as pro-
5 vided in subsection (b), the Secretary of the Navy shall
6 provide for an independent third-party data quality review
7 of all radium testing completed by contractors of the De-
8 partment of the Navy at a covered location.

9 (b) EXCEPTION.—In the case of a covered location
10 for which an independent third-party data quality review
11 of all radium testing completed by contractors of the De-
12 partment has been conducted prior to the date of the en-
13 actment of this Act, the requirement under subsection (a)
14 shall not apply if the Secretary of the Navy submits to
15 the congressional defense committees a report con-
16 taining—

17 (1) a certification that such review has been
18 conducted for such covered location; and

19 (2) a description of the results of such review.

20 (c) COVERED LOCATION DEFINED.—In this section,
21 the term “covered location” means any of the following:

22 (1) Naval Weapons Industrial Reserve Plant,
23 Bethpage, New York.

24 (2) Hunter’s Point Naval Shipyard, San Fran-
25 cisco, California.

1 **SEC. 336. REIMBURSEMENT OF ENVIRONMENTAL PROTEC-**
2 **TION AGENCY FOR CERTAIN COSTS IN CON-**
3 **NECTION WITH THE TWIN CITIES ARMY AM-**
4 **MUNITION PLANT, MINNESOTA.**

5 (a) TRANSFER AMOUNT.—Notwithstanding section
6 2215 of title 10, United States Code, the Secretary of De-
7 fense may transfer to the Administrator of the Environ-
8 mental Protection Agency—

9 (1) in fiscal year 2020, not more than
10 \$890,790; and

11 (2) in each of fiscal years 2021 through 2026,
12 not more than \$150,000.

13 (b) PURPOSE OF REIMBURSEMENT.—The amount
14 authorized to be transferred under subsection (a) is to re-
15 imburse the Environmental Protection Agency for costs
16 the Agency has incurred and will incur relating to the re-
17 sponse actions performed at the Twin Cities Army Ammu-
18 nition Plant, Minnesota, through September 30, 2025.

19 (c) INTERAGENCY AGREEMENT.—The reimburse-
20 ment described in subsection (b) is intended to satisfy cer-
21 tain terms of the interagency agreement entered into by
22 the Department of the Army and the Environmental Pro-
23 tection Agency for the Twin Cities Army Ammunition
24 Plant that took effect in December 1987 and that pro-
25 vided for the recovery of expenses by the Agency from the
26 Department of the Army.

1 **SEC. 337. PILOT PROGRAM FOR AVAILABILITY OF WORK-**
2 **ING-CAPITAL FUNDS FOR INCREASED COM-**
3 **BAT CAPABILITY THROUGH ENERGY OPTIMI-**
4 **ZATION.**

5 (a) IN GENERAL.—Notwithstanding section 2208 of
6 title 10, United States Code, the Secretary of Defense and
7 the military departments may use a working capital fund
8 established pursuant to that section for expenses directly
9 related to conducting a pilot program for energy optimiza-
10 tion initiatives described in subsection (b).

11 (b) ENERGY OPTIMIZATION INITIATIVES.—Energy
12 optimization initiatives covered by the pilot program in-
13 clude the research, development, procurement, installa-
14 tion, and sustainment of technologies or weapons system
15 platforms, and the manpower required to do so, that would
16 improve the efficiency and maintainability, extend the use-
17 ful life, lower maintenance costs, or provide performance
18 enhancement of the weapon system platform or major end
19 item.

20 (c) LIMITATION ON CERTAIN PROJECTS.—Funds
21 may not be used pursuant to subsection (a) for—

22 (1) any product improvement that significantly
23 changes the performance envelope of an end item; or

24 (2) any single component with an estimated
25 total cost in excess of \$10,000,000.

1 (d) LIMITATION IN FISCAL YEAR PENDING TIMELY
2 REPORT.—If during any fiscal year the report required
3 by paragraph (1) of subsection (e) is not submitted by
4 the date specified in paragraph (2) of that subsection,
5 funds may not be used pursuant to subsection (a) during
6 the period—

7 (1) beginning on the date specified in such
8 paragraph (2); and

9 (2) ending on the date of the submittal of the
10 report.

11 (e) ANNUAL REPORT.—

12 (1) IN GENERAL.—The Secretary of Defense
13 shall submit an annual report to the congressional
14 defense committees on the use of the authority
15 under subsection (a) during the preceding fiscal
16 year.

17 (2) DEADLINE FOR SUBMITTAL.—The report
18 required by paragraph (1) in a fiscal year shall be
19 submitted not later than 60 days after the date of
20 the submittal to Congress of the budget of the Presi-
21 dent for the succeeding fiscal year pursuant to sec-
22 tion 1105 of title 31, United States Code.

23 (3) RECOMMENDATION.—In the case of the re-
24 port required to be submitted under paragraph (1)
25 during fiscal year 2020, the report shall include the

1 recommendation of the Secretary of Defense and the
2 military departments regarding whether the author-
3 ity under subsection (a) should be made permanent.

4 (f) SUNSET.—The authority under subsection (a)
5 shall expire on October 1, 2024.

6 **SEC. 338. REPORT ON EFFORTS TO REDUCE HIGH ENERGY**
7 **INTENSITY AT MILITARY INSTALLATIONS.**

8 (a) REPORT.—

9 (1) REPORT REQUIRED.—Not later than Sep-
10 tember 1, 2020, the Under Secretary of Defense for
11 Acquisition and Sustainment, in conjunction with
12 the assistant secretaries responsible for installations
13 and environment for the military departments and
14 the Defense Logistics Agency, shall submit to the
15 congressional defense committees a report detailing
16 the efforts to achieve cost savings at military instal-
17 lations with high energy intensity.

18 (2) ELEMENTS.—The report required under
19 paragraph (1) shall include the following elements:

20 (A) A comprehensive, installation-specific
21 assessment of feasible and mission-appropriate
22 energy initiatives supporting energy production
23 and consumption at military installations with
24 high energy intensity.

1 (B) An assessment of current sources of
2 energy in areas with high energy intensity and
3 potential future sources that are technologically
4 feasible, cost-effective, and mission-appropriate
5 for military installations.

6 (C) A comprehensive implementation strat-
7 egy to include required investment for feasible
8 energy efficiency options determined to be the
9 most beneficial and cost-effective, where appro-
10 priate, and consistent with priorities of the De-
11 partment of Defense.

12 (D) An explanation on how the military de-
13 partments are working collaboratively in order
14 to leverage lessons learned on potential energy
15 efficiency solutions.

16 (E) An assessment of the extent to which
17 activities administered under the Federal En-
18 ergy Management Program of the Department
19 of Energy could be used to assist with the im-
20 plementation strategy under subparagraph (C).

21 (F) An assessment of State and local part-
22 nership opportunities that could achieve effi-
23 ciency and cost savings, and any legislative au-
24 thorities required to carry out such partner-
25 ships or agreements.

1 (3) COORDINATION WITH STATE, LOCAL, AND
2 OTHER ENTITIES.—In preparing the report required
3 under paragraph (1), the Under Secretary of De-
4 fense for Acquisition and Sustainment may work in
5 conjunction and coordinate with the States con-
6 taining areas of high energy intensity, local commu-
7 nities, and other Federal agencies.

8 (b) DEFINITION.—In this section, the term “high en-
9 ergy intensity” means costs for the provision of energy by
10 kilowatt of electricity or British Thermal Unit of heat or
11 steam for a military installation in the United States that
12 is in the highest 20 percent of all military installations
13 for a military department.

14 **Subtitle C—Treatment of Contami-**
15 **nated Water Near Military In-**
16 **stallations**

17 **SEC. 341. SHORT TITLE.**

18 This subtitle may be cited as the “Prompt and Fast
19 Action to Stop Damages Act of 2019”.

20 **SEC. 342. DEFINITIONS.**

21 In this subtitle:

22 (1) PFOA.—The term “PFOA” means
23 perfluorooctanoic acid.

24 (2) PFOS.—The term “PFOS” means
25 perfluorooctane sulfonate.

1 **SEC. 343. PROVISION OF WATER UNCONTAMINATED WITH**
2 **PERFLUOROOCCTANOIC ACID (PFOA) AND**
3 **PERFLUOROOCCTANE SULFONATE (PFOS) FOR**
4 **AGRICULTURAL PURPOSES.**

5 (a) AUTHORITY.—

6 (1) IN GENERAL.—Using amounts authorized
7 to be appropriated or otherwise made available for
8 operation and maintenance for the military depart-
9 ment concerned, or for operation and maintenance
10 Defense-wide in the case of the Secretary of De-
11 fense, the Secretary concerned may provide water
12 sources uncontaminated with perfluoroalkyl and
13 polyfluoroalkyl substances, including PFOA and
14 PFOS, or treatment of contaminated waters, for ag-
15 ricultural purposes used to produce products des-
16 tined for human consumption in an area in which a
17 water source has been determined pursuant to para-
18 graph (2) to be contaminated with such compounds
19 by reason of activities on a military installation
20 under the jurisdiction of the Secretary concerned.

21 (2) APPLICABLE STANDARD.—For purposes of
22 paragraph (1), an area is determined to be contami-
23 nated with PFOA or PFOS if—

24 (A) the level of contamination is above the
25 Lifetime Health Advisory for contamination
26 with such compounds issued by the Environ-

1 mental Protection Agency and printed in the
2 Federal Register on May 25, 2016; or

3 (B) on or after the date the Food and
4 Drug Administration sets a standard for PFOA
5 and PFOS in raw agricultural commodities and
6 milk, the level of contamination is above such
7 standard.

8 (b) SECRETARY CONCERNED DEFINED.—In this sec-
9 tion, the term “Secretary concerned” means the following:

10 (1) The Secretary of the Army, with respect to
11 the Army.

12 (2) The Secretary of the Navy, with respect to
13 the Navy, the Marine Corps, and the Coast Guard
14 (when it is operating as a service in the Navy).

15 (3) The Secretary of the Air Force, with re-
16 spect to the Air Force.

17 (4) The Secretary of Defense, with respect to
18 the Defense Agencies.

19 **SEC. 344. ACQUISITION OF REAL PROPERTY BY AIR FORCE.**

20 (a) AUTHORITY.—

21 (1) IN GENERAL.—The Secretary of the Air
22 Force may acquire one or more parcels of real prop-
23 erty within the vicinity of an Air Force base that
24 has shown signs of contamination from PFOA and
25 PFOS due to activities on the base and which would

1 extend the contiguous geographic footprint of the
2 base and increase the force protection standoff near
3 critical infrastructure and runways.

4 (2) IMPROVEMENTS AND PERSONAL PROP-
5 ERTY.—The authority under paragraph (1) to ac-
6 quire real property described in that paragraph shall
7 include the authority to purchase improvements and
8 personal property located on that real property.

9 (3) RELOCATION EXPENSES.—The authority
10 under paragraph (1) to acquire real property de-
11 scribed in that paragraph shall include the authority
12 to provide Federal financial assistance for moving
13 costs, relocation benefits, and other expenses in-
14 curred in accordance with the Uniform Relocation
15 Assistance and Real Property Acquisition Policies
16 Act of 1970 (42 U.S.C. 4601 et seq.).

17 (b) ENVIRONMENTAL ACTIVITIES.—The Air Force
18 shall conduct such activities at a parcel or parcels of real
19 property acquired under subsection (a) as are necessary
20 to remediate contamination from PFOA and PFOS re-
21 lated to activities at the Air Force base.

22 (c) FUNDING.—Funds for the land acquisitions au-
23 thorized under subsection (a) shall be derived from
24 amounts authorized to be appropriated for fiscal year
25 2020 for military construction or the unobligated balances

1 of appropriations for military construction that are en-
2 acted after the date of the enactment of this Act.

3 (d) **RULE OF CONSTRUCTION.**—The authority under
4 this section constitutes authority to carry out land acqui-
5 sitions for purposes of section 2802 of title 10, United
6 States Code.

7 **SEC. 345. REMEDIATION PLAN.**

8 (a) **IN GENERAL.**—Not later than 180 days after the
9 date of the enactment of this Act, the Secretary of Defense
10 shall submit to Congress a remediation plan for cleanup
11 of all water at or adjacent to a military installation that
12 is contaminated with PFOA or PFOS.

13 (b) **STUDY.**—In preparing the remediation plan
14 under subsection (a), the Secretary shall conduct a study
15 on the contamination of water at military installations
16 with PFOA or PFOS.

17 (c) **BUDGET AMOUNT.**—The Secretary shall ensure
18 that each budget of the President submitted to Congress
19 under section 1105(a) of title 31, United States Code, re-
20 quests funding in amounts necessary to address remedi-
21 ation efforts under the remediation plan submitted under
22 subsection (a).

1 **Subtitle D—Logistics and**
2 **Sustainment**

3 **SEC. 351. MATERIEL READINESS METRICS AND OBJEC-**
4 **TIVES.**

5 (a) ANNUAL REPORT ON MAJOR WEAPONS SYSTEMS
6 SUSTAINMENT.—

7 (1) IN GENERAL.—Chapter 2 of title 10, United
8 States Code, is amended by inserting after section
9 117 the following new section:

10 **“§ 118. Annual report on major weapons systems**
11 **sustainment**

12 “Not later than five days after the date on which the
13 Secretary of Defense submits to Congress the materials
14 in support of the budget of the President for a fiscal year,
15 the Secretary of Defense shall submit to the congressional
16 defense committees an annual report on major weapons
17 systems sustainment for the period covered by the future
18 years defense program specified by section 221 of this
19 title. Such report shall include—

20 “(1) an assessment of the materiel availability,
21 materiel reliability, and mean down time metrics for
22 each major weapons system;

23 “(2) a detailed explanation of any factors that
24 could preclude the Department of Defense or any of

1 the military departments from meeting applicable
2 readiness goals or objectives; and

3 “(3) an assessment of the validity and effective-
4 ness of the definitions used to determine defense
5 readiness, including the terms ‘major weapons sys-
6 tem’, ‘covered asset’, ‘total and required inventory’,
7 ‘materiel and operational availability’, ‘materiel and
8 operational capability’, ‘materiel and operational re-
9 liability’.”.

10 (2) CLERICAL AMENDMENT.—The table of sec-
11 tions at the beginning of such chapter is amended
12 by inserting after the item relating to section 117
13 the following new item:

“118. Annual report on major weapons systems sustainment.”.

14 (b) ASSESSMENT OF MATERIEL READINESS AND
15 WEAPONS SYSTEM SUSTAINMENT.—

16 (1) ASSESSMENT REQUIRED.—Not later than
17 March 1, 2020, the Secretary of Defense shall com-
18 plete a comprehensive assessment of the materiel
19 readiness and weapons systems sustainment of the
20 Department of Defense across the Department or-
21 ganic industrial base and industry partners.

22 (2) CONTENTS.—The assessment required by
23 paragraph (1) shall include—

24 (A) an assessment of the overall readiness
25 strategy of the Department of Defense and the

1 capability of such strategy to measure, track,
2 and assess the readiness of major weapons sys-
3 tems;

4 (B) an assessment of the use of objectives
5 and metrics;

6 (C) a description of applicable reporting
7 requirements; and

8 (D) applicable definitions and common
9 usage of relevant terms, including the terms
10 “major weapons system”, “covered asset”,
11 “total and required inventory”, “materiel and
12 operational availability”, “materiel and oper-
13 ational capability”, “materiel and operational
14 reliability”, and “maintenance costs”.

15 (3) SUBMISSION TO CONGRESS.—The Secretary
16 shall provide to the congressional defense commit-
17 tees—

18 (A) a briefing on the assessment required
19 by paragraph (1) by not later than March 1,
20 2020; and

21 (B) a final report on such assessment by
22 not later than April 1, 2020.

1 **SEC. 352. CLARIFICATION OF AUTHORITY REGARDING USE**
2 **OF WORKING-CAPITAL FUNDS FOR UNSPEC-**
3 **IFIED MINOR MILITARY CONSTRUCTION**
4 **PROJECTS RELATED TO REVITALIZATION**
5 **AND RECAPITALIZATION OF DEFENSE INDUS-**
6 **TRIAL BASE FACILITIES.**

7 Section 2208(u) of title 10, United States Code, is
8 amended—

9 (1) in paragraph (1), by striking “carry out”
10 and inserting “fund”;

11 (2) in paragraph (2)—

12 (A) by striking “Section 2805” and insert-
13 ing “(A) Except as provided in subparagraph
14 (B), section 2805”;

15 (B) by striking “carried out with” and in-
16 serting “funded using”; and

17 (C) by adding at the end the following new
18 subparagraph:

19 “(B) For purposes of applying subparagraph (A), the
20 dollar limitation specified in subsection (a)(2) of section
21 2805 of this title, subject to adjustment as provided in
22 subsection (f) of such section, shall apply rather than the
23 dollar limitation specified in subsection (c) of such sec-
24 tion.”; and

25 (3) in paragraph (4), by striking “carry out”
26 and inserting “fund”.

1 **SEC. 353. MODIFICATION TO LIMITATION ON LENGTH OF**
2 **OVERSEAS FORWARD DEPLOYMENT OF**
3 **NAVAL VESSELS.**

4 Section 323 of the John S. McCain National Defense
5 Authorization Act for Fiscal Year 2019 (Public Law 115–
6 232) is amended—

7 (1) by redesignating subsection (c) as sub-
8 section (d); and

9 (2) by inserting after subsection (b) the fol-
10 lowing new subsection (c):

11 “(c) **EXTENSION OF LIMITATION ON LENGTH OF**
12 **OVERSEAS FORWARD DEPLOYMENT FOR U.S.S. SHILOH**
13 **(CG–67).**—Notwithstanding subsection (b), the Secretary
14 of the Navy shall ensure that the U.S.S. Shiloh (CG–67)
15 is assigned a homeport in the United States by not later
16 than September 30, 2023.”.

17 **SEC. 354. EXTENSION OF TEMPORARY INSTALLATION RE-**
18 **UTILIZATION AUTHORITY FOR ARSENALS,**
19 **DEPOTS, AND PLANTS.**

20 Section 345(d) of the National Defense Authorization
21 Act for Fiscal Year 2018 (Public Law 115–91; 10 U.S.C.
22 2667 note) is amended by striking “September 30, 2020”
23 and inserting “September 30, 2025”.

24 **SEC. 355. F-35 JOINT STRIKE FIGHTER SUSTAINMENT.**

25 (a) **LIMITATION ON USE OF FUNDS.**—Of the
26 amounts authorized to be appropriated or otherwise made

1 available in this Act for the Office of the Under Secretary
2 of Defense for Acquisition and Sustainment for fiscal year
3 2020, not more than 75 percent may be obligated or ex-
4 pended until the date on which the Under Secretary sub-
5 mits the report required by subsection (b).

6 (b) REPORT REQUIRED.—The Under Secretary of
7 Defense for Acquisition and Sustainment shall submit to
8 the Committees on Armed Services of the Senate and
9 House of Representatives a report on steps being taken
10 to improve the availability and accountability of F-35
11 parts within the supply chain. At a minimum, the report
12 shall include a detailed plan for each of the following ele-
13 ments:

14 (1) How the accountable property system of
15 record will be updated with information from the
16 prime contractors supplying such parts on required
17 cost and related data with respect to the parts and
18 how the F-35 Program Office will ensure such con-
19 tractors are adhering to contractual requirements
20 for the management, reporting, visibility, and ac-
21 countability of all such parts supplied by the prime
22 contractors.

23 (2) How the accountability property system of
24 record will have interfaces that allow the F-35 Pro-
25 gram Office and other authorized entities to have

1 proper accountability of assets in accordance with
2 applicable Department of Defense Instructions, De-
3 partment of Defense Manuals, and other applicable
4 regulations.

5 (3) How the F-35 Program Office, in coordina-
6 tion with the military departments, will ensure busi-
7 ness rules for the prioritization of F-35 parts across
8 all program participants are sufficient, effective, and
9 responsive.

10 (4) Steps being taken to ensure parts within
11 the base, afloat, and deployment spares packages are
12 compatible for deploying F-35 aircraft and account
13 for updated parts demand.

14 **SEC. 356. REPORT ON STRATEGIC POLICY FOR**
15 **PREPOSITIONED MATERIEL AND EQUIP-**
16 **MENT.**

17 Not later than March 1, 2020, the Assistant Sec-
18 retary of Defense for Sustainment, in coordination with
19 the Joint Staff, shall submit to the Committees on Armed
20 Services of the Senate and House of Representatives a re-
21 port on the implementation plan for prepositioned materiel
22 and equipment required by section 321(b) of the National
23 Defense Authorization Act for Fiscal Year 2014 (Public
24 Law 113-66; 127 Stat. 730; 10 U.S.C. 2229 note). Such
25 report shall include each of the following:

1 (1) A comprehensive list of the prepositioned
2 materiel and equipment programs of the Department
3 of Defense.

4 (2) A detailed description of how the plan will
5 be implemented.

6 (3) A description of the resources required to
7 implement the plan, including the amount of funds
8 and personnel.

9 (4) A description of how the plan will be re-
10 viewed and assessed to monitor progress.

11 (5) Guidance on applying a consistent definition
12 of prepositioning across the Department, including
13 the military departments, the combatant commands,
14 and the Defense Agencies.

15 (6) A detailed description of how the Secretary
16 will implement a joint oversight approach of the
17 prepositioning programs of the military departments.

18 **SEC. 357. PILOT PROGRAM TO TRAIN SKILLED TECHNI-**
19 **CIANS IN CRITICAL SHIPBUILDING SKILLS.**

20 (a) **ESTABLISHMENT.**—The Secretary of the Navy
21 may carry out a pilot program to train individuals to be-
22 come skilled technicians in critical shipbuilding skills such
23 as welding, metrology, quality assurance, machining, and
24 additive manufacturing.

1 (b) PARTNERSHIPS.—In carrying out the pilot pro-
2 gram under this section, the Secretary may partner with
3 existing Federal or State projects relating to investment
4 and infrastructure in training and education or workforce
5 development, such as the National Network for Manufac-
6 turing Innovation, the Industrial Base Analysis and
7 Sustainment program of the Department of Defense, and
8 the National Maritime Educational Council.

9 (c) TERMINATION.—The authority to carry out a
10 pilot program under this section shall terminate on Sep-
11 tember 30, 2025.

12 (d) BRIEFINGS.—If the Secretary carries out a pilot
13 program under this section, the Secretary shall provide
14 briefings to the Committees on Armed Services of the Sen-
15 ate and the House of Representatives as follows:

16 (1) Not later than 30 days before beginning to
17 implement the pilot program, the Secretary shall
18 provide a briefing on the plan, cost estimate, and
19 schedule for the pilot program.

20 (2) Not less frequently than annually during
21 the period when the pilot program is carried out, the
22 Secretary shall provide briefings on the progress of
23 the Secretary in carrying out the pilot program.

1 **SEC. 358. REQUIREMENT FOR MILITARY DEPARTMENT**
2 **INTER-SERVICE DEPOT MAINTENANCE.**

3 (a) **JOINT PROCESS FOR TECHNICAL COMPLIANCE**
4 **AND QUALITY CONTROL.**—If the Secretary of a military
5 department transfers any maintenance action on a plat-
6 form to a depot under the jurisdiction of the Secretary
7 of another military department, the two Secretaries shall
8 develop and implement a process to ensure the technical
9 compliance and quality control for the work performed.

10 (b) **REQUIREMENTS.**—A process developed under
11 subsection (a) shall include the following requirements—

12 (1) The Secretary of the military department
13 with jurisdiction over the depot to which the mainte-
14 nance action is transferred shall—

15 (A) ensure that the technical specifica-
16 tions, requirements, and standards for work to
17 be performed are provided to such action or
18 depot; and

19 (B) implement procedures to ensure that
20 completed work complies with such specifica-
21 tions, requirements and standards.

22 (2) The Secretary who transfers the mainte-
23 nance activity or depot shall ensure that—

24 (A) the technical specifications and re-
25 quirements are clearly understood; and

1 (B) the work performed is completed to
2 the technical specifications, requirements, and
3 standards prescribed under paragraph (1), and
4 that the Secretary of the military department
5 with jurisdiction over the depot is informed of
6 any shortcoming or discrepancy.

7 (c) REPORTS.—Not later than 180 days after the
8 date of the enactment of this Act, the Under Secretary
9 of Defense for Acquisition and Sustainment shall submit
10 to the congressional defense committees a report con-
11 taining a certification that sufficient policy and procedures
12 are in place to ensure quality control when the depot or
13 maintenance activities of one military department support
14 another. The report shall include a description of known
15 shortfalls in existing policies and procedures and actions
16 the Department of Defense is taking to address such
17 shortfalls.

18 **SEC. 359. STRATEGY TO IMPROVE INFRASTRUCTURE OF**
19 **CERTAIN DEPOTS OF THE DEPARTMENT OF**
20 **DEFENSE.**

21 (a) STRATEGY REQUIRED.—Not later than October
22 1, 2020, the Secretary of Defense shall submit to the con-
23 gressional defense committees a comprehensive strategy
24 for improving the depot infrastructure of the military de-
25 partments with the objective of ensuring that all covered

1 depots have the capacity and capability to support the
2 readiness and material availability goals of current and fu-
3 ture weapon systems of the Department of Defense.

4 (b) ELEMENTS.—The strategy under subsection (a)
5 shall include the following:

6 (1) A comprehensive review of the conditions
7 and performance at each covered depot, including
8 the following:

9 (A) An assessment of the current status of
10 the following elements:

11 (i) Cost and schedule performance of
12 the depot.

13 (ii) Material availability of weapon
14 systems supported at the depot and the
15 impact of the performance of the depot on
16 that availability.

17 (iii) Work in progress and non-oper-
18 ational items awaiting depot maintenance.

19 (iv) The condition of the depot.

20 (v) The backlog of restoration and
21 modernization projects at the depot.

22 (vi) The condition of equipment at the
23 depot.

24 (vii) the vulnerability of the depot to
25 adverse environmental conditions and, if

1 necessary, the investment required to with-
2 stand those conditions.

3 (B) An identification of analytically based
4 goals relating to the elements identified in sub-
5 paragraph (A).

6 (2) A business-case analysis that assesses in-
7 vestment alternatives comparing cost, performance,
8 risk, and readiness outcomes and recommends an
9 optimal investment approach across the Department
10 of Defense to ensure covered depots efficiently and
11 effectively meet the readiness goals of the Depart-
12 ment, including an assessment of the following alter-
13 natives:

14 (A) The minimum investment necessary to
15 meet investment requirements under section
16 2476 of title 10, United States Code.

17 (B) The investment necessary to ensure
18 the current inventory of facilities at covered de-
19 pots can meet the mission-capable, readiness,
20 and contingency goals of the Secretary of De-
21 fense.

22 (C) The investment necessary to execute
23 the depot infrastructure optimization plans of
24 each military department.

1 (D) Any other strategies for investment in
2 covered depots, as identified by the Secretary.

3 (3) A plan to improve conditions and perform-
4 ance of covered depots that identifies the following:

5 (A) The approach of the Secretary of De-
6 fense for achieving the goals outlined in para-
7 graph (1)(B).

8 (B) The resources and investments re-
9 quired to implement the plan.

10 (C) The activities and milestones required
11 to implement the plan.

12 (D) A results-oriented approach to as-
13 sess—

14 (i) the progress of each military de-
15 partment in achieving such goals; and

16 (ii) the progress of the Department in
17 implementing the plan.

18 (E) Organizational roles and responsibil-
19 ities for implementing the plan.

20 (F) A process for conducting regular man-
21 agement review and coordination of the
22 progress of each military department in imple-
23 menting the plan and achieving such goals.

24 (G) The extent to which the Secretary has
25 addressed recommendations made by the Comp-

1 troller General of the United States relating to
2 depot operations during the five-year period
3 preceding the date of submittal of the strategy
4 under this section.

5 (H) Risks to implementing the plan and
6 mitigation strategies to address those risks.

7 (c) ANNUAL REPORT ON PROGRESS.—As part of the
8 annual budget submission of the President under section
9 1105(a) of title 31, United States Code, the Secretary of
10 Defense shall submit to the congressional defense commit-
11 tees a report describing the progress made in—

12 (1) implementing the strategy under subsection
13 (a); and

14 (2) achieving the goals outlined in subsection
15 (b)(1)(B).

16 (d) COMPTROLLER GENERAL REPORTS.—

17 (1) ASSESSMENT OF STRATEGY.—Not later
18 than January 1, 2021, the Comptroller General of
19 the United States shall submit to the congressional
20 defense committees a report assessing the extent to
21 which the strategy under subsection (a) meets the
22 requirements of this section.

23 (2) ASSESSMENT OF IMPLEMENTATION.—Not
24 later than April 1, 2022, the Comptroller General
25 shall submit to the congressional defense committees

1 a report setting forth an assessment of the extent to
2 which the strategy under subsection (a) has been ef-
3 fectively implemented by each military department
4 and the Secretary of Defense.

5 (e) COVERED DEPOT DEFINED.—In this section, the
6 term “covered depot” has the meaning given that term
7 in section 2476(e) of title 10, United States Code.

8 **Subtitle E—Reports**

9 **SEC. 361. READINESS REPORTING.**

10 (a) READINESS REPORTING SYSTEM.—Section 117
11 of title 10, United States Code, is amended—

12 (1) by striking subsections (d) through (g); and

13 (2) by redesignating subsection (h) as sub-
14 section (d).

15 (b) QUARTERLY REPORTS.—Section 482 of title 10,
16 United States Code, is amended—

17 (1) in the section heading, by striking “**Quar-**
18 **terly reports: personnel and unit readi-**
19 **ness**” and inserting “**Readiness reports**”;

20 (2) in subsection (a)—

21 (A) In the subsection heading, by striking
22 “QUARTERLY REPORTS REQUIRED” and insert-
23 ing “REPORTS AND BRIEFINGS”;

24 (B) In the first sentence—

1 (i) by striking “Not later” and insert-
2 ing “(1) Not later”; and

3 (ii) by striking “each calendar-year
4 quarter” and inserting “the second and
5 fourth quarter of each calendar year”;

6 (C) by striking the second and third sen-
7 tences and inserting “The Secretary of Defense
8 shall submit each such report in writing and
9 shall also submit a copy of each such report to
10 the Chairman of the Joint Chiefs of Staff.”;
11 and

12 (D) by adding at the end the following new
13 paragraphs:

14 “(2) Not later than 30 days after the end of the first
15 and third quarter of each calendar year, the Secretary of
16 Defense shall provide to Congress a briefing regarding the
17 military readiness of the active and reserve components.

18 “(3) Each report under this subsection shall contain
19 the elements required by subsection (b) for the quarter
20 covered by the report, and each briefing shall address any
21 changes to the elements described in subsection (b) since
22 the submittal of the most recently submitted report.”;

23 (3) by striking subsection (b) and inserting the
24 following:

1 “(b) REQUIRED ELEMENTS.—The elements de-
2 scribed in this subsection are each of the following:

3 “(1) A description of each readiness problem or
4 deficiency that affects the ground, sea, air, space,
5 cyber, or special operations forces, and any other
6 area determined appropriate by the Secretary of De-
7 fense.

8 “(2) The key contributing factors, indicators,
9 and other relevant information related to each iden-
10 tified problem or deficiency.

11 “(3) The short-term mitigation strategy the De-
12 partment will employ to address each readiness
13 problem or deficiency until a resolution is in place,
14 as well as the timeline, cost, and any legislative rem-
15 edies required to support the resolution.

16 “(4) A summary of combat readiness ratings
17 for the key force elements assessed, including spe-
18 cific information on personnel, supply, equipment,
19 and training problems or deficiencies that affect the
20 combat readiness ratings for each force element.

21 “(5) A summary of each upgrade or downgrade
22 of the combat readiness of a unit that was issued by
23 the commander of the unit, together with the ration-
24 ale of the commander for the issuance of such up-
25 grade or downgrade.

1 “(6) A summary of the readiness of supporting
2 capabilities, including infrastructure, prepositioned
3 equipment and supplies, and mobility assets, and
4 other supporting logistics capabilities.

5 “(7) A summary of the readiness of the combat
6 support and related agencies, any readiness problem
7 or deficiency affecting any mission essential tasks of
8 any such agency, and actions recommended to ad-
9 dress any such problem or deficiency.

10 “(8) A list of all Class A, Class B, and Class
11 C mishaps that occurred in operations related to
12 combat support and training events involving avia-
13 tion, ground, or naval platforms, weapons, space, or
14 Government vehicles, as defined by Department of
15 Defense Instruction 6055.07, or a successor instruc-
16 tion.

17 “(9) Information on the extent to which units
18 of the armed forces have removed serviceable parts,
19 supplies, or equipment from one vehicle, vessel, or
20 aircraft in order to render a different vehicle, vessel,
21 or aircraft operational.

22 “(10) Such other information as determined
23 necessary or appropriate by the Secretary of De-
24 fense.”;

1 (4) by striking subsections (d) through (h) and
2 subsection (j);

3 (5) by redesignating subsection (i) as subsection
4 (e); and

5 (6) by inserting after subsection (e) the fol-
6 lowing new subsections (d):

7 “(d) SEMI-ANNUAL JOINT FORCE READINESS RE-
8 VIEW.—(1) Not later than 30 days after the last day of
9 the first and third quarter of each calendar year, the
10 Chairman of the Joint Chiefs of Staff shall submit to Con-
11 gress a written report on the capability of the armed
12 forces, the combat support and related agencies, oper-
13 ational contract support, and the geographic and func-
14 tional combatant commands to execute their wartime mis-
15 sions based upon their posture and readiness as of the
16 time the review is conducted.

17 “(2) The Chairman shall produce the report required
18 under this subsection using information derived from the
19 quarterly reports required by subsection (a).

20 “(3) Each report required by this subsection shall in-
21 clude an assessment by each commander of a geographic
22 or functional combatant command of the readiness of the
23 command to conduct operations in a multidomain battle
24 that integrates ground, sea, air, space, cyber, and special
25 operations forces.

1 “(4) The Chairman shall submit to the Secretary of
2 Defense a copy of each report under this subsection.”.

3 (c) CLERICAL AMENDMENT.—The table of sections
4 at the beginning of chapter 23 of such title is amended
5 by striking the item relating to section 482 and inserting
6 the following new item:

“482. Readiness reports.”.

7 **SEC. 362. TECHNICAL CORRECTION TO DEADLINE FOR**
8 **TRANSITION TO DEFENSE READINESS RE-**
9 **PORTING SYSTEM STRATEGIC.**

10 Section 358(c) of the John S. McCain National De-
11 fense Authorization Act for Fiscal Year 2019 (Public Law
12 115–232) is amended by striking “October 1, 2019” and
13 inserting “October 1, 2020”.

14 **SEC. 363. REPORT ON NAVY SHIP DEPOT MAINTENANCE**
15 **BUDGET.**

16 (a) IN GENERAL.—Not later than March 1 of each
17 of 2020, 2021, and 2022, the Secretary of the Navy shall
18 submit to the Committees on Armed Services of the Sen-
19 ate and House of Representatives a report on the Oper-
20 ation and Maintenance, Ship Depot Maintenance budget
21 sub-activity group.

22 (b) ELEMENTS.—The report required under sub-
23 section (a) shall include each of the following elements:

1 (1) A breakdown of funding, categorized by
2 class of ship, requested for ship and submarine
3 maintenance.

4 (2) A description of how the requested funding,
5 categorized by class of ship, compares to the identi-
6 fied ship maintenance requirement.

7 (3) The amount of funds appropriated for each
8 class of ship for the preceding fiscal year.

9 (4) The amount of funds obligated and ex-
10 pended for each class of ship for each of the three
11 preceding fiscal years.

12 (5) The cost, categorized by class of ship, of
13 unplanned growth work for each of the three pre-
14 ceding fiscal years.

15 **SEC. 364. REPORT ON RUNIT DOME.**

16 (a) **REPORT REQUIRED.**—Not later than 180 days
17 after the date of the enactment of this Act, the Secretary
18 of Energy shall submit to the Committees on Armed Serv-
19 ices of the Senate and House of Representatives a report
20 on the status of the Runit Dome in the Marshal Islands.

21 (b) **MATTERS FOR INCLUSION.**—The report required
22 by subsection (a) shall include each of the following:

23 (1) A detailed plan to repair the dome to ensure
24 that it does not have any harmful effects to the local

1 population, environment, or wildlife, including the
2 projected costs of implementing such plan.

3 (2) The effects on the environment that the
4 dome has currently and is projected to have in 5
5 years, 10 years, and 20 years.

6 (3) An assessment of the current condition of
7 the outer constructs of the dome.

8 (4) An assessment of the current and long-term
9 safety to local humans posed by the site.

10 (5) An assessment of how rising sea levels
11 might affect the dome.

12 (6) A summary of interactions between the
13 Government of the United States and the govern-
14 ment of the Marshall Islands about the dome.

15 (c) FORM OF REPORT.—The report required by sub-
16 section (a) shall be submitted in unclassified form and
17 made publicly available.

18 **SEC. 365. PROHIBITION ON SUBJECTIVE UPGRADES BY**
19 **COMMANDERS OF UNIT RATINGS IN MONTH-**
20 **LY READINESS REPORTING ON MILITARY**
21 **UNITS.**

22 (a) IN GENERAL.—The Chairman of the Joint Chiefs
23 of Staff shall modify Chairman of the Joint Chiefs of Staff
24 Instruction (CJCSI) 3401.02B, on Force Readiness Re-
25 porting, to prohibit the commander of a military unit who

1 is responsible for monthly reporting of the readiness of
2 the unit under the instruction from making any upgrade
3 of the overall rating of the unit (commonly referred to as
4 the “C-rating”) for such reporting purposes based in
5 whole or in part on subjective factors.

6 (b) WAIVER.—

7 (1) IN GENERAL.—The modification required
8 by subsection (a) shall authorize an officer in a gen-
9 eral or flag officer grade in the chain of command
10 of a commander described in that subsection to
11 waive the prohibition described in that subsection in
12 connection with readiness reporting on the unit con-
13 cerned if the officer considers the waiver appropriate
14 in the circumstances.

15 (2) REPORTING ON WAIVERS.—Each report on
16 personnel and unit readiness submitted to Congress
17 for a calendar year quarter pursuant to section 482
18 of title 10, United States Code, shall include infor-
19 mation on each waiver, if any, issued pursuant to
20 paragraph (1) during such calendar year quarter.

21 **SEC. 366. REQUIREMENT TO INCLUDE FOREIGN LANGUAGE**
22 **PROFICIENCY IN READINESS REPORTING**
23 **SYSTEMS OF DEPARTMENT OF DEFENSE.**

24 Not later than 90 days after the date of the enact-
25 ment of this Act, the Secretary of Defense and the Sec-

1 retary of each military department shall include in the
2 Global Readiness and Force Management Enterprise, for
3 the appropriate billets with relevant foreign language re-
4 quirements, measures of foreign language proficiency as
5 a mandatory element of unit readiness reporting, to in-
6 clude the Defense Readiness Reporting Systems-Strategic
7 (DRRS-S) and all other subordinate systems that report
8 readiness data.

9 **Subtitle F—Other Matters**

10 **SEC. 371. PREVENTION OF ENCROACHMENT ON MILITARY** 11 **TRAINING ROUTES AND MILITARY OPER-** 12 **ATIONS AREAS.**

13 Section 183a of title 10, United States Code, is
14 amended—

15 (1) in subsection (c)(6), in the second sen-
16 tence—

17 (A) by striking “radar or airport surveil-
18 lance radar operated” and inserting “radar, air-
19 port surveillance radar, or wide area surveil-
20 lance over-the-horizon radar operated”; and

21 (B) by inserting “Any setback for a project
22 pursuant to the previous sentence shall not be
23 more than what is determined to be necessary
24 by a technical analysis conducted by the Lin-
25 coln Laboratory at the Massachusetts Institute

1 of Technology or any successor entity.” after
2 “mitigation options.”;

3 (2) in subsection (d)—

4 (A) in paragraph (2)(E), by striking “to a
5 Deputy Secretary of Defense, an Under Sec-
6 retary of Defense, or a Principal Deputy Under
7 Secretary of Defense” and inserting “to the
8 Deputy Secretary of Defense, an Under Sec-
9 retary of Defense, or a Deputy Under Secretary
10 of Defense”;

11 (B) by redesignating paragraph (3) as
12 paragraph (4); and

13 (C) by inserting after paragraph (2) the
14 following new paragraph (3):

15 “(3) The governor of a State may recommend to the
16 Secretary of Defense additional geographical areas of con-
17 cern within that State. Any such recommendation shall be
18 submitted for notice and comment pursuant to paragraph
19 (2)(C).”;

20 (3) in subsection (e)(3), by striking “an under
21 secretary of defense, or a deputy under secretary of
22 defense” and inserting “an Under Secretary of De-
23 fense, or a Deputy Under Secretary of Defense”;

24 (4) in subsection (f), in the first sentence, by
25 striking “from an applicant for a project filed with

1 the Secretary of Transportation pursuant to section
2 44718 of title 49” and inserting “from an entity re-
3 questing a review by the Clearinghouse under this
4 section”; and

5 (5) in subsection (h)—

6 (A) by redesignating paragraphs (3), (4),
7 (5), (6), and (7) as paragraphs (4), (5), (6),
8 (7), and (9), respectively;

9 (B) by inserting after paragraph (2) the
10 following new paragraph (3):

11 “(3) The term ‘governor’, with respect to a
12 State, means the chief executive officer of the
13 State.”;

14 (C) in paragraph (7), as redesignated by
15 subparagraph (A), by striking “by the Federal
16 Aviation Administration” and inserting “by the
17 Administrator of the Federal Aviation Adminis-
18 tration”; and

19 (D) by inserting after paragraph (7), as
20 redesignated by subparagraph (A), the following
21 new paragraph:

22 “(8) The term ‘State’ means the several States,
23 the District of Columbia, the Commonwealth of
24 Puerto Rico, the Commonwealth of the Northern

1 Mariana Islands, Guam, the United States Virgin
2 Islands, and American Samoa.”.

3 **SEC. 372. EXPANSION AND ENHANCEMENT OF AUTHORI-**
4 **TIES ON TRANSFER AND ADOPTION OF MILI-**
5 **TARY ANIMALS.**

6 (a) TRANSFER AND ADOPTION GENERALLY.—Sec-
7 tion 2583 of title 10, United States Code, is amended—

8 (1) in subsection (a)—

9 (A) in the subsection heading, by inserting
10 “TRANSFER OR” before “ADOPTION”; and

11 (B) by striking “adoption” each place it
12 appears and inserting “transfer or adoption”;

13 (2) in subsection (b)—

14 (A) in the subsection heading, by inserting
15 “TRANSFER OR” before “ADOPTION”; and

16 (B) in the first sentence, by striking
17 “adoption” and inserting “transfer or adop-
18 tion”; and

19 (C) in the second sentence, striking
20 “adoptability” and inserting “transferability or
21 adoptability”;

22 (3) in subsection (c)(1)—

23 (A) in the matter preceding subparagraph

24 (A)—

1 (i) by inserting “transfer or” before
2 “adoption”; and

3 (ii) by inserting “, by” after “rec-
4 ommended priority”;

5 (B) in subparagraphs (A) and (B), by in-
6 serting “adoption” before “by”;

7 (C) in subparagraph (B), by inserting “or
8 organizations” after “persons”; and

9 (D) in subparagraph (C), by striking “by”
10 and inserting “transfer to”; and

11 (4) in subsection (e)—

12 (A) in the subsection heading, by inserting
13 “OR ADOPTED” after “TRANSFERRED”;

14 (B) in paragraphs (1) and (2), by striking
15 “transferred” each place it appears and insert-
16 ing “transferred or adopted”; and

17 (C) in paragraph (2), by striking “trans-
18 fer” each place it appears and inserting “trans-
19 fer or adoption”.

20 (b) VETERINARY SCREENING AND CARE FOR MILI-
21 TARY WORKING DOGS TO BE RETIRED.—Such section is
22 further amended—

23 (1) by redesignating subsections (f), (g), and

24 (h) as subsections (g), (h), and (i), respectively; and

1 (2) by inserting after subsection (e) the fol-
2 lowing new subsection (f):

3 “(f) VETERINARY SCREENING AND CARE FOR MILI-
4 TARY WORKING DOGS TO BE RETIRED.—(1)(A) If the
5 Secretary of the military department concerned deter-
6 mines that a military working dog should be retired, such
7 Secretary shall transport the dog to the Veterinary Treat-
8 ment Facility at Lackland Air Force Base, Texas.

9 “(B) In the case of a contract working dog to be re-
10 tired, transportation required by subparagraph (A) is sat-
11 isfied by the transfer of the dog to the 341st Training
12 Squadron at the end of the dog’s service life as required
13 by section 2410r of this title and assignment of the dog
14 to the Veterinary Treatment Facility referred to in that
15 subparagraph.

16 “(2)(A) The Secretary of Defense shall ensure that
17 each dog transported as described in paragraph (1) to the
18 Veterinary Treatment Facility referred to in that para-
19 graph is provided with a full veterinary screening, and nec-
20 essary veterinary care (including surgery for any mental,
21 dental, or stress-related illness), before transportation of
22 the dog in accordance with subsection (g).

23 “(B) For purposes of this paragraph, stress-related
24 illness includes illness in connection with post-traumatic
25 stress, anxiety that manifests in a physical ailment, obses-

1 sive compulsive behavior, and any other stress-related ail-
2 ment.

3 “(3) Transportation is not required under paragraph
4 (1), and screening and care is not required under para-
5 graph (2), for a military working dog located outside the
6 United States if the Secretary of the military department
7 concerned determines that transportation of the dog to the
8 United States would not be in the best interests of the
9 dog for medical reasons.”.

10 (c) COORDINATION OF SCREENING AND CARE RE-
11 QUIREMENTS WITH TRANSPORTATION REQUIREMENTS.—
12 Subsection (g) of such section, as redesignated by sub-
13 section (b)(1) of this section, is amended to read as fol-
14 lows:

15 “(g) TRANSPORTATION OF RETIRING MILITARY
16 WORKING DOGS.—Upon completion of veterinary screen-
17 ing and care for a military working dog to be retired pur-
18 suant to subsection (f), the Secretary of the military de-
19 partment concerned shall—

20 “(1) if the dog was at a location outside the
21 United States immediately prior to transportation
22 for such screening and care and a United States cit-
23 izen or member of the armed forces living abroad
24 agrees to adopt the dog, transport the dog to such
25 location for adoption; or

1 “(2) for any other dog, transport the dog—
2 “(A) to the 341st Training Squadron;
3 “(B) to another location within the United
4 States for transfer or adoption under this sec-
5 tion.”.

6 (d) PRESERVATION OF POLICY ON TRANSFER OF
7 MILITARY WORKING DOGS TO LAW ENFORCEMENT
8 AGENCIES.—Subsection (h) of such section, as so redesign-
9 nated, is amended in paragraph (3) by striking “adoption
10 of military working dogs” and all that follows through the
11 period at the end and inserting “transfer of military work-
12 ing dogs to law enforcement agencies before the end of
13 the dogs’ useful working lives.”.

14 (e) CLARIFICATION OF HORSES TREATABLE AS MILI-
15 TARY ANIMALS.—Subsection (i) of such section, as so re-
16 designated, is amended by striking paragraph (2) and in-
17 serting the following new paragraph (2):

18 “(2) An equid (horse, mule, or donkey) owned
19 by the Department of Defense.”.

20 (f) CONTRACT TERM FOR CONTRACT WORKING
21 DOGS.—Section 2410r(a) of title 10, United States Code,
22 is amended—

23 (1) by inserting “, and shall contain a contract
24 term,” after “shall require”;

1 (2) by inserting “and assigned for veterinary
2 screening and care in accordance with section 2583
3 of this title” after “341st Training Squadron”; and

4 (3) by striking “section 2583 of this title” and
5 inserting “such section”.

6 **SEC. 373. EXTENSION OF AUTHORITY FOR SECRETARY OF**
7 **DEFENSE TO USE DEPARTMENT OF DEFENSE**
8 **REIMBURSEMENT RATE FOR TRANSPOR-**
9 **TATION SERVICES PROVIDED TO CERTAIN**
10 **NON-DEPARTMENT OF DEFENSE ENTITIES.**

11 Section 2642(b) of title 10, United States Code, is
12 amended by striking “October 1, 2019” and inserting
13 “October 1, 2024”.

14 **SEC. 374. EXTENSION OF AUTHORITY OF SECRETARY OF**
15 **TRANSPORTATION TO ISSUE NON-PREMIUM**
16 **AVIATION INSURANCE.**

17 Section 44310(b) of title 49, United States Code, is
18 amended by striking “December 31, 2019” and inserting
19 “September 30, 2023”.

20 **SEC. 375. DEFENSE PERSONAL PROPERTY PROGRAM.**

21 (a) REPORT ON PERSONAL PROPERTY PROGRAM IM-
22 PROVEDMENT ACTION PLAN.—

23 (1) IN GENERAL.—Not later than 180 days
24 after the date of the enactment of this Act, the
25 Under Secretary of Defense for Acquisition and

1 Sustainment and the Under Secretary of Defense for
2 Personnel and Readiness shall jointly submit to the
3 congressional defense committees a report on imple-
4 mentation of the Personal Property Program Im-
5 provement Action Plan that was developed by the
6 Personnel Relocation/Household Goods Movement
7 Cross-Functional Team.

8 (2) CONTENTS OF REPORT.—The report re-
9 quired under paragraph (1) shall include updated in-
10 formation on the efforts of the Department of De-
11 fense to—

12 (A) integrate permanent-change-of-station
13 orders with transportation systems;

14 (B) reduce the number of report dates dur-
15 ing peak moving season;

16 (C) synchronize the communication of in-
17 formation about orders to all parties involved,
18 including industry;

19 (D) improve lead time for permanent-
20 change-of-station orders;

21 (E) meet quality assurance inspection
22 standards;

23 (F) improve the claims review process; and

24 (G) incorporate predictive analytics to an-
25 ticipate potentially problematic shipments.

1 (3) BRIEFING.—Not later than 180 days after
2 the date of the enactment of this Act, the Under
3 Secretary of Defense for Acquisition and
4 Sustainment and the Assistant Secretary of Defense
5 for Personnel and Readiness shall jointly provide to
6 the congressional defense committees a briefing on
7 the report required under this subsection.

8 (b) BUSINESS CASE ANALYSIS.—Not later than 30
9 days after the date of the enactment of this Act, the Com-
10 mander of United States Transportation Command shall
11 submit to the congressional defense committees a business
12 case analysis for the proposed award of a global household
13 goods contract for the defense personal property program.

14 (c) GAO REPORT.—Not later than 30 days after the
15 date on which the Commander of United States Transpor-
16 tation Command submits the business case analysis re-
17 quired by subsection (b), the Comptroller General of the
18 United States shall submit to the congressional defense
19 committees a report on a comprehensive study conducted
20 by the Comptroller General that includes—

21 (1) an analysis of the effects that the outsourc-
22 ing of the management and oversight of the move-
23 ment of household goods to a private entity or enti-
24 ties would have on members of the Armed Forces
25 and their families;

1 at which the Secretary shall provide up-to-date informa-
2 tion about the Red Hill Bulk Fuel Storage Facility.

3 (b) **TERMINATION.**—The requirement to hold events
4 under subsection (a) shall terminate on the earlier of the
5 following dates:

6 (1) September 30, 2025.

7 (2) The date on which the Red Hill Bulk Fuel
8 Storage Facility ceases operation.

9 **SEC. 377. SENSE OF CONGRESS REGARDING INNOVATIVE**
10 **READINESS TRAINING PROGRAM.**

11 It is the sense of Congress that—

12 (1) the Innovative Readiness Training program
13 is an effective training program for members of the
14 Armed Forces and is highly beneficial to civilian-
15 military relationships with local American commu-
16 nities;

17 (2) due to the geographic complexities and re-
18 alities of non-contiguous States and territories, In-
19 novative Readiness Training has lent greater benefit
20 to such States and territories while providing unique
21 and realistic training opportunities and deployment
22 readiness for members of the Armed Forces;

23 (3) the Department of Defense should pursue
24 continued Innovative Readiness Training opportuni-
25 ties, and, where applicable, strongly encourage the

1 use of Innovative Readiness Training in non-contig-
2 uous States and territories; and

3 (4) in considering whether to recommend a
4 project, the Secretary should consider the benefits of
5 the project to the economy of a region damaged by
6 natural disasters.

7 **SEC. 378. DETONATION CHAMBERS FOR EXPLOSIVE ORD-**
8 **NANCE DISPOSAL.**

9 (a) IN GENERAL.—The Secretary of the Navy shall
10 purchase and operate a portable closed detonation cham-
11 ber and water jet cutting system to be deployed at a
12 former naval bombardment area located outside the conti-
13 nental United States that is part of an active remediation
14 program using amounts made available for environmental
15 restoration, Navy. Upon a determination by the Secretary
16 of the Navy that the chamber has completed the mission
17 of destroying appropriately sized munitions at such former
18 naval bombardment area, the Secretary may deploy the
19 chamber to another location.

20 (b) AUTHORIZATION OF APPROPRIATIONS.—There is
21 authorized to be appropriated for fiscal year 2020
22 \$10,000,000 to carry out subsection (a).

23 **TITLE IV—MILITARY**
24 **PERSONNEL AUTHORIZATIONS**

Subtitle A—Active Forces

Sec. 401. End strengths for active forces.

Sec. 402. Revisions in permanent active duty end strength minimum levels.

Subtitle B—Reserve Forces

Sec. 411. End strengths for Selected Reserve.

Sec. 412. End strengths for Reserves on active duty in support of the reserves.

Sec. 413. End strengths for military technicians (dual status).

Sec. 414. Maximum number of reserve personnel authorized to be on active duty for operational support.

Sec. 415. Authorized strengths for Marine Corps Reserves on active duty.

Sec. 416. Modification of authorized strength of Air Force Reserve serving on full-time reserve component duty for administration of the reserves or the National Guard.

Subtitle C—Authorization of Appropriations

Sec. 421. Military personnel.

1 **Subtitle A—Active Forces**

2 **SEC. 401. END STRENGTHS FOR ACTIVE FORCES.**

3 The Armed Forces are authorized strengths for active
4 duty personnel as of September 30, 2020, as follows:

5 (1) The Army, 480,000.

6 (2) The Navy, 340,500.

7 (3) The Marine Corps, 186,200.

8 (4) The Air Force, 332,800.

9 **SEC. 402. REVISIONS IN PERMANENT ACTIVE DUTY END**
10 **STRENGTH MINIMUM LEVELS.**

11 Section 691(b) of title 10, United States Code, is
12 amended by striking paragraphs (1) through (4) and in-
13 serting the following new paragraphs:

14 “(1) For the Army, 480,000.

15 “(2) For the Navy, 340,500.

16 “(3) For the Marine Corps, 186,200.

17 “(4) For the Air Force, 332,800.”.

1 **Subtitle B—Reserve Forces**

2 **SEC. 411. END STRENGTHS FOR SELECTED RESERVE.**

3 (a) IN GENERAL.—The Armed Forces are authorized
4 strengths for Selected Reserve personnel of the reserve
5 components as of September 30, 2020, as follows:

6 (1) The Army National Guard of the United
7 States, 336,000.

8 (2) The Army Reserve, 189,500.

9 (3) The Navy Reserve, 59,000.

10 (4) The Marine Corps Reserve, 38,500.

11 (5) The Air National Guard of the United
12 States, 107,700.

13 (6) The Air Force Reserve, 70,100.

14 (7) The Coast Guard Reserve, 7,000.

15 (b) END STRENGTH REDUCTIONS.—The end
16 strengths prescribed by subsection (a) for the Selected Re-
17 serve of any reserve component shall be proportionately
18 reduced by—

19 (1) the total authorized strength of units orga-
20 nized to serve as units of the Selected Reserve of
21 such component which are on active duty (other
22 than for training) at the end of the fiscal year; and

23 (2) the total number of individual members not
24 in units organized to serve as units of the Selected
25 Reserve of such component who are on active duty

1 (other than for training or for unsatisfactory partici-
2 pation in training) without their consent at the end
3 of the fiscal year.

4 (c) **END STRENGTH INCREASES.**—Whenever units or
5 individual members of the Selected Reserve of any reserve
6 component are released from active duty during any fiscal
7 year, the end strength prescribed for such fiscal year for
8 the Selected Reserve of such reserve component shall be
9 increased proportionately by the total authorized strengths
10 of such units and by the total number of such individual
11 members.

12 **SEC. 412. END STRENGTHS FOR RESERVES ON ACTIVE**
13 **DUTY IN SUPPORT OF THE RESERVES.**

14 Within the end strengths prescribed in section
15 411(a), the reserve components of the Armed Forces are
16 authorized, as of September 30, 2020, the following num-
17 ber of Reserves to be serving on full-time active duty or
18 full-time duty, in the case of members of the National
19 Guard, for the purpose of organizing, administering, re-
20 cruiting, instructing, or training the reserve components:

- 21 (1) The Army National Guard of the United
22 States, 30,595.
- 23 (2) The Army Reserve, 16,511.
- 24 (3) The Navy Reserve, 10,155.
- 25 (4) The Marine Corps Reserve, 2,386.

1 (5) The Air National Guard of the United
2 States, 22,637.

3 (6) The Air Force Reserve, 4,431.

4 **SEC. 413. END STRENGTHS FOR MILITARY TECHNICIANS**
5 **(DUAL STATUS).**

6 (a) IN GENERAL.—The minimum number of military
7 technicians (dual status) as of the last day of fiscal year
8 2020 for the reserve components of the Army and the Air
9 Force (notwithstanding section 129 of title 10, United
10 States Code) shall be the following:

11 (1) For the Army National Guard of the United
12 States, 22,294.

13 (2) For the Army Reserve, 6,492.

14 (3) For the Air National Guard of the United
15 States, 13,569.

16 (4) For the Air Force Reserve, 8,938.

17 (b) LIMITATION.—Under no circumstances may a
18 military technician (dual status) employed under the au-
19 thority of this section be coerced by a State into accepting
20 an offer of realignment or conversion to any other military
21 status, including as a member of the Active, Guard, and
22 Reserve program of a reserve component. If a military
23 technician (dual status) declines to participate in such re-
24 alignment or conversion, no further action will be taken
25 against the individual or the individual's position.

1 (c) ADJUSTMENT OF AUTHORIZED STRENGTH.—

2 (1) IN GENERAL.—If, at the end of fiscal year
3 2019, the Air National Guard of the United States
4 does not meet its full-time support realignment goals
5 for such fiscal year (as presented in the justification
6 materials of the Department of Defense in support
7 of the budget of the President for such fiscal year
8 under section 1105 of title 31, United States Code),
9 the authorized number of military technicians (dual
10 status) of the Air National Guard of the United
11 States under subsection (a)(3) shall be increased by
12 the number equal to the difference between—

13 (A) 3,190, which is the number of military
14 technicians (dual status) positions in the Air
15 National Guard of the United States sought to
16 be converted to the Active, Guard, and Reserve
17 program of the Air National Guard during fis-
18 cal year 2019; and

19 (B) the number of realigned positions
20 achieved in the Air National Guard by the end
21 of fiscal year 2019.

22 (2) LIMITATION.—The increase under para-
23 graph (1) in the authorized number of military tech-
24 nician (dual status) positions described in that para-
25 graph may not exceed 2,292.

1 (3) DECREASE IN AUTHORIZED NUMBER OF
2 ANGUS RESERVES ON ACTIVE DUTY IN SUPPORT OF
3 THE RESERVES.—In the event of an adjustment to
4 the authorized number military technicians (dual
5 status) of the Air National Guard of the United
6 States under this subsection, the number of mem-
7 bers of the Air National Guard of the United States
8 authorized by section 412(5) to be on active duty as
9 of September 30, 2020, shall be decreased by the
10 number equal to the number of such adjustment.

11 (d) CERTIFICATION.—Not later than January 1,
12 2020, the Chief of the National Guard Bureau shall cer-
13 tify to the Committees on Armed Services of the Senate
14 and House of Representatives the number of positions re-
15 aligned from a military technician (dual status) position
16 to a position in the Active, Guard, and Reserve program
17 of a reserve component in fiscal year 2019.

18 (e) DEFINITIONS.—In subsections (b), (c), and (d):

19 (1) The term “realigned position” means any
20 military technician (dual status) position which has
21 been converted or realigned to a position in an Ac-
22 tive, Guard, and Reserve program of a reserve com-
23 ponent under the full time support rebalancing plan
24 of the Armed Force concerned, regardless of whether
25 such position is encumbered.

1 (2) The term “Active, Guard, and Reserve pro-
2 gram”, in the case of a reserve component, means
3 the program of the reserve component under which
4 Reserves serve on full-time active duty or full-time
5 duty, in the case of members of the National Guard,
6 for the purpose of organizing, administering, recruit-
7 ing, instructing, or training such reserve component.

8 **SEC. 414. MAXIMUM NUMBER OF RESERVE PERSONNEL AU-**
9 **THORIZED TO BE ON ACTIVE DUTY FOR**
10 **OPERATIONAL SUPPORT.**

11 During fiscal year 2020, the maximum number of
12 members of the reserve components of the Armed Forces
13 who may be serving at any time on full-time operational
14 support duty under section 115(b) of title 10, United
15 States Code, is the following:

16 (1) The Army National Guard of the United
17 States, 17,000.

18 (2) The Army Reserve, 13,000.

19 (3) The Navy Reserve, 6,200.

20 (4) The Marine Corps Reserve, 3,000.

21 (5) The Air National Guard of the United
22 States, 16,000.

23 (6) The Air Force Reserve, 14,000.

1 **SEC. 415. AUTHORIZED STRENGTHS FOR MARINE CORPS**
 2 **RESERVES ON ACTIVE DUTY.**

3 (a) OFFICERS.—Section 12011(a)(1) of title 10,
 4 United States Code, is amended by striking those parts
 5 of the table pertaining to the Marine Corps Reserve and
 6 inserting the following:

7 “Marine Corps Reserve:

| | | | |
|-------------|-----|-----|------|
| 1,000 | 99 | 63 | 20 |
| 1,200 | 103 | 67 | 21 |
| 1,300 | 107 | 70 | 22 |
| 1,400 | 111 | 73 | 23 |
| 1,500 | 114 | 76 | 24 |
| 1,600 | 117 | 79 | 25 |
| 1,700 | 120 | 82 | 26 |
| 1,800 | 123 | 85 | 27 |
| 1,900 | 126 | 88 | 28 |
| 2,000 | 129 | 91 | 29 |
| 2,100 | 132 | 94 | 30 |
| 2,200 | 134 | 97 | 31 |
| 2,300 | 136 | 100 | 32 |
| 2,400 | 143 | 105 | 34 |
| 2,500 | 149 | 109 | 35 |
| 2,600 | 155 | 113 | 36 |
| 2,700 | 161 | 118 | 37 |
| 2,800 | 167 | 122 | 39 |
| 2,900 | 173 | 126 | 41 |
| 3,000 | 179 | 130 | 42”. |

8 (c) SENIOR ENLISTED MEMBERS.—Section 12012(a)
 9 of title 10, United States Code, is amended by striking
 10 those parts of the table pertaining to the Marine Corps
 11 Reserve and inserting the following:

12 “Marine Corps Reserve:

| | | |
|-------------|----|----|
| 1,100 | 50 | 11 |
| 1,200 | 55 | 12 |
| 1,300 | 60 | 13 |
| 1,400 | 65 | 14 |
| 1,500 | 70 | 15 |
| 1,600 | 75 | 16 |
| 1,700 | 80 | 17 |
| 1,800 | 85 | 18 |

| | | |
|-------------|-----|------|
| 1,900 | 89 | 19 |
| 2,000 | 93 | 20 |
| 2,100 | 96 | 21 |
| 2,200 | 99 | 22 |
| 2,300 | 101 | 23 |
| 2,400 | 106 | 24 |
| 2,500 | 112 | 25 |
| 2,600 | 116 | 26 |
| 2,700 | 121 | 27 |
| 2,800 | 125 | 28 |
| 2,900 | 130 | 29 |
| 3,000 | 134 | 30”. |

1 **SEC. 416. MODIFICATION OF AUTHORIZED STRENGTH OF**
 2 **AIR FORCE RESERVE SERVING ON FULL-TIME**
 3 **RESERVE COMPONENT DUTY FOR ADMINIS-**
 4 **TRATION OF THE RESERVES OR THE NA-**
 5 **TIONAL GUARD.**

6 (a) IN GENERAL.—The table in section 12011(a)(1)
 7 of title 10, United States Code, is amended by striking
 8 the matter relating to the Air Force Reserve and inserting
 9 the following new matter:

“Air Force Reserve

| | | | |
|--------|-------|-------|-------|
| 1,000 | 166 | 170 | 100 |
| 1,500 | 245 | 251 | 143 |
| 2,000 | 322 | 330 | 182 |
| 2,500 | 396 | 406 | 216 |
| 3,000 | 467 | 479 | 246 |
| 3,500 | 536 | 550 | 271 |
| 4,000 | 602 | 618 | 292 |
| 4,500 | 665 | 683 | 308 |
| 5,000 | 726 | 746 | 320 |
| 5,500 | 784 | 806 | 325 |
| 6,000 | 840 | 864 | 327 |
| 7,000 | 962 | 990 | 347 |
| 8,000 | 1,087 | 1,110 | 356 |
| 10,000 | 1,322 | 1,362 | 395”. |

1 (b) EFFECTIVE DATE.—The amendment made by
2 subsection (a) shall take effect on October 1, 2019, and
3 shall apply with respect to fiscal years beginning on or
4 after that date.

5 **Subtitle C—Authorization of**
6 **Appropriations**

7 **SEC. 421. MILITARY PERSONNEL.**

8 (a) AUTHORIZATION OF APPROPRIATIONS.—Funds
9 are hereby authorized to be appropriated for fiscal year
10 2020 for the use of the Armed Forces and other activities
11 and agencies of the Department of Defense for expenses,
12 not otherwise provided for, for military personnel, as spec-
13 ified in the funding table in section 4401.

14 (b) CONSTRUCTION OF AUTHORIZATION.—The au-
15 thorization of appropriations in subsection (a) supersedes
16 any other authorization of appropriations (definite or in-
17 definite) for such purpose for fiscal year 2020.

18 **TITLE V—MILITARY PERSONNEL**
19 **POLICY**

Subtitle A—Officer Personnel Policy

Sec. 501. Maker of original appointments in a regular or reserve component of
commissioned officers previously subject to original appoint-
ment in other type of component.

Sec. 502. Furnishing of adverse information on officers to promotion selection
boards.

Sec. 503. Limitation on number of officers recommendable for promotion by
promotion selection boards.

Sec. 504. Expansion of authority for continuation on active duty of officers in
certain military specialties and career tracks.

Sec. 505. Management policies for joint qualified officers.

- Sec. 506. Modification of authorities on management of deployments of members of the Armed Forces and related unit operating and personnel tempo matters.
- Sec. 507. Personnel tempo of the Armed Forces and the United States Special Operations Command during periods of inapplicability of high-deployment limitations.
- Sec. 508. Permanent authority to defer past age 64 the retirement of chaplains in general and flag officer grades.
- Sec. 509. Higher grade in retirement for officers following reopening of determination or certification of retired grade.
- Sec. 510. Authority of promotion boards to recommend that officers of particular merit be placed higher on promotion list.
- Sec. 510A. Availability on the internet of certain information about officers serving in general or flag officer grades.
- Sec. 510B. Functional badge or insignia upon commission for chaplains.

Subtitle B—Reserve Component Management

- Sec. 511. Modification of grade level threshold for Junior Reserve Officers' Training Corps.
- Sec. 512. Inclusion of STEM in courses of instruction for the Junior Reserve Officers' Training Corps.
- Sec. 513. Inclusion of homeschooled students in Junior Reserve Officers' Training Corps units.
- Sec. 514. Clarification of eligibility to serve as Commander, Marine Forces Reserve.
- Sec. 515. Extension and periodic evaluation of suicide prevention and resilience program for the reserve components.
- Sec. 516. Authority to defer mandatory separation at age 68 of officers in medical specialties in the reserve components.
- Sec. 517. Modernization of inspection authorities applicable to the National Guard.
- Sec. 518. Consultation with Chief of the National Guard Bureau in the appointment or designation of National Guard property and fiscal officers.
- Sec. 519. Coast Guard Junior Reserve Officers' Training Corps.
- Sec. 520. Repeal of requirement for review of certain Army Reserve officer unit vacancy promotions by commanders of associated active duty units.
- Sec. 520A. Report on methods to enhance domestic response to large scale, complex and catastrophic disasters.
- Sec. 520B. Report and briefing on the Senior Reserve Officers' Training Corps.
- Sec. 520C. Sense of Congress on increase in number of Junior Reserve Officers' Training Corps units.

Subtitle C—General Service Authorities and Correction of Military Records

- Sec. 521. Advice and counsel of trauma experts in review by boards for correction of military records and discharge review boards of certain claims.
- Sec. 522. Reduction in required number of members of discharge review boards.
- Sec. 523. Establishment of process to review a request for upgrade of discharge or dismissal.
- Sec. 524. Prohibition on reduction in the number of personnel assigned to duty with a service review agency.

- Sec. 525. Training of members of boards for correction of military records and discharge review boards on sexual trauma, intimate partner violence, spousal abuse, and related matters.
- Sec. 526. Time requirements for certification of honorable service.
- Sec. 527. Correction of certain discharge characterizations.
- Sec. 528. Development of guidelines for use of unofficial sources of information to determine eligibility of members and former members of the Armed Forces for decorations when the service records are incomplete because of damage to the official record.
- Sec. 529. Strategic plan for diversity and inclusion.
- Sec. 530. Study regarding screening individuals who seek to enlist in the Armed Forces.
- Sec. 530A. Feasibility study regarding notification to Secretary of Homeland Security of honorable discharges of non-citizens.
- Sec. 530B. Sense of Congress regarding accession physicals.

Subtitle D—Military Justice

- Sec. 531. Expansion of pre-referral matters reviewable by military judges and military magistrates in the interest of efficiency in military justice.
- Sec. 532. Command influence.
- Sec. 533. Statute of limitations for certain offenses.
- Sec. 534. Public access to dockets, filings, and court records of courts-martial or other records of trial of the military justice system.
- Sec. 535. Extension of Defense Advisory Committee on Investigation, Prosecution, and Defense of Sexual Assault in the Armed Forces.
- Sec. 536. Authority for return of personal property to victims of sexual assault who file a Restricted Report before conclusion of related proceedings.
- Sec. 537. Guidelines on sentences for offenses committed under the Uniform Code of Military Justice.
- Sec. 538. Notification of significant events and documentation of preference for prosecution jurisdiction for victims of sexual assault.
- Sec. 539. Increase in number of digital forensic examiners for certain military criminal investigative organizations.
- Sec. 540. Increase in investigative personnel and Victim Witness Assistance Program liaisons.
- Sec. 540A. Training for sexual assault initial disposition authorities on exercise of disposition authority for sexual assault and collateral offenses.
- Sec. 540B. Training for commanders in the Armed Forces on their role in all stages of military justice in connection with sexual assault.
- Sec. 540C. Timely disposition of nonprosecutable sex-related offenses.
- Sec. 540D. Department of Defense-wide policy and military department-specific programs on reinvigoration of the prevention of sexual assault involving members of the Armed Forces.
- Sec. 540E. Recommendations on separate punitive article in the Uniform Code of Military Justice on sexual harassment.
- Sec. 540F. Report on military justice system involving alternative authority for determining whether to prefer or refer changes for felony offenses under the Uniform Code of Military Justice.
- Sec. 540G. Report on standardization among the military departments in collection and presentation of information on matters within the military justice system.

- Sec. 540H. Report on expansion of Air Force safe to report policy across the Armed Forces.
- Sec. 540I. Assessment of racial, ethnic, and gender disparities in the military justice system.
- Sec. 540J. Pilot programs on defense investigators in the military justice system.
- Sec. 540K. Report on preservation of recourse to restricted report on sexual assault for victims of sexual assault following certain victim or third-party communications.
- Sec. 540L. Report on establishment of guardian ad litem program for certain military dependents who are a victim or witness of an offense under the Uniform Code of Military Justice involving abuse or exploitation.
- Sec. 540M. Comptroller General of the United States report on implementation by the Armed Forces of recent statutory requirements on sexual assault prevention and response in the military.
- Sec. 540N. Sense of Congress on the Port Chicago 50.

Subtitle E—Other Legal Matters

- Sec. 541. Improvement of certain Special Victims' Counsel authorities.
- Sec. 542. Availability of Special Victims' Counsel at military installations.
- Sec. 543. Notification of issuance of military protective order to civilian law enforcement.
- Sec. 544. Copyright protection for civilian faculty of certain accredited institutions.
- Sec. 545. Termination of leases of premises and motor vehicles of servicemembers who incur catastrophic injury or illness or die while in military service.
- Sec. 546. Military orders required for termination of leases pursuant to the Servicemembers Civil Relief Act.
- Sec. 547. Preservation of right to bring class action under Servicemembers Civil Relief Act.
- Sec. 548. Legal counsel for victims of alleged domestic violence offenses.
- Sec. 549. Notice to victims of alleged sexual assault of pendency of further administrative action following a determination not to refer to trial by court-martial.
- Sec. 550. Treatment of information in Catch a Serial Offender Program for certain purposes.
- Sec. 550A. Policies and procedures on registration at military installations of civilian protective orders applicable to members of the Armed Forces assigned to such installations and certain other individuals.
- Sec. 550B. Defense Advisory Committee for the Prevention of Sexual Misconduct.
- Sec. 550C. Training for Special Victims' Counsel on civilian criminal justice matters in the States of the military installations to which assigned.
- Sec. 550D. Enhancing the capability of military criminal investigative organizations to prevent and combat child sexual exploitation.
- Sec. 550E. Feasibility study on establishment of database of military protective orders.
- Sec. 550F. GAO review of USERRA and SCRA.

Subtitle F—Member Education

- Sec. 551. Authority for detail of certain enlisted members of the Armed Forces as students at law schools.
- Sec. 552. Inclusion of Coast Guard in Department of Defense STARBASE Program.
- Sec. 553. Degree granting authority for United States Army Armament Graduate School; limitation on establishment of certain educational institutions.
- Sec. 554. Prohibition on off-duty employment for cadets and midshipmen completing obligated service after graduation.
- Sec. 555. Consideration of request for transfer of a cadet or midshipman at a military service academy who is the victim of a sexual assault or related offense.
- Sec. 556. Redesignation of the Commandant of the United States Air Force Institute of Technology as the Director and Chancellor of such Institute.
- Sec. 557. Eligibility of additional enlisted members for associate degree programs of the Community College of the Air Force.
- Sec. 558. Speech disorders of cadets and midshipmen.
- Sec. 559. Requirement to continue provision of tuition assistance for members of the Armed Forces.
- Sec. 560. Information on institutions of higher education participating in the Department of Defense Tuition Assistance Program.
- Sec. 560A. Inclusion of information on free credit monitoring in annual financial literacy briefing.
- Sec. 560B. Programs to facilitate the award of private pilot's certificates.

Subtitle G—Member Training and Transition

- Sec. 561. Requirement to provide information regarding benefits claims to members during TAP counseling.
- Sec. 562. Participation of other Federal agencies in the SkillBridge apprenticeship and internship program for members of the Armed Forces.
- Sec. 563. First modification of elements of report on the improved Transition Assistance Program.
- Sec. 564. Second modification of elements of report on the improved Transition Assistance Program.
- Sec. 565. Prohibition on gender-segregated training at Marine Corps Recruit Depots.
- Sec. 566. Assessment of deaths of recruits under the jurisdiction of the Secretaries of the military departments.
- Sec. 567. Review of Department of Defense training programs regarding disinformation campaigns.
- Sec. 568. Command matters in connection with transition assistance programs.
- Sec. 569. Machine readability and electronic transferability of Certificate of Release or Discharge from Active Duty (DD Form 214).
- Sec. 570. Records of service for Reserves.
- Sec. 570A. Limitations and requirements in connection with separations for members of the Armed Forces who suffer from mental health conditions in connection with a sex-related, intimate partner violence-related, or spousal-abuse offense.
- Sec. 570B. Prohibition on involuntary separation of certain members of the Armed Forces; consideration of military service in removal determinations.

- Sec. 570C. Inclusion of question regarding immigration status on pre-separation counseling checklist (DD Form 2648).
- Sec. 570D. Counseling for members of the Armed Forces who are not citizens of the United States on naturalization in the United States.
- Sec. 570E. Pilot program on information sharing between Department of Defense and designated relatives and friends of members of the Armed Forces regarding the experiences and challenges of military service.
- Sec. 570F. Connections of members retiring or separating from the Armed Forces with community-based organizations and related entities.
- Sec. 570G. Pilot program regarding online application for the Transition Assistance Program.

Subtitle H—Military Family Readiness and Dependents' Education

- Sec. 571. Authorizing members to take leave for a birth or adoption in more than one increment.
- Sec. 572. Deferred deployment for members who give birth.
- Sec. 573. Authority of the Secretary concerned to transport remains of a covered decedent to no more than two places selected by the person designated to direct disposition of the remains.
- Sec. 574. Military funeral honors matters.
- Sec. 575. Improvement of occupational license portability for relocated spouses of members of the uniformed services.
- Sec. 576. Continued eligibility for education and training opportunities for spouses of promoted members.
- Sec. 577. Modification to authority to reimburse for State licensure and certification costs of a spouse of a servicemember arising from relocation.
- Sec. 578. Clarification regarding eligibility to transfer entitlement under Post-9/11 Educational Assistance Program.
- Sec. 579. Annual State report card.
- Sec. 580. Improvements to child care for members of the Armed Forces.
- Sec. 580A. Transportation of remains of casualties; travel expenses for next of kin.
- Sec. 580B. Meetings of officials of the Department of Defense with representative groups of survivors of deceased members of the Armed Forces.
- Sec. 580C. Information and opportunities for registration for voting and absentee ballot requests for members of the Armed Forces undergoing deployment overseas.
- Sec. 580D. Study on two-way military ballot barcode tracking.
- Sec. 580E. Assistance to schools with military dependent students.
- Sec. 580F. First expansion of the My Career Advancement Account program for military spouses.
- Sec. 580G. Second expansion of the My Career Advancement Account program for military spouses.
- Sec. 580H. Report on training and support available to military spouses.
- Sec. 580I. Ri'katak Guest Student Program at United States Army Garrison—Kwajalein Atoll.

Subtitle I—Decorations and Awards

- Sec. 581. Modification of authorities on eligibility for and replacement of gold star lapel buttons.

1 Code, is amended by striking “the Secretary concerned”
2 and inserting “the Secretary of Defense”.

3 (b) MAKER OF RESERVE APPOINTMENTS IN TRANS-
4 FER FROM ACTIVE-DUTY LIST TO RESERVE ACTIVE-STA-
5 TUS LIST.—Section 12203(b) of such title is amended by
6 striking “the Secretary concerned” and inserting “the
7 Secretary of Defense”.

8 (c) REPORT.—Not later than April 1, 2020, the Sec-
9 retary of Defense shall submit to the Committees on
10 Armed Services of the Senate and the House of Represent-
11 atives a report setting forth the following:

12 (1) The average number per fiscal year, during
13 fiscal years 2010 through 2019, of transfers of ap-
14 pointment from regular officer to reserve officer in
15 the Armed Forces, set forth by each of transfers re-
16 quiring and transfers not requiring appointment by
17 and with the advice and consent of the Senate.

18 (2) The average amount of time required per
19 fiscal year, during such fiscal years, for completion
20 of a transfer of appointment from regular officer to
21 reserve officer in situations not requiring appoint-
22 ment by and with the advice and consent of the Sen-
23 ate.

24 (3) An assessment of the number of officers
25 who experience a break-in-service due to delays in

1 transfer of appointment from regular officer to re-
2 serve officer as a result of the requirement for ap-
3 pointment by and with the advice and consent of the
4 Senate.

5 (4) An assessment of the feasibility and advis-
6 ability of each of the following:

7 (A) Appointment of regular officers as
8 both a regular officer and a reserve officer im-
9 mediately upon commissioning.

10 (B) Consolidation of the provisions of title
11 10, United States Code, relating to appoint-
12 ment as a regular or reserve officer in a man-
13 ner designed to facilitate and improve officer
14 retention.

15 (5) Such other recommendations for legislative
16 or administrative action as the Secretary considers
17 appropriate to improve the rapid transfer of appoint-
18 ment of an officer from regular status to reserve sta-
19 tus.

20 **SEC. 502. FURNISHING OF ADVERSE INFORMATION ON OF-**
21 **FICERS TO PROMOTION SELECTION BOARDS.**

22 (a) EXPANSION OF GRADES OF OFFICERS FOR
23 WHICH INFORMATION IS FURNISHED.—Section 615(a)(3)
24 of title 10, United States Code, is amended—

25 (1) by inserting “(A)” after “(3)”;

1 (2) in subparagraph (A), as designated by para-
2 graph (1), by striking “a grade above colonel or, in
3 the case of the Navy, captain” and inserting “a
4 grade specified in subparagraph (B)”; and

5 (3) by adding at the end the following new sub-
6 paragraph:

7 “(B) A grade specified in this subparagraph is as fol-
8 lows:

9 “(i) In the case of a regular officer, a grade
10 above captain or, in the case of the Navy, lieutenant.

11 “(ii) In the case of a reserve officer, a grade
12 above lieutenant colonel or, in the case of the Navy,
13 commander.”.

14 (b) FURNISHING AT EVERY PHASE OF CONSIDER-
15 ATION.—Such section is further amended by adding at the
16 end the following new subparagraph:

17 “(C) The standards and procedures referred to in
18 subparagraph (A) shall require the furnishing to the selec-
19 tion board, and to each individual member of the board,
20 the information described in that subparagraph with re-
21 gard to an officer in a grade specified in subparagraph
22 (B) at each stage or phase of the selection board, concu-
23 rent with the screening, rating, assessment, evaluation,
24 discussion, or other consideration by the board or member

1 of the official military personnel file of the officer, or of
2 the officer.”.

3 (c) EFFECTIVE DATE.—The amendments made by
4 this section shall take effect on the date of the enactment
5 of this Act, and shall apply with respect to the proceedings
6 of promotion selection boards convened under section
7 611(a) of title 10, United States Code, after that date.

8 **SEC. 503. LIMITATION ON NUMBER OF OFFICERS REC-**
9 **COMMENDABLE FOR PROMOTION BY PRO-**
10 **MOTION SELECTION BOARDS.**

11 (a) IN GENERAL.—Section 616 of title 10, United
12 States Code is amended—

13 (1) by redesignating subsections (d), (e), (f),
14 and (g) as subsections (e), (f), (g), and (h), respec-
15 tively; and

16 (2) by inserting after subsection (c) the fol-
17 lowing new subsection (d):

18 “(d) The number of officers recommended for pro-
19 motion by a selection board convened under section 611(a)
20 of this title may not exceed the number equal to 95 per-
21 cent of the number of officers included in the promotion
22 zone established under section 623 of this title for consid-
23 eration by the board.”.

24 (b) EFFECTIVE DATE.—The amendments made by
25 this section shall take effect on the date of the enactment

1 of this Act, and shall apply with respect to consideration
2 by promotion selection boards convened under section
3 611(a) of title 10, United States Code, of promotion zones
4 that are established under section 623 of that title on or
5 after that date.

6 **SEC. 504. EXPANSION OF AUTHORITY FOR CONTINUATION**
7 **ON ACTIVE DUTY OF OFFICERS IN CERTAIN**
8 **MILITARY SPECIALTIES AND CAREER**
9 **TRACKS.**

10 Section 637a(a) of title 10, United States Code, is
11 amended by inserting “separation or” after “provided for
12 the”.

13 **SEC. 505. MANAGEMENT POLICIES FOR JOINT QUALIFIED**
14 **OFFICERS.**

15 Section 661(d)(3)(B) of title 10, United States Code,
16 is amended in the third sentence by inserting “or a des-
17 ignee of the Chairman who is an officer of the armed
18 forces in grade O-9 or higher” before the period.

19 **SEC. 506. MODIFICATION OF AUTHORITIES ON MANAGE-**
20 **MENT OF DEPLOYMENTS OF MEMBERS OF**
21 **THE ARMED FORCES AND RELATED UNIT OP-**
22 **ERATING AND PERSONNEL TEMPO MATTERS.**

23 (a) **LIMITATION ON SCOPE OF DELEGATIONS OF AP-**
24 **PROVAL OF EXCEPTIONS TO DEPLOYMENT THRESH-**
25 **OLDS.**—Paragraph (3) of section 991(a) of title 10,

1 United States Code, is amended by striking “be delegated
2 to—” and all that follows and inserting “be delegated to
3 a civilian officer of the Department of Defense appointed
4 by the President, by and with the advice and consent of
5 the Senate.”.

6 (b) SEPARATE POLICIES ON DWELL TIME FOR REG-
7 ULAR AND RESERVE MEMBERS.—Paragraph (4) of such
8 section is amended—

9 (1) by striking “addresses the amount” and in-
10 sserting “addresses each of the following:

11 “(A) The amount.”;

12 (2) in subparagraph (A), as designated by para-
13 graph (1), by inserting “regular” before “member”;
14 and

15 (3) by adding at the end the following new sub-
16 paragraph:

17 “(B) The amount of dwell time a reserve mem-
18 ber of the armed forces remains at the member’s
19 permanent duty station after completing a deploy-
20 ment of 30 days or more in length.”.

1 **SEC. 507. PERSONNEL TEMPO OF THE ARMED FORCES AND**
2 **THE UNITED STATES SPECIAL OPERATIONS**
3 **COMMAND DURING PERIODS OF INAPPLICA-**
4 **BILITY OF HIGH-DEPLOYMENT LIMITATIONS.**

5 (a) IN GENERAL.—Section 991(d) of title 10, United
6 States Code, is amended—

7 (1) by inserting “(1)” before “The Secretary”;

8 and

9 (2) by adding at the end the following new
10 paragraph:

11 “(2)(A) Whenever a waiver is in effect under para-
12 graph (1), the member or group of members covered by
13 the waiver shall be subject to specific and measurable de-
14 ployment thresholds established and maintained for pur-
15 poses of this subsection.

16 “(B) Thresholds under this paragraph may be appli-
17 cable—

18 “(i) uniformly, Department of Defense-wide; or

19 “(ii) separately, with respect to each armed
20 force or the United States Special Operations Com-
21 mand.

22 “(C) If thresholds under this paragraph are applica-
23 ble Department-wide, such thresholds shall be established
24 and maintained by the Under Secretary of Defense for
25 Personnel and Readiness. If such thresholds are applicable
26 only to one armed force or the Under States Special Oper-

1 ations Command, such thresholds shall be established and
2 maintained respectively by the Secretary of the Army, the
3 Secretary of the Navy (other than with respect to the Ma-
4 rine Corps), the Secretary of the Air Force, the Com-
5 mandant of the Marine Corps (with respect to the Marine
6 Corps), and the Commander of the United States Special
7 Operations Command, as applicable.

8 “(D) In undertaking recordkeeping for purposes of
9 subsection (c), the Under Secretary shall, in conjunction
10 with the officials and officers referred to in subparagraph
11 (C), collect complete and reliable personnel tempo data of
12 members described in subparagraph (A) in order to ensure
13 that the Department, the armed forces, and the United
14 States Special Operations Command fully and completely
15 monitor personnel tempo under any waiver authorized
16 under paragraph (1) and the effect of such waiver on the
17 armed forces.”.

18 (b) DEADLINE FOR IMPLEMENTATION.—Paragraph
19 (2) of section 991(d) of title 10, United States Code, as
20 added by subsection (a), shall be fully implemented by not
21 later than March 1, 2020.

1 **SEC. 508. PERMANENT AUTHORITY TO DEFER PAST AGE 64**
2 **THE RETIREMENT OF CHAPLAINS IN GEN-**
3 **ERAL AND FLAG OFFICER GRADES.**

4 Section 1253(c) of title 10, United States Code, is
5 amended by striking paragraph (3).

6 **SEC. 509. HIGHER GRADE IN RETIREMENT FOR OFFICERS**
7 **FOLLOWING REOPENING OF DETERMINA-**
8 **TION OR CERTIFICATION OF RETIRED**
9 **GRADE.**

10 (a) **ADVICE AND CONSENT OF SENATE REQUIRED**
11 **FOR HIGHER GRADE.**—Section 1370(f) of title 10, United
12 States Code, is amended—

13 (1) by redesignating paragraph (5) as para-
14 graph (6); and

15 (2) by inserting after paragraph (4) the fol-
16 lowing new paragraph (5):

17 “(5) If the retired grade of an officer is proposed to
18 be increased through the reopening of the determination
19 or certification of officer’s retired grade, the increase in
20 the retired grade shall be made by the Secretary of De-
21 fense, by and with the advice and consent of the Senate.”.

22 (b) **RECALCULATION OF RETIRED PAY.**—Paragraph
23 (6) of such section, as redesignated by subsection (a)(1),
24 is amended—

25 (1) by inserting “or increased” after “reduced”;

1 “(f) HIGHER PLACEMENT OF OFFICERS OF PAR-
2 TICULAR MERIT ON PROMOTION LIST.—(1) In selecting
3 officers to be recommended for promotion, a promotion
4 board may, when authorized by the Secretary concerned,
5 recommend that officers of particular merit, from among
6 those officers selected for promotion, be placed higher on
7 the promotion list established by the Secretary under sec-
8 tion 14308(a) of this title.

9 “(2) A promotion board may make a recommendation
10 under paragraph (1) only if an officer receives the rec-
11 ommendation of—

12 “(A) a majority of the members of the pro-
13 motion board; or

14 “(B) an alternative requirement established by
15 the Secretary concerned and furnished to the pro-
16 motion board as part of the guidelines under section
17 14107 of this title.

18 “(3) For officers who receive recommendations under
19 paragraph (1), the board shall recommend the order in
20 which those officers should be placed on the promotion
21 list.”.

22 (b) REPORTS REGARDING RECOMMENDATIONS THAT
23 OFFICERS OF PARTICULAR MERIT BE PLACED HIGHER
24 ON PROMOTION LIST.—Section 14109 of such title is

1 amended by adding at the end the following new sub-
2 section:

3 “(d) REPORT OF OFFICERS RECOMMENDED FOR
4 HIGHER PLACEMENT ON PROMOTION LIST.—A pro-
5 motion board convened under section 14101(a) of this title
6 shall, when authorized under section 14108(f) of this title,
7 include in its report to the Secretary concerned—

8 “(1) the names of those officers the promotion
9 board recommends be placed higher on the pro-
10 motion list; and

11 “(2) the order in which the promotion board
12 recommends those officers should be placed on the
13 promotion list.”.

14 (e) OFFICERS OF PARTICULAR MERIT APPEARING
15 HIGHER ON PROMOTION LIST.—Section 14308(a) of such
16 title is amended in the first sentence by inserting “or
17 based on particular merit, as determined by the promotion
18 board” before the period.

19 **SEC. 510A. AVAILABILITY ON THE INTERNET OF CERTAIN**
20 **INFORMATION ABOUT OFFICERS SERVING IN**
21 **GENERAL OR FLAG OFFICER GRADES.**

22 (a) AVAILABILITY REQUIRED.—

23 (1) IN GENERAL.—The Secretary of each mili-
24 tary department shall make available on an internet
25 website of such department available to the public

1 information specified in paragraph (2) on each offi-
2 cer in a general or flag officer grade under the juris-
3 diction of such Secretary, including any such officer
4 on the reserve active-status list.

5 (2) INFORMATION.—The information on an of-
6 ficer specified by this paragraph to be made avail-
7 able pursuant to paragraph (1) is the information as
8 follows:

9 (A) The officer's name.

10 (B) The officer's current grade, duty posi-
11 tion, command or organization, and location of
12 assignment.

13 (C) A summary list of the officer's past
14 duty assignments while serving in a general or
15 flag officer grade.

16 (b) ADDITIONAL PUBLIC NOTICE ON CERTAIN OFFI-
17 CERS.—Whenever an officer in a grade of O-7 or above
18 is assigned to a new billet or reassigned from a current
19 billet, the Secretary of the military department having ju-
20 risdiction of such officer shall make available on an inter-
21 net website of such department available to the public a
22 notice of such assignment or reassignment.

23 (c) LIMITATION ON WITHHOLDING OF CERTAIN IN-
24 FORMATION OR NOTICE.—

1 (1) LIMITATION.—The Secretary of a military
2 department may not withhold the information or no-
3 tice specified in subsections (a) and (b) from public
4 availability pursuant to subsection (a), unless and
5 until the Secretary notifies the Committees on
6 Armed Services of the Senate and House of Rep-
7 resentatives in writing of the information or notice
8 that will be so withheld, together with justification
9 for withholding the information or notice from public
10 availability.

11 (2) LIMITED DURATION OF WITHHOLDING.—
12 The Secretary concerned may withhold from the
13 public under paragraph (1) information or notice on
14 an officer only on the basis of individual risk or na-
15 tional security, and may continue to withhold such
16 information or notice only for so long as the basis
17 for withholding remains in force.

18 **SEC. 510B. FUNCTIONAL BADGE OR INSIGNIA UPON COM-**
19 **MISSION FOR CHAPLAINS.**

20 A military chaplain shall receive a functional badge
21 or insignia upon commission.

1 **Subtitle B—Reserve Component**
2 **Management**

3 **SEC. 511. MODIFICATION OF GRADE LEVEL THRESHOLD**
4 **FOR JUNIOR RESERVE OFFICERS' TRAINING**
5 **CORPS.**

6 Section 2031(b)(1) of title 10, United States Code,
7 is amended by striking “above the 8th grade” each place
8 it appears and inserting “above the 7th grade and phys-
9 ically co-located with the 9th grade participating unit”.

10 **SEC. 512. INCLUSION OF STEM IN COURSES OF INSTRU-**
11 **CTION FOR THE JUNIOR RESERVE OFFICERS'**
12 **TRAINING CORPS.**

13 (a) **IN GENERAL.**—Section 2031(b)(3) of title 10,
14 United States Code, is amended by inserting “and which
15 may include instruction or activities in the fields of
16 science, technology, engineering, and mathematics” after
17 “duration”.

18 (b) **EFFECTIVE DATE.**—The amendment made by
19 subsection (a) shall take effect 180 days after the date
20 of the enactment of this Act.

1 **SEC. 513. INCLUSION OF HOMESCHOOLED STUDENTS IN**
2 **JUNIOR RESERVE OFFICERS' TRAINING**
3 **CORPS UNITS.**

4 Section 2031 of title 10, United States Code, is
5 amended by adding at the end the following new sub-
6 section:

7 “(g)(1) Each public secondary educational institution
8 that maintains a unit under this section shall permit mem-
9 bership in the unit to homeschooled students residing in
10 the area served by the institution who are qualified for
11 membership in the unit (but for lack of enrollment in the
12 institution).

13 “(2) A student who is a member of a unit pursuant
14 to this subsection shall count toward the satisfaction by
15 the institution concerned of the requirement in subsection
16 (b)(1) relating to the minimum number of student mem-
17 bers in the unit necessary for the continuing maintenance
18 of the unit.”.

19 **SEC. 514. CLARIFICATION OF ELIGIBILITY TO SERVE AS**
20 **COMMANDER, MARINE FORCES RESERVE.**

21 (a) IN GENERAL.—Section 8084(b)(1) of title 10,
22 United States Code, is amended by striking “general offi-
23 cers of the Marine Corps (as defined in section 8001(2))”
24 and inserting “general officers of the Marine Corps Re-
25 serve”.

1 (b) EFFECTIVE DATE.—The amendment made by
2 subsection (a) shall take effect on the date that is one
3 year after the date of the enactment of this Act and shall
4 apply to appointments made after such date.

5 **SEC. 515. EXTENSION AND PERIODIC EVALUATION OF SUI-**
6 **CIDE PREVENTION AND RESILIENCE PRO-**
7 **GRAM FOR THE RESERVE COMPONENTS.**

8 Section 10219 of title 10, United States Code, is
9 amended—

10 (1) by redesignating subsection (g) as sub-
11 section (h);

12 (2) in subsection (h), as redesignated by para-
13 graph (1), by striking “2020” and inserting “2025”;
14 and

15 (3) by inserting after subsection (f) the fol-
16 lowing new subsection (g):

17 “(g) TRIENNIAL EVALUATION.—The Secretary shall
18 evaluate the program every third year beginning in 2022
19 until the program terminates to determine whether the
20 program effectively—

21 “(1) provides training and assistance under
22 subsections (b), (c), and (d); and

23 “(2) implements subsection (e).”.

1 **SEC. 516. AUTHORITY TO DEFER MANDATORY SEPARATION**
2 **AT AGE 68 OF OFFICERS IN MEDICAL SPE-**
3 **CIALTIES IN THE RESERVE COMPONENTS.**

4 Section 14703(b) of title 10, United States Code, is
5 amended—

6 (1) by striking “An” and inserting “(1) Subject
7 to paragraph (2), an”; and

8 (2) by adding at the end the following new
9 paragraph (2):

10 “(2) The Secretary concerned may, with the consent
11 of the officer, retain in an active status an officer in a
12 medical specialty described in subsection (a) beyond the
13 date described in paragraph (1) of this subsection if the
14 Secretary concerned determines that such retention is nec-
15 essary to the military department concerned. Each such
16 retention shall be made on a case-by-case basis and for
17 such period as the Secretary concerned determines appro-
18 priate.”.

19 **SEC. 517. MODERNIZATION OF INSPECTION AUTHORITIES**
20 **APPLICABLE TO THE NATIONAL GUARD.**

21 (a) MODERNIZATION OF INSPECTION AUTHORITIES
22 OF SECRETARIES OF THE ARMY AND AIR FORCE.—Sub-
23 section (a) of section 105 of title 32, United States Code,
24 is amended—

25 (1) in the matter preceding paragraph (1)—

1 (A) by striking “by him, the Secretary of
2 the Army shall have” and inserting “by such
3 Secretary, the Secretary of the Army and the
4 Secretary of the Air Force shall each have”;

5 (B) by striking “, if necessary,”; and

6 (C) by striking “the Regular Army” and
7 inserting “the Regular Army or the Regular Air
8 Force”;

9 (2) by striking “Army National Guard” each
10 place it appears and inserting “Army National
11 Guard or Air National Guard”; and

12 (3) by striking the flush matter following para-
13 graph (7).

14 (b) INSPECTION AUTHORITY OF CHIEF OF THE NA-
15 TIONAL GUARD BUREAU ON BEHALF OF SECRETARIES.—
16 Such section is further amended by adding at the end the
17 following new subsection:

18 “(c) The Chief of the National Guard Bureau may
19 have an inspection described in subsection (a) made by
20 inspectors general, or by commissioned officers of the
21 Army National Guard of the United States or the Air Na-
22 tional Guard of the United States detailed for that pur-
23 pose, on behalf of the Secretary of the Army or the Sec-
24 retary of the Air Force. Any such inspection may be made

1 only with the approval of the Secretary of the Army or
2 the Secretary of the Air Force, as applicable.”.

3 **SEC. 518. CONSULTATION WITH CHIEF OF THE NATIONAL**
4 **GUARD BUREAU IN THE APPOINTMENT OR**
5 **DESIGNATION OF NATIONAL GUARD PROP-**
6 **ERTY AND FISCAL OFFICERS.**

7 Section 708(a) of title 32, United States Code, is
8 amended in the first sentence by inserting “, in consulta-
9 tion with the Chief of the National Guard Bureau,” after
10 “shall”.

11 **SEC. 519. COAST GUARD JUNIOR RESERVE OFFICERS’**
12 **TRAINING CORPS.**

13 (a) IN GENERAL.—Chapter 3 of title 14, United
14 States Code, is amended by adding at the end the fol-
15 lowing new section:

16 **“§ 320. Coast Guard Junior Reserve Officers’ Training**
17 **Corps**

18 “(a) ESTABLISHMENT.—The Secretary of the depart-
19 ment in which the Coast Guard is operating may establish
20 and maintain a Junior Reserve Officers’ Training Corps,
21 organized into units, at public and private secondary edu-
22 cational institutions.

23 “(b) APPLICABILITY.—Except as provided in sub-
24 section (c), the provisions of chapter 102 of title 10 shall
25 apply to a Junior Reserve Officers’ Training Corps estab-

1 lished and maintained under this section in the same man-
2 ner that such provisions apply to the Junior Reserve Offi-
3 cers' Training Corps of each military department. For
4 purposes of the application of such provisions to this sec-
5 tion—

6 “(1) any reference in such provisions to a ‘mili-
7 tary department’ shall be treated as a reference to
8 the department in which the Coast Guard is oper-
9 ating; and

10 “(2) any reference in such provisions to a ‘Sec-
11 retary of a military department’, a ‘Secretary con-
12 cerned’, or the ‘Secretary of Defense’ shall be treat-
13 ed as a reference to the Secretary of the department
14 in which the Coast Guard is operating.

15 “(c) EXCEPTION.—The requirements of chapter 102
16 of title 10 shall not apply to a unit of the Junior Reserve
17 Officers' Training Corps established by the Secretary of
18 the department in which the Coast Guard is operating be-
19 fore the date of the enactment of this section unless the
20 Secretary determines it is appropriate to apply such re-
21 quirements to such unit.”.

22 (b) CLERICAL AMENDMENT.—The table of sections
23 at the beginning of such chapter is amended by adding
24 at the end the following new item:

“320. Coast Guard Junior Reserve Officers' Training Corps.”.

1 **SEC. 520. REPEAL OF REQUIREMENT FOR REVIEW OF CER-**
2 **TAIN ARMY RESERVE OFFICER UNIT VA-**
3 **CANCY PROMOTIONS BY COMMANDERS OF**
4 **ASSOCIATED ACTIVE DUTY UNITS.**

5 Section 1113 of the Army National Guard Combat
6 Readiness Reform Act of 1992 (Public Law 102–484; 10
7 U.S.C. 10105 note) is repealed.

8 **SEC. 520A. REPORT ON METHODS TO ENHANCE DOMESTIC**
9 **RESPONSE TO LARGE SCALE, COMPLEX AND**
10 **CATASTROPHIC DISASTERS.**

11 (a) IN GENERAL.—Not later than 180 days after the
12 date of the enactment of this Act, the Secretary of De-
13 fense, in consultation and coordination with the Federal
14 Emergency Management Agency, the National Security
15 Council, the Council of Governors, and the National Gov-
16 ernors Association, shall submit to the congressional de-
17 fense committees, the Committee on Homeland Security
18 of the House of Representatives, and the Committee on
19 Homeland Security and Governmental Affairs of the Sen-
20 ate a report on the plan of the Department to establish
21 policy and processes to implement the authority under sec-
22 tion 502 of title 32, United States Code. The report shall
23 include a detailed examination of the policy framework
24 consistent with existing authorities, identify major statu-
25 tory or policy impediments to implementation, and make
26 recommendations for legislation as appropriate.

1 (b) CONTENTS.—The report submitted under sub-
2 section (a) shall include a description of—

3 (1) the current policy and processes whereby
4 governors can request activation of the National
5 Guard under title 32, United States Code, as part
6 of the response to large scale, complex, catastrophic
7 disasters that are supported by the Federal Govern-
8 ment and, if no formal process exists in policy, the
9 Secretary of Defense shall provide a timeline and
10 plan to establish such a policy, including consulta-
11 tion with the Council of Governors and the National
12 Governors Association;

13 (2) the Secretary of Defense’s assessment, in-
14 formed by consultation with the Federal Emergency
15 Management Agency, the National Security Council,
16 the Council of Governors, and the National Gov-
17 ernors Association, regarding the sufficiency of cur-
18 rent authorities for the reimbursement of National
19 Guard and Reserve manpower during large scale,
20 complex, catastrophic disasters under title 10 and
21 title 32, United States Code, and specifically wheth-
22 er reimbursement authorities are sufficient to ensure
23 that military training and readiness are not de-
24 graded to fund disaster response, or whether invok-

1 ing such reimbursement authorities degrades the ef-
2 fectiveness of the Disaster Relief Fund;

3 (3) the Department of Defense's plan to ensure
4 there is parallel and consistent policy in the applica-
5 tion of the authorities granted under section 12304a
6 of title 10, United States Code, and section 502(f)
7 of title 32, United States Code, including—

8 (A) a description of the disparities between
9 benefits and protections under Federal law
10 versus State active duty;

11 (B) recommended solutions to achieve par-
12 ity at the Federal level; and

13 (C) recommended changes at the State
14 level, if appropriate; and

15 (4) the Department of Defense's plan to ensure
16 there is parity of benefits and protections for mili-
17 tary members employed as part of the response to
18 large scale, complex, catastrophic disasters under
19 title 32 or title 10, United States Code, and rec-
20 ommendations for addressing any shortfalls.

21 **SEC. 520B. REPORT AND BRIEFING ON THE SENIOR RE-**
22 **SERVE OFFICERS' TRAINING CORPS.**

23 (a) REPORT ON VARIOUS EXPANSIONS OF THE
24 CORPS.—Not later than one year after the date of the en-
25 actment of this Act, the Secretary of Defense shall submit

1 to the Committees on Armed Services of the Senate and
2 the House of Representatives a report setting forth the
3 following:

4 (1) An assessment of the feasibility and advis-
5 ability of distance learning programs for the Senior
6 Reserve Officers' Training Corps for students at
7 educational institutions who reside outside the viable
8 range for a cross-town program.

9 (2) An assessment of the feasibility and advis-
10 ability of expanding the eligibility of institutions au-
11 thorized to maintain a unit of the Senior Reserve
12 Officers' Training Corps to include community col-
13 leges.

14 (b) BRIEFING ON LONG-TERM EFFECTS ON THE
15 CORPS OF THE OPERATION OF CERTAIN RECENT PROHI-
16 BITIONS.—

17 (1) BRIEFING REQUIRED.—Not later than 180
18 days after the date of the enactment of this Act, the
19 Secretary of Defense shall brief the congressional
20 defense committees on the effects of the prohibitions
21 in section 8032 of the Department of Defense Ap-
22 propriations Act, 2019 (division A of Public Law
23 115–245) on the long-term viability of the Senior
24 Reserve Officers' Training Corps.

1 (2) ELEMENTS.—The matters addressed by the
2 briefing under paragraph (1) shall include an assess-
3 ment of the effects of the prohibitions described in
4 paragraph (1) on the following:

5 (A) Readiness.

6 (B) The efficient manning and administra-
7 tion of Senior Reserve Officers' Training Corps
8 units.

9 (C) The ability of the Armed Forces to
10 commission on a yearly basis the number and
11 quality of new officers they need and that are
12 representative of the nation as a whole.

13 (D) The availability of Senior Reserve Of-
14 ficers' Training Corps scholarships in rural
15 areas.

16 (E) Whether the Senior Reserve Officers'
17 Training Corps program produces officers rep-
18 resentative of the demographic and geographic
19 diversity of the United States, especially with
20 respect to urban areas, and whether restrictions
21 on establishing or disestablishing units of the
22 Corps affects the diversity of the officer corps
23 of the Armed Forces.

1 **SEC. 520C. SENSE OF CONGRESS ON INCREASE IN NUMBER**
2 **OF JUNIOR RESERVE OFFICERS' TRAINING**
3 **CORPS UNITS.**

4 It is the sense of Congress that the Junior Reserve
5 Officers' Training Corps was supported in the John S.
6 McCain National Defense Authorization Act for Fiscal
7 Year 2019 (Public Law 115–232) and should be increased
8 in fiscal year 2020 to include not fewer than 3,700 units
9 nationwide.

10 **Subtitle C—General Service Au-**
11 **thorities and Correction of Mili-**
12 **tary Records**

13 **SEC. 521. ADVICE AND COUNSEL OF TRAUMA EXPERTS IN**
14 **REVIEW BY BOARDS FOR CORRECTION OF**
15 **MILITARY RECORDS AND DISCHARGE RE-**
16 **VIEW BOARDS OF CERTAIN CLAIMS.**

17 (a) BOARDS FOR CORRECTION OF MILITARY
18 RECORDS.—Section 1552(g) of title 10, United States
19 Code, is amended—

20 (1) by inserting “(1)” after “(g)”; and

21 (2) by adding at the end the following new
22 paragraph:

23 “(2) If a board established under subsection (a)(1)
24 is reviewing a claim described in subsection (h), the board
25 shall seek advice and counsel in the review from a psychia-
26 trist, psychologist, or social worker with training on men-

1 tal health issues associated with post-traumatic stress dis-
2 order or traumatic brain injury or other trauma as speci-
3 fied in the current edition of the Diagnostic and Statistical
4 Manual of Mental Disorders published by the American
5 Psychiatric Association.

6 “(3) If a board established under subsection (a)(1)
7 is reviewing a claim in which sexual trauma, intimate part-
8 ner violence, or spousal abuse is claimed, the board shall
9 seek advice and counsel in the review from an expert in
10 trauma specific to sexual assault, intimate partner vio-
11 lence, or spousal abuse, as applicable.”.

12 (b) DISCHARGE REVIEW BOARDS.—Section
13 1553(d)(1) of such title is amended—

14 (1) by inserting “(A)” after “(1)”; and

15 (2) by adding at the end the following new sub-
16 paragraph;

17 “(B) In the case of a former member described in
18 paragraph (3)(B) who claims that the former member’s
19 post-traumatic stress disorder or traumatic brain injury
20 as described in that paragraph is based in whole or in
21 part on sexual trauma, intimate partner violence, or
22 spousal abuse, a board established under this section to
23 review the former member’s discharge or dismissal shall
24 seek advice and counsel in the review from a psychiatrist,
25 psychologist, or social worker with training on mental

1 health issues associated with post-traumatic stress dis-
2 order or traumatic brain injury or other trauma as speci-
3 fied in the current edition of the Diagnostic and Statistical
4 Manual of Mental Disorders published by the American
5 Psychiatric Association.”.

6 **SEC. 522. REDUCTION IN REQUIRED NUMBER OF MEMBERS**
7 **OF DISCHARGE REVIEW BOARDS.**

8 Section 1553(a) of title 10, United States Code, is
9 amended by striking “five” and inserting “not fewer than
10 three”.

11 **SECTION 523. ESTABLISHMENT OF PROCESS TO REVIEW A**
12 **REQUEST FOR UPGRADE OF DISCHARGE OR**
13 **DISMISSAL.**

14 (a) ESTABLISHMENT.—Chapter 79 of title 10,
15 United States Code, is amended by inserting after section
16 1553 the following new section 1553a:

17 **“§ 1553a. Review of a request for upgrade of dis-**
18 **charge or dismissal**

19 “(a) ESTABLISHMENT.—The Secretary of Defense
20 shall establish a process by which to conduct a final review
21 of a request for an upgrade in the characterization of a
22 discharge or dismissal.

23 “(b) CONSIDERATION; RECOMMENDATION.—(1)
24 Upon the request of a petitioner, the Secretary of Defense
25 shall review the findings and decisions of the boards estab-

1 lished under sections 1552 and 1553 of this title regarding
2 the final review of a request for an upgrade in the charac-
3 terization of a discharge or dismissal.

4 “(2) The Secretary of Defense may recommend that
5 the Secretary of the military department concerned up-
6 grade the characterization of the discharge or dismissal
7 of the petitioner if the Secretary of Defense determines
8 that such recommendation is appropriate after review
9 under paragraph (1).

10 “(c) DEFINITIONS.—In this section:

11 “(1) The term ‘final review of a request for an
12 upgrade in the characterization of a discharge or
13 dismissal’ means a request by a petitioner for an up-
14 grade to the characterization of a discharge or dis-
15 missal—

16 “(A) that was not granted under sections
17 1552 and 1553 of this title; and

18 “(B) regarding which the Secretary of De-
19 fense determines the petitioner has exhausted
20 all remedies available to the petitioner under
21 sections 1552 and 1553 of this title.

22 “(2) The term ‘petitioner’ means a member or
23 former member of the armed forces (or if the mem-
24 ber or former member is dead, the surviving spouse,
25 next of kin, or legal representative of the member or

1 former member) whose request for an upgrade to
2 the characterization of a discharge or dismissal was
3 not granted under sections 1552 and 1553 of this
4 title.”.

5 (b) TECHNICAL AND CONFORMING AMENDMENTS.—

6 (1) TABLE OF SECTIONS.—The table of sections
7 at the beginning of such chapter is amended by in-
8 serting after the item relating to section 1553 the
9 following new item:

“1553a. Review of a request for upgrade of discharge or dismissal.”.

10 (2) CONFORMING AMENDMENTS.—

11 (A) Section 1552(a)(4) of such title is
12 amended to read as follows:

13 “(4)(A) Subject to subparagraph (B), a correction
14 under this section is final and conclusive on all officers
15 of the United States except when procured by fraud.

16 “(B) If a board established under this section does
17 not grant a request for an upgrade to the characterization
18 of a discharge or dismissal, that declination may be con-
19 sidered under section 1553a of this title.”.

20 (B) Section 1553(b) of such title is amend-
21 ed—

22 (i) by inserting “(1)” before “A
23 board”; and

24 (ii) by adding at the end the following
25 new paragraph:

1 “(2) If a board established under this section does
2 not grant a request for an upgrade to the characterization
3 of a discharge or dismissal, that declination may be con-
4 sidered under section 1552 or section 1553a of this title,
5 as applicable.”.

6 (c) DEADLINE.—The Secretary of Defense shall im-
7 plement section 1553a of such title, as added by sub-
8 section (a), not later than January 1, 2021.

9 (d) RESOURCES.—In establishing and implementing
10 the process under such section 1553a, the Secretary of
11 Defense shall, to the maximum extent practicable, use ex-
12 isting organizations, boards, processes, and personnel of
13 the Department of Defense.

14 (e) REPORTING.—

15 (1) REPORT.—Not later than January 1, 2022,
16 the Secretary of Defense shall submit to the Com-
17 mittees on Armed Services of the Senate and the
18 House of Representatives a report regarding the
19 process established under such section 1553a. The
20 report shall include, with respect to considerations
21 under such process since implementation, the fol-
22 lowing:

23 (A) The number of requests considered.

24 (B) The number of upgrades to the char-
25 acterization of a discharge or dismissal granted

1 pursuant to such process, including the most
2 common reasons for such upgrades.

3 (C) The number of upgrades to the charac-
4 terization of a discharge or dismissal declined
5 pursuant to such process, including the most
6 common reasons for such declinations.

7 (2) ONLINE PUBLICATION.—On October 1,
8 2022, and annually thereafter, the Secretary shall
9 publish the information described in paragraph (1)
10 with regards to the immediately preceding fiscal year
11 on a website of the Department of Defense that is
12 accessible by the public.

13 **SEC. 524. PROHIBITION ON REDUCTION IN THE NUMBER OF**
14 **PERSONNEL ASSIGNED TO DUTY WITH A**
15 **SERVICE REVIEW AGENCY.**

16 (a) PROHIBITION.—Section 1559(a) of title 10,
17 United States Code, is amended—

18 (1) by striking “December 31, 2019” and in-
19 serting “December 31, 2025”;

20 (2) by striking “that agency until—” and in-
21 serting “that agency.”; and

22 (3) by striking subsections (1) and (2).

23 (b) REPORT.—

24 (1) REPORT REQUIRED.—Not later than 180
25 days after the enactment of this Act, the Secretary

1 of each military department shall submit a report to
2 the Committees on Armed Services of the Senate
3 and House of Representatives that details a plan
4 to—

5 (A) reduce the backlog of applications be-
6 fore the service review agency of the military
7 department concerned; and

8 (B) maintain the resources required to
9 meet the timeliness standards for disposition of
10 applications before the Corrections Boards
11 under section 1557 of title 10, United States
12 Code, not later than October 1, 2021.

13 (2) ELEMENTS.—Each report under this sub-
14 section shall include the following:

15 (A) A description of the current backlog of
16 applications before the service review agency of
17 the military department concerned.

18 (B) The number of personnel required to
19 meet the deadline described in paragraph
20 (1)(B).

21 (C) The plan of the Secretary concerned to
22 modernize the application and review system of
23 the service review agency of the military depart-
24 ment concerned.

1 **SEC. 525. TRAINING OF MEMBERS OF BOARDS FOR COR-**
2 **RECTION OF MILITARY RECORDS AND DIS-**
3 **CHARGE REVIEW BOARDS ON SEXUAL TRAU-**
4 **MA, INTIMATE PARTNER VIOLENCE, SPOUSAL**
5 **ABUSE, AND RELATED MATTERS.**

6 (a) BOARDS FOR CORRECTION OF MILITARY
7 RECORDS.—The curriculum of training for members of
8 boards for the correction of military records under section
9 534(c) of the National Defense Authorization Act for Fis-
10 cal Year 2017 (10 U.S.C. 1552 note) shall include train-
11 ing on each of the following:

- 12 (1) Sexual trauma.
- 13 (2) Intimate partner violence.
- 14 (3) Spousal abuse.
- 15 (4) The various responses of individuals to
16 trauma.

17 (b) DISCHARGE REVIEW BOARDS.—

18 (1) IN GENERAL.—Each Secretary concerned
19 shall develop and provide training for members of
20 discharge review boards under section 1553 of title
21 10, United States Code, that are under the jurisdic-
22 tion of such Secretary on each of the following:

- 23 (A) Sexual trauma.
- 24 (B) Intimate partner violence.
- 25 (C) Spousal abuse.

1 (D) The various responses of individuals to
2 trauma.

3 (2) UNIFORMITY OF TRAINING.—The Secretary
4 of Defense and the Secretary of Homeland Security
5 shall jointly ensure that the training developed and
6 provided pursuant to this subsection is, to the extent
7 practicable, uniform.

8 (3) SECRETARY CONCERNED DEFINED.—In this
9 subsection, the term “Secretary concerned” has the
10 meaning given that term in section 101(a)(9) of title
11 10, United States Code.

12 **SEC. 526. TIME REQUIREMENTS FOR CERTIFICATION OF**
13 **HONORABLE SERVICE.**

14 The Secretary of Defense shall publish regulations
15 for submission and processing of a completed United
16 States Citizenship and Immigration Services Form N–
17 426, by a member of the Armed Forces. Such regulations
18 shall designate the appropriate level for the certifying offi-
19 cer as well as establish time requirements for the form
20 to be returned to the member of the Armed Forces.

21 **SEC. 527. CORRECTION OF CERTAIN DISCHARGE CHARAC-**
22 **TERIZATIONS.**

23 (a) IN GENERAL.—In accordance with this section,
24 and in a manner that is consistent across the military de-
25 partments to the greatest extent practicable, the appro-

1 piate board shall, at the request of a covered member or
2 the authorized representative of a covered member—

3 (1) review the discharge characterization of that
4 covered member; and

5 (2) change the discharge characterization of
6 that covered member to honorable if the appropriate
7 board determines such change to be appropriate
8 after review under paragraph (1).

9 (b) APPEAL.—A covered member or the authorized
10 representative of that covered member may seek review
11 of a decision by the appropriate board not to change the
12 discharge characterization of that covered member. Such
13 review may be made pursuant to section 1552 of title 10,
14 United States Code, section 1553 of such title, or any
15 other process established by the Secretary of Defense for
16 such purpose.

17 (c) CHANGE OF RECORDS.—For each covered mem-
18 ber whose discharge characterization is changed under
19 subsection (a) or (b), the Secretary of the military depart-
20 ment concerned shall issue to the covered member or the
21 authorized representative of the covered member a cor-
22 rected Certificate of Release or Discharge from Active
23 Duty (DD Form 214), or other like form regularly used
24 by an Armed Force that—

1 (1) reflects the upgraded discharge character-
2 ization of the covered member; and

3 (2) does not reflect the sexual orientation of the
4 covered member or the original stated reason for the
5 discharge or dismissal of that covered member.

6 (d) DEFINITIONS.—In this section:

7 (1) The term “appropriate board” means a
8 board for the correction of military or naval records
9 under section 1552 of title 10, United States Code,
10 or a discharge review board under section 1553 of
11 such title, as the case may be.

12 (2) The term “authorized representative”
13 means an heir or legal representative of a covered
14 member.

15 (3) The term “covered member” means any
16 former member of the Armed Forces who was dis-
17 charged from the Armed Forces because of the sex-
18 ual orientation of that member.

19 (4) The term “discharge characterization”
20 means the characterization assigned to the service of
21 a covered member on the discharge or dismissal of
22 that covered member from service in the Armed
23 Forces.

1 **SEC. 528. DEVELOPMENT OF GUIDELINES FOR USE OF UN-**
2 **OFFICIAL SOURCES OF INFORMATION TO DE-**
3 **TERMINE ELIGIBILITY OF MEMBERS AND**
4 **FORMER MEMBERS OF THE ARMED FORCES**
5 **FOR DECORATIONS WHEN THE SERVICE**
6 **RECORDS ARE INCOMPLETE BECAUSE OF**
7 **DAMAGE TO THE OFFICIAL RECORD.**

8 (a) **GUIDELINES REQUIRED.**—The Secretary of De-
9 fense shall develop guidelines regarding the use by the
10 Secretaries of the military departments of unofficial
11 sources of information, including eyewitness statements,
12 to determine the eligibility of a member or former member
13 of the Armed Forces for decorations when the service
14 records of the member are incomplete because of damage
15 to the records as a result of the 1973 fire at the National
16 Personnel Records Center in St. Louis, Missouri, or any
17 subsequent incident while the records were in the posses-
18 sion of the Department of Defense.

19 (b) **TIME FOR COMPLETION.**—The Secretary of De-
20 fense shall complete development of the guidelines not
21 later than one year after the date of the enactment of this
22 Act.

1 **SEC. 529. STRATEGIC PLAN FOR DIVERSITY AND INCLU-**
2 **SION.**

3 (a) **PLAN REQUIRED.**—The Secretary of Defense
4 shall design and implement a five-year strategic plan for
5 diversity and inclusion in the Department of Defense.

6 (b) **ELEMENTS.**—The strategic plan under this sec-
7 tion—

8 (1) shall incorporate existing efforts to promote
9 diversity and inclusion within the Department; and

10 (2) may not conflict with the objectives of the
11 2018 National Military Strategy.

12 (c) **DEADLINE.**—The Secretary shall implement the
13 strategic plan under this section not later than one year
14 after the date of the enactment of this Act.

15 **SEC. 530. STUDY REGARDING SCREENING INDIVIDUALS**
16 **WHO SEEK TO ENLIST IN THE ARMED**
17 **FORCES.**

18 (a) **STUDY.**—The Secretary of Defense shall study
19 the feasibility of, in background investigations and secu-
20 rity and suitability screenings of individuals who seek to
21 enlist in the Armed Forces—

22 (1) screening for extremist and gang-related ac-
23 tivity; and

24 (2) using the following resources of the Federal
25 Bureau of Investigation:

1 (A) The Tattoo and Graffiti Identification
2 Program.

3 (B) The National Gang Intelligence Cen-
4 ter.

5 (b) REPORT REQUIRED.—Not later than 180 days
6 after the date of the enactment of this Act, the Secretary
7 shall submit an unclassified report in writing to the Com-
8 mittees on Armed Services of the Senate and House of
9 Representatives containing conclusions of the Secretary
10 regarding the study under subsection (a).

11 **SEC. 530A. FEASIBILITY STUDY REGARDING NOTIFICATION**
12 **TO SECRETARY OF HOMELAND SECURITY OF**
13 **HONORABLE DISCHARGES OF NON-CITIZENS.**

14 (a) STUDY REQUIRED.—The Secretary of Defense, in
15 consultation with the Secretary of Homeland Security,
16 shall study the feasibility of providing the Secretary of
17 Homeland Security with a copy of the Certificate of Re-
18 lease or Discharge from Active Duty (DD Form 214) or
19 National Guard Report of Separation and Record of Serv-
20 ice (NGB-22) for each individual who is not a citizen of
21 the United States who is honorably discharged from the
22 Armed Forces so the Secretary of Homeland Security may
23 note such discharge in an I-213 Record of Deportable/
24 Inadmissible Alien for that individual.

1 (b) REPORT.—Not later than 180 days after the date
2 of the enactment of this Act, the Secretary of Defense
3 shall submit to the committees on Armed Services of the
4 Senate and House of Representatives a report regarding
5 the results of the study under this section.

6 **SEC. 530B. SENSE OF CONGRESS REGARDING ACCESSION**
7 **PHYSICALS.**

8 It is the sense of Congress that the Secretary of De-
9 fense should explore alternatives to centralized accession
10 physicals at Military Entrance Processing Stations, in-
11 cluding conducting physicals through community health
12 care providers, in order to reduce transportation costs, in-
13 crease efficiency in processing times, and free recruiters
14 to focus on the core of the recruiting mission.

15 **Subtitle D—Military Justice**

16 **SEC. 531. EXPANSION OF PRE-REFERRAL MATTERS RE-**
17 **VIEWABLE BY MILITARY JUDGES AND MILI-**
18 **TARY MAGISTRATES IN THE INTEREST OF EF-**
19 **FICIENCY IN MILITARY JUSTICE.**

20 (a) IN GENERAL.—Subsection (a) of section 830a of
21 title 10, United States Code (article 30a of the Uniform
22 Code of Military Justice), is amended by striking para-
23 graphs (1) and (2) and inserting the following new para-
24 graphs:

1 “(1) The President shall prescribe regulations for
2 matters relating to proceedings conducted before referral
3 of charges and specifications to court-martial for trial, in-
4 cluding the following:

5 “(A) Pre-referral investigative subpoenas.

6 “(B) Pre-referral warrants or orders for elec-
7 tronic communications.

8 “(C) Pre-referral matters referred by an appel-
9 late court.

10 “(D) Pre-referral matters under subsection (c)
11 or (e) of section 806b of this title (article 6b).

12 “(E) Pre-referral matters relating to the fol-
13 lowing:

14 “(i) Pre-trial confinement of an accused.

15 “(ii) The mental capacity or mental re-
16 sponsibility of an accused.

17 “(iii) A request for an individual military
18 counsel.

19 “(2) In addition to the matters specified in paragraph
20 (1), the regulations prescribed under that paragraph
21 shall—

22 “(A) set forth the matters that a military judge
23 may rule upon in such proceedings;

24 “(B) include procedures for the review of such
25 rulings;

1 “(C) include appropriate limitations to ensure
2 that proceedings under this section extend only to
3 matters that would be subject to consideration by a
4 military judge in a general or special court-martial;
5 and

6 “(D) provide such limitations on the relief that
7 may be ordered under this section as the President
8 considers appropriate.”.

9 (b) CONFORMING AND CLERICAL AMENDMENTS.—

10 (1) HEADING AMENDMENT.—The heading of
11 such section is amended to read as follows:

12 **“§ 830a. Art 30a. Proceedings conducted before refer-**
13 **ral”.**

14 (2) CLERICAL AMENDMENT.—The table of sec-
15 tions at the beginning of subchapter VI of chapter
16 47 of title 10, United States Code (the Uniform
17 Code of Military Justice), is amended by striking the
18 item relating to section 830a (article 30a) and in-
19 serting the following new item:

 “830a. 30a. Proceedings conducted before referral.”.

20 **SEC. 532. COMMAND INFLUENCE.**

21 (a) IN GENERAL.—Section 837 of title 10, United
22 States Code (article 37 of the Uniform Code of Military
23 Justice), is amended—

1 (1) by striking “**Unlawfully influencing**
2 **action of court**” and inserting “**Command in-**
3 **fluence**”;

4 (2) by amending subsection (a) to read as fol-
5 lows:

6 “(a)(1) No court-martial convening authority, nor
7 any other commanding officer, may censure, reprimand,
8 or admonish the court or any member, military judge, or
9 counsel thereof, with respect to the findings or sentence
10 adjudged by the court, or with respect to any other exer-
11 cise of its or his functions in the conduct of the pro-
12 ceeding.

13 “(2) No court-martial convening authority, nor any
14 other commanding officer, may deter or attempt to deter
15 a potential witness from participating in the investigatory
16 process or testifying at a court-martial. The denial of a
17 request to travel at government expense or refusal to make
18 a witness available shall not by itself constitute unlawful
19 command influence.

20 “(3) No person subject to this chapter may attempt
21 to coerce or, by any unauthorized means, attempt to influ-
22 ence the action of a court-martial or any other military
23 tribunal or any member thereof, in reaching the findings
24 or sentence in any case, or the action of any convening,
25 approving, or reviewing authority or preliminary hearing

1 officer with respect to such acts taken pursuant to this
2 chapter as prescribed by the President.

3 “(4) Conduct that does not constitute a violation of
4 paragraphs (1) through (3) may include, for example—

5 “(A) general instructional or informational
6 courses in military justice if such courses are de-
7 signed solely for the purpose of instructing persons
8 on the substantive and procedural aspects of courts-
9 martial;

10 “(B) statements regarding criminal activity or a
11 particular criminal offense that do not advocate a
12 particular disposition, or a particular court-martial
13 finding or sentence, or do not relate to a particular
14 accused; or

15 “(C) statements and instructions given in open
16 court by the military judge or counsel.

17 “(5)(A) Notwithstanding paragraphs (1) through (3),
18 but subject to subparagraph (B)—

19 “(i) a superior convening authority or officer
20 may generally discuss matters to consider regarding
21 the disposition of alleged violations of this chapter
22 with a subordinate convening authority or officer;
23 and

24 “(ii) a subordinate convening authority or offi-
25 cer may seek advice from a superior convening au-

1 authority or officer regarding the disposition of an al-
2 leged offense under this chapter.

3 “(B) No superior convening authority or officer may
4 direct a subordinate convening authority or officer to
5 make a particular disposition in a specific case or other-
6 wise substitute the discretion of such authority or such
7 officer for that of the subordinate convening authority or
8 officer.”;

9 (3) in subsection (b)—

10 (A) by striking “advanced, in grade” and
11 inserting “advanced in grade”; and

12 (B) by striking “accused before a court-
13 martial” and inserting “person in a court-mar-
14 tial proceeding”; and

15 (4) by adding at the end the following new sub-
16 sections:

17 “(c) No finding or sentence of a court-martial may
18 be held incorrect on the ground of a violation of this sec-
19 tion unless the violation materially prejudices the substan-
20 tial rights of the accused.

21 “(d)(1) A superior convening authority or com-
22 manding officer may withhold the authority of a subordi-
23 nate convening authority or officer to dispose of offenses
24 in individual cases, types of cases, or generally.

1 “(2) Except as provided in paragraph (1) or as other-
2 wise authorized by this chapter, a superior convening au-
3 thority or commanding officer may not limit the discretion
4 of a subordinate convening authority or officer to act with
5 respect to a case for which the subordinate convening au-
6 thority or officer has authority to dispose of the offenses.”.

7 (b) CLERICAL AMENDMENT.—The table of sections
8 at the beginning subchapter VII of chapter 47 of title 10,
9 United States Code (the Uniform Code of Military Jus-
10 tice), is amended by striking the item relating to section
11 837 (article 37) and inserting the following new item:

“837. Art. 37. Command influence.”.

12 (c) EFFECTIVE DATE.—The amendments made by
13 subsections (a) and (b) shall take effect on the date of
14 the enactment of this Act and shall apply with respect to
15 violations of section 837 of title 10, United States Code
16 (article 37 of the Uniform Code of Military Justice), com-
17 mitted on or after such date.

18 **SEC. 533. STATUTE OF LIMITATIONS FOR CERTAIN OF-**
19 **FENSES.**

20 (a) IN GENERAL.—Section 843 of title 10, United
21 States Code (article 43 of the Uniform Code of Military
22 Justice), is amended—

23 (1) in subsection (a), by inserting “maiming of
24 a child, kidnapping of a child,” after “sexual assault
25 of a child,”; and

1 (2) in subsection (b)(2)(B)—

2 (A) by striking clauses (ii) and (iv); and

3 (B) by redesignating clause (iii) as clause

4 (ii).

5 (b) **EFFECTIVE DATE.**—The amendments made by
6 subsection (a) shall take effect on the date of the enact-
7 ment of this Act and shall apply with respect to the pros-
8 ecution of offenses committed before, on, or after the date
9 of the enactment of this Act if the applicable limitation
10 period has not yet expired.

11 **SEC. 534. PUBLIC ACCESS TO DOCKETS, FILINGS, AND**
12 **COURT RECORDS OF COURTS-MARTIAL OR**
13 **OTHER RECORDS OF TRIAL OF THE MILI-**
14 **TARY JUSTICE SYSTEM.**

15 (a) **IN GENERAL.**—Section 940a of title 10, United
16 States Code (article 140a of the Uniform Code of Military
17 Justice), is amended—

18 (1) by striking “The Secretary of Defense” and
19 inserting “(a) **IN GENERAL.**—The Secretary of De-
20 fense, in consultation with the Secretary of Home-
21 land Security,”;

22 (2) in subsection (a), as designated by para-
23 graph (1)—

24 (A) in the matter preceding paragraph (1),
25 by inserting “(including with respect to the

1 Coast Guard)” after “military justice system”;
2 and

3 (B) in paragraph (4), by inserting “public”
4 before “access to docket information”; and
5 (3) by adding at the end the following new sub-
6 sections:

7 “(b) PROTECTION OF CERTAIN PERSONALLY IDEN-
8 TIFIABLE INFORMATION.—Records of trial, docket infor-
9 mation, filings, and other records made publicly accessible
10 in accordance with the uniform standards and criteria for
11 conduct established by the Secretary under subsection (a)
12 shall restrict access to personally identifiable information
13 of minors and victims of crime (including victims of sexual
14 assault and domestic violence), as practicable to the extent
15 such information is restricted in electronic filing systems
16 of Federal and State courts.

17 “(c) INAPPLICABILITY TO CERTAIN DOCKETS AND
18 RECORDS.—Nothing in this section shall be construed to
19 provide public access to docket information, filings, or
20 records that are classified, subject to a judicial protective
21 order, or ordered sealed.”.

22 (b) EXISTING STANDARDS AND CRITERIA.—The Sec-
23 retary of Homeland Security shall apply to the Coast
24 Guard the standards and criteria for conduct established
25 by the Secretary of Defense under section 940a of title

1 10, United States Code (article 140a of the Uniform Code
2 of Military Justice), as in effect on the day before the date
3 of the enactment of this Act, until such time as the Sec-
4 retary of Defense, in consultation with the Secretary of
5 Homeland Security, prescribes revised standards and cri-
6 teria for conduct under such section that implement the
7 amendments made by subsection (a) of this section.

8 **SEC. 535. EXTENSION OF DEFENSE ADVISORY COMMITTEE**
9 **ON INVESTIGATION, PROSECUTION, AND DE-**
10 **FENSE OF SEXUAL ASSAULT IN THE ARMED**
11 **FORCES.**

12 Section 546(f)(1) of the Carl Levin and Howard P.
13 “Buck” McKeon National Defense Authorization Act for
14 Fiscal Year 2015 (10 U.S.C. 1561 note) is amended by
15 striking “five” and inserting “10”.

16 **SEC. 536. AUTHORITY FOR RETURN OF PERSONAL PROP-**
17 **ERTY TO VICTIMS OF SEXUAL ASSAULT WHO**
18 **FILE A RESTRICTED REPORT BEFORE CON-**
19 **CLUSION OF RELATED PROCEEDINGS.**

20 Section 586 of the National Defense Authorization
21 Act for Fiscal Year 2012 (10 U.S.C. 1561 note) is amend-
22 ed—

23 (1) by redesignating subsection (f) as sub-
24 section (e);

1 (2) in subsection (e), as so redesignated, in the
2 subsection heading, by inserting “IN UNRESTRICTED
3 REPORTING CASES” after “PROCEEDINGS”; and

4 (3) by adding at the end the following new sub-
5 section:

6 “(f) RETURN OF PERSONAL PROPERTY IN RE-
7 STRICTED REPORTING CASES.—(1) The Secretary of De-
8 fense shall prescribe procedures under which a victim who
9 files a restricted report on an incident of sexual assault
10 may request, at any time, the return of any personal prop-
11 erty of the victim obtained as part of the sexual assault
12 forensic examination.

13 “(2) The procedures shall ensure that—

14 “(A) a request of a victim under paragraph (1)
15 may be made on a confidential basis and without af-
16 fecting the restricted nature of the restricted report;
17 and

18 “(B) at the time of the filing of the restricted
19 report, a Sexual Assault Response Coordinator or
20 Sexual Assault Prevention and Response Victim Ad-
21 vocate—

22 “(i) informs the victim that the victim may
23 request the return of personal property as de-
24 scribed in paragraph (1); and

1 “(ii) advises the victim that such a request
2 for the return of personal property may nega-
3 tively impact a subsequent case adjudication, if
4 the victim later decides to convert the restricted
5 report to an unrestricted report.

6 “(3) Except with respect to personal property re-
7 turned to a victim under this subsection, nothing in this
8 subsection shall affect the requirement to retain a sexual
9 assault forensic examination (SAFE) kit for the period
10 specified in subsection (c)(4)(A).”.

11 **SEC. 537. GUIDELINES ON SENTENCES FOR OFFENSES**
12 **COMMITTED UNDER THE UNIFORM CODE OF**
13 **MILITARY JUSTICE.**

14 (a) DEVELOPMENT OF GUIDELINES.—Not later than
15 the date specified in subsection (d), the Secretary of De-
16 fense shall develop nonbinding guidelines on sentences for
17 offenses under chapter 47 of title 10, United States Code
18 (the Uniform Code of Military Justice). The guidelines
19 shall provide the sentencing authority with a suggested
20 range of punishments, including suggested ranges of con-
21 finement, that will generally be appropriate for a violation
22 of each offense under such chapter.

23 (b) SENTENCING DATA.—In developing the guide-
24 lines for sentences under subsection (a), the Secretary of
25 Defense shall take into account the sentencing data col-

1 lected by the Military Justice Review Panel pursuant to
2 section 946(f)(2) of title 10, United States Code (article
3 146(f)(2) of the Uniform Code of Military Justice).

4 (c) SUBMITTAL TO CONGRESS.—Not later than the
5 date specified in subsection (d), the Secretary of Defense
6 shall submit to the Committees on Armed Services of the
7 Senate and the House of Representatives—

8 (1) the guidelines for sentences developed under
9 subsection (a); and

10 (2) an assessment of the feasibility and advis-
11 ability of implementing such guidelines in panel sen-
12 tencing cases.

13 (d) DATE SPECIFIED.—The date specified in this
14 subsection is the date that is not later than one year after
15 the date on the which the first report of the Military Jus-
16 tice Review Panel is submitted to the Committees on
17 Armed Services of the Senate and the House of Represent-
18 atives pursuant to section 946(f)(5) of title 10, United
19 States Code (article 146(f)(5) of the Uniform Code of
20 Military Justice).

1 **SEC. 538. NOTIFICATION OF SIGNIFICANT EVENTS AND**
2 **DOCUMENTATION OF PREFERENCE FOR**
3 **PROSECUTION JURISDICTION FOR VICTIMS**
4 **OF SEXUAL ASSAULT.**

5 (a) NOTIFICATION TO VICTIMS OF EVENTS IN MILI-
6 TARY JUSTICE PROCESS.—

7 (1) NOTIFICATION REQUIRED.—A member of
8 the Armed Forces who is the victim of an alleged
9 sexual assault by another member of the Armed
10 Forces shall receive notification of each significant
11 event in the military justice process that relates to
12 the investigation, prosecution, and confinement of
13 such other member for such assault.

14 (2) DOCUMENTATION.—Appropriate docu-
15 mentation of each notification made pursuant to
16 paragraph (1) shall be created and maintained in an
17 appropriate system of records of the military depart-
18 ment concerned.

19 (b) DOCUMENTATION OF VICTIM'S PREFERENCE FOR
20 PROSECUTION JURISDICTION.—In the case of a member
21 of the Armed Forces who is the victim of an alleged sexual
22 assault committed by another member of the Armed
23 Forces who is subject to prosecution for such offense both
24 by court-martial under chapter 47 of title 10, United
25 States Code (the Uniform Code of Military Justice), and
26 by a civilian court under Federal or State law, appropriate

1 documentation of the preference, if any, of such victim for
2 prosecution of such offense by court-martial or by a civil-
3 ian court as provided for by Rule for Courts-Martial
4 306(e) (as set forth in the Manual for Courts-Martial,
5 2019 edition, or any successor rule), shall be created and
6 maintained in an appropriate system of records of the
7 military department concerned.

8 (c) REGULATIONS.—Not later than 180 days after
9 the date of the enactment of this Act, the Secretary of
10 Defense shall prescribe regulations implementing this sec-
11 tion.

12 **SEC. 539. INCREASE IN NUMBER OF DIGITAL FORENSIC EX-**
13 **AMINERS FOR CERTAIN MILITARY CRIMINAL**
14 **INVESTIGATIVE ORGANIZATIONS.**

15 (a) IN GENERAL.—Each Secretary of a military de-
16 partment shall take appropriate actions to increase the
17 number of digital forensic examiners in each military
18 criminal investigative organization specified in subsection
19 (b) under the jurisdiction of such Secretary by not fewer
20 than 10 from the authorized number of such examiners
21 for such organization as of September 30, 2019.

22 (b) MILITARY CRIMINAL INVESTIGATIVE ORGANIZA-
23 TIONS.—The military criminal investigative organizations
24 specified in this subsection are the following:

1 (1) The Army Criminal Investigation Com-
2 mand.

3 (2) The Naval Criminal Investigative Service.

4 (3) The Air Force Office of Special Investiga-
5 tions.

6 (c) FUNDING.—Funds for additional digital forensic
7 examiners as required by subsection (a) for fiscal year
8 2020, including for compensation, initial training, and
9 equipment, shall be derived from amounts authorized to
10 be appropriated for that fiscal year for the Armed Force
11 concerned for operation and maintenance.

12 **SEC. 540. INCREASE IN INVESTIGATIVE PERSONNEL AND**
13 **VICTIM WITNESS ASSISTANCE PROGRAM LI-**
14 **AISONS.**

15 (a) MILITARY CRIMINAL INVESTIGATIVE SERV-
16 ICES.—Not later than one year after the date of the enact-
17 ment of this Act, the Secretary of each military depart-
18 ment shall increase the number of personnel assigned to
19 the military criminal investigative services of the depart-
20 ment with the goal of ensuring, to the extent practicable,
21 that the investigation of any sex-related offense is com-
22 pleted not later than six months after the date on which
23 the investigation is initiated. An investigation shall be con-
24 sidered completed for purposes of the preceding sentence
25 when the active phase of the investigation is sufficiently

1 complete to enable the appropriate authority to reach a
2 decision with respect to the disposition of charges for the
3 sex-related offense.

4 (b) VICTIM WITNESS ASSISTANCE PROGRAM LIAI-
5 SONS.—Not later than one year after the date of the en-
6 actment of this Act, the Secretary of each military depart-
7 ment shall increase the number of personnel serving as
8 Victim Witness Assistance Program liaisons to address
9 personnel shortages in the Victim Witness Assistance Pro-
10 gram.

11 (c) RULE OF CONSTRUCTION.—Nothing in this sec-
12 tion shall be construed to create any right or benefit, sub-
13 stantive or procedural, enforceable at law or in equity by
14 any party against the United States, its departments,
15 agencies, or entities, its officers, employees, or agents, or
16 any other person.

17 **SEC. 540A. TRAINING FOR SEXUAL ASSAULT INITIAL DIS-**
18 **POSITION AUTHORITIES ON EXERCISE OF**
19 **DISPOSITION AUTHORITY FOR SEXUAL AS-**
20 **SAULT AND COLLATERAL OFFENSES.**

21 (a) IN GENERAL.—The training for sexual assault
22 initial disposition authorities on the exercise of disposition
23 authority under chapter 47 of title 10, United States Code
24 (the Uniform Code of Military Justice), shall include com-
25 prehensive training on the exercise of disposition authority

1 with respect to cases for which disposition authority is
2 withheld to such authorities pursuant to the memorandum
3 described in subsection (b) for the purpose of promoting
4 confidence and trust in the military justice process with
5 respect to such cases.

6 (b) MEMORANDUM DESCRIBED.—The memorandum
7 described in this subsection is the memorandum of the
8 Secretary of Defense titled “Withholding Initial Disposi-
9 tion Authority Under the Uniform Code of Military Jus-
10 tice in Certain Sexual Assault Cases” and dated April 20,
11 2012, or any successor memorandum.

12 **SEC. 540B. TRAINING FOR COMMANDERS IN THE ARMED**
13 **FORCES ON THEIR ROLE IN ALL STAGES OF**
14 **MILITARY JUSTICE IN CONNECTION WITH**
15 **SEXUAL ASSAULT.**

16 (a) IN GENERAL.—The training provided com-
17 manders in the Armed Forces shall include comprehensive
18 training on the role of commanders in all stages of mili-
19 tary justice in connection with sexual assaults by members
20 of the Armed Forces.

21 (b) ELEMENTS TO BE COVERED.—The training pro-
22 vided pursuant to subsection (a) shall include training on
23 the following:

24 (1) The role of commanders in each stage of
25 the military justice process in connection with sexual

1 assault committed by a member of the Armed
2 Forces, including investigation and prosecution.

3 (2) The role of commanders in assuring that
4 victims of sexual assault described in paragraph (1)
5 are informed of, and have the opportunity to obtain,
6 assistance available for victims of sexual assault by
7 law.

8 (3) The role of commanders in assuring that
9 victims of sexual assault described in paragraph (1)
10 are afforded the rights and protections available to
11 victims by law.

12 (4) The role of commanders in preventing retal-
13 iation against victims, their family members, wit-
14 nesses, first responders, and bystanders for their
15 their complaints, statements, testimony, and status
16 in connection with sexual assault described in para-
17 graph (1), including the role of commanders in en-
18 suring that subordinates in the command are aware
19 of their responsibilities in preventing such retalia-
20 tion.

21 (5) The role of commanders in establishing and
22 maintaining a healthy command climate in connec-
23 tion with reporting on sexual assault described in
24 paragraph (1), and in the response of the com-
25 mander, subordinates in the command, and other

1 personnel in the command to such sexual assault,
2 such reporting, and the military justice process in
3 connection with such sexual assault.

4 (6) Any other matters on the role of com-
5 manders in connection with sexual assault described
6 in paragraph (1) that the Secretary of Defense con-
7 siders appropriate for purposes of this section.

8 (c) INCORPORATION OF BEST PRACTICES.—

9 (1) IN GENERAL.—The training provided pur-
10 suant to subsection (a) shall incorporate best prac-
11 tices on all matters covered by the training.

12 (2) IDENTIFICATION OF BEST PRACTICES.—The
13 Secretaries of the military departments shall, acting
14 through the training and doctrine commands of the
15 Armed Forces, undertake from time to time surveys
16 and other reviews of the matters covered by the
17 training provided pursuant to subsection (a) in order
18 to identify and incorporate into such training the
19 most current practicable best practices on such mat-
20 ters.

21 (d) UNIFORMITY.—The Secretary of Defense shall
22 ensure that the training provided pursuant to subsection
23 (a) is, to the extent practicable, uniform across the Armed
24 Forces.

1 **SEC. 540C. TIMELY DISPOSITION OF NONPROSECUTABLE**
2 **SEX-RELATED OFFENSES.**

3 (a) **POLICY REQUIRED.**—Not later than 180 days
4 after the date of the enactment of this Act, the Secretary
5 of Defense shall develop and implement a policy to ensure
6 the timely disposition of nonprosecutable sex-related of-
7 fenses.

8 (b) **NONPROSECUTABLE SEX-RELATED OFFENSE**
9 **DEFINED.**—In this section, the term “nonprosecutable
10 sex-related offense” means an alleged sex-related offense
11 (as that term is defined in section 1044e(g) of title 10,
12 United States Code) that a court-martial convening au-
13 thority has declined to refer for trial by a general or spe-
14 cial court-martial under chapter 47 of title 10, United
15 States Code (the Uniform Code of Military Justice), due
16 to a determination that there is insufficient evidence to
17 support prosecution of the sex-related offense.

18 **SEC. 540D. DEPARTMENT OF DEFENSE-WIDE POLICY AND**
19 **MILITARY DEPARTMENT-SPECIFIC PRO-**
20 **GRAMS ON REINVIGORATION OF THE PRE-**
21 **VENTION OF SEXUAL ASSAULT INVOLVING**
22 **MEMBERS OF THE ARMED FORCES.**

23 (a) **POLICY REQUIRED.**—Not later than 180 days
24 after the date of the enactment of this Act, the Secretary
25 of Defense shall develop and issue a comprehensive policy
26 for the Department of Defense to reinvigorate the preven-

1 tion of sexual assault involving members of the Armed
2 Forces.

3 (b) POLICY ELEMENTS.—

4 (1) IN GENERAL.—The policy required by sub-
5 section (a) shall include the following:

6 (A) Education and training for members of
7 the Armed Forces on the prevention of sexual
8 assault.

9 (B) Elements for programs designed to en-
10 courage and promote healthy relationships
11 among members of the Armed Forces.

12 (C) Elements for programs designed to
13 empower and enhance the role of non-commis-
14 sioned officers in the prevention of sexual as-
15 sault.

16 (D) Elements for programs to foster social
17 courage among members of the Armed Forces
18 to encourage and promote intervention in situa-
19 tions in order to prevent sexual assault.

20 (E) Processes and mechanisms designed to
21 address behaviors among members of the
22 Armed Forces that are included in the con-
23 tinuum of harm that frequently results in sex-
24 ual assault.

1 (F) Elements for programs designed to ad-
2 dress alcohol abuse, including binge drinking,
3 among members of the Armed Forces.

4 (G) Such other elements, processes, mech-
5 anisms, and other matters as the Secretary of
6 Defense considers appropriate.

7 (2) CONTINUUM OF HARM RESULTING IN SEX-
8 UAL ASSAULT.—For purposes of paragraph (1)(E),
9 the continuum of harm that frequently results in
10 sexual assault includes hazing, sexual harassment,
11 and related behaviors (including language choices,
12 off-hand statements, jokes, and unconscious atti-
13 tudes or biases) that create a permissive climate for
14 sexual assault.

15 (c) PROGRAMS REQUIRED.—Not later than 180 days
16 after the issuance of the policy required by subsection (a),
17 each Secretary of a military department shall develop and
18 implement for each Armed Force under the jurisdiction
19 of such Secretary a program to reinvigorate the prevention
20 of sexual assaults involving members of the Armed Forces.
21 Each program shall include the elements, processes, mech-
22 anisms, and other matters developed by the Secretary of
23 Defense pursuant to subsection (a) tailored to the require-
24 ments and circumstances of the Armed Force or Armed
25 Forces concerned.

1 **SEC. 540E. RECOMMENDATIONS ON SEPARATE PUNITIVE**
2 **ARTICLE IN THE UNIFORM CODE OF MILI-**
3 **TARY JUSTICE ON SEXUAL HARASSMENT.**

4 Not later than 180 days after the date of the enact-
5 ment of this Act, the Secretary of Defense shall submit
6 to the Committees on Armed Services of the Senate and
7 the House of Representatives a report containing such rec-
8 ommendations as the Secretary considers appropriate with
9 respect to the establishment of a separate punitive article
10 in chapter 47 of title 10, United States Code (the Uniform
11 Code of Military Justice), on sexual harassment.

12 **SEC. 540F. REPORT ON MILITARY JUSTICE SYSTEM INVOLV-**
13 **ING ALTERNATIVE AUTHORITY FOR DETER-**
14 **MINING WHETHER TO PREFER OR REFER**
15 **CHANGES FOR FELONY OFFENSES UNDER**
16 **THE UNIFORM CODE OF MILITARY JUSTICE.**

17 (a) REPORT REQUIRED.—

18 (1) IN GENERAL.—Not later than 300 days
19 after the date of the enactment of this Act, the Sec-
20 retary of Defense shall submit to the Committees on
21 Armed Services of the Senate and the House of Rep-
22 resentatives a report setting forth the results of a
23 study, conducted for purposes of the report, on the
24 feasibility and advisability of an alternative military
25 justice system in which determinations as to whether
26 to prefer or refer charges for trial by court-martial

1 for any offense specified in paragraph (2) is made
2 by a judge advocate in grade O-6 or higher who has
3 significant experience in criminal litigation and is
4 outside of the chain of command of the member sub-
5 ject to the charges rather than by a commanding of-
6 ficer of the member who is in the chain of command
7 of the member.

8 (2) SPECIFIED OFFENSE.—An offense specified
9 in this paragraph is any offense under chapter 47 of
10 title 10, United States Code (the Uniform Code of
11 Military Justice), for which the maximum punish-
12 ment authorized includes confinement for more than
13 one year.

14 (b) ELEMENTS.—The study required for purposes of
15 the report under subsection (a) shall address the following:

16 (1) Relevant procedural, legal, and policy impli-
17 cations and considerations of the alternative military
18 justice system described in subsection (a).

19 (2) An analysis of the following in connection
20 with the implementation and maintenance of the al-
21 ternative military justice system:

22 (A) Legal personnel requirements.

23 (B) Changes in force structure.

24 (C) Amendments to law.

1 (D) Impacts on the timeliness and effi-
2 ciency of legal processes and court-martial adju-
3 dications.

4 (E) Potential legal challenges to the sys-
5 tem.

6 (F) Potential changes in prosecution and
7 conviction rates.

8 (G) Potential impacts on the preservation
9 of good order and discipline, including the abil-
10 ity of a commander to carry out nonjudicial
11 punishment and other administrative actions.

12 (H) Such other considerations as the Sec-
13 retary considers appropriate.

14 (3) A comparative analysis of the military jus-
15 tice systems of relevant foreign allies with the cur-
16 rent military justice system of the United States and
17 the alternative military justice system, including
18 whether or not approaches of the military justice
19 systems of such allies to determinations described in
20 subsection (a) are appropriate for the military jus-
21 tice system of the United States.

22 (4) An assessment of the feasibility and advis-
23 ability of conducting a pilot program to assess the
24 feasibility and advisability of the alternative military

1 justice system, and, if the pilot program is deter-
2 mined to be feasible and advisable—

3 (A) an analysis of potential legal issues in
4 connection with the pilot program, including po-
5 tential issues for appeals; and

6 (B) recommendations on the following:

7 (i) The populations to be subject to
8 the pilot program.

9 (ii) The duration of the pilot program.

10 (iii) Metrics to measure the effective-
11 ness of the pilot program.

12 (iv) The resources to be used to con-
13 duct the pilot program.

14 **SEC. 540G. REPORT ON STANDARDIZATION AMONG THE**
15 **MILITARY DEPARTMENTS IN COLLECTION**
16 **AND PRESENTATION OF INFORMATION ON**
17 **MATTERS WITHIN THE MILITARY JUSTICE**
18 **SYSTEM.**

19 Not later than 180 days after the date of the enact-
20 ment of this Act, the Secretary of Defense shall, in con-
21 sultation with the Secretaries of the military departments,
22 submit to the Committees on Armed Services of the Sen-
23 ate and the House of Representatives a report setting
24 forth the following:

1 (1) A plan for actions to provide for standard-
2 ization, to the extent practicable, among the military
3 departments in the collection and presentation of in-
4 formation on matters within their military justice
5 systems, including information collected and main-
6 tained for purposes of section 940a of title 10,
7 United States Code (article 140a of the Uniform
8 Code of Military Justice), and such other informa-
9 tion as the Secretary considers appropriate.

10 (2) An assessment of the feasibility and advis-
11 ability of establishing and maintaining a single, De-
12 partment of Defense-wide data management system
13 for the standardized collection and presentation of
14 information described in paragraph (1).

15 **SEC. 540H. REPORT ON EXPANSION OF AIR FORCE SAFE TO**
16 **REPORT POLICY ACROSS THE ARMED**
17 **FORCES.**

18 (a) REPORT.—Not late than 180 days after the date
19 of the enactment of this Act, the Secretary of Defense
20 shall, in consultation with the Secretaries of the military
21 departments and the Secretary of Homeland Security,
22 submit to the Committees on Armed Services of the Sen-
23 ate and the House of Representatives a report setting
24 forth an assessment of the feasibility and advisability of
25 expanding the applicability of the safe to report policy de-

1 scribed in subsection (b) so that the policy applies across
2 the Armed Forces.

3 (b) **SAFE TO REPORT POLICY.**—The safe to report
4 policy described in this subsection is the policy, currently
5 applicable in the Air Force alone, under which a member
6 of the Armed Forces who is the victim of an alleged sexual
7 assault committed by another member of the Armed
8 Forces, but who may have committed minor collateral mis-
9 conduct at or about the time of such alleged sexual as-
10 sault, or whose minor collateral misconduct at or about
11 such time is discovered only as a result of the investigation
12 into such alleged sexual assault, may report such alleged
13 sexual assault to proper authorities without fear or receipt
14 of discipline in connection with such minor collateral mis-
15 conduct.

16 **SEC. 540I. ASSESSMENT OF RACIAL, ETHNIC, AND GENDER**
17 **DISPARITIES IN THE MILITARY JUSTICE SYS-**
18 **TEM.**

19 (a) **IN GENERAL.**—The Secretary of Defense shall
20 provide for the carrying out of the activities described in
21 subsections (b) and (c) in order to improve the ability of
22 the Department of Defense to detect and address racial,
23 ethnic, and gender disparities in the military justice sys-
24 tem.

1 (b) SECRETARY OF DEFENSE AND RELATED ACTIVI-
2 TIES.—The activities described in this subsection are the
3 following, to be commenced or carried out (as applicable)
4 by not later than 180 days after the date of the enactment
5 of this Act:

6 (1) For each court-martial conducted by an
7 Armed Force after the date of the enactment of this
8 Act, the Secretary of Defense shall require the head
9 of the Armed Force concerned—

10 (A) to record the race, ethnicity, and gen-
11 der of the victim and the accused, and such
12 other demographic information about the victim
13 and the accused as the Secretary considers ap-
14 propriate;

15 (B) to include data based on the informa-
16 tion described in subparagraph (A) in the an-
17 nual military justice reports of the Armed
18 Force.

19 (2) The Secretary of Defense, in consultation
20 with the Secretaries of the military departments and
21 the Secretary of Homeland Security, shall issue
22 guidance that—

23 (A) establishes criteria to determine when
24 data indicating possible racial, ethnic, or gender

1 disparities in the military justice process should
2 be further reviewed; and

3 (B) describes how such a review should be
4 conducted.

5 (3) The Secretary of Defense, in consultation
6 with the Secretaries of the military departments and
7 the Secretary of Homeland Security, shall—

8 (A) conduct an evaluation to identify the
9 causes of any racial, ethnic, or gender dispari-
10 ties identified in the military justice system;

11 (B) take steps to address the causes of any
12 such disparities, as appropriate.

13 (c) DAC-IPAD ACTIVITIES.—

14 (1) IN GENERAL.—The activities described in
15 this subsection are the following, to be conducted by
16 the independent committee DAC-IPAD:

17 (A) A review and assessment, by fiscal
18 year, of the race and ethnicity of members of
19 the Armed Forces accused of a penetrative sex-
20 ual assault offense or contact sexual assault of-
21 fense in an unrestricted report made pursuant
22 to Department of Defense Instruction 6495.02,
23 including an unrestricted report involving a
24 spouse or intimate partner, in all cases com-
25 pleted in each fiscal year assessed.

1 (B) A review and assessment, by fiscal
2 year, of the race and ethnicity of members of
3 the Armed Forces against whom charges were
4 preferred pursuant to Rule for Courts-Martial
5 307 for a penetrative sexual assault offense or
6 contact sexual assault offense in all cases com-
7 pleted in each fiscal year assessed.

8 (C) A review and assessment, by fiscal
9 year, of the race and ethnicity of members of
10 the Armed Forces who were convicted of a pen-
11 etrative sexual assault offense or contact sexual
12 assault offense in all cases completed in each
13 fiscal year assessed.

14 (2) INFORMATION FROM FEDERAL AGENCIES.—

15 (A) IN GENERAL.—Upon request by the
16 chair of the committee, a department or agency
17 of the Federal Government shall provide infor-
18 mation that the committee considers necessary
19 to conduct reviews and assessments required by
20 paragraph (1), including military criminal in-
21 vestigation files, charge sheets, records of trial,
22 and personnel records.

23 (B) HANDLING, STORAGE, AND RETURN.—
24 The committee shall handle and store all
25 records received and reviewed under this sub-

1 section in accordance with applicable privacy
2 laws and Department of Defense policy, and
3 shall return all records so received in a timely
4 manner.

5 (3) REPORT.—Not later than one year after the
6 date of the enactment of this Act, the committee
7 shall submit to the Secretary of Defense, and to the
8 Committees on Armed Services of the Senate and
9 the House of Representatives, a report setting forth
10 the results of the reviews and assessments required
11 by paragraph (1). The report shall include such rec-
12 ommendations for legislative or administrative action
13 as the committee considers appropriate in light of
14 such results.

15 (4) DEFINITIONS.—In this subsection:

16 (A) The term “independent committee
17 DAC–IPAD” means the independent committee
18 established by the Secretary of Defense under
19 section 546 of the Carl Levin and Howard P.
20 “Buck” McKeon National Defense Authoriza-
21 tion Act for Fiscal Year 2015 (Public Law
22 113–291; 128 Stat. 3374), commonly known as
23 the “DAC-IPAD”.

24 (B) The term “case” means an unre-
25 stricted report of any penetrative sexual assault

1 offense or contact sexual assault offense made
2 against a member of the Armed Forces pursu-
3 ant to Department of Defense Instruction
4 6495.02, including any unrestricted report in-
5 volving a spouses or intimate partner for which
6 an investigation has been opened by a criminal
7 investigative organization.

8 (C) The term “completed”, with respect to
9 a case, means that the case was tried to verdict,
10 dismissed without further action, or dismissed
11 and then resolved by non-judicial or administra-
12 tive proceedings.

13 (D) The term “contact sexual assault of-
14 fense” means aggravated sexual contact, abu-
15 sive sexual contact, wrongful sexual contact,
16 and attempts to commit such offenses under
17 the Uniform Code of Military Justice.

18 (E) The term “penetrative sexual assault
19 offense” means rape, aggravated sexual assault,
20 sexual assault, forcible sodomy, and attempts to
21 commit such offenses under the Uniform Code
22 of Military Justice.

1 **SEC. 540J. PILOT PROGRAMS ON DEFENSE INVESTIGATORS**
2 **IN THE MILITARY JUSTICE SYSTEM.**

3 (a) IN GENERAL.—Each Secretary of a military de-
4 partment shall carry out a pilot program on defense inves-
5 tigators within the military justice system under the juris-
6 diction of such Secretary in order to do the following:

7 (1) Determine whether the presence of defense
8 investigators within such military justice system
9 will—

10 (A) make such military justice system
11 more effective in providing an effective defense
12 for the accused; and

13 (B) make such military justice system
14 more fair and efficient.

15 (2) Otherwise assess the feasibility and advis-
16 ability of defense investigators as an element of such
17 military justice system.

18 (b) ELEMENTS.—

19 (1) INTERVIEW OF VICTIM.—A defense investi-
20 gator may question a victim under a pilot program
21 only upon a request made through the Special Vic-
22 tims' Counsel or other counsel if the victim does not
23 have such counsel.

24 (2) UNIFORMITY ACROSS MILITARY JUSTICE
25 SYSTEMS.—The Secretary of Defense shall ensure
26 that the personnel and activities of defense inves-

1 tigators under the pilot programs are, to the extent
2 practicable, uniform across the military justice sys-
3 tems of the military departments.

4 (c) REPORT.—

5 (1) IN GENERAL.—Not later than three years
6 after the date of the enactment of this Act, the Sec-
7 retary of Defense shall, in consultation with the Sec-
8 retaries of the military departments, submit to the
9 Committees on Armed Services of the Senate and
10 the House of Representatives a report on the pilot
11 programs under subsection (a).

12 (2) ELEMENTS.—The report required by para-
13 graph (1) shall include the following:

14 (A) A description of each pilot program,
15 including the personnel and activities of defense
16 investigators under such pilot program.

17 (B) An assessment of the feasibility and
18 advisability of establishing and maintaining de-
19 fense investigators as an element of the military
20 justice systems of the military departments.

21 (C) If the assessment under subparagraph
22 (B) is that the establishment and maintenance
23 of defense investigators as an element of the
24 military justice systems of the military depart-
25 ments is feasible and advisable, such rec-

1 ommendations for legislative and administrative
2 action as the Secretary of Defense considers ap-
3 propriate to establish and maintain defense in-
4 vestigators as an element of the military justice
5 systems.

6 (D) Any other matters the Secretary of
7 Defense considers appropriate.

8 **SEC. 540K. REPORT ON PRESERVATION OF RECOURSE TO**
9 **RESTRICTED REPORT ON SEXUAL ASSAULT**
10 **FOR VICTIMS OF SEXUAL ASSAULT FOL-**
11 **LOWING CERTAIN VICTIM OR THIRD-PARTY**
12 **COMMUNICATIONS.**

13 (a) REPORT REQUIRED.—Not later than 180 days
14 after the date of the enactment of this Act, the Secretary
15 of Defense shall submit to the Committees on Armed Serv-
16 ices of the Senate and the House of Representatives a re-
17 port making findings and recommendations on the feasi-
18 bility and advisability of a policy for the Department of
19 Defense that would permit a victim of a sexual assault,
20 that is or may be investigated as a result of a communica-
21 tion described in subsection (b), which victim is a member
22 of the Armed Forces or an adult dependent of a member
23 of the Armed Forces, to have the reporting on the sexual
24 assault be treated as a restricted report without regard
25 to the party initiating or receiving such communication.

1 (b) COMMUNICATIONS.—A communication described
2 in this subsection is a communication reporting a sexual
3 assault as follows:

4 (1) By the victim to a member of the Armed
5 Forces, whether a commissioned officer or a non-
6 commissioned officer, in the chain of command of
7 the victim or the victim’s military sponsor.

8 (2) By the victim to military law enforcement
9 personnel or personnel of a military criminal inves-
10 tigative organization (MCIO).

11 (3) By any individual other than victim.

12 (c) SCOPE OF FINDINGS AND RECOMMENDATIONS.—
13 The report required by subsection (a) may include rec-
14 ommendations for new provisions of statute or regulations,
15 or modification of current statute or regulations, that may
16 be required to put into effect the findings and rec-
17 ommendations described in subsection (a).

18 (d) CONSULTATION.—In preparing the report re-
19 quired by subsection (a), the Secretary shall consult with
20 the Defense Advisory Committee on Investigation, Pros-
21 ection, and Defense of Sexual Assault in the Armed
22 Forces (DAC–IPAD) under section 546 of the Carl Levin
23 and Howard P. “Buck” McKeon National Defense Au-
24 thorization Act for Fiscal Year 2015 (10 U.S.C. 1561
25 note).

1 **SEC. 540L. REPORT ON ESTABLISHMENT OF GUARDIAN AD**
2 **LITEM PROGRAM FOR CERTAIN MILITARY**
3 **DEPENDENTS WHO ARE A VICTIM OR WIT-**
4 **NESS OF AN OFFENSE UNDER THE UNIFORM**
5 **CODE OF MILITARY JUSTICE INVOLVING**
6 **ABUSE OR EXPLOITATION.**

7 (a) REPORT REQUIRED.—

8 (1) IN GENERAL.—Not later than one year
9 after the date of the enactment of this Act, the Sec-
10 retary of Defense shall submit to the Committees on
11 Armed Services of the Senate and the House of Rep-
12 resentatives a report setting forth an assessment of
13 the feasibility and advisability of establishing a
14 guardian ad litem program for military dependents
15 described in paragraph (2) who are a victim or wit-
16 ness of an offense under chapter 47 of title 10,
17 United States Code (the Uniform Code of Military
18 Justice), that involves an element of abuse or exploi-
19 tation in order to protect the best interests of such
20 dependents in a court-martial of such offense.

21 (2) COVERED DEPENDENTS.—The military de-
22 pendents described in this paragraph are as follows:

23 (A) Military dependents under 12 years of
24 age.

25 (B) Military dependents who lack mental
26 or other capacity.

1 (b) ELEMENTS.—The report required by subsection
2 (a) shall include the following:

3 (1) An assessment of the feasibility and advis-
4 ability of establishing a guardian ad litem program
5 as described in subsection (a).

6 (2) If establishment of the guardian ad litem
7 program is considered feasible and advisable, the fol-
8 lowing:

9 (A) A description of administrative re-
10 quirements in connection with the program, in-
11 cluding the following:

12 (i) Any memoranda of understanding
13 between the Department of Defense and
14 State and local authorities required for
15 purposes of the program.

16 (ii) The personnel, funding, and other
17 resources required for purposes of the pro-
18 gram.

19 (B) Best practices for the program (as de-
20 termined in consultation with appropriate civil-
21 ian experts on child advocacy).

22 (C) Such recommendations for legislative
23 and administration action to implement the pro-
24 gram as the Secretary considers appropriate.

1 **SEC. 540M. COMPTROLLER GENERAL OF THE UNITED**
2 **STATES REPORT ON IMPLEMENTATION BY**
3 **THE ARMED FORCES OF RECENT STATUTORY**
4 **REQUIREMENTS ON SEXUAL ASSAULT PRE-**
5 **VENTION AND RESPONSE IN THE MILITARY.**

6 (a) REPORT REQUIRED.—The Comptroller General
7 of the United States shall submit to the Committees on
8 Armed Services of the Senate and the House of Represent-
9 atives a report, in writing, on a study, conducted by the
10 Comptroller General for purposes of the report, on the im-
11 plementation by the Armed Forces of statutory require-
12 ments on sexual assault prevention and response in the
13 military in the National Defense Authorization Act for
14 Fiscal Year 2004 (Public Law 108–136) and each suc-
15 ceeding national defense authorization Act through the
16 John S. McCain National Defense Authorization Act for
17 Fiscal Year 2019 (Public Law 115–232).

18 (b) ELEMENTS.—The report required by subsection
19 (a) shall include the following:

20 (1) A list and citation of each statutory require-
21 ment (whether codified or uncodified) on sexual as-
22 sault prevention and response in the military in each
23 national defense authorization Act specified in para-
24 graph (1), including—

25 (A) whether such statutory requirement is
26 still in force; and

1 (B) if such statutory requirement is no
2 longer in force, the date of the repeal or expira-
3 tion of such requirement.

4 (2) For each statutory requirement listed pur-
5 suant to paragraph (1), the following:

6 (A) An assessment of the extent to which
7 such requirement was implemented, or is cur-
8 rently being implemented, as applicable, by each
9 Armed Force to which such requirement applied
10 or applies.

11 (B) A description and assessment of the
12 actions taken by each of the Department of De-
13 fense, the military department concerned, and
14 the Armed Force concerned to assess and deter-
15 mine the effectiveness of actions taken pursuant
16 to such requirement in meeting its intended ob-
17 jective.

18 (3) Any other matters in connection with the
19 statutory requirements specified in subsection (a),
20 and the implementation of such requirements by the
21 Armed Forces, that the Comptroller General con-
22 siders appropriate.

23 (c) BRIEFINGS.—Not later than May 1, 2020, the
24 Comptroller General shall provide to the committees re-
25 ferred to in subsection (a) one or more briefings on the

1 status of the study required by subsection (a), including
2 any preliminary findings and recommendations of the
3 Comptroller General as a result of the study as of the date
4 of such briefing.

5 **SEC. 540N. SENSE OF CONGRESS ON THE PORT CHICAGO 50.**

6 It is the sense of Congress that—

7 (1) the American people should recognize the
8 role of racial bias during the era in which the pro-
9 secution and convictions of the Port Chicago 50 took
10 place for mutiny following the deadliest home-front
11 disaster in World War II, in which 320 were killed
12 on July 17, 1944, during a munitions explosion; and

13 (2) in light of the well-documented challenges
14 associated with uniformed service by African Ameri-
15 cans during this era, the Secretary of the Navy
16 should, as appropriate, recommend executive action
17 in favor of the 49 remaining Sailors with general
18 court-martial convictions and the 207 remaining
19 Sailors with summary court-martial convictions.

20 **Subtitle E—Other Legal Matters**

21 **SEC. 541. IMPROVEMENT OF CERTAIN SPECIAL VICTIMS'**

22 **COUNSEL AUTHORITIES.**

23 (a) ENHANCEMENT OF LEGAL CONSULTATION AND
24 ASSISTANCE IN CONNECTION WITH POTENTIAL VICTIM
25 BENEFITS.—Paragraph (8)(D) of subsection (b) of sec-

1 tion 1044e of title 10, United States Code, is amended
2 by striking “and other” and inserting “, section 1408(h)
3 of this title, and other”.

4 (b) EXPANSION OF LEGAL ASSISTANCE AUTHORIZED
5 TO INCLUDE CONSULTATION AND ASSISTANCE FOR RE-
6 TALIATION.—Subsection (b) of such section is amended
7 further—

8 (1) by redesignating paragraph (10) as para-
9 graph (11); and

10 (2) by inserting after paragraph (9) the fol-
11 lowing new paragraph (10):

12 “(10) Legal consultation and assistance in con-
13 nection with an incident of retaliation, whether such
14 incident occurs before, during, or after the conclu-
15 sion of any criminal proceedings, including—

16 “(A) in understanding the rights and pro-
17 tections afforded to victims of retaliation;

18 “(B) in the filing of complaints; and

19 “(C) in any resulting military justice pro-
20 ceedings.”.

21 (c) STAFFING CASELOAD LEVELS.—Such section is
22 further amended—

23 (1) by redesignating subsections (g) and (h) as
24 subsections (h) and (i), respectively; and

1 (2) by inserting after subsection (f) the fol-
2 lowing new subsection (g):

3 “(g) STAFFING CASELOAD LEVELS.—Commencing
4 not later than four years after the date of the enactment
5 of the National Defense Authorization Act for Fiscal Year
6 2020, each Secretary concerned shall ensure that the num-
7 ber of Special Victims’ Counsel serving in each military
8 department (and with respect to the Coast Guard) is suffi-
9 cient to ensure that the average caseload of a Special Vic-
10 tims’ Counsel does not exceed, to the extent practicable,
11 25 cases any given time.”.

12 **SEC. 542. AVAILABILITY OF SPECIAL VICTIMS’ COUNSEL AT**
13 **MILITARY INSTALLATIONS.**

14 (a) DEADLINE FOR AVAILABILITY.—Section 1044e(f)
15 of title 10, United States Code, is amended by adding at
16 the end the following new paragraph:

17 “(4)(A) Subject to subparagraph (B), if a Special
18 Victims’ Counsel is not available at a military installation
19 for access by a member of the armed forces who requests
20 access to a Special Victims’ Counsel, a Special Victims’
21 Counsel shall be made available at such installation for
22 access by such member by not later than 72 hours after
23 such request.

24 “(B) If the Secretary concerned determines that, due
25 to exigent circumstances related to military activities, a

1 Special Victims' Counsel cannot be made available to a
2 member of the armed forces within the time period re-
3 quired by subparagraph (A), the Secretary concerned shall
4 ensure that a Special Victims' Counsel is made available
5 to such member as soon as is practical under such cir-
6 cumstances.”.

7 (b) REPORT ON CIVILIAN SUPPORT OF SVCs.—Not
8 later than 180 days after the date of the enactment of
9 this Act, each Secretary of a military department shall
10 submit to the Committees on Armed Services of the Sen-
11 ate and the House of Representatives a report setting
12 forth the assessment of such Secretary of the feasibility
13 and advisability of establishing and maintaining for each
14 Special Victims' Counsel under the jurisdiction of such
15 Secretary one or more civilian positions for the purpose
16 of—

17 (1) providing support to such Special Victims'
18 Counsel; and

19 (2) ensuring continuity and the preservation of
20 institutional knowledge in transitions between the
21 service of individuals as such Special Victims' Coun-
22 sel.

1 **SEC. 543. NOTIFICATION OF ISSUANCE OF MILITARY PRO-**
2 **TECTIVE ORDER TO CIVILIAN LAW ENFORCE-**
3 **MENT.**

4 (a) NOTIFICATION OF ISSUANCE.—Section 1567a of
5 title 10, United States Code, is amended—

6 (1) in subsection (a), by striking “and any indi-
7 vidual involved in the order does not reside on a
8 military installation at any time during the duration
9 of the military protective order, the commander of
10 the military installation shall notify” and inserting
11 “, the commander of the unit to which the member
12 is assigned shall, not later than seven days after the
13 date of the issuance of the order, notify”;

14 (2) by redesignating subsection (b) as sub-
15 section (c);

16 (3) by inserting after subsection (a) the fol-
17 lowing new subsection (b);

18 “(b) NOTIFICATION IN EVENT OF TRANSFER.—In
19 the event that a member of the armed forces against whom
20 a military protective order is issued is transferred to an-
21 other unit—

22 “(1) not later than the date of the transfer, the
23 commander of the unit from which the member is
24 transferred shall notify the commander of the unit
25 to which the member is transferred of—

1 “(A) the issuance of the protective order;

2 and

3 “(B) the individuals involved in the order;

4 and

5 “(2) not later than seven days after receiving

6 the notice under paragraph (1), the commander of

7 the unit to which the member is transferred shall

8 provide notice of the order to the appropriate civilian

9 authorities in accordance with subsection (a).”; and

10 (4) in subsection (c), as so redesignated, by

11 striking “commander of the military installation”

12 and inserting “commander of the unit to which the

13 member is assigned”.

14 (b) ANNUAL REPORT REQUIRED.—Not later than

15 March 1, 2021, and each year thereafter through 2025,

16 the Secretary of Defense shall submit to the congressional

17 defense committees a report that identifies—

18 (1) the number of military protective orders

19 issued in the calendar year preceding the year in

20 which the report is submitted; and

21 (2) the number of such orders that were re-

22 ported to appropriate civilian authorities in accord-

23 ance with section 1567a(a) of title 10, United States

24 Code, in such preceding year.

1 **SEC. 544. COPYRIGHT PROTECTION FOR CIVILIAN FACULTY**
2 **OF CERTAIN ACCREDITED INSTITUTIONS.**

3 Section 105 of title 17, United States Code, is
4 amended—

5 (1) by inserting “(a) In general.—” before
6 “Copyright”; and

7 (2) by adding at the end the following:

8 “(b) COPYRIGHT PROTECTION OF CERTAIN OF
9 WORKS.—Subject to subsection (c), the covered author of
10 a covered work owns the copyright to that covered work.

11 “(c) USE BY FEDERAL GOVERNMENT.—The Sec-
12 retary of Defense may direct the covered author of a cov-
13 ered work to provide the Federal Government with an ir-
14 revocable, royalty-free, world-wide, nonexclusive license to
15 reproduce, distribute, perform, or display such covered
16 work for purposes of the United States Government.

17 “(c) DEFINITIONS.—In this section:

18 “(1) The term ‘covered author’ means a civilian
19 member of the faculty of a covered institution.

20 “(2) The term ‘covered institution’ means the
21 following:

22 “(A) National Defense University.

23 “(B) United States Military Academy.

24 “(C) Army War College.

25 “(D) United States Army Command and
26 General Staff College.

1 “(E) United States Naval Academy.

2 “(F) Naval War College.

3 “(G) Naval Post Graduate School.

4 “(H) Marine Corps University.

5 “(I) United States Air Force Academy.

6 “(J) Air University.

7 “(K) Defense Language Institute.

8 “(L) United States Coast Guard Academy.

9 “(3) The term ‘covered work’ means a literary
10 work produced by a covered author in the course of
11 employment at a covered institution for publication
12 by a scholarly press or journal.”.

13 **SEC. 545. TERMINATION OF LEASES OF PREMISES AND**
14 **MOTOR VEHICLES OF SERVICEMEMBERS**
15 **WHO INCUR CATASTROPHIC INJURY OR ILL-**
16 **NESS OR DIE WHILE IN MILITARY SERVICE.**

17 (a) CATASTROPHIC INJURIES AND ILLNESSES.—Sub-
18 section (a) of section 305 of the Servicemembers Civil Re-
19 lief Act (50 U.S.C. 3955), as amended by section 301 of
20 the Veterans Benefits and Transition Act of 2018 (Public
21 Law 115–407), is further amended by adding at the end
22 the following new paragraph:

23 “(4) CATASTROPHIC INJURY OR ILLNESS OF
24 LESSEE.—The spouse of the lessee on a lease de-
25 scribed in subsection (b) may terminate the lease

1 during the one-year period beginning on the date on
2 which the lessee incurs a catastrophic injury or ill-
3 ness (as that term is defined in section 439(g) of
4 title 37, United States Code), if the lessee incurs the
5 catastrophic injury or illness during a period of mili-
6 tary service or while performing full-time National
7 Guard duty, active Guard and Reserve duty, or inac-
8 tive-duty training (as such terms are defined in sec-
9 tion 101(d) of title 10, United States Code).”.

10 (b) DEATHS.—Paragraph (3) of such subsection is
11 amended by striking “in subsection (b)(1)” and inserting
12 “in subsection (b)”.

13 **SEC. 546. MILITARY ORDERS REQUIRED FOR TERMINATION**
14 **OF LEASES PURSUANT TO THE**
15 **SERVICEMEMBERS CIVIL RELIEF ACT.**

16 Section 305(i) of the Servicemembers Civil Relief Act
17 (50 U.S.C. 3955) is amended—

18 (1) in paragraph (1), by inserting “(including
19 orders for separation or retirement)” after “official
20 military orders”; and

21 (2) by adding at the end the following new
22 paragraph:

23 “(3) PERMANENT CHANGE OF STATION.—The
24 term ‘permanent change of station’ includes separa-
25 tion or retirement from military service.”.

1 **SEC. 547. PRESERVATION OF RIGHT TO BRING CLASS AC-**
2 **TION UNDER SERVICEMEMBERS CIVIL RE-**
3 **LIEF ACT.**

4 (a) IN GENERAL.—Section 802(a) of the
5 Servicemembers Civil Relief Act (50 U.S.C. 4042(a)) is
6 amended—

7 (1) in paragraph (1), by striking “and” at the
8 end;

9 (2) in paragraph (2), by striking the period at
10 the end and inserting “; and”; and

11 (3) by adding at the end the following new
12 paragraph:

13 “(3) be a representative party on behalf of
14 members of a class or be a member of a class, in
15 accordance with the Federal Rules of Civil Proce-
16 dure, notwithstanding any previous agreement to the
17 contrary.”.

18 (b) CONSTRUCTION.—The amendments made by sub-
19 section (a) shall not be construed to imply that a person
20 aggrieved by a violation of such Act did not have a right
21 to bring a civil action as a representative party on behalf
22 of members of a class or be a member of a class in a
23 civil action before the date of the enactment of this Act.

1 **SEC. 548. LEGAL COUNSEL FOR VICTIMS OF ALLEGED DO-**
2 **MESTIC VIOLENCE OFFENSES.**

3 (a) **IN GENERAL.**—Not later than December 1, 2020,
4 the Secretary of Defense shall carry out a program to pro-
5 vide legal counsel (referred to in this section as “Counsel”)
6 to victims of alleged domestic violence offenses who are
7 otherwise eligible for military legal assistance under sec-
8 tion 1044 of title 10, United States Code.

9 (b) **FORM OF IMPLEMENTATION.**—The program re-
10 quired under subsection (a) may be carried out as part
11 of another program of the Department of Defense or
12 through the establishment of a separate program.

13 (c) **TRAINING AND TERMS.**—The Secretary of De-
14 fense shall ensure that Counsel—

15 (1) receive specialized training in legal issues
16 commonly associated with alleged domestic violence
17 offenses; and

18 (2) to the extent practicable, serve as Counsel
19 for a period of not less than 2 years.

20 (d) **ATTORNEY-CLIENT RELATIONSHIP.**—The rela-
21 tionship between a Counsel and a victim in the provision
22 of legal advice and assistance shall be the relationship be-
23 tween an attorney and client.

24 (e) **PARALEGAL SUPPORT.**—The Secretary of De-
25 fense shall ensure that sufficient trained paralegal support
26 is provided to Counsel under the program.

1 (f) REPORT REQUIRED.—

2 (1) IN GENERAL.—Not later than 120 days
3 after the date of the enactment of this Act, the Sec-
4 retary of Defense shall submit to the Committees on
5 Armed Services of the Senate and the House of Rep-
6 resentatives a report on the implementation of the
7 program under subsection (a).

8 (2) ELEMENTS.—The report required under
9 paragraph (1) shall include the following:

10 (A) A description and assessment of the
11 manner in which the Department of Defense
12 will implement the program required under sub-
13 section (a).

14 (B) An explanation of whether the pro-
15 gram will be carried out as part of another pro-
16 gram of the Department or through the estab-
17 lishment of a separate program.

18 (C) A comprehensive description of the ad-
19 ditional personnel, resources, and training that
20 will be required to implement the program, in-
21 cluding identification of the specific number of
22 additional billets that will be needed to staff the
23 program.

1 (D) Recommendations for any modifica-
2 tions to law that may be necessary to effectively
3 and efficiently implement the program.

4 (g) ALLEGED DOMESTIC VIOLENCE OFFENSE DE-
5 FINED.—In this section, the term “alleged domestic vio-
6 lence offense” means any allegation of—

7 (1) a violation of section 928(b), 928b(1),
8 928b(5), or 930 of title 10, United States Code (ar-
9 ticle 128(b), 128b(1), 128b(5), or 130 of the Uni-
10 form Code of Military Justice), when committed
11 against a spouse, intimate partner, or immediate
12 family member;

13 (2) a violation of any other provision of sub-
14 chapter X of chapter 47 of such title (the Uniform
15 Code of Military Justice), when committed against a
16 spouse, intimate partner, or immediate family mem-
17 ber; or

18 (3) an attempt to commit an offense specified
19 in paragraph (1) or (2) as punishable under section
20 880 of such title (article 80 of the Uniform Code of
21 Military Justice).

1 **SEC. 549. NOTICE TO VICTIMS OF ALLEGED SEXUAL AS-**
2 **SAULT OF PENDENCY OF FURTHER ADMINIS-**
3 **TRATIVE ACTION FOLLOWING A DETERMINA-**
4 **TION NOT TO REFER TO TRIAL BY COURT-**
5 **MARTIAL.**

6 Under regulations prescribed by the Secretary of De-
7 fense, upon a determination not to refer a case of alleged
8 sexual assault for trial by court-martial under chapter 47
9 of title 10, United States Code (the Uniform Code of Mili-
10 tary Justice), the commander making such determination
11 shall periodically notify the victim of the status of a final
12 determination on further action on such case, whether
13 non-judicial punishment under section 815 of such title
14 (article 15 of the Uniform Code of Military Justice), other
15 administrative action, or no further action. Such notifica-
16 tions shall continue not less frequently than monthly until
17 such final determination.

18 **SEC. 550. TREATMENT OF INFORMATION IN CATCH A SE-**
19 **RIAL OFFENDER PROGRAM FOR CERTAIN**
20 **PURPOSES.**

21 (a) TREATMENT UNDER FOIA.—Victim disclosures
22 under the Catch a Serial Offender Program shall be with-
23 held from public disclosure under paragraph (b)(3) of sec-
24 tion 552 of title 5, United States Code (commonly referred
25 to as the “Freedom of Information Act”).

1 (b) PRESERVATION OF RESTRICTED REPORT.—The
2 transmittal or receipt in connection with the Catch a Se-
3 rial Offender Program of a report on a sexual assault that
4 is treated as a restricted report shall not operate to termi-
5 nate its treatment or status as a restricted report.

6 **SEC. 550A. POLICIES AND PROCEDURES ON REGISTRATION**
7 **AT MILITARY INSTALLATIONS OF CIVILIAN**
8 **PROTECTIVE ORDERS APPLICABLE TO MEM-**
9 **BERS OF THE ARMED FORCES ASSIGNED TO**
10 **SUCH INSTALLATIONS AND CERTAIN OTHER**
11 **INDIVIDUALS.**

12 (a) POLICIES AND PROCEDURES REQUIRED.—Not
13 later than one year after the date of the enactment of this
14 Act, the Secretary of Defense shall, in consultation with
15 the Secretaries of the military departments, establish poli-
16 cies and procedures for the registration at military instal-
17 lations of any civilian protective orders described in sub-
18 section (b), including the duties and responsibilities of
19 commanders of installations in the registration process.

20 (b) CIVILIAN PROTECTIVE ORDERS.—A civilian pro-
21 tective order described in this subsection is any civilian
22 protective order as follows:

23 (1) A civilian protective order against a member
24 of the Armed Forces assigned to the installation
25 concerned.

1 (2) A civilian protective order against a civilian
2 employee employed at the installation concerned.

3 (3) A civilian protective order against the civil-
4 ian spouse or intimate partner of a member of the
5 Armed Forces on active duty and assigned to the in-
6 stallation concerned, or of a civilian employee de-
7 scribed in paragraph (2), which order provides for
8 the protection of such member or employee.

9 (c) PARTICULAR ELEMENTS.—The policies and pro-
10 cedures required by subsection (a) shall include the fol-
11 lowing:

12 (1) A requirement for notice between and
13 among the commander, military law enforcement ele-
14 ments, and military criminal investigative elements
15 of an installation when a member of the Armed
16 Forces assigned to such installation, a civilian em-
17 ployee employed at such installation, a civilian
18 spouse or intimate partner of a member assigned to
19 such installation, or a civilian spouse or intimate
20 partner of a civilian employee employed at such in-
21 stallation becomes subject to a civilian protective
22 order.

23 (2) A statement of policy that failure to register
24 a civilian protective order may not be a justification
25 for the lack of enforcement of such order by military

1 law enforcement and other applicable personnel who
2 have knowledge of such order.

3 (d) LETTER.—As soon as practicable after estab-
4 lishing the policies and procedures required by subsection
5 (a), the Secretary shall submit to the Committees on
6 Armed Services of the Senate and the House of Represent-
7 atives a letter that includes the following:

8 (1) A detailed description of the policies and
9 procedures.

10 (2) A certification by the Secretary that the
11 policies and procedures have been implemented on
12 each military installation.

13 **SEC. 550B. DEFENSE ADVISORY COMMITTEE FOR THE PRE-**
14 **VENTION OF SEXUAL MISCONDUCT.**

15 (a) ESTABLISHMENT REQUIRED.—

16 (1) IN GENERAL.—The Secretary of Defense
17 shall establish and maintain within the Department
18 of Defense an advisory committee to be known as
19 the “Defense Advisory Committee for the Prevention
20 of Sexual Misconduct” (in this section referred to as
21 the “Advisory Committee”).

22 (2) DEADLINE FOR ESTABLISHMENT.—The
23 Secretary shall establish the Advisory Committee not
24 later than one year after the date of the enactment
25 of this Act.

1 (b) MEMBERSHIP.—

2 (1) IN GENERAL.—The Advisory Committee
3 shall consist of not more than 20 members, ap-
4 pointed by the Secretary from among individuals
5 who have an expertise appropriate for the work of
6 the Advisory Committee, including at least one indi-
7 vidual with each expertise as follows:

8 (A) Expertise in the prevention of sexual
9 assault and behaviors on the sexual assault con-
10 tinuum of harm.

11 (B) Expertise in adverse behaviors, includ-
12 ing the prevention of suicide and the prevention
13 of substance abuse.

14 (C) Expertise in the change of culture of
15 large organizations.

16 (D) Expertise in implementation science.

17 (2) BACKGROUND OF INDIVIDUALS.—Individ-
18 uals appointed to the Advisory Committee may in-
19 clude individuals with expertise in sexual assault
20 prevention efforts of institutions of higher education,
21 public health officials, and such other individuals as
22 the Secretary considers appropriate.

23 (3) PROHIBITION ON MEMBERSHIP OF MEM-
24 BERS OF ARMED FORCES ON ACTIVE DUTY.—A
25 member of the Armed Forces serving on active duty

1 may not serve as a member of the Advisory Com-
2 mittee.

3 (c) DUTIES.—

4 (1) IN GENERAL.—The Advisory Committee
5 shall advise the Secretary on the following:

6 (A) The prevention of sexual assault (in-
7 cluding rape, forcible sodomy, other sexual as-
8 sault, and other sexual misconduct (including
9 behaviors on the sexual assault continuum of
10 harm)) involving members of the Armed Forces.

11 (B) The policies, programs, and practices
12 of each military department, each Armed Force,
13 and each military service academy for the pre-
14 vention of sexual assault as described in sub-
15 paragraph (A).

16 (2) BASIS FOR PROVISION OF ADVICE.—For
17 purposes of providing advice to the Secretary pursu-
18 ant to this subsection, the Advisory Committee shall
19 review, on an ongoing basis, the following:

20 (A) Closed cases involving allegations of
21 sexual assault described in paragraph (1).

22 (B) Efforts of institutions of higher edu-
23 cation to prevent sexual assault among stu-
24 dents.

1 (C) Any other information or matters that
2 the Advisory Committee or the Secretary con-
3 siders appropriate.

4 (3) COORDINATION OF EFFORTS.—In addition
5 to the reviews required by paragraph (2), for pur-
6 poses of providing advice to the Secretary the Advi-
7 sory Committee shall also consult and coordinate
8 with the Defense Advisory Committee on Investiga-
9 tion, Prosecution, and Defense of Sexual Assault in
10 the Armed Forces (DAC-IPAD) on matters of joint
11 interest to the two Advisory Committees.

12 (d) ANNUAL REPORT.—Not later than March 30
13 each year, the Advisory Committee shall submit to the
14 Secretary and the Committees on Armed Services of the
15 Senate and the House of Representatives a report on the
16 activities of the Advisory Committee pursuant to this sec-
17 tion during the preceding year.

18 (e) SEXUAL ASSAULT CONTINUUM OF HARM.—In
19 this section, the term “sexual assault continuum of harm”
20 includes—

21 (1) inappropriate actions (such as sexist jokes),
22 sexual harassment, gender discrimination, hazing,
23 cyber bullying, or other behavior that contributes to
24 a culture that is tolerant of, or increases risk for,
25 sexual assault; and

1 (2) maltreatment or ostracism of a victim for a
2 report of sexual misconduct.

3 (f) TERMINATION.—

4 (1) IN GENERAL.—Except as provided in para-
5 graph (2), the Advisory Committee shall terminate
6 on the date that is five years after the date of the
7 establishment of the Advisory Committee pursuant
8 to subsection (a).

9 (2) CONTINUATION.—The Secretary of Defense
10 may continue the Advisory Committee after the ter-
11 mination date applicable under paragraph (1) if the
12 Secretary determines that continuation of the Advi-
13 sory Committee after that date is advisable and ap-
14 propriate. If the Secretary determines to continue
15 the Advisory Committee after that date, the Sec-
16 retary shall notify the Committees on the Armed
17 Services of the Senate and House of Representa-
18 tives.

19 **SEC. 550C. TRAINING FOR SPECIAL VICTIMS' COUNSEL ON**
20 **CIVILIAN CRIMINAL JUSTICE MATTERS IN**
21 **THE STATES OF THE MILITARY INSTALLA-**
22 **TIONS TO WHICH ASSIGNED.**

23 (a) TRAINING.—

24 (1) IN GENERAL.—Except as provided in sub-
25 section (c), upon the assignment of a Special Vic-

1 tims' Counsel (including a Victim Legal Counsel of
2 the Navy) to a military installation in the United
3 States, such Counsel shall be provided appropriate
4 training on the law and policies of the State or
5 States in which such military installation is located
6 with respect to the criminal justice matters specified
7 in paragraph (2). The purpose of the training is to
8 assist such Counsel in providing victims of alleged
9 sex-related offenses with information necessary to
10 make an informed decision regarding preference as
11 to the jurisdiction (whether court-martial or State
12 court) in which such offenses will be prosecuted.

13 (2) CRIMINAL JUSTICE MATTERS.—The crimi-
14 nal justice matters specified in this paragraph, with
15 respect to a State, are the following:

16 (A) Victim rights.

17 (B) Prosecution of criminal offenses.

18 (C) Sentencing for conviction of criminal
19 offenses.

20 (D) Protective orders.

21 (b) ALLEGED SEX-RELATED OFFENSE DEFINED.—

22 In this section, the term “alleged sex-related offense”
23 means any allegation of—

24 (1) a violation of section 920, 920b, 920c, or
25 930 of title 10, United States Code (article 120,

1 120b, 120c, or 130 of the Uniform Code of Military
2 Justice); or

3 (2) an attempt to commit an offense specified
4 in a paragraph (1) as punishable under section 880
5 of title 10, United States Code (article 80 of the
6 Uniform Code of Military Justice).

7 (c) EXCEPTION.—The requirements of this section do
8 not apply to a Special Victims' Counsel of the Coast
9 Guard.

10 **SEC. 550D. ENHANCING THE CAPABILITY OF MILITARY**
11 **CRIMINAL INVESTIGATIVE ORGANIZATIONS**
12 **TO PREVENT AND COMBAT CHILD SEXUAL**
13 **EXPLOITATION.**

14 (a) IN GENERAL.—Beginning not later than 180
15 days after the date of the enactment of this Act, the Sec-
16 retary of Defense shall establish and carry out an initia-
17 tive to enhance the capability of military criminal inves-
18 tigative organizations to prevent and combat child sexual
19 exploitation.

20 (b) ACTIVITIES.—In establishing and carrying out
21 the initiative under subsection (a), the Secretary of De-
22 fense may—

23 (1) work with internal and external functional
24 experts to train the personnel of military criminal

1 investigative organizations across the Department
2 regarding—

3 (A) technologies, tools, and techniques, in-
4 cluding digital forensics, to enhance the inves-
5 tigation of child sexual exploitation; and

6 (B) evidence-based forensic interviewing of
7 child victims, and the referral of child victims
8 for trauma-informed mental and medical health
9 care, and other treatment and support services;

10 (2) to the extent authorized by law, collaborate
11 with Federal, State, local, and other civilian law en-
12 forcement agencies on issues relating to child sexual
13 exploitation, including by—

14 (A) participating in task forces established
15 by such agencies for the purpose of preventing
16 and combating child sexual exploitation;

17 (B) establishing cooperative agreements to
18 facilitate co-training and collaboration with
19 such agencies; and

20 (C) ensuring that streamlined processes for
21 the referral of child sexual exploitation cases to
22 other agencies and jurisdictions, as appropriate,
23 are fully operational;

1 (3) as appropriate, assist in educating the mili-
2 tary community on the prevention and response to
3 child sexual exploitation; and

4 (4) carry out such other activities as the Sec-
5 retary determines to be relevant.

6 **SEC. 550E. FEASIBILITY STUDY ON ESTABLISHMENT OF**
7 **DATABASE OF MILITARY PROTECTIVE OR-**
8 **DERS.**

9 (a) STUDY.—The Secretary of Defense shall conduct
10 a study on the feasibility of establishing a database of mili-
11 tary protective orders issued by military commanders
12 against individuals suspected of having committed an of-
13 fense of domestic violence under section 928b of title 10,
14 United States Code (article 128b of the Uniform Code of
15 Military Justice). The study shall include an examination
16 of each of the following:

17 (1) The feasibility of creating a database to
18 record, track, and report such military protective or-
19 ders to the National Instant Criminal Background
20 Check System.

21 (2) The feasibility of establishing a process by
22 which a military judge or magistrate may issue a
23 protective order against an individual suspected of
24 having committed such an offense.

1 (3) How the database and process described in
2 paragraphs (1) and (2), respectively, may differ
3 from analogous civilian databases and processes, in-
4 cluding with regard to due process and other proce-
5 dural protections.

6 (b) REPORT.—Not later than 180 days after the date
7 of the enactment of this Act, the Secretary of Defense
8 shall submit to the congressional defense committees a re-
9 port on the results of the study conducted under sub-
10 section (a).

11 **SEC. 550F. GAO REVIEW OF USERRA AND SCRA.**

12 (a) REPORT REQUIRED.—Not later than January 31,
13 2021, the Comptroller General of the United States shall
14 conduct a review and submit a report to the Committees
15 on Armed Services of the Senate and House of Represent-
16 atives regarding what the Comptroller General determines
17 are the effects of the common commercial and govern-
18 mental practices of including a mandatory arbitration
19 clause in employment and consumer agreements, on the
20 ability of servicemembers to assert claims under and se-
21 cure redress for violations of—

22 (1) chapter 43 of title 38, United States Code
23 (commonly referred to as the “Uniformed Services
24 Employment and Reemployments Rights Act of

1 1994” and referred to in this section as
2 “USERRA”); and

3 (2) the Servicemembers Civil Relief Act (50
4 U.S.C. 3901 et seq. (referred to in this section as
5 “SCRA”)).

6 (b) ELEMENTS.—The report under this section shall
7 include the following:

8 (1) Each process by which a servicemember
9 may assert a claim under USERRA or SCRA, in-
10 cluding—

11 (A) administrative assistance;

12 (B) support, and dispute resolution proc-
13 esses provided by Federal and State agencies;

14 (C) arbitration; and

15 (D) litigation.

16 (2) With regards to each process identified
17 under paragraph (1), an evaluation of—

18 (A) the flexibility the process affords to the
19 servicemember and other parties to the process;

20 (B) the burden on the servicemember and
21 other parties to the process;

22 (C) the financial cost of the process to the
23 servicemember and the other parties;

1 (D) the speed of each process, including
2 the rate at which each claim pursued under
3 such process is resolved;

4 (E) the confidentiality of each process; and

5 (F) the effects of the process.

6 (3) Based on data regarding the results of past
7 actions to enforce servicemember rights and benefits
8 under USERRA and SCRA, including data of the
9 Departments of Defense and Labor regarding dis-
10 pute resolution under USERRA and data of the De-
11 partment of Justice regarding litigation under
12 SCRA—

13 (A) an analysis of the extent to which each
14 of the processes identified in paragraph (1) has
15 been employed to address claims under
16 USERRA or SCRA and

17 (B) the extent to which each such process
18 achieved a final disposition favorable to the
19 servicemember.

20 (4) An assessment of general societal trends in
21 the use of mandatory arbitration clauses in employ-
22 ment and consumer agreements, including any trend
23 in a specific industry or employment sector that re-
24 lies on mandatory arbitration in such contracts and
25 agreements.

1 (5) An assessment and explanation of any ef-
2 fect—

3 (A) of the use of mandatory arbitration
4 clauses in employment or consumer agreements
5 on military readiness and deployability.

6 (B) of USERRA or SCRA on the willing-
7 ness of employers to employ, and consumer
8 service businesses to provide services to
9 servicemembers and their families.

10 **Subtitle F—Member Education**

11 **SEC. 551. AUTHORITY FOR DETAIL OF CERTAIN ENLISTED** 12 **MEMBERS OF THE ARMED FORCES AS STU-** 13 **DENTS AT LAW SCHOOLS.**

14 (a) IN GENERAL.—Section 2004 of title 10, United
15 States Code, is amended—

16 (1) in subsection (a)—

17 (A) by inserting “and enlisted members”
18 after “commissioned officers”;

19 (B) by striking “bachelor of laws or”; and

20 (C) by inserting “and enlisted members”
21 after “twenty-five officers”;

22 (2) in subsection (b)—

23 (A) in the matter preceding paragraph (1),
24 by inserting “or enlisted member” after “offi-
25 cer”;

1 (B) by striking paragraph (1) and insert-
2 ing the following new paragraph (1):

3 “(1) either—

4 “(A) have served on active duty for a pe-
5 riod of not less than two years nor more than
6 six years and be an officer in the pay grade O-
7 3 or below as of the time the training is to
8 begin; or

9 “(B) have served on active duty for a pe-
10 riod of not less than four years nor more than
11 eight years and be an enlisted member in the
12 pay grade E-5, E-6, or E-7 as of the time the
13 training is to begin;”;

14 (C) by redesignating paragraph (2) as
15 paragraph (3);

16 (D) by inserting after paragraph (1), as
17 amended by subparagraph (B), the following
18 new paragraph (2):

19 “(2) in the case of an enlisted member, meet all
20 requirements for acceptance of a commission as a
21 commissioned officer in the armed forces; and”;

22 (E) in subparagraph (B) of paragraph (3),
23 as redesignated by subparagraph (C) of this
24 paragraph, by striking “or law specialist”;

25 (3) in subsection (c)—

1 (A) in the first sentence, by inserting “and
2 enlisted members” after “Officers”; and

3 (B) in the second sentence, by inserting
4 “or enlisted member” after “officer” each place
5 it appears;

6 (4) in subsection (d), by inserting “and enlist-
7 ment members” after “officers”;

8 (5) in subsection (e), by inserting “or enlist-
9 ment member” after “officer”; and

10 (6) in subsection (f), by inserting “or enlisted
11 member” after “officer”.

12 (b) CONFORMING AND CLERICAL AMENDMENTS.—

13 (1) HEADING AMENDMENT.—The heading of
14 such section is amended to read as follows:

15 **“§ 2004. Detail as students at law schools; commis-**
16 **sioned officers; certain enlisted mem-**
17 **bers”.**

18 (2) CLERICAL AMENDMENT.—The table of sec-
19 tions at the beginning of chapter 101 of such title
20 is amended by striking the item relating to section
21 2004 and inserting the following new item:

“2004. Detail as students at law schools; commissioned officers; certain enlisted
members.”.

1 **SEC. 552. INCLUSION OF COAST GUARD IN DEPARTMENT**
2 **OF DEFENSE STARBASE PROGRAM.**

3 Section 2193b of title 10, United States Code, is
4 amended—

5 (1) in subsection (a), by inserting “and the Sec-
6 retary of the Department in which the Coast Guard
7 is operating” after “military departments”; and

8 (2) in subsection (f), by striking “and the Sec-
9 retaries of the military departments” and inserting
10 “, the Secretaries of the military departments, and
11 the Secretary of the Department in which the Coast
12 Guard is operating”.

13 **SEC. 553. DEGREE GRANTING AUTHORITY FOR UNITED**
14 **STATES ARMY ARMAMENT GRADUATE**
15 **SCHOOL; LIMITATION ON ESTABLISHMENT**
16 **OF CERTAIN EDUCATIONAL INSTITUTIONS.**

17 (a) DEGREE GRANTING AUTHORITY FOR UNITED
18 STATES ARMY ARMAMENT GRADUATE SCHOOL.—

19 (1) IN GENERAL.—Chapter 751 of title 10,
20 United States Code, is amended by adding at the
21 end the following new section:

22 **“§ 7422. Degree granting authority for United States**
23 **Army Armament Graduate School**

24 “(a) AUTHORITY.—Under regulations prescribed by
25 the Secretary of the Army, the Chancellor of the United
26 States Army Armament Graduate School may, upon the

1 recommendation of the faculty and provost of the school,
2 confer appropriate degrees upon graduates who meet the
3 degree requirements.

4 “(b) LIMITATION.—A degree may not be conferred
5 under this section unless—

6 “(1) the Secretary of Education has rec-
7 ommended approval of the degree in accordance with
8 the Federal Policy Governing Granting of Academic
9 Degrees by Federal Agencies; and

10 “(2) the United States Army Armament Grad-
11 uate School is accredited by the appropriate civilian
12 academic accrediting agency or organization to
13 award the degree, as determined by the Secretary of
14 Education.

15 “(c) CONGRESSIONAL NOTIFICATION REQUIRE-
16 MENTS.—(1) When seeking to establish degree granting
17 authority under this section, the Secretary of Defense
18 shall submit to the Committees on Armed Services of the
19 Senate and the House of Representatives—

20 “(A) a copy of the self-assessment questionnaire
21 required by the Federal Policy Governing Granting
22 of Academic Degrees by Federal Agencies, at the
23 time the assessment is submitted to the Department
24 of Education’s National Advisory Committee on In-
25 stitutional Quality and Integrity; and

1 “(B) the subsequent recommendations and ra-
2 tionale of the Secretary of Education regarding the
3 establishment of the degree granting authority.

4 “(2) Upon any modification or redesignation of exist-
5 ing degree granting authority, the Secretary of Defense
6 shall submit to the Committees on Armed Services of the
7 Senate and House of Representatives a report containing
8 the rationale for the proposed modification or redesigna-
9 tion and any subsequent recommendation of the Secretary
10 of Education on the proposed modification or redesigna-
11 tion.

12 “(3) The Secretary of Defense shall submit to the
13 Committees on Armed Services of the Senate and House
14 of Representatives a report containing an explanation of
15 any action by the appropriate academic accrediting agency
16 or organization not to accredit the United States Army
17 Armament Graduate School to award any new or existing
18 degree.”.

19 (2) CLERICAL AMENDMENT.—The table of sec-
20 tions at the beginning of such chapter is amended
21 by adding at the end the following new item:

 “7422. Degree granting authority for United States Army Armament Graduate
 School.”.

22 (b) LIMITATION.—

1 (1) IN GENERAL.—Chapter 101 of title 10,
2 United States Code, is amended by adding at the
3 end the following new section:

4 **“§ 2017. Limitation on establishment of postsec-**
5 **ondary educational institutions pending**
6 **notice to Congress**

7 “(a) LIMITATION.—The Secretary of Defense may
8 not establish a postsecondary educational institution with-
9 in the Department of Defense until a period of one year
10 has elapsed following the date on which the Secretary noti-
11 fies the congressional defense committees of the intent of
12 the Secretary to establish the institution.

13 “(b) POSTSECONDARY EDUCATIONAL INSTITUTION
14 DEFINED.—In this section, the term ‘postsecondary edu-
15 cational institution’ means a school or other educational
16 institution that is intended to provide students with a
17 course of instruction that is comparable, in length and
18 academic rigor, to a course of instruction for which an
19 associate’s, bachelor’s, or graduate degree may be award-
20 ed.”.

21 (2) CLERICAL AMENDMENT.—The table of sec-
22 tions at the beginning of such chapter is amended
23 by adding at the end the following new item:

 “2017. Limitation on establishment of postsecondary educational institutions
 pending notice to Congress.”.

1 (3) APPLICABILITY.—Section 2017 of title 10,
2 United States Code, as added by paragraph (1),
3 shall apply with respect to postsecondary educational
4 institutions intended to be established by the Sec-
5 retary of Defense on or after the date of the enact-
6 ment of this Act.

7 **SEC. 554. PROHIBITION ON OFF-DUTY EMPLOYMENT FOR**
8 **CADETS AND MIDSHIPMEN COMPLETING OB-**
9 **LIGATED SERVICE AFTER GRADUATION.**

10 (a) MILITARY ACADEMY.—Section 7448(a)(5)(A) of
11 title 10, United States Code, is amended by inserting “or
12 seek or accept approval for off-duty employment while
13 completing the cadet’s commissioned service obligation”
14 before “to obtain employment”.

15 (b) NAVAL ACADEMY.—Section 8459(a)(5)(A) of title
16 10, United States Code, is amended by inserting “or seek
17 or accept approval for off-duty employment while com-
18 pleting the midshipman’s commissioned service obliga-
19 tion” before “to obtain employment”.

20 (c) AIR FORCE ACADEMY.—Section 9448(a)(5)(A) of
21 title 10, United States Code, is amended by inserting “or
22 seek or accept approval for off-duty employment while
23 completing the cadet’s commissioned service obligation”
24 before “to obtain employment”.

1 **SEC. 555. CONSIDERATION OF REQUEST FOR TRANSFER OF**
2 **A CADET OR MIDSHIPMAN AT A MILITARY**
3 **SERVICE ACADEMY WHO IS THE VICTIM OF A**
4 **SEXUAL ASSAULT OR RELATED OFFENSE.**

5 (a) UNITED STATES MILITARY ACADEMY.—Section
6 7461 of title 10, United States Code, is amended by add-
7 ing at the end the following new subsection:

8 “(e) CONSIDERATION OF REQUEST FOR TRANSFER
9 OF A CADET WHO IS THE VICTIM OF A SEXUAL ASSAULT
10 OR RELATED OFFENSE.—(1) The Secretary of the Army
11 shall provide for timely consideration of and action on a
12 request submitted by a cadet appointed to the United
13 States Military Academy who is the victim of an alleged
14 sexual assault or other offense covered by section 920,
15 920e, or 930 of this title (article 120, 120e, or 130 of
16 the Uniform Code of Military Justice) for transfer to an-
17 other military service academy or to enroll in a Senior Re-
18 serve Officers’ Training Corps program affiliated with an-
19 other institution of higher education.

20 “(2) The Secretary of the Army shall prescribe regu-
21 lations to carry out this subsection, within guidelines pro-
22 vided by the Secretary of Defense that—

23 “(A) provide that the Superintendent of the
24 United States Military Academy shall ensure that
25 any cadet who has been appointed to the United
26 States Military Academy and who is a victim of an

1 alleged sexual assault or other offense referred to in
2 paragraph (1), is informed of the right to request a
3 transfer pursuant to this section, and that any for-
4 mal request submitted by a cadet is processed as ex-
5 peditiously as practicable through the chain of com-
6 mand for review and action by the Superintendent;

7 “(B) direct the Superintendent of the United
8 States Military Academy, in coordination with the
9 Superintendent of the military service academy to
10 which the cadet requests to transfer—

11 “(i) to take action on a request for trans-
12 fer under this subsection not later than 72
13 hours after receiving the formal request from
14 the cadet;

15 “(ii) to approve such request for transfer
16 unless there are exceptional circumstances that
17 require denial of the request; and

18 “(iii) upon approval of such request, to
19 take all necessary and appropriate action to ef-
20 fectuate the transfer of the cadet to the military
21 service academy concerned as expeditiously as
22 possible; and

23 “(C) direct the Superintendent of the United
24 States Military Academy, in coordination with the
25 Secretary of the military department that sponsors

1 the Senior Reserve Officers' Training Corps pro-
2 gram at the institution of higher education to which
3 the cadet requests to transfer—

4 “(i) to take action on a request for trans-
5 fer under this subsection not later than 72
6 hours after receiving the formal request from
7 the cadet;

8 “(ii) subject to the cadet's acceptance for
9 admission to the institution of higher education
10 to which the cadet wishes to transfer, to ap-
11 prove such request for transfer unless there are
12 exceptional circumstances that require denial of
13 the application; and

14 “(iii) to take all necessary and appropriate
15 action to effectuate the cadet's enrollment in
16 the institution of higher education to which the
17 cadet wishes to transfer and to process the
18 cadet for participation in the relevant Senior
19 Reserve Officers' Training Corps program as
20 expeditiously as possible.

21 “(3) If the Superintendent of the United States Mili-
22 tary Academy denies a request for transfer under this sub-
23 section, the cadet may request review of the denial by the
24 Secretary of the Army, who shall take action on such re-

1 quest not later than 72 hours after receipt of the formal
2 request for review.

3 “(4) The Secretary concerned shall ensure that all
4 records of any request, determination, transfer, or other
5 action under this subsection remain confidential, con-
6 sistent with applicable law and regulation.

7 “(5) A cadet who transfers under this subsection may
8 retain the cadet’s appointment to the United States Mili-
9 tary Academy or may be appointed to the military service
10 academy to which the cadet transfers without regard to
11 the limitations and requirements set forth in sections
12 7442, 8454, and 9442 of this title.”.

13 (b) UNITED STATES NAVAL ACADEMY.—Section
14 8480 of title 10, United States Code, is amended by add-
15 ing at the end the following new subsection:

16 “(e) CONSIDERATION OF REQUEST FOR TRANSFER
17 OF A MIDSHIPMAN WHO IS THE VICTIM OF A SEXUAL
18 ASSAULT OR RELATED OFFENSE.—(1) The Secretary of
19 the Navy shall provide for timely consideration of and ac-
20 tion on a request submitted by a midshipman appointed
21 to the United States Naval Academy who is the victim
22 of an alleged sexual assault or other offense covered by
23 section 920, 920e, or 930 of this title (article 120, 120e,
24 or 130 of the Uniform Code of Military Justice) for trans-
25 fer to another military service academy or to enroll in a

1 Senior Reserve Officers' Training Corps program affili-
2 ated with another institution of higher education.

3 “(2) The Secretary of the Navy shall prescribe regu-
4 lations to carry out this subsection, within guidelines pro-
5 vided by the Secretary of Defense that—

6 “(A) provide that the Superintendent of the
7 United States Naval Academy shall ensure that any
8 midshipman who has been appointed to the United
9 States Naval Academy and who is a victim of an al-
10 leged sexual assault or other offense referred to in
11 paragraph (1), is informed of the right to request a
12 transfer pursuant to this section, and that any for-
13 mal request submitted by a midshipman is processed
14 as expeditiously as practicable through the chain of
15 command for review and action by the Super-
16 intendent;

17 “(B) direct the Superintendent of the United
18 States Naval Academy, in coordination with the Su-
19 perintendent of the military service academy to
20 which the midshipman requests to transfer—

21 “(i) to take action on a request for trans-
22 fer under this subsection not later than 72
23 hours after receiving the formal request from
24 the midshipman;

1 “(ii) to approve such request for transfer
2 unless there are exceptional circumstances that
3 require denial of the request; and

4 “(iii) upon approval of such request, to
5 take all necessary and appropriate action to ef-
6 fectuate the transfer of the midshipman to the
7 military service academy concerned as expedi-
8 tiously as possible; and

9 “(C) direct the Superintendent of the United
10 States Naval Academy, in coordination with the Sec-
11 retary of the military department that sponsors the
12 Senior Reserve Officers’ Training Corps program at
13 the institution of higher education to which the mid-
14 shipman requests to transfer—

15 “(i) to take action on a request for trans-
16 fer under this subsection not later than 72
17 hours after receiving the formal request from
18 the midshipman;

19 “(ii) subject to the midshipman’s accept-
20 ance for admission to the institution of higher
21 education to which the midshipman wishes to
22 transfer, to approve such request for transfer
23 unless there are exceptional circumstances that
24 require denial of the application; and

1 “(iii) to take all necessary and appropriate
2 action to effectuate the midshipman’s enroll-
3 ment in the institution of higher education to
4 which the midshipman wishes to transfer and to
5 process the midshipman for participation in the
6 relevant Senior Reserve Officers’ Training
7 Corps program as expeditiously as possible.

8 “(3) If the Superintendent of the United States
9 Naval Academy denies a request for transfer under this
10 subsection, the midshipman may request review of the de-
11 nial by the Secretary of the Navy, who shall take action
12 on such request not later than 72 hours after receipt of
13 the formal request for review.

14 “(4) The Secretary concerned shall ensure that all
15 records of any request, determination, transfer, or other
16 action under this subsection remain confidential, con-
17 sistent with applicable law and regulation.

18 “(5) A midshipman who transfers under this sub-
19 section may retain the midshipman’s appointment to the
20 United States Naval Academy or may be appointed to the
21 military service academy to which the midshipman trans-
22 fers without regard to the limitations and requirements
23 set forth in sections 7442, 8454, and 9442 of this title.”.

1 (c) UNITED STATES AIR FORCE ACADEMY.—Section
2 9461 of title 10, United States Code, is amended by add-
3 ing at the end the following new subsection:

4 “(e) CONSIDERATION OF REQUEST FOR TRANSFER
5 OF A CADET WHO IS THE VICTIM OF A SEXUAL ASSAULT
6 OR RELATED OFFENSE.—(1) The Secretary of the Air
7 Force shall provide for timely consideration of and action
8 on a request submitted by a cadet appointed to the United
9 States Air Force Academy who is the victim of an alleged
10 sexual assault or other offense covered by section 920,
11 920c, or 930 of this title (article 120, 120c, or 130 of
12 the Uniform Code of Military Justice) for transfer to an-
13 other military service academy or to enroll in a Senior Re-
14 serve Officers’ Training Corps program affiliated with an-
15 other institution of higher education.

16 “(2) The Secretary of the Air Force shall prescribe
17 regulations to carry out this subsection, within guidelines
18 provided by the Secretary of Defense that—

19 “(A) provide that the Superintendent of the
20 United States Air Force Academy shall ensure that
21 any cadet who has been appointed to the United
22 States Air Force Academy and who is a victim of an
23 alleged sexual assault or other offense referred to in
24 paragraph (1), is informed of the right to request a
25 transfer pursuant to this section, and that any for-

1 mal request submitted by a cadet is processed as ex-
2 peditiously as practicable through the chain of com-
3 mand for review and action by the Superintendent;

4 “(B) direct the Superintendent of the United
5 States Air Force Academy, in coordination with the
6 Superintendent of the military service academy to
7 which the cadet requests to transfer—

8 “(i) to take action on a request for trans-
9 fer under this subsection not later than 72
10 hours after receiving the formal request from
11 the cadet;

12 “(ii) to approve such request for transfer
13 unless there are exceptional circumstances that
14 require denial of the request; and

15 “(iii) upon approval of such request, to
16 take all necessary and appropriate action to ef-
17 fectuate the transfer of the cadet to the military
18 service academy concerned as expeditiously as
19 possible; and

20 “(C) direct the Superintendent of the United
21 States Air Force Academy, in coordination with the
22 Secretary of the military department that sponsors
23 the Senior Reserve Officers’ Training Corps pro-
24 gram at the institution of higher education to which
25 the cadet requests to transfer—

1 “(i) to take action on a request for trans-
2 fer under this subsection not later than 72
3 hours after receiving the formal request from
4 the cadet;

5 “(ii) subject to the cadet’s acceptance for
6 admission to the institution of higher education
7 to which the cadet wishes to transfer, to ap-
8 prove such request for transfer unless there are
9 exceptional circumstances that require denial of
10 the application; and

11 “(iii) to take all necessary and appropriate
12 action to effectuate the cadet’s enrollment in
13 the institution of higher education to which the
14 cadet wishes to transfer and to process the
15 cadet for participation in the relevant Senior
16 Reserve Officers’ Training Corps program as
17 expeditiously as possible.

18 “(3) If the Superintendent of the United States Air
19 Force Academy denies a request for transfer under this
20 subsection, the cadet may request review of the denial by
21 the Secretary of the Air Force, who shall take action on
22 such request not later than 72 hours after receipt of the
23 formal request for review.

24 “(4) The Secretary concerned shall ensure that all
25 records of any request, determination, transfer, or other

1 action under this subsection remain confidential, con-
2 sistent with applicable law and regulation.

3 “(5) A cadet who transfers under this subsection may
4 retain the cadet’s appointment to the United States Air
5 Force Academy or may be appointed to the military serv-
6 ice academy to which the cadet transfers without regard
7 to the limitations and requirements set forth in sections
8 7442, 8454, and 9442 of this title.”.

9 **SEC. 556. REDESIGNATION OF THE COMMANDANT OF THE**
10 **UNITED STATES AIR FORCE INSTITUTE OF**
11 **TECHNOLOGY AS THE DIRECTOR AND CHAN-**
12 **CELLOR OF SUCH INSTITUTE.**

13 (a) REDESIGNATION.—Section 9414b(a) of title 10,
14 United States Code, is amended—

15 (1) in the subsection heading, by striking
16 “COMMANDANT” and inserting “DIRECTOR AND
17 CHANCELLOR”;

18 (2) by striking “Commandant” each place it ap-
19 pears and inserting “Director and Chancellor”; and

20 (3) in the heading of paragraph (3), by striking
21 “COMMANDANT” and inserting “DIRECTOR AND
22 CHANCELLOR”.

23 (b) CONFORMING AMENDMENTS.—Section 9414(f) of
24 such title is amended by striking “Commandant” both
25 places it appears and inserting “Director and Chancellor”.

1 (c) REFERENCES.—Any reference in any law, regula-
2 tion, map, document, paper, or other record of the United
3 States to the Commandant of the United States Air Force
4 Institute of Technology shall be deemed to be a reference
5 to the Director and Chancellor of the United States Air
6 Force Institute of Technology.

7 **SEC. 557. ELIGIBILITY OF ADDITIONAL ENLISTED MEM-**
8 **BERS FOR ASSOCIATE DEGREE PROGRAMS**
9 **OF THE COMMUNITY COLLEGE OF THE AIR**
10 **FORCE.**

11 Section 9415(b) of title 10, United States Code, is
12 amended by adding at the end the following new para-
13 graph:

14 “(3) Enlisted members of the armed forces
15 other than the Air Force who are participating in
16 Community College of the Air Force affiliated joint-
17 service training and education courses.”.

18 **SEC. 558. SPEECH DISORDERS OF CADETS AND MID-**
19 **SHIPMEN.**

20 (a) TESTING.—The Superintendent of a military
21 service academy shall provide testing for speech disorders
22 to incoming cadets or midshipmen under the jurisdiction
23 of that Superintendent.

1 (b) NO EFFECT ON ADMISSION.—The testing under
2 subsection (a) may not have any effect on admission to
3 a military service academy.

4 (c) RESULTS.—The Superintendent shall provide
5 each cadet or midshipman under the jurisdiction of that
6 Superintendent the result of the testing under subsection
7 (a) and a list of warfare unrestricted line officer positions
8 and occupation specialities that require successful per-
9 formance on the speech test.

10 (d) THERAPY.—The Superintendent shall furnish
11 speech therapy to a cadet or midshipman under the juris-
12 diction of that Superintendent at the election of the cadet
13 or midshipman.

14 (e) REPORT.—Not later than 180 days after the date
15 of the enactment of this Act, the Secretaries of the mili-
16 tary departments shall submit to the Committees on
17 Armed Services of the Senate and the House of Represent-
18 atives a joint report that includes the following:

19 (1) The number of cadets or midshipmen with
20 an identified speech disorder in each military service
21 academy.

22 (2) A list of the health care and administrative
23 resources related to speech disorders available to ca-
24 dets and midshipmen described in paragraph (1).

1 (3) A list of positions and specialties described
2 in subsection (c) pursued by the cadets and mid-
3 shipmen described in paragraph (1) at the time of
4 graduation.

5 **SEC. 559. REQUIREMENT TO CONTINUE PROVISION OF TUI-**
6 **TION ASSISTANCE FOR MEMBERS OF THE**
7 **ARMED FORCES.**

8 The Secretary of each military department shall carry
9 out tuition assistance programs for members of an Armed
10 Force under the jurisdiction of that Secretary during fis-
11 cal year 2020 using an amount not less than the sum of
12 any amounts appropriated for tuition assistance for mem-
13 bers of that Armed Force for fiscal year 2020.

14 **SEC. 560. INFORMATION ON INSTITUTIONS OF HIGHER**
15 **EDUCATION PARTICIPATING IN THE DEPART-**
16 **MENT OF DEFENSE TUITION ASSISTANCE**
17 **PROGRAM.**

18 (a) LIST OF PARTICIPATING INSTITUTIONS.—The
19 Secretary of Defense shall make available, on a publicly
20 accessible website of the Department of Defense, a list
21 that identifies—

22 (1) each institution of higher education that re-
23 ceives funds under the Department of Defense Tui-
24 tion Assistance Program; and

1 (2) the amount of such funds received by the
2 institution.

3 (b) ANNUAL UPDATES.—The Secretary of Defense
4 shall update the list described in subsection (a) not less
5 frequently than once annually.

6 **SEC. 560A. INCLUSION OF INFORMATION ON FREE CREDIT**
7 **MONITORING IN ANNUAL FINANCIAL LIT-**
8 **ERACY BRIEFING.**

9 The Secretary of each military department shall en-
10 sure that the annual financial literacy education briefing
11 provided to members of the Armed Forces includes infor-
12 mation on the availability of free credit monitoring serv-
13 ices pursuant to section 605A(k) of the Fair Credit Re-
14 porting Act (15 U.S.C. 1681e–1(k)).

15 **SEC. 560B. PROGRAMS TO FACILITATE THE AWARD OF PRI-**
16 **VATE PILOT'S CERTIFICATES.**

17 (a) PROGRAMS AUTHORIZED.—Each Secretary of a
18 military department may carry out a program under which
19 qualified participants may obtain a private pilot's certifi-
20 cate through an institution of higher education with an
21 accredited aviation program that is approved by such Sec-
22 retary pursuant to subsection (c).

23 (b) PARTICIPANT QUALIFICATIONS AND TYPES OF
24 ASSISTANCE.—

1 (1) IN GENERAL.—In carrying out a program
2 under subsection (a), the Secretary of a military de-
3 partment shall prescribe—

4 (A) the standards to be met for participa-
5 tion in the program; and

6 (B) the types of assistance, if any, to be
7 provided to individuals who participate in the
8 program.

9 (2) UNIFORMITY ACROSS MILITARY DEPART-
10 MENTS.—To the extent practicable, the standards
11 and types of assistance prescribed under paragraph
12 (1) shall be uniform across the military depart-
13 ments.

14 (c) APPROVED INSTITUTIONS OF HIGHER EDU-
15 CATION.—

16 (1) IN GENERAL.—In carrying out a program
17 under subsection (a), the Secretary of a military de-
18 partment shall maintain a list of institutions of high-
19 er education (as that term is defined in section 101
20 of the Higher Education Act of 1965 (20 U.S.C.
21 1001)) through which an individual participating in
22 the program may obtain a private pilot's certificate.

23 (2) QUALIFICATIONS AND STANDARDS.—Any
24 institution of higher education included on a list
25 under paragraph (1), and any course of instruction

1 toward obtaining a private pilot's certificate offered
2 by such institution, shall meet such qualifications
3 and standards as the Secretary shall prescribe for
4 purposes of the program. Such qualifications and
5 standards shall include a requirement that any insti-
6 tution included on the list award, to individual par-
7 ticipating in the program, academic credit at such
8 institution for any portion of course work completed
9 on the ground school course of instruction of such
10 institution in connection with obtaining a private pi-
11 lot's certificate, regardless of whether the participant
12 fully completed the ground school course of instruc-
13 tion.

14 (d) ANNUAL REPORTS ON PROGRAMS.—

15 (1) IN GENERAL.—Not later than February 28,
16 2021, and each year thereafter, each Secretary of a
17 military department shall submit to Congress a re-
18 port on the program, if any, carried out by such
19 Secretary under subsection (a) during the preceding
20 calendar year.

21 (2) ELEMENTS.—Each report under paragraph
22 (1) shall include, for the program and year covered
23 by such report, the following:

24 (A) The total number of participants in
25 the program.

1 (B) The number of private pilot’s certifi-
2 cates awarded to participants in the program.

3 (C) The number of participants in the pro-
4 gram who fully completed a ground school
5 course of instruction in connection with obtain-
6 ing a private pilot’s certificate.

7 **Subtitle G—Member Training and** 8 **Transition**

9 **SEC. 561. REQUIREMENT TO PROVIDE INFORMATION RE-** 10 **GARDING BENEFITS CLAIMS TO MEMBERS** 11 **DURING TAP COUNSELING.**

12 Section 1142(b) of title 10, United States Code, is
13 amended by adding at the end the following new para-
14 graph:

15 “(19) Information regarding how to file claims
16 for benefits available to the member under laws ad-
17 ministered by the Secretaries of Defense and Vet-
18 erans Affairs.”.

19 **SEC. 562. PARTICIPATION OF OTHER FEDERAL AGENCIES** 20 **IN THE SKILLBRIDGE APPRENTICESHIP AND** 21 **INTERNSHIP PROGRAM FOR MEMBERS OF** 22 **THE ARMED FORCES.**

23 Section 1143(e) of title 10, United States Code, is
24 amended—

1 (1) by redesignating paragraph (3) as para-
2 graph (4); and

3 (2) by inserting after paragraph (2) the fol-
4 lowing new paragraph (3):

5 “(3) Any program under this subsection may be car-
6 ried out at, through, or in consultation with such other
7 departments or agencies of the Federal Government as the
8 Secretary of the military department concerned considers
9 appropriate.”.

10 **SEC. 563. FIRST MODIFICATION OF ELEMENTS OF REPORT**
11 **ON THE IMPROVED TRANSITION ASSISTANCE**
12 **PROGRAM.**

13 Section 552(b)(4) of the John S. McCain National
14 Defense Authorization Act for Fiscal Year 2019 (Public
15 Law 115–232) is amended by adding at the end the fol-
16 lowing:

17 “(E) The evaluation of the Secretary re-
18 garding the effectiveness of the Transition As-
19 sistance Program for all members of the Armed
20 Forces.

21 “(F) The evaluation of the Secretary re-
22 garding the effectiveness of the Transition As-
23 sistance Program specifically for female mem-
24 bers of the Armed Forces.”.

1 **SEC. 564. SECOND MODIFICATION OF ELEMENTS OF RE-**
2 **PORT ON THE IMPROVED TRANSITION AS-**
3 **SISTANCE PROGRAM.**

4 Section 552(b)(4) of the John S. McCain National
5 Defense Authorization Act for Fiscal Year 2019 (Public
6 Law 115–232), as amended by section 563 of this Act,
7 is further amended—

8 (1) by redesignating subparagraphs (A) through
9 (F) as subparagraphs (B) through (G), respectively;

10 (2) by inserting before subparagraph (B), as re-
11 designated by paragraph (1), the following new sub-
12 paragraph (A):

13 “(A) The total number of members eligible
14 to attend Transition Assistance Program coun-
15 seling.”; and

16 (3) by adding at the end the following new sub-
17 paragraphs:

18 “(H) The number of members who partici-
19 pated in programs under section 1143(e) of
20 title 10, United States Code (commonly re-
21 ferred to as ‘Job Training, Employment Skills,
22 Apprenticeships and Internships (JTEST-AI)’
23 or ‘Skill Bridge’).

24 “(I) Such other information as is required
25 to provide Congress with a comprehensive de-
26 scription of the participation of the members in

1 the Transition Assistance Program and pro-
2 grams described in subparagraph (H).”.

3 **SEC. 565. PROHIBITION ON GENDER-SEGREGATED TRAIN-**
4 **ING AT MARINE CORPS RECRUIT DEPOTS.**

5 (a) PARRIS ISLAND.—

6 (1) PROHIBITION.—Subject to paragraph (2),
7 training at the Marine Corps Recruit Depot, Parris
8 Island, South Carolina, may not be segregated based
9 on gender.

10 (2) DEADLINE.—The Commandant of the Ma-
11 rine Corps shall carry out this subsection not later
12 than five years after the date of the enactment of
13 this Act.

14 (b) SAN DIEGO.—

15 (1) PROHIBITION.—Subject to paragraph (2),
16 training at the Marine Corps Recruit Depot, San
17 Diego, California, may not be segregated based on
18 gender.

19 (2) DEADLINE.—The Commandant of the Ma-
20 rine Corps shall carry out this subsection not later
21 than eight years after the date of the enactment of
22 this Act.

1 **SEC. 566. ASSESSMENT OF DEATHS OF RECRUITS UNDER**
2 **THE JURISDICTION OF THE SECRETARIES OF**
3 **THE MILITARY DEPARTMENTS.**

4 (a) ASSESSMENT.—The Inspector General of the De-
5 partment of Defense shall conduct an assessment of the
6 deaths of recruits at facilities under the jurisdiction of the
7 Secretaries of the military departments, and the effective-
8 ness of the current medical protocols on the training
9 bases.

10 (b) REPORT.—Not later than September 30, 2020,
11 the Inspector General shall submit to the Committees on
12 Armed Services of the Senate and the House of Represent-
13 ative a report containing the results of the assessment con-
14 ducted under subsection (a). The report shall include the
15 following:

16 (1) The number of recruits who died during
17 basic training in the five years preceding the date of
18 the report.

19 (2) The causes of deaths described in para-
20 graph (1).

21 (3) The types of medical treatment that was
22 provided to recruits described in paragraph (1).

23 (4) Whether any of the deaths identified under
24 paragraph (1) were found to be a result of medical
25 negligence.

1 (5) A description of medical capabilities and
2 personnel available to the recruits at each facility.

3 (6) A description of medical resources accessible
4 to the recruits at the company level at each facility.

5 (7) A description of 24-hour medical resources
6 available to recruits at each facility.

7 (8) An evaluation of the guidelines and re-
8 sources in place to monitor sick recruits.

9 (9) An evaluation of how supervisors evaluate
10 and determine whether a sick recruit should con-
11 tinue training or further seek medical assistance.

12 (10) An evaluation of how the Secretaries of
13 the military departments can increase visibility of
14 the comprehensive medical status of a sick recruit to
15 instructors and supervisors in order to provide better
16 situational awareness of the such medical status.

17 (11) An evaluation of how to improve medical
18 care for recruits.

19 **SEC. 567. REVIEW OF DEPARTMENT OF DEFENSE TRAINING**
20 **PROGRAMS REGARDING DISINFORMATION**
21 **CAMPAIGNS.**

22 (a) REVIEW.—Not later than 120 days after the en-
23 actment of this Act, the Secretary of Defense shall con-
24 duct a review of existing programs, tools, and resources
25 of the Department of Defense for training members of the

1 Armed Forces and employees of the Department regarding
2 the threat of disinformation campaigns specifically tar-
3 geted at such individuals and the families of such individ-
4 uals.

5 (b) REPORT REQUIRED.—Not later than 270 days
6 after the enactment of this Act, the Secretary of Defense
7 shall submit a report to the congressional defense commit-
8 tees regarding the programs, tools, and resources identi-
9 fied under subsection (a).

10 **SEC. 568. COMMAND MATTERS IN CONNECTION WITH**
11 **TRANSITION ASSISTANCE PROGRAMS.**

12 The training provided a commander of a military in-
13 stallation in connection with the commencement of assign-
14 ment to the installation shall include a module on the cov-
15 ered transition assistance programs available for members
16 of the Armed Forces assigned to the installation.

17 **SEC. 569. MACHINE READABILITY AND ELECTRONIC**
18 **TRANSFERABILITY OF CERTIFICATE OF RE-**
19 **LEASE OR DISCHARGE FROM ACTIVE DUTY**
20 **(DD FORM 214).**

21 (a) MODIFICATION REQUIRED.—The Secretary of
22 Defense shall modify the Certificate of Release or Dis-
23 charge from Active Duty (DD Form 214) to—

24 (1) be machine readable and electronically
25 transferable; and

1 (2) include a specific block explicitly identified
2 as the location in which a member of the Armed
3 Forces may provide one or more email addresses by
4 which the member may be contacted after discharge
5 or release from active duty.

6 (b) DEADLINE FOR MODIFICATION.—The Secretary
7 of Defense shall release a revised Certificate of Release
8 or Discharge from Active Duty (DD Form 214), modified
9 pursuant to subsection (a), not later than four years after
10 the date of the enactment of this Act.

11 (c) REPORT.—Not later than 180 days after the date
12 of the enactment of this Act, the Secretary of Defense
13 shall submit a report to Congress regarding the following:

14 (1) What systems of the Department of De-
15 fense require an individual to manually enter infor-
16 mation from DD Form 214.

17 (2) What activities of the Department of De-
18 fense require a veteran or former member of the
19 Armed Forces to provide a physical copy of DD
20 Form 214.

21 (3) The order of priority for modernizing items
22 identified under paragraphs (1) and (2) as deter-
23 mined by the Secretary.

1 (4) The estimated cost, as determined by the
2 Secretary, to automate items identified under para-
3 graphs (1) and (2).

4 **SEC. 570. RECORDS OF SERVICE FOR RESERVES.**

5 (a) ESTABLISHMENT.—Not later than September 30,
6 2020, the Secretary of Defense shall establish and imple-
7 ment a standard record of service for members of the re-
8 serve components of the Armed Forces, similar to DD
9 Form 214, that summarizes the record of service of each
10 such member, including dates of active duty service.

11 (b) COORDINATION.—In carrying out this section, the
12 Secretary of Defense shall coordinate with the Secretary
13 of Veterans Affairs to ensure that the record established
14 under this section is acceptable as proof of service for
15 former members of the reserve components of the Armed
16 Forces who are eligible for benefits under laws adminis-
17 tered by the Secretary of Veterans Affairs to receive such
18 benefits.

1 **SEC. 570A. LIMITATIONS AND REQUIREMENTS IN CONNEC-**
2 **TION WITH SEPARATIONS FOR MEMBERS OF**
3 **THE ARMED FORCES WHO SUFFER FROM**
4 **MENTAL HEALTH CONDITIONS IN CONNEC-**
5 **TION WITH A SEX-RELATED, INTIMATE PART-**
6 **NER VIOLENCE-RELATED, OR SPOUSAL-**
7 **ABUSE OFFENSE.**

8 (a) CONFIRMATION OF DIAGNOSIS OF CONDITION
9 REQUIRED BEFORE SEPARATION.—Before a member of
10 the Armed Forces who was the victim of a sex-related of-
11 fense, an intimate partner violence-related offense, or a
12 spousal-abuse offense during service in the Armed Forces
13 (whether or not such offense was committed by another
14 member of the Armed Forces), and who has a mental
15 health condition not amounting to a physical disability, is
16 separated, discharged, or released from the Armed Forces
17 based solely on such condition, the diagnosis of such condi-
18 tion must be—

19 (1) corroborated by a competent mental health
20 care professional at the peer level or a higher level
21 of the health care professional making the diagnosis;
22 and

23 (2) endorsed by the Surgeon General of the
24 military department concerned.

25 (b) NARRATIVE REASON FOR SEPARATION IF MEN-
26 TAL HEALTH CONDITION PRESENT.—If the narrative rea-

1 son for separation, discharge, or release from the Armed
2 Forces of a member of the Armed Forces is a mental
3 health condition that is not a disability, the appropriate
4 narrative reason for the separation, discharge, or release
5 shall be a condition, not a disability, or Secretarial author-
6 ity.

7 (c) DEFINITIONS.—In this section:

8 (1) The term “intimate partner violence-related
9 offense” means the following:

10 (A) An offense under section 928 or 930
11 of title 10, United States Code (article 128 or
12 130 of the Uniform Code of Military Justice).

13 (B) An offense under State law for con-
14 duct identical or substantially similar to an of-
15 fense described in subparagraph (A).

16 (2) The term “sex-related offense” means the
17 following:

18 (A) An offense under section 920 or 920b
19 of title 10, United States Code (article 120 or
20 120b of the Uniform Code of Military Justice).

21 (B) An offense under State law for con-
22 duct identical or substantially similar to an of-
23 fense described in subparagraph (A).

24 (3) The term “spousal-abuse offense” means
25 the following:

1 (A) An offense under section 928 of title
2 10, United States Code (article 128 of the Uni-
3 form Code of Military Justice).

4 (B) An offense under State law for con-
5 duct identical or substantially similar to an of-
6 fense described in subparagraph (A).

7 (d) EFFECTIVE DATE.—This section shall take effect
8 180 days after the date of the enactment of this Act, and
9 shall apply with respect to separations, discharges, and re-
10 leases from the Armed Forces that occur on or after that
11 effective date.

12 **SEC. 570B. PROHIBITION ON INVOLUNTARY SEPARATION**
13 **OF CERTAIN MEMBERS OF THE ARMED**
14 **FORCES; CONSIDERATION OF MILITARY**
15 **SERVICE IN REMOVAL DETERMINATIONS.**

16 (a) PROHIBITION ON INVOLUNTARY SEPARATION.—

17 (1) IN GENERAL.—No member of the Armed
18 Forces may be involuntarily separated from the
19 Armed Forces solely because that member is a cov-
20 ered member.

21 (2) COVERED MEMBER DEFINED.—In this sub-
22 section, the term “covered member” means a mem-
23 ber of the Armed Forces who—

24 (A) possesses a current and valid employ-
25 ment authorization document that was issued

1 pursuant to the memorandum of the Secretary
2 of Homeland Security dated June 15, 2012,
3 and entitled “Exercising Prosecutorial Discre-
4 tion with Respect to Individuals who Came to
5 the United States as Children”; or

6 (B) is currently in a temporary protected
7 status under section 244 of the Immigration
8 and Nationality Act (8 U.S.C. 1254a).

9 (b) CONSIDERATION OF MILITARY SERVICE IN RE-
10 MOVAL DETERMINATIONS.—

11 (1) IN GENERAL.—With regards to an indi-
12 vidual, an immigration officer shall take into consid-
13 eration evidence of military service by that individual
14 in determining whether—

15 (A) to issue to that individual a notice to
16 appear in removal proceedings, an administra-
17 tive order of removal, or a reinstatement of a
18 final removal order; and

19 (B) to execute a final order of removal re-
20 garding that individual.

21 (2) DEFINITIONS.—In this subsection:

22 (A) The term “evidence of service” means
23 evidence that an individual served as a member
24 of the Armed Forces, and the characterization

1 of each period of service of that individual in
2 the Armed Forces.

3 (B) The term “immigration officer” has
4 the meaning given that term in section 101 of
5 the Immigration and Nationality Act (8 U.S.C.
6 1101 et seq.).

7 **SEC. 570C. INCLUSION OF QUESTION REGARDING IMMI-**
8 **GRATION STATUS ON PRESEPARATION COUN-**
9 **SELING CHECKLIST (DD FORM 2648).**

10 Not later than September 30, 2020, the Secretary of
11 Defense shall modify the preseparation counseling check-
12 list for active component, active guard reserve, active re-
13 serve, full time support, and reserve program adminis-
14 trator service members (DD Form 2648) to include a spe-
15 cific block wherein a member of the Armed Forces may
16 indicate that the member would like to receive information
17 regarding the immigration status of that member and ex-
18 pedited naturalization.

19 **SEC. 570D. COUNSELING FOR MEMBERS OF THE ARMED**
20 **FORCES WHO ARE NOT CITIZENS OF THE**
21 **UNITED STATES ON NATURALIZATION IN THE**
22 **UNITED STATES.**

23 (a) IN GENERAL.—The Secretary concerned shall
24 furnish to covered individuals under the jurisdiction of

1 that Secretary counseling regarding how to apply for natu-
2 ralization in the United States.

3 (b) DEFINITIONS.—In this section:

4 (1) The term “covered individual” means a
5 member of the Armed Forces who is not a citizen of
6 the United States.

7 (2) The term “Secretary concerned” has the
8 meaning given that term in section 101(a)(9) of title
9 10, United States Code.

10 **SEC. 570E. PILOT PROGRAM ON INFORMATION SHARING**
11 **BETWEEN DEPARTMENT OF DEFENSE AND**
12 **DESIGNATED RELATIVES AND FRIENDS OF**
13 **MEMBERS OF THE ARMED FORCES REGARD-**
14 **ING THE EXPERIENCES AND CHALLENGES OF**
15 **MILITARY SERVICE.**

16 (a) PILOT PROGRAM REQUIRED.—

17 (1) IN GENERAL.—Not later than one year
18 after the date of the enactment of this Act, the Sec-
19 retary of Defense shall seek to enter into an agree-
20 ment with the American Red Cross to carry out a
21 pilot program under which the American Red
22 Cross—

23 (A) encourages a member of the Armed
24 Forces, upon the enlistment or appointment of
25 such member, to designate up to 10 persons to

1 whom information regarding the military serv-
2 ice of such member shall be disseminated using
3 contact information obtained under paragraph
4 (6); and

5 (B) provides such persons, within 30 days
6 after the date on which such persons are des-
7 ignated under subparagraph (A), the option to
8 elect to receive such information regarding mili-
9 tary service.

10 (2) DISSEMINATION.—The Secretary shall dis-
11 seminate information described in paragraph (1)(A)
12 under the pilot program on a regular basis.

13 (3) TYPES OF INFORMATION.—The types of in-
14 formation to be disseminated under the pilot pro-
15 gram to persons who elect to receive such informa-
16 tion shall include information regarding—

17 (A) aspects of daily life and routine experi-
18 enced by members of the Armed Forces;

19 (B) the challenges and stresses of military
20 service, particularly during and after deploy-
21 ment as part of a contingency operation;

22 (C) the services available to members of
23 the Armed Forces and the dependents of such
24 members to cope with the experiences and chal-
25 lenges of military service;

1 (D) benefits administered by the Depart-
2 ment of Defense for members of the Armed
3 Forces and the dependents of such members;

4 (E) a toll-free telephone number through
5 which such persons who elect to receive infor-
6 mation under the pilot program may request in-
7 formation regarding the program; and

8 (F) such other information as the Sec-
9 retary determines to be appropriate.

10 (4) PRIVACY OF INFORMATION.—In carrying
11 out the pilot program, the Secretary may not dis-
12 seminate information under paragraph (3) in viola-
13 tion of laws and regulations pertaining to the pri-
14 vacy of members of the Armed Forces, including re-
15 quirements pursuant to—

16 (A) section 552a of title 5, United States
17 Code; and

18 (B) the Health Insurance Portability and
19 Accountability Act of 1996 (Public Law 104–
20 191).

21 (5) NOTICE AND MODIFICATIONS.—In carrying
22 out the pilot program, the Secretary shall, with re-
23 spect to a member of the Armed Forces—

1 (A) ensure that such member is notified of
2 the ability to modify designations made by such
3 member under paragraph (1)(A); and

4 (B) upon the request of a member, author-
5 ize such member to modify such designations at
6 any time.

7 (6) CONTACT INFORMATION.—In making a des-
8 ignation under the pilot program, a member of the
9 Armed Forces shall provide necessary contact infor-
10 mation, specifically including an email address, to
11 facilitate the dissemination of information regarding
12 the military service of the member.

13 (7) OPT-IN AND OPT-OUT OF PROGRAM.—

14 (A) OPT-IN BY MEMBERS.—A member may
15 participate in the pilot program only if the
16 member voluntarily elects to participate in the
17 program. A member seeking to make such an
18 election shall make such election in a manner,
19 and by including such information, as the Sec-
20 retary and the Red Cross shall jointly specify
21 for purposes of the pilot program.

22 (B) OPT-IN BY DESIGNATED RECIPI-
23 ENTS.—A person designated pursuant to para-
24 graph (1)(A) may receive information under the

1 pilot program only if the person makes the elec-
2 tion described in paragraph (1)(B).

3 (C) OPT-OUT.—In carrying out the pilot
4 program, the Secretary shall, with respect to a
5 person who has elected to receive information
6 under such pilot program, cease disseminating
7 such information to that person upon request of
8 such person.

9 (b) SURVEY AND REPORT ON PILOT PROGRAM.—

10 (1) SURVEY.—Not later than two years after
11 the date on which the pilot program commences, the
12 Secretary, in consultation with the American Red
13 Cross, shall administer a survey to persons who
14 elected to receive information under the pilot pro-
15 gram for the purpose of receiving feedback regarding
16 the quality of information disseminated under this
17 section, including whether such information appro-
18 priately reflects the military career progression of
19 members of the Armed Forces.

20 (2) REPORT.—Not later than three years after
21 the date on which the pilot program commences, the
22 Secretary shall submit to the congressional defense
23 committees a final report on the pilot program which
24 includes—

1 (A) the results of the survey administered
2 under paragraph (1);

3 (B) a determination as to whether the pilot
4 program should be made permanent; and

5 (C) recommendations as to modifications
6 necessary to improve the program if made per-
7 manent.

8 (c) **TERMINATION OF PILOT PROGRAM.**—The pilot
9 program shall terminate upon submission of the report re-
10 quired by subsection (b)(2).

11 **SEC. 570F. CONNECTIONS OF MEMBERS RETIRING OR SEP-**
12 **ARATING FROM THE ARMED FORCES WITH**
13 **COMMUNITY-BASED ORGANIZATIONS AND**
14 **RELATED ENTITIES.**

15 (a) **IN GENERAL.**—The Secretary of Defense and the
16 Secretary of Veterans Affairs shall jointly seek to enter
17 into memoranda of understanding or other agreements
18 with State veterans agencies under which information
19 from Department of Defense Form DD–2648 on individ-
20 uals undergoing retirement, discharge, or release from the
21 Armed Forces is transmitted to one or more State vet-
22 erans agencies, as elected by such individuals, to provide
23 or connect veterans to benefits or services as follows:

24 (1) Assistance in preparation of resumes.

25 (2) Training for employment interviews.

1 (3) Employment recruitment training.

2 (4) Other services leading directly to a success-
3 ful transition from military life to civilian life.

4 (5) Healthcare, including care for mental
5 health.

6 (6) Transportation or transportation-related
7 services.

8 (7) Housing.

9 (8) Such other benefits or services as the Secre-
10 taries jointly consider appropriate for purposes of
11 this section.

12 (b) INFORMATION TRANSMITTED.—The information
13 transmitted on individuals as described in subsection (a)
14 shall be such information on Form DD–2648 as the Secre-
15 taries jointly consider appropriate to facilitate community-
16 based organizations and related entities in providing or
17 connecting such individuals to benefits and services as de-
18 scribed in subsection (a).

19 (c) MODIFICATION OF FORM DD–2648.—The Sec-
20 retary of Defense shall make such modifications to Form
21 DD–2648 as the Secretary considers appropriate to allow
22 an individual filling out the form to indicate an email ad-
23 dress at which the individual may be contacted to receive
24 or be connected to benefits or services described in sub-
25 section (a).

1 (d) VOLUNTARY PARTICIPATION.—Information on an
2 individual may be transmitted to and through a State vet-
3 erans agency as described in subsection (a) only with the
4 consent of the individual. In giving such consent, an indi-
5 vidual shall specify the following:

6 (1) The State veterans agency or agencies elect-
7 ed by the individual to transmit such information as
8 described in subsection (a).

9 (2) The benefits and services for which contact
10 information shall be so transmitted.

11 (3) Such other information on the individual as
12 the individual considers appropriate in connection
13 with the transmittal.

14 **SEC. 570G. PILOT PROGRAM REGARDING ONLINE APPLICA-**
15 **TION FOR THE TRANSITION ASSISTANCE**
16 **PROGRAM.**

17 (a) ESTABLISHMENT.—The Secretary of Defense, the
18 Secretary of Veterans Affairs, and the Secretary of Labor
19 may jointly carry out a pilot program that creates a one-
20 stop source for online applications for the purposes of as-
21 sisting members of the Armed Forces and Veterans par-
22 ticipating in the Transition Assistance Program (in this
23 section referred to as “TAP”).

24 (b) DATA SOURCES.—If the Secretaries carry out the
25 pilot program, any online application developed under such

1 program shall, in part, aggregate existing data from gov-
2 ernment resources and the private sector under one uni-
3 form resource locator for the purpose of assisting members
4 of the Armed Forces and veterans participating in TAP.

5 (c) AVAILABILITY; ACCESSIBILITY.—Any online ap-
6 plication developed under a pilot program shall, to the ex-
7 tent feasible be—

8 (1) widely available as a mobile application; and
9 (2) easily accessible by veterans, members of
10 the Armed Forces, and employers.

11 (d) ASSESSMENTS.—

12 (1) INTERIM ASSESSMENTS.—Not later than
13 the dates that are one and two years after the date
14 of the commencement of any pilot program under
15 this section, the Secretaries shall jointly assess the
16 pilot program.

17 (2) FINAL ASSESSMENT.—Not later than the
18 date that is three years after the date of the com-
19 mencement of any pilot program under this section,
20 the Secretaries shall jointly carry out a final assess-
21 ment of the pilot program.

22 (3) PURPOSE.—The general objective of each
23 assessment under this subsection shall be to deter-
24 mine if the online application under the pilot pro-
25 gram helps participants in TAP to accomplish the

1 goals of TAP, accounting for the individual profiles
2 of participants, including military experience and ge-
3 ographic location.

4 (e) BRIEFING.—If the Secretaries carry out the pilot
5 program, the Secretary of Defense shall provide to the
6 Committees on Armed Services of the Senate and House
7 of Representatives a briefing on findings regarding the
8 pilot program, including any recommendations for legisla-
9 tion.

10 (f) DEFINITIONS.—In this section:

11 (1) The term “mobile application” means a
12 software program that runs on the operating system
13 of a mobile device.

14 (2) The term “mobile device” means a
15 smartphone, tablet computer, or similar portable
16 computing device that transmits data over a wireless
17 connection.

18 **Subtitle H—Military Family Readiness and Dependents’ Education**

19 **SEC. 571. AUTHORIZING MEMBERS TO TAKE LEAVE FOR A** 20 **BIRTH OR ADOPTION IN MORE THAN ONE IN-** 21 **CREMENT.**

22
23 Paragraph (5) of section 701(i) of title 10, United
24 States Code, is amended—

1 (1) by striking “only in one increment” and in-
2 sserting “in more than one increment”; and

3 (2) by inserting “in accordance with regulations
4 prescribed by the Secretary concerned” before the
5 period.

6 **SEC. 572. DEFERRED DEPLOYMENT FOR MEMBERS WHO**
7 **GIVE BIRTH.**

8 Section 701 of title 10, United States Code, is
9 amended by adding at the end the following new sub-
10 section:

11 “(1) A member of the armed forces who gives birth
12 while on active duty may be deployed during the period
13 of 12 months beginning on the date of such birth only
14 with the approval of a health care provider employed at
15 a military medical treatment facility and—

16 “(1) at the election of such member; or

17 “(2) in the interest of national security, as de-
18 termined by the Secretary of Defense.”.

19 **SEC. 573. AUTHORITY OF THE SECRETARY CONCERNED TO**
20 **TRANSPORT REMAINS OF A COVERED DECE-**
21 **DENT TO NO MORE THAN TWO PLACES SE-**
22 **LECTED BY THE PERSON DESIGNATED TO DI-**
23 **RECT DISPOSITION OF THE REMAINS.**

24 (a) **AUTHORITY.**—Section 1482(a)(8) of title 10,
25 United States Code, is amended to read as follows:

1 “(8)(A) Transportation of the remains, and
2 travel and transportation allowances as specified in
3 regulations prescribed under section 464 of title 37
4 for an escort of one person, to the place, subject to
5 subparagraph (B), selected by the person designated
6 to direct disposition of the remains or, if such a se-
7 lection is not made, to a national or other cemetery
8 which is selected by the Secretary and in which bur-
9 ial of the decedent is authorized.

10 “(B) The person designated to direct disposi-
11 tion of the remains may select two places under sub-
12 paragraph (A) if the second place is a national cem-
13 etry. If that person selects two places, the Sec-
14 retary concerned may pay for transportation to the
15 second place only by means of reimbursement under
16 subsection (b).

17 “(C) When transportation of the remains in-
18 cludes transportation by aircraft under section 562
19 of the John Warner National Defense Authorization
20 Act for Fiscal Year 2007 (Public Law 109–364; 10
21 U.S.C. 1482 note), the Secretary concerned shall
22 provide, to the maximum extent practicable, for de-
23 livery of the remains by air to the commercial, gen-
24 eral aviation, or military airport nearest to the place
25 selected by the designee.”.

1 (b) MILITARY ESCORT AND HONOR GUARD ONLY TO
2 FIRST LOCATION.—Section 562(b) of the John Warner
3 National Defense Authorization Act for Fiscal Year 2007
4 (Public Law 109–364; 10 U.S.C. 1482 note) is amended
5 by adding at the end the following: “If the person des-
6 ignated to direct disposition of the remains selects two
7 places under such section, the term means only the first
8 of those two places.”.

9 **SEC. 574. MILITARY FUNERAL HONORS MATTERS.**

10 (a) FULL MILITARY HONORS CEREMONY FOR CER-
11 TAIN VETERANS.—Section 1491(b) of title 10, United
12 States Code, is amended by adding at the end the fol-
13 lowing:

14 “(3) The Secretary concerned shall provide full mili-
15 tary honors (as determined by the Secretary concerned)
16 for the funeral of a veteran who—

17 “(A) is first interred or first inurned in Arling-
18 ton National Cemetery on or after the date of the
19 enactment of the National Defense Authorization
20 Act for Fiscal Year 2020;

21 “(B) was awarded the medal of honor or the
22 prisoner-of-war medal; and

23 “(C) is not entitled to full military honors by
24 the grade of that veteran.”.

1 (b) FULL MILITARY FUNERAL HONORS FOR VET-
2 ERANS AT MILITARY INSTALLATIONS.—

3 (1) INSTALLATION PLANS FOR HONORS RE-
4 QUIRED.—The commander of each military installa-
5 tion at or through which a funeral honors detail for
6 a veteran is provided pursuant to section 1491 of
7 title 10, United States Code (as amended by sub-
8 section (a)), shall maintain and carry out a plan for
9 the provision, upon request, of full military funeral
10 honors at funerals of veterans for whom a funeral
11 honors detail is authorized in that section.

12 (2) ELEMENTS.—Each plan of an installation
13 under paragraph (1) shall include the following:

14 (A) Mechanisms to ensure compliance with
15 the requirements applicable to the composition
16 of funeral honors details in section 1491(b) of
17 title 10, United States Code (as so amended).

18 (B) Mechanisms to ensure compliance with
19 the requirements for ceremonies for funerals in
20 section 1491(e) of such title.

21 (C) In addition to the ceremonies required
22 pursuant to subparagraph (B), the provision of
23 a gun salute, if otherwise authorized, for each
24 funeral by appropriate personnel, including per-
25 sonnel of the installation, members of the re-

1 serve components of the Armed Forces residing
2 in the vicinity of the installation who are or-
3 dered to funeral honors duty, or members of
4 veterans organizations or other organizations
5 referred to in section 1491(b)(2) of such title.

6 (D) Mechanisms for the provision of sup-
7 port authorized by section 1491(d) of such title.

8 (E) Such other mechanisms and activities
9 as the Secretary concerned considers appro-
10 priate in order to assure that full military fu-
11 neral honors are provided upon request at fu-
12 nerals of veterans.

13 (3) DEFINITIONS.—In this subsection:

14 (A) The term “Secretary concerned” has
15 the meaning given that term in section
16 101(a)(9) of title 10, United States Code.

17 (B) The term “veteran” has the meaning
18 given that term in section 1491(h) of title 10,
19 United States Code.

20 **SEC. 575. IMPROVEMENT OF OCCUPATIONAL LICENSE**
21 **PORTABILITY FOR RELOCATED SPOUSES OF**
22 **MEMBERS OF THE UNIFORMED SERVICES.**

23 Section 1784 of title 10, United States Code, is
24 amended by adding at the end the following new sub-
25 section:

1 “(h) IMPROVEMENT OF OCCUPATIONAL LICENSE
2 PORTABILITY THROUGH INTERSTATE COMPACTS.—

3 “(1) IN GENERAL.—The Secretary of Defense
4 shall seek to enter into a cooperative agreement with
5 the Council of State Governments to assist with
6 funding of the development of interstate compacts
7 on licensed occupations in order to alleviate the bur-
8 den associated with relicensing in such an occupa-
9 tion by spouse of a members of the armed forces in
10 connection with a permanent change of duty station
11 of members to another State.

12 “(2) LIMITATION ON ASSISTANCE PER COM-
13 PACT.—The amount provided under paragraph (1)
14 as assistance for the development of any particular
15 interstate compact may not exceed \$1,000,000.

16 “(3) LIMITATION ON TOTAL AMOUNT OF AS-
17 SISTANCE.—The total amount of assistance provided
18 under paragraph (1) in any fiscal year may not ex-
19 ceed \$4,000,000.

20 “(4) ANNUAL REPORT.—Not later than Feb-
21 ruary 28 each year, the Secretary shall submit to
22 the Committees on Armed Services of the Senate
23 and the House of Representatives a report on inter-
24 state compacts described in paragraph (1) developed

1 through assistance provided under that paragraph.

2 Each report shall set forth the following:

3 “(A) Any interstate compact developed
4 during the preceding calendar year, including
5 the occupational licenses covered by such com-
6 pact and the States agreeing to enter into such
7 compact.

8 “(B) Any interstate compact developed
9 during a prior calendar year into which one or
10 more additional States agreed to enter during
11 the preceding calendar year.

12 “(5) EXPIRATION.—The authority to enter into
13 a cooperative agreement under paragraph (1), and
14 to provide assistance described in that paragraph
15 pursuant to such cooperative agreement, expire on
16 September 30, 2024.”.

17 **SEC. 576. CONTINUED ELIGIBILITY FOR EDUCATION AND**
18 **TRAINING OPPORTUNITIES FOR SPOUSES OF**
19 **PROMOTED MEMBERS.**

20 Section 1784a(b) of title 10, United States Code, is
21 amended—

22 (1) by inserting “(1)” before “Assistance”; and

23 (2) by adding at the end the following new
24 paragraph:

1 “(2) A spouse who is eligible for a program under
2 this section and begins a course of education or training
3 for a degree, license, or credential described in subsection
4 (a) may not become ineligible to complete such course of
5 education or training solely because the member to whom
6 the spouse is married is promoted to a higher grade.”.

7 **SEC. 577. MODIFICATION TO AUTHORITY TO REIMBURSE**
8 **FOR STATE LICENSURE AND CERTIFICATION**
9 **COSTS OF A SPOUSE OF A SERVICEMEMBER**
10 **ARISING FROM RELOCATION.**

11 Section 476(p) of title 37, United States Code, is
12 amended—

13 (1) in paragraph (1), by striking “armed
14 forces” and inserting “uniformed services”;

15 (2) in paragraph (2), by striking “\$500” and
16 inserting “\$1,000”;

17 (3) in paragraph (3)—

18 (A) in subparagraph (A), by striking
19 “and”;

20 (B) in subparagraph (B), by striking the
21 period and inserting “; and”; and

22 (C) by adding at the end the following new
23 subparagraph:

24 “(C) an analysis of whether the maximum reim-
25 bursement amount under paragraph (2) is sufficient

1 to cover the average costs of relicensing described in
2 paragraph (1).”; and

3 (4) in paragraph (4), by striking “December
4 31, 2022” and inserting “December 31, 2024”.

5 **SEC. 578. CLARIFICATION REGARDING ELIGIBILITY TO**
6 **TRANSFER ENTITLEMENT UNDER POST-9/11**
7 **EDUCATIONAL ASSISTANCE PROGRAM.**

8 Section 3319(j) of title 38, United States Code, is
9 amended by adding at the end the following new para-
10 graph:

11 “(3) The Secretary of Defense may not prescribe any
12 regulation that would provide for a limitation on eligibility
13 to transfer unused education benefits to family members
14 based on a maximum number of years of service in the
15 Armed Forces.”.

16 **SEC. 579. ANNUAL STATE REPORT CARD.**

17 Section 1111(h)(1)(C)(ii) of the Elementary and Sec-
18 ondary Education Act of 1965 (20 U.S.C.
19 6311(h)(1)(C)(ii)) is amended by striking “on active duty
20 (as defined in section 101(d)(5) of such title)”.

21 **SEC. 580. IMPROVEMENTS TO CHILD CARE FOR MEMBERS**
22 **OF THE ARMED FORCES.**

23 (a) CLARIFYING TECHNICAL AMENDMENT TO DI-
24 RECT HIRE AUTHORITY OF THE DEPARTMENT OF DE-
25 FENSE FOR CHILD CARE SERVICES PROVIDERS FOR DE-

1 PARTMENT CHILD DEVELOPMENT CENTERS.—Section
2 559(e) of the National Defense Authorization Act for Fis-
3 cal Year 2018 (Public Law 115–91; 10 U.S.C. 1792 note)
4 is amended by inserting “(including family childcare coor-
5 dinator services and school age childcare coordinator serv-
6 ices)” after “childcare services”.

7 (b) ASSESSMENT OF FINANCIAL ASSISTANCE PRO-
8 VIDED TO CIVILIAN CHILD CARE PROVIDERS.—

9 (1) ASSESSMENT.—The Secretary of Defense
10 shall assess the maximum amount of financial as-
11 sistance provided to eligible civilian providers of
12 child care services or youth program services that
13 furnish such service for members of the armed
14 forces and employees of the United States under sec-
15 tion 1798 of title 10, United States Code. Such as-
16 sessment shall include the following:

17 (A) The determination of the Secretary
18 whether the maximum allowable financial as-
19 sistance should be standardized across the
20 Armed Forces.

21 (B) Whether the maximum allowable
22 amount adequately accounts for high-cost duty
23 stations.

24 (2) REPORT.—Not later than June 1, 2020, the
25 Secretary of Defense shall submit a report to the

1 Committees on Armed Services of the Senate and
2 the House of Representatives regarding the results
3 of the assessment under paragraph (1) and any ac-
4 tions taken by the Secretary to remedy identified
5 shortfalls in assistance described in that paragraph.

6 (c) REDUCTION IN WAIT LISTS FOR CHILD CARE AT
7 MILITARY INSTALLATIONS.—

8 (1) REMEDIAL ACTION.—The Secretary of De-
9 fense shall take steps the Secretary determines nec-
10 essary to reduce the waiting lists for child care at
11 military installations to ensure that members of the
12 Armed Forces have meaningful access to child care
13 during tours of duty.

14 (2) REPORT.—Not later than June 1, 2020, the
15 Secretary of Defense shall provide a report to the
16 Committees on Armed Forces of the Senate and the
17 House of Representative regarding—

18 (A) action taken under paragraph (1); and

19 (B) any additional resources (including ad-
20 ditional funding for and child care facilities and
21 workers) the Secretary determines necessary to
22 increase access described in paragraph (1).

23 (d) GAO REVIEW.—The Comptroller General of the
24 United States shall conduct a review of the assessments,
25 actions, and determinations of the Secretary under sub-

1 sections (b)(1) and (c). Not later than December 1, 2020,
2 the Comptroller General shall submit to the Committees
3 on Armed Services of the Senate and the House of Rep-
4 resentatives a report regarding the review performed
5 under this subsection.

6 (e) ASSESSMENT OF ACCESSIBILITY OF WEBSITES
7 OF THE DEPARTMENT OF DEFENSE RELATED TO CHILD
8 CARE AND SPOUSAL EMPLOYMENT.—

9 (1) ASSESSMENT.—The Secretary of Defense
10 shall review the functions and accessibility of
11 websites of the Department of Defense designed for
12 members of the Armed Forces and the families of
13 such members to access information and services of-
14 fered by the Department regarding child care,
15 spousal employment, and other family matters.

16 (2) REPORT.—Not later than March 1, 2020,
17 the Secretary of Defense shall provide a briefing to
18 the Committees on Armed Services of the Senate
19 and the House of Representatives regarding the re-
20 sults of the assessment under paragraph (1) and ac-
21 tions taken to enhance accessibility of the websites.

22 (f) PORTABILITY OF BACKGROUND INVESTIGATIONS
23 FOR CHILD CARE PROVIDERS.—Not later than 180 days
24 after the date of the enactment of this Act, the Secretary
25 of Defense shall ensure that the background investigation

1 and training certification for a child care provider em-
2 ployed by the Department of Defense in a facility of the
3 Department may be transferred to another facility of the
4 Department, without regard to which Secretary of a mili-
5 tary department has jurisdiction over either such facility.

6 **SEC. 580A. TRANSPORTATION OF REMAINS OF CASUALTIES;**

7 **TRAVEL EXPENSES FOR NEXT OF KIN.**

8 (a) TRANSPORTATION FOR REMAINS OF A MEMBER
9 WHO DIES NOT IN A THEATER OF COMBAT OPER-
10 ATIONS.—Section 562 of the John Warner National De-
11 fense Authorization Act for Fiscal Year 2007 (Public Law
12 109–364; 10 U.S.C. 1482 note), as amended by section
13 573 of this Act, is further amended—

14 (1) in the heading, by striking “**DYING IN A**
15 **THEATER OF COMBAT OPERATIONS**”; and

16 (2) in subsection (a), by striking “in a combat
17 theater of operations” and inserting “outside of the
18 United States”.

19 (b) TRANSPORTATION FOR FAMILY.—The Secretary
20 of Defense shall extend travel privileges via Invitational
21 Travel Authorization to family members of members of the
22 Armed Forces who die outside of the United States and
23 whose remains are returned to the United States through
24 the mortuary facility at Dover Air Force Base, Delaware.

1 **SEC. 580B. MEETINGS OF OFFICIALS OF THE DEPARTMENT**
2 **OF DEFENSE WITH REPRESENTATIVE**
3 **GROUPS OF SURVIVORS OF DECEASED MEM-**
4 **BERS OF THE ARMED FORCES.**

5 (a) CHIEFS OF THE ARMED FORCES.—The Secretary
6 of Defense shall direct the chiefs of the Armed Forces to
7 meet periodically with representative groups of survivors
8 of deceased members of the Armed Forces to receive feed-
9 back from those survivors regarding issues affecting such
10 survivors. The Chief of the National Guard Bureau shall
11 meet with representative groups of survivors of deceased
12 members of the Air National Guard and the Army Na-
13 tional Guard.

14 (b) UNDER SECRETARY OF DEFENSE FOR PER-
15 SONNEL AND READINESS.—The Under Secretary of De-
16 fense for Personnel and Readiness shall meet periodically
17 with representative groups of survivors of deceased mem-
18 bers of the Armed Forces to discuss policies of the Depart-
19 ment of Defense regarding military casualties and Gold
20 Star families.

21 (c) BRIEFING.—Not later than April 1, 2020, the
22 Under Secretary of Defense for Personnel and Readiness
23 shall brief the Committee on Armed Services of the House
24 of Representatives regarding policies established and the
25 results of the meetings under subsection (b).

1 **SEC. 580C. INFORMATION AND OPPORTUNITIES FOR REG-**
2 **ISTRATION FOR VOTING AND ABSENTEE BAL-**
3 **LOT REQUESTS FOR MEMBERS OF THE**
4 **ARMED FORCES UNDERGOING DEPLOYMENT**
5 **OVERSEAS.**

6 (a) IN GENERAL.—Not later than 45 days prior to
7 a general election for Federal office, a member of the
8 Armed Forces shall, upon request, be provided with the
9 following:

10 (1) A Federal write-in absentee ballot pre-
11 scribed pursuant to section 103 of the Uniformed
12 and Overseas Citizens Absentee Voting Act (52
13 U.S.C. 20303), together with instructions on the ap-
14 propriate use of the ballot with respect to the State
15 in which the member is registered to vote.

16 (2) In the case of a member intending to vote
17 in a State that does not accept the Federal write-
18 in absentee ballot as a simultaneous application and
19 acceptable ballot for Federal elections, instructions
20 on, and an opportunity to fill out, the official post
21 card form for absentee voter registration application
22 and absentee ballot application prescribed under sec-
23 tion 101(b)(2) of the Uniformed and Overseas Citi-
24 zens Absentee Voting Act (52 U.S.C. 20301(b)(2)).

25 (b) PERSONNEL RESPONSIBLE OF DISCHARGE.—
26 Ballots and instructions pursuant to paragraph (1) of sub-

1 section (a), and briefings and forms pursuant to para-
2 graph (2) of such subsection, shall be provided by Voting
3 Assistance Officers or such other personnel as the Sec-
4 retary of the military department concerned shall des-
5 ignate.

6 **SEC. 580D. STUDY ON TWO-WAY MILITARY BALLOT**
7 **BARCODE TRACKING.**

8 (a) STUDY.—The Director of the Federal Voting As-
9 sistance Program of the Department of Defense shall con-
10 duct a study on the feasibility of a pilot program providing
11 full ballot tracking of overseas military absentee ballots
12 through the mail stream in a manner that is similar to
13 the 2016 Military Ballot Tracking Pilot Program con-
14 ducted by the Federal Voting Assistance Program.

15 (b) REPORT.—Not later than one year after the date
16 of the enactment of this Act, the Director shall submit
17 to Congress a report on the results of the study conducted
18 under subsection (a). The report shall include—

19 (1) an estimate of the costs and requirements
20 needed to conduct the pilot program described in
21 subsection (a);

22 (2) a description of the organizations that
23 would provide substantial support for the pilot pro-
24 gram;

1 (3) a time line for the phased implementation
2 of the pilot program to all military personnel actively
3 serving overseas;

4 (4) a method to determine under the pilot pro-
5 gram if a ballot was counted, and a way to provide
6 such information to the member of the Armed
7 Forces casting the vote; and

8 (5) a description of the efforts being under-
9 taken to ensure a reliable and secure military ballot
10 tracking system.

11 **SEC. 580E. ASSISTANCE TO SCHOOLS WITH MILITARY DE-**
12 **PENDENT STUDENTS.**

13 (a) **IMPACT AID FOR CHILDREN WITH SEVERE DIS-**
14 **ABILITIES.—**

15 (1) **IN GENERAL.—**Of the amount authorized to
16 be appropriated for fiscal year 2020 by section 301
17 and available for operation and maintenance for De-
18 fense-wide activities as specified in the funding table
19 in section 4301, \$10,000,000 shall be available for
20 payments under section 363 of the Floyd D. Spence
21 National Defense Authorization Act for Fiscal Year
22 2001 (Public Law 106–398; 20 U.S.C. 7703a).

23 (2) **USE OF CERTAIN AMOUNT.—**Of the amount
24 available under paragraph (1) for payments as de-
25 scribed in that paragraph, \$5,000,000 shall be avail-

1 program may receive financial assistance for the pursuit
2 of a license, certification, or Associate's degree in any ca-
3 reer field or occupation.

4 **SEC. 580G. SECOND EXPANSION OF THE MY CAREER AD-
5 VANCEMENT ACCOUNT PROGRAM FOR MILI-
6 TARY SPOUSES.**

7 The spouse of a member of the Coast Guard may par-
8 ticipate in the My Career Advancement Account program
9 of the Department of Defense if the Coast Guard reim-
10 burses the Department of Defense.

11 **SEC. 580H. REPORT ON TRAINING AND SUPPORT AVAIL-
12 ABLE TO MILITARY SPOUSES.**

13 (a) **REPORT REQUIRED.**—Not later than 180 days
14 after the date of the enactment of this Act, the Under
15 Secretary of Defense for Personnel and Readiness shall
16 submit to the committees on Armed Services of the Senate
17 and the House of Representatives a report that includes
18 a description of the following:

19 (1) Financial literacy programs currently de-
20 signed specifically for military spouses.

21 (2) Efforts to evaluate the effectiveness of fi-
22 nancial literacy programs.

23 (b) **PUBLIC AVAILABILITY.**—The report submitted
24 under subsection (a) shall be made available on a publicly
25 accessible website of the Department of Defense.

1 **SEC. 580I. RI'KATAK GUEST STUDENT PROGRAM AT UNITED**
2 **STATES ARMY GARRISON – KWAJALEIN**
3 **ATOLL.**

4 (a) PROGRAM AUTHORIZED.—The Secretary of the
5 Army may conduct an assistance program to educate up
6 to five local national students per grade, per academic
7 year, on a space-available basis at the contractor-operated
8 schools on United States Army Garrison–Kwajalein Atoll.
9 The program shall be known as the “Ri’katak Guest Stu-
10 dent Program”.

11 (b) STUDENT ASSISTANCE.—Assistance that may be
12 provided to students participating in the program carried
13 out pursuant to subsection (a) includes the following:

- 14 (1) Classroom instruction.
- 15 (2) Extracurricular activities.
- 16 (3) Student meals.
- 17 (4) Transportation.

18 **Subtitle I—Decorations and**
19 **Awards**

20 **SEC. 581. MODIFICATION OF AUTHORITIES ON ELIGIBILITY**
21 **FOR AND REPLACEMENT OF GOLD STAR**
22 **LAPEL BUTTONS.**

23 (a) EXPANSION OF AUTHORITY TO DETERMINE
24 NEXT OF KIN FOR ISSUANCE.—Section 1126 of title 10,
25 United States Code, is amended—

1 (1) in subsection (a), by striking “widows, par-
2 ents, and” in the matter preceding paragraph (1);

3 (2) in subsection (b), by striking “the widow
4 and to each parent and” and inserting “each”; and

5 (3) in subsection (d)—

6 (A) by striking paragraphs (1), (2), (3),
7 and (4) and inserting the following new para-
8 graph (1):

9 “(1) The term ‘next of kin’ means individuals
10 standing in such relationship to members of the
11 armed forces described in subsection (a) as the Sec-
12 retaries concerned shall jointly specify in regulations
13 for purposes of this section.”; and

14 (B) by redesignating paragraphs (5), (6),
15 (7), and (8) as paragraphs (2), (3), (4), and
16 (5), respectively.

17 (b) REPLACEMENT.—Subsection (c) of such section
18 is amended by striking “and payment” and all that follows
19 and inserting “and without cost.”.

20 **SEC. 582. STANDARDIZATION OF HONORABLE SERVICE RE-**
21 **QUIREMENT FOR AWARD OF MILITARY DECO-**
22 **RATIONS.**

23 (a) HONORABLE SERVICE REQUIREMENT.—

1 (1) IN GENERAL.—Chapter 57 of title 10,
2 United States Code, is amended by adding at the
3 end the following new section:

4 **“§ 1136. Honorable service requirement for award of**
5 **military decorations**

6 “No military decoration, including a medal, cross, or
7 bar, or an associated emblem or insignia, may be awarded
8 or presented to any person, or to a representative of the
9 person, if the service of the person after the person distin-
10 guished himself or herself has not been honorable.”.

11 (2) CLERICAL AMENDMENT.—The table of sec-
12 tions at the beginning of chapter 57 of such title is
13 amended by adding at the end the following:

“1136. Honorable service requirement for award of military decorations.”.

14 (b) CONFORMING AMENDMENTS.—Title 10, United
15 States Code, is further amended as follows:

16 (1) In section 7274—

17 (A) in subsection (b), in the matter pre-
18 ceding paragraph (1), by striking “subsection
19 (d)” and inserting “subsection (c)”;

20 (B) by striking subsection (c); and

21 (C) by redesignating subsection (d) as sub-
22 section (e).

23 (2)(A) Section 8299 is repealed.

1 (B) The table of sections at the beginning of
2 chapter 837 is amended by striking the item relating
3 to section 8299.

4 (3) In section 9274—

5 (A) in subsection (b), in the matter pre-
6 ceding paragraph (1), by striking “subsection
7 (d)” and inserting “subsection (e)”;

8 (B) by striking subsection (c); and

9 (C) by redesignating subsection (d) as sub-
10 section (c).

11 (4) In section 9279, by striking subsection (c).

12 **SEC. 583. AUTHORIZATION FOR AWARD OF THE MEDAL OF**
13 **HONOR TO JOHN J. DUFFY FOR ACTS OF**
14 **VALOR IN VIETNAM.**

15 (a) **WAIVER OF TIME LIMITATIONS.**—Notwith-
16 standing the time limitations specified in section 7274 of
17 title 10, United States Code, or any other time limitation
18 with respect to the awarding of certain medals to persons
19 who served in the Armed Forces, the President may award
20 the Medal of Honor under section 7271 of such title to
21 John J. Duffy for the acts of valor in Vietnam described
22 in subsection (b).

23 (b) **ACTS OF VALOR DESCRIBED.**—The acts of valor
24 referred to in subsection (a) are the actions of John J.
25 Duffy on April 14 and 15, 1972, in Vietnam for which

1 he was previously awarded the Distinguished-Service
2 Cross.

3 **SEC. 584. REVIEW OF WORLD WAR I VALOR MEDALS.**

4 (a) REVIEW REQUIRED.—Each Secretary concerned
5 shall review the service records of World War I veterans
6 described in subsection (b) under the jurisdiction of such
7 Secretary in order to determine whether any such veteran
8 should be awarded the Medal of Honor for valor during
9 World War I.

10 (b) COVERED WORLD WAR I VETERANS.—The
11 World War I veterans whose service records may be re-
12 viewed under subsection (a) are the following:

13 (1) African American war veterans, Asian
14 American war veterans, Hispanic American war vet-
15 erans, Jewish American war veterans, and Native
16 American war veterans who were awarded the Dis-
17 tinguished Service Cross or the Navy Cross for an
18 action that occurred between April 6, 1917, and No-
19 vember 11, 1918.

20 (2) African American war veterans, Asian
21 American war veterans, Hispanic American war vet-
22 erans, Jewish American war veterans, and Native
23 American war veterans who were awarded the Croix
24 de Guerre with Palm (that is, awarded at the Army
25 level or above) by the Government of France for an

1 action that occurred between April 6, 1917, and No-
2 vember 11, 1918.

3 (3) African American war veterans, Asian
4 American war veterans, Hispanic American war vet-
5 erans, Jewish American war veterans, and Native
6 American war veterans who were recommended for
7 a Medal of Honor for actions that occurred from
8 April 6, 1917, to November 11, 1918, if the Depart-
9 ment of Defense possesses or receives records relat-
10 ing to such recommendation.

11 (c) RECOMMENDATION BASED ON REVIEW.—If a
12 Secretary concerned determines, based upon the review
13 under subsection (a), that the award of the Medal of
14 Honor to a covered World War I veteran is warranted,
15 such Secretary shall submit to the President a rec-
16 ommendation that the President award the Medal of
17 Honor to that veteran.

18 (d) AUTHORITY TO AWARD MEDAL OF HONOR.—
19 The Medal of Honor may be awarded to a World War I
20 veteran in accordance with a recommendation of a Sec-
21 retary concerned under subsection (c).

22 (e) WAIVER OF TIME LIMITATIONS.—An award of
23 the Medal of Honor may be made under subsection (d)
24 without regard to—

1 (1) section 7274 or 8298 of title 10, United
2 States Code, as applicable; and

3 (2) any regulation or other administrative re-
4 striction on—

5 (A) the time for awarding the Medal of
6 Honor; or

7 (B) the awarding of the Medal of Honor
8 for service for which a Distinguished Service
9 Cross or Navy Cross has been awarded.

10 (f) DEADLINE.—The review under subsection (a)
11 shall terminate not later than five years after the date of
12 the enactment of this Act.

13 (g) DEFINITIONS.—

14 (1) IN GENERAL.—In this section:

15 (A) AFRICAN AMERICAN WAR VETERAN.—
16 The term “African American war veteran”
17 means any person who served in the United
18 States Armed Forces between April 6, 1917,
19 and November 11, 1918, and who identified
20 himself as of African descent on his military
21 personnel records.

22 (B) ASIAN AMERICAN WAR VETERAN.—
23 The term “Asian American war veteran” means
24 any person who served in the United States
25 Armed Forces between April 6, 1917, and No-

1 vember 11, 1918, and who identified himself ra-
2 cially, nationally, or ethnically as originating
3 from a country in Asia on his military per-
4 sonnel records.

5 (C) HISPANIC AMERICAN WAR VETERAN.—
6 The term “Hispanic American war veteran”
7 means any person who served in the United
8 States Armed Forces between April 6, 1917,
9 and November 11, 1918, and who identified
10 himself racially, nationally, or ethnically as
11 originating from a country where Spanish is an
12 official language on his military personnel
13 records.

14 (D) JEWISH AMERICAN WAR VETERAN.—
15 The term “Jewish American war veteran” mean
16 any person who served in the United States
17 Armed Forces between April 6, 1917, and No-
18 vember 11, 1918, and who identified himself as
19 Jewish on his military personnel records.

20 (E) NATIVE AMERICAN WAR VETERAN.—
21 The term “Native American war veteran”
22 means any person who served in the United
23 States Armed Forces between April 6, 1917,
24 and November 11, 1918, and who identified
25 himself as a member of a federally recognized

1 tribe within the modern territory of the United
2 States on his military personnel records.

3 (F) SECRETARY CONCERNED.—The term
4 “Secretary concerned” means—

5 (i) the Secretary of the Army, in the
6 case of members of the Armed Forces who
7 served in the Army between April 6, 1917,
8 and November 11, 1918; and

9 (ii) the Secretary of the Navy, in the
10 case of members of the Armed Forces who
11 served in the Navy or the Marine Corps
12 between April 6, 1917, and November 11,
13 1918.

14 (2) APPLICATION OF DEFINITIONS OF ORI-
15 GIN.—If the military personnel records of a person
16 do not reflect the person’s membership in one of the
17 groups identified in subparagraphs (B) through (F)
18 of paragraph (1) but historical evidence exists that
19 demonstrates the person’s Jewish faith held at the
20 time of service, or that the person identified himself
21 as of African, Asian, Hispanic, or Native American
22 descent, the person may be treated as being a mem-
23 ber of the applicable group by the Secretary con-
24 cerned for purposes of this section.

1 **Subtitle J—Miscellaneous Reports**
2 **and Other Matters**

3 **SEC. 591. CLARIFICATION OF THE TERM “ASSAULT” FOR**
4 **PURPOSES OF WORKPLACE AND GENDER RE-**
5 **LATIONS SURVEYS.**

6 (a) SURVEYS OF MEMBERS OF THE ARMED
7 FORCES.—Section 481 of title 10, United States Code, is
8 amended by inserting “(including unwanted sexual con-
9 tact)” after “assault” each place it appears.

10 (b) SURVEYS OF CIVILIAN EMPLOYEES OF THE DE-
11 PARTMENT OF DEFENSE.—Section 481a of title 10,
12 United States Code, is amended by inserting “(including
13 unwanted sexual contact)” after “assault” each place it
14 appears.

15 (c) EFFECTIVE DATE.—The amendments made by
16 subsections (a) and (b) shall take effect on the date of
17 the enactment of this Act and shall apply with respect to
18 surveys under sections 481 and 481a of title 10, United
19 States Code, that are initiated after such date.

20 **SEC. 592. INCLUSION OF CERTAIN VETERANS ON TEM-**
21 **PORARY DISABILITY OR PERMANENT DIS-**
22 **ABLED RETIREMENT LISTS IN MILITARY**
23 **ADAPTIVE SPORTS PROGRAMS.**

24 (a) INCLUSION OF CERTAIN VETERANS.—Subsection
25 (a)(1) of section 2564a of title 10, United States Code,

1 is amended by striking “for members of the armed forces
2 who” and all that follows through the period at the end
3 and inserting the following: “for—

4 “(A) any member of the armed forces who
5 is eligible to participate in adaptive sports be-
6 cause of an injury, illness, or wound incurred in
7 the line of duty in the armed forces; and

8 “(B) any veteran (as defined in section
9 101 of title 38), during the one-year period fol-
10 lowing the veteran’s date of separation, who—

11 “(i) is on the Temporary Disability
12 Retirement List or Permanently Disabled
13 Retirement List;

14 “(ii) is eligible to participate in adapt-
15 ive sports because of an injury, illness, or
16 wound incurred in the line of duty in the
17 armed forces; and

18 “(iii) was enrolled in the program au-
19 thorized under this section prior to the vet-
20 eran’s date of separation.”.

21 (b) CONFORMING AMENDMENT.—Subsection (b) of
22 such section is amended by inserting “and veterans” after
23 “members”.

24 (c) CLERICAL AMENDMENTS.—

1 (1) HEADING AMENDMENT.—The heading of
2 such section is amended to read as follows:

3 **“§ 2564a. Provision of assistance for adaptive sports**
4 **programs: members of the armed forces;**
5 **certain veterans”.**

6 (2) TABLE OF SECTION.—The table of sections
7 at the beginning of chapter 152 of such title is
8 amended by striking the item relating to section
9 2564a and inserting the following new item:

“2564a. Provision of assistance for adaptive sports programs: members of the
armed forces; certain veterans.”.

10 **SEC. 593. QUESTIONS IN SURVEYS REGARDING EXTREMIST**
11 **ACTIVITY IN THE WORKPLACE.**

12 The Secretary of Defense shall include in appropriate
13 surveys administered by the Department of Defense ques-
14 tions regarding whether respondents have ever—

15 (1) experienced or witnessed extremist activity
16 in the workplace; or

17 (2) reported such activity.

18 **SEC. 594. STUDY ON BEST PRACTICES FOR PROVIDING FI-**
19 **NANCIAL LITERACY EDUCATION FOR SEPA-**
20 **RATING MEMBERS OF THE ARMED FORCES.**

21 (a) STUDY REQUIRED.—The Secretary of Defense,
22 and with respect to members of the Coast Guard, in co-
23 ordination with the Secretary of the Department in which
24 the Coast Guard is operating when it is not operating as

1 a service in the Navy, shall conduct a study on the best
2 practices to provide financial literacy education for sepa-
3 rating members of the Armed Forces.

4 (b) ELEMENTS.—The study required by subsection
5 (a) shall include—

6 (1) an examination, recommendations, and re-
7 porting on best practices for providing financial lit-
8 eracy education to separating members of the Armed
9 Forces; and

10 (2) detailed current financial literacy programs
11 for separating members of the Armed Forces.

12 (c) CONSULTATION.—In conducting the study re-
13 quired by subsection (a), the Secretaries shall consult with
14 the Financial Literacy and Education Commission of the
15 Department of the Treasury.

16 (d) REPORT.—Not later than 120 days after the date
17 of the enactment of this Act, the Secretary of Defense
18 shall submit to the committees on Armed Services of the
19 Senate and the House of Representatives a report on the
20 study under subsection (a).

21 (e) FINANCIAL LITERACY DEFINED.—In this section,
22 the term “financial literacy” means education regarding
23 personal finance including the insurance, credit, loan,
24 banking, career training and education benefits available
25 to veterans.

1 **SEC. 595. REPORT ON OVERSIGHT OF AUTHORIZED**
2 **STRENGTHS OF CERTAIN GRADES OF COM-**
3 **MISSIONED REGULAR AND RESERVE OFFI-**
4 **CERS OF THE ARMED FORCES.**

5 (a) REPORT REQUIRED.—Not later than April 1,
6 2020, the Secretary of Defense shall submit to the Com-
7 mittees on Armed Services of the Senate and the House
8 of Representatives a report on oversight of the authorized
9 strengths of commissioned regular officers of the Armed
10 Forces and commissioned reserve officers of the Armed
11 Forces in the grades as follows:

12 (1) The grades of major, lieutenant colonel, and
13 colonel in the Army, the Air Force, and the Marine
14 Corps.

15 (2) The grades of lieutenant commander, com-
16 mander, and captain in the Navy.

17 (b) ELEMENTS.—The report required by subsection
18 (a) shall include the following:

19 (1) Such recommendations as the Secretary
20 considers appropriate on mechanisms to improve De-
21 partment of Defense oversight, and oversight by
22 Congress, of the authorized strengths of commis-
23 sioned officers in the grades specified in subsection
24 (a), including the following:

25 (A) An analysis of the history of each mili-
26 tary department in complying with the author-

1 ized strengths and strengths in grade specified
2 in sections 523 and 12005 of title 10, United
3 States Code, including a description of—

4 (i) the number of officers in each
5 grade and Armed Force concerned as of
6 the end of each fiscal year between fiscal
7 year 2010 and fiscal year 2019; and

8 (ii) the number of officers authorized
9 for such grade and Armed Force as of the
10 end of such fiscal year under the applicable
11 section.

12 (B) An assessment of the feasibility and
13 advisability of submitting to Congress each year
14 a request for an authorization for officers serv-
15 ing in the grades currently covered by the ta-
16 bles in section 523 of title 10, United States
17 Code.

18 (C) An assessment of the feasibility and
19 advisability of submitting to Congress each year
20 a proposal for legislation to update the tables in
21 such section.

22 (D) An assessment of the advisability of
23 converting the authorization for end strengths
24 for regular officers in the grades specified in
25 subsection (a) to a percentage-based approach

1 like that currently utilized for reserve officers in
2 section 12005 of title 10, United States Code.

3 (2) Such other recommendations as the Sec-
4 retary considers appropriate to improve the effective-
5 ness of the oversight by Congress of the number of
6 commissioned regular and reserve officers of the
7 Armed Forces in the grades specified in subsection
8 (a).

9 **SEC. 596. REPORT ON CERTAIN WAIVERS.**

10 (a) IN GENERAL.—Not later than 120 days after the
11 date of the enactment of this Act, and annually thereafter
12 during the two subsequent calendar years, the Secretary
13 of Defense shall submit to the Committees on Armed Serv-
14 ices of the House of Representatives and the Senate a re-
15 port identifying, with respect to the reporting period for
16 such report, and disaggregated by Armed Force, the fol-
17 lowing:

18 (1) ACCESSION AND COMMISSION.—

19 (A) The number of individuals who were
20 processed by a Secretary of a military depart-
21 ment for a medical accession or commissioning
22 qualification determination on or after April 12,
23 2019.

24 (B) Of the individuals described in sub-
25 paragraph (A), the number of such individuals

1 who were found medically disqualified pursuant
2 to the standards established in DTM-19-004
3 regarding enlistment in or commission as an of-
4 ficer of an Armed Force under the jurisdiction
5 of the Secretary of a military department.

6 (C) Of the individuals described in sub-
7 paragraph (A), the number of such individ-
8 uals—

9 (i) described in section I.b.(1), 1.b(2),
10 1.b(3), or II.b.(1) of attachment 3 to
11 DTM-19-004; and

12 (ii) who did not require a waiver or
13 exception to standards described in sub-
14 paragraph (B).

15 (D) Of the individuals described in sub-
16 paragraph (C), the number of such individuals
17 who enlisted or were commissioned.

18 (E) Of the individuals described in sub-
19 paragraph (B), the number of such individuals
20 who were considered for a waiver or exception
21 to standards described in subparagraph (B).

22 (F) Of the individuals described in sub-
23 paragraph (E), the number of such individuals
24 who were denied such a waiver or exception.

1 (G) Of the individuals described in sub-
2 paragraph (E), the number of such individuals
3 who received such a waiver or exception.

4 (H) Of the individuals described in sub-
5 paragraph (G), the number of such individuals
6 who enlisted or were commissioned.

7 (2) RETENTION.—

8 (A) The number of members of each
9 Armed Force under the jurisdiction of the Sec-
10 retary of a military department who received a
11 diagnosis of gender dysphoria on or after April
12 12, 2019.

13 (B) Of the members described in subpara-
14 graph (A), the number of members who were—

15 (i) referred to the Disability Evalua-
16 tion System; or

17 (ii) subject to processing for adminis-
18 trative separation based on conditions and
19 circumstances not constituting a physical
20 disability that interfered with assignment
21 to or performance of duty.

22 (C) Of the members described in subpara-
23 graph (A), the number of members who were
24 subsequently considered for a waiver or excep-
25 tion to standards established in DTM–19–004

1 to permit those members to serve in other than
2 the biological sex of each such member.

3 (D) Of the members described in subpara-
4 graph (C), the number of members who were
5 granted such a waiver or exception.

6 (E) Of the members described in subpara-
7 graph (C), the number of members who were
8 denied such a waiver or exception.

9 (F) Of the members described in subpara-
10 graph (E), the number of members who were
11 discharged because of such denial, aggregated
12 by characterization of discharge.

13 (b) PROTECTION OF CERTAIN INFORMATION.—No
14 report submitted under this section may contain any per-
15 sonally identifiable information or protected health infor-
16 mation of any individual.

17 (c) DEFINITIONS.—In this section:

18 (1) The term “DTM–19–004” means the
19 memorandum—

20 (A) issued by the Office of the Deputy Sec-
21 retary of Defense;

22 (B) dated March 12, 2019; and

23 (C) with the subject heading “Directive-
24 type Memorandum (DTM)–19–004–Military

1 Service by Transgender Persons and Persons
2 with Gender Dysphoria”.

3 (2) The terms “exempt individuals” and “non-
4 exempt individuals” have the meanings given those
5 terms in attachment 3 to DTM–19–004.

6 (3) The term “reporting period” means, with
7 respect to a report submitted under subsection (a),
8 the calendar year most recently completed before the
9 date on which such report is to be submitted.

10 **SEC. 597. NOTIFICATIONS ON MANNING OF AFLOAT NAVAL**
11 **FORCES.**

12 (a) **IN GENERAL.**—The Secretary of the Navy shall
13 notify the congressional defense committees, in writing,
14 not later than 30 days after the end of each fiscal year
15 quarter, of each covered ship (if any) that met either con-
16 dition as follows:

17 (1) The manning fit for such ship was less than
18 87 percent for more than 14 days during such fiscal
19 year quarter.

20 (2) The manning fill for such ship was less
21 than 90 percent for more than 14 days during such
22 fiscal year quarter.

23 (b) **ELEMENTS.**—The notification required by sub-
24 section (a) shall include, with respect to a covered ship,
25 the following:

1 (1) The name and hull number of the ship.

2 (2) The homeport location of the ship.

3 (3) The current manning fit and fill of the ship.

4 (4) If the lowest level of manning fit or man-
5 ning fill for the ship occurred during the fiscal year
6 quarter concerned, the level concerned and the date
7 on which such level occurred.

8 (5) If the lowest level of manning fit or man-
9 ning fill for the ship is projected to occur after the
10 fiscal year quarter concerned, the projected level and
11 the date on which such level is projected to occur.

12 (6) If not achieved as of the date of the notifi-
13 cation the projected date on which the Navy will
14 achieve a manning fit and fill at least 87 percent
15 and 90 percent, respectively, for the ship.

16 (7) If not achieved as of the date of the notifi-
17 cation, the projected date on which the Navy will
18 achieve a manning fit and fill of at least 92 percent
19 and 95 percent, respectively, for the ship.

20 (8) A description of the reasons the Navy has
21 not achieved, or will not achieve, as applicable, man-
22 ning fit and fill of at least 87 percent and 90 per-
23 cent, respectively, for the ship, including a detailed
24 description of the specific ratings or skillset areas
25 that must be manned to achieve those percentages.

1 (9) A description of corrective actions the Navy
2 is taking to improve manning fit or manning fill on
3 the ship.

4 (c) SPECIAL RULE.—For purposes of determining
5 whether a percentage of manning fit or manning fill has
6 been achieved, a sailor in a more senior paygrade may
7 count as filling the billet of a more junior paygrade, but
8 a sailor in a more junior paygrade may not count as filling
9 the billet of a more senior paygrade.

10 (d) DEFINITIONS.—In this section:

11 (1) MANNING FIT.—The term “manning fit”, in
12 the case of a ship, means the skills (rating), spe-
13 cialty skills (Navy Enlisted Classifications), and ex-
14 perience (paygrade) for the ship when compared
15 with the ship manpower document requirement and
16 billets authorized for such skills and experience.

17 (2) MANNING FILL.—The term “manning fill”,
18 in the case of a ship, means the total number of
19 military personnel assigned to the ship by rating
20 when compared with the ship manpower document
21 requirement and billets authorized for the ship by
22 rating.

23 (3) COVERED SHIP.—The term “covered ship”
24 means a commissioned battle force ship that is in-

1 cluded in the battle force count of the Naval Vessel
2 Register.

3 (e) SUNSET.—The requirement to submit notifica-
4 tions under subsection (a) with respect to fiscal year quar-
5 ters shall cease beginning with fiscal year quarters in fis-
6 cal year 2025.

7 (f) REPEAL OF SUPERSEDED REQUIREMENTS.—Sec-
8 tion 525 of the John S. McCain National Defense Author-
9 ization Act for Fiscal Year 2019 (Public Law 115–232;
10 132 Stat. 1757; 10 U.S.C. 8013 note) is repealed.

11 **SEC. 598. REPORT REGARDING USE OF AERIAL SYSTEMS OF**
12 **THE DEPARTMENT OF DEFENSE TO SUPPORT**
13 **AGENCIES OF STATES, TERRITORIES, AND**
14 **THE FEDERAL GOVERNMENT.**

15 (a) REPORT REQUIRED.—Not later than 180 days
16 after the date of the enactment of this Act, the Secretary
17 of Defense, in consultation with the Chief of the National
18 Guard Bureau, shall submit to the Committees on Armed
19 Services of the House of Representatives and the Senate
20 a report regarding the requirements, policies, and proce-
21 dures governing the use of manned and unmanned aerial
22 systems of the Department of Defense to support State
23 and Federal agencies.

24 (b) ELEMENTS.—The report under subsection (a)
25 shall include the following:

1 (1) A description of requirements for providing
2 support to State and Federal agencies that the Sec-
3 retary considers appropriate for planning, program-
4 ming and budgeting resources.

5 (2) A description of manned and unmanned
6 aerial systems that the Secretary regularly provides
7 to support State and Federal agencies, including ex-
8 amples of support provided, and length of time to
9 approve requests.

10 (3) A list of requests for such aerial systems
11 from State and Federal agencies during fiscal year
12 2019 that the Secretary denied and the reason each
13 such request was disapproved.

14 (4) An overview of current policies and proce-
15 dures governing the use of such aerial systems by
16 States and Federal agencies, including—

17 (A) procedures a State or Federal agency
18 must follow to obtain use of such aerial systems
19 for natural disasters and search and rescue op-
20 erations;

21 (B) the typical amount of time needed to
22 process such requests, and whether such proce-
23 dures can be streamlined; and

1 (C) to what extent different policies and
2 procedures apply to unmanned aerial systems
3 versus manned aerial systems.

4 (5) A description of the different categories of
5 unmanned aerial systems of the Department of De-
6 fense, how such categories are managed, and wheth-
7 er the criteria for such categories affect the ability
8 of the Secretary to use unmanned aerial systems to
9 support State or Federal agencies.

10 (6) An explanation of any restrictions on the
11 use of such unmanned aerial systems under—

12 (A) the “Guidance for the Domestic Use of
13 Unmanned Aircraft Systems in U.S. National
14 Airspace”, dated August 18, 2018;

15 (B) Department of Defense Instruction
16 3025.18 “Defense Support to Civil Authori-
17 ties”; and

18 (C) other relevant guidance of the Depart-
19 ment of Defense.

20 (7) Whether restrictions described in paragraph
21 (6) apply differently to regular members of the
22 Armed Forces serving on active duty and to mem-
23 bers of the National Guard.

24 (8) Whether members of the National Guard
25 may operate the different categories of such un-

1 manned aerial systems when operating under section
2 502(f) of title 32, United States Code.

3 (9) An analysis of how the Secretary may im-
4 prove access to and knowledge of States and Federal
5 agencies regarding the availability of such unmanned
6 aerial systems and related request procedures.

7 (10) Whether—

8 (A) the Secretary has been unable to pro-
9 vide an unmanned aerial system to support to
10 a State agency at the request of such State
11 agency; and

12 (B) the Secretary has plans to make more
13 unmanned aerial systems available to fulfil such
14 requests.

15 (11) Any other matters the Secretary deter-
16 mines appropriate.

17 (c) FORM.—The report required by subsection (a)
18 shall be submitted in unclassified form, but may include
19 a classified annex.

20 (d) STATE DEFINED.—In this section, the term
21 “State” has the meaning given that term in section 901
22 of title 32, United States Code.

1 **SEC. 599. INFORMATION FOR MEMBERS OF THE ARMED**
2 **FORCES ON AVAILABILITY OF SERVICES OF**
3 **THE DEPARTMENT OF VETERANS AFFAIRS**
4 **RELATING TO SEXUAL TRAUMA.**

5 (a) IN GENERAL.—The Secretary of Defense shall in-
6 form members of the Armed Forces, using mechanisms
7 available to the Secretary, of the eligibility of such mem-
8 bers for services of the Department of Veterans Affairs
9 relating to sexual trauma.

10 (b) INFORMATION FROM SEXUAL ASSAULT RE-
11 SPONSE COORDINATORS.—The Secretary of Defense shall
12 ensure—

13 (1) that Sexual Assault Response Coordinators
14 and uniformed victims advocates of the Department
15 of Defense advise members of the Armed Forces
16 who report instances of sexual trauma regarding the
17 eligibility of such members for services at the De-
18 partment of Veterans Affairs; and

19 (2) that such information is included in manda-
20 tory training materials.

21 (c) SEXUAL TRAUMA DEFINED.—In this section, the
22 term “sexual trauma” means psychological trauma de-
23 scribed in section 1720D(a)(1) of title 38, United States
24 Code.

1 **SEC. 599A. AUTHORITY TO ISSUE AN HONORARY PRO-**
2 **MOTION TO COLONEL CHARLES E. MCGEE,**
3 **UNITED STATES AIR FORCE (RET.), TO THE**
4 **GRADE OF BRIGADIER GENERAL.**

5 (a) IN GENERAL.—Pursuant to section 1563 of title
6 10, United States Code, the President may issue to Colo-
7 nel Charles E. McGee, United States Air Force (retired),
8 a distinguished Tuskegee Airman, an honorary promotion
9 to the grade of brigadier general.

10 (b) ADDITIONAL BENEFITS NOT TO ACCRUE.—The
11 advancement of Charles E. McGee on the retired list of
12 the Air Force under subsection (a) shall not affect the re-
13 tired pay or other benefits from the United States to
14 which Charles E. McGee is entitled based upon his mili-
15 tary service, or affect any benefits to which any other per-
16 son is or may become entitled based on such military serv-
17 ice.

18 **SEC. 599B. AUTHORITY TO ISSUE AN HONORARY AND POST-**
19 **HUMOUS PROMOTION TO LIEUTENANT COLO-**
20 **NEL RICHARD COLE, UNITED STATES AIR**
21 **FORCE (RET.), TO THE GRADE OF COLONEL.**

22 (a) IN GENERAL.—Pursuant to section 1563 of title
23 10, United States Code, the President may issue to Lieu-
24 tenant Colonel Richard E. Cole, United States Air Force
25 (retired), an honorary and posthumous promotion to the
26 grade of colonel.

1 (b) ADDITIONAL BENEFITS NOT TO ACCRUE.—The
2 advancement of Richard E. Cole on the retired list of the
3 Air Force under subsection (a) shall not affect the retired
4 pay or other benefits from the United States to which
5 Richard E. Cole would have been entitled based upon his
6 military service, or affect any benefits to which any other
7 person is or may become entitled based on such military
8 service.

9 **SEC. 599C. SENSE OF CONGRESS ON THE HONORABLE AND**
10 **DISTINGUISHED SERVICE OF GENERAL JO-**
11 **SEPH F. DUNFORD, UNITED STATES MARINE**
12 **CORPS, TO THE UNITED STATES.**

13 It is the sense of Congress that—

14 (1) the United States deeply appreciates the
15 decades of honorable service of General Joseph F.
16 Dunford, United States Marine Corps; and

17 (2) the indispensable leadership of General
18 Dunford and his dedication to the men and women
19 of the Armed Forces demonstrates the finest exam-
20 ple of service to the United States.

21 **TITLE VI—MILITARY**
22 **COMPENSATION**

Subtitle A—Pay and Allowances

Sec. 601. Clarification of continuation of pays during hospitalization and rehabilitation resulting from wounds, injury, or illness incurred while on duty in a hostile fire area or exposed to an event of hostile fire or other hostile action.

- Sec. 602. Continued entitlements while a member of the Armed Forces participates in a career intermission program.
- Sec. 603. Exemption from repayment of voluntary separation pay.
- Sec. 604. Consideration of service on active duty to reduce age of eligibility for retired pay for non-regular service.
- Sec. 605. Temporary adjustment of rates of basic allowance for housing following determination that local civilian housing costs significantly differ from such rates.
- Sec. 606. Reinvestment of travel refunds by the Department of Defense.
- Sec. 607. Addition of partial dislocation allowance to allowable travel and transportation expenses for servicemembers.
- Sec. 608. Reductions on account of earnings from work performed while entitled to an annuity supplement.
- Sec. 609. Increase in basic pay.

Subtitle B—Bonuses and Special Incentive Pays

- Sec. 611. One-year extension of certain expiring bonus and special pay authorities.

Subtitle C—Family and Survivor Benefits

- Sec. 621. Expansion of eligibility for exceptional transitional compensation for dependents to dependents of current members.
- Sec. 622. Phase-out of reduction of Survivor Benefit Plan survivor annuities by amount of dependency and indemnity compensation.
- Sec. 623. Death gratuity for ROTC graduates.
- Sec. 624. Expansion of authority to provide financial assistance to civilian providers of child care services or youth program services who provide such services to survivors of members of the Armed Forces who die in combat in the line of duty.
- Sec. 625. Casualty assistance for survivors of deceased ROTC graduates.

Subtitle D—Defense Resale Matters

- Sec. 631. Defense resale system matters.
- Sec. 632. Procurement by commissary stores of certain locally sourced products.
- Sec. 633. GAO review of defense resale optimization study.

Subtitle E—Morale, Welfare, and Recreation Privileges

- Sec. 641. Extension of certain morale, welfare, and recreation privileges to Foreign Service officers on mandatory home leave.
- Sec. 642. Extension of pilot program on a Government lodging program.

Subtitle F—Reports and Other Matters

- Sec. 651. Annual reports on approval of employment or compensation of retired general or flag officers by foreign governments for emoluments clause purposes.
- Sec. 652. Report regarding transition from overseas housing allowance to basic allowance for housing for servicemembers in the territories.
- Sec. 653. Report on extension to members of the reserve components of the Armed Forces of special and incentive pays for members of the Armed Forces not currently payable to members of the reserve components.

Sec. 654. Study regarding recoupment of separation pay, special separation benefits, and voluntary separation incentive payments from members of the Armed Forces and veterans who receive disability compensation under laws administered by the Secretary of Veterans Affairs.

Sec. 655. Report on implementation of contributions to the Department of Defense Military Retirement Fund based on pay costs per Armed Force rather than on Armed Forces-wide basis.

Sec. 656. Report on food insecurity among members of the Armed Forces and their dependents.

1 **Subtitle A—Pay and Allowances**

2 **SEC. 601. CLARIFICATION OF CONTINUATION OF PAYS DUR-** 3 **ING HOSPITALIZATION AND REHABILITATION** 4 **RESULTING FROM WOUNDS, INJURY, OR ILL-** 5 **NESS INCURRED WHILE ON DUTY IN A HOS-** 6 **TILE FIRE AREA OR EXPOSED TO AN EVENT** 7 **OF HOSTILE FIRE OR OTHER HOSTILE AC-** 8 **TION.**

9 Section 372(b)(1) of title 37, United States Code, is
10 amended to read as follows:

11 “(1) The date on which the member is returned
12 for assignment to other than a medical or patient
13 unit for duty; however, in the case of a member
14 under the jurisdiction of a Secretary of a military
15 department, the date on which the member is deter-
16 mined fit for duty.”.

1 **SEC. 602. CONTINUED ENTITLEMENTS WHILE A MEMBER**
2 **OF THE ARMED FORCES PARTICIPATES IN A**
3 **CAREER INTERMISSION PROGRAM.**

4 Section 710(h) of title 10, United States Code, is
5 amended—

6 (1) in paragraph (1), by striking “; and” and
7 inserting a semicolon;

8 (2) in paragraph (2), by striking the period and
9 inserting a semicolon; and

10 (3) by adding at the end the following new
11 paragraphs:

12 “(3) the entitlement of the member and of the
13 survivors of the member to all death benefits under
14 the provisions of chapter 75 of this title;

15 “(4) the provision of all travel and transpor-
16 tation allowances for the survivors of deceased mem-
17 bers to attend burial ceremonies under section 481f
18 of title 37; and

19 “(5) the eligibility of the member for general
20 benefits as provided in part II of title 38.”

21 **SEC. 603. EXEMPTION FROM REPAYMENT OF VOLUNTARY**
22 **SEPARATION PAY.**

23 Section 1175a(j) of title 10, United States Code, is
24 amended—

1 (1) in paragraph (1), by striking “paragraphs
2 (2) and (3)” and inserting “paragraphs (2), (3), and
3 (4)”;

4 (2) by redesignating paragraph (4) as para-
5 graph (5); and

6 (3) by inserting after paragraph (3) the fol-
7 lowing new paragraph:

8 “(4) This subsection shall not apply to a member
9 who—

10 “(A) is involuntarily recalled to active duty or
11 full-time National Guard duty; and

12 “(B) in the course of such duty, incurs a serv-
13 ice-connected disability rated as total under section
14 1155 of title 38.”.

15 **SEC. 604. CONSIDERATION OF SERVICE ON ACTIVE DUTY**
16 **TO REDUCE AGE OF ELIGIBILITY FOR RE-**
17 **TIRED PAY FOR NON-REGULAR SERVICE.**

18 Section 12731(f)(2)(B)(i) of title 10, United States
19 Code, is amended by striking “under a provision of law
20 referred to in section 101(a)(13)(B) or under section
21 12301(d)” and inserting “under section 12301(d) or
22 12304b of this title, or under a provision of law referred
23 to in section 101(a)(13)(B)”.

1 **SEC. 605. TEMPORARY ADJUSTMENT OF RATES OF BASIC**
2 **ALLOWANCE FOR HOUSING FOLLOWING DE-**
3 **TERMINATION THAT LOCAL CIVILIAN HOUS-**
4 **ING COSTS SIGNIFICANTLY DIFFER FROM**
5 **SUCH RATES.**

6 Section 403(b) of title 37, United States Code, is
7 amended by adding at the end the following new para-
8 graph:

9 “(8)(A) The Secretary of Defense may prescribe a
10 temporary adjustment in the current rates of basic allow-
11 ance for housing for a military housing area or a portion
12 thereof (in this paragraph, ‘BAH rates’) if the Secretary
13 determines that the actual costs of adequate housing for
14 civilians in that military housing area or portion thereof
15 differs from the current BAH rates by more than 20 per-
16 cent.

17 “(B) Any temporary adjustment in BAH rates under
18 this paragraph shall remain in effect only until the effec-
19 tive date of the first adjustment of BAH rates for the af-
20 fected military housing area that occurs after the date of
21 the adjustment under this paragraph.

22 “(C) This paragraph shall cease to be effective on
23 September 30, 2022.”.

1 **SEC. 606. REINVESTMENT OF TRAVEL REFUNDS BY THE DE-**
2 **PARTMENT OF DEFENSE.**

3 (a) REFUNDS FOR OFFICIAL TRAVEL.—Subchapter
4 I of chapter 8 of title 37, United States Code, is amended
5 by adding at the end the following new section:

6 **“§ 456. Managed travel program refunds**

7 “(a) CREDIT OF REFUNDS.—The Secretary of De-
8 fense may credit refunds attributable to Department of
9 Defense managed travel programs as a direct result of of-
10 ficial travel to such operation and maintenance or re-
11 search, development, test, and evaluation accounts of the
12 Department as designated by the Secretary that are avail-
13 able for obligation for the fiscal year in which the refund
14 or amount is collected.

15 “(b) USE OF REFUNDS.—Refunds credited under
16 subsection (a) may only be used for official travel or oper-
17 ations and efficiency improvements for improved financial
18 management of official travel.

19 “(c) DEFINITIONS.—In this section:

20 “(1) MANAGED TRAVEL PROGRAM.—The term
21 ‘managed travel program’ includes air, rental car,
22 train, bus, dining, lodging, and travel management,
23 but does not include rebates or refunds attributable
24 to the use of the Government travel card, the Gov-
25 ernment Purchase Card, or Government travel ar-

1 ranged by Government Contracted Travel Manage-
2 ment Centers.

3 “(2) REFUND.—The term ‘refund’ includes
4 miscellaneous receipts credited to the Department
5 identified as a refund, rebate, repayment, or other
6 similar amounts collected.”.

7 (b) CLERICAL AMENDMENT.—The table of sections
8 at the beginning of chapter 8 of such title is amended by
9 inserting after the item relating to section 455 the fol-
10 lowing new item:

 “456. Managed travel program refunds.”.

11 (c) CLARIFICATION ON RETENTION OF TRAVEL PRO-
12 MOTIONAL ITEMS.—Section 1116(a) of the National De-
13 fense Authorization Act for Fiscal Year 2002 (Public Law
14 107–107; 5 U.S.C. 5702 note) is amended—

15 (1) by striking “DEFINITION.—In this section,
16 the term” and inserting the following: “DEFINI-
17 TIONS.—In this section:

18 “(1) The term”; and

19 (2) by adding at the end the following new
20 paragraph:

21 “(2) The term ‘general public’ includes the
22 Federal Government or an agency.”.

1 **SEC. 607. ADDITION OF PARTIAL DISLOCATION ALLOW-**
2 **ANCE TO ALLOWABLE TRAVEL AND TRANS-**
3 **PORTATION EXPENSES FOR**
4 **SERVICEMEMBERS.**

5 (a) CURRENT AUTHORITY.—Section 477(f)(1) of title
6 37, United States Code, is amended by striking “family”.

7 (b) FUTURE AUTHORITY.—Section 452(c) of title 37,
8 United States Code, is amended—

9 (1) by redesignating paragraph (3) as para-
10 graph (4); and

11 (2) by inserting after paragraph (2) the fol-
12 lowing new paragraph (3):

13 “(3) A partial dislocation allowance paid to a
14 member ordered to occupy or vacate housing pro-
15 vided by the United States.”.

16 **SEC. 608. REDUCTIONS ON ACCOUNT OF EARNINGS FROM**
17 **WORK PERFORMED WHILE ENTITLED TO AN**
18 **ANNUITY SUPPLEMENT.**

19 Section 8421a(c) of title 5, United States Code, is
20 amended—

21 (1) by striking “full-time as an air traffic con-
22 trol instructor” and inserting “as an air traffic con-
23 trol instructor, or supervisor thereof,”; and

24 (2) by inserting “or supervisor” after “an in-
25 structor”.

1 **SEC. 609. INCREASE IN BASIC PAY.**

2 Effective on January 1, 2020, the rates of monthly
3 basic pay for members of the uniformed services are in-
4 creased by 3.1 percent.

5 **Subtitle B—Bonuses and Special**
6 **Incentive Pays**

7 **SEC. 611. ONE-YEAR EXTENSION OF CERTAIN EXPIRING**
8 **BONUS AND SPECIAL PAY AUTHORITIES.**

9 (a) **AUTHORITIES RELATING TO RESERVE**
10 **FORCES.**—Section 910(g) of title 37, United States Code,
11 relating to income replacement payments for reserve com-
12 ponent members experiencing extended and frequent mo-
13 bilization for active duty service, is amended by striking
14 “December 31, 2019” and inserting “December 31,
15 2020”.

16 (b) **TITLE 10 AUTHORITIES RELATING TO HEALTH**
17 **CARE PROFESSIONALS.**—The following sections of title
18 10, United States Code, are amended by striking “Decem-
19 ber 31, 2019” and inserting “December 31, 2020”:

20 (1) Section 2130a(a)(1), relating to nurse offi-
21 cer candidate accession program.

22 (2) Section 16302(d), relating to repayment of
23 education loans for certain health professionals who
24 serve in the Selected Reserve.

25 (c) **AUTHORITIES RELATING TO NUCLEAR OFFI-**
26 **CERS.**—Section 333(i) of title 37, United States Code, is

1 amended by striking “December 31, 2019” and inserting
2 “December 31, 2020”.

3 (d) AUTHORITIES RELATING TO TITLE 37 CONSOLI-
4 DATED SPECIAL PAY, INCENTIVE PAY, AND BONUS AU-
5 THORITIES.—The following sections of title 37, United
6 States Code, are amended by striking “December 31,
7 2019” and inserting “December 31, 2020”:

8 (1) Section 331(h), relating to general bonus
9 authority for enlisted members.

10 (2) Section 332(g), relating to general bonus
11 authority for officers.

12 (3) Section 334(i), relating to special aviation
13 incentive pay and bonus authorities for officers.

14 (4) Section 335(k), relating to special bonus
15 and incentive pay authorities for officers in health
16 professions.

17 (5) Section 336(g), relating to contracting
18 bonus for cadets and midshipmen enrolled in the
19 Senior Reserve Officers’ Training Corps.

20 (6) Section 351(h), relating to hazardous duty
21 pay.

22 (7) Section 352(g), relating to assignment pay
23 or special duty pay.

24 (8) Section 353(i), relating to skill incentive
25 pay or proficiency bonus.

1 (9) Section 355(h), relating to retention incen-
2 tives for members qualified in critical military skills
3 or assigned to high priority units.

4 (e) **AUTHORITY TO PROVIDE TEMPORARY INCREASE**
5 **IN RATES OF BASIC ALLOWANCE FOR HOUSING.**—Section
6 403(b)(7)(E) of title 37, United States Code, is amended
7 by striking “December 31, 2019” and inserting “Decem-
8 ber 31, 2020”.

9 **Subtitle C—Family and Survivor**
10 **Benefits**

11 **SEC. 621. EXPANSION OF ELIGIBILITY FOR EXCEPTIONAL**
12 **TRANSITIONAL COMPENSATION FOR DE-**
13 **PENDENTS TO DEPENDENTS OF CURRENT**
14 **MEMBERS.**

15 Section 1059(m) of title 10, United States Code, is
16 amended—

17 (1) in the subsection heading, by inserting
18 “MEMBERS OR” after “DEPENDENTS OF”;

19 (2) by inserting “member or” before “former
20 member” each place it appears;

21 (3) by redesignating paragraph (3) as para-
22 graph (4); and

23 (4) by inserting after paragraph (2) the fol-
24 lowing new paragraph (3):

1 “(3) For purposes of the provision of benefits under
2 this section pursuant to this subsection, a member shall
3 be considered separated from active duty upon the earliest
4 of—

5 “(A) the date an administrative separation is
6 initiated by a commander of the member;

7 “(B) the date the court-martial sentence is ad-
8 judged if the sentence, as adjudged, includes a dis-
9 missal, dishonorable discharge, bad conduct dis-
10 charge, or forfeiture of all pay and allowances; or

11 “(C) the date the member’s term of service ex-
12 pires.”.

13 **SEC. 622. PHASE-OUT OF REDUCTION OF SURVIVOR BEN-**
14 **EFIT PLAN SURVIVOR ANNUITIES BY**
15 **AMOUNT OF DEPENDENCY AND INDEMNITY**
16 **COMPENSATION.**

17 (a) PHASE-OUT.—Subchapter II of chapter 73 of title
18 10, United States Code, is amended as follows:

19 (1) IN GENERAL.—In section 1450(c)(1)—

20 (A) by striking “that the annuity otherwise
21 payable under this section would exceed that
22 compensation.” and inserting “calculated as fol-
23 lows:”; and

24 (B) by adding at the end the following:

1 “(A) During the period beginning on Janu-
2 ary 1, 2020, and ending on December 31, 2020,
3 the amount that the annuity otherwise payable
4 under this section would exceed such depend-
5 ency and indemnity compensation.

6 “(B) During the period beginning on Jan-
7 uary 1, 2021, and ending on December 31,
8 2021, the amount that the annuity otherwise
9 payable under this section would exceed two-
10 thirds of such dependency and indemnity com-
11 pensation.

12 “(C) During the period beginning on Janu-
13 ary 1, 2022, and ending on December 31, 2022,
14 the amount that the annuity otherwise payable
15 under this section would exceed one-third of
16 such dependency and indemnity compensation.

17 “(D) On and after January 1, 2023, the
18 full amount of the annuity under this section.”.

19 (2) CONFORMING AMENDMENT.—In section
20 1451(c)(2), by inserting “a portion (calculated under
21 section 1450(c) of this title) of” before “the
22 amount”.

23 (b) PROHIBITION ON RETROACTIVE BENEFITS.—No
24 benefits may be paid to any person for any period before

1 the effective date provided under subsection (f) by reason
2 of the amendments made by subsection (a).

3 (c) PROHIBITION ON RECOUPMENT OF CERTAIN
4 AMOUNTS PREVIOUSLY REFUNDED TO SBP RECIPI-
5 ENTS.—A surviving spouse who is or has been in receipt
6 of an annuity under the Survivor Benefit Plan under sub-
7 chapter II of chapter 73 of title 10, United States Code,
8 that is in effect before the effective date provided under
9 subsection (f) and that is adjusted by reason of the
10 amendments made by subsection (a) and who has received
11 a refund of retired pay under section 1450(e) of title 10,
12 United States Code, shall not be required to repay such
13 refund to the United States.

14 (d) REPEAL OF AUTHORITY FOR OPTIONAL ANNUITY
15 FOR DEPENDENT CHILDREN.—Section 1448(d)(2) of
16 such title is amended—

17 (1) by striking “DEPENDENT CHILDREN.—”
18 and all that follows through “In the case of a mem-
19 ber described in paragraph (1),” and inserting “DE-
20 PENDENT CHILDREN.—In the case of a member de-
21 scribed in paragraph (1),”; and

22 (2) by striking subparagraph (B).

23 (e) RESTORATION OF ELIGIBILITY FOR PREVIOUSLY
24 ELIGIBLE SPOUSES.—The Secretary of the military de-
25 partment concerned shall restore annuity eligibility to any

1 eligible surviving spouse who, in consultation with the Sec-
2 retary, previously elected to transfer payment of such an-
3 nuity to a surviving child or children under the provisions
4 of section 1448(d)(2)(B) of title 10, United States Code,
5 as in effect on the day before the effective date provided
6 under subsection (f). Such eligibility shall be restored
7 whether or not payment to such child or children subse-
8 quently was terminated due to loss of dependent status
9 or death. For the purposes of this subsection, an eligible
10 spouse includes a spouse who was previously eligible for
11 payment of such annuity and is not remarried, or remar-
12 ried after having attained age 55, or whose second or sub-
13 sequent marriage has been terminated by death, divorce
14 or annulment.

15 (f) EFFECTIVE DATE.—This section and the amend-
16 ments made by this section shall take effect on the first
17 day of the first month that begins after the date of the
18 enactment of this Act, except subsections (d) and (e) of
19 this section and the amendments made thereby shall take
20 effect on January 1, 2023.

21 **SEC. 623. DEATH GRATUITY FOR ROTC GRADUATES.**

22 (a) IN GENERAL.—Section 1475(a)(4) of title 10,
23 United States Code, is amended by adding “; or a grad-
24 uate of a reserve officers’ training corps who has received

1 a commission but has yet to receive a first duty assign-
2 ment; or” at the end.

3 (b) EFFECTIVE DATE.—The amendment under sub-
4 section (a) applies to deaths that occur on or after the
5 date of the enactment of this Act.

6 **SEC. 624. EXPANSION OF AUTHORITY TO PROVIDE FINAN-**
7 **CIAL ASSISTANCE TO CIVILIAN PROVIDERS**
8 **OF CHILD CARE SERVICES OR YOUTH PRO-**
9 **GRAM SERVICES WHO PROVIDE SUCH SERV-**
10 **ICES TO SURVIVORS OF MEMBERS OF THE**
11 **ARMED FORCES WHO DIE IN COMBAT IN THE**
12 **LINE OF DUTY.**

13 Section 1798(a) of title 10, United States Code, is
14 amended by inserting “, survivors of members of the
15 armed forces who die in combat-related incidents in the
16 line of duty,” after “armed forces”.

17 **SEC. 625. CASUALTY ASSISTANCE FOR SURVIVORS OF DE-**
18 **CEASED ROTC GRADUATES.**

19 Section 633 of the National Defense Authorization
20 Act for Fiscal Year 2014 (10 U.S.C. 1475 note) is amend-
21 ed by adding at the end the following new subsection:

22 “(c) ROTC GRADUATES.—

23 “(1) TREATED AS MEMBERS.—For purposes of
24 this section, a graduate of a reserve officers’ train-
25 ing corps who receives a commission and who dies

1 before receiving a first duty assignment shall be
2 treated as a member of the Armed Forces who dies
3 while on active duty.

4 “(2) EFFECTIVE DATE.—This subsection ap-
5 plies to deaths on or after the date of the enactment
6 of the National Defense Authorization Act for Fiscal
7 Year 2020.”.

8 **Subtitle D—Defense Resale Matters**

9 **SEC. 631. DEFENSE RESALE SYSTEM MATTERS.**

10 (a) IN GENERAL.—The Under Secretary of Defense
11 for Personnel and Readiness shall, in coordination with
12 the Chief Management Officer of the Department of De-
13 fense, maintain oversight of business transformation ef-
14 forts of the defense commissary system and the exchange
15 stores system in order to ensure the following:

16 (1) Development of an intercomponent business
17 strategy that maximizes efficiencies and results in a
18 viable defense resale system in the future.

19 (2) Preservation of patron savings and satisfac-
20 tion from and in the defense commissary system and
21 exchange stores system.

22 (3) Sustainment of financial support of the de-
23 fense commissary and exchange systems for morale,
24 welfare, and recreation (MWR) services of the
25 Armed Forces.

1 (b) EXECUTIVE RESALE BOARD ADVICE ON OPER-
2 ATIONS OF SYSTEMS.—The Executive Resale Board of the
3 Department of Defense shall advise the Under Secretary
4 on the implementation of sustainable, complementary op-
5 erations of the defense commissary system and the ex-
6 change stores system.

7 (c) INFORMATION TECHNOLOGY MODERNIZATION.—
8 The Secretary of Defense shall, acting through the Under
9 Secretary and with advice from the Executive Resale
10 Board, require the Defense Commissary Agency and the
11 Military Exchange Service to do as follows:

12 (1) Field new technologies and best business
13 practices for information technology for the defense
14 resale system.

15 (2) Implement cutting-edge marketing opportu-
16 nities across the defense resale system.

17 (d) INCLUSION OF ADVERTISING IN OPERATING EX-
18 PENSES OF COMMISSARY STORES.—Section 2483(b) of
19 title 10, United States Code, is amended by adding at the
20 end the following paragraph:

21 “(7) Advertising of commissary sales on mate-
22 rials available within commissary stores and at other
23 on-base locations.”.

1 **SEC. 632. PROCUREMENT BY COMMISSARY STORES OF CER-**
2 **TAIN LOCALLY SOURCED PRODUCTS.**

3 The Secretary of Defense shall ensure that the dairy
4 products and fruits and vegetables procured for com-
5 missary stores under the defense commissary system are,
6 to the extent practicable and while maintaining mandated
7 patron savings, locally sourced in order to ensure the
8 availability of the freshest possible dairy products and
9 fruits and vegetables for patrons of the stores.

10 **SEC. 633. GAO REVIEW OF DEFENSE RESALE OPTIMIZATION**
11 **STUDY.**

12 (a) REVIEW.—The Comptroller General of the United
13 States shall conduct a review of the business case analysis
14 performed as part of the defense resale optimization study
15 conducted by the Reform Management Group, titled
16 “Study to Determine the Feasibility of Consolidation of
17 the Defense Resale Entities” and dated December 4,
18 2018.

19 (b) REPORTS REQUIRED; ELEMENTS.—Not later
20 than March 1, 2020, and June 1, 2020, the Comptroller
21 General shall submit to the Committees on Armed Serv-
22 ices of the Senate and the House of Representatives an
23 interim report and a final report, respectively, regarding
24 the review performed under this section. Each report shall
25 include evaluations of the following:

1 (1) The descriptions and justifications for the
2 assumptions, analytical choices and data used by the
3 Reform Management Group to calculate:

4 (A) Pricing.

5 (B) Sales assumptions.

6 (C) Accuracy of methods employed to
7 measure patron savings levels.

8 (2) The timetable for consolidation of military
9 exchanges and commissaries.

10 (3) The recommendations for consolidation de-
11 veloped as part of the business case analysis, includ-
12 ing the overall cost of consolidation.

13 (4) The budget and oversight implications of
14 merging non-appropriated funds and appropriated
15 funds to implement the recommended reforms.

16 (5) The extent to which the Reform Manage-
17 ment Group coordinated with the Secretaries of the
18 military departments and the chiefs of the Armed
19 Forces in preparing the study.

20 (6) The extent to which the Reform Manage-
21 ment Group addressed concerns of the Secretaries of
22 the military departments and the chiefs of the
23 Armed Forces in the study.

24 (7) If the recommendations in the business case
25 analysis were implemented—

1 (A) the ability of military exchanges and
2 commissaries to provide earnings to support on-
3 base morale, welfare, and recreation programs;
4 and

5 (B) the financial viability of the military
6 exchanges and commissaries.

7 (c) DELAY ON CONSOLIDATION.—The Secretary of
8 Defense may not take any action to consolidate military
9 exchanges and commissaries until the Committees on
10 Armed Services of the Senate and the House of Represent-
11 atives notify the Secretary in writing of receipt and accept-
12 ance of the findings of the Comptroller General in the re-
13 ports required under this section.

14 **Subtitle E—Morale, Welfare, and**
15 **Recreation Privileges**

16 **SEC. 641. EXTENSION OF CERTAIN MORALE, WELFARE, AND**
17 **RECREATION PRIVILEGES TO FOREIGN SERV-**
18 **ICE OFFICERS ON MANDATORY HOME LEAVE.**

19 (a) IN GENERAL.—Section 1065 of title 10, United
20 States Code, as added by section 621 of the John S.
21 McCain National Defense Authorization Act for Fiscal
22 Year 2019 (Public Law 115–232), is amended—

23 (1) in the heading, by striking “**veterans**
24 **and caregivers for veterans**” and inserting

1 **“veterans, caregivers for veterans, and**
2 **Foreign Service officers”;**

3 (2) by redesignating subsections (f) and (g) as
4 subsections (g) and (h), respectively;

5 (3) by inserting after subsection (e) the fol-
6 lowing new subsection (f):

7 **“(f) ELIGIBILITY OF FOREIGN SERVICE OFFICERS**
8 **ON MANDATORY HOME LEAVE.—**A Foreign Service offi-
9 cer on mandatory home leave may be permitted to use
10 military lodging referred to in subsection (h).”;

11 (4) in subsection (h), as redesignated by para-
12 graph (2), by adding at the end the following new
13 paragraphs:

14 “(5) The term ‘Foreign Service officer’ has the
15 meaning given that term in section 103 of the For-
16 eign Service Act of 1980 (22 U.S.C. 3903).

17 “(6) The term ‘mandatory home leave’ means
18 leave under section 903 of the Foreign Service Act
19 of 1980 (22 U.S.C. 4083).”.

20 (b) **EFFECTIVE DATE.**—The amendments made by
21 this section shall take effect on January 1, 2020, as if
22 originally incorporated in section 621 of Public Law 115–
23 232.

1 **SEC. 642. EXTENSION OF PILOT PROGRAM ON A GOVERN-**
2 **MENT LODGING PROGRAM.**

3 Section 914(b) of the Carl Levin and Howard P.
4 “Buck” McKeon National Defense Authorization Act for
5 Fiscal Year 2015 (5 U.S.C. 5911 note) is amended by
6 striking “December 31, 2019” and inserting “December
7 31, 2020”.

8 **Subtitle F—Reports and Other**
9 **Matters**

10 **SEC. 651. ANNUAL REPORTS ON APPROVAL OF EMPLOY-**
11 **MENT OR COMPENSATION OF RETIRED GEN-**
12 **ERAL OR FLAG OFFICERS BY FOREIGN GOV-**
13 **ERNMENTS FOR EMOLUMENTS CLAUSE PUR-**
14 **POSES.**

15 (a) ANNUAL REPORTS.—Section 908 of title 37,
16 United States Code is amended—

17 (1) by redesignating subsection (c) as sub-
18 section (d); and

19 (2) by inserting after subsection (b) the fol-
20 lowing new subsection (c):

21 “(c) ANNUAL REPORTS ON APPROVALS FOR RE-
22 TIRED GENERAL AND FLAG OFFICERS.—Not later than
23 January 31 each year, the Secretaries of the military de-
24 partments, after consulting with the Secretary of State,
25 shall jointly submit to the Committees on Armed Services
26 of the Senate and House of Representatives a report on

1 each approval under subsection (b) for employment or
2 compensation described in subsection (a) for a retired
3 member of the armed forces in general or flag officer
4 grade that was issued during the preceding year.”.

5 (b) SCOPE OF FIRST REPORT.—The first report sub-
6 mitted pursuant to subsection (c) of section 908 of title
7 37, United States Code (as amended by subsection (a) of
8 this section), after the date of the enactment of this Act
9 shall cover the five-year period ending with the year before
10 the year in which such report is submitted.

11 **SEC. 652. REPORT REGARDING TRANSITION FROM OVER-**
12 **SEAS HOUSING ALLOWANCE TO BASIC AL-**
13 **LOWANCE FOR HOUSING FOR**
14 **SERVICEMEMBERS IN THE TERRITORIES.**

15 Not later than February 1, 2020, the Secretary of
16 Defense shall submit a report to the congressional defense
17 committees regarding the recommendation of the Sec-
18 retary whether members of the uniformed services located
19 in the territories of the United States and who receive the
20 overseas housing allowance should instead receive the
21 basic allowance for housing to ensure the most appropriate
22 housing compensation for such members and their fami-
23 lies.

1 **SEC. 653. REPORT ON EXTENSION TO MEMBERS OF THE RE-**
2 **SERVE COMPONENTS OF THE ARMED**
3 **FORCES OF SPECIAL AND INCENTIVE PAYS**
4 **FOR MEMBERS OF THE ARMED FORCES NOT**
5 **CURRENTLY PAYABLE TO MEMBERS OF THE**
6 **RESERVE COMPONENTS.**

7 (a) REPORT REQUIRED.—Not later than one year
8 after the date of the enactment of this Act, the Secretary
9 of Defense shall submit to the congressional defense com-
10 mittees a report setting forth the results of a study, con-
11 ducted by the Secretary for purposes of the report, on the
12 feasibility and advisability of paying eligible members of
13 the reserve components of the Armed Forces any special
14 or incentive pay for members of the Armed Forces that
15 is not currently payable to members of the reserve compo-
16 nents.

17 (b) ELEMENTS.—The report required by subsection
18 (a) shall set forth the following:

19 (1) An estimate of the yearly cost of paying
20 members of the reserve components risk pay and
21 flight pay under sections 334, 334a, and 351 of title
22 37, United States Code, at the same rate as mem-
23 bers on active duty, regardless of the number of pe-
24 riods of instruction or appropriate duty participated
25 in, so long as there is at least one such period of in-
26 struction or appropriate duty in the month.

1 (2) A statement of the number of members of
2 the reserve components who qualify or potentially
3 qualify for hazardous duty incentive pay based on
4 current professions or required duties, broken out by
5 hazardous duty categories set forth in section 351 of
6 title 37, United States Code.

7 (3) If the Secretary determines that payment to
8 eligible members of the reserve components of any
9 special or incentive pay for members of the Armed
10 Forces that is not currently payable to members of
11 the reserve components is feasible and advisable,
12 such recommendations as the Secretary considers
13 appropriate for legislative or administrative action to
14 authorize such payment.

15 **SEC. 654. STUDY REGARDING RECOUPMENT OF SEPARA-**
16 **TION PAY, SPECIAL SEPARATION BENEFITS,**
17 **AND VOLUNTARY SEPARATION INCENTIVE**
18 **PAYMENTS FROM MEMBERS OF THE ARMED**
19 **FORCES AND VETERANS WHO RECEIVE DIS-**
20 **ABILITY COMPENSATION UNDER LAWS AD-**
21 **MINISTERED BY THE SECRETARY OF VET-**
22 **ERANS AFFAIRS.**

23 (a) STUDY.—The Secretary of Defense, in consulta-
24 tion with the Secretary of Veterans Affairs, shall conduct
25 a study to determine, with regards to members of the

1 Armed Forces and veterans whose separation pay, special
2 separation benefits, and voluntary separation incentive
3 payments either Secretary recoups because such members
4 and veterans subsequently receive disability compensation
5 under laws administered by the Secretary of Veterans Af-
6 fairs—

7 (1) how many such members and veterans are
8 affected by such recoupment; and

9 (2) the aggregated amount of additional money
10 such members and veterans would receive but for
11 such recoupment.

12 (b) REPORT REQUIRED.—Not later than September
13 30, 2020, the Secretary of Defense shall submit to the
14 Committees on Armed Services and Veterans' Affairs of
15 the Senate and House of Representatives a report regard-
16 ing the results of the study under subsection (a).

17 **SEC. 655. REPORT ON IMPLEMENTATION OF CONTRIBU-**
18 **TIONS TO THE DEPARTMENT OF DEFENSE**
19 **MILITARY RETIREMENT FUND BASED ON PAY**
20 **COSTS PER ARMED FORCE RATHER THAN ON**
21 **ARMED FORCES-WIDE BASIS.**

22 (a) REPORT REQUIRED.—

23 (1) IN GENERAL.—Not later than April 1,
24 2020, the Secretary of Defense shall, in consultation
25 with the Secretaries of the military departments,

1 submit to the congressional defense committees a re-
2 port setting forth a plan for the implementation of
3 the amendments described in paragraph (2) as if
4 such amendments would apply with respect to deter-
5 minations of contributions to the Department of De-
6 fense Military Retirement Fund under chapter 74 of
7 title 10, United States Code, and payments into the
8 Fund, beginning with fiscal year 2025.

9 (2) COVERED AMENDMENTS.—The amendments
10 described in this paragraph are the amendments
11 proposed to be made by section 631 of S.1790 of the
12 116th Congress, as reported to the Senate by the
13 Committee on Armed Services of the Senate on June
14 11, 2019.

15 (b) ELEMENTS.—The report required by subsection
16 (a) shall include the following:

17 (1) A plan to implement the amendments de-
18 scribed in paragraph (2) of subsection (a) in the
19 manner described in paragraph (1) of that sub-
20 section.

21 (2) A timeline for actions required to implement
22 such amendments in that manner.

23 (3) An assessment of the impact of the imple-
24 mentation of such amendments in that manner on
25 each of the following:

1 (A) The budgeting of the military depart-
2 ments.

3 (B) The efforts of the Department of De-
4 fense to achieve audits of its financial state-
5 ments.

6 (C) Decisions on military manning of the
7 Armed Forces.

8 (D) The cost and complexity of tracking
9 contributions to the Department of Defense
10 Military Retirement Fund.

11 **SEC. 656. REPORT ON FOOD INSECURITY AMONG MEMBERS**
12 **OF THE ARMED FORCES AND THEIR DEPEND-**
13 **ENTS.**

14 (a) REPORT REQUIRED.—Not later than May 1,
15 2020, the Secretary of Defense shall submit to the Com-
16 mittees on Armed Services of the Senate and the House
17 of Representatives a report on food insecurity among
18 members of the Armed Forces and their dependents.

19 (b) ELEMENTS.—The report required by subsection
20 (a) shall include the following:

21 (1) An assessment of the current extent of food
22 insecurity among members of the Armed Forces and
23 their dependents, including a description and anal-
24 ysis of the following:

1 (A) Use of food assistance by members
2 and their dependents, as revealed in data of the
3 Department of Defense and other data available
4 to the Department.

5 (B) Use of free and reduced price school
6 meals by dependents.

7 (C) Use of food banks or similar assistance
8 by members and their dependents.

9 (2) A description and assessment of the bar-
10 riers, if any, to qualification for or access to ade-
11 quate food assistance of any type by members of the
12 Armed Forces and their dependents.

13 (3) A description of the number of members of
14 the Armed Forces overseas who enrolled in the Fam-
15 ily Supplemental Subsistence Allowance (FSSA) pro-
16 gram under section 402a of title 37, United States
17 Code, during the five-fiscal year period ending with
18 fiscal year 2019, and of the cost to the Department
19 of such enrollment during each fiscal year con-
20 cerned.

21 (4) An assessment of the effectiveness of the
22 Family Supplemental Subsistence Allowance pro-
23 gram for members of the Armed Forces overseas.

24 (5) A description and assessment of the partici-
25 pation of members of the Armed Forces in the Sup-

1 Supplemental Nutrition Assistance Program (SNAP),
2 including with respect to the following:

3 (A) Coordination between the Department
4 of Defense and the Department of Agriculture
5 for purposes of determining the numbers of
6 members currently participating in the pro-
7 gram.

8 (B) Career stigma for members resulting
9 from participation in the program.

10 (C) Adverse consequences for member per-
11 sonal financial management resulting from par-
12 ticipation in the program.

13 (D) Other support available to and used by
14 members to meet basic needs requirements.

15 (6) An assessment of food insecurity among
16 members of the Armed Forces who reside in on-post
17 housing (and thus do not receive basic allowance for
18 housing (BAH)) and their dependents, including eli-
19 gibility of such members for and participation of
20 such members in the Supplemental Nutrition Assist-
21 ance Program.

22 (7) An assessment of the feasibility and advis-
23 ability of a basic needs allowance for low-income
24 members of the Armed Forces (including an allow-
25 ance calculated both with and without basic allow-

1 ance for housing included in the determination of
2 member gross household income), including with re-
3 spect to the following:

4 (A) The maximum member gross house-
5 hold income for eligibility for the allowance.

6 (B) The number of members who would be
7 eligible for the allowance.

8 (C) The optimal average annual amount of
9 the allowance.

10 (D) The total annual cost of paying the al-
11 lowance.

12 (E) Whether particular geographic loca-
13 tions would include large number of members
14 eligible for the allowance.

15 (F) The effects of payment of the allow-
16 ance on recruitment and retention of members,
17 and on member morale and conduct.

18 (8) Any other recommendations for policies,
19 programs, and activities to address food insecurity
20 among members of the Armed Forces and their de-
21 pendents that the Secretary considers appropriate.

22 **TITLE VII—HEALTH CARE** 23 **PROVISIONS**

Subtitle A—TRICARE and Other Health Care Benefits

Sec. 701. Modification of eligibility for TRICARE Reserve Select for certain members of the Selected Reserve.

Sec. 702. TRICARE payment options for retirees and their dependents.

- Sec. 703. Lead level screening and testing for children.
- Sec. 704. Exposure to open burn pits and toxic airborne chemicals or other airborne contaminants as part of periodic health assessments and other physical examinations.
- Sec. 705. Enhancement of recordkeeping with respect to exposure by members of the Armed Forces to certain occupational and environmental hazards while deployed overseas.
- Sec. 706. Modifications to post-deployment mental health assessments for members of the Armed Forces deployed in support of a contingency operation.
- Sec. 707. Provision of blood testing for firefighters of Department of Defense to determine exposure to perfluoroalkyl and polyfluoroalkyl substances.

Subtitle B—Health Care Administration

- Sec. 711. Modification of organization of military health system.
- Sec. 712. Support by military health system of medical requirements of combatant commands.
- Sec. 713. Requirements for certain prescription drug labels.
- Sec. 714. Officers authorized to command Army dental units.
- Sec. 715. Improvements to interagency program office of the Department of Defense and the Department of Veterans Affairs.
- Sec. 716. Expansion of strategy to improve acquisition of managed care support contracts under TRICARE program.
- Sec. 717. Inclusion of blast exposure history in medical records of members of the Armed Forces.
- Sec. 718. Comprehensive policy for provision of mental health care to members of the Armed Forces.
- Sec. 719. Limitation on the realignment or reduction of military medical manning end strength.
- Sec. 720. Strategy to recruit and retain mental health providers.
- Sec. 721. Development of partnerships to improve combat casualty care for personnel of the Armed Forces.
- Sec. 722. Modification to referrals for mental health services.

Subtitle C—Reports and Other Matters

- Sec. 731. Authorization of claims by members of the uniformed services against the United States for personal injury or death caused by medical malpractice.
- Sec. 732. Extension and clarification of authority for Joint Department of Defense-Department of Veterans Affairs Medical Facility Demonstration Fund.
- Sec. 733. Appointment of non-ex officio members of the Henry M. Jackson Foundation for the Advancement of Military Medicine.
- Sec. 734. Establishment of Academic Health System in National Capital Region.
- Sec. 735. Provision of veterinary services by veterinary professionals of the Department of Defense in emergencies.
- Sec. 736. Three-year extension of authority to continue the DOD-VA Health Care Sharing Incentive Fund.
- Sec. 737. Preservation of resources of the Army Medical Research and Materiel Command and continuation as Center of Excellence.
- Sec. 738. Encouragement of participation in Women's Health Transition Training pilot program.

- Sec. 739. National Guard suicide prevention pilot program.
- Sec. 740. Pilot Program on civilian and military partnerships to enhance interoperability and medical surge capability and capacity of National Disaster Medical System.
- Sec. 741. Reports on suicide among members of the Armed Forces and suicide prevention programs and activities of the Department of Defense.
- Sec. 742. Modification of requirements for longitudinal medical study on blast pressure exposure of members of the Armed Forces and collection of exposure information.
- Sec. 743. Study and plan on the use of military-civilian integrated health delivery systems.
- Sec. 744. Study on case management in the military health system.
- Sec. 745. Report on Global Health Security Strategy and the National Bio-defense Security.
- Sec. 746. Study on establishment of wounded warrior service dog program.
- Sec. 747. GAO report on Department of Defense quality assurance program and impacts of medical malpractice actions.
- Sec. 748. Reports on Millennium Cohort Study relating to women members of the Armed Forces.
- Sec. 749. Study on effects of sleep deprivation on readiness of members of the Armed Forces.
- Sec. 750. Study and report on traumatic brain injury mitigation efforts.

1 **Subtitle A—TRICARE and Other**
 2 **Health Care Benefits**

3 **SEC. 701. MODIFICATION OF ELIGIBILITY FOR TRICARE RE-**
 4 **SERVE SELECT FOR CERTAIN MEMBERS OF**
 5 **THE SELECTED RESERVE.**

6 Section 1076d(a)(2) of title 10, United States Code,
 7 is amended by striking “Paragraph (1) does not apply”
 8 and inserting “During the period preceding January 1,
 9 2030, paragraph (1) does not apply”.

10 **SEC. 702. TRICARE PAYMENT OPTIONS FOR RETIREES AND**
 11 **THEIR DEPENDENTS.**

12 (a) IN GENERAL.—Section 1099 of title 10, United
 13 States Code, is amended—

1 (1) by redesignating subsection (d) as sub-
2 section (e); and

3 (2) by inserting after subsection (c) the fol-
4 lowing new subsection (d):

5 “(d) PAYMENT OPTIONS.—(1) A member or former
6 member of the uniformed services, or a dependent thereof,
7 eligible for medical care and dental care under section
8 1074(b) or 1076 of this title shall pay a premium for cov-
9 erage under this chapter.

10 “(2) To the maximum extent practicable, a premium
11 owed by a member, former member, or dependent under
12 paragraph (1) shall be withheld from the retired, retainer,
13 or equivalent pay of the member, former member, or de-
14 pendent. In all other cases, a premium shall be paid in
15 a frequency and method determined by the Secretary.”.

16 (b) CONFORMING AND CLERICAL AMENDMENTS.—

17 (1) CONFORMING AMENDMENTS.—Section
18 1097a of title 10, United States Code, is amended—

19 (A) by striking subsection (c); and

20 (B) by redesignating subsections (d), (e),
21 and (f) as subsections (c), (d), and (e), respec-
22 tively.

23 (2) HEADING AMENDMENTS.—

1 (A) AUTOMATIC ENROLLMENTS.—The
2 heading for section 1097a of such title is
3 amended to read as follows:

4 **“§ 1097a. TRICARE Prime: automatic enrollments”.**

5 (B) ENROLLMENT SYSTEM AND PAYMENT
6 OPTIONS.—The heading for section 1099 of
7 such title is amended to read as follows:

8 **“§ 1099. Health care enrollment system and payment
9 options”.**

10 (3) CLERICAL AMENDMENTS.—The table of sec-
11 tions at the beginning of chapter 55 of such title is
12 amended—

13 (A) by striking the item relating to section
14 1097a and inserting the following new item:

“1097a. TRICARE Prime: automatic enrollments.”; and

15 (B) by striking the item relating to section
16 1099 and inserting the following new item:

“1099. Health care enrollment system and payment options.”.

17 (c) EFFECTIVE DATE.—The amendments made by
18 this section shall apply to health care coverage beginning
19 on or after January 1, 2021.

20 **SEC. 703. LEAD LEVEL SCREENING AND TESTING FOR CHIL-
21 DREN.**

22 (a) COMPREHENSIVE SCREENING, TESTING, AND RE-
23 PORTING GUIDELINES.—

1 (1) IN GENERAL.—The Secretary of Defense
2 shall establish clinical practice guidelines for health
3 care providers employed by the Department of De-
4 fense on screening, testing, and reporting of blood
5 lead levels in children.

6 (2) USE OF CDC RECOMMENDATIONS.—Guide-
7 lines established under paragraph (1) shall reflect
8 recommendations made by the Centers for Disease
9 Control and Prevention with respect to the screen-
10 ing, testing, and reporting of blood lead levels in
11 children.

12 (3) DISSEMINATION OF GUIDELINES.—Not
13 later than one year after the date of the enactment
14 of this Act, the Secretary shall disseminate the clin-
15 ical practice guidelines established under paragraph
16 (1) to health care providers of the Department of
17 Defense.

18 (b) CARE PROVIDED IN ACCORDANCE WITH CDC
19 GUIDANCE.—The Secretary shall ensure that any care
20 provided by the Department of Defense to a child for an
21 elevated blood lead level shall be carried out in accordance
22 with applicable guidance issued by the Centers for Disease
23 Control and Prevention.

24 (c) SHARING OF RESULTS OF TESTING.—

1 (1) IN GENERAL.—With respect to a child who
2 receives from the Department of Defense a test for
3 an elevated blood lead level—

4 (A) the Secretary shall provide the results
5 of the test to the parent or guardian of the
6 child; and

7 (B) notwithstanding any requirements for
8 the confidentiality of health information under
9 the Health Insurance Portability and Account-
10 ability Act of 1996 (Public Law 104–191), if
11 the results of the test show an abnormal blood
12 lead level or elevated blood lead level, the Sec-
13 retary shall provide those results and the ad-
14 dress at which the child resides to—

15 (i) the relevant health department of
16 the State in which the child resides if the
17 child resides in the United States; or

18 (ii) if the child resides outside the
19 United States—

20 (I) the Centers for Disease Con-
21 trol and Prevention;

22 (II) the appropriate authority of
23 the country in which the child resides;
24 and

1 (III) the primary provider of
2 health care for the child for follow-up.

3 (2) STATE DEFINED.—In this subsection, the
4 term “State” means each of the several States, the
5 District of Columbia, the Commonwealth of Puerto
6 Rico, and any territory or possession of the United
7 States.

8 (d) REPORT.—Not later than January 1, 2021, the
9 Secretary of Defense shall submit to the Committees on
10 Armed Services of the Senate and the House of Represent-
11 atives a report detailing, with respect to the period begin-
12 ning on the date of the enactment of this Act and ending
13 on the date of the report, the following:

14 (1) The number of children who were tested by
15 the Department of Defense for the level of lead in
16 the blood of the child, and of such number, the num-
17 ber who were found to have an elevated blood lead
18 level.

19 (2) The number of children who were screened
20 by the Department of Defense for an elevated risk
21 of lead exposure.

22 (e) COMPTROLLER GENERAL REPORT.—Not later
23 than January 1, 2022, the Comptroller General of the
24 United States shall submit to the Committees on Armed
25 Services of the Senate and the House of Representatives

1 a report on the effectiveness of screening and testing for
2 lead exposure and elevated blood lead levels under chapter
3 55 of title 10, United States Code.

4 (f) DEFINITIONS.—In this section, the terms “abnor-
5 mal blood lead level” and “elevated blood lead level” have
6 the meanings given those terms by the Centers for Disease
7 Control and Prevention.

8 **SEC. 704. EXPOSURE TO OPEN BURN PITS AND TOXIC AIR-**
9 **BORNE CHEMICALS OR OTHER AIRBORNE**
10 **CONTAMINANTS AS PART OF PERIODIC**
11 **HEALTH ASSESSMENTS AND OTHER PHYS-**
12 **ICAL EXAMINATIONS.**

13 (a) PERIODIC HEALTH ASSESSMENT.—The Sec-
14 retary of Defense shall ensure that any periodic health as-
15 sessment provided to members of the Armed Forces in-
16 cludes an evaluation of whether the member has been—

17 (1) based or stationed at a location where an
18 open burn pit was used; or

19 (2) exposed to toxic airborne chemicals or other
20 airborne contaminants, including any information re-
21 corded as part of the Airborne Hazards and Open
22 Burn Pit Registry.

23 (b) SEPARATION HISTORY AND PHYSICAL EXAMINA-
24 TIONS.—Section 1145(a)(5) of title 10, United States

1 Code, is amended by adding at the end the following new
2 subparagraph:

3 “(C) The Secretary concerned shall ensure that each
4 physical examination of a member under subparagraph
5 (A) includes an assessment of whether the member was—

6 “(i) based or stationed at a location where an
7 open burn pit, as defined in subsection (c) of section
8 201 of the Dignified Burial and Other Veterans’
9 Benefits Improvement Act of 2012 (Public Law
10 112–260; 38 U.S.C. 527 note), was used; or

11 “(ii) exposed to toxic airborne chemicals or
12 other airborne contaminants, including any informa-
13 tion recorded as part of the registry established by
14 the Secretary of Veterans Affairs under such section
15 201.”.

16 (c) DEPLOYMENT ASSESSMENTS.—Section
17 1074f(b)(2) of title 10, United States Code, is amended
18 by adding at the end the following new subparagraph:

19 “(D) An assessment of whether the member
20 was—

21 “(i) based or stationed at a location where
22 an open burn pit, as defined in subsection (c)
23 of section 201 of the Dignified Burial and
24 Other Veterans’ Benefits Improvement Act of

1 2012 (Public Law 112–260; 38 U.S.C. 527
2 note), was used; or

3 “(ii) exposed to toxic airborne chemicals or
4 other airborne contaminants, including any in-
5 formation recorded as part of the registry es-
6 tablished by the Secretary of Veterans Affairs
7 under such section 201.”.

8 (d) SHARING OF INFORMATION.—

9 (1) DOD–VA.—The Secretary of Defense and
10 the Secretary of Veterans Affairs shall jointly enter
11 into a memorandum of understanding providing for
12 the sharing by the Department of Defense with the
13 Department of Veterans Affairs of the results of
14 covered evaluations regarding the exposure by a
15 member of the Armed Forces to toxic airborne
16 chemicals or other airborne contaminants.

17 (2) REGISTRY.—If a covered evaluation of a
18 member of the Armed Forces establishes that the
19 member was based or stationed at a location where
20 an open burn pit was used or that the member was
21 exposed to toxic airborne chemicals or other airborne
22 contaminants, the member shall be enrolled in the
23 Airborne Hazards and Open Burn Pit Registry un-
24 less the member elects to not so enroll.

1 (e) RULE OF CONSTRUCTION.—Nothing in this sec-
2 tion may be construed to preclude eligibility for benefits
3 under the laws administered by the Secretary of Veterans
4 Affairs by reason of the open burn pit exposure history
5 of a veteran not being recorded in a covered evaluation.

6 (f) DEFINITIONS.—In this section:

7 (1) The term “Airborne Hazards and Open
8 Burn Pit Registry” means the registry established
9 by the Secretary of Veterans Affairs under section
10 201 of the Dignified Burial and Other Veterans’
11 Benefits Improvement Act of 2012 (Public Law
12 112–260; 38 U.S.C. 527 note).

13 (2) The term “covered evaluation” means—

14 (A) a periodic health assessment conducted
15 in accordance with subsection (a);

16 (B) a separation history and physical ex-
17 amination conducted under section 1145(a)(5)
18 of title 10, United States Code, as amended by
19 this section; and

20 (C) a deployment assessment conducted
21 under section 1074f(b)(2) of such title, as
22 amended by this section.

23 (3) The term “open burn pit” has the meaning
24 given that term in section 201(c) of the Dignified
25 Burial and Other Veterans’ Benefits Improvement

1 Act of 2012 (Public Law 112–260; 38 U.S.C. 527
2 note).

3 **SEC. 705. ENHANCEMENT OF RECORDKEEPING WITH RE-**
4 **SPECT TO EXPOSURE BY MEMBERS OF THE**
5 **ARMED FORCES TO CERTAIN OCCUPATIONAL**
6 **AND ENVIRONMENTAL HAZARDS WHILE DE-**
7 **PLOYED OVERSEAS.**

8 (a) INCLUSION IN MEDICAL TRACKING SYSTEM OF
9 OCCUPATIONAL AND ENVIRONMENTAL HEALTH RISKS IN
10 DEPLOYMENT AREA.—

11 (1) ELEMENTS OF MEDICAL TRACKING SYS-
12 TEM.—Subsection (b)(1)(A) of section 1074f of title
13 10, United States Code, is amended—

14 (A) in clause (ii), by striking “and” at the
15 end;

16 (B) in clause (iii), by striking the period at
17 the end and inserting “; and”; and

18 (C) by adding at the end the following new
19 clause:

20 “(iv) accurately record any exposure to occupa-
21 tional and environmental health risks during the
22 course of their deployment.”.

23 (2) RECORDKEEPING.—Subsection (c) of such
24 section is amended by inserting after “deployment
25 area” the following: “(including the results of any

1 assessment performed by the Secretary of occupa-
2 tional and environmental health risks for such
3 area)”.
4

5 (b) POSTDEPLOYMENT MEDICAL EXAMINATION AND
6 REASSESSMENTS.—Section 1074f of title 10, United
7 States Code, as amended by subsection (a), is further
8 amended by adding at the end the following new sub-
9 section:

10 “(g) ADDITIONAL REQUIREMENTS FOR
11 POSTDEPLOYMENT MEDICAL EXAMINATIONS AND
12 HEALTH REASSESSMENTS.—(1) The Secretary of Defense
13 shall standardize and make available to a provider that
14 conducts a postdeployment medical examination or reas-
15 sessment under the system described in subsection (a)
16 questions relating to occupational and environmental
17 health exposure.

18 “(2) The Secretary, to the extent practicable, shall
19 ensure that the medical record of a member includes infor-
20 mation on the external cause relating to a diagnosis of
21 the member, including by associating an external cause
22 code (as issued under the International Statistical Classi-
23 fication of Diseases and Related Health Problems, 10th
24 Revision (or any successor revision)).”

25 (c) ACCESS TO INFORMATION IN BURN PIT REG-
ISTRY.—

1 (1) IN GENERAL.—The Secretary of Defense
2 shall ensure that all medical personnel of the De-
3 partment of Defense have access to the information
4 contained in the burn pit registry.

5 (2) BURN PIT REGISTRY DEFINED.—In this
6 subsection, the term “burn pit registry” means the
7 registry established under section 201 of the Dig-
8 nified Burial and Other Veterans’ Benefits Improve-
9 ment Act of 2012 (Public Law 112–260; 38 U.S.C.
10 527 note).

11 **SEC. 706. MODIFICATIONS TO POST-DEPLOYMENT MENTAL**
12 **HEALTH ASSESSMENTS FOR MEMBERS OF**
13 **THE ARMED FORCES DEPLOYED IN SUPPORT**
14 **OF A CONTINGENCY OPERATION.**

15 (a) REQUIRED ASSESSMENTS.—Section 1074m(a)(1)
16 of title 10, United States Code, is amended by striking
17 subparagraphs (C) and (D) and inserting the following
18 new subparagraphs:

19 “(C) Subject to paragraph (3) and sub-
20 section (d), once during the period beginning on
21 the date of redeployment from the contingency
22 operation and ending on the date that is 21
23 days after the date on which the post-deploy-
24 ment leave of the member terminates.

1 “(D) Subject to subsection (d), not less
2 than once annually—

3 “(i) beginning 21 days after the date
4 on which the post-deployment leave of the
5 member terminates; or

6 “(ii) if the assessment required by
7 subparagraph (C) is performed during the
8 period specified in paragraph (3), begin-
9 ning 180 days after the date of redeploy-
10 ment from the contingency operation.”.

11 (b) EXCEPTIONS.—Section 1074m(a) of such title, as
12 amended by subsection (a), is further amended by striking
13 paragraph (2) and inserting the following new paragraphs:

14 “(2) A mental health assessment is not required for
15 a member of the armed forces under subparagraphs (C)
16 and (D) of paragraph (1) (including an assessment per-
17 formed pursuant to paragraph (3)) if the Secretary deter-
18 mines that providing such assessment to the member dur-
19 ing the time periods under such subparagraphs would re-
20 move the member from forward deployment or put mem-
21 bers or operational objectives at risk.

22 “(3) A mental health assessment required under sub-
23 paragraph (C) of paragraph (1) may be provided during
24 the period beginning 90 days after the date of redeploy-
25 ment from the contingency operation and ending 180 days

1 after such redeployment date if the Secretary determines
2 that—

3 “(A) an insufficient number of personnel are
4 available to perform the assessment during the time
5 period under such subparagraph; or

6 “(B) an administrative processing issue exists
7 upon the return of the member to the home unit or
8 duty station that would prohibit the effective per-
9 formance of the assessment during such time pe-
10 riod.”.

11 (c) **ELIMINATION OF SUNSET FOR ASSESSMENTS**
12 **DURING DEPLOYMENT.**—Section 1074m(a)(1)(B) of such
13 title is amended by striking “Until January 1, 2019,
14 once” and inserting “Once”.

15 (d) **EFFECTIVE DATE.**—The amendments made by
16 subsections (a) and (b) shall apply with respect to a date
17 of redeployment that is on or after January 1, 2020.

18 **SEC. 707. PROVISION OF BLOOD TESTING FOR FIRE-**
19 **FIGHTERS OF DEPARTMENT OF DEFENSE TO**
20 **DETERMINE EXPOSURE TO**
21 **PERFLUOROALKYL AND POLYFLUOROALKYL**
22 **SUBSTANCES.**

23 (a) **IN GENERAL.**—Beginning on October 1, 2020,
24 the Secretary of Defense shall provide blood testing to de-
25 termine and document potential exposure to perfluoroalkyl

1 and polyfluoroalkyl substances (commonly known as
2 “PFAS”) for each firefighter of the Department of De-
3 fense during the annual physical exam conducted by the
4 Department for each such firefighter.

5 (b) FIREFIGHTER DEFINED.—In this section, the
6 term “firefighter” means someone whose primary job or
7 military occupational specialty is being a firefighter.

8 **Subtitle B—Health Care**

9 **Administration**

10 **SEC. 711. MODIFICATION OF ORGANIZATION OF MILITARY** 11 **HEALTH SYSTEM.**

12 (a) ADMINISTRATION OF MILITARY MEDICAL TREAT-
13 MENT FACILITIES.—Subsection (a) of section 1073c of
14 title 10, United States Code, is amended—

15 (1) in paragraph (1)—

16 (A) by redesignating subparagraphs (A),
17 (B), (C), (D), (E), and (F) as subparagraphs
18 (C), (D), (E), (G), (H), and (I), respectively;

19 (B) by inserting before subparagraph (C),
20 as redesignated by subparagraph (A) of this
21 paragraph, the following new subparagraphs:

22 “(A) provision and delivery of health care with-
23 in each such facility;

1 “(B) management of privileging, scope of prac-
2 tice, and quality of health care provided within each
3 such facility;” and

4 (C) by inserting after subparagraph (E),
5 as so redesignated, the following new subpara-
6 graph:

7 “(F) supply and equipment;”;

8 (2) in paragraph (2)—

9 (A) by redesignating subparagraphs (D),
10 (E), (F), and (G) as subparagraphs (E), (F),
11 (H), and (I), respectively;

12 (B) by inserting after subparagraph (C)
13 the following new subparagraph (D):

14 “(D) to identify the capacity of each military
15 medical treatment facility to support clinical readi-
16 ness standards of health care providers established
17 by the Secretary of a military department or the As-
18 sistant Secretary of Defense for Health Affairs;”

19 and

20 (C) by striking subparagraph (F), as re-
21 designated by subparagraph (A) of this para-
22 graph, and inserting the following new subpara-
23 graphs:

24 “(F) to determine, in coordination with each
25 Secretary of a military department, manning, includ-

1 ing joint manning, assigned to military medical
2 treatment facilities and intermediary organizations;

3 “(G) to select, after considering nominations
4 from the Secretaries of the military departments,
5 commanders or directors of military medical treat-
6 ment facilities;” and

7 (3) in paragraph (3)—

8 (A) in subparagraph (A)—

9 (i) by inserting “on behalf of the mili-
10 tary departments,” before “ensuring”; and

11 (ii) by striking “and civilian employ-
12 ees”; and

13 (B) in subparagraph (B), by inserting “on
14 behalf of the Defense Health Agency,” before
15 “furnishing”.

16 (b) DHA ASSISTANT DIRECTOR.—Subsection (b)(2)
17 of such section is amended by striking “equivalent edu-
18 cation and experience” and all that follows and inserting
19 “the education and experience to perform the responsibil-
20 ities of the position.”.

21 (c) DHA DEPUTY ASSISTANT DIRECTORS.—Sub-
22 section (c) of such section is amended—

23 (1) in paragraph (2)(B), by striking “across the
24 military health system” and inserting “at military
25 medical treatment facilities”; and

1 (2) in paragraph (4)(B), by inserting “at mili-
2 tary medical treatment facilities” before the period
3 at the end.

4 (d) TREATMENT OF DEPARTMENT OF DEFENSE FOR
5 PURPOSES OF PERSONNEL ASSIGNMENT.—Such section
6 is amended—

7 (1) by redesignating subsection (f) as sub-
8 section (g); and

9 (2) by inserting after subsection (e) the fol-
10 lowing new subsection (f):

11 “(f) TREATMENT OF DEPARTMENT OF DEFENSE
12 FOR PURPOSES OF PERSONNEL ASSIGNMENT.—In imple-
13 menting this section—

14 “(1) the Department of Defense shall be con-
15 sidered a single agency for purposes of civilian per-
16 sonnel assignment under title 5; and

17 “(2) the Secretary of Defense may reassign any
18 employee of a component of the Department of De-
19 fense or a military department in a position in the
20 civil service (as defined in section 2101 of title 5) to
21 any other component of the Department of Defense
22 or military department.”.

23 (e) MILITARY MEDICAL TREATMENT FACILITY.—
24 Subsection (g) of such section, as redesignated by sub-

1 section (d)(1), is amended by adding at the end the fol-
2 lowing new paragraph:

3 “(3) The term ‘military medical treatment facil-
4 ity’ means—

5 “(A) any fixed facility of the Department
6 of Defense that is outside of a deployed envi-
7 ronment and used primarily for health care;
8 and

9 “(B) any other location used for purposes
10 of providing health care services as designated
11 by the Secretary of Defense.”.

12 (f) TECHNICAL AMENDMENTS.—Subsection (a) of
13 such section is amended—

14 (1) in paragraph (1), by striking “paragraph
15 (4)” and inserting “paragraph (5)”;

16 (2) by redesignating paragraph (5) as para-
17 graph (6);

18 (3) by redesignating the first paragraph (4) as
19 paragraph (5); and

20 (4) by moving the second paragraph (4) so as
21 to appear before paragraph (5), as redesignated by
22 paragraph (3) of this subsection.

1 **SEC. 712. SUPPORT BY MILITARY HEALTH SYSTEM OF MED-**
2 **ICAL REQUIREMENTS OF COMBATANT COM-**
3 **MANDS.**

4 (a) IN GENERAL.—Section 712 of the John S.
5 McCain National Defense Authorization Act for Fiscal
6 Year 2019 (Public Law 115–232) is amended—

7 (1) in subsection (a), by amending paragraph
8 (1) to read as follows:

9 “(1) IN GENERAL.—The Secretary of Defense
10 shall, acting through the Secretaries of the military
11 departments, the Defense Health Agency, and the
12 Joint Staff, implement an organizational framework
13 of the military health system that effectively and ef-
14 ficiently implements chapter 55 of title 10, United
15 States Code, to maximize the readiness of the med-
16 ical force, promote interoperability, and integrate
17 medical capabilities of the Armed Forces in order to
18 enhance joint military medical operations in support
19 of requirements of the combatant commands.”;

20 (2) in subsection (e), by redesignating para-
21 graphs (2) and (3) as paragraphs (3) and (4), re-
22 spectively, and by moving such paragraphs so as to
23 appear at the end of subsection (d);

24 (3) by striking subsection (e), as amended by
25 paragraph (2) of this subsection;

1 (4) by redesignating subsections (b) through (d)
2 as subsections (c) through (e), respectively;

3 (5) by inserting after subsection (a) the fol-
4 lowing new subsection (b):

5 “(b) ADDITIONAL DUTIES OF SURGEONS GENERAL
6 OF THE ARMED FORCES.—The Surgeons General of the
7 Armed Forces shall have the following duties:

8 “(1) To ensure the readiness for operational de-
9 ployment of medical and dental personnel and
10 deployable medical or dental teams or units of the
11 Armed Force or Armed Forces concerned.

12 “(2) To meet medical readiness standards, sub-
13 ject to standards and metrics established by the As-
14 sistant Secretary of Defense for Health Affairs.

15 “(3) With respect to uniformed medical and
16 dental personnel of the military department con-
17 cerned—

18 “(A) to assign such personnel—

19 “(i) primarily to military medical
20 treatment facilities, under the operational
21 control of the commander or director of
22 the facility; or

23 “(ii) secondarily to partnerships with
24 civilian or other medical facilities for train-

1 ing activities specific to such military de-
2 partment; and

3 “(B) to maintain readiness of such per-
4 sonnel for operational deployment.

5 “(4) To provide logistical support for oper-
6 ational deployment of medical and dental personnel
7 and deployable medical or dental teams or units of
8 the Armed Force or Armed Forces concerned.

9 “(5) To oversee mobilization and demobilization
10 in connection with the operational deployment of
11 medical and dental personnel of the Armed Force or
12 Armed Forces concerned.

13 “(6) To develop operational medical capabilities
14 required to support the warfighter, and to develop
15 policy relating to such capabilities.

16 “(7) To provide health professionals to serve in
17 leadership positions across the military healthcare
18 system.

19 “(8) To deliver operational clinical services
20 under the operational control of the combatant com-
21 mands—

22 “(A) on ships and planes; and

23 “(B) on installations outside of military
24 medical treatment facilities.

1 “(9) To manage privileging, scope of practice,
2 and quality of health care in the settings described
3 in paragraph (8).”;

4 (6) in subsection (c), as redesignated by para-
5 graph (4) of this subsection—

6 (A) in the subsection heading, by inserting
7 “AGENCY” before “REGIONS”; and

8 (B) in paragraph (1)—

9 (i) in the paragraph heading, by in-
10 serting “AGENCY” before “REGIONS”; and

11 (ii) by striking “defense health” and
12 inserting “Defense Health Agency”;

13 (7) in subsection (d), as redesignated by para-
14 graph (4) of this subsection—

15 (A) in the subsection heading, by inserting
16 “AGENCY” before “REGIONS”;

17 (B) in the matter preceding paragraph (1),
18 by striking “defense health” and inserting “De-
19 fense Health Agency”; and

20 (C) in paragraph (3), by striking “sub-
21 section (b)” and inserting “subsection (c)”; and

22 (8) in subsection (e), as redesignated by para-
23 graph (4) of this subsection—

24 (A) in paragraph (2)—

1 (i) by amending subparagraph (A) to
2 read as follows:

3 “(A) IN GENERAL.—The Secretaries of the
4 military departments shall coordinate with the
5 Chairman of the Joint Chiefs of Staff to direct
6 resources allocated to the military departments
7 to support requirements related to readiness
8 and operational medicine support that are es-
9 tablished by the combatant commands and vali-
10 dated by the Joint Staff.”; and

11 (ii) in subparagraph (B), in the mat-
12 ter preceding clause (i), by striking “Based
13 on” and all that follows through “shall—
14 ” and inserting “The Director of the De-
15 fense Health Agency, in coordination with
16 the Assistant Secretary of Defense for
17 Health Affairs, shall—”;

18 (B) in paragraph (3), as moved and reded-
19 icated by paragraph (2) of this subsection, in
20 the second sentence—

21 (i) by inserting “primarily” before
22 “through”; and

23 (ii) by inserting“, in coordination with
24 the Secretaries of the military depart-

1 ments,” after “the Defense Health Agen-
2 cy”; and

3 (C) by adding at the end the following:

4 “(5) MANPOWER.—

5 “(A) ADMINISTRATIVE CONTROL OF MILI-
6 TARY PERSONNEL.—Each Secretary of a mili-
7 tary department shall exercise administrative
8 control of members of the Armed Forces as-
9 signed to military medical treatment facilities,
10 including personnel assignment and issuance of
11 military orders.

12 “(B) OVERSIGHT OF CERTAIN PERSONNEL
13 BY THE DIRECTOR OF THE DEFENSE HEALTH
14 AGENCY.—In situations in which members of
15 the Armed Forces provide health care services
16 at a military medical treatment facility, the Di-
17 rector of the Defense Health Agency shall
18 maintain operational control over such members
19 and oversight for the provision of care delivered
20 by such members through policies, procedures,
21 and privileging responsibilities of the military
22 medical treatment facility.”.

23 (b) CONFORMING AMENDMENTS.—

24 (1) HEADING AMENDMENT.—The heading for
25 section 712 of the John S. McCain National Defense

1 Authorization Act for Fiscal Year 2019 (Public Law
2 115–232) is amended to read as follows:

3 **“SEC. 712. SUPPORT BY MILITARY HEALTHCARE SYSTEM**
4 **OF MEDICAL REQUIREMENTS OF COMBAT-**
5 **ANT COMMANDS.”.**

6 (2) CLERICAL AMENDMENT.—The table of con-
7 tents for such Act is amended by striking the item
8 relating to section 712 and inserting the following
9 new item:

“Sec. 712. Support by military healthcare system of medical requirements of
combatant commands.”.

10 **SEC. 713. REQUIREMENTS FOR CERTAIN PRESCRIPTION**
11 **DRUG LABELS.**

12 (a) REQUIREMENT.—Section 1074g of title 10,
13 United States Code, is amended—

14 (1) by redesignating subsections (h) and (i) as
15 subsections (i) and (j), respectively; and

16 (2) by inserting after subsection (g) the fol-
17 lowing new subsection (h):

18 “(h) LABELING.—The Secretary of Defense shall en-
19 sure that drugs made available through the facilities of
20 the armed forces under the jurisdiction of the Secretary
21 include labels and other labeling that are in compliance
22 with the requirements of the Federal Food, Drug, and
23 Cosmetic Act (21 U.S.C. 301 et seq.).”.

1 (b) CONFORMING AMENDMENT.—Subsection (b)(1)
2 of such section is amended by striking “under subsection
3 (h)” and inserting “under subsection (j)”.

4 (c) IMPLEMENTATION.—Beginning not later than 90
5 days after the date of the enactment of this Act, the Sec-
6 retary of Defense shall implement subsection (h) of section
7 1074g of title 10, United States Code, as added by sub-
8 section (a).

9 **SEC. 714. OFFICERS AUTHORIZED TO COMMAND ARMY**
10 **DENTAL UNITS.**

11 Section 7081(d) of title 10, United States Code, is
12 amended by striking “Dental Corps Officer” and inserting
13 “commissioned officer of the Army Medical Department”.

14 **SEC. 715. IMPROVEMENTS TO INTERAGENCY PROGRAM OF-**
15 **OFFICE OF THE DEPARTMENT OF DEFENSE AND**
16 **THE DEPARTMENT OF VETERANS AFFAIRS.**

17 (a) LEADERSHIP.—Subsection (c) of section 1635 of
18 the Wounded Warrior Act (title XVI of Public Law 110–
19 181; 10 U.S.C. 1071 note) is amended to read as follows:

20 “(c) LEADERSHIP.—

21 “(1) DIRECTOR.—The Director of the Office
22 shall be the head of the Office.

23 “(2) DEPUTY DIRECTOR.—The Deputy Director
24 of the Office shall be the deputy head of the Office

1 and shall assist the Director in carrying out the du-
2 ties of the Director.

3 “(3) REPORTING.—The Director shall report
4 directly to the Deputy Secretary of Defense and the
5 Deputy Secretary of Veterans Affairs.

6 “(4) APPOINTMENTS.—

7 “(A) DIRECTOR.—The Director shall be
8 appointed by the Secretary of Defense, with the
9 concurrence of the Secretary of Veterans Af-
10 fairs, for a fixed term of four years. For the
11 subsequent term, the Secretary of Veterans Af-
12 fairs, with the concurrence of the Secretary of
13 Defense, shall appoint the Director for a fixed
14 term of four years, and thereafter, the appoint-
15 ment of the Director for a fixed term of four
16 years shall alternate between the Secretaries.

17 “(B) DEPUTY DIRECTOR.—The Deputy
18 Director shall be appointed by the Secretary of
19 Veterans Affairs, with the concurrence of the
20 Secretary of Defense, for a fixed term of four
21 years. For the subsequent term, the Secretary
22 of Defense, with the concurrence of the Sec-
23 retary of Veterans Affairs, shall appoint the
24 Deputy Director for a fixed term of four years,
25 and thereafter, the appointment of the Deputy

1 Director for a fixed term of four years shall al-
2 ternate between the Secretaries.

3 “(C) MINIMUM QUALIFICATIONS.—The
4 Secretary of Defense and the Secretary of Vet-
5 erans Affairs shall jointly develop qualification
6 requirements for the Director and the Deputy
7 Director. Such requirements shall ensure that,
8 at a minimum, the Director and Deputy Direc-
9 tor, individually or together, meet the following
10 qualifications:

11 “(i) Significant experience at a senior
12 management level fielding enterprise-wide
13 technology in a health care setting, or
14 business systems in the public or private
15 sector.

16 “(ii) Credentials for enterprise-wide
17 program management.

18 “(iii) Significant experience leading
19 implementation of complex organizational
20 change by integrating the input of experts
21 from various disciplines, such as clinical,
22 business, management, informatics, and
23 technology.

24 “(5) SUCCESSION.—The Secretary of Defense
25 and the Secretary of Veterans Affairs shall jointly

1 develop a leadership succession process for the Of-
2 fice.

3 “(6) ADDITIONAL GUIDANCE.—The Depart-
4 ment of Veterans Affairs-Department of Defense
5 Joint Executive Committee may provide guidance in
6 the discharge of the functions of the Office under
7 this section.

8 “(7) INFORMATION TO CONGRESS.—Upon re-
9 quest by any of the appropriate committees of Con-
10 gress, the Director and the Deputy Director shall
11 testify before such committee, or provide a briefing
12 or otherwise provide requested information to such
13 committee, regarding the discharge of the functions
14 of the Office under this section.”.

15 (b) AUTHORITY.—Paragraph (1) of subsection (b) of
16 such section is amended by adding at the end the following
17 new sentence: “The Office shall carry out decision making
18 authority delegated to the Office by the Secretary of De-
19 fense and the Secretary of Veterans Affairs with respect
20 to the definition, coordination, and management of func-
21 tional, technical, and programmatic activities that are
22 jointly used, carried out, and shared by the Depart-
23 ments.”.

1 (c) PURPOSES.—Paragraph (2) of subsection (b) of
2 such section is amended by adding at the end the following
3 new subparagraphs:

4 “(C) To develop and implement a com-
5 prehensive interoperability strategy, which shall
6 include—

7 “(i) the Electronic Health Record
8 Modernization Program of the Department
9 of Veterans Affairs; and

10 “(ii) the Healthcare Management Sys-
11 tem Modernization Program of the Depart-
12 ment of Defense.

13 “(D) To pursue the highest level of inter-
14 operability for the delivery of health care by the
15 Department of Defense and the Department of
16 Veterans Affairs.

17 “(E) To accelerate the exchange of health
18 care information between the Departments, and
19 advances in the health information technology
20 marketplace, in order to support the delivery of
21 health care by the Departments.

22 “(F) To collect the operational and stra-
23 tegic requirements of the Departments relating
24 to the strategy under subsection (a) and com-
25 municate such requirements and activities to

1 the Office of the National Coordinator for
2 Health Information Technology of the Depart-
3 ment of Health and Human Services for the
4 purpose of implementing title IV of the 21st
5 Century Cures Act (division A of Public Law
6 114–255), and the amendments made by that
7 title, and other objectives of the Office of the
8 National Coordinator for Health Information
9 Technology.

10 “(G) To plan for and effectuate the broad-
11 est possible implementation of standards, spe-
12 cifically with respect to the Fast Healthcare
13 Interoperability Resources standard or suc-
14 cessor standard, the evolution of such stand-
15 ards, and the obsolescence of such standards.

16 “(H) To actively engage with national and
17 international health standards setting organiza-
18 tions, including by taking membership in such
19 organizations, to ensure that standards estab-
20 lished by such organizations meet the needs of
21 the Departments pursuant to the strategy
22 under subsection (a), and oversee and approve
23 adoption of and mapping to such standards by
24 the Departments.

1 “(I) To express the content and format of
2 health data of the Departments using a com-
3 mon language to improve the exchange of data
4 between the Departments and with the private
5 sector, and to ensure that clinicians of the De-
6 partments have access to integrated, comput-
7 able, comprehensive health records of patients.

8 “(J) To inform the Chief Information Offi-
9 cer of the Department of Defense and the Chief
10 Information Officer of the Department of Vet-
11 erans Affairs of any activities of the Office af-
12 fecting or relevant to cybersecurity.

13 “(K) To establish an environment that will
14 enable and encourage the adoption by the De-
15 partments of innovative technologies for health
16 care delivery.

17 “(L) To leverage data integration to ad-
18 vance health research and develop an evidence
19 base for the health care programs of the De-
20 partments.

21 “(M) To prioritize the use of open systems
22 architecture by the Departments.

23 “(N) To ensure ownership and control by
24 patients of personal health information and

1 data in a manner consistent with applicable
2 law.

3 “(O) To prevent contractors of the Depart-
4 ments or other non-departmental entities from
5 owning or having exclusive control over patient
6 health data, for the purposes of protecting pa-
7 tient privacy and enhancing opportunities for
8 innovation.

9 “(P) To implement a single lifetime longi-
10 tudinal personal health record between the De-
11 partment of Defense and the Department of
12 Veterans Affairs.

13 “(Q) To attain interoperability capabili-
14 ties—

15 “(i) sufficient to enable the provision
16 of seamless health care by health care fa-
17 cilities and providers of the Departments,
18 as well as private sector facilities and pro-
19 viders contracted by the Departments; and

20 “(ii) that are more adaptable and far
21 reaching than those achievable through
22 bidirectional information exchange be-
23 tween electronic health records of the ex-
24 change of read-only data alone.

1 “(R) To make maximum use of open-appli-
2 cation program interfaces and the Fast
3 Healthcare Interoperability Resources standard
4 (or successor standard).”.

5 (d) IMPLEMENTATION MILESTONES.—Subsection (e)
6 of such section is amended to read as follows:

7 “(e) IMPLEMENTATION MILESTONES.—

8 “(1) EVALUATION.—With respect to the elec-
9 tronic health record systems of the Department of
10 Defense and the Department of Veterans Affairs,
11 the Office shall seek to enter into an agreement with
12 an independent entity to conduct an evaluation by
13 not later than October 1, 2021 of the following:

14 “(A) Whether a clinician of the Depart-
15 ment of Defense, can access, and meaningfully
16 interact with, a complete patient health record
17 of a veteran, from a military medical treatment
18 facility.

19 “(B) Whether a clinician of the Depart-
20 ment of Veterans Affairs can access, and mean-
21 ingfully interact with, a complete patient health
22 record of a member of the Armed Forces serv-
23 ing on active duty, from a medical center of the
24 Department of Veterans Affairs.

1 “(C) Whether clinicians of the Depart-
2 ments can access, and meaningfully interact
3 with, the data elements of the health record of
4 a patient who is a veteran or is a member of
5 the Armed Forces which are generated when
6 the individual receives health care from a com-
7 munity care provider of the Department of Vet-
8 erans Affairs or a TRICARE program provider
9 of the Department of Defense.

10 “(D) Whether a community care provider
11 of the Department of the Veterans Affairs and
12 a TRICARE program provider of the Depart-
13 ment of Defense on a Health Information Ex-
14 change-supported electronic health record can
15 access patient health records of veterans and
16 active-duty members of the Armed Forces from
17 the system of the provider.

18 “(E) An assessment of interoperability be-
19 tween the legacy electronic health record sys-
20 tems and the future electronic health record
21 systems of the Department of Veterans Affairs
22 and the Department of Defense.

23 “(F) An assessment of the use of inter-
24 operable content between—

1 “(i) the legacy electronic health record
2 systems and the future electronic health
3 record systems of the Department of Vet-
4 erans Affairs and the Department of De-
5 fense; and

6 “(ii) third-party applications.

7 “(2) SYSTEM CONFIGURATION MANAGEMENT.—

8 The Office shall—

9 “(A) maintain the common configuration
10 baseline for the electronic health record systems
11 of the Department of Defense and the Depart-
12 ment of Veterans Affairs; and

13 “(B) continually evaluate the state of con-
14 figuration and the impacts on interoperability;
15 and

16 “(C) promote the enhancement of such
17 electronic health records systems.

18 “(3) CONSULTATION.—

19 “(A) ANNUAL MEETING REQUIRED.—Not
20 less than once per year, the Office shall convene
21 a meeting of clinical staff from the Department
22 of Defense, the Department of Veterans Af-
23 fairs, the Coast Guard, community providers,
24 and other leading clinical experts, for the pur-
25 pose of assessing the state of clinical use of the

1 electronic health record systems and whether
2 the systems are meeting clinical and patient
3 needs.

4 “(B) RECOMMENDATIONS.—Clinical staff
5 participating in a meeting under subparagraph
6 (A) shall make recommendations to the Office
7 on the need for any improvements or concerns
8 with the electronic health record systems.

9 “(4) CLINICAL AND PATIENT SATISFACTION
10 SURVEY.—Beginning October 1, 2021, and on at
11 least a biannual basis thereafter until 2025 at the
12 earliest, the Office shall undertake a clinician and
13 patient satisfaction survey regarding clinical use and
14 patient experience with the electronic health record
15 systems of the Department of Defense and the De-
16 partment of Veterans Affairs.”

17 (e) RESOURCES AND STAFFING.—Subsection (g) of
18 such section is amended—

19 (1) in paragraph (1), by inserting before the pe-
20 riod at the end the following: “, including the as-
21 signment of clinical or technical personnel of the De-
22 partment of Defense or the Department of Veterans
23 Affairs to the Office”; and

24 (2) by adding at the end the following new
25 paragraphs:

1 “(3) COST SHARING.—The Secretary of De-
2 fense and the Secretary of Veterans shall enter into
3 an agreement on cost sharing and providing re-
4 sources for the operations and staffing of the Office.

5 “(4) HIRING AUTHORITY.—The Secretary of
6 Defense and the Secretary of Veterans Affairs shall
7 delegate to the Director the authority under title 5,
8 United States Code, regarding appointments in the
9 competitive service to hire personnel of the Office.”.

10 (f) REPORTS.—Subsection (h) of such section is
11 amended to read as follows:

12 “(h) REPORTS.—

13 “(1) ANNUAL REPORTS.—Not later than Sep-
14 tember 30, 2020, and each year thereafter through
15 2024, the Director shall submit to the Secretary of
16 Defense and the Secretary of Veterans Affairs, and
17 to the appropriate committees of Congress, a report
18 on the activities of the Office during the preceding
19 calendar year. Each report shall include the fol-
20 lowing:

21 “(A) A detailed description of the activities
22 of the Office during the year covered by such
23 report, including a detailed description of the
24 amounts expended and the purposes for which
25 expended.

1 “(B) With respect to the objectives of the
2 strategy under paragraph (2)(C) of subsection
3 (b), and the purposes of the Office under such
4 subsection—

5 “(i) a discussion, description, and as-
6 sessment of the progress made by the De-
7 partment of Defense and the Department
8 of Veterans Affairs during the preceding
9 calendar year; and

10 “(ii) a discussion and description of
11 the goals of the Department of Defense
12 and the Department of Veterans Affairs
13 for the following calendar year, including
14 updates to strategies and plans.

15 “(C) A detailed financial summary of the
16 activities of the Office, including the funds allo-
17 cated to the Office by each Department, the ex-
18 penditures made, and an assessment as to
19 whether the current funding is sufficient to
20 carry out the activities of the Office.

21 “(D) A detailed description of the status of
22 each of the implementation milestones, includ-
23 ing the nature of the evaluation, methodology
24 for testing, and findings with respect to each
25 milestone under subsection (e).

1 “(E) A detailed description of the state of
2 the configuration baseline, including any activi-
3 ties which decremented or enhanced the state of
4 configuration under subsection (e).

5 “(F) With respect to the annual meeting
6 required under subsection (e)(3)—

7 “(i) a detailed description of activities,
8 assessments, and recommendations relat-
9 ing to such meeting; and

10 “(ii) the response of the Office to any
11 such recommendations.

12 “(2) AVAILABILITY.—Each report under this
13 subsection shall be made publicly available.”.

14 (g) DEFINITIONS.—Such section is further amended
15 by adding at the end the following new subsection (k):

16 “(k) DEFINITIONS.—In this section:

17 “(1) The term ‘appropriate congressional com-
18 mittees’ means—

19 “(A) the congressional defense committees;
20 and

21 “(B) the Committees on Veterans’ Affairs
22 of the House of Representatives and the Sen-
23 ate.

24 “(2) The term ‘configuration baseline’ means a
25 fixed reference in the development cycle or an

1 agreed-upon specification of a product at a point in
2 time that serves as a documented basis for defining
3 incremental change in all aspects of an information
4 technology product.

5 “(3) The term ‘Electronic Health Record Mod-
6 ernization Program’ has the meaning given that
7 term in section 503 of the Veterans Benefits and
8 Transition Act of 2018 (Public Law 115–407; 132
9 Stat. 5376).

10 “(4) The term ‘interoperability’ means the abil-
11 ity of different information systems, devices, or ap-
12 plications to connect, regardless of the technology
13 platform or the location where care is provided—

14 “(A) in a coordinated and secure manner,
15 within and across organizational boundaries,
16 and across the complete spectrum of care, in-
17 cluding all applicable care settings;

18 “(B) with relevant stakeholders, including
19 the person whose information is being shared,
20 to access, exchange, integrate, and use comput-
21 able data regardless of the origin or destination
22 of the data or the applications employed;

23 “(C) with the capability to reliably ex-
24 change information without error;

1 “(D) with the ability to interpret and to
2 make effective use of such exchanged informa-
3 tion;

4 “(E) with the ability for information that
5 can be used to advance patient care to move be-
6 tween health care entities; and

7 “(F) without additional intervention by the
8 end user.

9 “(5) The term ‘meaningfully interact’ means
10 the ability to view, consume, act upon, and edit in-
11 formation in a clinical setting to facilitate high-qual-
12 ity clinical decision making.

13 “(6) The term ‘seamless health care’ means
14 health care which is optimized through access by pa-
15 tients and clinicians to integrated, relevant, and
16 complete information about the clinical experiences
17 of the patient, social and environmental deter-
18 minants of health, and health trends over time, in
19 order to enable patients and clinicians to—

20 “(A) move efficiently within and across or-
21 ganizational boundaries;

22 “(B) make high-quality decisions; and

23 “(C) effectively carry out complete plans of
24 care.

25 “(7) The term ‘Secretary concerned’ means—

1 “(A) the Secretary of Defense, with respect
2 to matters concerning the Department of De-
3 fense;

4 “(B) the Secretary of Veterans Affairs,
5 with respect to matters concerning the Depart-
6 ment of Veterans Affairs; and

7 “(C) the Secretary of Homeland Security,
8 with respect to matters concerning the Coast
9 Guard when it is not operating as a service in
10 the Department of the Navy.

11 “(8) The term ‘TRICARE program’ has the
12 meaning given that term in section 1072 of title 10,
13 United States Code.”.

14 (h) INTEROPERABILITY STRATEGY.—

15 (1) REPORT REQUIRED.—Not later than 270
16 days after the date of the enactment of this Act, the
17 Director shall submit to each Secretary concerned
18 and to the appropriate congressional committees a
19 report that contains a comprehensive interoperability
20 strategy with respect to electronic health records
21 jointly developed by the Secretary of Defense and
22 Secretary of Veterans Affairs, including any accom-
23 panying or associated implementation plans and sup-
24 porting plans.

1 (2) ELEMENTS.—The comprehensive interoper-
2 ability strategy under paragraph (1) shall discuss
3 the purposes described in paragraphs (K) through
4 (R) of section 1635(b)(2) of the Wounded Warrior
5 Act (title XVI of Public Law 110–181; 10 U.S.C.
6 1071 note), as amended by subsection (c).

7 (3) DEFINITIONS.—In this subsection:

8 (A) The term “appropriate congressional
9 committees” means—

10 (i) the Committees on Armed Services
11 of the Senate and the House of Represent-
12 atives; and

13 (ii) the Committees on Veterans’ Af-
14 fairs of the Senate and the House of Rep-
15 resentatives.

16 (B) The term “Director” means the indi-
17 vidual described in section 1635(c) of the
18 Wounded Warrior Act (title XVI of Public Law
19 110–181; 10 U.S.C. 1071 note), as amended by
20 subsection (a).

21 (C) The term “interoperability” has the
22 meaning given that term in subsection (k) of
23 such section, as added by subsection (g).

1 (i) CONFORMING REPEAL.—Section 713 of the Na-
2 tional Defense Authorization Act for Fiscal Year 2014
3 (Public Law 113–66; 10 U.S.C. 1071 note) is repealed.

4 **SEC. 716. EXPANSION OF STRATEGY TO IMPROVE ACQUI-
5 SITION OF MANAGED CARE SUPPORT CON-
6 TRACTS UNDER TRICARE PROGRAM.**

7 Section 705(c)(1) of the National Defense Authoriza-
8 tion Act for Fiscal Year 2017 (Public Law 114–328; 10
9 U.S.C. 1073a note) is amended, in the matter preceding
10 subparagraph (A), by striking “, other than overseas med-
11 ical support contracts”.

12 **SEC. 717. INCLUSION OF BLAST EXPOSURE HISTORY IN
13 MEDICAL RECORDS OF MEMBERS OF THE
14 ARMED FORCES.**

15 (a) REQUIREMENT.—If a covered incident occurs
16 with respect to a member of the Armed Forces, the Sec-
17 retary of Defense, in coordination with the Secretaries of
18 the military departments, shall document blast exposure
19 history in the medical record of the member to assist in
20 determining whether a future illness or injury of the mem-
21 ber is service-connected and inform future blast exposure
22 risk mitigation efforts of the Department of Defense.

23 (b) ELEMENTS.—A blast exposure history under sub-
24 section (a) shall include, at a minimum, the following:

25 (1) The date of the exposure.

1 (b) ELEMENTS.—The policy under subsection (a)
2 shall address each of the following:

3 (1) The compliance of health professionals in
4 the military health system engaged in the provision
5 of health care services to members with clinical prac-
6 tice guidelines for—

7 (A) suicide prevention;

8 (B) medication-assisted therapy for alcohol
9 use disorders; and

10 (C) medication-assisted therapy for opioid
11 use disorders.

12 (2) The access and availability of mental health
13 care services to members who are victims of sexual
14 assault or domestic violence.

15 (3) The availability of naloxone reversal capa-
16 bility on military installations.

17 (4) The promotion of referrals of members by
18 civilian health care providers to military medical
19 treatment facilities when such members are—

20 (A) at high risk for suicide and diagnosed
21 with a psychiatric disorder; or

22 (B) receiving treatment for opioid use dis-
23 orders.

24 (5) The provision of comprehensive behavioral
25 health treatment to members of the reserve compo-

1 nents that takes into account the unique challenges
2 associated with the deployment pattern of such
3 members and the difficulty such members encounter
4 post-deployment with respect to accessing such
5 treatment in civilian communities.

6 (c) CONSIDERATION.—In developing the policy under
7 subsection (a), the Secretary of Defense shall solicit and
8 consider recommendations from the Secretaries of the
9 military departments and the Chairman of the Joint
10 Chiefs of Staff regarding the feasibility of implementation
11 and execution of particular elements of the policy.

12 (d) REPORT.—Not later than 18 months after the
13 date of the enactment of this Act, the Secretary of Defense
14 shall submit to the Committees on Armed Services of the
15 Senate and the House of Representatives a report on the
16 implementation of the policy under subsection (a).

17 **SEC. 719. LIMITATION ON THE REALIGNMENT OR REDUC-**
18 **TION OF MILITARY MEDICAL MANNING END**
19 **STRENGTH.**

20 (a) LIMITATION.—Except as provided by subsection
21 (d), the Secretary of Defense and the Secretaries con-
22 cerned may not realign or reduce military medical end
23 strength authorizations until—

24 (1) each review is conducted under paragraph
25 (1) of subsection (b);

1 (2) each analysis is conducted under paragraph
2 (2) of such subsection;

3 (3) the measurement is developed under para-
4 graph (3) of such subsection;

5 (4) each plan and forum is provided under
6 paragraph (4) of such subsection; and

7 (5) a period of 90 days elapses following the
8 date on which the Secretary submits the report
9 under subsection (c).

10 (b) **REVIEWS, ANALYSES, AND OTHER INFORMA-**
11 **TION.—**

12 (1) **REVIEW.**—Each Secretary concerned, in co-
13 ordination with the Chairman of the Joint Chiefs of
14 Staff, shall conduct a review of the medical man-
15 power requirements of the military department of
16 the Secretary that accounts for all national defense
17 strategy scenarios.

18 (2) **ANALYSES.**—With respect to each military
19 medical treatment facility that would be affected by
20 a proposed military medical end strength realign-
21 ment or reduction, the Secretary concerned shall
22 conduct an analysis that—

23 (A) identifies affected billets; and

1 (B) includes a plan for mitigating any po-
2 tential gap in health care services caused by
3 such realignment or reduction.

4 (3) MEASUREMENT.—The Secretary of Defense
5 shall—

6 (A) develop a standard measurement for
7 network adequacy to determine the capacity of
8 the local health care network to provide care for
9 covered beneficiaries in the area of a military
10 medical treatment facility that would be af-
11 fected by a proposed military medical end
12 strength realignment or reduction; and

13 (B) use such measurement in carrying out
14 this section and otherwise evaluating proposed
15 military medical end strength realignment or
16 reductions.

17 (4) OUTREACH.—The Secretary of Defense
18 shall provide to each member of the Armed Forces
19 and covered beneficiary located in the area of a mili-
20 tary medical treatment facility that would be af-
21 fected by a proposed military medical end strength
22 realignment or reduction the following:

23 (A) A transition plan for continuity of
24 health care services.

1 (B) A public forum to discuss the concerns
2 of the member and covered beneficiary regard-
3 ing such proposed realignment or reduction.

4 (c) REPORT.—Not later than 180 days after the date
5 of the enactment of this Act, the Secretary of Defense
6 shall submit to the Committees on Armed Services of the
7 House of Representatives and the Senate a report on the
8 proposed military medical end strength realignments or
9 reductions, including—

10 (1) the reviews, analyses, and other information
11 developed under subsection (b); and

12 (2) a description of the actions the Secretary
13 plans to take with respect to such proposed realign-
14 ments or reductions.

15 (d) EXCEPTION.—

16 (1) IN GENERAL.—The limitation in subsection
17 (a) shall not apply—

18 (A) to administrative billets of a medical
19 department of a military department that have
20 remained unfilled since at least October 1,
21 2018;

22 (B) to billets identified as non-clinical in
23 the budget of the President for fiscal year 2020
24 submitted to Congress pursuant to section 1105
25 of title 31, United States Code, except that the

1 amount of such billets shall not exceed 1,700;
2 and

3 (C) to medical headquarters billets of the
4 military departments not assigned or directly
5 supporting to operational commands.

6 (2) DETERMINATION PRIOR TO REALIGNMENT
7 OR REDUCTION.—The Secretary concerned may re-
8 align or reduce a billet described in paragraph (1)
9 if the Secretary determines that such realignment or
10 reduction does not affect the provision of health care
11 services to members of the Armed Forces or covered
12 beneficiaries.

13 (e) DEFINITIONS.—In this section:

14 (1) The term “covered beneficiary” has the
15 meaning given that term in section 1072 of title 10,
16 United States Code.

17 (2) The term “proposed military medical end
18 strength realignment or reduction” means a realign-
19 ment or reduction of military medical end strength
20 authorizations as proposed by the budget of the
21 President for fiscal year 2020 submitted to Congress
22 pursuant to section 1105 of title 31, United States
23 Code.

24 (3) The term “Secretary concerned” means—

1 (A) the Secretary of the Army, with re-
2 spect to matters concerning the Army;

3 (B) the Secretary of the Navy, with re-
4 spect to matters concerning the Navy, the Ma-
5 rine Corps, and the Coast Guard when it is op-
6 erating as a service in the Department of the
7 Navy; and

8 (C) the Secretary of the Air Force, with
9 respect to matters concerning the Air Force.

10 **SEC. 720. STRATEGY TO RECRUIT AND RETAIN MENTAL**
11 **HEALTH PROVIDERS.**

12 Not later than 180 days after the date of the enact-
13 ment of this Act, the Secretary of Defense shall submit
14 to the Committees on Armed Services of the Senate and
15 the House of Representatives a report that—

16 (1) describes the shortage of mental health pro-
17 viders of the Department of Defense;

18 (2) explains the reasons for such shortage;

19 (3) explains the effect of such shortage on
20 members of the Armed Forces; and

21 (4) contains a strategy to better recruit and re-
22 tain mental health providers, including with respect
23 to psychiatrists, psychologists, mental health nurse
24 practitioners, licensed social workers, and other li-
25 censed providers of the military health system, in a

1 manner that addresses the need for cultural com-
2 petence and diversity among such mental health pro-
3 viders.

4 **SEC. 721. DEVELOPMENT OF PARTNERSHIPS TO IMPROVE**
5 **COMBAT CASUALTY CARE FOR PERSONNEL**
6 **OF THE ARMED FORCES.**

7 (a) PARTNERSHIPS.—

8 (1) IN GENERAL.—The Secretary of Defense,
9 through the Joint Trauma Education and Training
10 Directorate established under section 708 of the Na-
11 tional Defense Authorization Act for Fiscal Year
12 2017 (Public Law 114–328; 10 U.S.C. 1071 note),
13 may develop partnerships with civilian academic
14 medical centers and large metropolitan teaching hos-
15 pitals to improve combat casualty care for personnel
16 of the Armed Forces.

17 (2) PARTNERSHIPS WITH LEVEL I TRAUMA
18 CENTERS.—In carrying out partnerships under para-
19 graph (1), trauma surgeons and physicians of the
20 Department of Defense may partner with level I ci-
21 vilian trauma centers to provide training and readi-
22 ness for the next generation of medical providers to
23 treat critically injured burn patients.

24 (b) SUPPORT OF PARTNERSHIPS.—The Secretary of
25 Defense may make every effort to support partnerships

1 under the Joint Trauma Education and Training Direc-
2 torate with academic institutions that have level I civilian
3 trauma centers, specifically those centers with a burn cen-
4 ter, that offer burn rotations and clinical experience to
5 provide training and readiness for the next generation of
6 medical providers to treat critically injured burn patients.

7 (c) LEVEL I CIVILIAN TRAUMA CENTER DEFINED.—
8 In this section, the term “level I civilian trauma center”
9 has the meaning given that term in section 708 of the
10 National Defense Authorization Act for Fiscal Year 2017
11 (Public Law 114–328; 10 U.S.C. 1071 note).

12 **SEC. 722. MODIFICATION TO REFERRALS FOR MENTAL**
13 **HEALTH SERVICES.**

14 If the Secretary of Defense is unable to provide men-
15 tal health services in a military medical treatment facility
16 to a member of the Armed Forces within 15 days of the
17 date on which such services are first requested by the
18 member, the Secretary may refer the member to a pro-
19 vider under the TRICARE program (as that term is de-
20 fined in section 1072 of title 10, United States Code) to
21 receive such services.

1 **Subtitle C—Reports and Other**
2 **Matters**

3 **SEC. 731. AUTHORIZATION OF CLAIMS BY MEMBERS OF**
4 **THE UNIFORMED SERVICES AGAINST THE**
5 **UNITED STATES FOR PERSONAL INJURY OR**
6 **DEATH CAUSED BY MEDICAL MALPRACTICE.**

7 (a) **MEDICAL MALPRACTICE CLAIMS.**—

8 (1) **IN GENERAL.**—Chapter 163 of title 10,
9 United States Code, is amended by inserting after
10 section 2733 the following new section:

11 **“§ 2733a. Medical malpractice claims by members of**
12 **the uniformed services**

13 “(a) **IN GENERAL.**—Consistent with this section and
14 under such regulations as the Secretary of Defense shall
15 prescribe under subsection (f), the Secretary may allow,
16 settle, and pay a claim against the United States for per-
17 sonal injury or death incident to the service of a member
18 of the uniformed services that was caused by the medical
19 malpractice of a Department of Defense health care pro-
20 vider.

21 “(b) **REQUIREMENT FOR CLAIMS.**—A claim may be
22 allowed, settled, and paid under subsection (a) only if—

23 “(1) the claim is filed by the member of the
24 uniformed services who is the subject of the medical
25 malpractice claimed, or by an authorized representa-

1 tive on behalf of such member who is deceased or
2 otherwise unable to file the claim due to incapacita-
3 tion;

4 “(2) the claim is for personal injury or death
5 caused by the negligent or wrongful act or omission
6 of a Department of Defense health care provider in
7 the performance of medical, dental, or related health
8 care functions while such provider was acting within
9 the scope of employment;

10 “(3) the act or omission constituting medical
11 malpractice occurred in a covered military medical
12 treatment facility;

13 “(4) the claim is presented to the Department
14 in writing within two years after the claim accrues;

15 “(5) the claim is not allowed to be settled and
16 paid under any other provision of law; and

17 “(6) the claim is substantiated as prescribed in
18 regulations prescribed by the Secretary of Defense
19 under subsection (f).

20 “(c) LIABILITY.—(1) The Department of Defense is
21 liable for only the portion of compensable injury, loss, or
22 damages attributable to the medical malpractice of a De-
23 partment of Defense health care provider.

24 “(2) The Department of Defense shall not be liable
25 for the attorney fees of a claimant under this section.

1 “(d) PAYMENT OF CLAIMS.—(1) If the Secretary of
2 Defense determines, pursuant to regulations prescribed by
3 the Secretary under subsection (f), that a claim under this
4 section in excess of \$100,000 is meritorious, and the claim
5 is otherwise payable under this section, the Secretary may
6 pay the claimant \$100,000 and report any meritorious
7 amount in excess of \$100,000 to the Secretary of the
8 Treasury for payment under section 1304 of title 31.

9 “(2) Except as provided in paragraph (1), no claim
10 may be paid under this section unless the amount tendered
11 is accepted by the claimant in full satisfaction.

12 “(e) REPORTING MEDICAL MALPRACTICE.—Not
13 later than 30 days after a determination of medical mal-
14 practice or the payment of all or part of a claim under
15 this section, the Secretary of Defense shall submit to the
16 Director of the Defense Health Agency a report docu-
17 menting such determination or payment to be used by the
18 Director for all necessary and appropriate purposes, in-
19 cluding medical quality assurance.

20 “(f) REGULATIONS.—(1) The Secretary of Defense
21 shall prescribe regulations to implement this section.

22 “(2) Regulations prescribed by the Secretary under
23 paragraph (1) shall include the following:

1 “(A) Policies and procedures to ensure the
2 timely, efficient, and effective processing and admin-
3 istration of claims under this section, including—

4 “(i) the filing, receipt, investigation, and
5 evaluation of a claim;

6 “(ii) the negotiation, settlement, and pay-
7 ment of a claim;

8 “(iii) such other matters relating to the
9 processing and administration of a claim, in-
10 cluding an administrative appeals process, as
11 the Secretary considers appropriate.

12 “(B) Uniform standards consistent with gen-
13 erally accepted standards used in a majority of
14 States in adjudicating claims under chapter 171 of
15 title 28 (commonly known as the ‘Federal Tort
16 Claims Act’) to be applied to the evaluation, settle-
17 ment, and payment of claims under this section
18 without regard to the place of occurrence of the
19 medical malpractice giving rise to the claim or the
20 military department or service of the member of the
21 uniformed services, and without regard to foreign
22 law in the case of claims arising in foreign countries,
23 including uniform standards to be applied to deter-
24 minations with respect to—

1 “(i) whether an act or omission by a De-
2 partment of Defense health care provider in the
3 context of performing medical, dental, or re-
4 lated health care functions was negligent or
5 wrongful, considering the specific facts and cir-
6 cumstances;

7 “(ii) whether the personal injury or death
8 of the member was caused by a negligent or
9 wrongful act or omission of a Department of
10 Defense health care provider in the context of
11 performing medical, dental, or related health
12 care functions, considering the specific facts
13 and circumstances;

14 “(iii) requirements relating to proof of
15 duty, breach of duty, and causation resulting in
16 compensable injury or loss, subject to such ex-
17 clusions as may be established by the Secretary
18 of Defense; and

19 “(iv) calculation of damages.

20 “(C) Such other matters as the Secretary con-
21 siders appropriate.

22 “(3) In order to implement expeditiously the provi-
23 sions of this section, the Secretary may prescribe the regu-
24 lations under this subsection—

25 “(A) by prescribing an interim final rule; and

1 “(B) not later than one year after prescribing
2 such interim final rule and considering public com-
3 ments with respect to such interim final rule, by pre-
4 scribing a final rule.

5 “(g) LIMITATION ON ATTORNEY FEES.—(1) No at-
6 torney shall charge, demand, receive, or collect for services
7 rendered, fees in excess of 20 percent of any claim paid
8 pursuant to this section.

9 “(2) Any attorney who charges, demands, receives,
10 or collects for services rendered in connection with a claim
11 under this section any amount in excess of the amount
12 allowed under paragraph (1), if recovery be had, shall be
13 fined not more than \$2,000, imprisoned not more than
14 one year, or both.

15 “(h) ANNUAL REPORT.—Not less frequently than an-
16 nually until 2025, the Secretary of Defense shall submit
17 to the Committees on Armed Services of the Senate and
18 the House of Representatives a report—

19 “(1) indicating the number of claims processed
20 under this section;

21 “(2) indicating the resolution of each such
22 claim; and

23 “(3) describing any other information that may
24 enhance the effectiveness of the claims process under
25 this section.

1 “(i) DEFINITIONS.—In this section:

2 “(1) COVERED MILITARY MEDICAL TREATMENT
3 FACILITY.—The term ‘covered military medical
4 treatment facility’ means a facility described in sub-
5 section (b), (c), or (d) of section 1073d of this title.

6 “(2) DEPARTMENT OF DEFENSE HEALTH CARE
7 PROVIDER.—The term ‘Department of Defense
8 health care provider’ means a member of the uni-
9 formed services, civilian employee of the Department
10 of Defense, or personal services contractor of the
11 Department (under section 1091 of this title) au-
12 thorized by the Department to provide health care
13 services and acting within the scope of employment
14 of such individual.

15 “(3) MEMBER OF THE UNIFORMED SERV-
16 ICES.—The term ‘member of the uniformed services’
17 includes a member of a reserve component of the
18 armed forces if the claim by the member under this
19 section is in connection with personal injury or death
20 that occurred while the member was in Federal sta-
21 tus.”.

22 (2) CLERICAL AMENDMENT.—The table of sec-
23 tions at the beginning of chapter 163 of such title
24 is amended by inserting after the item relating to
25 section 2733 the following new item:

“2733a. Medical malpractice claims by members of the uniformed services.”.

1 (b) INTERIM BRIEFING ON DEVELOPMENT OF REGU-
2 LATIONS.—Not later than 180 days after the date of the
3 enactment of this Act, the Secretary of Defense shall pro-
4 vide to the Committees on Armed Services of the Senate
5 and the House of Representatives a briefing on the devel-
6 opment of regulations under section 2733a(f) of title 10,
7 United States Code, as added by subsection (a)(1).

8 (c) CONFORMING AMENDMENTS.—

9 (1) Section 2735 of such title is amended by
10 striking “2733,” and inserting “2733, 2733a,”.

11 (2) Section 1304(a)(3)(D) of title 31, United
12 States Code, is amended by striking “2733,” and in-
13 serting “2733, 2733a,”.

14 (d) EFFECTIVE DATE AND TRANSITION PROVI-
15 SION.—

16 (1) EFFECTIVE DATE.—The amendments made
17 by this section shall apply to any claim filed under
18 section 2733a of such title, as added by subsection
19 (a)(1), on or after January 1, 2020.

20 (2) TRANSITION.—Any claim filed in calendar
21 year 2020 shall be deemed to be filed within the
22 time period specified in section 2733a(b)(4) of such
23 title, as so added, if it is filed within three years
24 after it accrues.

1 **SEC. 732. EXTENSION AND CLARIFICATION OF AUTHORITY**
2 **FOR JOINT DEPARTMENT OF DEFENSE-DE-**
3 **PARTMENT OF VETERANS AFFAIRS MEDICAL**
4 **FACILITY DEMONSTRATION FUND.**

5 Title XVII of the National Defense Authorization Act
6 for Fiscal Year 2010 (Public Law 111–84; 123 Stat.
7 2567) is amended—

8 (1) in section 1701—

9 (A) in subsection (a), by striking “Subject
10 to subsection (b), the” and inserting “The”;

11 (B) by striking subsection (b); and

12 (C) by redesignating subsections (c)
13 through (f) as subsections (b) through (e), re-
14 spectively;

15 (2) in section 1702(a)(1), by striking “hereafter
16 in this title” and inserting “in this section”;

17 (3) in section 1703, in subsections (a) and (c),
18 by striking “the facility” and inserting “the James
19 A. Lovell Federal Health Care Center”;

20 (4) in section 1704—

21 (A) in subsections (a)(3), (a)(4)(A), and
22 (b)(1), by striking “the facility” and inserting
23 “the James A. Lovell Federal Health Care Cen-
24 ter”; and

25 (B) in subsection (e), as most recently
26 amended by section 731 of the John S. McCain

1 National Defense Authorization Act for Fiscal
2 Year 2019 (Public Law 115–232), by striking
3 “September 30, 2020” and inserting “Sep-
4 tember 30, 2021”;

5 (5) in section 1705—

6 (A) in subsection (a), by striking “the fa-
7 cility” and inserting “the James A. Lovell Fed-
8 eral Health Care Center (in this section re-
9 ferred to as the ‘JALFHCC’)”;

10 (B) in subsection (b), in the matter pre-
11 ceding paragraph (1), by striking “the facility”
12 and inserting “the JALFHCC”; and

13 (C) in subsection (c)—

14 (i) by striking “the facility” each
15 place it appears and inserting “the
16 JALFHCC”; and

17 (ii) by adding at the end the following
18 new paragraph:

19 “(4) To permit the JALFHCC to enter into
20 personal services contracts to carry out health care
21 responsibilities in the JALFHCC to the same extent
22 and subject to the same conditions and limitations
23 as apply under section 1091 of title 10, United
24 States Code, to the Secretary of Defense with re-

1 spect to health care responsibilities in medical treat-
2 ment facilities of the Department of Defense.”.

3 **SEC. 733. APPOINTMENT OF NON-EX OFFICIO MEMBERS OF**
4 **THE HENRY M. JACKSON FOUNDATION FOR**
5 **THE ADVANCEMENT OF MILITARY MEDICINE.**

6 (a) APPOINTMENT BY NON-EX OFFICIO MEMBERS.—
7 Subparagraph (C) of paragraph (1) of section 178(e) of
8 title 10, United States Code, is amended to read as fol-
9 lows:

10 “(C) six members, each of whom shall be ap-
11 pointed at the expiration of the term of a member
12 appointed under this subparagraph, as provided for
13 in paragraph (2), by the members currently serving
14 on the Council pursuant to this subparagraph and
15 paragraph (2), including the member whose expiring
16 term is so being filled by such appointment.”.

17 (b) REPEAL OF OBSOLETE AUTHORITY ESTAB-
18 LISHING STAGGERED TERMS.—Paragraph (2) of such sec-
19 tion is amended—

20 (1) by striking “except that—” and all that fol-
21 lows through “any person” and inserting “except
22 that any person”;

23 (2) by striking “; and” and inserting a period;
24 and

25 (3) by striking subparagraph (B).

1 (c) EFFECTIVE DATE.—

2 (1) IN GENERAL.—The amendments made by
3 this section shall take effect on the date of the en-
4 actment of this Act.

5 (2) CONSTRUCTION FOR CURRENT MEMBERS.—
6 Nothing in the amendments made by this section
7 shall be construed to terminate or otherwise alter
8 the appointment or term of service of members of
9 the Henry M. Jackson Foundation for the Advance-
10 ment of Military Medicine who are so serving on the
11 date of the enactment of this Act pursuant to an ap-
12 pointment under paragraph (1)(C) or (2) of section
13 178(c) of title 10, United States Code, made before
14 that date.

15 **SEC. 734. ESTABLISHMENT OF ACADEMIC HEALTH SYSTEM**
16 **IN NATIONAL CAPITAL REGION.**

17 (a) IN GENERAL.—Chapter 104 of title 10, United
18 States Code, is amended by inserting after section 2113a
19 the following new section:

20 **“§ 2113b. Academic Health System**

21 “(a) IN GENERAL.—The Secretary of Defense may
22 establish an Academic Health System to integrate the
23 health care, health professions education, and health re-
24 search activities of the military health system, including
25 under this chapter, in the National Capital Region.

1 “(b) LEADERSHIP.—(1) The Secretary may appoint
2 employees of the Department of Defense to leadership po-
3 sitions in the Academic Health System established under
4 subsection (a).

5 “(2) Such positions may include responsibilities for
6 management of the health care, health professions edu-
7 cation, and health research activities described in sub-
8 section (a) and are in addition to similar leadership posi-
9 tions for members of the armed forces.

10 “(c) NATIONAL CAPITAL REGION DEFINED.—In this
11 section, the term ‘National Capital Region’ means the
12 area, or portion thereof, as determined by the Secretary,
13 in the vicinity of the District of Columbia.”.

14 (b) CLERICAL AMENDMENT.—The table of sections
15 at the beginning of chapter 104 of such title is amended
16 by inserting after the item relating to section 2113a the
17 following new item:

“2113b. Academic Health System.”.

18 **SEC. 735. PROVISION OF VETERINARY SERVICES BY VET-**
19 **ERINARY PROFESSIONALS OF THE DEPART-**
20 **MENT OF DEFENSE IN EMERGENCIES.**

21 (a) IN GENERAL.—Chapter 53 of title 10, United
22 States Code, is amended by adding at the end the fol-
23 lowing new section:

1 **“§ 1060c. Provision of veterinary services in emer-**
2 **gencies**

3 “(a) IN GENERAL.—A veterinary professional de-
4 scribed in subsection (b) may provide veterinary services
5 for the purposes described in subsection (c) in any State,
6 the District of Columbia, or a territory or possession of
7 the United States, without regard to where such veteri-
8 nary professional or the patient animal are located, if the
9 provision of such services is within the scope of the author-
10 ized duties of such veterinary professional for the Depart-
11 ment of Defense.

12 “(b) VETERINARY PROFESSIONAL DESCRIBED.—A
13 veterinary professional described in this subsection is an
14 individual who is—

15 “(1)(A) a member of the armed forces, a civil-
16 ian employee of the Department of Defense, or oth-
17 erwise credentialed and privileged at a Federal vet-
18 erinary institution or location designated by the Sec-
19 retary of Defense for purposes of this section; or

20 “(B) a member of the National Guard per-
21 forming training or duty under section 502(f) of title
22 32;

23 “(2) certified as a veterinary professional by a
24 certification recognized by the Secretary of Defense;
25 and

1 “(3) currently licensed by a State, the District
2 of Columbia, or a territory or possession of the
3 United States to provide veterinary services.

4 “(c) PURPOSES DESCRIBED.—The purposes de-
5 scribed in this subsection are veterinary services in re-
6 sponse to any of the following:

7 “(1) A national emergency declared by the
8 President pursuant to the National Emergencies Act
9 (50 U.S.C. 1601 et seq.).

10 “(2) A major disaster or an emergency (as
11 those terms are defined in section 102 of the Robert
12 T. Stafford Disaster Relief and Emergency Assist-
13 ance Act (42 U.S.C. 5122)).

14 “(3) A public health emergency declared by the
15 Secretary of Health and Human Services under sec-
16 tion 319 of the Public Health Service Act (42
17 U.S.C. 247d).

18 “(4) An extraordinary emergency, as deter-
19 mined by the Secretary of Agriculture under section
20 10407(b) of the Animal Health Protection Act (7
21 U.S.C. 8306(b)).”.

22 (b) CLERICAL AMENDMENT.—The table of sections
23 at the beginning of chapter 53 of such title is amended
24 by inserting after the item relating to section 1060b the
25 following new item:

 “1060e. Provision of veterinary services in emergencies.”.

1 **SEC. 736. THREE-YEAR EXTENSION OF AUTHORITY TO CON-**
2 **TINUE THE DOD-VA HEALTH CARE SHARING**
3 **INCENTIVE FUND.**

4 Section 8111(d)(3) of title 38, United States Code,
5 is amended by striking “September 30, 2020” and insert-
6 ing, “September 30, 2023”.

7 **SEC. 737. PRESERVATION OF RESOURCES OF THE ARMY**
8 **MEDICAL RESEARCH AND MATERIEL COM-**
9 **MAND AND CONTINUATION AS CENTER OF**
10 **EXCELLENCE.**

11 (a) IN GENERAL.—The Secretary of Defense shall
12 preserve the resources of the Army Medical Research and
13 Materiel Command for use by such command, which shall
14 include manpower and funding, at not less than the level
15 of such resources as of the date of the enactment of this
16 Act until September 30, 2022.

17 (b) TRANSFER OF FUNDS.—On October 1, 2022, all
18 amounts available for the Army Medical Research and Ma-
19 teriel Command shall be transferred from accounts for re-
20 search, development, test, and evaluation for the Army to
21 accounts for the Defense Health Program.

22 (c) CONTINUATION AS CENTER OF EXCELLENCE.—
23 After September 30, 2022, the Army Medical Research
24 and Materiel Command and Fort Detrick shall continue
25 to serve as a Center of Excellence for Joint Biomedical

1 Research, Development and Acquisition Management for
2 efforts undertaken under the Defense Health Program.

3 **SEC. 738. ENCOURAGEMENT OF PARTICIPATION IN WOM-**
4 **EN'S HEALTH TRANSITION TRAINING PILOT**
5 **PROGRAM.**

6 (a) ENCOURAGEMENT OF PARTICIPATION.—The Sec-
7 retaries of the military departments shall encourage fe-
8 male members of the Armed Forces who are separating
9 or retiring from the Armed Forces during fiscal year 2020
10 to participate in the Women's Health Transition Training
11 pilot program (in this section referred to as the “pilot pro-
12 gram”) administered by the Secretary of Veterans Affairs.

13 (b) SELECTION.—Each Secretary of a military de-
14 partment shall select at least one location at which the
15 pilot program is offered and encourage participation in the
16 pilot program at such location.

17 (c) REPORT.—Not later than September 30, 2020,
18 the Secretary of Defense, in consultation with the Sec-
19 retary of Veterans Affairs, shall submit to the Committees
20 on Armed Services of the Senate and the House of Rep-
21 resentatives and the Committees on Veterans' Affairs of
22 the Senate and House of Representatives a report on the
23 pilot program that includes the following:

24 (1) For the period since the commencement of
25 the pilot program—

1 (A) the number of courses held under the
2 pilot program;

3 (B) the locations at which such courses
4 were held; and

5 (C) for each location identified in subpara-
6 graph (B)—

7 (i) the number of female members by
8 military department (with respect to De-
9 partment of the Navy, separately for the
10 Navy and Marine Corps) who participated
11 in the pilot program; and

12 (ii) the number of seats available
13 under the pilot program.

14 (2) Data relating to—

15 (A) satisfaction with courses held under
16 the pilot program;

17 (B) improved awareness of health care
18 services administered by the Secretary of Vet-
19 erans Affairs; and

20 (C) any other available statistics regarding
21 the pilot program.

22 (3) A discussion of regulatory, legal, or resource
23 barriers to—

24 (A) making the pilot program permanent
25 to enable access by a greater number of female

1 members at locations throughout the United
2 States;

3 (B) offering the pilot program online for
4 female members who are unable to attend
5 courses held under the pilot program in person;
6 and

7 (C) providing for automatic enrollment of
8 participants in the pilot program in the patient
9 enrollment system of the Department of Vet-
10 erans Affairs established and operated under
11 section 1705 of title 38, United States Code.

12 **SEC. 739. NATIONAL GUARD SUICIDE PREVENTION PILOT**
13 **PROGRAM.**

14 (a) **PILOT PROGRAM AUTHORIZED.**—The Chief of
15 the National Guard Bureau may carry out a pilot program
16 to expand suicide prevention and intervention efforts at
17 the community level through the use of a mobile applica-
18 tion that provides the capability for a member of the Na-
19 tional Guard to receive prompt support, including access
20 to a behavioral health professional, on a smartphone, tab-
21 let computer, or other handheld mobile device.

22 (b) **ELEMENTS.**—The pilot program shall include,
23 subject to such conditions as the Secretary may pre-
24 scribe—

1 (1) the use by members of the National Guard
2 of an existing mobile application that provides the
3 capability described in subsection (a); or

4 (2) the development and use of a new mobile
5 application that provides such capability.

6 (c) ELIGIBILITY AND PARTICIPATION REQUIRE-
7 MENTS.—The Chief of the National Guard Bureau shall
8 establish requirements with respect to eligibility and par-
9 ticipation in the pilot program.

10 (d) ASSESSMENT PRIOR TO PILOT PROGRAM COM-
11 MENCEMENT.—Prior to commencement of the pilot pro-
12 gram, the Chief of the National Guard Bureau shall—

13 (1) conduct an assessment of existing preven-
14 tion and intervention efforts of the National Guard
15 in each State that include the use of mobile applica-
16 tions that provide the capability described in sub-
17 section (a) to determine best practices for providing
18 immediate and localized care through the use of
19 such mobile applications; and

20 (2) determine the feasibility of expanding exist-
21 ing programs on a national scale.

22 (e) RESPONSIBILITIES OF ENTITIES PARTICIPATING
23 IN PILOT PROGRAM.—Each entity that participates in the
24 pilot program shall—

1 (1) share best practices with other entities par-
2 ticipating in the program; and

3 (2) annually assess outcomes with respect to
4 members of the National Guard.

5 (f) TERM.—The pilot program shall terminate on the
6 date that is three years after the date on which the pilot
7 program commenced.

8 (g) REPORTS.—

9 (1) INITIAL REPORT.—If the Chief of the Na-
10 tional Guard Bureau commences the pilot program
11 authorized under subsection (a), not later than 180
12 days after the date of the commencement of such
13 program, the Chief shall submit to the Committees
14 on Armed Services of the Senate and the House of
15 Representatives a report containing a description of
16 the pilot program and such other matters as the
17 Chief considers appropriate.

18 (2) FINAL REPORT.—

19 (A) IN GENERAL.—Not later than 180
20 days after the termination of the pilot program,
21 the Chief of the National Guard Bureau shall
22 submit to the Committees on Armed Services of
23 the Senate and the House of Representatives a
24 report on such pilot program.

1 (B) MATTERS INCLUDED.—The report
2 under subparagraph (A) shall include the fol-
3 lowing:

4 (i) A description of the pilot program,
5 including any partnerships entered into by
6 the Chief of the National Guard Bureau
7 under the program.

8 (ii) An assessment of the effectiveness
9 of the pilot program.

10 (iii) A description of costs associated
11 with the implementation of the pilot pro-
12 gram.

13 (iv) The estimated costs of making
14 the pilot program permanent.

15 (v) A recommendation as to whether
16 the pilot program should be extended or
17 made permanent.

18 (vi) Such other recommendations for
19 legislative or administrative action as the
20 Chief of the National Guard Bureau con-
21 siders appropriate.

22 (h) STATE DEFINED.—In this section, the term
23 “State” means each of the several States, the District of
24 Columbia, the Commonwealth of Puerto Rico, American

1 Samoa, Guam, the United States Virgin Islands, and the
2 Commonwealth of the Northern Mariana Islands.

3 **SEC. 740. PILOT PROGRAM ON CIVILIAN AND MILITARY**
4 **PARTNERSHIPS TO ENHANCE INTEROPER-**
5 **ABILITY AND MEDICAL SURGE CAPABILITY**
6 **AND CAPACITY OF NATIONAL DISASTER MED-**
7 **ICAL SYSTEM.**

8 (a) IN GENERAL.—The Secretary of Defense may
9 carry out a pilot program to establish partnerships with
10 public, private, and nonprofit health care organizations,
11 institutions, and entities in collaboration with the Sec-
12 retary of Veterans Affairs, the Secretary of Health and
13 Human Services, the Secretary of Homeland Security, and
14 the Secretary of Transportation to enhance the interoper-
15 ability and medical surge capability and capacity of the
16 National Disaster Medical System under section 2812 of
17 the Public Health Service Act (42 U.S.C. 300hh–11) in
18 the vicinity of major aeromedical and other transport hubs
19 and logistics centers of the Department of Defense.

20 (b) DURATION.—The Secretary of Defense may carry
21 out the pilot program under subsection (a) for a period
22 of not more than five years.

23 (c) LOCATIONS.—The Secretary shall carry out the
24 pilot program under subsection (a) at not fewer than five

1 aeromedical or other transport hub regions or logistics
2 centers in the United States.

3 (d) REQUIREMENTS.—In establishing partnerships
4 under the pilot program under subsection (a), the Sec-
5 retary, in collaboration with the Secretary of Veterans Af-
6 fairs, the Secretary of Health and Human Services, the
7 Secretary of Homeland Security, and the Secretary of
8 Transportation, shall establish requirements under such
9 partnerships for staffing, specialized training, medical lo-
10 gistics, telemedicine, patient regulating, movement, situa-
11 tional status reporting, tracking, and surveillance.

12 (e) EVALUATION METRICS.—The Secretary of De-
13 fense shall establish metrics to evaluate the effectiveness
14 of the pilot program under subsection (a).

15 (f) REPORTS.—

16 (1) INITIAL REPORT.—

17 (A) IN GENERAL.—Not later than 180
18 days after the commencement of the pilot pro-
19 gram under subsection (a), the Secretary shall
20 submit to the Committees on Armed Services of
21 the Senate and the House of Representatives a
22 report on the pilot program.

23 (B) ELEMENTS.—The report required by
24 subparagraph (A) shall include the following:

25 (i) A description of the pilot program.

1 (ii) The requirements established
2 under subsection (d).

3 (iii) The evaluation metrics estab-
4 lished under subsection (e).

5 (iv) Such other matters relating to the
6 pilot program as the Secretary considers
7 appropriate.

8 (2) FINAL REPORT.—

9 (A) IN GENERAL.—Not later than 180
10 days after completion of the pilot program
11 under subsection (a), the Secretary shall submit
12 to the Committees on Armed Services of the
13 Senate and the House of Representatives a re-
14 port on the pilot program.

15 (B) ELEMENTS.—The report required by
16 subparagraph (A) shall include the following:

17 (i) A description of the pilot program,
18 including the partnerships established
19 under the pilot program as described in
20 subsection (a).

21 (ii) An assessment of the effectiveness
22 of the pilot program.

23 (iii) An assessment of the cost of the
24 pilot program and an estimate of the cost
25 of making the pilot program a permanent

1 part of the budget of the Department of
2 Defense.

3 (iv) Such recommendations for legisla-
4 tive or administrative action as the Sec-
5 retary considers appropriate in light of the
6 pilot program, including recommendations
7 for extending or making permanent the au-
8 thority for the pilot program.

9 **SEC. 741. REPORTS ON SUICIDE AMONG MEMBERS OF THE**
10 **ARMED FORCES AND SUICIDE PREVENTION**
11 **PROGRAMS AND ACTIVITIES OF THE DEPART-**
12 **MENT OF DEFENSE.**

13 (a) DEPARTMENT OF DEFENSE REPORTS ON SUI-
14 CIDE AMONG MEMBERS OF THE ARMED FORCES.—

15 (1) REPORTS REQUIRED.—Not later than 90
16 days after the date of the enactment of this Act, and
17 annually thereafter through January 31, 2021, the
18 Secretary of Defense shall submit to the Committees
19 on Armed Services of the House of Representatives
20 and the Senate a report on suicide among members
21 of the Armed Forces during the year preceding the
22 date of the report.

23 (2) MATTERS INCLUDED.—Each report under
24 paragraph (1) shall include the following with re-
25 spect to the year covered by the report:

1 (A) The number of suicides, attempted sui-
2 cides, and known cases of suicidal ideation in-
3 volving a member of the Armed Forces, includ-
4 ing the reserve components thereof, listed by
5 Armed Force.

6 (B) The number of suicides, attempted sui-
7 cides, or known cases of suicidal ideation identi-
8 fied under subparagraph (A) that occurred dur-
9 ing each of the following periods:

10 (i) The first 180 days of the member
11 serving in the Armed Forces.

12 (ii) The period in which the member
13 is deployed in support of a contingency op-
14 eration.

15 (C) With respect to the number of suicides,
16 attempted suicides, or known cases of suicidal
17 ideation identified under subparagraph (B)(i),
18 the initial recruit training location of the mem-
19 ber.

20 (D) The number of suicides involving a de-
21 pendent of a member.

22 (E) A description of any research collabo-
23 rations and data sharing by the Department of
24 Defense with the Department of Veterans Af-
25 fairs, other departments or agencies of the Fed-

1 eral Government, academic institutions, or non-
2 governmental organizations.

3 (F) Identification of a research agenda for
4 the Department of Defense to improve the evi-
5 dence base on effective suicide prevention treat-
6 ment and risk communication.

7 (G) The availability and usage of the as-
8 sistance of chaplains, houses of worship, and
9 other spiritual resources for members of the
10 Armed Forces who identify as religiously affili-
11 ated and have attempted suicide, have experi-
12 enced suicidal ideation, or are at risk of suicide,
13 and metrics on the impact these resources have
14 in assisting religiously-affiliated members who
15 have access to and utilize them compared to re-
16 ligiously-affiliated members who do not.

17 (H) A description of the effectiveness of
18 the policies developed pursuant to section 567
19 of the Carl Levin and Howard P. “Buck”
20 McKeon National Defense Authorization Act
21 for Fiscal Year 2015 (Public Law 113–291; 10
22 U.S.C. 1071 note) and section 582 of the Na-
23 tional Defense Authorization Act for Fiscal
24 Year 2013 (Public Law 112–239; 10 U.S.C.
25 1071 note), including with respect to—

1 (i) metrics identifying effective treat-
2 ment modalities for members of the Armed
3 Forces who are at risk for suicide (includ-
4 ing any clinical interventions involving
5 early identification and treatment of such
6 members);

7 (ii) metrics for the rate of integration
8 of mental health screenings and suicide
9 risk and prevention for members during
10 the delivery of primary care for such mem-
11 bers;

12 (iii) metrics relating to the effective-
13 ness of suicide prevention and resilience
14 programs and preventative behavioral
15 health programs of the Department of De-
16 fense (including those of the military de-
17 partments and the Armed Forces); and

18 (iv) metrics evaluating the training
19 standards for behavioral health care pro-
20 viders to ensure that such providers have
21 received training on clinical best practices
22 and evidence-based treatments.

23 (b) GAO REPORT ON SUICIDE PREVENTION PRO-
24 GRAMS AND ACTIVITIES.—

1 (1) REPORT REQUIRED.—Not later than 240
2 days after the date of the enactment of this Act, the
3 Comptroller General of the United States shall sub-
4 mit to the Committees on Armed Services of the
5 Senate and the House of Representatives a report on
6 the programs and activities of the Department of
7 Defense and the Armed Forces for the prevention of
8 suicide among members of the Armed Forces (in-
9 cluding the reserve components) and their families.

10 (2) ELEMENTS.—The report under paragraph
11 (1) shall include the following:

12 (A) A description of the current programs
13 and activities of the Department of Defense and
14 the Armed Forces for the prevention of suicide
15 among members of the Armed Forces and their
16 families.

17 (B) An assessment whether the programs
18 and activities described pursuant to subpara-
19 graph (A)—

20 (i) are evidence-based and incorporate
21 best practices identified in peer-reviewed
22 medical literature;

23 (ii) are appropriately resourced; and

24 (iii) deliver outcomes that are appro-
25 priate relative to peer activities and pro-

1 grams (including those undertaken in the
2 civilian community and in military forces
3 of other countries).

4 (C) A description and assessment of any
5 impediments to the effectiveness of such pro-
6 grams and activities.

7 (D) Such recommendations as the Comp-
8 troller General considers appropriate for im-
9 provements to such programs and activities.

10 (E) Such recommendations as the Comp-
11 troller General considers appropriate for addi-
12 tional programs and activities for the preven-
13 tion of suicide among members of the Armed
14 Forces and their families.

15 **SEC. 742. MODIFICATION OF REQUIREMENTS FOR LONGI-**
16 **TUDINAL MEDICAL STUDY ON BLAST PRES-**
17 **SURE EXPOSURE OF MEMBERS OF THE**
18 **ARMED FORCES AND COLLECTION OF EXPO-**
19 **SURE INFORMATION.**

20 (a) MODIFICATION OF STUDY.—Section 734 of the
21 National Defense Authorization Act for Fiscal Year 2018
22 (Public Law 115–91; 131 Stat. 1444) is amended—

23 (1) in subsection (b)—

24 (A) in paragraph (2), by striking “; and”
25 and inserting a semicolon;

1 (B) in paragraph (3), by striking the pe-
2 riod at the end and inserting “; and”; and

3 (C) by adding at the end the following new
4 paragraph:

5 “(4) assess the feasibility and advisability of—

6 “(A) uploading the data gathered from the
7 study into the Defense Occupational and Envi-
8 ronmental Health Readiness System – Indus-
9 trial Hygiene (DOEHRS-IH) or similar system;

10 “(B) allowing personnel of the Department
11 of Defense and the Department of Veterans Af-
12 fairs to have access to such system; and

13 “(C) ensuring such data is interoperable
14 and can be uploaded into the MHS Genesis
15 electronic health record or successor system of
16 the Department of Defense.”; and

17 (2) in subsection (c)—

18 (A) by redesignating paragraph (2) as
19 paragraph (3); and

20 (B) by inserting after paragraph (1) the
21 following new paragraph (2):

22 “(2) ANNUAL STATUS REPORT.—Not later than
23 January 1 of each year during the period beginning
24 on the date of the enactment of the National De-
25 fense Authorization Act for Fiscal Year 2020 and

1 ending on the completion of the study under sub-
2 section (a), the Secretary shall submit to the Com-
3 mittees on Armed Services of the Senate and the
4 House of Representatives a status report on the
5 study.”.

6 (b) COLLECTION OF EXPOSURE INFORMATION.—The
7 Secretary of Defense shall collect blast exposure informa-
8 tion with respect to a member of the Armed Forces in
9 a manner—

10 (1) consistent with blast exposure measurement
11 training guidance of the Department of Defense, in-
12 cluding any guidance developed pursuant to—

13 (A) the longitudinal medical study on blast
14 pressure exposure required by section 734 of
15 the National Defense Authorization Act for Fis-
16 cal Year 2018 (Public Law 115–91; 131 Stat.
17 1444); and

18 (B) the review of guidance on blast expo-
19 sure during training required by section 253 of
20 the John S. McCain National Defense Author-
21 ization Act for Fiscal Year 2019 (Public Law
22 115–232; 10 U.S.C. 2001 note prec.);

23 (2) compatible with training and operational ob-
24 jectives of the Department; and

1 (3) that is automated, to the extent practicable,
2 to minimize the reporting burden of unit com-
3 manders.

4 **SEC. 743. STUDY AND PLAN ON THE USE OF MILITARY-CI-**
5 **VILIAN INTEGRATED HEALTH DELIVERY SYS-**
6 **TEMS.**

7 (a) STUDY.—The Secretary of Defense shall conduct
8 a study on the use of local military-civilian integrated
9 health delivery systems pursuant to section 706 of the Na-
10 tional Defense Authorization Act for Fiscal Year 2017
11 (Public Law 114–328; 10 U.S.C. 1096 note). The study
12 shall examine the following:

13 (1) Geographic locations where military medical
14 treatment facilities have existing contractual rela-
15 tionships with local civilian health care networks, in-
16 cluding Fort Drum, New York, Joint Base McGuire-
17 Dix-Lakehurst, New Jersey, Joint Base Lewis-
18 McCord, Washington, Fort Leonard Wood, Missouri,
19 Elmendorf Air Force Base, Alaska, Fort Sill, Okla-
20 homa, Tripler Army Medical Center, Hawaii, the
21 National Capital Region, and similar locations.

22 (2) Health care activities that promote value-
23 based care, measurable health outcomes, patient
24 safety, timeliness of referrals, and transparent com-
25 munication with covered beneficiaries.

1 (3) Locations where health care providers of the
2 Department of Defense may be able to attain critical
3 wartime readiness skills in a local integrated mili-
4 tary-civilian integrated health delivery system.

5 (4) The cost of providing care under an inte-
6 grated military-civilian integrated health delivery
7 system as compared to health care provided by a
8 managed care support contractor.

9 (b) PLAN.—The Secretary of Defense shall develop
10 a plan for the further development of the use of local mili-
11 tary-civilian integrated health delivery systems by the De-
12 partment of Defense.

13 (c) SUBMISSION.—Not later than 180 days after the
14 date of the enactment of this Act, the Secretary of Defense
15 shall submit to the Committees on Armed Services of the
16 House of Representatives and the Senate—

17 (1) a report on the results of the study under
18 subsection (a); and

19 (2) the plan developed under subsection (b).

20 (d) DEFINITIONS.—In this section:

21 (1) The term “covered beneficiaries” has the
22 meaning given that term in section 1072 of title 10,
23 United States Code.

1 (2) The term “National Capital Region” has
2 the meaning given that term in section 2674 of title
3 10, United States Code.

4 **SEC. 744. STUDY ON CASE MANAGEMENT IN THE MILITARY**
5 **HEALTH SYSTEM.**

6 (a) STUDY.—The Secretary of Defense shall conduct
7 a study on the effectiveness of case management practices
8 in the military health system. The study shall include the
9 following:

10 (1) A standardized definition of case manage-
11 ment.

12 (2) An evaluation of case management practices
13 provided by the military departments before and
14 during the transition of the administration of mili-
15 tary medical treatment facilities to the Defense
16 Health Agency pursuant to section 1073c of title 10,
17 United States Code.

18 (3) A discussion of the metrics used in deter-
19 mining the effectiveness and cost of case manage-
20 ment.

21 (4) An evaluation of the case management and
22 outreach provided by the managed care support con-
23 tractors supporting the Defense Health Agency, in-
24 cluding with respect to—

1 (A) the intervals at which patients are con-
2 tacted;

3 (B) the role of the case manager in coordi-
4 nation;

5 (C) the approximate number of patients
6 managed by a case manager; and

7 (D) any other best practices relating to
8 case management that would improve the expe-
9 rience of care across the military health system.

10 (5) A review of case management best practices
11 in the private sector, including with respect to—

12 (A) the intervals at which patients should
13 be contacted;

14 (B) the role of the case manager in coordi-
15 nation;

16 (C) the approximate number of patients
17 managed by a case manager; and

18 (D) any other best practices relating to
19 case management that would improve the expe-
20 rience of care across the military health system.

21 (6) The results of discussions with covered
22 beneficiaries (as defined in section 1072 of title 10,
23 United States Code) at not less than four public fo-
24 rums held in different geographic areas, relating to
25 the satisfaction of such covered beneficiaries with

1 case management and outreach provided by the De-
2 fense Health Agency and the military departments
3 in military medical treatment facilities.

4 (b) REPORT.—Not later than 180 days after the date
5 of the enactment of this Act, the Secretary of Defense
6 shall submit to the Committees on Armed Services of the
7 House of Representatives and the Senate a report on the
8 results of the study under subsection (a).

9 **SEC. 745. REPORT ON GLOBAL HEALTH SECURITY STRAT-**
10 **EGY AND THE NATIONAL BIODEFENSE SECU-**
11 **RITY.**

12 (a) REPORT.—Not later than 180 days after the date
13 on which the Comptroller General of the United States
14 publishes a review of the National Biodefense Strategy,
15 the Secretary of Defense shall submit to the appropriate
16 congressional committees a report on the implementation
17 of the Global Health Security Strategy and the National
18 Biodefense Strategy.

19 (b) ELEMENTS.—The report under subsection (a)
20 shall, at a minimum—

21 (1) designate the individual and offices respon-
22 sible for overseeing the implementation of each
23 strategy referred to in subsection (a) within the De-
24 partment of Defense;

1 (2) detail actions that the Department is taking
2 to support implementation of the Global Health Se-
3 curity Agenda;

4 (3) detail actions taken to coordinate the efforts
5 of the Department with the other agencies respon-
6 sible for the Global Health Security Strategy and
7 National Biodefense Strategy; and

8 (4) with respect to the review of the National
9 Biodefense Strategy conducted by the Comptroller
10 General—

11 (A) detail the recommendations in the re-
12 view that the Secretary plans on or is currently
13 implementing;

14 (B) specify the official implementing such
15 recommendations and the actions the official is
16 taking to implement the recommendations;

17 (C) specify the recommendations in the re-
18 view that the Secretary has determined not to
19 implement; and

20 (D) explain the rationale of the Secretary
21 with respect to not implementing such rec-
22 ommendations.

23 (c) APPROPRIATE CONGRESSIONAL COMMITTEES DE-
24 FINED.—In this section, the term “appropriate congres-
25 sional committees” means—

- 1 (1) the congressional defense committees;
- 2 (2) the Committee on Foreign Affairs, the
- 3 Committee on Energy and Commerce, and the Com-
- 4 mittee on Homeland Security of the House of Rep-
- 5 resentatives; and
- 6 (3) the Committee on Foreign Relations, the
- 7 Committee on Health, Education, Labor, and Pen-
- 8 sions, and the Committee on Homeland Security and
- 9 Governmental Affairs of the Senate.

10 **SEC. 746. STUDY ON ESTABLISHMENT OF WOUNDED WAR-**
11 **RIOR SERVICE DOG PROGRAM.**

12 (a) STUDY.—Not later than one year after the date
13 of the enactment of this Act, the Secretary of Defense
14 shall conduct a study on the feasibility of establishing a
15 wounded warrior service dog program.

16 (b) ELEMENTS.—The study under subsection (a)
17 shall include the following:

18 (1) An assessment of the need and feasibility of
19 establishing a wounded warrior service dog program.

20 (2) With respect to a nonprofit organization
21 seeking a grant under a wounded warrior service dog
22 program, an assessment of the feasibility of requir-
23 ing that the organization—

24 (A) specify the training requirements for
25 covered members;

1 (B) detail the training of dogs that will
2 serve as assistance dogs;

3 (C) establish a database—

4 (i) to track whether a dog has prior
5 experience as a military working dog, serv-
6 ice dog, or assistance dog; and

7 (ii) that contains a designation for
8 each dog with prior experience as a mili-
9 tary working dog;

10 (D) describe the aftercare services that the
11 organization will provide to assistance dogs and
12 covered members; and

13 (E) possess the appropriate accreditation
14 standards for assistance dogs, as the Secretary
15 determines appropriate.

16 (3) A list of locations at which the greatest
17 number of covered members are likely to participate
18 in a wounded warrior service dog program.

19 (4) An estimate of the costs required to create
20 a wounded warrior service dog program.

21 (5) A list of peer reviewed articles and other
22 appropriate studies that examine the clinical effec-
23 tiveness of assistance dogs with respect to the treat-
24 ment of patients with disabilities.

25 (c) DEFINITIONS.—In this section:

1 (1) ASSISTANCE DOG.—

2 (A) IN GENERAL.—The term “assistance
3 dog” means a dog specifically trained to per-
4 form physical tasks to mitigate the effects of a
5 disability described in subparagraph (B), except
6 that the term does not include a dog specifically
7 trained for comfort or personal defense.

8 (B) DISABILITY DESCRIBED.—A disability
9 described in this subparagraph is any of the fol-
10 lowing:

11 (i) Blindness or visual impairment.

12 (ii) Loss of limb, paralysis, or other
13 significant mobility issues.

14 (iii) Loss of hearing.

15 (iv) Traumatic brain injury.

16 (v) Post-traumatic stress disorder.

17 (vi) Any other disability that the Sec-
18 retary of Defense considers appropriate.

19 (2) COVERED MEMBER.—The term “covered
20 member” means a member of the Armed Forces who
21 is—

22 (A) receiving medical treatment, recuper-
23 ation, or therapy under chapter 55 of title 10,
24 United States Code;

1 (B) in medical hold or medical holdover
2 status; or

3 (C) covered under section 1202 or 1205 of
4 title 10, United States Code.

5 (3) WOUNDED WARRIOR SERVICE DOG PRO-
6 GRAM.—The term “wounded warrior service dog
7 program” means a pilot program under which the
8 Secretary of Defense awards competitive grants to
9 non-profit organizations that would assist such orga-
10 nizations in the planning, designing, establishing, or
11 operating (or any combination thereof) of programs
12 to provide assistance dogs to covered members.

13 **SEC. 747. GAO REPORT ON DEPARTMENT OF DEFENSE**
14 **QUALITY ASSURANCE PROGRAM AND IM-**
15 **PACTS OF MEDICAL MALPRACTICE ACTIONS.**

16 Not later than January 1, 2021, the Comptroller
17 General of the United States shall submit to the Commit-
18 tees on Armed Services of the Senate and the House of
19 Representatives a report containing the following:

20 (1) An assessment of the effectiveness of the
21 quality assurance program of the Department of De-
22 fense in querying and monitoring the National Prac-
23 titioner Data Bank established pursuant to the
24 Health Care Quality Improvement Act of 1986 (42
25 U.S.C. 11101 et seq.) with respect to—

1 (A) recruitment and retention of military
2 service medical providers;

3 (B) hiring or contracting of civilian med-
4 ical providers in military medical treatment fa-
5 cilities;

6 (C) recording of adverse privileging and
7 credentialing actions of such military service
8 medical providers and civilian medical pro-
9 viders; and

10 (D) any other matters relating to ensuring
11 the highest quality of care is provided through-
12 out the military health system.

13 (2) An analysis that includes—

14 (A) with respect to military health system
15 patients, a comparison of outcomes for such pa-
16 tients who may bring an action against the
17 Federal Government for negligence or mal-
18 practice and outcomes for such patients who
19 may not bring such an action, based on an ex-
20 amination of all relevant data relating to clin-
21 ical outcome measures and clinical quality man-
22 agement process actions; and

23 (B) a comparison of—

24 (i) the elements and average amounts
25 of death and disability compensation that

1 apply regardless of the underlying cause of
2 the death or disability; and

3 (ii) the elements and average amounts
4 of settlements that result from medical
5 malpractice litigation against the Federal
6 Government.

7 **SEC. 748. REPORTS ON MILLENNIUM COHORT STUDY RE-**
8 **LATING TO WOMEN MEMBERS OF THE**
9 **ARMED FORCES.**

10 (a) ANNUAL REPORTS REQUIRED.—Not later than
11 180 days after the date of the enactment of this Act, and
12 annually thereafter through January 31, 2022, the Sec-
13 retary of Defense shall submit to the Committees on
14 Armed Services of the Senate and the House of Represent-
15 atives a report on findings of the Millennium Cohort Study
16 relating to the gynecological and perinatal health of
17 women members of the Armed Forces.

18 (b) MATTERS INCLUDED.—Each report under sub-
19 section (a) shall include, at a minimum—

20 (1) a summary of general findings of the Mil-
21 lennium Cohort Study pertaining to gynecological
22 and perinatal health, including diseases, disorders,
23 and conditions that affect the functioning of repro-
24 ductive systems, maternal mortality and severe ma-
25 ternal morbidity, birth defects, developmental dis-

1 orders, low birth weight, preterm birth, reduced fer-
2 tility, menstrual disorders, and other health con-
3 cerns; and

4 (2) identification of—

5 (A) all research projects that have con-
6 cluded during the year covered by the report
7 and the outcomes of such projects;

8 (B) areas in which the Millennium Cohort
9 Study can increase efforts to capture data and
10 produce studies in the field of gynecological and
11 perinatal health of women members of the
12 Armed Forces; and

13 (C) activities underway to achieve such ef-
14 forts.

15 (c) MILLENNIUM COHORT STUDY DEFINED.—In this
16 section, the term “Millennium Cohort Study” means the
17 longitudinal study authorized under section 743 of the
18 Strom Thurmond National Defense Authorization Act for
19 Fiscal Year 1999 (Public Law 105–261; 112 Stat. 2074)
20 to evaluate data on the health conditions of members of
21 the Armed Forces upon the return of the members from
22 deployment.

1 shall submit to the Committees on Armed Services of the
2 Senate and the House of Representatives a report on the
3 results of the study under subsection (a).

4 **SEC. 750. STUDY AND REPORT ON TRAUMATIC BRAIN IN-**
5 **JURY MITIGATION EFFORTS.**

6 (a) **STUDY.**—The Secretary of Defense shall conduct
7 a meta-analysis of evidence-based traumatic brain injury
8 mitigation efforts by the Secretary and related Federal
9 agency partners, and efforts discussed in academic lit-
10 erature, that have demonstrated the best clinical effective-
11 ness in the treatment of members of the Armed Forces
12 for traumatic brain injury.

13 (b) **ROADMAP.**—The Secretary shall develop and in-
14 clude in the study under subsection (a) a roadmap for im-
15 plementation across the military health system of meas-
16 ures that address, with respect to the treatment of mem-
17 bers for traumatic brain injury—

- 18 (1) the process for receiving such treatment;
19 (2) patient outcomes;
20 (3) cost;
21 (4) patient and command satisfaction with such
22 treatment; and
23 (5) structured documentation to monitor sys-
24 tem-wide implementation of the measures developed
25 pursuant to paragraphs (1) through (4).

1 (c) REPORT.—Not later than 270 days after the date
 2 of the enactment of this Act, the Secretary of Defense
 3 shall submit to the Committees on Armed Services of the
 4 Senate and the House of Representatives a report on the
 5 results of the study under subsection (a).

6 **TITLE VIII—ACQUISITION POL-**
 7 **ICY, ACQUISITION MANAGE-**
 8 **MENT, AND RELATED MAT-**
 9 **TERS**

TITLE VIII—ACQUISITION POLICY, ACQUISITION MANAGEMENT,
 AND RELATED MATTERS

Subtitle A—Acquisition Policy and Management

- Sec. 800. Authority for continuous integration and delivery of software applica-
 tions and upgrades to embedded systems.
- Sec. 801. Pilot program on intellectual property evaluation for acquisition pro-
 grams.
- Sec. 802. Pilot program to use alpha contracting teams for complex require-
 ments.
- Sec. 803. Failure to provide other than certified cost or pricing data upon re-
 quest.
- Sec. 804. Comptroller General report on price reasonableness.
- Sec. 805. Limitation on transfer of funds related to cost overruns and cost
 underruns.
- Sec. 806. Standardizing data collection and reporting on use of source selection
 procedures by Federal agencies.
- Sec. 807. Department of Defense use of fixed-price contracts.
- Sec. 808. Repeal of continuation of data rights during challenges.
- Sec. 809. Repeal of authority to waive acquisition laws to acquire vital national
 security capabilities.
- Sec. 810. Repeal of the Defense Cost Accounting Standards Board.

Subtitle B—Amendments to General Contracting Authorities, Procedures, and
 Limitations

- Sec. 815. Modification of Director of Operational Test and Evaluation report.
- Sec. 816. Modification of written approval requirement for task and delivery
 order single contract awards.
- Sec. 817. Responsibility for data analysis and requirements validation for serv-
 ices contracts.
- Sec. 818. Documentation of market research related to commercial item deter-
 minations.
- Sec. 819. Availability of data on the use of other transaction authority and re-
 port on the use of authority to carry out prototype projects.

- Sec. 820. Notification of Navy procurement production disruptions.
- Sec. 821. Modification to acquisition authority of the Commander of the United States Cyber Command.
- Sec. 822. Extension of Never Contract With the Enemy.
- Sec. 823. Modification of justification and approval requirement for certain Department of Defense contracts.
- Sec. 824. Extension of sunset relating to Federal Data Center Consolidation Initiative.
- Sec. 825. Pilot program to accelerate contracting and pricing processes.
- Sec. 826. Uniformity in application of micro-purchase threshold to certain task or delivery orders.
- Sec. 827. Requirement for cost estimates on models of commercial e-commerce portal program.

Subtitle C—Provisions Relating to Major Defense Acquisition Programs

- Sec. 830. Modification of requirements for reporting to Congress on certain acquisition programs.
- Sec. 831. Pilot program to streamline decision-making processes for weapon systems.
- Sec. 832. Analysis of alternatives pursuant to materiel development decisions.
- Sec. 833. Naval vessel certification required before Milestone B approval.

Subtitle D—Provisions Relating to the Acquisition System

- Sec. 835. Extramural acquisition innovation and research activities.
- Sec. 836. Report on realignment of the defense acquisition system to implement acquisition reforms.
- Sec. 837. Report and limitation on the availability of funds relating to the “middle tier” of acquisition programs.
- Sec. 838. Report on intellectual property policy and the cadre of intellectual property experts.
- Sec. 839. Guidance and reports relating to covered defense business systems.
- Sec. 840. Implementation guidance for use of a modular open system approach.
- Sec. 841. Limitation on availability of funds for the Office of the Chief Management Officer of the Department of Defense.

Subtitle E—Industrial Base Matters

- Sec. 845. Modernization of acquisition processes to ensure integrity of industrial base.
- Sec. 846. Report requirements for the national technology and industrial base.
- Sec. 847. Mitigating risks related to foreign ownership, control, or influence of Department of Defense contractors or subcontractors.
- Sec. 848. Prohibition on operation or procurement of foreign-made unmanned aircraft systems.
- Sec. 849. Modification of prohibition on acquisition of sensitive materials from non-allied foreign nations.
- Sec. 850. Acquisition and disposal of certain rare earth materials.
- Sec. 851. Pilot program for development of technology-enhanced capabilities with partnership intermediaries.
- Sec. 852. Authorized official to carry out the procurement technical assistance cooperative agreement program.
- Sec. 853. Requirement that certain ship components be manufactured in the national technology and industrial base.

- Sec. 854. Addition of domestically produced stainless steel flatware and dinnerware to the Berry Amendment.
- Sec. 855. Application of miscellaneous technology base policies and programs to the Columbia-class submarine program.
- Sec. 856. Application of limitation on procurement of goods other than United States goods to the FFG–Frigate Program.
- Sec. 857. Sense of Congress regarding consideration of price in procurement of the FFG(X) frigate.

Subtitle F—Provisions Relating to Acquisition Workforce

- Sec. 860. Establishment of Defense Civilian Training Corps.
- Sec. 861. Defense acquisition workforce certification, education, and career fields.
- Sec. 862. Software development and software acquisition training and management programs.
- Sec. 863. Modification of temporary assignments of Department of Defense employees to a private-sector organization.
- Sec. 864. Incentives and consideration for qualified training programs.
- Sec. 865. Use of qualified apprentices by military construction contractors.

Subtitle G—Small Business Matters

- Sec. 870. Requirements relating to credit for certain small business concern subcontractors.
- Sec. 871. Inclusion of best in class designations in annual report on small business goals.
- Sec. 872. Reauthorization and improvement of Department of Defense Mentor-Protege Program.
- Sec. 873. Accelerated payments applicable to contracts with certain small business concerns under the Prompt Payment Act.
- Sec. 874. Postaward explanations for unsuccessful offerors for certain contracts.
- Sec. 875. Small business contracting credit for subcontractors that are Puerto Rico businesses or covered territory businesses.
- Sec. 876. Technical amendment regarding treatment of certain surviving spouses under the definition of small business concern owned and controlled by service-disabled veterans.
- Sec. 877. Extension of loan assistance and deferral eligibility to reservists and members of the National Guard beyond periods of military conflict.
- Sec. 878. Modification to the Defense Research and Development Rapid Innovation Program.
- Sec. 879. Alignment of the Department of Defense Small Business Innovation Research Program and Small Business Technology Transfer Program with the National Defense Science and Technology Strategy.
- Sec. 880. Assistance for small business concerns participating in the SBIR and STTR programs.
- Sec. 881. Cybersecurity technical assistance for SBIR and STTR programs.
- Sec. 882. Funding for defense research activities of small business concerns.
- Sec. 883. Modifications to budget display requirements for the Department of Defense Small Business Innovation Research Program and Small Business Technology Transfer Program.
- Sec. 884. Pilot program for domestic investment under the SBIR program.

Subtitle H—Other Matters

- Sec. 885. Review of guidance to contractors on nondiscrimination on the basis of sex.
- Sec. 886. Comptroller General report on contractor violations of certain labor laws.
- Sec. 887. Comptroller General report on contingency contracting.
- Sec. 888. Policies and procedures for contractors to report gross violations of internationally recognized human rights.
- Sec. 889. Comptroller General report on oversight of contractors providing private security functions.
- Sec. 890. Prohibition on contracting with persons that have business operations with the Maduro regime.
- Sec. 891. Report on the Combating Trafficking in Persons initiative.
- Sec. 892. Improved management of information technology and cyberspace investments.
- Sec. 893. Modification to requirements for purchase of commercial leasing services pursuant to multiple award contracts.

1 **Subtitle A—Acquisition Policy and**
2 **Management**

3 **SEC. 800. AUTHORITY FOR CONTINUOUS INTEGRATION AND**
4 **DELIVERY OF SOFTWARE APPLICATIONS AND**
5 **UPGRADES TO EMBEDDED SYSTEMS.**

6 (a) SOFTWARE ACQUISITION AND DEVELOPMENT
7 PATHWAYS.—The Secretary of Defense shall establish
8 pathways as described under subsection (b) to provide for
9 the efficient and effective acquisition, development, inte-
10 gration, and timely delivery of secure software. Such a
11 pathway shall include the following:

12 (1) USE OF PROVEN TECHNOLOGIES AND SOLU-
13 TIONS.—A pathway established under this section
14 shall provide for the use of proven technologies and
15 solutions to continuously engineer and deliver capa-
16 bilities in software.

1 (2) USE OF AUTHORITY.—In using the author-
2 ity under this section, the Secretary shall consider
3 how such use will—

4 (A) initiate the engineering of new soft-
5 ware capabilities quickly;

6 (B) demonstrate the viability and effective-
7 ness of such capabilities for operational use not
8 later than one year after the date on which
9 funds are first obligated to acquire or develop
10 software; and

11 (C) allow for the continuous updating and
12 delivery of new capabilities not less frequently
13 than annually to iteratively meet a requirement.

14 (3) TREATMENT NOT AS MAJOR DEFENSE AC-
15 QUISITION PROGRAM.—Software acquired or devel-
16 oped using the authority under this section shall not
17 be treated as a major defense acquisition program
18 for purposes of section 2430 of title 10, United
19 States Code, or Department of Defense Directive
20 5000.01 without the specific direction of the Under
21 Secretary of Defense for Acquisition and
22 Sustainment or a Senior Acquisition Executive.

23 (4) RISK-BASED APPROACH.—The Secretary of
24 Defense shall use a risk-based approach for the con-
25 sideration of innovative technologies and new capa-

1 bilities for software to be acquired or developed
2 under this authority to meet needs communicated by
3 the Joint Chiefs of Staff and the combatant com-
4 manders.

5 (b) PATHWAYS.—The Secretary of Defense may es-
6 tablish as many pathways as the Secretary determines ap-
7 propriate and shall establish the following pathways:

8 (1) APPLICATIONS.—The applications software
9 acquisition pathway shall provide for the use of
10 rapid development and implementation of applica-
11 tions and other software or software improvements
12 operated by the Department of Defense, which may
13 include applications running on commercial com-
14 modity hardware (including modified hardware) and
15 commercially available cloud computing platforms.

16 (2) EMBEDDED SYSTEMS.—The embedded sys-
17 tems software acquisition pathway shall provide for
18 the rapid development and insertion of upgrades and
19 improvements for software embedded in weapon sys-
20 tems and other military-unique hardware systems.

21 (c) EXPEDITED PROCESS.—

22 (1) IN GENERAL.—A pathway established under
23 subsection (a) shall provide for—

24 (A) a streamlined and coordinated require-
25 ments, budget, and acquisition process to sup-

1 port rapid fielding of software applications and
2 of software upgrades to embedded systems for
3 operational use in a period of not more than
4 one year from the time that the process is initi-
5 ated;

6 (B) the collection of data on software field-
7 ed; and

8 (C) continuous engagement with the users
9 of software to support engineering activities,
10 and to support delivery of software for oper-
11 ational use in periods of not more than one
12 year.

13 (2) EXPEDITED SOFTWARE REQUIREMENTS
14 PROCESS.—

15 (A) INAPPLICABILITY OF JOINT CAPABILI-
16 TIES INTEGRATION AND DEVELOPMENT SYSTEM
17 (JCIDS) MANUAL.—Software acquisition or de-
18 velopment conducted under the authority of this
19 section shall not be subject to the Joint Capa-
20 bilities Integration and Development System
21 Manual, except pursuant to a modified process
22 specifically provided for the acquisition or devel-
23 opment of software by the Vice Chairman of the
24 Joint Chiefs of Staff, in consultation with
25 Under Secretary of Defense for Acquisition and

1 Sustainment and each service acquisition execu-
2 tive (as defined in section 101(a)(10) of title
3 10, United States Code).

4 (B) INAPPLICABILITY OF DEFENSE ACQUI-
5 SITION SYSTEM DIRECTIVE.—Software acquisi-
6 tion or development conducted under the au-
7 thority of this section shall not be subject to
8 Department of Defense Directive 5000.01, ex-
9 cept when specifically provided for the acquisi-
10 tion or development of software by the Under
11 Secretary of Defense for Acquisition and
12 Sustainment, in consultation with the Vice
13 Chairman of the Joint Chiefs of Staff and each
14 service acquisition executive.

15 (d) ELEMENTS.—In implementing a pathway estab-
16 lished under the authority of this section, the Secretary
17 shall tailor requirements relating to—

18 (1) iterative development of requirements for
19 software to be acquired or developed under the au-
20 thority of this section through engagement with the
21 user community and through the use of operational
22 user feedback, in order to continuously define and
23 update priorities for such requirements;

24 (2) early identification of the warfighter or user
25 need, including the rationale for how software capa-

1 bilities will support increased lethality and efficiency,
2 and identification of a relevant user community;

3 (3) initial contract requirements and format, in-
4 cluding the use of summary-level lists of problems
5 and shortcomings in existing software and desired
6 features or capabilities of new or upgraded software;

7 (4) continuous refinement and prioritization of
8 contract requirements through use of evolutionary
9 processes, informed by continuous engagement with
10 operational users throughout the development and
11 implementation period;

12 (5) continuous consideration of issues related to
13 lifecycle costs, technical data rights, and systems
14 interoperability;

15 (6) planning for support of software capabilities
16 in cases where the software developer may stop sup-
17 porting the software;

18 (7) rapid contracting procedures, including ex-
19 pedited timeframes for making awards, selecting
20 contract types, defining teaming arrangements, and
21 defining options;

22 (8) program execution processes, including sup-
23 porting development and test infrastructure, auto-
24 mation and tools, digital engineering, data collection
25 and sharing with Department of Defense oversight

1 organizations and with Congress, the role of develop-
2 mental and operational testing activities, key deci-
3 sion making and oversight events, and supporting
4 processes and activities (such as independent costing
5 activity, operational demonstration, and performance
6 metrics);

7 (9) assurances that cybersecurity metrics of the
8 software to be acquired or developed, such as
9 metrics relating to the density of vulnerabilities
10 within the code of such software, the time from vul-
11 nerability identification to patch availability, the ex-
12 istence of common weaknesses within such code, and
13 other cybersecurity metrics based on widely-recog-
14 nized standards and industry best practices, are gen-
15 erated and made available to the Department of De-
16 fense and the congressional defense committees;

17 (10) administrative procedures, including proce-
18 dures related to who may initiate and approve an ac-
19 quisition under this authority, the roles and respon-
20 sibilities of the implementing project or product
21 teams and supporting activities, team selection and
22 staffing process, governance and oversight roles and
23 responsibilities, and appropriate independent tech-
24 nology assessments, testing, and cost estimation (in-
25 cluding relevant thresholds or designation criteria);

1 (11) mechanisms and waivers designed to en-
2 sure flexibility in the implementation of a pathway
3 under this section, including the use of other trans-
4 action authority, broad agency announcements, and
5 other procedures; and

6 (12) mechanisms the Secretary will use for ap-
7 propriate reporting to Congress on the use of this
8 authority, including notice of initiation of the use of
9 a pathway and data regarding individual programs
10 or acquisition activities, how acquisition activities
11 are reflected in budget justification materials or re-
12 quests to reprogram appropriated funds, and compli-
13 ance with other reporting requirements.

14 (e) GUIDANCE REQUIRED.—

15 (1) IN GENERAL.—Not later than 90 days after
16 the date of the enactment of this Act, the Secretary
17 of Defense shall issue initial guidance to implement
18 the requirements of this section.

19 (2) LIMITATION.—If the Secretary of Defense
20 has not issued final guidance to implement the re-
21 quirements of this section before October 1, 2021,
22 the Secretary may not use the authority under this
23 section—

24 (A) to establish a new pathway to acquire
25 or develop software; or

1 (B) to continue activities to acquire or de-
2 velop software using a pathway established
3 under initial guidance described in paragraph
4 (1).

5 (f) REPORT.—

6 (1) IN GENERAL.—Not later than October 15,
7 2020, the Under Secretary of Defense for Acquisi-
8 tion and Sustainment, in consultation with the secre-
9 taries of the military departments and other appro-
10 priate officials, shall report on the use of the author-
11 ity under this section using the initial guidance
12 issued under subsection (d).

13 (2) ELEMENTS.—The report required under
14 paragraph (1) shall include the following elements:

15 (A) The final guidance required by sub-
16 section (d)(2), including a description of the
17 treatment of use of the authority that was initi-
18 ated before such final guidance was issued.

19 (B) A summary of how the authority under
20 this section has been used, including a list of
21 the cost estimate, schedule for development,
22 testing and delivery, and key management risks
23 for each initiative conducted pursuant to such
24 authority.

1 (C) Accomplishments from and challenges
2 to using the authority under this section, in-
3 cluding organizational, cultural, talent, infra-
4 structure, testing, and training considerations.

5 (D) Recommendations for legislative
6 changes to the authority under this section.

7 (E) Recommendations for regulatory
8 changes to the authority under this section to
9 promote effective development and deployment
10 of software acquired or developed under this
11 section.

12 **SEC. 801. PILOT PROGRAM ON INTELLECTUAL PROPERTY**
13 **EVALUATION FOR ACQUISITION PROGRAMS.**

14 (a) PILOT PROGRAM.—Not later than 180 days after
15 the date of the enactment of this Act, the Secretary of
16 Defense and the Secretaries of the military departments
17 may jointly carry out a pilot program to assess mecha-
18 nisms to evaluate intellectual property (such as technical
19 data deliverables and associated license rights), including
20 commercially available intellectual property valuation
21 analysis and techniques, in acquisition programs for which
22 each such Secretary is responsible to better understand
23 the benefits associated with these mechanisms on—

24 (1) the development of cost-effective intellectual
25 property strategies;

1 (2) the assessment and management of the
2 value and acquisition costs of intellectual property
3 during acquisition and sustainment activities (in-
4 cluding source selection evaluation factors) through-
5 out the acquisition lifecycle for any acquisition pro-
6 gram selected by such Secretary; and

7 (3) the use of a commercial product (as defined
8 in section 103 of title 41, United States Code, as in
9 effect on January 1, 2020), commercial service (as
10 defined in section 103a of title 41, United States
11 Code, as in effect on January 1, 2020), or non-
12 developmental item (as defined in section 110 of title
13 41, United States Code) as an alternative to a prod-
14 uct or service to be specifically developed for a se-
15 lected acquisition program, including evaluation of
16 the benefits of reduced risk regarding cost, schedule,
17 and performance associated with commercial prod-
18 ucts, commercial services, and nondevelopmental
19 items.

20 (b) **ACTIVITIES.**—Activities carried out under the
21 pilot program may include the following:

22 (1) Establishment of a team of Department of
23 Defense and private sector subject matter experts
24 (which may include the cadre of intellectual property

1 experts established under section 2322(b) of title 10,
2 United States Code) to—

3 (A) recommend acquisition programs to be
4 selected for the pilot program established under
5 subsection (a);

6 (B) recommend criteria for the consider-
7 ation of types of commercial products, commer-
8 cial services, or nondevelopmental items that
9 can used as an alternative to a product or serv-
10 ice to be specifically developed for a selected ac-
11 quisition program; or

12 (C) identify, to the maximum extent prac-
13 ticable at each milestone established for each
14 selected acquisition program, intellectual prop-
15 erty evaluation techniques to obtain quan-
16 titative and qualitative analysis of intellectual
17 property during the procurement, production
18 and deployment, and operations and support
19 phases for the each selected acquisition pro-
20 gram.

21 (2) Assessment of commercial valuation tech-
22 niques for intellectual property for use by the De-
23 partment of Defense.

1 (3) Assessment of the feasibility of agency-level
2 oversight to standardize intellectual property evalua-
3 tion practices and procedures.

4 (4) Assessment of contracting mechanisms to
5 speed delivery of intellectual property to the Armed
6 Forces or reduce sustainment costs.

7 (5) Assessment of agency acquisition planning
8 to ensure procurement of appropriate intellectual
9 property deliverables and intellectual property rights
10 necessary for Government-planned sustainment ac-
11 tivities.

12 (6) Engagement with the private sector to—

13 (A) support the development of strategies
14 and program requirements to aid in acquisition
15 planning for intellectual property;

16 (B) support the development and improve-
17 ment of intellectual property strategies as part
18 of life-cycle sustainment plans; and

19 (C) propose and implement alternative and
20 innovative methods of intellectual property valu-
21 ation, prioritization, and evaluation techniques
22 for intellectual property.

23 (7) Recommendations to the relevant program
24 manager of an acquisition program selected under
25 subsection (a), including evaluation techniques and

1 contracting mechanisms for acquisition and
2 sustainment activities.

3 (c) REPORT.—Not later than November 1, 2020, and
4 annually thereafter through November 1, 2023, the Sec-
5 retary of Defense, in coordination with the Secretaries
6 concerned, shall submit to the congressional defense com-
7 mittees a joint report on the pilot program conducted
8 under this section. The report shall, at a minimum, in-
9 clude—

10 (1) a description of the acquisition programs se-
11 lected by the Secretary concerned;

12 (2) a description of the specific activities in
13 subsection (c) that were performed under each pro-
14 gram;

15 (3) an assessment of the effectiveness of the ac-
16 tivities;

17 (4) an assessment of improvements to acquisi-
18 tion or sustainment activities related to the pilot
19 program; and

20 (5) an assessment of the results related to the
21 pilot program, including any cost savings and im-
22 provement to mission success during the operations
23 and support phase of the selected acquisition pro-
24 gram.

1 **SEC. 802. PILOT PROGRAM TO USE ALPHA CONTRACTING**
2 **TEAMS FOR COMPLEX REQUIREMENTS.**

3 (a) IN GENERAL.—(1) The Secretary of Defense
4 shall select at least 2, and up to 5, initiatives to participate
5 in a pilot to use teams that, with the advice of expert third
6 parties, focus on the development of complex contract
7 technical requirements for services, with each team focus-
8 ing on developing achievable technical requirements that
9 are appropriately valued and identifying the most effective
10 acquisition strategy to achieve those requirements.

11 (2) The Secretary shall develop metrics for tracking
12 progress of the program at improving quality and acquisi-
13 tion cycle time.

14 (b) DEVELOPMENT OF CRITERIA AND INITIATIVES.—

15 (1) Not later than February 1, 2020, the Secretary of De-
16 fense shall establish the pilot program and notify the con-
17 gressional defense committees of the criteria used to select
18 initiatives and the metrics used to track progress.

19 (2) Not later than May 1, 2020, the Secretary shall
20 notify the congressional defense committees of the initia-
21 tives selected for the program.

22 (3) Not later than December 1, 2020, the Secretary
23 shall brief the congressional defense committees on the
24 progress of the selected initiatives, including the progress
25 of the initiatives at improving quality and acquisition cycle

1 time according to the metrics developed under subsection
2 (a)(2).

3 **SEC. 803. FAILURE TO PROVIDE OTHER THAN CERTIFIED**
4 **COST OR PRICING DATA UPON REQUEST.**

5 Section 2306a(d) of title 10, United States Code, is
6 amended—

7 (1) in paragraph (1), by adding at the end the
8 following: “Contracting officers shall not determine
9 the price of a contract or subcontract to be fair and
10 reasonable based solely on historical prices paid by
11 the Government.”;

12 (2) by redesignating paragraph (2) as para-
13 graph (3); and

14 (3) by inserting after paragraph (1) the fol-
15 lowing new paragraph:

16 “(2) INELIGIBILITY FOR AWARD.—(A) In the
17 event the contracting officer is unable to determine
18 proposed prices are fair and reasonable by any other
19 means, an offeror who fails to make a good faith ef-
20 fort to comply with a reasonable request to submit
21 data in accordance with paragraph (1) is ineligible
22 for award unless the head of the contracting activity,
23 or the designee of the head of contracting activity,
24 determines that it is in the best interest of the Gov-
25 ernment to make the award to that offeror, based on

1 consideration of pertinent factors, including the fol-
2 lowing:

3 “(i) The effort to obtain the data.

4 “(ii) Availability of other sources of supply
5 of the item or service.

6 “(iii) The urgency or criticality of the Gov-
7 ernment’s need for the item or service.

8 “(iv) Reasonableness of the price of the
9 contract, subcontract, or modification of the
10 contract or subcontract based on information
11 available to the contracting officer.

12 “(v) Rationale or justification made by the
13 offeror for not providing the requested data.

14 “(vi) Risk to the Government if award is
15 not made.

16 “(B)(i) Any new determination made by the
17 head of the contracting activity under subparagraph
18 (A) shall be reported to the Principal Director, De-
19 fense Pricing and Contracting on a quarterly basis.

20 “(ii) The Under Secretary of Defense for Ac-
21 quisition and Sustainment, or a designee, shall
22 produce an annual report identifying offerors that
23 have denied multiple requests for submission of
24 uncertified cost or pricing data over the preceding
25 three-year period, but nevertheless received an

1 award. The report shall identify products or services
2 offered by such offerors that should undergo should-
3 cost analysis. The Secretary of Defense may include
4 a notation on such offerors in the system used by
5 the Federal Government to monitor or record con-
6 tractor past performance. The Under Secretary shall
7 assess the extent to which these offerors are sole
8 source providers within the defense industrial base
9 and shall develop strategies to incentivize new en-
10 trants into the industrial base to increase the avail-
11 ability of other sources of supply for the product or
12 service.”.

13 **SEC. 804. COMPTROLLER GENERAL REPORT ON PRICE REA-**
14 **SONABLENESS.**

15 Not later than March 31, 2021, the Comptroller Gen-
16 eral of the United States shall submit to the congressional
17 defense committees, the Committee on Oversight and Re-
18 form of the House of Representatives, and the Committee
19 on Homeland Security and Governmental Affairs of the
20 Senate a report on the efforts of the Secretary of Defense
21 to secure data relating to the price reasonableness of of-
22 fers from offerors. The report shall include a review of—
23 (1) the number of, and justification for, any
24 waiver of requirements for submission of certified
25 cost or pricing data for sole source contracts for

1 spare parts issued during fiscal years 2015 through
2 2019 pursuant to section 2306a(b)(1)(C) of title 10,
3 United States Code;

4 (2) the number of, and justification for, any ex-
5 ception to the requirements for submission of cer-
6 tified cost or pricing data for sole source contracts
7 for spare parts provided during fiscal years 2015
8 through 2019 pursuant to section 2306a(b)(1)(B) of
9 title 10, United States Code;

10 (3) the number of contracts awarded for which
11 a request for cost or pricing data, including data
12 other than certified cost or pricing data, to deter-
13 mine price reasonableness was denied by an offeror
14 at the time of award;

15 (4) actions taken by the Secretary if an offeror
16 refused to provide requested data described in para-
17 graph (2), including—

18 (A) whether the contracting officer in-
19 cluded a notation in the system used by the
20 Federal Government to monitor or record con-
21 tractor past performance regarding the refusal
22 of an offeror to provide such data;

23 (B) any strategies developed by the Sec-
24 retary to acquire the good that was the subject
25 of a contract for which the offeror refused to

1 provide such data in the future without the
2 need for such a waiver.

3 **SEC. 805. LIMITATION ON TRANSFER OF FUNDS RELATED**
4 **TO COST OVERRUNS AND COST UNDERRUNS.**

5 (a) IN GENERAL.—Section 828(a) of the National
6 Defense Authorization Act for Fiscal Year 2016 (Public
7 Law 114–92; 10 U.S.C. 2430 note) is amended by striking
8 “For each of fiscal years 2018 through 2022” and insert-
9 ing “For fiscal years 2018 and 2019”.

10 (b) TECHNICAL AMENDMENT.—Section 825 of the
11 National Defense Authorization Act for Fiscal Year 2018
12 (Public Law 115–91; 131 Stat. 1466; 10 U.S.C. 2430
13 note) is amended—

14 (1) by repealing subsection (b); and

15 (2) by striking “(a) IN GENERAL.—”.

16 **SEC. 806. STANDARDIZING DATA COLLECTION AND RE-**
17 **PORTING ON USE OF SOURCE SELECTION**
18 **PROCEDURES BY FEDERAL AGENCIES.**

19 (a) REPEAL OF GOVERNMENT ACCOUNTABILITY OF-
20 FICE REPORTING REQUIREMENTS ON USE OF LOWEST
21 PRICE TECHNICALLY ACCEPTABLE SOURCE SELECTION
22 CRITERIA.—

23 (1) DEPARTMENT OF DEFENSE.—Section 813
24 of the National Defense Authorization Act for Fiscal

1 Year 2017 (10 U.S.C. 2305 note) is amended by
2 striking subsection (d).

3 (2) OTHER AGENCIES.—Section 880 of the
4 John S. McCain National Defense Authorization Act
5 for Fiscal Year 2019 (Public Law 115–232; 132
6 Stat. 1910; 41 U.S.C. 3701 note) is amended by
7 striking subsection (d) and redesignating subsection
8 (e) as subsection (d).

9 (b) REVISION TO THE FEDERAL PROCUREMENT
10 DATA SYSTEM.—Not later than 180 days after the date
11 of the enactment of this Act, the Administrator of General
12 Services, in coordination with the Administrator for Fed-
13 eral Procurement Policy, shall direct appropriate revisions
14 to the Federal procurement data system established pur-
15 suant to section 1122(a)(4) of title 41, United States Code
16 (or any successor system), to facilitate the collection of
17 complete, timely, and reliable data on the source selection
18 processes used by Federal agencies for the contract ac-
19 tions being reported in the system. The Administrator of
20 General Services shall ensure that data are collected—

21 (1) at a minimum, on the usage of the lowest
22 price technically acceptable contracting methods and
23 best value contracting methods process; and

1 (2) on all applicable contracting actions, includ-
2 ing task orders or delivery orders issued under in-
3 definite delivery-indefinite quantity contracts.

4 **SEC. 807. DEPARTMENT OF DEFENSE USE OF FIXED-PRICE**
5 **CONTRACTS.**

6 (a) DEPARTMENT OF DEFENSE REVIEW.—

7 (1) IN GENERAL.—The Under Secretary of De-
8 fense for Acquisition and Sustainment shall review
9 how the Department of Defense informs decisions to
10 use fixed-price contracts to support broader acquisi-
11 tion objectives to ensure that such decisions are
12 made strategically and consistently. The review
13 should include decisions on the use of the various
14 types of fixed price contracts, including fixed-price
15 incentive contracts.

16 (2) BRIEFING.—Not later than February 1,
17 2020, the Under Secretary shall brief the congress-
18 sional defense committees on the findings of the re-
19 view required under paragraph (1).

20 (b) COMPTROLLER GENERAL REPORT.—

21 (1) IN GENERAL.—Not later than February 1,
22 2021, the Comptroller General of the United States
23 shall submit to the congressional defense committees
24 a report on the Department of Defense's use of

1 fixed-price contracts, including different types of
2 fixed-price contracts.

3 (2) ELEMENTS.—The report required under
4 paragraph (1) shall include the following elements:

5 (A) A description of the extent to which
6 fixed-price contracts have been used over time
7 and the conditions in which they are used.

8 (B) An assessment of the effects of the de-
9 cisions to use fixed-price contract types, such as
10 any additional costs or savings or efficiencies in
11 contract administration.

12 (C) An assessment of how decisions to use
13 various types of fixed-price contracts affects the
14 contract closeout process.

15 (c) DELAYED IMPLEMENTATION OF REGULATIONS
16 REQUIRING THE USE OF FIXED-PRICE CONTRACTS FOR
17 FOREIGN MILITARY SALES.—The regulations prescribed
18 pursuant to section 830(a) of the National Defense Au-
19 thorization Act for Fiscal Year 2017 (Public Law 114–
20 328; 22 U.S.C. 2762 note) shall not take effect until De-
21 cember 31, 2020. The regulations as so prescribed shall
22 take into account the findings of the review conducted
23 under subsection (a)(1).

1 **SEC. 808. REPEAL OF CONTINUATION OF DATA RIGHTS**
2 **DURING CHALLENGES.**

3 (a) REPEAL.—Section 866 of the John S. McCain
4 National Defense Authorization Act for Fiscal Year 2019
5 (Public Law 115–232; 132 Stat. 1901; 10 U.S.C. 2321)
6 is repealed.

7 (b) RESTORATION OF AMENDED PROVISION.—Sub-
8 section (i) of section 2321 of title 10, United States Code,
9 is amended to read as follows:

10 “(i) RIGHTS AND LIABILITY UPON FINAL DISPOSI-
11 TION.—(1) If, upon final disposition, the contracting offi-
12 cer’s challenge to the use or release restriction is sus-
13 tained—

14 “(A) the restriction shall be cancelled; and

15 “(B) if the asserted restriction is found not to
16 be substantially justified, the contractor or subcon-
17 tractor asserting the restriction shall be liable to the
18 United States for payment of the cost to the United
19 States of reviewing the asserted restriction and the
20 fees and other expenses (as defined in section
21 2412(d)(2)(A) of title 28) incurred by the United
22 States in challenging the asserted restriction, unless
23 special circumstances would make such payment un-
24 just.

1 “(2) If, upon final disposition, the contracting offi-
2 cer’s challenge to the use or release restriction is not sus-
3 tained—

4 “(A) the United States shall continue to be
5 bound by the restriction; and

6 “(B) the United States shall be liable for pay-
7 ment to the party asserting the restriction for fees
8 and other expenses (as defined in section
9 2412(d)(2)(A) of title 28) incurred by the party as-
10 sserting the restriction in defending the asserted re-
11 striction if the challenge by the United States is
12 found not to be made in good faith.”.

13 **SEC. 809. REPEAL OF AUTHORITY TO WAIVE ACQUISITION**
14 **LAWS TO ACQUIRE VITAL NATIONAL SECU-**
15 **RITY CAPABILITIES.**

16 Section 806 of the National Defense Authorization
17 Act for Fiscal Year 2016 (Public Law 114–92; 10 U.S.C.
18 2302 note) is repealed.

19 **SEC. 810. REPEAL OF THE DEFENSE COST ACCOUNTING**
20 **STANDARDS BOARD.**

21 (a) REPEAL.—Section 190 of title 10, United States
22 Code, is repealed.

23 (b) CLERICAL AMENDMENT.—The table of sections
24 at the beginning of chapter 7 of such title is amended by
25 striking the item relating to section 190.

1 **Subtitle B—Amendments to Gen-**
2 **eral Contracting Authorities,**
3 **Procedures, and Limitations**

4 **SEC. 815. MODIFICATION OF DIRECTOR OF OPERATIONAL**
5 **TEST AND EVALUATION REPORT.**

6 Section 139(h) of title 10, United States Code, is
7 amended—

8 (1) in paragraph (2), by striking “, through
9 January 31, 2021” and inserting “, through Janu-
10 ary 31, 2025”; and

11 (2) by amending paragraph (5) to read as fol-
12 lows:

13 “(5) The Director shall solicit comments from the
14 Secretaries of the military departments on each report of
15 the Director to Congress under this section and include
16 any comments as an appendix to the Director’s report.
17 The Director shall determine the amount of time available
18 for the Secretaries to comment on the draft report on a
19 case by case basis, and consider the extent to which sub-
20 stantive discussions have already been held between the
21 Director and the military department. The Director shall
22 reserve the right to issue the report without comment from
23 a military department if the department’s comments are
24 not received within the time provided, and shall indicate
25 any such omission in the report.”.

1 **SEC. 816. MODIFICATION OF WRITTEN APPROVAL RE-**
2 **QUIREMENT FOR TASK AND DELIVERY**
3 **ORDER SINGLE CONTRACT AWARDS.**

4 Section 2304a(d)(3) of title 10, United States Code,
5 is amended—

6 (1) in subparagraph (B), by redesignating
7 clauses (i) and (ii) as subclauses (I) and (II), respec-
8 tively;

9 (2) by redesignating subparagraphs (A), (B),
10 (C), and (D) as clauses (i), (ii), (iii), and (iv), re-
11 spectively;

12 (3) by striking “No task or delivery order con-
13 tract” and inserting “(A) Except as provided under
14 subparagraph (B), no task or delivery order con-
15 tract”; and

16 (4) by adding at the end the following new sub-
17 paragraph:

18 “(B) A task or delivery order contract in an amount
19 estimated to exceed \$100,000,000 (including all options)
20 may be awarded to a single source without the written
21 determination otherwise required under subparagraph (A)
22 if the head of the agency has made a written determina-
23 tion pursuant to section 2304(c) of this title that proce-
24 dures other than competitive procedures may be used for
25 the awarding of such contract.”.

1 **SEC. 817. RESPONSIBILITY FOR DATA ANALYSIS AND RE-**
2 **QUIREMENTS VALIDATION FOR SERVICES**
3 **CONTRACTS.**

4 (a) IN GENERAL.—Section 2329 of title 10, United
5 States Code, is amended—

6 (1) in subsection (a), by inserting “, acting
7 through the Under Secretary of Defense (Comp-
8 troller) and Director of Cost Assessment and Pro-
9 gram Evaluation,” after “Secretary of Defense”;

10 (2) in subsection (b), in the matter preceding
11 paragraph (1), by inserting “, acting through the
12 Under Secretary of Defense (Comptroller) and Di-
13 rector of Cost Assessment and Program Evalua-
14 tion,” after “Secretary of Defense”; and

15 (3) in subsection (c)(2)(A), by inserting “, act-
16 ing through the Under Secretary of Defense (Comp-
17 troller) and Director of Cost Assessment and Pro-
18 gram Evaluation,” after “Secretary of Defense”.

19 (b) CONFORMING AMENDMENT.—Section 818(b) of
20 the John S. McCain National Defense Authorization Act
21 for Fiscal Year 2019 (Public Law 115–232; 132 Stat.
22 1852) is amended by striking “the Under Secretary of De-
23 fense for Acquisition and Sustainment” and inserting “the
24 Under Secretary of Defense (Comptroller) and Director
25 of Cost Assessment and Program Evaluation”.

1 **SEC. 818. DOCUMENTATION OF MARKET RESEARCH RE-**
2 **LATED TO COMMERCIAL ITEM DETERMINA-**
3 **TIONS.**

4 (a) DEPARTMENT OF DEFENSE PROCUREMENTS.—

5 (1) IN GENERAL.—Section 2377(c) of title 10,
6 United States Code, is amended—

7 (A) by redesignating paragraph (4) as
8 paragraph (5); and

9 (B) by inserting after paragraph (3) the
10 following new paragraph:

11 “(4) The head of an agency shall document the
12 results of market research in a manner appropriate
13 to the size and complexity of the acquisition.”.

14 (2) CONFORMING AMENDMENT RELATED TO
15 PROSPECTIVE AMENDMENT.—Section
16 836(d)(3)(C)(ii) of the John S. McCain National
17 Defense Authorization Act for Fiscal Year 2019
18 (Public Law 115–232) is amended by striking “in
19 paragraph (4)” and inserting “in paragraph (5)”.

20 (b) CIVILIAN AGENCY PROCUREMENTS.—Section
21 3307(d) of title 41, United States Code, is amended by
22 adding at the end the following new paragraph:

23 “(4) DOCUMENTATION.—The head of the agen-
24 cy shall document the results of market research in
25 a manner appropriate to the size and complexity of
26 the acquisition.”.

1 **SEC. 819. AVAILABILITY OF DATA ON THE USE OF OTHER**
2 **TRANSACTION AUTHORITY AND REPORT ON**
3 **THE USE OF AUTHORITY TO CARRY OUT PRO-**
4 **TOTYPE PROJECTS.**

5 Section 873 of the John S. McCain National Defense
6 Authorization Act for Fiscal Year 2019 (Public Law 115–
7 232; 132 Stat. 1905; 10 U.S.C. 2371 note) is amended—

8 (1) in subsection (b)—

9 (A) by striking the period at the end and
10 inserting “; and”;

11 (B) by striking “shall analyze” and insert-
12 ing the following: “shall—

13 “(1) analyze”; and

14 (C) by adding at the end the following new
15 paragraph:

16 “(2) make the data collected under subsection
17 (a) accessible to any official designated by the Sec-
18 retary of Defense for inclusion by such official in
19 relevant reports made by such official.”; and

20 (2) by amending subsection (c) to read as fol-
21 lows:

22 “(c) **REPORT REQUIRED.**—

23 “(1) **IN GENERAL.**—Not later than December
24 31, 2019, and annually thereafter through December
25 31, 2023, the Secretary of Defense shall submit to
26 the congressional defense committees a report on the

1 use of other transaction authority to carry out proto-
2 type projects during the preceding fiscal year. Each
3 report shall summarize the data collected under sub-
4 section (a) on the nature and extent of each such
5 use of the authority, including a description—

6 “(A) of the participants to an agreement
7 entered into pursuant to the authority of sub-
8 section (a) of section 2371b of title 10, United
9 States Code, or a follow-on contract or trans-
10 action entered into pursuant to the authority of
11 subsection (f) of such section;

12 “(B) of the quantity of prototype projects
13 to be produced pursuant to such an agreement,
14 follow-on contract, or transaction;

15 “(C) of the amount of payments made pur-
16 suant to each such agreement, follow-on con-
17 tract, or transaction;

18 “(D) of the purpose, description, and sta-
19 tus of prototype projects carried out pursuant
20 to each such agreement, follow-on contract, or
21 transaction; and

22 “(E) including case examples, of the suc-
23 cesses and challenges with using the authority
24 of such subsection (a) or (f).

1 “(2) FORM OF REPORT.—A report required
2 under this subsection shall be submitted in unclassi-
3 fied form without any designation relating to dis-
4 semination control, but may contain a classified
5 annex.”.

6 **SEC. 820. NOTIFICATION OF NAVY PROCUREMENT PRODUC-**
7 **TION DISRUPTIONS.**

8 (a) IN GENERAL.—Chapter 137 of title 10, United
9 States Code, is amended by adding at the end the fol-
10 lowing new section:

11 **“§ 2339b. Notification of Navy procurement produc-**
12 **tion disruptions**

13 “(a) REQUIREMENT FOR CONTRACTOR TO PROVIDE
14 NOTICE OF DELAYS.—The Secretary of the Navy shall re-
15 quire prime contractors of any Navy procurement program
16 funded under either the Shipbuilding and Conversion,
17 Navy account or the Other Procurement, Navy account
18 to report within 15 calendar days any stop work order or
19 other manufacturing disruption of 15 calendar days or
20 more, by the prime contractor or any subcontractor, to
21 the respective program manager and Navy technical au-
22 thority.

23 “(b) QUARTERLY REPORTS.—The Secretary of the
24 Navy shall submit to the congressional defense committees
25 not later than 15 calendar days after the end of each quar-

1 ter of a fiscal year a report listing all notifications made
2 pursuant to subsection (a) during the preceding quarter.”.

3 (b) CLERICAL AMENDMENT.—The table of sections
4 at the beginning of chapter 137 of title 10, United States
5 Code, is amended by inserting after the item relating to
6 section 2339a the following new item:

“2339b. Notification of Navy procurement production disruptions.”.

7 **SEC. 821. MODIFICATION TO ACQUISITION AUTHORITY OF**
8 **THE COMMANDER OF THE UNITED STATES**
9 **CYBER COMMAND.**

10 Section 807 of the National Defense Authorization
11 Act for Fiscal Year 2016 (Public Law 114–92; 10 U.S.C.
12 2224 note) is amended by inserting “on new contract ef-
13 ferts” after “may not obligate or expend more than
14 \$75,000,000”.

15 **SEC. 822. EXTENSION OF NEVER CONTRACT WITH THE**
16 **ENEMY.**

17 Section 841(n) of the National Defense Authorization
18 Act for Fiscal Year 2015 (Public Law 113–291; 10 U.S.C.
19 2302 note) is amended by striking “December 31, 2021”
20 and inserting “December 31, 2023”.

21 **SEC. 823. MODIFICATION OF JUSTIFICATION AND AP-**
22 **PROVAL REQUIREMENT FOR CERTAIN DE-**
23 **PARTMENT OF DEFENSE CONTRACTS.**

24 (a) MODIFICATION OF JUSTIFICATION AND AP-
25 PROVAL REQUIREMENT.—Notwithstanding section 811 of

1 the National Defense Authorization Act for Fiscal Year
2 2010 (Public Law 111–84; 123 Stat. 2405)—

3 (1) no justification and approval is required
4 under such section for a sole-source contract award-
5 ed by the Department of Defense in a covered pro-
6 curement for an amount not exceeding
7 \$100,000,000; and

8 (2) for purposes of subsections (a)(2) and
9 (c)(3)(A) of such section, the appropriate official
10 designated to approve the justification for a sole-
11 source contract awarded by the Department of De-
12 fense in a covered procurement exceeding
13 \$100,000,000 is the official designated in section
14 2304(f)(1)(B)(ii) of title 10, United States Code.

15 (b) GUIDANCE.—Not later than 90 days after the
16 date of the enactment of this Act, the Secretary of Defense
17 shall issue guidance to implement the authority under sub-
18 section (a).

19 (c) COMPTROLLER GENERAL REVIEW.—

20 (1) DATA TRACKING AND COLLECTION.—The
21 Department of Defense shall track the use of the au-
22 thority as modified by subsection (a) and make the
23 data available to the Comptroller General for pur-
24 poses of the report required under paragraph (2).

1 (2) REPORT.—Not later than March 1, 2022,
2 the Comptroller General of the United States shall
3 submit a report to the congressional defense commit-
4 tees on the use of the authority as modified by sub-
5 section (a) through the end of fiscal year 2021. The
6 report shall include—

7 (A) a review of the financial effect of the
8 change to the justification and approval re-
9 quirement in subsection (a) on the native cor-
10 porations and businesses and associated native
11 communities;

12 (B) a description of the nature and extent
13 of contracts excluded from the justification and
14 approval requirement by subsection (a); and

15 (C) other matters the Comptroller General
16 deems appropriate.

17 **SEC. 824. EXTENSION OF SUNSET RELATING TO FEDERAL**
18 **DATA CENTER CONSOLIDATION INITIATIVE.**

19 Subsection (e) of section 834 of the National Defense
20 Authorization Act for Fiscal Year 2015 (44 U.S.C. 3601
21 note) is amended by striking “2020” and inserting
22 “2022”.

1 **SEC. 825. PILOT PROGRAM TO ACCELERATE CONTRACTING**
2 **AND PRICING PROCESSES.**

3 Section 890 of the John S. McCain National Defense
4 Authorization Act for Fiscal Year 2019 (Public Law 115–
5 232; 132 Stat. 1919; 10 U.S.C. 2306a note) is amended—

6 (1) by striking subsection (b);

7 (2) by redesignating subsections (c) and (d) as
8 subsections (b) and (c), respectively;

9 (3) in subsection (b), as redesignated by para-
10 graph (2), by striking “and an assessment of wheth-
11 er the program should be continued or expanded”;
12 and

13 (4) in subsection (c), as so redesignated, by
14 striking “January 2, 2021” and inserting “January
15 2, 2023”.

16 **SEC. 826. UNIFORMITY IN APPLICATION OF MICRO-PUR-**
17 **CHASE THRESHOLD TO CERTAIN TASK OR**
18 **DELIVERY ORDERS.**

19 Section 4106(c) of title 41, United States Code, is
20 amended by striking “\$2,500” and inserting “the micro-
21 purchase threshold under section 1902 of this title”.

22 **SEC. 827. REQUIREMENT FOR COST ESTIMATES ON MOD-**
23 **ELS OF COMMERCIAL E-COMMERCE PORTAL**
24 **PROGRAM.**

25 (a) **IN GENERAL.**—In implementing section 846 of
26 the National Defense Authorization Act for Fiscal Year

1 2018 (Public Law 115–91; 41 U.S.C. 1901 note), the Ad-
2 ministrator of General Services shall submit to the appro-
3 priate congressional committees, not later than one year
4 after the first contract is awarded pursuant to such sec-
5 tion, a cost estimate for the three models for commercial
6 e-commerce portals identified in section 4.1 of “Procure-
7 ment Through Commercial E-Commerce Portals Phase II
8 Report: Market Research & Consultation” issued by the
9 Administrator in April 2019.

10 (b) APPROPRIATE CONGRESSIONAL COMMITTEES
11 DEFINED.—The term “appropriate congressional commit-
12 tees” means the following:

13 (1) The Committees on Armed Services of the
14 Senate and House of Representatives.

15 (2) The Committee on Homeland Security and
16 Governmental Affairs of the Senate and the Com-
17 mittee on Oversight and Reform of the House of
18 Representatives.

19 (3) The Committee on Small Business and En-
20 trepreneurship of the Senate and the Committee on
21 Small Business of the House of Representatives.

1 **Subtitle C—Provisions Relating to**
2 **Major Defense Acquisition Pro-**
3 **grams**

4 **SEC. 830. MODIFICATION OF REQUIREMENTS FOR REPORT-**
5 **ING TO CONGRESS ON CERTAIN ACQUISITION**
6 **PROGRAMS.**

7 (a) MODIFICATION OF REPORT TO CONGRESS.—Sec-
8 tion 2432 of title 10, United States Code, is amended—

9 (1) in subsection (b)(1), by adding after “major
10 defense acquisition programs” the following: “and
11 any program that is estimated by the Secretary of
12 Defense to require an eventual total expenditure for
13 research, development, test, and evaluation of more
14 than \$300,000,000 (based on fiscal year 1990 con-
15 stant dollars) or an eventual total expenditure for
16 procurement, including all planned increments or
17 spirals, of more than \$1,800,000,000 (based on fis-
18 cal year 1990 constant dollars)”;

19 (2) by adding at the end the following new sub-
20 sections:

21 “(i) FORM OF REPORT.—A Selected Acquisition Re-
22 port required under this section shall be submitted in un-
23 classified form without any designation relating to dis-
24 semination control, but may contain a classified annex.

1 “(j) TERMINATION.—The requirements under this
2 section shall terminate after the final submission covering
3 fiscal year 2021.”.

4 (b) PROPOSAL FOR REPORTS ON ACQUISITION PRO-
5 GRAMS AND ACTIVITIES.—Not later than October 15,
6 2020, the Secretary of Defense shall submit to the con-
7 gressional defense committees a proposal for an alter-
8 native methodology for reporting on all acquisition pro-
9 grams that includes—

10 (1) conforming changes from the most recent
11 update of Department of Defense Directive 5000.01
12 (The Defense Acquisition System) and Department
13 of Defense Instruction 5000.02 (Operation of the
14 Defense Acquisition System);

15 (2) the reporting requirements relating to Se-
16 lected Acquisition Reports under section 2432 of
17 title 10, United States Code;

18 (3) the reporting requirements relating to unit
19 costs under section 2433 of such title; and

20 (4) the reporting requirements for acquisition
21 programs that use alternative acquisition pathways
22 or tailored acquisition procedures.

1 **SEC. 831. PILOT PROGRAM TO STREAMLINE DECISION-MAK-**
2 **ING PROCESSES FOR WEAPON SYSTEMS.**

3 (a) CANDIDATE ACQUISITION PROGRAMS.—Not later
4 than February 1, 2020, each Service Acquisition Execu-
5 tive shall recommend to the Secretary of Defense at least
6 one major defense acquisition program for a pilot program
7 to include tailored measures to streamline the entire mile-
8 stone decision process, with the results evaluated and re-
9 ported for potential wider use.

10 (b) ELEMENTS.—Each pilot program selected pursu-
11 ant to subsection (a) shall include the following elements:

12 (1) Delineating the appropriate information
13 needed to support milestone decisions, assuring pro-
14 gram accountability and oversight, which should be
15 based on the business case principles needed for
16 well-informed milestone decisions, including user-de-
17 fined requirements, reasonable acquisition and life-
18 cycle cost estimates, and a knowledge-based acquisi-
19 tion plan for maturing technologies, stabilizing the
20 program design, and ensuring key manufacturing
21 processes are in control.

22 (2) Developing an efficient process for pro-
23 viding this information to the milestone decision au-
24 thority by—

1 (A) minimizing any reviews between the
2 program office and the different functional staff
3 offices within each chain of command level; and

4 (B) establishing frequent, regular inter-
5 action between the program office and mile-
6 stone decision makers, in lieu of documentation
7 reviews, to help expedite the process.

8 **SEC. 832. ANALYSIS OF ALTERNATIVES PURSUANT TO MA-**
9 **TERIEL DEVELOPMENT DECISIONS.**

10 (a) **TIMELINE.**—Not later than 180 days after the
11 date of the enactment of this Act, the Secretary of Defense
12 shall update existing guidance for analyses of alternatives
13 conducted pursuant to a materiel development decision for
14 a major defense acquisition program to incorporate the
15 following:

16 (1) Study completion within nine months.

17 (2) Study guidance issued by the Director, Cost
18 Assessment and Program Evaluation of a scope de-
19 signed to provide for reasonable completion of the
20 study within the nine-month period.

21 (3) Procedures for waiver of the timeline re-
22 quirements of this subsection on a case-by-case basis
23 if—

24 (A) the subject of the analysis is of ex-
25 treme technical complexity;

1 (B) collection of additional intelligence is
2 required to inform the analysis;

3 (C) insufficient technical expertise is avail-
4 able to complete the analysis; or

5 (D) the Secretary determines that there
6 other sufficient reasons for delay of the anal-
7 ysis.

8 (b) REPORTING.—If an analysis of alternatives can-
9 not be completed within the allotted time, or a waiver is
10 used, the Secretary shall report to the congressional de-
11 fense committees the following information:

12 (1) For a waiver, the basis for use of the waiv-
13 ers, including the reasons why the study cannot be
14 completed within the allotted time.

15 (2) For a study estimated to take more than
16 nine months—

17 (A) an estimate of when the analysis will
18 be completed;

19 (B) an estimate of any additional costs to
20 complete the analysis; and

21 (C) other relevant information pertaining
22 to the analysis and its completion.

23 (c) REPORT ON ANALYSES OF ALTERNATIVES.—

24 (1) ASSESSMENT.—

1 (A) IN GENERAL.—The Under Secretary of
2 Defense for Acquisition and Sustainment shall
3 engage with an independent entity, including
4 under the Program for Acquisition Innovation
5 Research, to assess the conduct of analyses of
6 alternatives.

7 (B) ELEMENTS.—The assessment required
8 under subparagraph (A) shall—

9 (i) assess the time required to com-
10 plete analyses of alternatives within the
11 Department of Defense completed over the
12 last five fiscal years, as compared with best
13 practices;

14 (ii) provide recommendations and pol-
15 icy options to improve analyses of alter-
16 natives; and

17 (iii) discuss any other matters as
18 identified by the Under Secretary.

19 (C) ACCESS TO DATA.—The Under Sec-
20 retary shall ensure that the independent entity
21 is provided access to the data, information, and
22 resources necessary to complete the required
23 analyses and assessment.

24 (2) REPORT.—Not later than one year after the
25 date of the enactment of this Act, the Under Sec-

1 retary shall submit to the congressional defense com-
2 mittees a report including the assessment required
3 under paragraph (1) and a review and assessment
4 by the Under Secretary of the findings made in the
5 assessment.

6 **SEC. 833. NAVAL VESSEL CERTIFICATION REQUIRED BE-**
7 **FORE MILESTONE B APPROVAL.**

8 Section 2366b(a) of title 10, United States Code, is
9 amended—

10 (1) in paragraph (3)(O), by striking “; and”
11 and inserting a semicolon;

12 (2) in paragraph (4), by striking the period at
13 the end and inserting “; and”; and

14 (3) by adding at the end the following new
15 paragraph:

16 “(5) in the case of a naval vessel program, cer-
17 tifies compliance with the requirements of section
18 8669b of this title.”.

19 **Subtitle D—Provisions Relating to**
20 **the Acquisition System**

21 **SEC. 835. EXTRAMURAL ACQUISITION INNOVATION AND RE-**
22 **SEARCH ACTIVITIES.**

23 (a) EXTRAMURAL ACQUISITION INNOVATION AND
24 RESEARCH ACTIVITIES.—

1 (1) IN GENERAL.—Chapter 139 of title 10,
2 United States Code, is amended by inserting after
3 section 2361 the following new section:

4 **“§ 2361a. Extramural acquisition innovation and re-**
5 **search activities**

6 “(a) ESTABLISHMENT.—The Secretary of Defense,
7 acting through the Under Secretary of Defense for Acqui-
8 sition and Sustainment and in coordination with the
9 Under Secretary of Defense for Research and Engineer-
10 ing, shall establish and maintain extramural acquisition
11 innovation and research activities as described in sub-
12 section (d), which shall include an acquisition research or-
13 ganization within a civilian college or university that is
14 not owned or operated by the Federal Government that
15 is established to provide and maintain essential research
16 and development capabilities through a long-term strategic
17 relationship with the Department of Defense.

18 “(b) GOALS.—The goal of any activity conducted
19 pursuant to this section shall be to provide academic anal-
20 yses and policy alternatives for innovation in defense ac-
21 quisition policies and practices to policymakers in the Fed-
22 eral Government by using a variety of means intended to
23 widely disseminate research findings from such an activ-
24 ity, in addition to executing demonstration and pilot pro-
25 grams of innovative acquisition policies and practices.

1 “(c) DIRECTOR.—

2 “(1) APPOINTMENT.—Not later than June 1,
3 2020, the Secretary of Defense shall appoint an in-
4 dividual from civilian life to serve as the director for
5 the extramural acquisition innovation and research
6 activities required by this section (referred to in this
7 section as the ‘Director’).

8 “(2) TERM.—The Director shall serve a term of
9 five years.

10 “(d) ACTIVITIES.—The activities described in this
11 subsection are as follows:

12 “(1) Research on past and current defense ac-
13 quisition policies and practices, commercial and
14 international best practices, and the application of
15 new technologies and analytical capabilities to im-
16 prove acquisition policies and practices.

17 “(2) Pilot programs to prototype and dem-
18 onstrate new acquisition practices for potential tran-
19 sition to wider use in the Department of Defense.

20 “(3) Establishment of data repositories and de-
21 velopment of analytical capabilities, in coordination
22 with the Chief Data Officer of the Department of
23 Defense, to enable researchers and acquisition pro-
24 fessionals to access and analyze historical data sets

1 to support research and new policy and practice de-
2 velopment.

3 “(4) Executive education to—

4 “(A) support acquisition workforce devel-
5 opment, including for early career, mid-career,
6 and senior leaders; and

7 “(B) provide appropriate education on ac-
8 quisition issues to non-acquisition professionals.

9 “(5) On an ongoing basis, a review of the im-
10 plementation of recommendations contained in rel-
11 evant Department of Defense and private sector
12 studies on acquisition policies and practices, includ-
13 ing—

14 “(A) for recommendations for the enact-
15 ment of legislation, identify the extent to which
16 the recommendations have been enacted into
17 law by Congress;

18 “(B) for recommendations for the issuance
19 of regulations, identify the extent to which the
20 recommendations have been adopted through
21 the issuance or revision of regulations;

22 “(C) for recommendations for revisions to
23 policies and procedures in the executive branch,
24 identify the extent to which the recommenda-
25 tions have been adopted through issuance of an

1 appropriate implementing directive or other
2 form of guidance; and

3 “(D) for recommendations for the re-
4 sources required to implement recommendations
5 contained in relevant Department of Defense
6 and private sector studies on acquisition policies
7 and practices.

8 “(6) Engagement with researchers and acquisi-
9 tion professionals in the Department of Defense, as
10 appropriate.

11 “(e) FUNDING.—Subject to the availability of appro-
12 priations, the Secretary may use amounts available in the
13 Defense Acquisition Workforce and Development Account
14 to carry out the requirements of this section.

15 “(f) ANNUAL REPORT.—Not later than September
16 30, 2021, and annually thereafter, the Director shall sub-
17 mit to the Secretary of Defense and the congressional de-
18 fense committees a report describing the activities con-
19 ducted under this section during the previous year.”.

20 (2) CLERICAL AMENDMENT.—The table of sec-
21 tions at the beginning of such chapter is amended
22 by inserting after the item relating to section 2361
23 the following new item:

“2361a. Extramural acquisition innovation and research activities.”.

24 (3) IMPLEMENTATION.—

1 (A) DEADLINE.—Not later than March 1,
2 2020, the Secretary of Defense shall establish
3 the extramural acquisition innovation and re-
4 search activities required by section 2361a of
5 title 10, United States Code (as added by this
6 subsection).

7 (B) REPORT.—

8 (i) IN GENERAL.—Not later than Jan-
9 uary 1, 2021, the Director of the extra-
10 mural acquisition innovation and research
11 activities appointed under such section
12 shall submit to the Secretary of Defense a
13 report setting forth a plan, proposed budg-
14 et, and schedule for execution of such ac-
15 tivities.

16 (ii) TRANSMITTAL.—Not later than
17 February 1, 2021, the Secretary of De-
18 fense shall transmit the report required
19 under clause (i), together with whatever
20 comments the Secretary considers appro-
21 priate, to the Committees on Armed Serv-
22 ices of the Senate and the House of Rep-
23 resentatives.

24 (b) RECORDS OF THE SECTION 809 PANEL.—

1 (1) TRANSFER AND MAINTENANCE OF
2 RECORDS.—Not later than March 1, 2020, the
3 records of the Section 809 Panel shall be transferred
4 to, and shall be maintained by, the Defense Tech-
5 nical Information Center.

6 (2) STATUS OF RECORDS.—Working papers,
7 records of interview, and any other draft work prod-
8 ucts generated for any purpose by the Section 809
9 Panel shall be covered by the deliberative process
10 privilege exemption under paragraph (5) of section
11 552(b) of title 5, United States Code.

12 (3) AVAILABILITY.—To the maximum extent
13 practicable, the Secretary shall make the records
14 available to support activities conducted by the re-
15 search organization described under section 2361a of
16 title 10, United States Code (as added by subsection
17 (a)).

18 (4) SECTION 809 PANEL DEFINED.—In this
19 subsection, the term “Section 809 Panel” means the
20 panel established by the Secretary of Defense pursu-
21 ant to section 809 of the National Defense Author-
22 ization Act for Fiscal Year 2016 (Public Law 114–
23 92).

1 **SEC. 836. REPORT ON REALIGNMENT OF THE DEFENSE AC-**
2 **QUISITION SYSTEM TO IMPLEMENT ACQUI-**
3 **SITION REFORMS.**

4 The Secretary of Defense shall include with the budg-
5 et for fiscal year 2021, as submitted to Congress pursuant
6 to section 1105(a) of title 31, United States Code, a report
7 on the progress of implementing acquisition reform initia-
8 tives that have been enacted into law through Department
9 of Defense regulations, Directives, Instructions, or other
10 guidance. Such report shall include a description of—

11 (1) how the Secretary will identify, quantify, as-
12 sess, and manage acquisition program risks;

13 (2) what changes have been made to systems
14 for collecting and sharing data on acquisition pro-
15 grams, including how access to acquisition program
16 data is managed; and

17 (3) updates to, or the implementation of, proce-
18 dures for tailoring acquisition methods, including al-
19 ternative acquisition pathways such as—

20 (A) the use of the “middle tier” of acquisi-
21 tion programs described under section 804 of
22 the National Defense Authorization Act for Fis-
23 cal Year 2016 (Public Law 114–92; 10 U.S.C.
24 2302 note);

25 (B) the alternative acquisition pathways
26 established under section 805 of the National

1 Defense Authorization Act for Fiscal Year 2016
2 (Public Law 114–92; 10 U.S.C. 2302 note);

3 (C) a software acquisition pathway de-
4 scribed under section 800 of this Act; and

5 (D) the use of procedures to respond to ur-
6 gent operational needs.

7 **SEC. 837. REPORT AND LIMITATION ON THE AVAILABILITY**
8 **OF FUNDS RELATING TO THE “MIDDLE TIER”**
9 **OF ACQUISITION PROGRAMS.**

10 (a) REPORT.—Not later than December 15, 2019,
11 the Under Secretary of Defense for Acquisition and
12 Sustainment shall submit to the congressional defense
13 committees a report that includes the guidance required
14 under section 804(a) of the National Defense Authoriza-
15 tion Act for Fiscal Year 2016 (Public Law 114–92; 10
16 U.S.C. 2302 note). The Under Secretary of Defense for
17 Acquisition and Sustainment shall ensure such guidance
18 includes the business case elements required by an acquisi-
19 tion program established pursuant to such guidance and
20 the metrics required to assess the performance of such a
21 program.

22 (b) LIMITATION.—

23 (1) IN GENERAL.—Beginning on December 15,
24 2019, if the Under Secretary of Defense for Acquisi-
25 tion and Sustainment has not submitted the report

1 required under subsection (a), not more than 75 per-
2 cent of the funds specified in paragraph (2) may be
3 obligated or expended until the date on which the re-
4 port required under subsection (a) has been sub-
5 mitted.

6 (2) FUNDS SPECIFIED.—The funds specified in
7 this paragraph are the funds authorized to be appro-
8 priated by this Act or otherwise made available for
9 fiscal year 2020 for the Department of Defense that
10 remain unobligated as of December 15, 2019, for
11 the following:

12 (A) The execution of any acquisition pro-
13 gram established pursuant to the guidance re-
14 quired under such section 804(a).

15 (B) The operations of the Office of the
16 Under Secretary of Defense for Research & En-
17 gineering.

18 (C) The operations of the Office of the
19 Under Secretary of Defense for Acquisition &
20 Sustainment.

21 (D) The operations of the Office of the Di-
22 rector of Cost Analysis and Program Evalua-
23 tion.

1 (E) The operations of the offices of the
2 service acquisition executives of the military de-
3 partments.

4 **SEC. 838. REPORT ON INTELLECTUAL PROPERTY POLICY**
5 **AND THE CADRE OF INTELLECTUAL PROP-**
6 **ERTY EXPERTS.**

7 (a) IN GENERAL.—Section 802 of the National De-
8 fense Authorization Act for Fiscal Year 2018 (Public Law
9 115–91; 131 Stat. 1450) is amended by adding at the end
10 the following new subsection:

11 “(c) REPORT.—Not later than December 15, 2019,
12 the Secretary of Defense, acting through the Under Sec-
13 retary of Defense for Acquisition and Sustainment, shall
14 submit to the congressional defense committees a report
15 that includes—

16 “(1) the policy required in subsection (a) of sec-
17 tion 2322 of title 10, United States Code;

18 “(2) an identification of each member of the
19 cadre of intellectual property experts required in
20 subsection (b) of such section and the office to which
21 such member belongs;

22 “(3) a description of the leadership structure
23 and the office that will manage the cadre of intellec-
24 tual property experts; and

1 “(4) a description of the specific activities per-
2 formed, and programs and efforts supported, by the
3 cadre of intellectual property experts during the 12-
4 month period preceding the date of the report.”.

5 (b) LIMITATION.—

6 (1) IN GENERAL.—Of the funds authorized to
7 be appropriated by this Act or otherwise made avail-
8 able for fiscal year 2020 for the Department of De-
9 fense, not more than 75 percent may be obligated or
10 expended for any of the offices described in para-
11 graph (2) until the date on which the Secretary of
12 Defense submits the report required under sub-
13 section (c) of section 802 of the National Defense
14 Authorization Act for Fiscal Year 2018 (Public Law
15 115–91; 131 Stat. 1450), as added by this section.

16 (2) OFFICES DESCRIBED.—The offices de-
17 scribed in this paragraph are as follows:

18 (A) The Office of the Under Secretary of
19 Defense for Acquisition and Sustainment.

20 (B) The Office of the Assistant Secretary
21 of the Army for Acquisition, Logistics, and
22 Technology.

23 (C) The Office of the Assistant Secretary
24 of the Navy for Research, Development, and
25 Acquisition.

1 (D) The Office of the Assistant Secretary
2 of the Air Force for Acquisition, Technology,
3 and Logistics.

4 **SEC. 839. GUIDANCE AND REPORTS RELATING TO COV-**
5 **ERED DEFENSE BUSINESS SYSTEMS.**

6 (a) AMENDMENTS TO GUIDANCE FOR COVERED DE-
7 FENSE BUSINESS SYSTEMS.—Section 2222(d) of title 10,
8 United States Code, is amended—

9 (1) in the matter preceding paragraph (1), by
10 striking “subsection (c)(1)” and inserting “sub-
11 section (c)”;

12 (2) by adding at the end the following new
13 paragraphs:

14 “(7) Policy to ensure a covered defense business
15 system is in compliance with the Department’s
16 auditability requirements.

17 “(8) Policy to ensure approvals required for the
18 development of a covered defense business system.”.

19 (b) REPORTS.—

20 (1) GUIDANCE.—The Secretary of Defense shall
21 submit to the congressional defense committees a re-
22 port—

23 (A) not later than December 31, 2019,
24 that includes the guidance required under para-

1 graph (1) of section 2222(c) of title 10, United
2 States Code; and

3 (B) not later than March 31, 2020, that
4 includes the guidance required under paragraph
5 (2) of such section.

6 (2) INFORMATION TECHNOLOGY AND DEFENSE
7 BUSINESS ENTERPRISE ARCHITECTURE.—Not later
8 than February 1, 2020, the Chief Information Offi-
9 cer of the Department of Defense shall submit to
10 the congressional defense committees a notification
11 that the information technology enterprise architec-
12 ture required under subparagraph (B) of section
13 2222(e)(4) of title 10, United States Code—

14 (A) has been established, including a
15 schedule for implementing the plan required
16 under such subparagraph (B) and a schedule
17 for integrating the defense business enterprise
18 architecture into the information technology en-
19 terprise architecture (as required under sub-
20 paragraph (A) of such section); or

21 (B) has not been established, and include
22 a schedule for—

23 (i) establishing such architecture;

24 (ii) implementing the plan required
25 under such subparagraph (B); and

1 (iii) integrating the defense business
2 enterprise architecture into the information
3 technology enterprise architecture (as re-
4 quired under subparagraph (A) of such
5 section).

6 **SEC. 840. IMPLEMENTATION GUIDANCE FOR USE OF A**
7 **MODULAR OPEN SYSTEM APPROACH.**

8 (a) GUIDANCE FOR PROGRAM CAPABILITIES DEVEL-
9 OPMENT AND ACQUISITION WEAPON SYSTEM DESIGN.—
10 Section 2446b of title 10, United States Code, is amended
11 by adding at the end the following new subsection:

12 “(f) IMPLEMENTATION GUIDANCE.—The Secretaries
13 of the military departments shall issue guidance to imple-
14 ment the requirements of this section.”.

15 (b) GUIDANCE FOR MAJOR SYSTEM INTERFACES.—
16 Section 2446c of title 10, United States Code, is amend-
17 ed—

18 (1) in paragraph (4), by striking “and” at the
19 end;

20 (2) in paragraph (5), by striking the period at
21 the end and adding “; and”; and

22 (3) by adding at the end the following new
23 paragraph:

24 “(6) issue guidance to implement the require-
25 ments of this section.”.

1 **SEC. 841. LIMITATION ON AVAILABILITY OF FUNDS FOR**
2 **THE OFFICE OF THE CHIEF MANAGEMENT**
3 **OFFICER OF THE DEPARTMENT OF DEFENSE.**

4 Of the funds authorized to be appropriated or other-
5 wise made available for fiscal year 2020 for the Depart-
6 ment of Defense, not more than 75 percent may be obli-
7 gated or expended for the Office of the Chief Management
8 Officer until the date on which the Chief Management Of-
9 ficer submits to the congressional defense committees—

10 (1) the certification of cost savings described in
11 subparagraph (A) of section 921(b)(5) of the Na-
12 tional Defense Authorization Act for Fiscal Year
13 2019 (Public Law 115–232; 10 U.S.C. 2222 note);
14 or

15 (2) the notice and justification described in sub-
16 paragraph (B) of such section.

17 **Subtitle E—Industrial Base Matters**

18 **SEC. 845. MODERNIZATION OF ACQUISITION PROCESSES**
19 **TO ENSURE INTEGRITY OF INDUSTRIAL**
20 **BASE.**

21 (a) IN GENERAL.—Subchapter II of chapter 148 of
22 title 10, United States Code, is amended by adding at the
23 end the following new section:

1 **“§ 2509. Modernization of acquisition processes to en-**
2 **sure integrity of industrial base**

3 “(a) DIGITIZATION AND MODERNIZATION.—The Sec-
4 retary of Defense shall streamline and digitize the existing
5 Department of Defense approach for identifying and miti-
6 gating risks to the defense industrial base across the ac-
7 quisition process, creating a continuous model that uses
8 digital tools, technologies, and approaches designed to en-
9 sure the accessibility of data to key decision-makers in the
10 Department.

11 “(b) ANALYTICAL FRAMEWORK.—(1) The Under
12 Secretary of Defense for Acquisition and Sustainment, in
13 coordination with the Director of the Defense Counter-
14 intelligence and Security Agency and the heads of other
15 elements of the Department of Defense as appropriate,
16 shall develop an analytical framework for risk mitigation
17 across the acquisition process.

18 “(2) The analytical framework required under para-
19 graph (1) shall include the following elements:

20 “(A) Characterization and monitoring of supply
21 chain risks, including—

22 “(i) material sources and fragility, includ-
23 ing the extent to which sources, items, mate-
24 rials, and articles are mined, produced, or man-
25 ufactured within or outside the United States;

1 “(ii) telecommunications services or equip-
2 ment (other than optical transmission compo-
3 nents);

4 “(iii) counterfeit parts;

5 “(iv) cybersecurity of contractors;

6 “(v) video surveillance services or equip-
7 ment;

8 “(vi) vendor vetting in contingency or
9 operational environments;

10 “(vii) other electronic or information tech-
11 nology products and services; and

12 “(viii) other risk areas as determined ap-
13 propriate.

14 “(B) Characterization and monitoring of risks
15 posed by contractor behavior that constitute viola-
16 tions of laws or regulations, including those relating
17 to—

18 “(i) fraud;

19 “(ii) ownership structures;

20 “(iii) trafficking in persons;

21 “(iv) workers’ health and safety;

22 “(v) affiliation with the enemy;

23 “(vi) foreign influence; and

24 “(vii) other risk areas as deemed appro-
25 priate.

- 1 “(C) Characterization and assessment of the ac-
- 2 quisition processes and procedures of the Depart-
- 3 ment of Defense, including—
- 4 “(i) market research;
- 5 “(ii) responsibility determinations, includ-
- 6 ing consideration of the need for special stand-
- 7 ards of responsibility to address the risks de-
- 8 scribed in subparagraphs (A) and (B);
- 9 “(iii) facilities clearances;
- 10 “(iv) the development of contract require-
- 11 ments;
- 12 “(v) the technical evaluation of offers and
- 13 contract awards;
- 14 “(vi) contractor mobilization, including hir-
- 15 ing, training, and establishing facilities;
- 16 “(vii) contract administration, contract
- 17 management, and oversight;
- 18 “(viii) contract audit for closeout;
- 19 “(ix) suspension and debarment activities
- 20 and administrative appeals activities;
- 21 “(x) contractor business system reviews;
- 22 and
- 23 “(xi) other relevant processes and proce-
- 24 dures.

1 “(D) Characterization and monitoring of the
2 health and activities of the defense industrial base,
3 including those relating to—

4 “(i) balance sheets, revenues, profitability,
5 and debt;

6 “(ii) investment, innovation, and techno-
7 logical and manufacturing sophistication;

8 “(iii) finances, access to capital markets,
9 and cost of raising capital within those markets;

10 “(iv) corporate governance, leadership, and
11 culture of performance; and

12 “(v) history of performance on past De-
13 partment of Defense and government contracts.

14 “(c) ROLES AND RESPONSIBILITIES.—The Secretary
15 of Defense shall designate the roles and responsibilities of
16 organizations and individuals to execute activities under
17 this section, including—

18 “(1) the Under Secretary of Defense for Acqui-
19 sition and Sustainment, including the Office of De-
20 fense Pricing and Contracting and the Office of In-
21 dustrial Policy;

22 “(2) service acquisition executives;

23 “(3) program offices and procuring contracting
24 officers;

1 “(4) administrative contracting officers within
2 the Defense Contract Management Agency and the
3 Supervisor of Shipbuilding;

4 “(5) the Defense Counterintelligence and Secu-
5 rity Agency;

6 “(6) the Defense Contract Audit Agency;

7 “(7) each element of the Department of De-
8 fense which own or operate systems containing data
9 relevant to contractors of the Department;

10 “(8) the Under Secretary of Defense for Re-
11 search and Engineering;

12 “(9) the suspension and debarment official of
13 the Department;

14 “(10) the Chief Information Officer; and

15 “(11) other relevant organizations and individ-
16 uals.

17 “(d) ENABLING DATA, TOOLS, AND SYSTEMS.—

18 (1)(A) The Under Secretary of Defense for Acquisition
19 and Sustainment, in consultation with the Chief Data Of-
20 ficer of the Department of Defense and the Director of
21 the Defense Counterintelligence and Security Agency,
22 shall assess the extent to which existing systems of record
23 relevant to risk assessments and contracting are pro-
24 ducing, exposing, and timely maintaining valid and reli-
25 able data for the purposes of the Department’s continuous

1 assessment and mitigation of risks in the defense indus-
2 trial base.

3 “(B) The assessment required under subparagraph
4 (A) shall include the following elements:

5 “(i) Identification of the necessary source data,
6 to include data from contractors, intelligence and se-
7 curity activities, program offices, and commercial re-
8 search entities.

9 “(ii) A description of the modern data infra-
10 structure, tools, and applications and what changes
11 would improve the effectiveness and efficiency of
12 mitigating the risks described in subsection (b)(2).

13 “(iii) An assessment of the following systems
14 owned or operated outside of the Department of De-
15 fense that the Department depends upon or to which
16 it provides data:

17 “(I) The Federal Awardee Performance
18 and Integrity Information System (FAPIIS).

19 “(II) The System for Award Management
20 (SAM).

21 “(III) The Federal Procurement Data Sys-
22 tem–Next Generation (FPDS–NG).

23 “(IV) The Electronic Data Management
24 Information System.

1 “(V) Other systems the Secretary of De-
2 fense determines appropriate.

3 “(iv) An assessment of systems owned or oper-
4 ated by the Department of Defense, including the
5 Defense Counterintelligence and Security Agency
6 and other defense agencies and field activities used
7 to capture and analyze the status and performance
8 (including past performance) of vendors and con-
9 tractors.

10 “(2) Based on the findings pursuant to paragraph
11 (1), the Secretary of Defense shall develop a unified set
12 of activities to modernize the systems of record, data
13 sources and collection methods, and data exposure mecha-
14 nisms. The unified set of activities should feature—

15 “(A) the ability to continuously collect data on,
16 assess, and mitigate risks;

17 “(B) data analytics and business intelligence
18 tools and methods; and

19 “(C) continuous development and continuous
20 delivery of secure software to implement the activi-
21 ties.

22 “(e) RULE OF CONSTRUCTION.—Nothing in this sec-
23 tion shall be construed to limit or modify any other pro-
24 curement policy, procedure, requirement, or restriction
25 provided by law.

1 “(f) IMPLEMENTATION AND REPORTING REQUIRE-
2 MENTS.—The Secretary of Defense shall carry out the im-
3 plementation phases set forth in, and submit to the con-
4 gressional defense committees the items of information re-
5 quired by, the following paragraphs:

6 “(1) PHASE 1: IMPLEMENTATION PLAN.—Not
7 later than 90 days after the date of the enactment
8 of this section, an implementation plan and schedule
9 for carrying out the framework established pursuant
10 to subsection (b), including—

11 “(A) a discussion and recommendations for
12 any changes to, or exemptions from, laws nec-
13 essary for effective implementation, including
14 updating the definitions in section 2339a(e) of
15 this title relating to covered procurement, cov-
16 ered system, and covered item of supply, and
17 any similar terms defined in other law or regu-
18 lation; and

19 “(B) a process for an entity to contact the
20 Department after the entity has taken steps to
21 remediate, mitigate, or otherwise address the
22 risks identified by the Department in con-
23 ducting activities under subsection (b).

24 “(2) PHASE 2: IMPLEMENTATION OF FRAME-
25 WORK.—Not later than one year after the date of

1 the submission of the implementation plan and
2 schedule required under paragraph (1), a report on
3 the actions taken to implement the framework estab-
4 lished pursuant to subsection (b).

5 “(g) COMPTROLLER GENERAL REVIEWS.—

6 “(1) BRIEFING.—Not later than February 15,
7 2020, the Comptroller General of the United States
8 shall brief the congressional defense committees on
9 Department of Defense efforts over the previous 5
10 years to continuously assess and mitigate risks to
11 the defense industrial base across the acquisition
12 process, and a summary of current and planned ef-
13 forts.

14 “(2) PERIODIC ASSESSMENTS.—The Comp-
15 troller General shall submit to the congressional de-
16 fense committees three periodic assessments of De-
17 partment of Defense progress in implementing the
18 framework required under subsection (b), to be pro-
19 vided not later than October 15, 2020, March 15,
20 2022, and March 15, 2024.”.

21 (b) CLERICAL AMENDMENT.—The table of sections
22 at the beginning of subchapter II of chapter 148 of such
23 title is amended by inserting after the item relating to sec-
24 tion 2508 the following new item:

“2509. Modernization of acquisition processes to ensure integrity of industrial
base.”.

1 **SEC. 846. REPORT REQUIREMENTS FOR THE NATIONAL**
2 **TECHNOLOGY AND INDUSTRIAL BASE.**

3 (a) NATIONAL SECURITY STRATEGY FOR NATIONAL
4 TECHNOLOGY AND INDUSTRIAL BASE.—Section 2501(a)
5 of title 10, United States Code, is amended by inserting
6 after the first sentence the following new sentence: “The
7 Secretary shall submit such strategy to Congress not later
8 than 180 days after the date of submission of the national
9 security strategy report required under section 108 of the
10 National Security Act of 1947 (50 U.S.C. 3043).”.

11 (b) ANNUAL REPORT TO CONGRESS.—Section
12 2504(3) of title 10, United States Code, is amended—

13 (1) in the matter preceding subparagraph (A),
14 by inserting “Executive order or” after “pursuant
15 to”;

16 (2) by amending subparagraph (A) to read as
17 follows:

18 “(A) a map of the industrial base;”;

19 (3) by redesignating subparagraph (B) as sub-
20 paragraph (C); and

21 (4) by inserting after subparagraph (A) the fol-
22 lowing new subparagraph:

23 “(B) a prioritized list of gaps or
24 vulnerabilities in the national technology and
25 industrial base, including—

1 “(i) a description of mitigation strate-
2 gies necessary to address such gaps or
3 vulnerabilities;

4 “(ii) the identification of the Sec-
5 retary concerned or the head of the De-
6 fense Agency responsible for addressing
7 such gaps or vulnerabilities; and

8 “(iii) a proposed timeline for action to
9 address such gaps or vulnerabilities; and”.

10 (c) ANNUAL REPORT ON UNFUNDED PRIORITIES
11 FOR NATIONAL TECHNICAL INDUSTRIAL BASE.—

12 (1) IN GENERAL.—Subchapter II of chapter
13 148 of title 10, United States Code, is amended by
14 inserting after section 2504 the following new sec-
15 tion:

16 “§ 2504a. **Unfunded priorities of the national tech-**
17 **nology and industrial base: annual report**

18 “(a) ANNUAL REPORT.—Not later than 10 days after
19 the date on which the budget of the President for a fiscal
20 year is submitted to Congress pursuant to section 1105
21 of title 31, the Under Secretary of Defense for Acquisition
22 and Sustainment shall submit to the Secretary of Defense,
23 the Chairman of the Joint Chiefs of Staff, and the con-
24 gressional defense committees a report on the unfunded

1 priorities to address gaps or vulnerabilities in the national
2 technology and industrial base.

3 “(b) ELEMENTS.—

4 “(1) IN GENERAL.—Each report under sub-
5 section (a) shall specify, for each unfunded priority
6 covered by such report, the following:

7 “(A) A summary description of such pri-
8 ority, including the objectives to be achieved if
9 such priority is funded (whether in whole or in
10 part).

11 “(B) The additional amount of funds rec-
12 ommended in connection with the objectives
13 under subparagraph (A).

14 “(C) Account information with respect to
15 such priority, including the following (as appli-
16 cable):

17 “(i) Line Item Number (LIN) for ap-
18 plicable procurement accounts.

19 “(ii) Program Element (PE) number
20 for applicable research, development, test,
21 and evaluation accounts.

22 “(iii) Sub-activity group (SAG) for
23 applicable operation and maintenance ac-
24 counts.

1 “(2) PRIORITIZATION OF PRIORITIES.—Each
2 report shall present the unfunded priorities covered
3 by such report in order of urgency of priority.

4 “(c) UNFUNDED PRIORITY DEFINED.—In this sec-
5 tion, the term ‘unfunded priority’, in the case of a fiscal
6 year, means a program, activity, or mission requirement
7 of the national technology and industrial base that—

8 “(1) is not funded in the budget of the Presi-
9 dent for the fiscal year as submitted to Congress
10 pursuant to section 1105 of title 31;

11 “(2) is necessary to address gaps or
12 vulnerabilities in the national technology and indus-
13 trial base; and

14 “(3) would have been recommended for funding
15 through the budget referred to in paragraph (1) if—

16 “(A) additional resources had been avail-
17 able for the budget to fund the program, activ-
18 ity, or mission requirement; or

19 “(B) the program, activity, or mission re-
20 quirement had emerged before the budget was
21 formulated.”.

22 (2) CLERICAL AMENDMENT.—The table of sec-
23 tions for such subchapter is amended by adding at
24 the end the following new item:

“2504a. Unfunded priorities of the national technology and industrial base: an-
annual report.”.

1 **SEC. 847. MITIGATING RISKS RELATED TO FOREIGN OWN-**
2 **ERSHIP, CONTROL, OR INFLUENCE OF DE-**
3 **PARTMENT OF DEFENSE CONTRACTORS OR**
4 **SUBCONTRACTORS.**

5 (a) DEFINITIONS.—In this section:

6 (1) BENEFICIAL OWNER; BENEFICIAL OWNER-
7 SHIP.—The terms “beneficial owner” and “beneficial
8 ownership” shall be determined in a manner that is
9 not less stringent than the manner set forth in sec-
10 tion 240.13d–3 of title 17, Code of Federal Regula-
11 tions (as in effect on the date of the enactment of
12 this Act).

13 (2) COMPANY.—The term “company” means
14 any corporation, company, limited liability company,
15 limited partnership, business trust, business associa-
16 tion, or other similar entity.

17 (3) COVERED CONTRACTOR OR SUBCON-
18 TRACTOR.—The term “covered contractor or subcon-
19 tractor” means a company that is an existing or pro-
20 spective contractor or subcontractor of the Depart-
21 ment of Defense on a contract or subcontract with
22 a value in excess of \$5,000,000, except as provided
23 in subsection (c).

24 (4) FOREIGN OWNERSHIP, CONTROL, OR INFLU-
25 ENCE; FOICI.—The terms “foreign ownership, con-
26 trol, or influence” and “FOICI” have the meanings

1 given those terms in the National Industrial Security
2 Program Operating Manual (DOD 5220.22–M), or
3 a successor document.

4 (b) IMPROVED ASSESSMENT AND MITIGATION OF
5 RISKS RELATED TO FOREIGN OWNERSHIP, CONTROL, OR
6 INFLUENCE.—

7 (1) IN GENERAL.—In developing and imple-
8 menting the analytical framework for mitigating risk
9 relating to ownership structures, as required by sec-
10 tion 2509 of title 10, United States Code, as added
11 by section 845 of this Act, the Secretary of Defense
12 shall improve the process and procedures for the as-
13 sessment and mitigation of risks related to foreign
14 ownership, control, or influence (FOCI) of contrac-
15 tors and subcontractors doing business with the De-
16 partment of Defense.

17 (2) ELEMENTS.—The process and procedures
18 for the assessment and mitigation of risk relating to
19 ownership structures referred to in paragraph (1)
20 shall include the following elements:

21 (A) ASSESSMENT OF FOCL.—(i) A require-
22 ment for covered contractors and subcontrac-
23 tors to disclose to the Defense Counterintel-
24 ligence and Security Agency, or its successor

1 organization, their beneficial ownership and
2 whether they are under FOCI.

3 (ii) A requirement to update such disclo-
4 sures when changes occur to information pre-
5 viously provided, consistent with or similar to
6 the procedures for updating FOCI information
7 under the National Industrial Security Program
8 Operating Manual (DOD 5220.22-M), or a
9 successor document.

10 (iii) A requirement for covered contractors
11 and subcontractors determined to be under
12 FOCI to disclose contact information for each
13 of its foreign owners that is a beneficial owner.

14 (iv) A requirement that, at a minimum,
15 the disclosures required by this paragraph be
16 provided at the time the contract or subcontract
17 is awarded, amended, or renewed, but in no
18 case later than one year after the Secretary
19 prescribes regulations to carry out this sub-
20 section.

21 (B) RESPONSIBILITY DETERMINATION.—
22 Consistent with section 2509 of title 10, United
23 States Code, as added by section 845 of this
24 Act, consideration of FOCI risks as part of re-
25 sponsibility determinations, including—

1 (i) whether to establish a special
2 standard of responsibility relating to FOCI
3 risks for covered contractors or sub-
4 contractors, and the extent to which the
5 policies and procedures consistent with or
6 similar to those relating to FOCI under
7 the National Industrial Security Program
8 shall be applied to covered contractors or
9 subcontractors;

10 (ii) procedures for contracting officers
11 making responsibility determinations re-
12 garding whether covered contractors and
13 subcontractors may be under foreign own-
14 ership, control, or influence and for deter-
15 mining whether there is reason to believe
16 that such foreign ownership, control, or in-
17 fluence would pose a risk or potential risk
18 to national security or potential com-
19 promise because of sensitive data, systems,
20 or processes, such as personally identifiable
21 information, cybersecurity, or national se-
22 curity systems involved with the contract
23 or subcontract; and

24 (iii) modification of policies, directives,
25 and practices to provide that an assess-

1 ment that a covered contractor or subcon-
2 tractor is under FOCI may be a sufficient
3 basis for a contracting officer to determine
4 that a contractor or subcontractor is not
5 responsible.

6 (C) CONTRACT REQUIREMENTS, ADMINIS-
7 TRATION, AND OVERSIGHT RELATING TO
8 FOCI.—

9 (i) Requirements for contract clauses
10 providing for and enforcing disclosures re-
11 lated to changes in FOCI or beneficial
12 ownership during performance of the con-
13 tract or subcontract, consistent with sub-
14 paragraph (A), and necessitating the effec-
15 tive mitigation of risks related to FOCI
16 throughout the duration of the contract or
17 subcontract.

18 (ii) Pursuant to section 831(c), des-
19 ignation of the appropriate Department of
20 Defense official responsible to approve and
21 to take actions relating to award, modifica-
22 tion, termination of a contract, or direction
23 to modify or terminate a subcontract due
24 to an assessment by the Defense Counter-
25 intelligence and Security Agency, or its

1 successor organization, that a covered con-
2 tractor or subcontractor under FOCI poses
3 a risk to national security or potential risk
4 of compromise.

5 (iii) A requirement for the provision
6 of additional information regarding bene-
7 ficial ownership and control of any covered
8 contractor or subcontractor on the contract
9 or subcontract.

10 (iv) Other measures as necessary to
11 be consistent with other relevant practices,
12 policies, regulations, and actions, including
13 those under the National Industrial Secu-
14 rity Program.

15 (c) APPLICABILITY TO CONTRACTS AND SUB-
16 CONTRACTS FOR COMMERCIAL PRODUCTS AND SERVICES
17 AND OTHER FORMS OF ACQUISITION AGREEMENTS.—

18 (1) COMMERCIAL PRODUCTS AND SERVICES.—

19 The requirements under subsection (b)(2)(A) and
20 (b)(2)(C) shall not apply to a contract or sub-
21 contract for commercial products or services, unless
22 a designated senior Department of Defense official
23 specifically requires the applicability of subsections
24 (b)(2)(A) and (b)(2)(C) based on a determination by
25 the designated senior official that the contract or

1 subcontract involves a risk or potential risk to na-
2 tional security or potential compromise because of
3 sensitive data, systems, or processes, such as person-
4 ally identifiable information, cybersecurity, or na-
5 tional security systems.

6 (2) RESEARCH AND DEVELOPMENT AND PRO-
7 CUREMENT ACTIVITIES.—The Secretary of Defense
8 shall ensure that the requirements of this section are
9 applied to research and development and procure-
10 ment activities, including for the delivery of services,
11 established through any means including those
12 under section 2358(b) of title 10, United States
13 Code.

14 (d) AVAILABILITY OF RESOURCES.—The Secretary
15 shall ensure that sufficient resources, including subject
16 matter expertise, are allocated to execute the functions
17 necessary to carry out this section, including the assess-
18 ment, mitigation, contract administration, and oversight
19 functions.

20 (e) RULE OF CONSTRUCTION.—Nothing in this sec-
21 tion shall be construed to limit or modify any other pro-
22 curement policy, procedure, requirement, or restriction
23 provided by law, including section 721 of the Defense Pro-
24 duction Act of 1950 (50 U.S.C. 4565), as amended by

1 the Foreign Interference Risk Review Modernization Act
2 of 2018 (subtitle A of title XVII of Public Law 115–232).

3 (f) AVAILABILITY OF BENEFICIAL OWNERSHIP
4 DATA.—

5 (1) IN GENERAL.—Not later than 180 days
6 after the date of the enactment of this Act, the Sec-
7 retary of Defense shall establish a process to update
8 systems of record to improve the assessment and
9 mitigation of risks associated with FOCI through
10 the inclusion and updating of all appropriate associ-
11 ated uniquely identifying information about the con-
12 tracts and contractors and subcontracts and sub-
13 contractors in the Federal Awardee Performance
14 and Integrity Information System (FAPIIS), admin-
15 istered by the General Services Administration, and
16 the Commercial and Government Entity (CAGE)
17 database, administered by the Defense Logistics
18 Agency.

19 (2) LIMITED AVAILABILITY OF INFORMATION.—
20 The Secretary of Defense shall ensure that the infor-
21 mation required to be disclosed pursuant to this sec-
22 tion is—

23 (A) not made public;

24 (B) made available via the FAPIIS and
25 CAGE databases; and

1 (C) made available to appropriate govern-
2 ment departments or agencies.

3 **SEC. 848. PROHIBITION ON OPERATION OR PROCUREMENT**
4 **OF FOREIGN-MADE UNMANNED AIRCRAFT**
5 **SYSTEMS.**

6 (a) PROHIBITION ON AGENCY OPERATION OR PRO-
7 CUREMENT.—The Secretary of Defense may not operate
8 or enter into or renew a contract for the procurement of—

9 (1) a covered unmanned aircraft system that—

10 (A) is manufactured in a covered foreign
11 country or by an entity domiciled in a covered
12 foreign country;

13 (B) uses flight controllers, radios, data
14 transmission devices, cameras, or gimbals man-
15 ufactured in a covered foreign country or by an
16 entity domiciled in a covered foreign country;

17 (C) uses a ground control system or oper-
18 ating software developed in a covered foreign
19 country or by an entity domiciled in a covered
20 foreign country; or

21 (D) uses network connectivity or data stor-
22 age located in or administered by an entity
23 domiciled in a covered foreign country; or

24 (2) a system manufactured in a covered foreign
25 country or by an entity domiciled in a covered for-

1 eign country for the detection or identification of
2 covered unmanned aircraft systems.

3 (b) EXEMPTION.—The Secretary of Defense is ex-
4 empt from the restriction under subsection (a) if the oper-
5 ation or procurement is for the purposes of—

6 (1) Counter-UAS surrogate testing and train-
7 ing; or

8 (2) intelligence, electronic warfare, and infor-
9 mation warfare operations, testing, analysis, and
10 training.

11 (c) WAIVER.—The Secretary of Defense may waive
12 the restriction under subsection (a) on a case by case basis
13 by certifying in writing to the congressional defense com-
14 mittees that the operation or procurement is required in
15 the national interest of the United States.

16 (d) DEFINITIONS.—In this section:

17 (1) COVERED FOREIGN COUNTRY.—The term
18 “covered foreign country” means the People’s Re-
19 public of China.

20 (2) COVERED UNMANNED AIRCRAFT SYSTEM.—
21 The term “covered unmanned aircraft system”
22 means an unmanned aircraft system and any related
23 services and equipment.

1 **SEC. 849. MODIFICATION OF PROHIBITION ON ACQUISITION OF SENSITIVE MATERIALS FROM NON-**
2 **ALLIED FOREIGN NATIONS.**

4 (a) EXPANSION OF MATERIALS COVERED BY PROHIBITION ON SALE FROM NATIONAL DEFENSE STOCK-
5 PILE.—Subsection (a)(2) of section 2533c of title 10,
6 United States Code, is amended, in the matter preceding
7 subparagraph (A), by striking “covered material” and in-
8 serting “material”.

10 (b) INCLUSION OF TANTALUM IN DEFINITION OF
11 COVERED MATERIALS.—Subsection (d)(1) of such section
12 is amended—

13 (1) in subparagraph (C), by striking “; and”
14 and inserting a semicolon;

15 (2) in subparagraph (D), by striking the period
16 and inserting “; and”; and

17 (3) by adding at the end the following new sub-
18 paragraph:

19 “(E) tantalum metals and alloys.”.

20 **SEC. 850. ACQUISITION AND DISPOSAL OF CERTAIN RARE**
21 **EARTH MATERIALS.**

22 (a) AUTHORITY TO DISPOSE OF AND ACQUIRE MATE-
23 RIALS FOR THE NATIONAL DEFENSE STOCKPILE.—

24 (1) DISPOSAL AUTHORITY.—Pursuant to sec-
25 tion 5(b) of the Strategic and Critical Materials
26 Stock Piling Act (50 U.S.C. 98d(b)), the National

1 Defense Stockpile Manager shall dispose of
2 3,000,000 pounds of tungsten ores and concentrates
3 contained in the National Defense Stockpile (in ad-
4 dition to any amount previously authorized for dis-
5 posal).

6 (2) ACQUISITION AUTHORITY.—

7 (A) AUTHORITY.—Using funds available in
8 the National Defense Stockpile Transaction
9 Fund, the National Defense Stockpile Manager
10 may acquire the following materials determined
11 to be strategic and critical materials required to
12 meet the defense, industrial, and essential civil-
13 ian needs of the United States:

14 (i) Aerospace-grade rayon.

15 (ii) Electrolytic manganese metal.

16 (iii) Pitch-based carbon fiber.

17 (iv) Rare earth cerium compounds.

18 (v) Rare earth lanthanum compounds.

19 (B) AMOUNT OF AUTHORITY.—The Na-
20 tional Defense Stockpile Manager may use up
21 to \$37,420,000 in the National Defense Stock-
22 pile Transaction Fund for acquisition of the
23 materials specified in this paragraph.

24 (3) FISCAL YEAR LIMITATION.—The authority
25 under this subsection is available for purchases

1 made during fiscal year 2020 through fiscal year
2 2024.

3 (b) SENSE OF CONGRESS RELATING TO NATIONAL
4 DEFENSE STOCKPILE SALES.—It is the sense of Congress
5 that tantalum should be designated as a strategic and crit-
6 ical material under the Strategic and Critical Materials
7 Stock Piling Act (50 U.S.C. 98 et seq.) required to meet
8 the defense, industrial, and essential civilian needs of the
9 United States.

10 (c) REPORT ON SUPPLY CHAIN ISSUES FOR RARE
11 EARTH MATERIALS.—Not later than 180 days after the
12 date of the enactment of this Act, the Administrator of
13 the Defense Logistics Agency, in coordination with the
14 Deputy Assistant Secretary of Defense for Industrial Pol-
15 icy, shall submit a report to Congress assessing issues re-
16 lating to the supply chain for rare earth materials. Such
17 report shall include the following:

18 (1) An assessment of the rare earth materials
19 in the reserves held by the United States.

20 (2) A estimate of the needs of the United
21 States for rare earth materials—

22 (A) in general; and

23 (B) to support a major near-peer conflict
24 as described in war game scenarios in the 2018
25 National Defense Strategy.

1 (3) An assessment of the extent to which sub-
2 stitutes for rare earth materials are available.

3 (4) A strategy or plan to encourage the use of
4 rare earth materials mined, refined, processed, melt-
5 ed, or sintered in the United States, or from trusted
6 allies, including an assessment of the best acquisi-
7 tion practices (which shall include an analysis of
8 best value contracting methods) to ensure the viabil-
9 ity of trusted suppliers of rare earth materials to
10 meet national security needs.

11 **SEC. 851. PILOT PROGRAM FOR DEVELOPMENT OF TECH-**
12 **NOLOGY-ENHANCED CAPABILITIES WITH**
13 **PARTNERSHIP INTERMEDIARIES.**

14 (a) **ESTABLISHMENT.**—The Commander of the
15 United States Special Operations Command may use the
16 greater of \$2,000,000 or 5 percent of the funds required
17 to be expended by the United States Special Operations
18 Command under section 9(f)(1) of the Small Business Act
19 (15 U.S.C. 638(f)(1)) for a pilot program to increase par-
20 ticipation by small business concerns in the development
21 of technology-enhanced capabilities for special operations
22 forces.

23 (b) **USE OF PARTNERSHIP INTERMEDIARY.**—

24 (1) **AUTHORIZATION.**—The Commander of the
25 United States Special Operations Command may

1 modify an existing agreement with a partnership
2 intermediary to assist the Commander in carrying
3 out the pilot program under this section, including
4 with respect to the award of contracts and agree-
5 ments to small business concerns.

6 (2) USE OF FUNDS.—None of the funds re-
7 ferred to in subsection (a) shall be used to pay a
8 partnership intermediary for any administrative
9 costs associated with the pilot program.

10 (c) REPORT.—Not later than October 1, 2020, and
11 October 1, 2021, the Commander of the United States
12 Special Operations Command, in coordination with the
13 Under Secretary of Defense for Research and Engineer-
14 ing, shall submit to the congressional defense committees,
15 the Committee on Small Business of the House of Rep-
16 resentatives, and the Committee on Small Business and
17 Entrepreneurship of the Senate a report describing any
18 agreement with a partnership intermediary entered into
19 pursuant to this section. The report shall include, for each
20 such agreement, the amount of funds obligated, an identi-
21 fication of the recipient of such funds, and a description
22 of the use of such funds.

23 (d) TERMINATION.—The authority to carry out a
24 pilot program under this section shall terminate on Sep-
25 tember 30, 2021.

1 (e) DEFINITIONS.—In this section:

2 (1) PARTNERSHIP INTERMEDIARY.—The term
3 “partnership intermediary” has the meaning given
4 the term in section 23(c) of the Stevenson-Wydler
5 Technology Innovation Act of 1980 (15 U.S.C.
6 3715(e)).

7 (2) SMALL BUSINESS CONCERN.—The term
8 “small business concern” has the meaning given the
9 term under section 3 of the Small Business Act (15
10 U.S.C. 632).

11 (3) SMALL BUSINESS INNOVATION RESEARCH
12 PROGRAM.—The term “Small Business Innovation
13 Research Program” has the meaning given the term
14 in section 9(e)(4) of the Small Business Act (15
15 U.S.C. 638(e)).

16 (4) SMALL BUSINESS TECHNOLOGY TRANSFER
17 PROGRAM.—The term “Small Business Technology
18 Transfer Program” has the meaning given the term
19 in section 9(e)(6) of the Small Business Act (15
20 U.S.C. 638(e)).

21 (5) TECHNOLOGY-ENHANCED CAPABILITY.—
22 The term “technology-enhanced capability” means a
23 product, concept, or process that improves the abil-
24 ity of a member of the Armed Forces to achieve an
25 assigned mission.

1 **SEC. 852. AUTHORIZED OFFICIAL TO CARRY OUT THE PRO-**
2 **CUREMENT TECHNICAL ASSISTANCE COOP-**
3 **ERATIVE AGREEMENT PROGRAM.**

4 (a) AUTHORIZED OFFICIAL.—Effective October 1,
5 2021, section 2411(3) of title 10, United States Code, is
6 amended by striking “Director of the Defense Logistics
7 Agency” and inserting “Under Secretary of Defense for
8 Acquisition and Sustainment”.

9 (b) REPORT AND BRIEFING.—Not later than Novem-
10 ber 1, 2020, the Secretary of Defense shall provide to the
11 congressional defense committees a written report and
12 briefing on the activities carried out in preparation for the
13 transition of responsibilities for carrying out the procure-
14 ment technical assistance cooperative agreement program
15 under chapter 142 of title 10, United States Code, from
16 the Director of Defense Logistics Agency to the Under
17 Secretary of Defense for Acquisition and Sustainment, as
18 required by subsection (a).

19 (c) ANNUAL BUDGET JUSTIFICATION DOCU-
20 MENTS.—The Secretary of Defense shall submit to Con-
21 gress, as a part of the defense budget materials (as de-
22 fined in section 234(d) of title 10, United States Code)
23 for fiscal year 2021 and each fiscal year thereafter, a
24 budget justification display that includes the procurement
25 technical assistance cooperative agreement program under
26 chapter 142 of title 10, United States Code, as part of

1 the budget justification for Operation and Maintenance,
2 Defense-wide for the Office of the Secretary of Defense.

3 **SEC. 853. REQUIREMENT THAT CERTAIN SHIP COMPO-**
4 **NENTS BE MANUFACTURED IN THE NA-**
5 **TIONAL TECHNOLOGY AND INDUSTRIAL**
6 **BASE.**

7 (a) **ADDITIONAL PROCUREMENT LIMITATION.**—Sec-
8 tion 2534(a) of title 10, United States Code, is amended
9 by adding at the end the following new paragraph:

10 “(6) **COMPONENTS FOR AUXILIARY SHIPS.**—
11 Subject to subsection (k), large medium-speed diesel
12 engines.”.

13 (b) **IMPLEMENTATION.**—Such section is further
14 amended by adding at the end the following new sub-
15 section:

16 “(k) **IMPLEMENTATION OF AUXILIARY SHIP COMPO-**
17 **NENT LIMITATION.**—Subsection (a)(6) applies only with
18 respect to contracts awarded by the Secretary of a military
19 department for new construction of an auxiliary ship after
20 the date of the enactment of the National Defense Author-
21 ization Act for Fiscal Year 2020 using funds available for
22 National Defense Sealift Fund programs or Shipbuilding
23 and Conversion, Navy. For purposes of this subsection,
24 the term ‘auxiliary ship’ does not include an icebreaker
25 or a special mission ship.”.

1 **SEC. 854. ADDITION OF DOMESTICALLY PRODUCED STAIN-**
2 **LESS STEEL FLATWARE AND DINNERWARE**
3 **TO THE BERRY AMENDMENT.**

4 (a) ADDITION OF DOMESTICALLY PRODUCED STAIN-
5 LESS STEEL FLATWARE AND DINNERWARE.—

6 (1) IN GENERAL.—Section 2533a(b) of title 10,
7 United States Code, is amended by adding at the
8 end the following new paragraphs:

9 “(3) Stainless steel flatware.

10 “(4) Dinnerware.”.

11 (2) APPLICABILITY.—Paragraphs (3) and (4) of
12 section 2533a(b) of title 10, United States Code, as
13 added by paragraph (1), shall apply with respect to
14 contracts entered into on or after the date occurring
15 1 year after the date of the enactment of this Act.

16 (3) REPEAL.—Effective September 30, 2023,
17 such paragraphs (3) and (4) are repealed.

18 (b) REPORT.—

19 (1) REPORT REQUIRED.—Not later than Octo-
20 ber 1, 2020, the Secretary of Defense shall submit
21 to the congressional defense committees a report
22 that provides a market survey, cost assessment, de-
23 scription of national security considerations, and a
24 recommendation regarding whether the procurement
25 of dinnerware and stainless steel flatware should be
26 limited to sources in the United States.

1 (2) CONTENTS.—The report required under
2 paragraph (1) shall include an analysis of the fol-
3 lowing with respect to dinnerware and stainless steel
4 flatware:

5 (A) The extent to which such items have
6 commercial applications.

7 (B) The number of such items to be pro-
8 cured by current programs of record.

9 (C) The criticality of such items to a mili-
10 tary unit's mission accomplishment.

11 (D) The estimated cost and other consider-
12 ations of reconstituting the production capa-
13 bility of such items, if not maintained in the
14 United States.

15 (E) National security regulations or re-
16 strictions imposed on such items that may not
17 be imposed on such items if provided by a com-
18 petitor outside the United States.

19 (F) Federal, State, and local government
20 regulations that are not related to national se-
21 curity that are imposed on such items that may
22 not be imposed on a competitor outside the
23 United States.

24 (G) The extent to which such items is
25 fielded in current programs of record.

1 (H) The extent to which such items can be
2 procured as and when needed in satisfactory
3 quality and sufficient quantity at United States
4 market prices.

5 (I) The benefits accrued to the Depart-
6 ment of Defense and the defense industrial base
7 to procure such items from sources outside the
8 United States.

9 **SEC. 855. APPLICATION OF MISCELLANEOUS TECHNOLOGY**
10 **BASE POLICIES AND PROGRAMS TO THE CO-**
11 **LUMBIA-CLASS SUBMARINE PROGRAM.**

12 Notwithstanding subchapter V of chapter 148 of title
13 10, United States Code (except for sections 2534, 2533a,
14 and 2533b of such title), for a period of one year begin-
15 ning on the date of the enactment of this Act, the mile-
16 stone decision authority (as defined in section 2366a of
17 title 10, United States Code) for the Columbia-class sub-
18 marine program shall ensure that such program maintains
19 the Acquisition Program Baseline schedule dates approved
20 under the Milestone B approval (as defined in such sec-
21 tion).

1 **SEC. 856. APPLICATION OF LIMITATION ON PROCUREMENT**
2 **OF GOODS OTHER THAN UNITED STATES**
3 **GOODS TO THE FFG-FRIGATE PROGRAM.**

4 Notwithstanding any other provision of law, amounts
5 authorized to carry out the FFG-Frigate Program may
6 be used to award a new contract that provides for the ac-
7 quisition of the following components regardless of wheth-
8 er those components are manufactured in the United
9 States:

10 (1) Auxiliary equipment (including pumps) for
11 shipboard services.

12 (2) Propulsion equipment (including engines,
13 reduction gears, and propellers).

14 (3) Shipboard cranes.

15 (4) Spreaders for shipboard cranes.

16 **SEC. 857. SENSE OF CONGRESS REGARDING CONSIDER-**
17 **ATION OF PRICE IN PROCUREMENT OF THE**
18 **FFG(X) FRIGATE.**

19 It is the sense of Congress that during fiscal year
20 2020, in evaluating proposals for a contract to procure
21 a FFG(X) frigate, the Secretary of the Navy should en-
22 sure price is a critical factor.

1 **Subtitle F—Provisions Relating to**
2 **Acquisition Workforce**

3 **SEC. 860. ESTABLISHMENT OF DEFENSE CIVILIAN TRAIN-**
4 **ING CORPS.**

5 (a) IN GENERAL.—Part III of subtitle A of title 10,
6 United States Code, is amended by inserting after chapter
7 112 the following new chapter:

8 **“CHAPTER 113—DEFENSE CIVILIAN**
9 **TRAINING CORPS**

“Sec. 2200g. Establishment.

“Sec. 2200h. Program elements.

“Sec. 2200i. Model authorities.

“Sec. 2200j. Definitions.

10 **“SEC. 2200g. ESTABLISHMENT.**

11 “For the purposes of preparing selected students for
12 public service in Department of Defense occupations relat-
13 ing to acquisition, science, engineering, or other civilian
14 occupations determined by the Secretary of Defense, and
15 to target critical skill gaps in the Department of Defense,
16 the Secretary of Defense shall establish and maintain a
17 Defense Civilian Training Corps program, organized into
18 one or more units, at any accredited civilian educational
19 institution authorized to grant baccalaureate degrees.

20 **“SEC. 2200h. PROGRAM ELEMENTS.**

21 “In establishing the program, the Secretary of De-
22 fense shall determine the following:

1 “(1) A methodology to identify and target crit-
2 ical skills gaps in Department of Defense occupa-
3 tions relating to acquisition, science, engineering, or
4 other civilian occupations determined by the Sec-
5 retary of Defense.

6 “(2) A mechanism to track and report the suc-
7 cess of the program in eliminating any critical skills
8 gaps identified under paragraph (1).

9 “(3) Criteria for an accredited civilian edu-
10 cational institution to participate in the program.

11 “(4) The eligibility of a student to become a
12 member of the program.

13 “(5) Criteria required for a member of the pro-
14 gram to receive financial assistance from the De-
15 partment of Defense.

16 “(6) The term of service as an employee of the
17 Department of Defense required for a member of
18 the program to receive such financial assistance.

19 “(7) Criteria required for a member of the pro-
20 gram to be released from a term of service.

21 “(8) The method by which a successful grad-
22 uate of the program may gain immediate employ-
23 ment in the Department of Defense.

24 “(9) Resources required for implementation of
25 the program.

1 **“SEC. 2200i. MODEL AUTHORITIES.**

2 “In making determinations under section 2200h of
3 this title, the Secretary of Defense shall use the authori-
4 ties under chapters 103 and 111 of this title as guides.

5 **“SEC. 2200j. DEFINITIONS.**

6 “In this chapter:

7 “(1) The term ‘program’ means the Defense Ci-
8 vilian Training Corps program established under
9 section 2200g.

10 “(2) The term ‘member of the program’ means
11 a student at an accredited civilian educational insti-
12 tution who is enrolled in the program.”.

13 (b) IMPLEMENTATION TIMELINE.—

14 (1) INITIAL IMPLEMENTATION.—Not later than
15 February 15, 2020, the Secretary of Defense shall
16 submit to the congressional defense committees a
17 plan and schedule to implement the Defense Civilian
18 Training Corps program established under chapter
19 113 of title 10, United States Code (as added by
20 subsection (a)) at one accredited civilian educational
21 institution authorized to grant baccalaureate degrees
22 not later than August 1, 2021. The plan shall in-
23 clude a list of critical skills gaps the program will
24 address and recommendations for any legislative
25 changes required for effective implementation of the
26 program.

1 (2) EXPANSION.—Not later than December 31,
2 2020, the Secretary of Defense shall submit to the
3 congressional defense committees an expansion plan
4 and schedule to expand the Defense Civilian Train-
5 ing Corps program to five accredited civilian edu-
6 cational institutions not later than August 1, 2022.

7 (3) FULL IMPLEMENTATION.—Not later than
8 December 31, 2021, the Secretary of Defense shall
9 submit to the congressional defense committees a
10 full implementation plan and schedule to expand the
11 Defense Civilian Training Corps program to at least
12 20 accredited civilian educational institutions with
13 not fewer than 400 members enrolled in the pro-
14 gram not later than August 1, 2023.

15 **SEC. 861. DEFENSE ACQUISITION WORKFORCE CERTIFI-**
16 **CATION, EDUCATION, AND CAREER FIELDS.**

17 (a) PROFESSIONAL CERTIFICATION REQUIRE-
18 MENT.—

19 (1) PROFESSIONAL CERTIFICATION REQUIRED
20 FOR ALL ACQUISITION WORKFORCE PERSONNEL.—
21 Section 1701a of title 10, United States Code, is
22 amended—

23 (A) by redesignating subsections (c) and
24 (d) as subsections (d) and (e), respectively; and

1 (B) by inserting after subsection (b) the
2 following new subsection:

3 “(c) PROFESSIONAL CERTIFICATION.—(1) IN GEN-
4 ERAL.—The Secretary of Defense shall implement a cer-
5 tification program to provide for a professional certifi-
6 cation requirement for all members of the acquisition
7 workforce. Except as provided in paragraph (2), the cer-
8 tification requirement for any acquisition workforce career
9 field shall be based on standards developed by a third-
10 party accredited program based on nationally or inter-
11 nationally recognized standards.

12 “(2) REQUIREMENTS FOR SECRETARY.—If the Sec-
13 retary determines that, for a particular acquisition work-
14 force career field, a third-party accredited program based
15 on nationally or internationally recognized standards does
16 not exist, the Secretary shall establish the certification re-
17 quirement for that career field that conforms with the
18 practices of national or international accrediting organiza-
19 tions. The Secretary shall determine the best approach for
20 meeting the certification requirement for any such career
21 field, including by implementing such certification require-
22 ment through entities outside the Department of Defense,
23 and may design and implement such certification require-
24 ment without regard to section 1746 of this title.”

1 (2) PERFORMANCE MANAGEMENT.—Subsection
2 (b) of such section is amended—

3 (A) in paragraph (5), by striking “encour-
4 age” and inserting “direct”; and

5 (B) in paragraph (6), by inserting “and
6 consequences” after “warnings”.

7 (3) PARTICIPATION IN PROFESSIONAL ASSOCIA-
8 TIONS.—Subsection (b) of such section is further
9 amended—

10 (A) by redesignating paragraphs (6), (7),
11 (8), and (9) as paragraphs (7), (8), (9), and
12 (10), respectively; and

13 (B) by inserting after paragraph (5) the
14 following new paragraph:

15 “(6) authorize a member of the acquisition
16 workforce to participate in professional associations,
17 consistent with the performance plan of such a
18 member in order to provide the member with the op-
19 portunity to gain leadership and management
20 skills.”.

21 (4) GENERAL EDUCATION, TRAINING, AND EX-
22 PERIENCE REQUIREMENTS.—Section 1723 of such
23 title is amended—

24 (A) in subsection (a)(3), by striking the
25 second sentence; and

1 (B) in subsection (b)(1), by striking “en-
2 courage” and inserting “direct”.

3 (5) EFFECTIVE DATE.—The Secretary of De-
4 fense shall implement procedures to institute the
5 program required by subsection (c) of section 1701a
6 of title 10, United States Code, as added by para-
7 graph (1), not later than 180 days after the date of
8 the enactment of this Act.

9 (b) ELIMINATION OF STATUTORY REQUIREMENT
10 FOR COMPLETION OF 24 SEMESTER CREDIT HOURS.—

11 (1) QUALIFICATION REQUIREMENTS FOR CON-
12 TRACTING POSITIONS.—Section 1724 of title 10,
13 United States Code, is amended—

14 (A) in subsection (a)(3)—

15 (i) by striking “(A)” after “(3)”; and

16 (ii) by striking “, and (B)” and all
17 that follows through “and management”;
18 and

19 (B) in subsection (b), by striking “require-
20 ments” in the first sentences of paragraphs (1)
21 and (2) and inserting “requirement”;

22 (C) in subsection (e)—

23 (i) in paragraph (1)—

24 (I) by striking “requirements in
25 subparagraphs (A) and (B) of sub-

1 section (a)(3)” and inserting “require-
2 ment of subsection (a)(3)”;

3 (II) in subparagraph (C), by
4 striking “requirements” and inserting
5 “requirement”; and

6 (ii) in paragraph (2)—

7 (I) by striking “shall have—”
8 and all that follows through “been
9 awarded” and inserting “shall have
10 been awarded”;

11 (II) by striking “; or” and insert-
12 ing a period; and

13 (III) by striking subparagraph
14 (B); and

15 (D) in subsection (f), by striking “, includ-
16 ing—” and all that follows and inserting a pe-
17 riod.

18 (2) SELECTION CRITERIA AND PROCEDURES.—

19 Section 1732 of such title is amended—

20 (A) in subsection (b)(1)—

21 (i) by striking “Such requirements,”
22 and all the follows through “the person—
23 ” and inserting “Such requirements shall
24 include a requirement that the person—”;

25 (ii) by striking subparagraph (B); and

1 (iii) by redesignating clauses (i) and
2 (ii) as subparagraphs (A) and (B), respec-
3 tively, and conforming the margins accord-
4 ingly;

5 (B) in subsection (c), by striking “require-
6 ments of subsections (b)(1)(A) and (b)(1)(B)”
7 in paragraphs (1) and (2) and inserting “re-
8 quirement of subsection (b)(1)”;

9 (C) in subsection (d)—

10 (i) by striking “(1) Except as pro-
11 vided in paragraph (2),”;

12 (ii) by striking paragraph (2).

13 (c) DEFENSE ACQUISITION UNIVERSITY.—Section
14 1746 of title 10, United States Code, is amended—

15 (1) in subsection (b)—

16 (A) by redesignating paragraphs (2) and
17 (3) as paragraphs (4) and (5), respectively;

18 (B) by inserting after paragraph (1) the
19 following new paragraphs:

20 “(2) The professors, instructors, and lecturers
21 employed under paragraph (1) shall include individ-
22 uals from civilian colleges or universities that are
23 not owned or operated by the Federal Government,
24 commercial learning and development organizations,

1 industry, or federally funded research and develop-
2 ment centers.

3 “(3) The Secretary of Defense shall ensure
4 that—

5 “(A) not later than September 1, 2021,
6 not less than five full-time visiting professors
7 employed under paragraph (1) are from civilian
8 colleges or universities described under para-
9 graph (2); ; and

10 “(B) not later than September 1, 2022,
11 not less than ten full-time visiting professors
12 employed under paragraph (1) are from such
13 civilian colleges or universities.”; and

14 (2) in subsection (c), by inserting “, and with
15 commercial training providers,” after “military de-
16 partments”.

17 (d) DESIGNATION OF SECURITY COOPERATION AS AN
18 ACQUISITION POSITION.—Section 1721(b) of title 10,
19 United States Code, is amended—

20 (1) by amending paragraph (11) to read as fol-
21 lows:

22 “(11) Security cooperation.”; and

23 (2) by adding at the end the following new
24 paragraph:

25 “(13) Other positions, as necessary.”.

1 (e) CAREER PATHS.—

2 (1) CAREER PATH REQUIRED FOR EACH ACQUI-
3 SITION WORKFORCE CAREER FIELD.—Paragraph (4)
4 of section 1701a(b) of title 10, United States Code,
5 is amended to read as follows:

6 “(4) develop and implement a career path, as
7 described in section 1722(a) of this title, for each
8 career field designated by the Secretary under sec-
9 tion 1721(a) of this title as an acquisition workforce
10 career field;”.

11 (2) CONFORMING AMENDMENTS.—Section
12 1722(a) of such title is amended—

13 (A) by striking “appropriate career paths”
14 and inserting “an appropriate career path”;
15 and

16 (B) by striking “are identified” and insert-
17 ing “is identified for each acquisition workforce
18 career field”.

19 (3) DEADLINE FOR IMPLEMENTATION OF CA-
20 REER PATHS.—Not later than the end of the two-
21 year period beginning on the date of the enactment
22 of this Act, the Secretary of Defense shall carry out
23 the requirements of paragraph (4) of section
24 1701a(b) of title 10, United States Code (as amend-
25 ed by paragraph (1)).

1 (f) CAREER FIELDS.—

2 (1) DESIGNATION OF ACQUISITION WORKFORCE
3 CAREER FIELDS.—Section 1721(a) of such title is
4 amended by adding at the end the following new
5 sentence: “The Secretary shall also designate in reg-
6 ulations those career fields in the Department of De-
7 fense that are acquisition workforce career fields for
8 purposes of this chapter.”.

9 (2) CLERICAL AMENDMENTS.—(A) The heading
10 of section 1721 of such title is amended to read as
11 follows:

12 **“§ 1721. Designation of acquisition positions and ac-
13 quisition workforce career fields”.**

14 (B) The item relating to such section in
15 the table of sections at the beginning of sub-
16 chapter II of chapter 87 of such title is amend-
17 ed to read as follows:

“1721. Designation of acquisition positions and acquisition workforce career
fields.”.

18 (3)(A) The heading of subchapter II of chapter
19 87 of such title is amended to read as follows:

“SUBCHAPTER II—ACQUISITION POSITIONS AND ACQUISITION WORKFORCE
CAREER FIELDS”.

20 (B) The item relating to such subchapter in the
21 table of subchapters at the beginning of such chap-
22 ter is amended to read as follows:

“II. Acquisition Positions And Acquisition Workforce Career Fields 1721”.

1 (4) DEADLINE FOR DESIGNATION OF CAREER
2 FIELDS.—Not later than the end of the six-month
3 period beginning on the date of the enactment of
4 this Act, the Secretary of Defense shall carry out
5 the requirements of the second sentence of section
6 1721(a) of title 10, United States Code (as added by
7 paragraph (1)).

8 (g) KEY WORK EXPERIENCES.—

9 (1) DEVELOPMENT OF KEY WORK EXPERI-
10 ENCES FOR EACH ACQUISITION WORKFORCE CAREER
11 FIELD.—Section 1722b of such title is amended by
12 adding at the end the following new subsection:

13 “(c) KEY WORK EXPERIENCES.—In carrying out
14 subsection (b)(2), the Secretary shall ensure that key work
15 experiences, in the form of multidisciplinary experiences,
16 are developed for each acquisition workforce career field.”.

17 (2) PLAN FOR IMPLEMENTATION OF KEY WORK
18 EXPERIENCES.—Not later than one year after the
19 date of the enactment of this Act, the Secretary of
20 Defense shall submit to the congressional defense
21 committees a plan identifying the specific actions the
22 Secretary has taken, and is planning to take, to de-
23 velop and establish key work experiences for each ac-
24 quisition workforce career field as required by sub-
25 section (c) of section 1722b of title 10, United

1 States Code (as added by paragraph (1)). The plan
2 shall specify the percentage of the acquisition work-
3 force, or funds available for administration of the
4 acquisition workforce on an annual basis, that the
5 Secretary will dedicate towards developing and es-
6 tablishing such key work experiences.

7 (h) APPLICABILITY OF CAREER PATH REQUIRE-
8 MENTS TO ALL MEMBERS OF ACQUISITION WORK-
9 FORCE.—Section 1723(b) of such title is amended by
10 striking “the critical acquisition-related”.

11 (i) COMPETENCY DEVELOPMENT.—

12 (1) IN GENERAL.—Subchapter V of chapter 87
13 of such title is amended by adding at the end the
14 following new section:

15 **“§ 1765. Competency development**

16 “For each acquisition workforce career field, the Sec-
17 retary of Defense shall—

18 “(1) establish, for the civilian personnel in that
19 career field, defined proficiency standards and tech-
20 nical and nontechnical competencies which shall be
21 used in personnel qualification assessments; and

22 “(2) assign resources to accomplish such tech-
23 nical and nontechnical competencies.”.

1 (2) The table of sections at the beginning of
2 such subchapter II is amended by adding at the end
3 the following new item:

 “1765. Competency development.”.

4 (3) DEADLINE FOR IMPLEMENTATION.—Not
5 later than the end of the two-year period beginning
6 on the date of the enactment of this Act, the Sec-
7 retary of Defense shall carry out the requirements of
8 section 1765 of title 10, United States Code (as
9 added by paragraph (1)).

10 (j) TERMINATION OF DEFENSE ACQUISITION
11 CORPS.—

12 (1) The Acquisition Corps for the Department
13 of Defense referred to in section 1731(a) of title 10,
14 United States Code, is terminated.

15 (2) Section 1733 of title 10, United States
16 Code, is amended—

17 (A) by striking subsection (a); and

18 (B) by redesignating subsection (b) as sub-
19 section (a).

20 (3) Subsection (b) of section 1731 of such title
21 is transferred to the end of section 1733 of such
22 title, as amended by paragraph (2), and amended—

23 (A) by striking “ACQUISITION CORPS” in
24 the heading and inserting “THE ACQUISITION
25 WORKFORCE”; and

1 (B) by striking “selected for the Acquisi-
2 tion Corps” and inserting “in the acquisition
3 workforce”.

4 (4) Subsection (e) of section 1732 of such title
5 is transferred to the end of section 1733 of such
6 title, as amended by paragraphs (2) and (3), redesi-
7 gnated as subsection (c), and amended—

8 (A) by striking “in the Acquisition Corps”
9 in paragraphs (1) and (2) and inserting “in
10 critical acquisition positions”; and

11 (B) by striking “serving in the Corps” in
12 paragraph (2) and inserting “employment”.

13 (5) Sections 1731 and 1732 of such title are re-
14 pealed.

15 (6)(A) Section 1733 of such title, as amended
16 by paragraphs (2), (3), and (4), is redesignated as
17 section 1731.

18 (B) The table of sections at the beginning of
19 subchapter III of chapter 87 of such title is amend-
20 ed by striking the items relating to sections 1731,
21 1732, and 1733 and inserting the following new
22 item:

“1731. Critical acquisition positions.”.

23 (7)(A) The heading of subchapter III of chapter
24 87 of such title is amended to read as follows:

“SUBCHAPTER III—CRITICAL ACQUISITION POSITIONS”.

1 (B) The item relating to such subchapter in the
2 table of subchapters at the beginning of such chap-
3 ter is amended to read as follows:

“III. Critical Acquisition Positions 1731”.

4 (8) Section 1723(a)(2) of such title is amended
5 by striking “section 1733 of this title” and inserting
6 “section 1731 of this title”.

7 (9) Section 1725 of such title is amended—

8 (A) in subsection (a)(1), by striking “De-
9 fense Acquisition Corps” and inserting “acqui-
10 sition workforce”; and

11 (B) in subsection (d)(2), by striking “of
12 the Defense Acquisition Corps” and inserting
13 “in the acquisition workforce serving in critical
14 acquisition positions”.

15 (10) Section 1734 of such title is amended—

16 (A) by striking “of the Acquisition Corps”
17 in subsections (e)(1) and (h) and inserting “of
18 the acquisition workforce”; and

19 (B) in subsection (g)—

20 (i) by striking “of the Acquisition
21 Corps” in the first sentence and inserting
22 “of the acquisition workforce”;

23 (ii) by striking “of the Corps” and in-
24 serting “of the acquisition workforce”; and

1 (iii) by striking “of the Acquisition
2 Corps” in the second sentence and insert-
3 ing “of the acquisition workforce in critical
4 acquisition positions”.

5 (11) Section 1737 of such title is amended—

6 (A) in subsection (a)(1), by striking “of
7 the Acquisition Corps” and inserting “of the ac-
8 quisition workforce”; and

9 (B) in subsection (b), by striking “of the
10 Corps” and inserting “of the acquisition work-
11 force”.

12 (12) Section 1742(a)(1) of such title is amend-
13 ed by striking “the Acquisition Corps” and inserting
14 “acquisition positions in the Department of De-
15 fense”.

16 (13) Section 2228(a)(4) of such title is amend-
17 ed by striking “under section 1733(b)(1)(C) of this
18 title” and inserting “under section 1731 of this
19 title”.

20 (14) Section 7016(b)(5)(B) of such title is
21 amended by striking “under section 1733 of this
22 title” and inserting “under section 1731 of this
23 title”.

24 (15) Section 8016(b)(4)(B) of such title is
25 amended by striking “under section 1733 of this

1 title” and inserting “under section 1731 of this
2 title”.

3 (16) Section 9016(b)(4)(B) of such title is
4 amended by striking “under section 1733 of this
5 title” and inserting “under section 1731 of this
6 title”.

7 (17) Paragraph (1) of section 317 of title 37,
8 United States Code, is amended to read as follows:

9 “(1) is a member of the acquisition workforce
10 selected to serve in, or serving in, a critical acqui-
11 sition position designated under section 1731 of title
12 10.”.

13 **SEC. 862. SOFTWARE DEVELOPMENT AND SOFTWARE AC-**
14 **QUISITION TRAINING AND MANAGEMENT**
15 **PROGRAMS.**

16 (a) ESTABLISHMENT OF SOFTWARE DEVELOPMENT
17 AND SOFTWARE ACQUISITION TRAINING AND MANAGE-
18 MENT PROGRAMS.—

19 (1) IN GENERAL.—The Secretary of Defense,
20 acting through the Under Secretary of Defense for
21 Acquisition and Sustainment and in consultation
22 with the Under Secretary of Defense for Research
23 and Engineering, the Under Secretary of Defense
24 for Personnel and Readiness, and the Chief Informa-
25 tion Officer of the Department of Defense, shall es-

1 establish software development and software acquisi-
2 tion training and management programs for all soft-
3 ware acquisition professionals, software developers,
4 and other appropriate individuals (as determined by
5 the Secretary of Defense), to earn a certification in
6 software development and software acquisition.

7 (2) PROGRAM CONTENTS.—The programs es-
8 tablished under paragraph (1) shall—

9 (A) develop and expand the use of special-
10 ized training programs for chief information of-
11 ficers of the military departments and the De-
12 fense Agencies, service acquisition executives,
13 program executive officers, and program man-
14 agers to include training on and experience in—

15 (i) continuous software development;

16 and

17 (ii) acquisition pathways available to
18 acquire software;

19 (B) ensure that appropriate program man-
20 agers—

21 (i) have demonstrated competency in
22 current software processes;

23 (ii) have the skills to lead a workforce
24 that can quickly meet challenges, use soft-
25 ware tools that prioritize continuous or fre-

1 quent upgrades as such tools become avail-
2 able, take up opportunities provided by
3 new innovations, and plan software activi-
4 ties in short iterations to learn from risks
5 of software testing; and

6 (iii) have the experience and training
7 to delegate technical oversight and execu-
8 tion decisions; and

9 (C) include continuing education courses,
10 exchanges with private-sector organizations,
11 and experiential training to help individuals
12 maintain skills learned through the programs.

13 (b) REPORTS.—

14 (1) REPORTS REQUIRED.—The Secretary shall
15 submit to the congressional defense committees—

16 (A) not later than 90 days after the date
17 of the enactment of this Act, an initial report;
18 and

19 (B) not later than one year after the date
20 of the enactment of this Act, a final report.

21 (2) CONTENTS.—Each report required under
22 paragraph (1) shall include—

23 (A) the status of implementing the soft-
24 ware development and software acquisition

1 training and management programs established
2 under subsection (a)(1);

3 (B) a description of the requirements for
4 certification, including the requirements for
5 competencies in current software processes;

6 (C) a description of potential career paths
7 in software development and software acquisi-
8 tion within the Department of Defense;

9 (D) an independent assessment conducted
10 by the Defense Innovation Board of the
11 progress made on implementing the programs
12 established under subsection (a)(1); and

13 (E) any recommendations for changes to
14 existing law to facilitate the implementation of
15 the programs established under subsection
16 (a)(1).

17 (c) DEFINITIONS.—In this section:

18 (1) PROGRAM EXECUTIVE OFFICER; PROGRAM
19 MANAGER.—The terms “program executive officer”
20 and “program manager” have the meanings given
21 those terms, respectively, in section 1737 of title 10,
22 United States Code.

23 (2) SERVICE ACQUISITION EXECUTIVE.—The
24 terms “military department”, “Defense Agency”,
25 and “service acquisition executive” have the mean-

1 ings given those terms, respectively, in section 101
2 of title 10, United States Code.

3 (3) MAJOR DEFENSE ACQUISITION PROGRAM.—
4 The term “major defense acquisition program” has
5 the meaning given in section 2430 of title 10,
6 United States Code.

7 (4) DEFENSE BUSINESS SYSTEM.—The term
8 “defense business system” has the meaning given in
9 section 2222(i)(1) of title 10, United States Code.

10 **SEC. 863. MODIFICATION OF TEMPORARY ASSIGNMENTS OF**
11 **DEPARTMENT OF DEFENSE EMPLOYEES TO A**
12 **PRIVATE-SECTOR ORGANIZATION.**

13 (a) PUBLIC-PRIVATE TALENT EXCHANGE PRO-
14 GRAM.—Section 1599g of title 10, United States Code, is
15 amended by adding at the end the following new sub-
16 sections:

17 “(i) CONFLICTS OF INTEREST.—A private-sector or-
18 ganization that is temporarily assigned a member of the
19 acquisition workforce under this section shall not be con-
20 sidered to have a conflict of interest with the Department
21 of Defense solely because of participation in the program
22 established under this section.

23 “(j) FUNDING; USE OF DEFENSE ACQUISITION
24 WORKFORCE DEVELOPMENT FUND.—Funds for the ex-
25 penses for the program established under this section may

1 be provided from amounts in the Department of Defense
2 Acquisition Workforce Development Fund. Expenses for
3 the program include—

4 “(1) notwithstanding section 1705(e)(5) of this
5 title, the base salary of a civilian member of the ac-
6 quisition workforce assigned to a private-sector orga-
7 nization under this section, during the period of that
8 assignment;

9 “(2) expenses relating to assignment under this
10 section of a member of the acquisition workforce
11 away from the member’s regular duty station, in-
12 cluding expenses for travel, per diem, and lodging;
13 and

14 “(3) expenses for the administration of the pro-
15 gram.”.

16 (b) USE OF DEFENSE ACQUISITION WORKFORCE
17 DEVELOPMENT FUND.—Section 1705(e)(1) of such title
18 is amended by adding at the end the following new sub-
19 paragraph:

20 “(C) Amounts in the Fund may be used to
21 pay the expenses of the public-private talent ex-
22 change program established under section
23 1599g of this title.”.

1 **SEC. 864. INCENTIVES AND CONSIDERATION FOR QUALI-**
2 **FIED TRAINING PROGRAMS.**

3 (a) IN GENERAL.—Chapter 141 of title 10, United
4 States Code, is amended by inserting after section 2409
5 the following new section:

6 **“§ 2409a. Incentives and consideration for qualified**
7 **training programs**

8 “(a) INCENTIVES.—The Secretary of Defense shall
9 develop workforce development investment incentives for
10 a contractor that implements a qualified training program
11 to develop the workforce of the contractor in a manner
12 consistent with the needs of the Department of Defense.

13 “(b) CONSIDERATION OF QUALIFIED TRAINING PRO-
14 GRAMS.—The Secretary of Defense shall revise the De-
15 partment of Defense Supplement to the Federal Acquisi-
16 tion Regulation to require that the system used by the
17 Federal Government to monitor or record contractor past
18 performance includes an analysis of the availability, qual-
19 ity, and effectiveness of a qualified training program of
20 an offeror as part of the past performance rating of such
21 offeror.

22 “(c) QUALIFIED TRAINING PROGRAM DEFINED.—
23 The term ‘qualified training program’ means any of the
24 following:

1 “(1) A program eligible to receive funds under
2 the Workforce Innovation and Opportunity Act (29
3 U.S.C. 3101 et seq.).

4 “(2) A program eligible to receive funds under
5 the Carl D. Perkins Career and Technical Education
6 Act of 2006 (20 U.S.C. 2301 et seq.).

7 “(3) A program registered under the Act of Au-
8 gust 16, 1937 (commonly known as the ‘National
9 Apprenticeship Act’; Stat. 664, chapter 663; 29
10 U.S.C. 50 et seq.).

11 “(4) Any other program determined to be a
12 qualified training program for purposes of this sec-
13 tion, and that meets the workforce needs of the De-
14 partment of Defense, as determined by the Secretary
15 of Defense.”.

16 (b) CLERICAL AMENDMENT.—The table of sections
17 at the beginning of such chapter is amended by inserting
18 after the item relating to section 2409 the following new
19 item:

 “2409a. Incentives and consideration for qualified training programs.”.

20 **SEC. 865. USE OF QUALIFIED APPRENTICES BY MILITARY**
21 **CONSTRUCTION CONTRACTORS.**

22 (a) USE OF QUALIFIED APPRENTICES BY MILITARY
23 CONSTRUCTION CONTRACTORS.—

1 (1) IN GENERAL.—Subchapter III of chapter
2 169 of title 10, United States Code, is amended by
3 adding at the end the following new section:

4 **“§ 2870. Use of qualified apprentices by military con-**
5 **struction contractors**

6 “(a) CERTIFICATION REQUIRED.—The Secretary of
7 Defense shall require each offeror for a contract for a mili-
8 tary construction project to certify to the Secretary that,
9 if awarded such a contract, the offeror will—

10 “(1) establish a goal that not less than 20 per-
11 cent of the total workforce employed in the perform-
12 ance of such a contract are qualified apprentices;
13 and

14 “(2) make a good faith effort to meet or exceed
15 such goal.

16 “(b) INCENTIVES.—The Secretary of Defense shall
17 develop incentives for offerors for a contract for military
18 construction projects to meet or exceed the goal described
19 in subsection (a).

20 “(c) CONSIDERATION OF USE OF QUALIFIED AP-
21 PRENTICES.—The Secretary of Defense shall revise the
22 Department of Defense Supplement to the Federal Acqui-
23 sition Regulation to require that the system used by the
24 Federal Government to monitor or record contractor past
25 performance includes an analysis of whether the con-

1 tractor has made a good faith effort to meet or exceed
2 the goal described in subsection (a), including consider-
3 ation of the actual number of qualified apprentices used
4 by the contractor on the contract, as part of the past per-
5 formance rating of such contractor.

6 “(d) QUALIFIED APPRENTICE DEFINED.—In this
7 section, the term ‘qualified apprentice’ means an employee
8 participating in an apprenticeship program that is—

9 “(1) registered with the Office of Apprenticeship
10 of the Employment Training Administration of
11 the Department of Labor pursuant to the Act of Au-
12 gust 16, 1937 (popularly known as the ‘National
13 Apprenticeship Act’; 29 U.S.C. 50 et seq.);

14 “(2) registered with a State apprenticeship
15 agency recognized by such Office of Apprenticeship
16 pursuant to such Act; or

17 “(3) determined to be a high-quality apprentice-
18 ship program by industry and the Secretary of
19 Labor.”.

20 (2) CLERICAL AMENDMENT.—The table of sec-
21 tions at the beginning of subchapter III of chapter
22 169 of title 10, United States Code, is amended by
23 adding at the end the following new item:

“2870. Use of qualified apprentices by military construction contractors.”.

24 (b) APPLICABILITY.—The amendments made by this
25 section shall apply with respect to contracts awarded on

1 or after the date that is 180 days after the date of the
2 enactment of this Act.

3 **Subtitle G—Small Business Matters**

4 **SEC. 870. REQUIREMENTS RELATING TO CREDIT FOR CER-** 5 **TAIN SMALL BUSINESS CONCERN SUB-** 6 **CONTRACTORS.**

7 (a) CREDIT FOR CERTAIN SMALL BUSINESS CON-
8 CERN SUBCONTRACTORS.—Section 8(d)(16) of the Small
9 Business Act (15 U.S.C. 637(d)) is amended to read as
10 follows:

11 “(16) CREDIT FOR CERTAIN SMALL BUSINESS
12 CONCERN SUBCONTRACTORS.—

13 “(A) IN GENERAL.—For purposes of deter-
14 mining whether or not a prime contractor has
15 attained the percentage goals specified in para-
16 graph (6)—

17 “(i) if the subcontracting goals per-
18 tain only to a single contract with a Fed-
19 eral agency, the prime contractor may elect
20 to receive credit for small business con-
21 cerns performing as first tier subcontract-
22 ors or subcontractors at any tier pursuant
23 to the subcontracting plans required under
24 paragraph (6)(D) in an amount equal to
25 the total dollar value of any subcontracts

1 awarded to such small business concerns;
2 and

3 “(ii) if the subcontracting goals per-
4 tain to more than one contract with one or
5 more Federal agencies, or to one contract
6 with more than one Federal agency, the
7 prime contractor may only receive credit
8 for first tier subcontractors that are small
9 business concerns.

10 “(B) COLLECTION AND REVIEW OF DATA
11 ON SUBCONTRACTING PLANS.—The head of
12 each contracting agency shall ensure that the
13 agency—

14 “(i) collects and reports data on the
15 extent to which prime contractors of the
16 agency meet the goals and objectives set
17 forth in subcontracting plans submitted
18 pursuant to this subsection; and

19 “(ii) periodically reviews data collected
20 and reported pursuant to clause (i) for the
21 purpose of ensuring that such contractors
22 comply in good faith with the requirements
23 of this subsection.

24 “(C) RULE OF CONSTRUCTION.—Nothing
25 in this paragraph shall be construed to allow a

1 Federal agency to establish a goal for an num-
2 ber of subcontracts with a subcontractor at any
3 tier for a prime contractor otherwise eligible to
4 receive credit under this paragraph.”.

5 (b) MAINTENANCE OF RECORDS WITH RESPECT TO
6 CREDIT UNDER A SUBCONTRACTING PLAN.—Section
7 8(d)(6) of the Small Business Act (15 U.S.C. 637(d)(6))
8 is amended—

9 (1) by redesignating subparagraphs (G) and
10 (H) as subparagraphs (H) and (I), respectively (and
11 conforming the margins accordingly); and

12 (2) by inserting after subparagraph (F) the fol-
13 lowing new subparagraph:

14 “(G) a recitation of the types of records
15 the successful offeror or bidder will maintain to
16 demonstrate that procedures have been adopted
17 to substantiate the credit the successful offeror
18 or bidder will elect to receive under paragraph
19 (16)(A);”.

20 **SEC. 871. INCLUSION OF BEST IN CLASS DESIGNATIONS IN**
21 **ANNUAL REPORT ON SMALL BUSINESS**
22 **GOALS.**

23 Section 15(h) of the Small Business Act (15 U.S.C.
24 644(h)) is amended by adding at the end the following
25 new paragraph:

1 “(4) BEST IN CLASS SMALL BUSINESS PARTICI-
2 PATION REPORTING.—

3 “(A) ADDENDUM.—In addition to the re-
4 quirements under paragraph (2) and for each
5 best in class designation, the Administrator
6 shall include in the report required by such
7 paragraph—

8 “(i) the total amount of spending
9 Governmentwide in such designation; and

10 “(ii) the number of small business
11 concerns awarded contracts and the dollar
12 amount of such contracts awarded within
13 each such designation to each of the fol-
14 lowing—

15 “(I) qualified HUBZone small
16 business concerns;

17 “(II) small business concerns
18 owned and controlled by women;

19 “(III) small business concerns
20 owned and controlled by service-dis-
21 abled veterans; and

22 “(IV) small business concerns
23 owned and controlled by socially and
24 economically disadvantaged individ-
25 uals.

1 “(B) BEST IN CLASS DEFINED.—The term
2 ‘best in class’ has the meaning given such term
3 by the Director of the Office of Management
4 and Budget.

5 “(C) EFFECTIVE DATE.—The Adminis-
6 trator shall report on the information described
7 by subparagraph (A) beginning on the date that
8 such information is available in the Federal
9 Procurement Data System, the System for
10 Award Management, or any successor to such
11 systems.”.

12 **SEC. 872. REAUTHORIZATION AND IMPROVEMENT OF DE-**
13 **PARTMENT OF DEFENSE MENTOR-PROTEGE**
14 **PROGRAM.**

15 (a) REAUTHORIZATION.—

16 (1) IN GENERAL.—Subsection (j) of section 831
17 of the National Defense Authorization Act for Fiscal
18 Year 1991 (Public Law 101–510; 10 U.S.C. 2302
19 note) is amended—

20 (A) in paragraph (1), by striking “Sep-
21 tember 30, 2018” and inserting “September 30,
22 2024”; and

23 (B) in paragraph (2), by striking “Sep-
24 tember 30, 2021” and inserting “September 30,
25 2026”.

1 (2) PROGRAM PARTICIPATION TERM.—Sub-
2 section (e)(2) of such section is amended by striking
3 “three years” each place such term appears and in-
4 serting “two years”.

5 (3) EFFECTIVE DATE.—The amendments made
6 by this subsection shall take effect on the date on
7 which the Secretary of Defense submits to Congress
8 the small business strategy required under section
9 2283 of title 10, United States Code. The Secretary
10 of Defense shall notify the Law Revision Counsel of
11 the House of Representatives of the submission of
12 the strategy so that the Law Revision Counsel may
13 execute the amendments made by this subsection.

14 (b) OFFICE OF SMALL BUSINESS PROGRAMS OVER-
15 SIGHT.—Section 831 of the National Defense Authoriza-
16 tion Act for Fiscal Year 1991 (Public Law 101–510; 10
17 U.S.C. 2302 note) is amended—

18 (1) by redesignating subsection (n) as sub-
19 section (o); and

20 (2) by inserting after subsection (m) the fol-
21 lowing new subsection:

22 “(n) ESTABLISHMENT OF PERFORMANCE GOALS
23 AND PERIODIC REVIEWS.—The Office of Small Business
24 Programs of the Department of Defense shall—

1 “(1) establish performance goals consistent with
2 the stated purpose of the Mentor-Protege Program
3 and outcome-based metrics to measure progress in
4 meeting those goals; and

5 “(2) submit to the congressional defense com-
6 mittees, not later than February 1, 2020, a report
7 on progress made toward implementing these per-
8 formance goals and metrics, based on periodic re-
9 views of the procedures used to approve mentor-pro-
10 tege agreements.”.

11 (c) MODIFICATION OF DISADVANTAGED SMALL
12 BUSINESS CONCERN DEFINITION.—Paragraph (2) of sec-
13 tion 831(o) of the National Defense Authorization Act for
14 Fiscal Year 1991 (Public Law 101–510; 10 U.S.C. 2302
15 note), as redesignated by subsection (b)(1), is amended
16 in the matter preceding subparagraph (A) by striking “has
17 less than half the size standard corresponding to its pri-
18 mary North American Industry Classification System
19 code” and inserting “is not more than the size standard
20 corresponding to its primary North American Industry
21 Classification System code”.

22 (d) INDEPENDENT REPORT ON PROGRAM EFFEC-
23 TIVENESS.—The Secretary of Defense shall direct the De-
24 fense Business Board to submit, not later than March 31,
25 2022, to the congressional defense committees a report

1 evaluating the effectiveness of the Mentor-Protege Pro-
2 gram established under section 831 of the National De-
3 fense Authorization Act for Fiscal Year 1991 (Public Law
4 101–510; 10 U.S.C. 2302 note), including recommenda-
5 tions for improving the program in terms of performance
6 metrics, forms of assistance, and overall program effec-
7 tiveness.

8 (e) REPORT.—Not later than 180 days after the date
9 of the enactment of this Act, and annually thereafter until
10 September 30, 2024, the Secretary of Defense shall sub-
11 mit to the congressional defense committees a report on
12 the Mentor-Protege Program established under section
13 831 of the National Defense Authorization Act for Fiscal
14 Year 1991 (Public Law 101–510; 10 U.S.C. 2302 note)
15 that describes—

16 (1) each mentor-protege agreement entered into
17 under such section, disaggregated by the type of dis-
18 advantaged small business concern (as defined in
19 subsection (o) of such section) receiving assistance
20 pursuant to such an agreement;

21 (2) the type of assistance provided to protege
22 firms (as defined in such subsection) under each
23 such agreement;

1 (3) the benefits provided to mentor firms (as
2 defined in such subsection) under each such agree-
3 ment; and

4 (4) the progress of protege firms under each
5 such agreement with respect to competing for Fed-
6 eral prime contracts and subcontracts.

7 **SEC. 873. ACCELERATED PAYMENTS APPLICABLE TO CON-**
8 **TRACTS WITH CERTAIN SMALL BUSINESS**
9 **CONCERNS UNDER THE PROMPT PAYMENT**
10 **ACT.**

11 Section 3903(a) of title 31, United States Code, is
12 amended—

13 (1) in paragraph (1)(B), by inserting “except as
14 provided in paragraphs (10) and (11),” before “30
15 days”;

16 (2) in paragraph (8), by striking “and”;

17 (3) in paragraph (9), by striking the period at
18 the end and inserting a semicolon; and

19 (4) by adding at the end the following new
20 paragraphs:

21 “(10) for a prime contractor (as defined in sec-
22 tion 8701(5) of title 41) that is a small business
23 concern (as defined under section 3 of the Small
24 Business Act (15 U.S.C. 632)), to the fullest extent
25 permitted by law, require that the head of an agency

1 establish an accelerated payment date with a goal of
2 15 days after a proper invoice for the amount due
3 is received if a specific payment date is not estab-
4 lished by contract; and

5 “(11) for a prime contractor (as defined in sec-
6 tion 8701(5) of title 41) that subcontracts with a
7 small business concern (as defined under section 3
8 of the Small Business Act (15 U.S.C. 632)), to the
9 fullest extent permitted by law, require that the
10 head of an agency establish an accelerated payment
11 date with a goal of 15 days after a proper invoice
12 for the amount due is received if—

13 “(A) a specific payment date is not estab-
14 lished by contract; and

15 “(B) such prime contractor agrees to make
16 payments to such subcontractor in accordance
17 with such accelerated payment date, to the
18 maximum extent practicable, without any fur-
19 ther consideration from or fees charged to such
20 subcontractor.”.

21 **SEC. 874. POSTAWARD EXPLANATIONS FOR UNSUCCESSFUL**
22 **OFFERORS FOR CERTAIN CONTRACTS.**

23 Not later than 180 days after the date of the enact-
24 ment of this Act, the Federal Acquisition Regulation shall
25 be revised to require that with respect to an offer for a

1 task order or delivery order in an amount greater than
2 the simplified acquisition threshold (as defined in section
3 134 of title 41, United States Code) and less than or equal
4 to \$5,500,000 issued under an indefinite delivery-indefi-
5 nite quantity contract, the contracting officer for such
6 contract shall, upon written request from an unsuccessful
7 offeror, provide a brief explanation as to why such offeror
8 was unsuccessful that includes a summary of the rationale
9 for the award and an evaluation of the significant weak
10 or deficient factors in the offeror's offer.

11 **SEC. 875. SMALL BUSINESS CONTRACTING CREDIT FOR**
12 **SUBCONTRACTORS THAT ARE PUERTO RICO**
13 **BUSINESSES OR COVERED TERRITORY BUSI-**
14 **NESSES.**

15 Section 15(x) of the Small Business Act (15 U.S.C.
16 644(x)(1)) is amended—

17 (1) in the subsection heading, by adding “AND
18 COVERED TERRITORY BUSINESSES” after “PUERTO
19 RICO BUSINESSES”;

20 (2) in paragraph (1)—

21 (A) by inserting “or a covered territory
22 business, or a prime contractor awards a sub-
23 contract (at any tier) to a subcontractor that is
24 a Puerto Rico business or a covered territory
25 business,” after “Puerto Rico business”;

1 (B) by inserting “or subcontract” after
2 “the contract”; and

3 (C) by striking “subsection (g)(1)(A)(i)”
4 and inserting “subsection (g)(1)(A)”; and

5 (3) by adding at the end the following new
6 paragraph:

7 “(3) COVERED TERRITORY BUSINESS DE-
8 FINED.—In this subsection, the term ‘covered terri-
9 tory business’ means a small business concern that
10 has its principal office located in one of the fol-
11 lowing:

12 “(A) The United States Virgin Islands.

13 “(B) American Samoa.

14 “(C) Guam.

15 “(D) The Northern Mariana Islands.”.

16 **SEC. 876. TECHNICAL AMENDMENT REGARDING TREAT-**
17 **MENT OF CERTAIN SURVIVING SPOUSES**
18 **UNDER THE DEFINITION OF SMALL BUSINESS**
19 **CONCERN OWNED AND CONTROLLED BY**
20 **SERVICE-DISABLED VETERANS.**

21 Effective on the date specified in subsection (e) of
22 section 1832 of the National Defense Authorization Act
23 for Fiscal Year 2017 (Public Law 114–328; 130 Stat.
24 2660), section 3(q)(2) of the Small Business Act (15
25 U.S.C. 632(q)) is amended—

1 (1) in subparagraph (C)(i)(II), by striking
2 “rated as 100 percent” and all that follows through
3 “service-connected disability”; and

4 (2) by amending subparagraph (C)(ii)(III) to
5 read as follows:

6 “(III) the date that—

7 “(aa) in the case of a surviving
8 spouse of a veteran with a service-con-
9 nected disability rated as 100 percent
10 disabling or who dies as a result of a
11 service-connected disability, is 10
12 years after the date of the death of
13 the veteran; or

14 “(bb) in the case of a surviving
15 spouse of a veteran with a service-con-
16 nected disability rated as less than
17 100 percent disabling who does not
18 die as a result of a service-connected
19 disability, is 3 years after the date of
20 the death of the veteran.”.

1 **SEC. 877. EXTENSION OF LOAN ASSISTANCE AND DEFER-**
2 **RAL ELIGIBILITY TO RESERVISTS AND MEM-**
3 **BERS OF THE NATIONAL GUARD BEYOND PE-**
4 **RIODS OF MILITARY CONFLICT.**

5 (a) SMALL BUSINESS ACT AMENDMENTS.—Section
6 7 of the Small Business Act (15 U.S.C. 636) is amend-
7 ed—

8 (1) in subsection (b)(3)—

9 (A) in subparagraph (A)—

10 (i) by striking clause (ii);

11 (ii) by redesignating clause (i) as
12 clause (ii);

13 (iii) by inserting before clause (ii), as
14 so redesignated, the following:

15 “(i) the term ‘active service’ has the mean-
16 ing given that term in section 101(d)(3) of title
17 10, United States Code;” and

18 (iv) in clause (ii), as so redesignated,
19 by adding “and” at the end;

20 (B) in subparagraph (B), by striking
21 “being ordered to active military duty during a
22 period of military conflict” and inserting “being
23 ordered to perform active service for a period of
24 more than 30 consecutive days”;

1 (C) in subparagraph (C), by striking “ac-
2 tive duty” each place it appears and inserting
3 “active service”; and

4 (D) in subparagraph (G)(ii)(II), by strik-
5 ing “active duty” and inserting “active service”;
6 and

7 (2) in subsection (n)—

8 (A) in the subsection heading, by striking
9 “ACTIVE DUTY” and inserting “ACTIVE SERV-
10 ICE”;

11 (B) in paragraph (1)—

12 (i) by striking subparagraph (C);

13 (ii) by redesignating subparagraphs
14 (A) and (B) as subparagraphs (B) and
15 (C), respectively;

16 (iii) by inserting before subparagraph
17 (B), as so redesignated, the following:

18 “(A) ACTIVE SERVICE.—The term ‘active
19 service’ has the meaning given that term in sec-
20 tion 101(d)(3) of title 10, United States
21 Code.”;

22 (iv) in subparagraph (B), as so redesi-
23 gnated, by striking “ordered to active duty
24 during a period of military conflict” and
25 inserting “ordered to perform active serv-

1 ice for a period of more than 30 consecu-
2 tive days”; and

3 (v) in subparagraph (D), by striking
4 “active duty” each place it appears and in-
5 serting “active service”; and

6 (C) in paragraph (2)(B), by striking “ac-
7 tive duty” each place it appears and inserting
8 “active service”.

9 (b) **APPLICABILITY.**—The amendments made by sub-
10 section (a)(1) shall apply to an economic injury suffered
11 or likely to be suffered as the result of an essential em-
12 ployee being ordered to perform active service (as defined
13 in section 101(d)(3) of title 10, United States Code) for
14 a period of more than 30 consecutive days who is dis-
15 charged or released from such active service on or after
16 the date of enactment of this Act.

17 (c) **SEMIANNUAL REPORT.**—Not later than 180 days
18 after the date of enactment of this Act, and semiannually
19 thereafter, the President shall submit to the Committee
20 on Small Business and Entrepreneurship and the Com-
21 mittee on Appropriations of the Senate and the Committee
22 on Small Business and the Committee on Appropriations
23 of the House of Representatives a report on the number
24 of loans made under the Military Reservist Economic In-
25 jury Disaster Loan program and the dollar volume of

1 those loans. The report shall contain the subsidy rate of
2 the disaster loan program as authorized under section 7(b)
3 of the Small Business Act (15 U.S.C. 636(b)) with the
4 loans made under the Military Reservist Economic Injury
5 Disaster Loan program and without those loans included.

6 (d) TECHNICAL AND CONFORMING AMENDMENT.—
7 Section 8(l) of the Small Business Act (15 U.S.C. 637(l))
8 is amended—

9 (1) by striking “The Administration” and in-
10 sserting the following:

11 “(1) IN GENERAL.—The Administration”;

12 (2) by striking “(as defined in section
13 7(n)(1))”; and

14 (3) by adding at the end the following:

15 “(2) DEFINITION OF PERIOD OF MILITARY CON-
16 FLICT.—In this subsection, the term ‘period of mili-
17 tary conflict’ means—

18 “(A) a period of war declared by the Con-
19 gress;

20 “(B) a period of national emergency de-
21 clared by the Congress or by the President; or

22 “(C) a period of a contingency operation,
23 as defined in section 101(a) of title 10, United
24 States Code.”.

1 **SEC. 878. MODIFICATION TO THE DEFENSE RESEARCH AND**
2 **DEVELOPMENT RAPID INNOVATION PRO-**
3 **GRAM.**

4 (a) TYPES OF AWARDS; AWARD SIZE; LIMITATION
5 ON CERTAIN AWARDS.—Section 2359a of title 10, United
6 States Code, is amended—

7 (1) in subsection (a)(1), by inserting “phase II
8 Small Business Technology Transfer Program
9 projects,” after “projects,”;

10 (2) in subsection (b)—

11 (A) in paragraph (3), by striking
12 “\$3,000,000” and all that follows through the
13 period at the end and inserting “\$6,000,000.”;
14 and

15 (B) by adding at the end the following new
16 paragraph:

17 “(7) A preference under the program for fund-
18 ing small business concerns.”; and

19 (3) in subsection (d)—

20 (A) by striking “Subject to” and inserting
21 “(1) Subject to”;

22 (B) in paragraph (1), as so designated, by
23 inserting “and to the limitation under para-
24 graph (2)” after “for such purpose”; and

25 (C) by adding at the end the following new
26 paragraph:

1 “(2) During any fiscal year, the total amount
2 of awards in an amount greater than \$3,000,000
3 made under the program established under sub-
4 section (a) may not exceed 25 percent of the amount
5 made available to carry out such program during
6 such fiscal year.”.

7 (b) REPORT.—Not later than 180 days after the date
8 of the enactment of this Act, the Secretary of Defense
9 shall submit to the congressional defense committees a re-
10 port on the program established under section 2359a(a)
11 of title 10, United States Code (commonly known as the
12 “Defense Research and Development Rapid Innovation
13 Program”), which shall include—

14 (1) with respect to the two fiscal years pre-
15 ceding the submission of the report—

16 (A) a description of the total number of
17 proposals funded under the program;

18 (B) the percent of funds made available
19 under the program for phase II Small Business
20 Innovation Research Program projects (as de-
21 fined under section 9 of the Small Business Act
22 (15 U.S.C. 638)); and

23 (C) a list of phase II Small Business Inno-
24 vation Research Program projects that received
25 funding under the program that were included

1 in major defense acquisition programs (as de-
2 fined in section 2430 of title 10, United States
3 Code) and other defense acquisition programs
4 that meet critical national security needs; and

5 (2) an assessment on the effectiveness of the
6 program in stimulating innovative technologies, re-
7 ducing acquisition or lifecycle costs, addressing tech-
8 nical risk, and improving the timeliness and thor-
9 oughness of test and evaluation outcomes.

10 **SEC. 879. ALIGNMENT OF THE DEPARTMENT OF DEFENSE**
11 **SMALL BUSINESS INNOVATION RESEARCH**
12 **PROGRAM AND SMALL BUSINESS TECH-**
13 **NOLOGY TRANSFER PROGRAM WITH THE NA-**
14 **TIONAL DEFENSE SCIENCE AND TECH-**
15 **NOLOGY STRATEGY.**

16 The Secretary of Defense and Secretaries of the mili-
17 tary departments shall, to the extent practicable, align the
18 research topics selected for activities conducted under the
19 Small Business Innovation Research Program and Small
20 Business Technology Transfer Program (as defined under
21 section 9 of the Small Business Act (15 U.S.C. 638)) with
22 the National Defense Science and Technology Strategy de-
23 veloped under section 218 of the John. S. McCain Na-
24 tional Defense Authorization Act for Fiscal Year 2019
25 (Public Law 115–232; 132 Stat. 1679).

1 **SEC. 880. ASSISTANCE FOR SMALL BUSINESS CONCERNS**
2 **PARTICIPATING IN THE SBIR AND STTR PRO-**
3 **GRAMS.**

4 (a) DEFINITION OF SENIOR PROCUREMENT EXECU-
5 TIVE.—Section 9(e) of the Small Business Act (15 U.S.C.
6 638(e)) is amended—

7 (1) in paragraph (12)(B), by striking “and” at
8 the end;

9 (2) in paragraph (13)(B), by striking the period
10 at the end and inserting “; and”; and

11 (3) by adding at the end the following new
12 paragraph:

13 “(14) the term ‘senior procurement executive’
14 means an official designated under section 1702(c)
15 of title 41, United States Code, as the senior pro-
16 curement executive of a Federal agency participating
17 in a SBIR or STTR program.”.

18 (b) INCLUSION OF SENIOR PROCUREMENT EXECU-
19 TIVES IN SBIR AND STTR.—

20 (1) IN GENERAL.—Section 9(b) of the Small
21 Business Act (15 U.S.C. 638(b)) is amended—

22 (A) in paragraph (8), by striking “and” at
23 the end;

24 (B) in paragraph (9), by striking the pe-
25 riod at the end and inserting “; and”; and

1 (C) by adding at the end the following new
2 paragraph:

3 “(10) to consult, where appropriate, with per-
4 sonnel from the relevant Federal agency to assist
5 small business concerns participating in a SBIR or
6 STTR program with commercializing research devel-
7 oped under such a program before such small busi-
8 ness concern is awarded a contract from such Fed-
9 eral agency.”.

10 (2) TECHNICAL AMENDMENT.—Section 9(b)(3)
11 of the Small Business Act (15 U.S.C. 638(b)(3)) is
12 amended by striking “and” at the end.

13 (c) MODIFICATIONS RELATING TO PROCUREMENT
14 CENTER REPRESENTATIVES AND OTHER ACQUISITION
15 PERSONNEL.—

16 (1) SBIR AMENDMENT.—Section 9(j) of the
17 Small Business Act (15 U.S.C. 638(j)) is amended
18 by adding at the end the following new paragraph:

19 “(4) MODIFICATIONS RELATING TO PROCURE-
20 MENT CENTER REPRESENTATIVES.—Upon the en-
21 actment of this paragraph, the Administrator shall
22 modify the policy directives issued pursuant to this
23 subsection to require procurement center representa-
24 tives (as described in section 15(l)) to consult with
25 the appropriate personnel from the relevant Federal

1 agency, to assist small business concerns partici-
2 pating in the SBIR program, particularly in Phase
3 III.”.

4 (2) STTR AMENDMENT.—Section 9(p)(2) of
5 the Small Business Act (15 U.S.C. 638(p)(2)) is
6 amended—

7 (A) in subparagraph (E)(ii), by striking
8 “and” at the end;

9 (B) in subparagraph (F), by striking the
10 period at the end and inserting “; and”; and

11 (C) by adding at the end the following new
12 subparagraph:

13 “(G) procedures to ensure that procure-
14 ment center representatives (as described in
15 section 15(l))—

16 “(i) consult with the appropriate per-
17 sonnel from the relevant Federal agency,
18 to assist small business concerns partici-
19 pating in the STTR program, particularly
20 in Phase III;

21 “(ii) provide technical assistance to
22 such concerns to submit a bid for an
23 award of a Federal contract; and

24 “(iii) consult with the appropriate per-
25 sonnel from the relevant Federal agency in

1 providing the assistance described in clause
2 (i).”.

3 (d) AMENDMENT TO DUTIES OF PROCUREMENT
4 CENTER REPRESENTATIVES.—Section 15(l)(2) of the
5 Small Business Act (15 U.S.C. 644(l)(2)) is amended—
6 (1) in subparagraph (I), by striking “and” at
7 the end;
8 (2) by redesignating subparagraph (J) as sub-
9 paragraph (K); and
10 (3) by inserting after subparagraph (I) the fol-
11 lowing new subparagraph:

12 “(J) consult with the appropriate per-
13 sonnel from the relevant Federal agency, to as-
14 sist small business concerns participating in a
15 SBIR or STTR program under section 9 with
16 Phase III;”.

17 (e) AMENDMENT TO THE DUTIES OF THE DIRECTOR
18 OF SMALL AND DISADVANTAGED BUSINESS UTILIZATION
19 FOR FEDERAL AGENCIES.—Section 15(k) of the Small
20 Business Act (15 U.S.C. 644(k)) is amended—
21 (1) in paragraph (19), by striking “and” at the
22 end;
23 (2) in paragraph (20), by striking the period at
24 the end and inserting a semicolon; and

1 (3) by adding at the end the following new
2 paragraph:

3 “(21) shall consult with the appropriate per-
4 sonnel from the relevant Federal agency to assist
5 small business concerns participating in a SBIR or
6 STTR program under section 9 with researching ap-
7 plicable solicitations for the award of a Federal con-
8 tract (particularly with the Federal agency that has
9 a funding agreement, as defined under section 9,
10 with the concern) to market the research developed
11 by such concern under such SBIR or STTR pro-
12 gram.”.

13 **SEC. 881. CYBERSECURITY TECHNICAL ASSISTANCE FOR**
14 **SBIR AND STTR PROGRAMS.**

15 (a) IN GENERAL.—The Secretary of Defense may
16 enter into an agreement with 1 or more vendors selected
17 under section 9(q)(2) of the Small Business Act (15
18 U.S.C. 638(q)(2)) to provide small business concerns en-
19 gaged in SBIR or STTR projects with cybersecurity tech-
20 nical assistance, such as access to a network of cybersecu-
21 rity experts and engineers engaged in designing and imple-
22 menting cybersecurity practices.

23 (b) AMOUNTS.—In carrying out subsection (a), the
24 Secretary of Defense may provide the amounts described
25 under section 9(q)(3) of such Act (15 U.S.C. 638(q)(3))

1 to a recipient that meets the eligibility requirements under
2 the such paragraph, if the recipient requests to seek cyber-
3 security technical assistance from an individual or entity
4 other than a vendor selected as described in subsection
5 (a).

6 **SEC. 882. FUNDING FOR DEFENSE RESEARCH ACTIVITIES**
7 **OF SMALL BUSINESS CONCERNS.**

8 Not later than March 1, 2020, the Secretary of De-
9 fense shall submit to the congressional defense committees
10 a report on funds or other assistance made available to
11 small business concerns (as defined under section 3 of the
12 Small Business Act (15 U.S.C. 632)) as prime contractors
13 for research, development, test, and evaluation activities,
14 in each of fiscal years 2017, 2018, and 2019 under any—

15 (1) research, development, test, and evaluation
16 programs of the Department of Defense;

17 (2) Small Business Innovation Research pro-
18 grams of the Department of Defense;

19 (3) Small Business Technology Transfer pro-
20 grams of the Department of Defense; and

21 (4) other relevant activities of the Department
22 of Defense.

1 **SEC. 883. MODIFICATIONS TO BUDGET DISPLAY REQUIRE-**
2 **MENTS FOR THE DEPARTMENT OF DEFENSE**
3 **SMALL BUSINESS INNOVATION RESEARCH**
4 **PROGRAM AND SMALL BUSINESS TECH-**
5 **NOLOGY TRANSFER PROGRAM.**

6 Section 857 of the John S. McCain National Defense
7 Authorization Act for Fiscal Year 2019 (Public Law 115–
8 232; 132 Stat. 1891) is amended—

9 (1) in subsection (a)—

10 (A) by inserting “Under Secretary of De-
11 fense (Comptroller) and the” before “Under
12 Secretary of Defense for Research and Engi-
13 neering”; and

14 (B) by striking “a budget display” and in-
15 serting “one or more budget displays”;

16 (2) in subsection (b), by striking “The budget
17 display” and inserting “The budget displays”; and

18 (3) in subsection (d), by striking “The budget
19 display” and inserting “The budget displays”.

20 **SEC. 884. PILOT PROGRAM FOR DOMESTIC INVESTMENT**
21 **UNDER THE SBIR PROGRAM.**

22 (a) **IN GENERAL.**—Not later than 1 year after the
23 date of the enactment of this Act and subject to subsection
24 (b), the Secretary of Defense shall establish and admin-
25 ister a program to be known as the “Domestic Investment
26 Pilot Program” under which the Secretary and the service

1 acquisition executive for each military department may
2 make a SBIR award under section 9(dd) of the Small
3 Business Act (15 U.S.C. 638) to a small business concern
4 without providing the written determination described
5 under paragraph (2) of such section 9(dd) if such concern
6 is—

7 (1) exclusively owned by multiple United
8 States-owned venture capital operating companies,
9 hedge funds, or private equity firms, or

10 (2) majority-owned by multiple United States-
11 owned venture capital operating companies, hedge
12 funds, or private equity firms, if the minority foreign
13 ownership of such concern is limited to members of
14 the national technology and industrial base as de-
15 fined under section 2500 of title 10, United States
16 Code.

17 (b) LIMITATION.—During any fiscal year, the aggre-
18 gate amount of awards made under the Domestic Invest-
19 ment Pilot Program shall not exceed an amount equal to
20 10 percent of the total amount that the Secretary of De-
21 fense may award under section 9 of the Small Business
22 Act (15 U.S.C. 638) during such fiscal year.

23 (c) EVALUATION CRITERIA.—In carrying out the Do-
24 mestic Investment Pilot Program, the Secretary of De-
25 fense may not use investment of venture capital or invest-

1 ment from hedge funds or private equity firms as a cri-
2 terion for the award of contracts under the SBIR program
3 or STTR program.

4 (d) ANNUAL REPORTING.—The Secretary of Defense
5 shall include as part of each annual report required under
6 section 9(b)(7) of the Small Business Act (15 U.S.C.
7 638(b)(7)) information on the implementation of the Do-
8 mestic Investment Pilot Program with respect to the year
9 covered by the report, including—

10 (1) the number of applications for participation
11 received from small business concerns;

12 (2) the number of awards made to small busi-
13 ness concerns, including an identification of such
14 concerns;

15 (3) the extent to which a small business concern
16 participant is foreign-owned, including an identifica-
17 tion of the foreign owners; and

18 (4) an assessment of the effect of the Domestic
19 Investment Pilot Program on—

20 (A) inducing additional venture capital,
21 hedge fund, or private equity funding of re-
22 search as defined in section 9(e)(5) of the Small
23 Business Act (15 U.S.C. 638(e)(5));

24 (B) substantially contributing to the mis-
25 sion of the Department of Defense; and

1 (C) otherwise fulfilling the capital needs of
2 small business concerns for additional financing
3 for SBIR projects.

4 (e) NOTIFICATION.—The Secretary of Defense shall
5 notify the Small Business Administration of an award
6 made under the Domestic Investment Pilot Program not
7 later than 30 days after such award is made.

8 (f) TERMINATION.—The Domestic Investment Pilot
9 Program established under this section shall terminate on
10 September 30, 2022.

11 (g) DEFINITIONS.—In this section:

12 (1) MILITARY DEPARTMENT; SERVICE ACQUISITION
13 EXECUTIVE.—The terms “military depart-
14 ment” and “service acquisition executive” have the
15 meanings given those terms, respectively, in section
16 101 of title 10, United States Code.

17 (2) SBIR; STTR.—The terms “SBIR” and
18 “STTR” have the meanings given those terms, re-
19 spectively, in section 9(e) of the Small Business Act
20 (15 U.S.C. 638(e)).

21 (3) SMALL BUSINESS ACT DEFINITIONS.—The
22 terms “small business concern”, “venture capital op-
23 erating company”, “hedge fund”, and “private eq-
24 uity firm” have the meanings given those terms, re-

1 spectively, in section 3 of the Small Business Act
2 (15 U.S.C. 632).

3 **Subtitle H—Other Matters**

4 **SEC. 885. REVIEW OF GUIDANCE TO CONTRACTORS ON** 5 **NONDISCRIMINATION ON THE BASIS OF SEX.**

6 (a) REVIEW.—Not later than 180 days after the date
7 of the enactment of this Act, the Under Secretary of De-
8 fense for Acquisition and Sustainment, serving as the sen-
9 ior procurement executive for the Department of Defense
10 pursuant to section 133b(b)(4)(B) of title 10, United
11 States Code, shall conduct a review of the implementation
12 of the requirement for Government contracting agencies
13 under Executive Order 11246 (42 U.S.C. 2000e note) re-
14 lating to expectations of contractors and subcontractors
15 to ensure nondiscrimination on the basis of sex.

16 (b) ELEMENTS.—The review required under sub-
17 section (a) shall, at a minimum, consider—

18 (1) existing contracting processes and tools for
19 oversight of contracts, including contractor responsi-
20 bility determinations and documentation of perform-
21 ance; and

22 (2) the extent to which best practices for con-
23 tractors and subcontractors identified in the appen-
24 dix to part 60–20 of title 41 of the Code of Federal
25 Regulations, such as establishing and implementing

1 procedures for handling and resolving complaints
2 about harassment and intimidation based on sex,
3 have been incorporated in Department policies and
4 procedures.

5 (c) UPDATED TRAINING GUIDANCE.—Not later than
6 180 days after the date of the completion of the review
7 required under subsection (a), the Under Secretary of De-
8 fense for Acquisition and Sustainment shall update any
9 relevant training guidance for the acquisition workforce to
10 account for the conclusions of the review.

11 (d) BRIEFING REQUIRED.—Not later than December
12 15, 2020, the Secretary of Defense shall brief the congres-
13 sional defense committees on the review required under
14 subsection (a), which shall include any updates to training
15 guidance or contracting procedures resulting from the re-
16 view.

17 **SEC. 886. COMPTROLLER GENERAL REPORT ON CON-**
18 **TRACTOR VIOLATIONS OF CERTAIN LABOR**
19 **LAWS.**

20 Not later than 180 days after the date of the enact-
21 ment of this Act, the Comptroller General of the United
22 States shall submit a report to Congress on the number
23 of contractors—

1 (1) that performed a contract with the Depart-
2 ment of Defense during the five-year period pre-
3 ceding the date of the enactment of this Act; and

4 (2) that have been found by the Department of
5 Labor to have committed willful or repeat violations
6 of the Occupational Safety and Health Act of 1970
7 (29 U.S.C. 651 et seq.) or the Fair Labor Standards
8 Act of 1938 (29 U.S.C. 201 et seq.), and the nature
9 of the violations committed.

10 **SEC. 887. COMPTROLLER GENERAL REPORT ON CONTIN-**
11 **GENCY CONTRACTING.**

12 Not later than one year after the date of the enact-
13 ment of this Act, the Comptroller General of the United
14 States shall submit to the congressional defense commit-
15 tees a report on the use of contractors to perform work
16 supporting contingency operations, including the logistical
17 support for such operations, since January 1, 2009. Such
18 report shall include—

19 (1) an evaluation of the nature and extent to
20 which the Department of Defense has used contrac-
21 tors to perform such work, including the type of op-
22 eration or exercise, the functions performed by a
23 contractor, the place of performance, and contract
24 obligations;

1 (2) an evaluation of the processes for tracking
2 and reporting on the use of such contractors;

3 (3) an evaluation of the extent to which rec-
4 ommendations made by the Wartime Contracting
5 Commission established in section 841 of the Na-
6 tional Defense Authorization Act for Fiscal Year
7 2008 (Public Law 110–181; 122 Stat. 230) have
8 been implemented in policy, guidance, education and
9 training, as appropriate; and

10 (4) any other issues the Comptroller General
11 determines to be appropriate.

12 **SEC. 888. POLICIES AND PROCEDURES FOR CONTRACTORS**
13 **TO REPORT GROSS VIOLATIONS OF INTER-**
14 **NATIONALLY RECOGNIZED HUMAN RIGHTS.**

15 (a) IN GENERAL.—Not later than 180 days after the
16 date of the enactment of this Act, the Secretary of Defense
17 shall update Department of Defense policy and guidance
18 and the Department of Defense Supplement to the Fed-
19 eral Acquisition Regulation to provide specific guidance to
20 Department of Defense employees and contractors per-
21 forming a Department of Defense contract that supports
22 United States Armed Forces deployed outside of the
23 United States on monitoring and reporting allegations of
24 gross violations of internationally recognized human
25 rights.

1 (b) REPORT.—Not later than 180 days after the date
2 of the enactment of this Act, the Secretary of Defense,
3 with the concurrence of the Secretary of State, shall sub-
4 mit to the appropriate congressional committees a report
5 that describes—

6 (1) the policies and procedures in place to ob-
7 tain information about possible cases of gross viola-
8 tions of internationally recognized human rights
9 from Department of Defense contractors described
10 in subsection (a), including the methods for tracking
11 cases; and

12 (2) the resources needed to investigate reports
13 made pursuant to subsection (a).

14 (c) FORM OF REPORT.—The report required by sub-
15 section (b) shall be submitted in unclassified form, but
16 may include a classified annex.

17 (d) DEFINITIONS.—In this section:

18 (1) APPROPRIATE CONGRESSIONAL COMMIT-
19 TEES.—the term “appropriate congressional commit-
20 tees” means—

21 (A) the congressional defense committees;
22 and

23 (B) the Committee on Foreign Relations of
24 the Senate and the Committee on Foreign Af-
25 fairs of the House of Representatives.

1 (2) GROSS VIOLATIONS OF INTERNATIONALLY
2 RECOGNIZED HUMAN RIGHTS.—The term “gross vio-
3 lations of internationally recognized human rights”
4 has the meaning given such term in subsection
5 (d)(1) of section 502B of the Foreign Assistance Act
6 of 1961 (22 U.S.C. 2304).

7 **SEC. 889. COMPTROLLER GENERAL REPORT ON OVER-**
8 **SIGHT OF CONTRACTORS PROVIDING PRI-**
9 **VATE SECURITY FUNCTIONS.**

10 (a) IN GENERAL.—Not later than one year after the
11 date of the enactment of this Act, the Comptroller General
12 of the United States shall submit to the congressional de-
13 fense committees a report on efforts of the Secretary of
14 Defense to improve the oversight of contractors providing
15 private security functions to fulfill non-combat require-
16 ments for security in contingency operations, humani-
17 tarian operations, peacekeeping operations, or other simi-
18 lar operations or exercises since January 1, 2009.

19 (b) ELEMENTS.—The report required under sub-
20 section (a) shall evaluate—

21 (1) the nature and extent to which the Depart-
22 ment of Defense has used contractors to perform
23 private security functions described under subsection
24 (a), including the type of operation or exercise, the

1 functions performed by a contractor, the place of
2 performance, and contract obligations;

3 (2) the processes for tracking and reporting on
4 the use of such contractors;

5 (3) changes to law, regulation, and policy on
6 the use of such contractors and how the Secretary
7 has implemented such changes, including—

8 (A) the Montreux Document on Pertinent
9 International Legal Obligations and Good Prac-
10 tices for States Related to Operations of Pri-
11 vate Military and Security Companies During
12 Armed Conflict (published on May 2, 2011);

13 (B) using standards for such contractors
14 issued by the American National Standards In-
15 stitute and the International Organization for
16 Standardization; and

17 (C) using other associated accreditation
18 and certification standards for such contractors;
19 and

20 (4) the oversight outcomes of the Department
21 due to implementing the processes described in para-
22 graph (2) and the changes described in paragraph
23 (3), including—

24 (A) progress with certification and accredi-
25 tation of companies;

1 (B) the use of the maturity model of the
2 Department to assess contractors; and

3 (C) the nature and extent of referrals for
4 suspension and debarment and the number of
5 suspensions and debarments that have resulted
6 from such referrals.

7 (c) FORM OF REPORT.—The report required by sub-
8 section (a) shall be submitted in unclassified form, to the
9 maximum extent possible, but may contain a classified
10 annex, if necessary.

11 **SEC. 890. PROHIBITION ON CONTRACTING WITH PERSONS**
12 **THAT HAVE BUSINESS OPERATIONS WITH**
13 **THE MADURO REGIME.**

14 (a) PROHIBITION.—Except as provided under sub-
15 sections (c), (d), and (e), the Department of Defense may
16 not enter into a contract for the procurement of goods
17 or services with any person that has business operations
18 with an authority of the Government of Venezuela that
19 is not recognized as the legitimate Government of Ven-
20 ezuela by the United States Government.

21 (b) EXCEPTIONS.—

22 (1) IN GENERAL.—The prohibition under sub-
23 section (a) does not apply to a contract that the Sec-
24 retary of Defense and the Secretary of State jointly
25 determine—

1 (A) is necessary—

2 (i) for purposes of providing humani-
3 tarian assistance to the people of Ven-
4 ezuela;

5 (ii) for purposes of providing disaster
6 relief and other urgent life-saving meas-
7 ures; or

8 (iii) to carry out noncombatant evacu-
9 ations; or

10 (B) is vital to the national security inter-
11 ests of the United States.

12 (2) NOTIFICATION REQUIREMENT.—The Sec-
13 retary of Defense shall notify the congressional de-
14 fense committees, the Committee on Foreign Affairs
15 of the House of Representatives, and the Committee
16 on Foreign Relations of the Senate of any contract
17 entered into on the basis of an exception provided
18 for under paragraph (1).

19 (c) OFFICE OF FOREIGN ASSETS CONTROL LI-
20 CENSES.—The prohibition in subsection (a) shall not
21 apply to a person that has a valid license to operate in
22 Venezuela issued by the Office of Foreign Assets Control
23 of the Department of the Treasury.

24 (d) AMERICAN DIPLOMATIC MISSION IN VEN-
25 EZUELA.—The prohibition in subsection (a) shall not

1 apply to contracts related to the operation and mainte-
2 nance of the United States Government’s consular offices
3 and diplomatic posts in Venezuela.

4 (e) DEFINITIONS.—In this section:

5 (1) BUSINESS OPERATIONS.—The term “busi-
6 ness operations” means engaging in commerce in
7 any form, including acquiring, developing, maintain-
8 ing, owning, selling, possessing, leasing, or operating
9 equipment, facilities, personnel, products, services,
10 personal property, real property, or any other appa-
11 ratus of business or commerce.

12 (2) GOVERNMENT OF VENEZUELA.—The term
13 “Government of Venezuela” includes the government
14 of any political subdivision of Venezuela, and any
15 agency or instrumentality of the Government of Ven-
16 ezuela. For purposes of this paragraph, the term
17 “agency or instrumentality of the Government of
18 Venezuela” means an agency or instrumentality of a
19 foreign state as defined in section 1603(b) of title
20 28, United States Code, with each reference in such
21 section to “a foreign state” deemed to be a reference
22 to “Venezuela”.

23 (3) PERSON.—The term “person” means—

24 (A) a natural person, corporation, com-
25 pany, business association, partnership, society,

1 trust, or any other nongovernmental entity, or-
2 ganization, or group;

3 (B) any governmental entity or instrumen-
4 tality of a government, including a multilateral
5 development institution (as defined in section
6 1701(c)(3) of the International Financial Insti-
7 tutions Act (22 U.S.C. 262r(c)(3))); and

8 (C) any successor, subunit, parent entity,
9 or subsidiary of, or any entity under common
10 ownership or control with, any entity described
11 in subparagraph (A) or (B).

12 (f) **APPLICABILITY.**—This section shall apply with re-
13 spect to any contract entered into on or after the date
14 of the enactment of this section.

15 **SEC. 891. REPORT ON THE COMBATING TRAFFICKING IN**
16 **PERSONS INITIATIVE.**

17 Not later than 180 days after the date of the enact-
18 ment of this Act, the Secretary of Defense shall submit
19 to the congressional defense committees a report con-
20 taining an analysis of the progress of the Department of
21 Defense in implementing the Combating Trafficking in
22 Persons initiative described in Department of Defense In-
23 struction 2200.01 (published February 2007; revised on
24 June 21, 2019).

1 **SEC. 892. IMPROVED MANAGEMENT OF INFORMATION**
2 **TECHNOLOGY AND CYBERSPACE INVEST-**
3 **MENTS.**

4 (a) IMPROVED MANAGEMENT.—

5 (1) IN GENERAL.—The Chief Information Offi-
6 cer of the Department of Defense shall work with
7 the Chief Data Officer of the Department of De-
8 fense to optimize the Department’s process for ac-
9 counting for, managing, and reporting its informa-
10 tion technology and cyberspace investments. The op-
11 timization should include alternative methods of pre-
12 senting budget justification materials to the public
13 and congressional staff to more accurately commu-
14 nicate when, how, and with what frequency capa-
15 bility is delivered to end users, in accordance with
16 best practices for managing and reporting on infor-
17 mation technology investments.

18 (2) BRIEFING.—Not later than February 3,
19 2020, the Chief Information Officer of the Depart-
20 ment of Defense shall brief the congressional defense
21 committees on the process optimization undertaken
22 pursuant to paragraph (1), including any rec-
23 ommendations for legislation.

24 (b) DELIVERY OF INFORMATION TECHNOLOGY
25 BUDGET.—The Secretary of Defense shall submit to the
26 congressional defense committees the Department of De-

1 fense budget request for information technology not later
2 than 15 days after the submittal to Congress of the budget
3 of the President for a fiscal year pursuant to section 1105
4 of title 31, United States Code.

5 **SEC. 893. MODIFICATION TO REQUIREMENTS FOR PUR-**
6 **CHASE OF COMMERCIAL LEASING SERVICES**
7 **PURSUANT TO MULTIPLE AWARD CON-**
8 **TRACTS.**

9 (a) REPEAL.—Section 877 of the John S. McCain
10 National Defense Authorization Act For Fiscal Year 2019
11 (Public Law 115-232; 132 Stat. 1907; 41 U.S.C. 3302
12 note) is repealed.

13 (b) EXEMPTION FOR COMMERCIAL LEASING SERV-
14 ICES.—

15 (1) IN GENERAL.—Section 3302 of title 41,
16 United States Code, is amended by adding at the
17 end the following new subsection:

18 “(f) COMMERCIAL LEASING SERVICES.—The regula-
19 tions required by subsection (b) shall not apply to indi-
20 vidual purchases for commercial leasing services that are
21 made on a no cost basis and made under a multiple award
22 contract awarded in accordance with the requirements for
23 full and open competition.”.

24 (2) TERMINATION.—Effective December 31,
25 2025, subsection (f) of section 3302 of title 41,

1 United States Code, as added by paragraph (1), is
2 repealed.

3 (c) AUDIT.—The Comptroller General of the United
4 States shall—

5 (1) conduct an audit not later than the last day
6 of fiscal year 2021, 2023, and 2025 analyzing the
7 National Broker Contract program of the General
8 Services Administration to determine—

9 (A) whether brokers selected under the
10 program provide lower lease rental rates than
11 rates negotiated by employees of the General
12 Services Administration; and

13 (B) the impact of the program on the
14 length of time of lease procurements;

15 (2) conduct a review of whether the application
16 of section 863 of the Duncan Hunter National De-
17 fense Authorization Act for Fiscal Year 2009 (Pub-
18 lic Law 110-417; 122 Stat.4547) resulted in rental
19 cost savings for the Government during the years in
20 which such section was applicable; and

21 (3) not later than September 30, 2022, and
22 September 30, 2024, submit to the Committee on
23 Transportation and Infrastructure of the House of
24 Representatives and the Committee on Environment
25 and Public Works of the Senate a report that—

1 (A) summarizes the results of the most re-
2 cent audit required under paragraph (1) and
3 the review required by paragraph (2);

4 (B) includes an assessment of whether the
5 National Broker Contract program provides
6 greater efficiencies and savings than the use of
7 employees of the General Services Administra-
8 tion; and

9 (C) includes recommendations for improv-
10 ing General Services Administration lease pro-
11 curements.

12 **TITLE IX—DEPARTMENT OF DE-**
13 **FENSE ORGANIZATION AND**
14 **MANAGEMENT**

Subtitle A—Office of the Secretary of Defense and Related Matters

- Sec. 901. Headquarters activities of the Department of Defense matters.
Sec. 902. Clarifying the roles and responsibilities of the Under Secretary of Defense for Acquisition and Sustainment and the Under Secretary of Defense for Research and Engineering.
Sec. 903. Return to Chief Information Officer of the Department of Defense of responsibility for business systems and related matters.
Sec. 904. Assessments of responsibilities and authorities of the Chief Management Officer of the Department of Defense.
Sec. 905. Senior Military Advisor for Cyber Policy and Deputy Principal Cyber Advisor.
Sec. 906. Exclusion from limitations on personnel in the Office of the Secretary of Defense and Department of Defense headquarters of fellows appointed under the John S. McCain Defense Fellows Program.

Subtitle B—Organization and Management of Other Department of Defense Offices and Elements

- Sec. 911. Codification of Assistant Secretaries for Energy, Installations, and Environment of the Army, Navy, and Air Force.

Subtitle C—Other Department of Defense Organization and Management Matters

- Sec. 921. Prohibition on ownership or trading of stocks in certain companies by certain officials of the Department of Defense.
- Sec. 922. Limitation on consolidation of Defense Media Activity.
- Sec. 923. Report on resources to implement the civilian casualty policy of the Department of Defense.

Subtitle D—United States Space Force

- Sec. 951. Short title.
- Sec. 952. The Space Force.
- Sec. 953. Chief of Space Operations.
- Sec. 954. Space Force Acquisition Council.
- Sec. 955. Assistant Secretary of Defense for Space Policy.
- Sec. 956. Assistant Secretary of the Air Force for Space Acquisition and Integration.
- Sec. 957. Service Acquisition Executive of the Department of the Air Force for Space Systems and Programs.
- Sec. 958. Conforming amendments and clarification of authorities.
- Sec. 959. Effects on military installations.
- Sec. 960. Availability of funds.
- Sec. 961. Implementation.

1 **Subtitle A—Office of the Secretary**
2 **of Defense and Related Matters**

3 **SEC. 901. HEADQUARTERS ACTIVITIES OF THE DEPART-**
4 **MENT OF DEFENSE MATTERS.**

5 (a) MODIFICATION OF LIMITATIONS ON NUMBER OF
6 PERSONNEL IN OSD AND OTHER DoD HEAD-
7 QUARTERS.—

8 (1) OSD.—Section 143 of title 10, United
9 States Code, is amended—

10 (A) in subsection (a), by striking “3,767”
11 and inserting “4,300”; and

12 (B) in subsection (b), by striking “, civil-
13 ian, and detailed personnel” and inserting “and
14 civilian personnel”.

15 (2) JOINT STAFF.—

1 (A) IN GENERAL.—Section 155(h)(1) of
2 such title is amended by striking “2,069” and
3 inserting “2,250”.

4 (B) EFFECTIVE DATE.—The amendment
5 made by subparagraph (A) shall take effect on
6 December 31, 2019, immediately after the com-
7 ing into effect of the amendment made by sec-
8 tion 903(b) of the National Defense Authoriza-
9 tion Act for Fiscal Year 2017 (Public Law
10 114–328; 130 Stat. 2344), to which such
11 amendments relate

12 (3) OFFICE OF SECRETARY OF THE ARMY.—
13 Section 7014(f) of title 10, United States Code, is
14 amended—

15 (A) in paragraph (1), by striking “3,105”
16 and inserting “3,250”; and

17 (B) in paragraph (2), by striking “1,865”
18 and inserting “1,900”.

19 (4) OFFICE OF SECRETARY OF THE NAVY.—
20 Section 8014(f) of such title is amended—

21 (A) in paragraph (1), by striking “2,866”
22 and inserting “3,150”; and

23 (B) in paragraph (2), by striking “1,720”
24 and inserting “1,800”.

1 (5) OFFICE OF SECRETARY OF THE AIR
2 FORCE.—Section 9014(f) of such title is amended—

3 (A) in paragraph (1), by striking “2,639”
4 and inserting “2,750”; and

5 (B) in paragraph (2), by striking “1,585”
6 and inserting “1,650”.

7 (b) SUNSET OF REDUCTION IN FUNDING FOR DoD
8 HEADQUARTERS, ADMINISTRATIVE, AND SUPPORT AC-
9 TIVITIES.—Section 346 of the National Defense Author-
10 ization Act for Fiscal Year 2016 (Public Law 114–92; 10
11 U.S.C. 111 note) is amended by adding at the end the
12 following new subsection:

13 “(d) SUNSET.—No action is required under this sec-
14 tion with respect to any fiscal year after fiscal year
15 2019.”.

16 **SEC. 902. CLARIFYING THE ROLES AND RESPONSIBILITIES**
17 **OF THE UNDER SECRETARY OF DEFENSE**
18 **FOR ACQUISITION AND SUSTAINMENT AND**
19 **THE UNDER SECRETARY OF DEFENSE FOR**
20 **RESEARCH AND ENGINEERING.**

21 The laws of the United States are amended as fol-
22 lows:

23 (1) Section 129a(c)(3) of title 10, United
24 States Code, is amended by striking “Under Sec-
25 retary of Defense for Acquisition, Technology, and

1 Logistics” and inserting “Under Secretary of De-
2 fense for Acquisition and Sustainment”.

3 (2) Section 133a(b)(2) of title 10, United
4 States Code, is amended—

5 (A) by striking “prototyping,” and insert-
6 ing “appropriate prototyping activities,”; and

7 (B) by striking “, including the allocation
8 of resources for defense research and engineer-
9 ing,”.

10 (3) Section 134(e) of title 10, United States
11 Code, is amended by striking “Under Secretary of
12 Defense for Acquisition, Technology, and Logistics,”
13 and inserting “Under Secretary of Defense for Ac-
14 quisition and Sustainment, the Under Secretary of
15 Defense for Research and Engineering,”.

16 (4) Section 139 of title 10, United States Code,
17 is amended—

18 (A) in subsection (b), by striking “and the
19 Under Secretary of Defense for Acquisition,
20 Technology, and Logistics” each place it ap-
21 pears and inserting “, the Under Secretary of
22 Defense for Acquisition and Sustainment, and
23 the Under Secretary of Defense for Research
24 and Engineering”; and

1 (B) in subsections (c) and (h), by striking
2 “Under Secretary of Defense for Acquisition,
3 Technology, and Logistics” and inserting
4 “Under Secretary of Defense for Acquisition
5 and Sustainment, the Under Secretary of De-
6 fense for Research and Engineering,”.

7 (5) Section 139a(d)(6) of title 10, United
8 States Code, is amended by striking “Under Sec-
9 retary of Defense for Acquisition, Technology, and
10 Logistics” and inserting “Under Secretary of De-
11 fense for Acquisition and Sustainment, the Under
12 Secretary of Defense for Research and Engineer-
13 ing,”.

14 (6) Section 171(a) of title 10, United States
15 Code, is amended—

16 (A) in paragraph (3), by striking “Under
17 Secretary of Defense for Acquisition, Tech-
18 nology, and Logistics” and inserting “Under
19 Secretary of Defense for Acquisition and
20 Sustainment”;

21 (B) by redesignating paragraphs (9)
22 through (13) as paragraphs (12) through (16);

23 (C) by redesignating paragraphs (4)
24 through (8) as paragraphs (5) through (9), re-
25 spectively;

1 (D) by inserting after paragraph (3) the
2 following new paragraph:

3 “(4) the Under Secretary of Defense for Re-
4 search and Engineering;”; and

5 (E) by inserting after paragraph (9), as re-
6 designated, the following new paragraphs:

7 “(10) the Deputy Under Secretary of Defense
8 for Research and Engineering;

9 “(11) the Deputy Under Secretary of Defense
10 for Acquisition and Sustainment;”.

11 (7) Subsection (d)(1) of section 181 of title 10,
12 United States Code, is amended—

13 (A) in subparagraph (C), by striking
14 “Under Secretary of Defense for Acquisition,
15 Technology, and Logistics” and inserting
16 “Under Secretary of Defense for Acquisition
17 and Sustainment”;

18 (B) by inserting after subparagraph (C)
19 the following new subparagraph:

20 “(D) the Under Secretary of Defense for
21 Research and Engineering.”; and

22 (C) by redesignating paragraphs (D)
23 through (G) as paragraphs (E) through (H),
24 respectively.

1 (8) Subsection (b)(2) of section 393 of title 10,
2 United States Code, is amended—

3 (A) in subparagraph (B), by striking
4 “Under Secretary of Defense for Acquisition,
5 Technology, and Logistics” and inserting
6 “Under Secretary of Defense for Acquisition
7 and Sustainment”;

8 (B) by inserting after subparagraph (B)
9 the following new subparagraph:

10 “(C) the Under Secretary of Defense for
11 Research and Engineering.”; and

12 (C) by redesignating subparagraphs (C)
13 through (E) as subparagraphs (D) through (F).

14 (9) Section 1111 of the National Defense Au-
15 thorization Act for Fiscal Year 2016 (Public Law
16 114–92; 129 Stat. 1032; 10 U.S.C. 1701 note) is
17 amended by striking “Under Secretary of Defense
18 for Acquisition, Technology, and Logistics” each
19 place such term appears and inserting “Under Sec-
20 retary of Defense for Acquisition and Sustainment”.

21 (10) Section 231 of the National Defense Au-
22 thorization Act for Fiscal Year 2008 (Public Law
23 110–181; 122 Stat. 45; 10 U.S.C. 1701 note) is
24 amended by striking “Under Secretary of Defense
25 for Acquisition, Technology, and Logistics” and in-

1 serting “Under Secretary of Defense for Acquisition
2 and Sustainment”.

3 (11) Section 1702 of title 10, United States
4 Code, is amended—

5 (A) in the section heading, by striking
6 **“UNDER SECRETARY OF DEFENSE FOR AC-**
7 **QUISITION, TECHNOLOGY, AND LOGIS-**
8 **TICS”** and inserting **“UNDER SECRETARY OF**
9 **DEFENSE FOR ACQUISITION AND**
10 **SUSTAINMENT”**; and

11 (B) by striking “Under Secretary of De-
12 fense for Acquisition, Technology, and Logis-
13 tics” and inserting “Under Secretary of De-
14 fense for Acquisition and Sustainment”.

15 (12) Section 807(a) of the Bob Stump National
16 Defense Authorization Act for Fiscal Year 2003
17 (Public Law 107–314; 116 Stat. 2608; 10 U.S.C.
18 1702 note) is amended by striking “Under Secretary
19 of Defense for Acquisition, Technology, and Logis-
20 tics” and inserting “Under Secretary of Defense for
21 Acquisition and Sustainment”.

22 (13) Section 1705 of title 10, United States
23 Code, is amended—

24 (A) in subsection (c), by striking “Under
25 Secretary of Defense for Acquisition, Tech-

1 nology, and Logistics” and inserting “Under
2 Secretary of Defense for Acquisition and
3 Sustainment”;

4 (B) in subsection (e)(3), by striking
5 “Under Secretary of Defense for Acquisition,
6 Technology, and Logistics” and inserting
7 “Under Secretary of Defense for Acquisition
8 and Sustainment”; and

9 (C) in subsection (g)(2)(B), by striking
10 “Under Secretary of Defense for Acquisition,
11 Technology, and Logistics” and inserting
12 “Under Secretary of Defense for Acquisition
13 and Sustainment”.

14 (14) Section 803(c) of the National Defense
15 Authorization Act for Fiscal Year 2013 (Public Law
16 112–239; 126 Stat. 1825; 10 U.S.C. 1705 note) is
17 amended by striking “Under Secretary of Defense
18 for Acquisition, Technology, and Logistics” and in-
19 serting “Under Secretary of Defense for Acquisition
20 and Sustainment”.

21 (15) Section 1722 of title 10, United States
22 Code, is amended—

23 (A) in subsection (a), by striking “Under
24 Secretary of Defense for Acquisition, Tech-
25 nology, and Logistics” and inserting “Under

1 Secretary of Defense for Acquisition and
2 Sustainment”; and

3 (B) in subsection (b)(2)(B), by striking
4 “Under Secretary of Defense for Acquisition,
5 Technology, and Logistics” and inserting
6 “Under Secretary of Defense for Acquisition
7 and Sustainment”.

8 (16) Section 1722a of title 10, United States
9 Code, is amended—

10 (A) in subsection (a), by striking “Under
11 Secretary of Defense for Acquisition, Tech-
12 nology, and Logistics” and inserting “Under
13 Secretary of Defense for Acquisition and
14 Sustainment”; and

15 (B) in subsection (e), by striking “Under
16 Secretary of Defense for Acquisition, Tech-
17 nology, and Logistics” and inserting “Under
18 Secretary of Defense for Acquisition and
19 Sustainment”.

20 (17) Section 1722b(a) of title 10, United States
21 Code, is amended by striking “Under Secretary of
22 Defense for Acquisition, Technology, and Logistics”
23 and inserting “Under Secretary of Defense for Ac-
24 quisition and Sustainment”.

1 (18) Section 1723 of title 10, United States
2 Code, is amended—

3 (A) in subsection (a)(3), by striking
4 “Under Secretary of Defense for Acquisition,
5 Technology, and Logistics” and inserting
6 “Under Secretary of Defense for Acquisition
7 and Sustainment”; and

8 (B) in subsection (b), by striking “Under
9 Secretary of Defense for Acquisition, Tech-
10 nology, and Logistics” and inserting “Under
11 Secretary of Defense for Acquisition and
12 Sustainment”.

13 (19) Section 1725(e)(2) of title 10, United
14 States Code, is amended by striking “Under Sec-
15 retary of Defense for Acquisition, Technology, and
16 Logistics” and inserting “Under Secretary of De-
17 fense for Acquisition and Sustainment”.

18 (20) Section 1735(e)(1) of title 10, United
19 States Code, is amended by striking “Under Sec-
20 retary of Defense for Acquisition, Technology, and
21 Logistics” and inserting “Under Secretary of De-
22 fense for Acquisition and Sustainment”.

23 (21) Section 1737(c) of title 10, United States
24 Code, is amended by striking “Under Secretary of
25 Defense for Acquisition, Technology, and Logistics”

1 and inserting “Under Secretary of Defense for Ac-
2 quisition and Sustainment”.

3 (22) Section 1741(b) of title 10, United States
4 Code, is amended by striking “Under Secretary of
5 Defense for Acquisition, Technology, and Logistics”
6 and inserting “Under Secretary of Defense for Ac-
7 quisition and Sustainment”.

8 (23) Section 1746(a) of title 10, United States
9 Code, is amended by striking “Under Secretary of
10 Defense for Acquisition, Technology, and Logistics”
11 and inserting “Under Secretary of Defense for Ac-
12 quisition and Sustainment”.

13 (24) Section 1748 of title 10, United States
14 Code, is amended by striking “Under Secretary of
15 Defense for Acquisition, Technology, and Logistics”
16 and inserting “Under Secretary of Defense for Ac-
17 quisition and Sustainment”.

18 (25) Section 2222 of title 10, United States
19 Code, is amended—

20 (A) in subsection (c)(2), by striking
21 “Under Secretary of Defense for Acquisition,
22 Technology, and Logistics” and inserting
23 “Under Secretary of Defense for Acquisition
24 and Sustainment”; and

1 (B) in subsection (f)(2)(B)(i), by striking
2 “Under Secretary of Defense for Acquisition,
3 Technology, and Logistics” and inserting
4 “Under Secretary of Defense for Acquisition
5 and Sustainment”.

6 (26) Section 217(a) of the National Defense
7 Authorization Act for Fiscal Year 2016 (Public Law
8 114–92; 129 Stat. 770; 10 U.S.C. 2222 note) is
9 amended by striking “Under Secretary of Defense
10 for Acquisition, Technology, and Logistics” and in-
11 sserting “Under Secretary of Defense for Acquisition
12 and Sustainment and Under Secretary of Defense
13 for Research and Engineering”.

14 (27) Section 882(b) of the Ike Skelton National
15 Defense Authorization Act for Fiscal Year 2011
16 (Public Law 111–383; 128 Stat. 4308; 10 U.S.C.
17 2222 note) is amended by striking “Under Secretary
18 of Defense for Acquisition, Technology, and Logis-
19 tics” and inserting “Under Secretary of Defense for
20 Acquisition and Sustainment”.

21 (28) Section 2272 of title 10, United States
22 Code, is amended by striking “Assistant Secretary of
23 Defense for Research and Engineering” and insert-
24 ing “Under Secretary of Defense for Research and
25 Engineering”.

1 (29) Section 2275(a) of title 10, United States
2 Code, is amended by striking “Under Secretary of
3 Defense for Acquisition, Technology, and Logistics”
4 and inserting “Under Secretary of Defense for Ac-
5 quisition and Sustainment”.

6 (30) Section 2279(d) of title 10, United States
7 Code, is amended by striking “Under Secretary of
8 Defense for Acquisition, Technology, and Logistics”
9 and inserting “Under Secretary of Defense for Ac-
10 quisition and Sustainment”.

11 (31) Section 2279b of title 10, United States
12 Code, is amended—

13 (A) in subsection (b)—

14 (i) by redesignating paragraphs (3)
15 through (10) as paragraphs (4) through
16 (11), respectively;

17 (ii) by striking paragraph (2); and

18 (iii) by inserting after paragraph (1)

19 the following new paragraphs:

20 “(2) The Under Secretary of Defense for Re-
21 search and Engineering.

22 “(3) The Under Secretary of Defense for Ac-
23 quisition and Sustainment.”; and

24 (B) in subsection (c) by striking “the
25 Under Secretary of Defense for Acquisition,

1 Technology, and Logistics” and inserting “the
2 Under Secretary of Defense for Research and
3 Engineering, the Under Secretary of Defense
4 for Acquisition and Sustainment,”.

5 (32) Section 898(a)(2) of the National Defense
6 Authorization Act for Fiscal Year 2017 (Public Law
7 114–328; 130 Stat. 2000; 10 U.S.C. 2302 note) is
8 amended by striking “Under Secretary of Defense
9 for Acquisition, Technology, and Logistics” each
10 place such term appears and inserting “Under Sec-
11 retary of Defense for Acquisition and Sustainment”.

12 (33) Section 804 of the National Defense Au-
13 thorization Act for Fiscal Year 2016 (Public Law
14 114–92; 129 Stat. 726; 10 U.S.C. 2302 note) is
15 amended—

16 (A) in subsection (a), by striking “Under
17 Secretary of Defense for Acquisition, Tech-
18 nology, and Logistics” and inserting “Under
19 Secretary of Defense for Acquisition and
20 Sustainment”; and

21 (B) in subsection (d)(1)(A), by striking
22 “Under Secretary of Defense for Acquisition,
23 Technology, and Logistics” and inserting “Dep-
24 uty Secretary of Defense”.

1 (34) Section 852 of the Carl Levin and Howard
2 P. “Buck” McKeon National Defense Authorization
3 Act for Fiscal Year 2015 (Public Law 113–291; 130
4 Stat. 3458; 10 U.S.C. 2302 note) is amended by
5 striking “Under Secretary of Defense for Acquisi-
6 tion, Technology, and Logistics” and inserting
7 “Under Secretary of Defense for Acquisition and
8 Sustainment”.

9 (35) Section 806 of the National Defense Au-
10 thORIZATION Act for Fiscal Year 2012 (Public Law
11 112–81; 125 Stat. 1487; 10 U.S.C. 2302 note) is
12 amended by striking “Under Secretary of Defense
13 for Acquisition, Technology, and Logistics” each
14 place such term appears and inserting “Under Sec-
15 retary of Defense for Acquisition and Sustainment”.

16 (36) Section 843 of the National Defense Au-
17 thORIZATION Act for Fiscal Year 2012 (Public Law
18 112–81; 125 Stat. 1487; 10 U.S.C. 2302 note) is
19 amended by striking “Under Secretary of Defense
20 for Acquisition, Technology, and Logistics” and in-
21 serting “Under Secretary of Defense for Acquisition
22 and Sustainment”.

23 (37) Section 254(b) of the Duncan Hunter Na-
24 tional Defense Authorization Act for Fiscal Year
25 2009 (Public Law 110–417; 122 Stat. 4402; 10

1 U.S.C. 2302 note) is amended by striking “Under
2 Secretary of Defense for Acquisition, Technology,
3 and Logistics” and inserting “Under Secretary of
4 Defense for Acquisition and Sustainment”.

5 (38) Section 802(d) of the Ronald W. Reagan
6 National Defense Authorization Act for Fiscal Year
7 2005 (Public Law 108–375; 118 Stat. 2004; 10
8 U.S.C. 2302 note) is amended by striking “Under
9 Secretary of Defense for Acquisition, Technology,
10 and Logistics” each place such term appears and in-
11 sserting “Under Secretary of Defense for Acquisition
12 and Sustainment”.

13 (39) Section 2304 of title 10, United States
14 Code, is amended by striking “Under Secretary of
15 Defense for Acquisition, Technology, and Logistics”
16 each place such term appears and inserting “Under
17 Secretary of Defense for Acquisition and
18 Sustainment”.

19 (40) Section 806(b) of the Ike Skelton National
20 Defense Authorization Act for Fiscal Year 2011
21 (Public Law 111–383; 124 Stat. 4260; 10 U.S.C.
22 2304 note) is amended by striking “Under Secretary
23 of Defense for Acquisition, Technology, and Logis-
24 tics” each place such term appears and inserting

1 “Under Secretary of Defense for Acquisition and
2 Sustainment”.

3 (41) Section 821(a) of the National Defense
4 Authorization Act for Fiscal Year 2008 (Public Law
5 110–181; 122 Stat. 226; 10 U.S.C. 2304 note) is
6 amended by striking “Under Secretary of Defense
7 for Acquisition, Technology, and Logistics” and in-
8 serting “Under Secretary of Defense for Acquisition
9 and Sustainment”.

10 (42) Section 801(b)(2)(A) of the National De-
11 fense Authorization Act for Fiscal Year 2008 (Pub-
12 lic Law 110–181; 122 Stat. 204; 10 U.S.C. 2304
13 note) is amended by striking “Under Secretary of
14 Defense for Acquisition, Technology, and Logistics”
15 and inserting “Under Secretary of Defense for Ac-
16 quisition and Sustainment”.

17 (43) Section 817(e) of the John Warner Na-
18 tional Defense Authorization Act for Fiscal Year
19 2007 (Public Law 109–364; 120 Stat. 2326; 10
20 U.S.C. 2304 note) is amended by striking “Under
21 Secretary of Defense for Acquisition, Technology,
22 and Logistics” and inserting “Under Secretary of
23 Defense for Acquisition and Sustainment”.

24 (44) Section 811(e)(1) of the National Defense
25 Authorization Act for Fiscal Year 2006 (Public Law

1 109–163; 120 Stat. 2326; 10 U.S.C. 2304 note) is
2 amended by striking “Under Secretary of Defense
3 for Acquisition, Technology, and Logistics” and in-
4 serting “Under Secretary of Defense for Acquisition
5 and Sustainment”.

6 (45) Section 875 of the National Defense Au-
7 thorization Act for Fiscal Year 2017 (Public Law
8 114–328; 130 Stat. 2310; 10 U.S.C. 2305 note) is
9 amended—

10 (A) in subsection (b)(2), by striking
11 “Under Secretary of Defense for Acquisition,
12 Technology, and Logistics” and inserting
13 “Under Secretary of Defense for Acquisition
14 and Sustainment”;

15 (B) in subsection (c), by striking “Under
16 Secretary of Defense for Acquisition, Tech-
17 nology, and Logistics” and inserting “Under
18 Secretary of Defense for Acquisition and
19 Sustainment”;

20 (C) in subsection (d), by striking “The
21 Under Secretary for Acquisition, Technology,
22 and Logistics” and inserting “The Under Sec-
23 retary of Defense for Research and Engineer-
24 ing”; and

1 (D) in subsection (e) through (f), by strik-
2 ing “Under Secretary of Defense for Acquisi-
3 tion, Technology, and Logistics” and inserting
4 “Under Secretary of Defense for Acquisition
5 and Sustainment”.

6 (46) Section 888(b)(1) of the National Defense
7 Authorization Act for Fiscal Year 2017 (Public Law
8 114–328; 130 Stat. 2322; 10 U.S.C. 2305 note) is
9 amended by striking “Under Secretary of Defense
10 for Acquisition, Technology, and Logistics” and in-
11 sserting “Under Secretary of Defense for Acquisition
12 and Sustainment”.

13 (47) Section 829(b)(1) of the National Defense
14 Authorization Act for Fiscal Year 2017 (Public Law
15 114–328; 130 Stat. 2281; 10 U.S.C. 2306 note) is
16 amended by striking “Under Secretary of Defense
17 for Acquisition, Technology, and Logistics” and in-
18 sserting “Under Secretary of Defense for Acquisition
19 and Sustainment”.

20 (48) Section 2306b(i)(7) of title 10, United
21 States Code, is amended by striking “Under Sec-
22 retary of Defense for Acquisition, Technology, and
23 Logistics” and inserting “Under Secretary of De-
24 fense for Acquisition and Sustainment”.

1 (49) Section 2311(c) of title 10, United States
2 Code, is amended—

3 (A) in paragraph (1), by striking “Under
4 Secretary of Defense for Acquisition, Tech-
5 nology, and Logistics” and inserting “Under
6 Secretary of Defense for Acquisition and
7 Sustainment”; and

8 (B) in paragraph (2)(B), by striking
9 “Under Secretary of Defense for Acquisition,
10 Technology, and Logistics” and inserting
11 “Under Secretary of Defense for Acquisition
12 and Sustainment”.

13 (50) Section 2326(g) of title 10, United States
14 Code, is amended by striking “Under Secretary of
15 Defense for Acquisition, Technology, and Logistics”
16 and inserting “Under Secretary of Defense for Ac-
17 quisition and Sustainment”.

18 (51) Section 2330 of title 10, United States
19 Code, is amended—

20 (A) in subsection (a)(1), by striking
21 “Under Secretary of Defense for Acquisition,
22 Technology, and Logistics” and inserting
23 “Under Secretary of Defense for Acquisition
24 and Sustainment”;

1 (B) in subsection (a)(3), by striking
2 “Under Secretary of Defense for Acquisition,
3 Technology, and Logistics” and inserting
4 “Under Secretary of Defense for Acquisition
5 and Sustainment”;

6 (C) in subsection (b)(2), by striking
7 “Under Secretary of Defense for Acquisition,
8 Technology, and Logistics” and inserting
9 “Under Secretary of Defense for Acquisition
10 and Sustainment”; and

11 (D) in subsection (b)(3)(A), by striking
12 “Under Secretary of Defense for Acquisition,
13 Technology, and Logistics” and inserting
14 “Under Secretary of Defense for Acquisition
15 and Sustainment”.

16 (52) Section 882 of the National Defense Au-
17 thorization Act for Fiscal Year 2016 (Public Law
18 114–92; 129 Stat. 942; 10 U.S.C. 2330 note) is
19 amended in the matter preceding paragraph (1) by
20 striking “Under Secretary of Defense for Acquisi-
21 tion, Technology, and Logistics” and inserting
22 “Under Secretary of Defense for Acquisition and
23 Sustainment”.

24 (53) Section 2334 of title 10, United States
25 Code, is amended by striking “Under Secretary of

1 Defense for Acquisition, Technology, and Logistics”
2 each place such term appears and inserting “Under
3 Secretary of Defense for Acquisition and
4 Sustainment”.

5 (54) Section 2350a(b)(2) of title 10, United
6 States Code, is amended by striking “Under Sec-
7 retary of Defense for Acquisition, Technology, and
8 Logistics, and the Assistant Secretary of Defense for
9 Research and Engineering” and inserting “Under
10 Secretary of Defense for Acquisition and
11 Sustainment, and the Under Secretary of Defense
12 for Research and Engineering”.

13 (55) Section 2359(b)(1) of title 10, United
14 States Code, is amended by striking “Under Sec-
15 retary of Defense for Acquisition, Technology, and
16 Logistics” and inserting “Under Secretary of De-
17 fense for Research and Engineering”.

18 (56) Section 2359b of title 10, United States
19 Code, is amended—

20 (A) in subsection (a)(1), by striking
21 “Under Secretary of Defense for Acquisition,
22 Technology, and Logistics” and inserting
23 “Under Secretary of Defense for Research and
24 Engineering”; and

1 (B) in subsection (l)(1), by striking
2 “Under Secretary of Defense for Acquisition,
3 Technology, and Logistics” and inserting
4 “Under Secretary of Defense for Research and
5 Engineering”.

6 (57) Section 2375 of title 10, United States
7 Code, is amended by striking “Under Secretary of
8 Defense for Acquisition, Technology, and Logistics”
9 each place such term appears and inserting “Under
10 Secretary of Defense for Acquisition and
11 Sustainment”.

12 (58) Section 874(b)(1) of the National Defense
13 Authorization Act for Fiscal Year 2017 (Public Law
14 114–328; 130 Stat. 2310; 10 U.S.C. 2375 note) is
15 amended by striking “Under Secretary of Defense
16 for Acquisition, Technology, and Logistics” and in-
17 serting “Under Secretary of Defense for Acquisition
18 and Sustainment”.

19 (59) Section 876 of the National Defense Au-
20 thorization Act for Fiscal Year 2017 (Public Law
21 114–328; 130 Stat. 2311; 10 U.S.C. 2377 note) is
22 amended by striking “Under Secretary of Defense
23 for Acquisition, Technology, and Logistics” and in-
24 serting “Under Secretary of Defense for Acquisition
25 and Sustainment”.

1 (60) Section 855 of the National Defense Au-
2 thorization Act for Fiscal Year 2016 (Public Law
3 114–92; 129 Stat. 919; 10 U.S.C. 2377 note) is
4 amended by striking “Under Secretary of Defense
5 for Acquisition, Technology, and Logistics” each
6 place such term appears and inserting “Under Sec-
7 retary of Defense for Acquisition and Sustainment”.

8 (61) Section 856(a)(2)(B) of the National De-
9 fense Authorization Act for Fiscal Year 2016 (Pub-
10 lic Law 114–92; 129 Stat. 920; 10 U.S.C. 2377
11 note) is amended by striking “Under Secretary of
12 Defense for Acquisition, Technology, and Logistics”
13 and inserting “Under Secretary of Defense for Ac-
14 quisition and Sustainment”.

15 (62) Section 2399(b)(3) of title 10, United
16 States Code, is amended by striking “Under Sec-
17 retary of Defense for Acquisition, Technology, and
18 Logistics,” and inserting “Under Secretary of De-
19 fense for Acquisition and Sustainment, the Under
20 Secretary of Defense for Research and Engineer-
21 ing,”.

22 (63) Section 2419(a)(1) of title 10, United
23 States Code, is amended by striking “Under Sec-
24 retary of Defense for Acquisition, Technology, and

1 Logistics” and inserting “Under Secretary of De-
2 fense for Acquisition and Sustainment”.

3 (64) Section 826(e) of the National Defense
4 Authorization Act for Fiscal Year 2016 (Public Law
5 114–92; 129 Stat. 908; 10 U.S.C. 2430 note) is
6 amended by striking “Under Secretary of Defense
7 for Acquisition, Technology, and Logistics” and in-
8 serting “Under Secretary of Defense for Acquisition
9 and Sustainment”.

10 (65) Section 827(e) of the National Defense
11 Authorization Act for Fiscal Year 2016 (Public Law
12 114–92; 129 Stat. 909; 10 U.S.C. 2430 note) is
13 amended by striking “Under Secretary of Defense
14 for Acquisition, Technology, and Logistics” and in-
15 serting “Under Secretary of Defense for Acquisition
16 and Sustainment”.

17 (66) Section 811(b)(1) of the National Defense
18 Authorization Act for Fiscal Year 2013 (Public Law
19 112–239; 126 Stat. 1828; 10 U.S.C. 2430 note) is
20 amended by striking “if the Under Secretary of De-
21 fense for Acquisition, Technology, and Logistics”
22 and inserting “if the service acquisition executive, in
23 the case of a major defense acquisition program of
24 the military department, or the Under Secretary of
25 Defense for Acquisition and Sustainment, in the

1 case of a Defense-wide or Defense Agency major de-
2 fense acquisition program.”.

3 (67) Section 814 of the Duncan Hunter Na-
4 tional Defense Authorization Act for Fiscal Year
5 2009 (Public Law 110–417; 122 Stat. 4528) is
6 amended—

7 (A) in subsection (b)(2)—

8 (i) by redesignating subparagraphs
9 (B) through (H) as subparagraphs (C)
10 through (I), respectively;

11 (ii) by striking subparagraph (A); and

12 (iii) by inserting before subparagraph
13 (C), as redesignated by clause (i), the fol-
14 lowing new subparagraphs:

15 “(A) The Office of the Under Secretary of
16 Defense for Research and Engineering.

17 “(B) The Office of the Under Secretary of
18 Defense for Acquisition and Sustainment.”; and

19 (B) in subsection (c)(5), in the flush mat-
20 ter following subparagraph (B), by striking
21 “the Under Secretary of Defense for Acquisi-
22 tion, Technology, and Logistics certifies to the
23 congressional defense committees, and includes”
24 and inserting “the Under Secretary of Defense
25 for Research and Engineering and the Under

1 Secretary of Defense for Acquisition and
2 Sustainment jointly certify to the congressional
3 defense committees, and include”.

4 (68) Section 801(a)(1) of the John Warner Na-
5 tional Defense Authorization Act for Fiscal Year
6 2007 (Public Law 109–364; 120 Stat. 2312; 10
7 U.S.C. 2430 note) is amended by striking “Under
8 Secretary of Defense for Acquisition, Technology,
9 and Logistics” and inserting “Under Secretary of
10 Defense for Acquisition and Sustainment”.

11 (69) Section 1675 of the National Defense Au-
12 thorization Act for Fiscal Year 2016 (Public Law
13 114–92; 192 Stat. 1131; 10 U.S.C. 2431 note) is
14 amended—

15 (A) in subsection (a), by striking “The
16 Under Secretary of Defense for Acquisition,
17 Technology, and Logistics and the Vice Chair-
18 man of the Joint Chiefs of Staff, acting
19 through the Missile Defense Executive Board”
20 and inserting “The Vice Chairman of the Joint
21 Chiefs of Staff and the chairman of the Missile
22 Defense Executive Board (pursuant to section
23 1681(c) of the John S. McCain National De-
24 fense Authorization Act for Fiscal Year 2019
25 (Public Law 115–232; 132 Stat. 2162)), acting

1 through the Missile Defense Executive Board,”;
2 and

3 (B) in subsection (b)(2), by striking
4 “Under Secretary of Defense for Acquisition,
5 Technology, and Logistics” and inserting
6 “chairman of the Missile Defense Executive
7 Board”.

8 (70) Section 2431a(b) of title 10, United States
9 Code, is amended by striking “Under Secretary of
10 Defense for Acquisition, Technology, and Logistics”
11 and inserting “Under Secretary of Defense for Ac-
12 quisition and Sustainment”.

13 (71) Section 2435 of title 10, United States
14 Code, is amended by striking “the Under Secretary
15 of Defense for Acquisition, Technology, and Logis-
16 tics” each place it appears and inserting “the Under
17 Secretary of Defense for Acquisition and
18 Sustainment”.

19 (72) Section 2438(b) of title 10, United States
20 Code, is amended—

21 (A) in paragraph (1), by striking “Under
22 Secretary of Defense for Acquisition, Tech-
23 nology and Logistics” and inserting “Under
24 Secretary of Defense for Acquisition and
25 Sustainment”; and

1 (B) in paragraph (2), by striking “Under
2 Secretary of Defense for Acquisition, Tech-
3 nology and Logistics” and inserting “Under
4 Secretary of Defense for Acquisition and
5 Sustainment”.

6 (73) Section 2448b of title 10, United States
7 Code, is amended by striking subsections (a) and (b)
8 and inserting the following new subsections:

9 “(a) IN GENERAL.—With respect to a major defense
10 acquisition program, the Secretary of Defense shall con-
11 duct or approve independent technical risk assessments—

12 “(1) before any decision to grant Milestone A
13 approval for the program pursuant to section 2366a
14 of this title, that identifies critical technologies and
15 manufacturing processes that need to be matured;
16 and

17 “(2) before any decision to grant Milestone B
18 approval for the program pursuant to section 2366b
19 of this title, any decision to enter into low-rate ini-
20 tial production or full-rate production, or at any
21 other time considered appropriate by the Secretary,
22 that includes the identification of any critical tech-
23 nologies or manufacturing processes that have not
24 been successfully demonstrated in a relevant envi-
25 ronment.

1 “(b) GUIDANCE.—The Secretary shall issue guidance
2 and a framework for the conduct, execution, and approval
3 of independent technical risk assessments.”.

4 (74) Section 2503(b) of title 10, United States
5 Code, is amended—

6 (A) by striking “the Under Secretary of
7 Defense for Acquisition, Technology, and Logis-
8 tics” and inserting “the Under Secretary of De-
9 fense for Research and Engineering and the
10 Under Secretary of Defense for Acquisition and
11 Sustainment”; and

12 (B) by striking “the Under Secretary
13 shall” and inserting “the Under Secretaries
14 shall”.

15 (75) Section 2508(b) of title 10, United States
16 Code, is amended by striking “Under Secretary of
17 Defense for Acquisition, Technology, and Logistics”
18 and inserting “Under Secretary of Defense for Ac-
19 quisition and Sustainment”.

20 (76) Section 2521 of title 10, United States
21 Code, is amended—

22 (A) in subsection (a), by striking “The
23 Under Secretary of Defense for Acquisition,
24 Technology, and Logistics” and inserting “The

1 Under Secretary of Defense for Research and
2 Engineering”;

3 (B) in subsection (e)(4)(D), by striking
4 “Under Secretary of Defense for Acquisition,
5 Technology, and Logistics” and inserting
6 “Under Secretary of Defense for Research and
7 Engineering”; and

8 (C) in subsection (e)(5), by striking
9 “Under Secretary of Defense for Acquisition,
10 Technology, and Logistics” and inserting
11 “Under Secretary of Defense for Research and
12 Engineering”.

13 (77) Section 2533b(k)(2)(A) of title 10, United
14 States Code, is amended by striking “Under Sec-
15 retary of Defense for Acquisition, Technology, and
16 Logistics” and inserting “Under Secretary of De-
17 fense for Acquisition and Sustainment”.

18 (78) Section 2546 of title 10, United States
19 Code, is amended—

20 (A) in the heading of subsection (a), by
21 striking “UNDER SECRETARY OF DEFENSE
22 FOR ACQUISITION, TECHNOLOGY, AND LOGIS-
23 TICS” and inserting “UNDER SECRETARY OF
24 DEFENSE FOR ACQUISITION AND
25 SUSTAINMENT”;

1 (B) in subsection (a), by striking “Under
2 Secretary of Defense for Acquisition, Tech-
3 nology, and Logistics” and inserting “Under
4 Secretary of Defense for Acquisition and
5 Sustainment”; and

6 (C) in subsection (b), by striking “Under
7 Secretary of Defense for Acquisition, Tech-
8 nology, and Logistics” and inserting “Under
9 Secretary of Defense for Acquisition and
10 Sustainment”.

11 (79) Section 2548 of title 10, United States
12 Code, is amended—

13 (A) in subsection (a), by striking “Under
14 Secretary of Defense for Acquisition, Tech-
15 nology, and Logistics” and inserting “Under
16 Secretary of Defense for Acquisition and
17 Sustainment”; and

18 (B) in subsection (c)(8), by striking
19 “Under Secretary of Defense for Acquisition,
20 Technology, and Logistics” and inserting
21 “Under Secretary of Defense for Acquisition
22 and Sustainment”.

23 (80) Section 2902(b) of title 10, United States
24 Code, is amended—

1 (A) in paragraph (1), by striking “Office
2 of the Assistant Secretary of Defense for Re-
3 search and Engineering” and inserting “Office
4 of the Under Secretary of Defense for Research
5 and Engineering”; and

6 (B) in paragraph (3), by striking “Office
7 of the Under Secretary of Defense for Acquisi-
8 tion, Technology, and Logistics” and inserting
9 “Office of the Under Secretary of Defense for
10 Acquisition and Sustainment”.

11 (81) Section 2824(d) of the National Defense
12 Authorization Act for Fiscal Year 2013 (Public Law
13 112–239; 126 Stat. 2154; 10 U.S.C. 2911 note) is
14 amended by striking “Under Secretary of Defense”
15 and all that follows through “Environment” and in-
16 serting “Under Secretary of Defense for Acquisition
17 and Sustainment”.

18 (82) Section 315(d) of the National Defense
19 Authorization Act for Fiscal Year 2012 (Public Law
20 112–81; 125 Stat. 1357; 10 U.S.C. 2911 note) is
21 amended by striking “Under Secretary of Defense
22 for Acquisition, Technology, and Logistics” and in-
23 serting “Under Secretary of Defense for Acquisition
24 and Sustainment”.

1 (83) Section 2926(e)(5)(D) of title 10, United
2 States Code, is amended by striking “Under Sec-
3 retary of Defense for Acquisition, Technology, and
4 Logistics” and inserting “Under Secretary for De-
5 fense for Acquisition and Sustainment”.

6 (84) Section 836(a)(2) of the National Defense
7 Authorization Act for Fiscal Year 2012 (Public Law
8 112–81; 125 Stat. 1508; 22 U.S.C. 2767 note) is
9 amended by striking “the Under Secretary of De-
10 fense for Acquisition, Technology, and Logistics, the
11 Assistant Secretary of Defense for Research,” and
12 inserting “the Under Secretary of Defense for Ac-
13 quisition and Sustainment, the Under Secretary of
14 Defense for Research and Engineering,”.

15 (85) Section 105(d)(7)(M)(v) of the Trafficking
16 Victims Protection Act of 2000 (22 U.S.C.
17 7103(d)(7)(M)(v)) is amended by striking “Under
18 Secretary of Defense for Acquisition, Technology,
19 and Logistics” and inserting “Under Secretary of
20 Defense for Acquisition and Sustainment”.

21 (86) Section 1126(a)(3) of title 31, United
22 States Code, is amended by striking “Under Sec-
23 retary of Defense for Acquisition, Technology, and
24 Logistics” and inserting “Under Secretary of De-
25 fense for Acquisition and Sustainment”.

1 (87) Section 11319(d)(4) of title 40, United
2 States Code, is amended by striking “Under Sec-
3 retary of Defense for Acquisition, Technology, and
4 Logistics” and inserting “Under Secretary of De-
5 fense for Acquisition and Sustainment”.

6 (88) Section 1302(b)(2)(A)(i) of title 41,
7 United States Code, is amended by striking “Under
8 Secretary of Defense for Acquisition, Technology,
9 and Logistics” and inserting “Under Secretary of
10 Defense for Acquisition and Sustainment”.

11 (89) Section 1311(b)(3) of title 41, United
12 States Code, is amended by striking “Under Sec-
13 retary of Defense for Acquisition, Technology, and
14 Logistics” and inserting “Under Secretary of De-
15 fense for Acquisition and Sustainment”.

16 (90) Section 7(a)(3) of the Strategic and Crit-
17 ical Materials Stock Piling Act (50 U.S.C. 98f(a)(3))
18 is amended by striking “Under Secretary of Defense
19 for Acquisition, Technology, and Logistics” and in-
20 sserting “Under Secretary of Defense for Acquisition
21 and Sustainment”.

22 (91) Section 1412 of the National Defense Au-
23 thorization Act, 1986 (50 U.S.C. 1521) is amend-
24 ed—

1 (A) in subsection (f)(1), by striking
2 “Under Secretary of Defense for Acquisition,
3 Technology, and Logistics” and inserting
4 “Under Secretary of Defense for Acquisition
5 and Sustainment”; and

6 (B) in subsection (g)(2), by striking
7 “Under Secretary of Defense for Acquisition,
8 Technology, and Logistics” and inserting
9 “Under Secretary of Defense for Acquisition
10 and Sustainment.”.

11 (92) Section 133b(b)(2) of title 10, United
12 States Code, is amended by inserting “appropriate
13 prototyping activities,” after “development,”.

14 (93)(A) Section 5314 of title 5, United States
15 Code, is amended by inserting before the item relat-
16 ing to the Under Secretary of Defense for Acquisi-
17 tion and Sustainment the following new item:
18 “Under Secretary of Defense for Research and En-
19 gineering.”.

20 (B) Section 5313 of title 5, United States
21 Code, is amended by striking the item relating
22 to the Under Secretary of Defense for Research
23 and Engineering.

24 (C) This paragraph shall have no force or
25 effect until the next date on which the Congress

1 confirms an individual to serve as the Under
2 Secretary of Defense for Research and Engi-
3 neering after the date of enactment of this Act.

4 (94) Section 338 of the John S. McCain Na-
5 tional Defense Authorization Act for Fiscal Year
6 2019 (Public Law 115–232; 132 Stat. 1728) is
7 amended by striking “the Under Secretary of De-
8 fense for Acquisition, Technology, and Logistics”
9 and inserting “the Under Secretary of Defense for
10 Acquisition and Sustainment”.

11 (95) Section 136(a)(1) of the National Defense
12 Authorization Act for Fiscal Year 2018 (Public Law
13 115–91; 131 Stat. 1317) is amended by striking
14 “the Under Secretary of Defense for Acquisition,
15 Technology, and Logistics” and inserting “the
16 Under Secretary of Defense for Acquisition and
17 Sustainment”.

18 (96) Section 1652(a) of the National Defense
19 Authorization Act for Fiscal Year 2017 (Public Law
20 114–328; 130 Stat. 2609) is amended by striking
21 “the Under Secretary of Defense for Acquisition,
22 Technology, and Logistics” and inserting “the
23 Under Secretary of Defense for Research and Engi-
24 neering”.

1 (97) Section 1689(d) of the National Defense
2 Authorization Act for Fiscal Year 2017 (Public Law
3 114–328; 130 Stat. 2631) is amended by striking
4 “the Under Secretary of Defense for Acquisition,
5 Technology, and Logistics” and inserting “the
6 Under Secretary of Defense for Research and Engi-
7 neering”.

8 (98) Section 144 of the National Defense Au-
9 thorization Act for Fiscal Year 2012 (Public Law
10 112–81; 125 Stat. 1325) is amended—

11 (A) in subsection (a), by striking “the
12 Under Secretary of Defense for Acquisition,
13 Technology, and Logistics” and inserting “the
14 Under Secretary of Defense for Acquisition and
15 Sustainment”; and

16 (B) in subsection (b)(4), by striking “the
17 Assistant Secretary of Defense for Research
18 and Engineering” and inserting “the Under
19 Secretary of Defense for Research and Engi-
20 neering”.

21 (99) Section 838(2)(B) of the National Defense
22 Authorization Act for Fiscal Year 2012 (Public Law
23 112–81; 125 Stat. 1509) is amended by striking
24 “the Under Secretary of Defense for Acquisition,
25 Technology, and Logistics” and inserting “the

1 Under Secretary of Defense for Acquisition and
2 Sustainment”.

3 (100) Section 802(a)(3)(C) of the National De-
4 fense Authorization Act for Fiscal Year 2008 (Pub-
5 lic Law 110–181; 10 U.S.C. 2410p note) is amended
6 by striking “the Under Secretary of Defense for Ac-
7 quisition, Technology, and Logistics” and inserting
8 “the Under Secretary of Defense for Acquisition and
9 Sustainment”.

10 **SEC. 903. RETURN TO CHIEF INFORMATION OFFICER OF**
11 **THE DEPARTMENT OF DEFENSE OF RESPON-**
12 **SIBILITY FOR BUSINESS SYSTEMS AND RE-**
13 **LATED MATTERS.**

14 (a) RETURN OF RESPONSIBILITY.—

15 (1) IN GENERAL.—Section 142(b)(1) of title
16 10, United States Code, is amended by striking
17 “systems and” each place it appears in subpara-
18 graphs (A), (B), and (C).

19 (2) CONFORMING AMENDMENTS TO CMO AU-
20 THORITIES.—Section 132a(b) of such title is amend-
21 ed—

22 (A) in paragraph (2), by striking “per-
23 formance measurement and management, and
24 business information technology management
25 and improvement activities and programs” and

1 inserting “and performance measurement and
2 management activities and programs”;

3 (B) by striking paragraphs (4) and (5);
4 and

5 (C) by redesignating paragraphs (6) and
6 (7) as paragraphs (4) and (5), respectively.

7 (b) CHIEF DATA OFFICER RESPONSIBILITY FOR
8 DoD DATA SETS.—

9 (1) IN GENERAL.—In addition to any other
10 functions and responsibilities specified in section
11 3520(e) of title 44, United States, Code, the Chief
12 Data Officer of the Department of Defense shall
13 also be the official in the Department of Defense
14 with principal responsibility for providing for the
15 availability of common, usable, Defense-wide data
16 sets.

17 (2) ACCESS TO ALL DOD DATA.—In order to
18 carry out the responsibility specified in paragraph
19 (1), the Chief Data Officer shall have access to all
20 Department of Defense data, including data in con-
21 nection with warfighting missions and back-office
22 data.

23 (3) RESPONSIBLE TO CIO.—The Chief Data Of-
24 ficer shall report directly to the Chief Information
25 Officer of the Department of Defense in the per-

1 performance of the responsibility specified in paragraph
2 (1).

3 (4) REPORT.—Not later than December 1,
4 2019, the Secretary of Defense shall submit to the
5 Committees on Armed Services of the Senate and
6 the House of Representatives a report setting forth
7 such recommendations for legislative or administra-
8 tive action as the Secretary considers appropriate to
9 carry out this subsection.

10 **SEC. 904. ASSESSMENTS OF RESPONSIBILITIES AND AU-**
11 **THORITIES OF THE CHIEF MANAGEMENT OF-**
12 **FICER OF THE DEPARTMENT OF DEFENSE.**

13 (a) IN GENERAL.—The Secretary of Defense shall
14 provide for the conduct of two assessments of the imple-
15 mentation of the position of Chief Management Officer of
16 the Department of Defense pursuant to section 132a of
17 title 10, United States Code, as follows:

18 (1) DEPARTMENT OF DEFENSE ASSESSMENT.—
19 An assessment conducted by the Secretary or a des-
20 ignee of the Secretary.

21 (2) INDEPENDENT ASSESSMENT.—An assess-
22 ment conducted by the Defense Business Board or
23 an appropriate number of individuals selected by the
24 Secretary from among individuals in academia or

1 academic institutions with expertise in public admin-
2 istration and management.

3 (b) ASSESSMENT ELEMENTS.—Each assessment con-
4 ducted pursuant to subsection (a) shall include an assess-
5 ment of the implementation of the position of Chief Man-
6 agement Officer of the Department of Defense, including
7 and taking into account the following:

8 (1) The extent to which the position has been
9 effective in achieving the service, and exercising the
10 powers and authorities, specified in section 132a of
11 title 10, United States Code

12 (2) The perspectives of the Under Secretaries
13 of the military departments on the matters described
14 in paragraph (1) based on the experiences of such
15 Under Secretaries as the Chief Management Officer
16 of a military department

17 (3) The extent to which the ingrained organiza-
18 tional culture of the Department of Defense poses
19 fundamental structural challenges for the position of
20 Chief Management Officer of the Department, irre-
21 spective of the individual appointed to the position.

22 (4) The observations of the Comptroller General
23 of the United States on progress and challenges dur-
24 ing the prior 10 years in the establishment of posi-
25 tions of Chief Management Officer in agencies

1 throughout the Executive Branch, including in the
2 Department of Defense and in other Federal agen-
3 cies.

4 (5) An identification and comparison of best
5 practices in the private sector and the public sector
6 for the responsibilities and authorities of Chief Man-
7 agement Officers.

8 (6) An identification and assessment of dif-
9 ferences in responsibilities and authorities of the
10 Chief Management Office of the Department, the
11 Chief Operating Officer of the Department of De-
12 fense, and the Deputy Secretary of Defense.

13 (c) MODIFICATION OF RESPONSIBILITIES AND AU-
14 THORITIES.—The Secretary shall identify such modifica-
15 tions, if any, to the responsibilities and authorities of the
16 Chief Management Officer of the Department (whether
17 specified in statute or otherwise) as the Secretary con-
18 siders appropriate in light of the assessments conducted
19 pursuant to subsection (a). In identifying any such modi-
20 fication, the Secretary shall develop recommendations for
21 such legislative action as the Secretary considers appro-
22 priate to implement such modification.

23 (d) REPORT.—Not later than March 15, 2020, the
24 Secretary shall submit to the congressional defense com-
25 mittees a report on the assessments conducted pursuant

1 to subsection (a) and on any modifications to the respon-
2 sibilities and authorities of the Chief Management Officer
3 of the Department identified pursuant to subsection (c).

4 The report shall include the following:

5 (1) A description and the results of the assess-
6 ment conducted pursuant to subsection (a).

7 (2) Any modifications of the responsibilities and
8 authorities of the Chief Management Officer identi-
9 fied pursuant to subsection (c), including rec-
10 ommendations developed for legislative action to im-
11 plement such recommendations and a proposed
12 timeline for the implementation of such rec-
13 ommendations.

14 **SEC. 905. SENIOR MILITARY ADVISOR FOR CYBER POLICY**
15 **AND DEPUTY PRINCIPAL CYBER ADVISOR.**

16 (a) ADVISOR.—

17 (1) IN GENERAL.—The Under Secretary of De-
18 fense for Policy shall, acting through the Joint
19 Staff, designate an officer within the Office of the
20 Under Secretary of Defense for Policy to serve with-
21 in that Office as the Senior Military Advisor for
22 Cyber Policy, and concurrently, as the Deputy Prin-
23 cipal Cyber Advisor.

24 (2) OFFICERS ELIGIBLE FOR DESIGNATION.—

25 The officer designated pursuant to this subsection

1 shall be designated from among commissioned reg-
2 ular officers of the Armed Forces in a general or
3 flag officer grade who are qualified for designation

4 (3) GRADE.—The officer designated pursuant
5 to this subsection shall have the grade of major gen-
6 eral or rear admiral (upper half) while serving in
7 that position, without vacating the officer’s perma-
8 nent grade.

9 (b) SCOPE OF POSITIONS.—

10 (1) IN GENERAL.—The officer designated pur-
11 suant to subsection (a) is each of the following:

12 (A) The Senior Military Advisor for Cyber
13 Policy to the Under Secretary of Defense for
14 Policy.

15 (B) The Deputy Principal Cyber Advisor
16 to the Secretary of Defense.

17 (2) DIRECTION AND CONTROL AND REPORT-
18 ING.—In carrying out duties under this section, the
19 officer designed pursuant to subsection (a) shall be
20 subject to the authority, direction, and control of,
21 and shall report directly to, the following:

22 (A) The Under Secretary with respect to
23 Senior Military Advisor for Cyber Policy duties.

24 (B) The Principal Cyber Advisor with re-
25 spect to Deputy Principal Cyber Advisor duties.

1 (c) DUTIES.—

2 (1) DUTIES AS SENIOR MILITARY ADVISOR FOR
3 CYBER POLICY.—The duties of the officer designated
4 pursuant to subsection (a) as Senior Military Advi-
5 sor for Cyber Policy are as follows:

6 (A) To serve as the principal uniformed
7 military advisor on military cyber forces and ac-
8 tivities to the Under Secretary of Defense for
9 Policy.

10 (B) To assess and advise the Under Sec-
11 retary on aspects of policy relating to military
12 cyberspace operations, resources, personnel,
13 cyber force readiness, cyber workforce develop-
14 ment, and defense of Department of Defense
15 networks.

16 (C) To advocate, in consultation with the
17 Joint Staff, and senior officers of the Armed
18 Forces and the combatant commands, for con-
19 sideration of military issues within the Office of
20 the Under Secretary of Defense for Policy, in-
21 cluding coordination and synchronization of De-
22 partment cyber forces and activities.

23 (D) To maintain open lines of communica-
24 tion between the Chief Information Officer of
25 the Department of Defense, senior civilian lead-

1 ers within the Office of the Under Secretary,
2 and senior officers on the Joint Staff, the
3 Armed Forces, and the combatant commands
4 on cyber matters, and to ensure that military
5 leaders are informed on cyber policy decisions.

6 (2) DUTIES AS DEPUTY PRINCIPAL CYBER AD-
7 VISOR.—The duties of the officer designated pursu-
8 ant to subsection (a) as Deputy Principal Cyber Ad-
9 visor are as follows:

10 (A) To synchronize, coordinate, and over-
11 see implementation of the Cyber Strategy of the
12 Department of Defense and other relevant pol-
13 icy and planning.

14 (B) To advise the Secretary of Defense on
15 cyber programs, projects, and activities of the
16 Department, including with respect to policy,
17 training, resources, personnel, manpower, and
18 acquisitions and technology.

19 (C) To oversee implementation of Depart-
20 ment policy and operational directives on cyber
21 programs, projects, and activities, including
22 with respect to resources, personnel, manpower,
23 and acquisitions and technology.

1 (D) To assist in the overall supervision of
2 Department cyber activities relating to offensive
3 missions.

4 (E) To assist in the overall supervision of
5 Department defensive cyber operations, includ-
6 ing activities of component-level cybersecurity
7 service providers and the integration of such ac-
8 tivities with activities of the Cyber Mission
9 Force.

10 (F) To advise senior leadership of the De-
11 partment on, and advocate for, investment in
12 capabilities to execute Department missions in
13 and through cyberspace.

14 (G) To identify shortfalls in capabilities to
15 conduct Department missions in and through
16 cyberspace, and make recommendations on ad-
17 dressing such shortfalls in the Program Budget
18 Review process.

19 (H) To coordinate and consult with stake-
20 holders in the cyberspace domain across the De-
21 partment in order to identify other issues on
22 cyberspace for the attention of senior leadership
23 of the Department.

24 (I) On behalf of the Principal Cyber Advi-
25 sor, to lead the cross-functional team estab-

1 lished pursuant to 932(c)(3) of the National
2 Defense Authorization Act for Fiscal Year 2014
3 (10 U.S.C. 2224 note) in order to synchronize
4 and coordinate military and civilian cyber forces
5 and activities of the Department.

6 **SEC. 906. EXCLUSION FROM LIMITATIONS ON PERSONNEL**
7 **IN THE OFFICE OF THE SECRETARY OF DE-**
8 **FENSE AND DEPARTMENT OF DEFENSE**
9 **HEADQUARTERS OF FELLOWS APPOINTED**
10 **UNDER THE JOHN S. MCCAIN DEFENSE FEL-**
11 **LOWS PROGRAM.**

12 Section 932(f)(3) of the John S. McCain National
13 Defense Authorization Act for Fiscal Year 2019 (Public
14 Law 115–232; 132 Stat. 1938; 10 U.S.C. 1580 note prec.)
15 is amended by adding at the end the following new sen-
16 tence: “An individual appointed pursuant to this para-
17 graph shall not count against the limitation on the number
18 of Office of the Secretary of Defense personnel in section
19 143 of title 10, United States Code, or any similar limita-
20 tion in law on the number of personnel in headquarters
21 of the Department that would otherwise apply to the office
22 or headquarters to which appointed.”.

1 **Subtitle B—Organization and Man-**
2 **agement of Other Department of**
3 **Defense Offices and Elements**

4 **SEC. 911. CODIFICATION OF ASSISTANT SECRETARIES FOR**
5 **ENERGY, INSTALLATIONS, AND ENVIRON-**
6 **MENT OF THE ARMY, NAVY, AND AIR FORCE.**

7 (a) ASSISTANT SECRETARY OF THE ARMY.—Section
8 7016(b) of title 10, United States Code, is amended by
9 adding at the end the following new paragraph:

10 “(6)(A) One of the Assistant Secretaries shall be the
11 Assistant Secretary for Energy, Installations, and Envi-
12 ronment.

13 “(B) The principal duty of the Assistant Secretary
14 for Energy, Installations, and Environment shall be the
15 overall supervision of energy, installation, and environ-
16 ment matters for the Department of the Army.”.

17 (b) ASSISTANT SECRETARY OF THE NAVY.—Section
18 8016(b) of title 10, United States Code, is amended by
19 adding at the end the following new paragraph:

20 “(5)(A) One of the Assistant Secretaries shall be the
21 Assistant Secretary for Energy, Installations, and Envi-
22 ronment.

23 “(B) The principal duty of the Assistant Secretary
24 for Energy, Installations, and Environment shall be the

1 overall supervision of energy, installation, and environ-
2 ment matters for the Department of the Navy.”.

3 (c) ASSISTANT SECRETARY OF THE AIR FORCE.—
4 Section 9016(b) of title 10, United States Code, is amend-
5 ed by adding at the end the following new paragraph:

6 “(5)(A) One of the Assistant Secretaries shall be the
7 Assistant Secretary for Energy, Installations, and Envi-
8 ronment.

9 “(B) The principal duty of the Assistant Secretary
10 for Energy, Installations, and Environment shall be the
11 overall supervision of energy, installation, and environ-
12 ment matters for the Department of the Air Force.”.

13 **Subtitle C—Other Department of**
14 **Defense Organization and Man-**
15 **agement Matters**

16 **SEC. 921. PROHIBITION ON OWNERSHIP OR TRADING OF**
17 **STOCKS IN CERTAIN COMPANIES BY CERTAIN**
18 **OFFICIALS OF THE DEPARTMENT OF DE-**
19 **FENSE.**

20 (a) IN GENERAL.—Chapter 49 of title 10, United
21 States Code, is amended by adding at the end the fol-
22 lowing new section:

1 **“§ 988. Prohibition on ownership or trading of stocks**
2 **in certain companies by certain officials**
3 **of the Department of Defense**

4 “(a) PROHIBITION.—Except as provided in sub-
5 section (b), a covered official of the Department of De-
6 fense may not own or purchase publicly traded stock of
7 a company if that company is one of the 10 entities award-
8 ed the most amount of contract funds by the Department
9 of Defense in a fiscal year during the five preceding fiscal
10 years.

11 “(b) EXCEPTIONS.—This section shall not apply to
12 the purchase or ownership of a publicly traded stock of
13 a company otherwise described in subsection (a) as fol-
14 lows:

15 “(1) If the aggregate market value of the hold-
16 ings of the covered official, and the spouse and
17 minor children of the covered official, in the stock of
18 that company, both before and after purchase (in
19 the case of a purchase), does not exceed the de mini-
20 mis threshold established in section 2640.202(a)(2)
21 of title 5, Code of Federal Regulations.

22 “(2) If the stock is purchased and owned as
23 part of an Excepted Investment Fund or mutual
24 fund.

25 “(c) DEFINITIONS.—In this section:

1 “(1) The term ‘covered official of the Depart-
2 ment of Defense’ means any of the following:

3 “(A) A civilian appointed to a position in
4 the Department of Defense by the President, by
5 and with the advice and consent of the Senate.

6 “(B) If serving in a key acquisition posi-
7 tion (as designated by the Secretary of Defense
8 or the Secretary concerned for purposes of this
9 section), the following:

10 “(i) A member of the armed forces in
11 a grade above O–6.

12 “(ii) A civilian officer or employee in
13 a Senior Executive Service, Senior-Level,
14 or Scientific or Professional position.

15 “(2) The term ‘Excepted Investment Fund’
16 means a widely-held investment fund described in
17 section 102(f)(8) of the Ethics in Government Act of
18 1978 (5 U.S.C. App.).”.

19 (b) CLERICAL AMENDMENT.—The table of sections
20 at the beginning of chapter 49 of such title is amended
21 by adding at the end the following new item:

 “988. Prohibition on ownership or trading of stocks in certain companies by cer-
 tain officials of the Department of Defense.”.

1 **SEC. 922. LIMITATION ON CONSOLIDATION OF DEFENSE**
2 **MEDIA ACTIVITY.**

3 (a) **LIMITATION.**—The Secretary of Defense may not
4 take any action to consolidate the Defense Media Activity
5 until a period of 60 days has elapsed following the date
6 on which the Secretary of Defense submits the report re-
7 quired under subsection (b).

8 (b) **REPORT REQUIRED.**—The Secretary of Defense
9 shall submit to the congressional defense committees a re-
10 port that includes the following:

11 (1) Any current or future plans to restructure,
12 reduce, or eliminate the functions, personnel, facili-
13 ties, or capabilities of the Defense Media Activity,
14 including the timelines associated with such plans.

15 (2) Any modifications that have been made, or
16 that may be made, to personnel compensation or
17 funding accounts in preparation for, or in response
18 to, efforts to consolidate the Defense Media Activity.

19 (3) Any contractual agreements that have been
20 entered into to consolidate or explore the consolida-
21 tion of the Defense Media Activity.

22 (4) Any Department of Defense directives or
23 Administration guidance relating to efforts to con-
24 solidate the Defense Media Activity, including any
25 directives or guidance intended to inform or instruct
26 such efforts.

1 (c) CONSOLIDATE DEFINED.—In this section, the
2 term “consolidate”, means any action to reduce the func-
3 tions, personnel, facilities, or capabilities of the Defense
4 Media Activity.

5 **SEC. 923. REPORT ON RESOURCES TO IMPLEMENT THE CI-**
6 **VILIAN CASUALTY POLICY OF THE DEPART-**
7 **MENT OF DEFENSE.**

8 Not later than 30 days after the date of the enact-
9 ment of this Act, the Secretary of Defense shall submit
10 to the congressional defense committees a report, in un-
11 classified form, on the resources necessary over the period
12 of the future-years defense plan for fiscal year 2020 under
13 section 221 of title 10, United States Code, to fulfill the
14 requirements of section 936 of the John S. McCain Na-
15 tional Defense Authorization Act for Fiscal Year 2019
16 (Public Law 115–232; 132 Stat. 1939; 10 U.S.C. 134
17 note) and fully implement policies developed as a result
18 of such section.

19 **Subtitle D—United States Space**
20 **Force**

21 **SEC. 951. SHORT TITLE.**

22 This subtitle may be cited as the “United States
23 Space Force Act”.

1 **SEC. 952. THE SPACE FORCE.**

2 (a) REDESIGNATION.—The Air Force Space Com-
3 mand is hereby redesignated as the United States Space
4 Force (USSF).

5 (b) AUTHORITY.—Title 10, United States Code, is
6 amended—

7 (1) in chapter 907 of part I of subtitle D, by
8 redesignating sections 9067, 9069, 9074, 9075,
9 9081, and 9084 as sections 9063, 9064, 9065, 9066,
10 9067, and 9068, respectively;

11 (2) by adding at the end of such part the fol-
12 lowing new chapter:

13 **“CHAPTER 908—THE SPACE FORCE**

“Sec.

“9081. The United States Space Force.

“9082. Chief of Space Operations.

“9083. Officer career field for space.”;

14 (3) by transferring section 2279c to chapter
15 908, as so added, and redesignating such section as
16 section 9081; and

17 (4) by amending such section 9081 to read as
18 follows:

19 **“§ 9081. The United States Space Force**

20 “(a) ESTABLISHMENT.—There is established a
21 United States Space Force as an armed force within the
22 Department of the Air Force.

1 “(b) COMPOSITION.—The Space Force shall be com-
2 posed of the following:

3 “(1) The Chief of Space Operations.

4 “(2) The space forces and such assets as may
5 be organic therein.

6 “(c) FUNCTIONS.—The Space Force shall be orga-
7 nized, trained, and equipped to provide—

8 “(1) freedom of operation for the United States
9 in, from, and to space; and

10 “(2) prompt and sustained space operations.

11 “(d) DUTIES.—It shall be the duty of the Space
12 Force to—

13 “(1) protect the interests of the United States
14 in space;

15 “(2) deter aggression in, from, and to space;
16 and

17 “(3) conduct space operations.”.

18 (c) SPACE FORCE AS AN ARMED FORCE.—Section
19 101(a)(4) of title 10, United States Code, is amended by
20 inserting “Space Force,” after “Marine Corps,”.

21 (d) MEMBERS.—

22 (1) IN GENERAL.—Effective as of the date of
23 the enactment of this Act, there shall be assigned to
24 the Space Force such members of the Air Force as
25 the Secretary of the Air Force shall specify.

1 (2) NO AUTHORIZATION OF ADDITIONAL MILI-
2 TARY BILLETS.—The Secretary shall carry out this
3 subsection within military personnel of the Air Force
4 otherwise authorized by this Act. Nothing in this
5 subsection shall be construed to authorize additional
6 military billets for the purposes of, or in connection
7 with, the establishment of the Space Force.

8 (e) OFFICER CAREER FIELD FOR SPACE.—Section
9 9068 of title 10, United States Code (as redesignated by
10 subsection (b)(1)), is hereby transferred to the end of
11 chapter 908 of such title (as added by subsection (b)(2))
12 and redesignated as section 9083.

13 (f) TABLES OF CHAPTERS.—The tables of chapters
14 at the beginning of subtitle D of title 10, United States
15 Code, and part I of such subtitle are each amended by
16 inserting after the item relating to chapter 907 the fol-
17 lowing new item:

“908. The Space Force 9081.”.

18 (g) CONFORMING CLERICAL AMENDMENT TO CHAP-
19 TER 907.—The table of sections at the beginning of chap-
20 ter 907 of title 10, United States Code, is amended by
21 striking the items relating to sections 9067, 9069, 9074,
22 9075, 9081, and 9084 and inserting the following new
23 items:

- “9063. Designation: officers to perform certain professional functions.
- “9064. Air Force nurses: Chief; appointment.
- “9065. Commands: territorial organization.

“9066. Regular Air Force: composition.

“9067. Assistant Surgeon General for Dental Services.”.

1 **SEC. 953. CHIEF OF SPACE OPERATIONS.**

2 (a) CHIEF.—Chapter 908 of title 10, United States
3 Code (as added by section 952 of this Act), is amended
4 by inserting after section 9081 the following new section:

5 **“§ 9082. Chief of Space Operations**

6 “(a) APPOINTMENT.—(1) There is a Chief of Space
7 Operations, appointed by the President, by and with the
8 advice and consent of the Senate, from the general officers
9 of the Air Force. The Chief serves at the pleasure of the
10 President.

11 “(2) The Chief shall be appointed for a term of four
12 years. In time of war or during a national emergency de-
13 clared by Congress, the Chief may be reappointed for a
14 term of not more than four years.

15 “(b) GRADE.—The Chief, while so serving, has the
16 grade of general without vacating the permanent grade of
17 the officer.

18 “(c) RELATIONSHIP TO THE SECRETARY OF THE AIR
19 FORCE.—Except as otherwise prescribed by law and sub-
20 ject to section 9013(f) of this title, the Chief performs the
21 duties of such position under the authority, direction, and
22 control of the Secretary of the Air Force and is directly
23 responsible to the Secretary.

1 “(d) DUTIES.—Subject to the authority, direction,
2 and control of the Secretary of the Air Force, the Chief
3 shall—

4 “(1) preside over the Office of the Chief of
5 Space Operations;

6 “(2) transmit the plans and recommendations
7 of the Office of the Chief of Space Operations to the
8 Secretary and advise the Secretary with regard to
9 such plans and recommendations;

10 “(3) after approval of the plans or rec-
11 ommendations of the Office of the Chief of Space
12 Operations by the Secretary, act as the agent of the
13 Secretary in carrying them into effect;

14 “(4) exercise supervision, consistent with the
15 authority assigned to commanders of unified or spec-
16 ified combatant commands under chapter 6 of this
17 title, over such of the members and organizations of
18 the Space Force as the Secretary determines; and

19 “(5) perform such other military duties, not
20 otherwise assigned by law, as are assigned to the
21 Chief by the President, the Secretary of Defense, or
22 the Secretary of the Air Force.

23 “(e) JOINT CHIEFS OF STAFF.—(1) Commencing one
24 year after the date of the enactment of the United States

1 Space Force Act, the Chief of Space Operations shall be
2 a member of the Joint Chiefs of Staff.

3 “(2) To the extent that such action does not impair
4 the independence of the Chief in the performance of the
5 duties of the Chief as a member of the Joint Chiefs of
6 Staff pursuant to paragraph (1), the Chief shall inform
7 the Secretary of the Air Force regarding military advice
8 rendered by members of the Joint Chiefs of Staff on mat-
9 ters affecting the Department of the Air Force.

10 “(3) Subject to the authority, direction, and control
11 of the Secretary of Defense, the Chief shall keep the Sec-
12 retary of the Air Force fully informed of significant mili-
13 tary operations affecting the duties and responsibilities of
14 the Secretary.”.

15 (b) SERVICE.—

16 (1) INCUMBENT.—The individual serving as
17 Commander of the Air Force Space Command as of
18 the day before the date of the enactment of this Act
19 may serve as the Chief of Space Operations under
20 subsection (a) of section 9082 of title 10, United
21 States Code (as added by subsection (a) of this sec-
22 tion), after that date without further appointment as
23 otherwise provided for by subsection (a) of such sec-
24 tion 9082.

1 (2) U.S. SPACE COMMAND.—During the one-
2 year period beginning on the date of the enactment
3 of this Act, the Secretary of Defense may authorize
4 an officer serving as the Chief of Space Operations
5 to serve concurrently as the Commander of the
6 United States Space Command, without further ap-
7 pointment.

8 (c) JOINT CHIEFS OF STAFF MATTERS.—Effective
9 on the date that is one year after the date of the enact-
10 ment of this Act, section 151(a) of title 10, United States
11 Code, is amended by adding at the end the following new
12 paragraph:

13 “(8) The Chief of Space Operations.”.

14 **SEC. 954. SPACE FORCE ACQUISITION COUNCIL.**

15 (a) IN GENERAL.—Chapter 903 of title 10, United
16 States Code, is amended—

17 (1) by redesignating section 9021 as section
18 9021a; and

19 (2) by inserting after section 9020 the following
20 new section 9021:

21 **“§ 9021. Space Force Acquisition Council**

22 “(a) ESTABLISHMENT.—There is in the Office of the
23 Secretary of the Air Force a council to be known as the
24 ‘Space Force Acquisition Council’ (in this section referred
25 to as the ‘Council’).

1 “(b) MEMBERS.—The members of the Council are as
2 follows:

3 “(1) The Under Secretary of the Air Force.

4 “(2) The Assistant Secretary of the Air Force
5 for Space Acquisition and Integration, who shall act
6 as chair of the Council.

7 “(3) The Assistant Secretary of Defense for
8 Space Policy.

9 “(4) The Director of the National Reconnaissance
10 Office.

11 “(5) The Chief of Space Operations.

12 “(6) The Commander of the United States
13 Space Command.

14 “(c) DUTIES.—The Council shall oversee, direct, and
15 manage acquisition and integration of the Air Force for
16 space systems and programs in order to ensure integration
17 across the national security space enterprise.

18 “(d) MEETINGS.—The Council shall meet not less
19 frequently than monthly.

20 “(e) REPORTS.—Not later than 30 days after the end
21 of each calendar year quarter through the first calendar
22 year quarter of 2025, the Council shall submit to the con-
23 gressional defense committees a report on the activities
24 of the Council during the calendar year quarter preceding

1 the calendar year quarter in which such report is sub-
2 mitted.”.

3 (b) CLERICAL AMENDMENT.—The table of sections
4 at the beginning of chapter 903 of such title is amended
5 by striking the item relating to section 9021 and inserting
6 the following new items:

“9021. Space Force Acquisition Council.

“9021a. Air Force Reserve Forces Policy Committee.”.

7 **SEC. 955. ASSISTANT SECRETARY OF DEFENSE FOR SPACE**
8 **POLICY.**

9 (a) IN GENERAL.—Section 138(b) of title 10, United
10 States Code, is amended by adding at the end the fol-
11 lowing new paragraph:

12 “(5) One of the Assistant Secretaries is the Assistant
13 Secretary of Defense for Space Policy. The principal duty
14 of the Assistant Secretary shall be the overall supervision
15 of policy of the Department of Defense for space
16 warfighting.”.

17 (b) ELEMENTS OF OFFICE.—

18 (1) DEVELOPMENT OF RECOMMENDATIONS.—

19 The Secretary of Defense shall seek to enter into an
20 agreement with a federally funded research and de-
21 velopment center on the development of rec-
22 ommendations as to the appropriate elements of the
23 Office of the Assistant Secretary of Defense for
24 Space Policy, including, in particular, whether the

1 elements of the Office should include elements on
2 space that are currently assigned to the Office of the
3 Under Secretary of Defense for Intelligence or the
4 Military Intelligence Program.

5 (2) TRANSMITTAL.—Not later than 180 days
6 after the date of the enactment of this Act, the Sec-
7 retary shall transmit to the Committees on Armed
8 Services of the Senate and the House of Representa-
9 tives the recommendations developed pursuant to
10 paragraph (1), together with an assessment of such
11 recommendations by the Secretary.

12 **SEC. 956. ASSISTANT SECRETARY OF THE AIR FORCE FOR**
13 **SPACE ACQUISITION AND INTEGRATION.**

14 (a) REDESIGNATION OF PRINCIPAL ASSISTANT FOR
15 SPACE AS ASSISTANT SECRETARY FOR SPACE ACQUIS-
16 TION AND INTEGRATION.—

17 (1) IN GENERAL.—The Principal Assistant to
18 the Secretary of the Air Force for Space is hereby
19 redesignated as the Assistant Secretary of the Air
20 Force for Space Acquisition and Integration.

21 (2) REFERENCES.—Any reference to the Prin-
22 cipal Assistant to the Secretary of the Air Force for
23 Space in any law, regulation, map, document,
24 record, or other paper of the United States shall be
25 deemed to be a reference to the Assistant Secretary

1 of the Air Force for Space Acquisition and Integra-
2 tion.

3 (b) CODIFICATION OF POSITION AND RESPONSIBIL-
4 ITIES.—

5 (1) IN GENERAL.—Section 9016 of title 10,
6 United States Code, as amended by subtitle B of
7 this title, is further amended—

8 (A) in subsection (a), by striking “four”
9 and inserting “five”; and

10 (B) in subsection (b), by adding at the end
11 the following new paragraph:

12 “(6)(A) One of the Assistant Secretaries is the As-
13 sistant Secretary of the Air Force for Space Acquisition
14 and Integration.

15 “(B) Subject to the authority, direction, and control
16 of the Secretary of the Air Force, the Assistant Secretary
17 shall do as follows:

18 “(i) Be responsible for all architecture and inte-
19 gration of the Air Force for space systems and pro-
20 grams, including in support of the Chief of Space
21 Operations under section 9082 of this title.

22 “(ii) Act as the chair of the Space Force Acqui-
23 sition Council under section 9021 of this title.

24 “(iii) Advise the service acquisition executive of
25 the Air Force with responsibility for space systems

1 and programs (including for all major defense acqui-
2 sition programs under chapter 144 of this title for
3 space) on the acquisition of such systems and pro-
4 grams by the Air Force.

5 “(iv) Oversee and direct each of the following:

6 “(I) The Space Rapid Capabilities Office
7 under section 2273a of this title.

8 “(II) The Space and Missile Systems Cen-
9 ter.

10 “(III) The Space Development Agency.

11 “(v) Advise and synchronize acquisition projects
12 for all space systems and programs of the Air Force,
13 including projects for space systems and programs
14 responsibility for which is transferred to the Assist-
15 ant Secretary pursuant to section 956(b)(3) of the
16 United States Space Force Act.

17 “(vi) Effective as of October 1, 2022, in accord-
18 ance with section 957 of that Act, serve as the Serv-
19 ice Acquisition Executive of the Department of the
20 Air Force for Space Systems and Programs.”.

21 (2) EXECUTIVE SCHEDULE LEVEL IV.—Section
22 5315 of title 5, United States Code, is amended by
23 striking the item relating to the Assistant Secre-
24 taries of the Air Force and inserting the following
25 new item:

1 “Assistant Secretaries of the Air Force (5).”.

2 (3) TRANSFER OF ACQUISITION PROJECTS FOR
3 SPACE SYSTEMS AND PROGRAMS.—Effective October
4 1, 2022, the Secretary of the Air Force shall trans-
5 fer to the Assistant Secretary of the Air Force for
6 Space Acquisition and Integration under paragraph
7 (6) of section 9016(b) of title 10, United States
8 Code (as added by this subsection), responsibility for
9 architecture and integration of any acquisition
10 projects for space systems and programs of the Air
11 Force that are under the oversight or direction of
12 the Assistant Secretary of the Air Force for Acquisi-
13 tion as of September 30, 2022.

14 **SEC. 957. SERVICE ACQUISITION EXECUTIVE OF THE DE-**
15 **PARTMENT OF THE AIR FORCE FOR SPACE**
16 **SYSTEMS AND PROGRAMS.**

17 (a) IN GENERAL.—Effective October 1, 2022, there
18 shall be within the Department of the Air Force a Service
19 Acquisition Executive of the Department of the Air Force
20 for Space Systems and Programs.

21 (b) SERVICE.—

22 (1) IN GENERAL.—Effective as of October 1,
23 2022, and subject to paragraph (2), the individual
24 serving as Assistant Secretary of the Air Force for
25 Space Acquisition and Integration under paragraph

1 (6) of section 9016(b) of title 10, United States
2 Code (as added by section 1832(b) of this Act), shall
3 also serve as the Service Acquisition Executive for
4 Space Systems and Programs.

5 (2) INCUMBENT.—The individual serving as As-
6 sistant Secretary of the Air Force for Space Acquisi-
7 tion and Integration as of October 1, 2022, may also
8 serve as the Service Acquisition Executive for Space
9 Systems and Programs pursuant to paragraph (1)
10 only if appointed as the Service Acquisition Execu-
11 tive for Space Systems and Programs by the Presi-
12 dent, by and with the advice and consent of the Sen-
13 ate, pursuant to a nomination submitted to the Sen-
14 ate on or after that date.

15 (c) AUTHORITIES AND RESPONSIBILITIES.—

16 (1) IN GENERAL.—The Service Acquisition Ex-
17 ecutive for Space Systems and Programs shall have
18 within the Department of the Air Force all the au-
19 thorities and responsibilities of a service acquisition
20 executive under section 1704 of title 10, United
21 States Code, and other applicable law, for the De-
22 partment of the Air Force with respect to space sys-
23 tems and programs.

24 (2) SEPARATE SAE WITHIN THE AIR FORCE.—

25 The Service Acquisition Executive for Space Systems

1 and Programs shall be in addition to the service ac-
2 quisition executive in the Department of the Air
3 Force for all acquisition matters of the Department
4 of the Air Force other than with respect to space
5 systems and programs.

6 (3) GUIDANCE ON RELATIONSHIP AMONG
7 SAES.—Not later than October 1, 2022, and from
8 time to time thereafter, the Secretary of the Air
9 Force shall issue guidance for the Department of the
10 Air Force on the authorities and responsibilities of
11 the Service Acquisition Executive for Space Systems
12 and Programs and the authorities and responsibil-
13 ities of the service acquisition executive of the De-
14 partment for all acquisition matters of the Depart-
15 ment other than with respect to space systems and
16 programs.

17 **SEC. 958. CONFORMING AMENDMENTS AND CLARIFICA-**
18 **TION OF AUTHORITIES.**

19 (a) CONFORMING AMENDMENTS.—Title 10, United
20 States Code, is amended as follows:

21 (1) In section 101(a)(9)(C), by inserting “and
22 the Space Force” before the semicolon.

23 (2) In section 2273a—

1 (A) in subsection (a), by striking “Air
2 Force Space Command” and inserting “Space
3 Force”; and

4 (B) in subsection (b), by striking “Com-
5 mander of the Air Force Space Command” and
6 inserting “Chief of Space Operations”.

7 (b) CLARIFICATION OF AUTHORITIES.—

8 (1) IN GENERAL.—Except as specifically pro-
9 vided by this subtitle or the amendments made by
10 this subtitle—

11 (A) a member of the Space Force shall be
12 treated as a member of the Air Force for the
13 purpose of the application of any provision of
14 law, including provisions of law relating to pay,
15 benefits, and retirement; and

16 (B) a civilian employee of the Space Force
17 shall be treated as a civilian employee of the Air
18 Force for the purpose of the application of any
19 provision of law, including provisions of law re-
20 lating to pay, benefits, and retirement.

21 (2) APPOINTMENT AND ENLISTMENT.—For
22 purposes of the appointment or enlistment of indi-
23 viduals as members of the Space Force pending the
24 integration of the Space Force into the laws pro-
25 viding for the appointment or enlistment of individ-

1 uals as members of the Armed Forces, appointments
2 and enlistments of individuals as members of the
3 Armed Forces in the Space Force may be made in
4 the same manner in which appointments and enlist-
5 ments of individuals as members of the Armed
6 Forces in the other Armed Forces may be made by
7 law.

8 **SEC. 959. EFFECTS ON MILITARY INSTALLATIONS.**

9 Nothing in this subtitle, or the amendments made by
10 this subtitle, shall be construed to authorize or require the
11 relocation of any facility, infrastructure, or military instal-
12 lation of the Air Force.

13 **SEC. 960. AVAILABILITY OF FUNDS.**

14 (a) IN GENERAL.—Subject to subsection (b),
15 amounts authorized to be appropriated for fiscal year
16 2020 by this Act and available for the Air Force may be
17 obligated and expended for programs, projects, and activi-
18 ties for space, including personnel and acquisition pro-
19 grams, projects, and activities, for and in connection with
20 the establishment of the Space Force and the discharge
21 of the other requirements of this title and the amendments
22 made by this subtitle.

23 (b) LIMITATION.—The total amount obligated and
24 expended in fiscal year 2020 from amounts authorized to
25 be appropriated by this Act for and in connection with

1 the establishment of the Space Force and the discharge
2 of the requirements described in subsection (a) may not
3 exceed the total amount requested for the Space Force in
4 the budget of the President for fiscal year 2020, as sub-
5 mitted to Congress pursuant to section 1105(a) of title
6 10, United States Code.

7 **SEC. 961. IMPLEMENTATION.**

8 (a) **REQUIREMENT.**—Except as specifically provided
9 by this subtitle, the Secretary of the Air Force shall imple-
10 ment this subtitle, and the amendments made by this sub-
11 title, by not later than 18 months after the date of the
12 enactment of this Act.

13 (b) **BRIEFINGS.**—Not later than 60 days after the
14 date of the enactment of this Act, and every 60 days there-
15 after until March 31, 2023, the Secretary of the Air Force
16 and the Chief of Space Operations shall jointly provide
17 to the congressional defense committees a briefing on the
18 status of the implementation of the Space Force pursuant
19 to this subtitle and the amendments made by this subtitle.
20 Each briefing shall address the current missions, oper-
21 ations and activities, manpower requirements and status,
22 and budget and funding requirements and status of the
23 Space Force, and such other matters with respect to the
24 implementation and operation of the Space Force as the
25 Secretary and the Chief jointly consider appropriate to

- 1 keep Congress fully and currently informed on the status
- 2 of the implementation of the Space Force.

3 **TITLE X—GENERAL PROVISIONS**

Subtitle A—Financial Matters

- Sec. 1001. General transfer authority.
- Sec. 1002. Defense Business Audit Remediation Plan.
- Sec. 1003. Financial improvement and audit remediation plan.
- Sec. 1004. Reporting requirements relating to Department of Defense audits.
- Sec. 1005. Inclusion of certain military construction projects in annual reports on unfunded priorities of the Armed Forces and the combatant commands.
- Sec. 1006. Prohibition on delegation of responsibility for submittal to Congress of Out-Year Unconstrained Total Munitions Requirements and Out-Year Inventory numbers.
- Sec. 1007. Annual budget justification display for service-common and other support and enabling capabilities for special operations forces.
- Sec. 1008. Element in annual reports on the Financial Improvement and Audit Remediation Plan on activities with respect to classified programs.
- Sec. 1009. Plan of the Department of Defense for financial management information.
- Sec. 1010. Update of authorities and renaming of Department of Defense Acquisition Workforce Development Fund.
- Sec. 1011. Transparency of accounting firms used to support Department of Defense audit.
- Sec. 1012. Modification of required elements of annual reports on emergency and extraordinary expenses of the Department of Defense.

Subtitle B—Counterdrug Activities

- Sec. 1021. Modification of authority to support a unified counterdrug and counterterrorism campaign in Colombia.
- Sec. 1022. Extension of authority for joint task forces to provide support to law enforcement agencies conducting counter-terrorism activities.
- Sec. 1023. Sense of Congress regarding Department of Defense counterdrug activities in the transit zone and Caribbean basin.
- Sec. 1024. Assessment of impact of any planned or proposed border wall on volume of illegal narcotics.

Subtitle C—Naval Vessels

- Sec. 1031. Modification of authority to purchase vessels using funds in National Defense Sealift Fund.
- Sec. 1032. Use of National Defense Sealift Fund for procurement of two used vessels.
- Sec. 1033. Transportation by sea of supplies for the Armed Forces and Defense Agencies.
- Sec. 1034. Senior Technical Authority for each naval vessel class.
- Sec. 1035. Permanent authority for sustaining operational readiness of littoral combat ships on extended deployment.
- Sec. 1036. Formal training for shipboard system programs of record.

- Sec. 1037. Report on shipbuilder training and the defense industrial base.
 Sec. 1038. Use of competitive procedures for CVN-80 and CVN-81 dual aircraft carrier contract.
 Sec. 1039. Report on expanding naval vessel maintenance.

Subtitle D—Counterterrorism

- Sec. 1041. Modification of support of special operations to combat terrorism.
 Sec. 1042. Extension of prohibition on use of funds for transfer or release of individuals detained at United States Naval Station, Guantanamo Bay, Cuba, to certain countries.
 Sec. 1043. Extension of prohibition on use of funds for transfer or release of individuals detained at United States Naval Station, Guantanamo Bay, Cuba, to the United States.
 Sec. 1044. Extension of prohibition on use of funds to construct or modify facilities in the United States to house detainees transferred from United States Naval Station, Guantanamo Bay, Cuba.
 Sec. 1045. Extension of prohibition on use of funds to close or relinquish control of United States Naval Station, Guantanamo Bay, Cuba.
 Sec. 1046. Chief Medical Officer at United States Naval Station, Guantanamo Bay, Cuba.
 Sec. 1047. Independent assessment on gender and countering violent extremism.

Subtitle E—Miscellaneous Authorities and Limitations

- Sec. 1051. Scheduling of Department of Defense executive aircraft controlled by Secretaries of military departments.
 Sec. 1052. Explosive ordnance defense disposal program.
 Sec. 1053. Technical correction and extension of reporting requirement regarding enhancement of information sharing and coordination of military training between Department of Homeland Security and Department of Defense.
 Sec. 1054. Notification on the provision of defense sensitive support.
 Sec. 1055. Revision to authorities relating to mail service for members of the Armed Forces and Department of Defense civilians overseas.
 Sec. 1056. Access to and use of military post offices by United States citizens employed overseas by the North Atlantic Treaty Organization who perform functions in support of military operations of the Armed Forces.
 Sec. 1057. Expenditure of funds for Department of Defense intelligence and counterintelligence activities.
 Sec. 1058. Limitation on use of funds for the inactivation of Army watercraft units.

1 **Subtitle A—Financial Matters**

2 **SEC. 1001. GENERAL TRANSFER AUTHORITY.**

3 (a) **AUTHORITY TO TRANSFER AUTHORIZATIONS.—**

4 (1) **AUTHORITY.—**Upon determination by the

5 Secretary of Defense that such action is necessary in

1 the national interest, the Secretary may transfer
2 amounts of authorizations made available to the De-
3 partment of Defense in this division for fiscal year
4 2020 between any such authorizations for that fiscal
5 year (or any subdivisions thereof). Amounts of au-
6 thorizations so transferred shall be merged with and
7 be available for the same purposes as the authoriza-
8 tion to which transferred.

9 (2) LIMITATION.—Except as provided in para-
10 graph (3), the total amount of authorizations that
11 the Secretary may transfer under the authority of
12 this section may not exceed \$4,000,000,000.

13 (3) EXCEPTION FOR TRANSFERS BETWEEN
14 MILITARY PERSONNEL AUTHORIZATIONS.—A trans-
15 fer of funds between military personnel authoriza-
16 tions under title IV shall not be counted toward the
17 dollar limitation in paragraph (2).

18 (b) LIMITATIONS.—The authority provided by sub-
19 section (a) to transfer authorizations—

20 (1) may only be used to provide authority for
21 items that have a higher priority than the items
22 from which authority is transferred; and

23 (2) may not be used to provide authority for an
24 item that has been denied authorization by Con-
25 gress.

1 (c) EFFECT ON AUTHORIZATION AMOUNTS.—A
2 transfer made from one account to another under the au-
3 thority of this section shall be deemed to increase the
4 amount authorized for the account to which the amount
5 is transferred by an amount equal to the amount trans-
6 ferred.

7 (d) NOTICE TO CONGRESS.—The Secretary shall
8 promptly notify Congress of each transfer made under
9 subsection (a).

10 **SEC. 1002. DEFENSE BUSINESS AUDIT REMEDIATION PLAN.**

11 (a) IN GENERAL.—Chapter 9A of title 10, United
12 States Code, is amended by adding at the end the fol-
13 lowing new section:

14 **“§ 240g. Defense Business Audit Remediation Plan**

15 “(a) IN GENERAL.—The Secretary of Defense shall
16 maintain a plan, to be known as the ‘Defense Business
17 Systems Audit Remediation Plan’. Such plan shall include
18 a current accounting of the defense business systems of
19 the Department of Defense that will be introduced, re-
20 placed, updated, modified, or retired in connection with
21 the audit of the full financial statements of the Depart-
22 ment, including a comprehensive roadmap that displays—

23 “(1) in-service, retirement, and other pertinent
24 dates for affected defense business systems;

1 “(2) current cost-to-complete estimates for each
2 affected defense business system; and

3 “(3) dependencies both between the various de-
4 fense business systems and between the introduction,
5 replacement, update, modification, and retirement of
6 such systems.

7 “(b) REPORT AND BRIEFING REQUIREMENTS.—

8 “(1) ANNUAL REPORT.—Not later than June
9 30, 2020, and annually thereafter, the Secretary of
10 Defense shall submit to the congressional defense
11 committees an updated report on the Defense Busi-
12 ness Systems Audit Remediation Plan under sub-
13 section (a).

14 “(2) SEMIANNUAL BRIEFINGS.—Not later than
15 January 31 and June 30 each year, the Secretary
16 shall provide to the congressional defense commit-
17 tees a briefing on the status of the Defense Business
18 Systems Audit Remediation Plan. Such briefing
19 shall include a description of any updates to the de-
20 fense business systems roadmap referred to in sub-
21 section (a).

22 “(c) DEFENSE BUSINESS SYSTEM.—In this section,
23 the term ‘defense business system’ has the meaning given
24 such term in section 2222(i)(1)(A) of this title.”.

1 (b) CLERICAL AMENDMENT.—The table of sections
2 at the beginning of such chapter is amended by adding
3 at the end the following new item:

“240g. Defense Business Audit Remediation Plan.”.

4 **SEC. 1003. FINANCIAL IMPROVEMENT AND AUDIT REMEDI-**
5 **ATION PLAN.**

6 (a) ELEMENTS OF ANNUAL REPORT.—Subsection
7 (b)(1)(B) of section 240b of title 10, United States Code,
8 is amended—

9 (1) in clause (vii)—

10 (A) by striking “or if less than 50 percent
11 of the audit remediation services”; and

12 (B) by striking “and audit remediation ac-
13 tivities”; and

14 (2) in clause (viii), by striking “or if less than
15 25 percent of the audit remediation services”.

16 (b) SEMIANNUAL BRIEFINGS.—Subsection (b)(2) of
17 such section is amended by striking “or audit remedi-
18 ation”.

19 (c) AUDIT REMEDIATION SERVICES.—Subsection (b)
20 of such section is further amended—

21 (1) in paragraph (1)(B), by adding at the end
22 the following new clauses:

23 “(ix) If less than 50 percent of the
24 audit remediation services under contract,
25 as described in the briefing required under

1 paragraph (2)(B), are being performed by
2 individual professionals meeting the quali-
3 fications described in subsection (c), a de-
4 tailed description of the risks associated
5 with the risks of the acquisition strategy of
6 the Department with respect to conducting
7 audit remediation activities and an expla-
8 nation of how the strategy complies with
9 the policies expressed by Congress.

10 “(x) If less than 25 percent of the
11 audit remediation services under contract,
12 as described in the briefing required under
13 paragraph (2)(B), are being performed by
14 individual professionals meeting the quali-
15 fications described in subsection (c), a
16 written certification that the staffing ratio
17 complies with commercial best practices
18 and presents no increased risk of delay in
19 the Department’s ability to achieve a clean
20 audit opinion.”; and

21 (2) in paragraph (2)—

22 (A) by striking “Not later” and inserting
23 “(A) Not later”; and

24 (B) by adding at the end the following new
25 subparagraph:

1 further amended by adding at the end the following
2 new section:

3 **“§ 240h. Annual report on auditable financial state-**
4 **ments**

5 “(a) IN GENERAL.—Not later than January 30 of
6 each year, the Secretary of Defense shall submit to the
7 congressional defense committees a report that includes
8 a ranking of all of the military departments and Defense
9 Agencies in order of how advanced each such department
10 and Agency is in achieving auditable financial statements,
11 as required by law. In preparing the report, the Secretary
12 shall seek to exclude information that is otherwise avail-
13 able in other reports to Congress.

14 “(b) BOTTOM QUARTILE.—Not later than June 30
15 of each year, the head of each of the military departments
16 and Defense Agencies that were ranked in the bottom
17 quartile of the report submitted under subsection (a) for
18 that year shall submit to the congressional defense com-
19 mittees a report that includes the following information
20 for that military department or Defense Agency:

21 “(1) A description of the material weaknesses
22 of the military department or Defense Agency.

23 “(2) The underlying causes of such weaknesses.

24 “(3) A plan for remediating such weaknesses.

1 “(4) The total number of open audit notices of
2 findings and recommendations (hereinafter referred
3 to as ‘NFRs’) for the most recently concluded fiscal
4 year and the preceding two fiscal years, where appli-
5 cable.

6 “(5) The number of repeat or reissued NFRs
7 from the most recently concluded fiscal year.

8 “(6) The number of NFRs that were previously
9 forecasted to be closed during the most recently con-
10 cluded fiscal year that remain open.

11 “(7) The number of closed NFRs during the
12 current fiscal year and prior fiscal years.

13 “(8) The number of material weaknesses that
14 were validated by external auditors as fully resolved
15 or downgraded in the current fiscal year over prior
16 fiscal years.

17 “(9) A breakdown by fiscal years in which open
18 NFRs are forecasted to be closed.

19 “(10) Explanations for unfavorable trends in
20 the information under paragraphs (1) through (9).”.

21 (2) CLERICAL AMENDMENT.—The table of sec-
22 tions at the beginning of such chapter , as amended
23 by section 1002 is futher amended by adding at the
24 end the following new item:

“240h. Annual report on auditable financial statements.”.

1 (b) PLAN FOR REMEDIATED AUDIT FINDINGS.—Not
2 later than 90 days after the date of the enactment of this
3 Act, the Secretary of Defense shall submit to the congress-
4 sional defense committees a report on Department-wide
5 audit metrics. Such report shall include each of the fol-
6 lowing:

7 (1) The total number of open audit notices of
8 findings and recommendations (hereinafter referred
9 to as “NFRs”) for the most recent fiscal year and
10 the preceding two fiscal years where applicable.

11 (2) The number of repeat or reissued NFRs
12 from the most recent fiscal year.

13 (3) The number of NFRs that were previously
14 forecasted to be closed in the most recently com-
15 pleted fiscal year that remain open,

16 (4) The number of closed NFRs in the current
17 fiscal year and prior fiscal years.

18 (5) The number of material weaknesses that
19 were validated by external auditors as fully resolved
20 or downgraded in the current fiscal year over prior
21 fiscal years.

22 (6) A breakdown by fiscal years in which open
23 NFRs are forecasted to be closed.

24 (7) Explanations for unfavorable trends in the
25 information under paragraphs (1) through (5).

1 **SEC. 1005. INCLUSION OF CERTAIN MILITARY CONSTRUC-**
2 **TION PROJECTS IN ANNUAL REPORTS ON UN-**
3 **FUNDED PRIORITIES OF THE ARMED FORCES**
4 **AND THE COMBATANT COMMANDS.**

5 (a) INCLUSION OF CERTAIN MILITARY CONSTRUC-
6 TION PROJECTS AMONG UNFUNDED PRIORITIES.—Sub-
7 section (d) of section 222a of title 10, United States Code,
8 is amended to read as follows:

9 “(d) DEFINITIONS.—In this section:

10 “(1) The term ‘unfunded priority’, in the case
11 of a fiscal year, means a program, activity, or mis-
12 sion requirement, including a covered military con-
13 struction project, that—

14 “(A) is not funded in the budget of the
15 President for the fiscal year as submitted to
16 Congress pursuant to section 1105 of title 31;

17 “(B) is necessary to fulfill a requirement
18 associated with an operational or contingency
19 plan of a combatant command or other vali-
20 dated requirement; and

21 “(C) would have been recommended for
22 funding through the budget referred to in sub-
23 paragraph (1) by the officer submitting the re-
24 port required by subsection (a) in connection
25 with the budget if—

1 “(i) additional resources been avail-
2 able for the budget to fund the program,
3 activity, or mission requirement; or

4 “(ii) the program, activity, or mission
5 requirement has emerged since the budget
6 was formulated.

7 “(2) The term ‘covered military construction
8 project’, in connection with a fiscal year, means a
9 military construction project that—

10 “(A) is included in any fiscal year of the
11 future-years defense program under section 221
12 of this title that is submitted in connection with
13 the budget of the President for the fiscal year,
14 and is executable in the fiscal year; or

15 “(B) is considered by the commander of a
16 combatant command referred to in subsection
17 (b)(5) to be an urgent need, and is executable
18 in the fiscal year.”.

19 (b) ORDER OF URGENCY OF PRIORITIES.—Para-
20 graph (2) of subsection (c) of such section is amended to
21 read as follows:

22 “(2) PRIORITIZATION OF PRIORITIES.—Each
23 report shall present the unfunded priorities covered
24 by such report as follows:

1 “(A) In overall order of urgency of pri-
2 ority.

3 “(B) In overall order of urgency of priority
4 among unfunded priorities (other than covered
5 military construction projects).

6 “(C) In overall order of urgency of priority
7 among covered military construction projects.”.

8 **SEC. 1006. PROHIBITION ON DELEGATION OF RESPONSI-**
9 **BILITY FOR SUBMITTAL TO CONGRESS OF**
10 **OUT-YEAR UNCONSTRAINED TOTAL MUNI-**
11 **TIONS REQUIREMENTS AND OUT-YEAR IN-**
12 **VENTORY NUMBERS.**

13 Section 222c of title 10, United States Code, is
14 amended—

15 (1) in subsection (a), by striking “subsection
16 (b)” and inserting “subsection (c)”;

17 (2) by redesignating subsections (b), (c), and
18 (d) as subsections (c), (d), and (e), respectively;

19 (3) by inserting after subsection (a) the fol-
20 lowing new subsection (b):

21 “(b) PROHIBITION ON DELEGATION OF SUBMITTAL
22 RESPONSIBILITY.—The responsibility of the chief of staff
23 of an armed force in subsection (a) to submit a report
24 may not be delegated outside the armed force concerned.”;
25 and

1 (4) in subsection (c), as redesignated by para-
2 graph (2), by striking “subsection (c)” in paragraph
3 (6) and inserting “subsection (d)”.

4 **SEC. 1007. ANNUAL BUDGET JUSTIFICATION DISPLAY FOR**
5 **SERVICE-COMMON AND OTHER SUPPORT**
6 **AND ENABLING CAPABILITIES FOR SPECIAL**
7 **OPERATIONS FORCES.**

8 (a) IN GENERAL.—Chapter 9 of title 10, United
9 States Code, is amended by inserting after section 225 the
10 following new section:

11 **“§ 226. Special operations forces: display of service-**
12 **common and other support and enabling**
13 **capabilities**

14 “(a) IN GENERAL.—The Secretary shall include, in
15 the budget materials submitted to Congress under section
16 1105 of title 31 for fiscal year 2021 and any subsequent
17 fiscal year, a consolidated budget justification display
18 showing service-common and other support and enabling
19 capabilities for special operations forces requested by a
20 military service or Defense Agency. Such budget justifica-
21 tion display shall include any amount for service-common
22 or other capability development and acquisition, training,
23 operations, pay, base operations sustainment, and other
24 common services and support.

1 “(b) SERVICE-COMMON AND OTHER SUPPORT AND
2 ENABLING CAPABILITIES.—In this section, the term ‘serv-
3 ice-common and other support and enabling capabilities’
4 means capabilities provided in support of special oper-
5 ations that are not reflected in Major Force Program–11
6 or designated as special operations forces-peculiar.”.

7 (b) CLERICAL AMENDMENT.—The table of sections
8 at the beginning of such chapter is amended by inserting
9 after the item relating to section 225 the following new
10 item:

 “226. Special operations forces: display of service-common and other support
 and enabling capabilities.”.

11 **SEC. 1008. ELEMENT IN ANNUAL REPORTS ON THE FINAN-**
12 **CIAL IMPROVEMENT AND AUDIT REMEDI-**
13 **ATION PLAN ON ACTIVITIES WITH RESPECT**
14 **TO CLASSIFIED PROGRAMS.**

15 Section 240b(b)(1) of title 10, United States Code,
16 is amended—

17 (1) in subparagraph (B), as amended by section
18 1003, by adding at the end the following new clause:

19 “(xi) A description of audit activities
20 and results for classified programs, includ-
21 ing a description of the use of procedures
22 and requirements to prevent unauthorized
23 exposure of classified information in such
24 activities.”; and

1 (2) in subparagraph (C)(i), by inserting “or
2 (ix)” after “clause (vii)”.

3 **SEC. 1009. PLAN OF THE DEPARTMENT OF DEFENSE FOR**
4 **FINANCIAL MANAGEMENT INFORMATION.**

5 (a) **ELEMENT ON SUPPORT OF NDS BY CORRECTIVE**
6 **ACTION PLANS.**—Section 240b(b)(1)(B) of title 10,
7 United States Code, as amended by section 1008 of this
8 Act, is further amended by adding at the end the following
9 new clause:

10 “(xii) An identification the manner in
11 which the corrective action plan or plans of
12 each department, agency, component, or
13 element of the Department of Defense, and
14 the corrective action plan of the Depart-
15 ment as a whole, support the National De-
16 fense Strategy (NDS) of the United
17 States.”.

18 (b) **TECHNICAL AMENDMENT.**—Clause (i) of such
19 section is amended by striking “section 253a” and insert-
20 ing “section 240c”.

21 (c) **ANNUAL REPORTS ON FUNDING FOR CORREC-**
22 **TIVE ACTION PLANS.**—Not later than five days after the
23 submittal to Congress under section 1105(a) of title 31,
24 United States Code, of the budget of the President for
25 any fiscal year after fiscal year 2020, the Secretary of De-

1 fense shall submit to the congressional defense committees
2 a reporting setting forth a detailed estimate of the funding
3 required for such fiscal year to procure, obtain, or other-
4 wise implement each process, system, and technology iden-
5 tified to address the current corrective action plans of the
6 departments, agencies, components, and elements of the
7 Department of Defense, and the corrective action plan of
8 the Department as a whole, for purposes of chapter 9A
9 of title 10, United States Code, during such fiscal year.

10 **SEC. 1010. UPDATE OF AUTHORITIES AND RENAMING OF**
11 **DEPARTMENT OF DEFENSE ACQUISITION**
12 **WORKFORCE DEVELOPMENT FUND.**

13 (a) RENAMING AS ACCOUNT.—

14 (1) IN GENERAL.—Section 1705 of title 10,
15 United States Code, is amended—

16 (A) in subsection (a), by striking “the ‘De-
17 partment of Defense Acquisition Workforce De-
18 velopment Fund’ (in this section referred to as
19 the ‘Fund’)” and inserting “the ‘Department of
20 Defense Acquisition Workforce Development
21 Account’ (in this section referred to as the ‘Ac-
22 count’)”; and

23 (B) by striking “Fund” each place it ap-
24 pears (other than subsection (e)(6)) and insert-
25 ing “Account”.

1 (2) CONFORMING AND CLERICAL AMEND-
2 MENTS.—

3 (A) SECTION HEADING.—The heading of
4 such section is amended to read as follows:

5 **“§ 1705. Department of Defense Acquisition Work-**
6 **force Development Account”.**

7 (B) CLERICAL AMENDMENT.—The table of
8 sections at the beginning of subchapter I of
9 chapter 87 of such title is amended by striking
10 the item relating to section 1705 and inserting
11 the following new item:

“1705. Department of Defense Acquisition Workforce Development Account.”.

12 (b) MANAGEMENT.—Such section is further amended
13 by striking “Under Secretary of Defense for Acquisition,
14 Technology, and Logistics” each place it appears and in-
15 serting “Under Secretary of Defense for Acquisition and
16 Sustainment”.

17 (c) APPROPRIATIONS AS SOLE ELEMENTS OF AC-
18 COUNT.—Subsection (d) of such section is amended to
19 read as follows:

20 “(d) ELEMENTS.—The Account shall consist of
21 amounts appropriated to the Account by law.”.

22 (d) AVAILABILITY OF AMOUNTS IN ACCOUNT.—Sub-
23 section (e)(6) of such section is amended by striking
24 “credited to the Fund” and all that follows and inserting
25 “appropriated to the Account pursuant to subsection (d)

1 shall remain available for expenditure for the fiscal year
2 in which appropriated and the succeeding fiscal year.”.

3 (e) EFFECTIVE DATE.—

4 (1) IN GENERAL.—The amendments made by
5 this section shall take effect on October 1, 2019,
6 and shall apply with respect to fiscal years that
7 begin on or after that date.

8 (2) DURATION OF AVAILABILITY OF PRE-
9 VIOUSLY DEPOSITED FUNDS.—Nothing in the
10 amendments made by this section shall modify the
11 duration of availability of amounts in the Depart-
12 ment of Defense Acquisition Workforce Development
13 Fund that were appropriated or credited to, or de-
14 posited, in the Fund, before October 1, 2019, as
15 provided for in section 1705(e)(6) of title 10, United
16 States Code, as in effect on the day before such
17 date.

18 **SEC. 1011. TRANSPARENCY OF ACCOUNTING FIRMS USED**
19 **TO SUPPORT DEPARTMENT OF DEFENSE**
20 **AUDIT.**

21 Section 1006 of the John S. McCain National De-
22 fense Authorization Act for Fiscal Year 2019 (Public Law
23 115–232) is amended—

1 (1) by striking “For all contract actions” and
2 inserting “(a) IN GENERAL.—For all contract ac-
3 tions”; and

4 (2) by adding at the end the following new sub-
5 sections

6 “(b) TREATMENT OF STATEMENT.—A statement set-
7 ting forth the details of a disciplinary proceeding sub-
8 mitted pursuant to subsection (a), and the information
9 contained in such a statement, shall be—

10 “(1) treated as confidential to the extent re-
11 quired by the court or agency in which the pro-
12 ceeding has occurred; and

13 “(2) treated in a manner consistent with any
14 protections or privileges established by any other
15 provision of Federal law.”.

16 **SEC. 1012. MODIFICATION OF REQUIRED ELEMENTS OF AN-**
17 **NUAL REPORTS ON EMERGENCY AND EX-**
18 **TRAORDINARY EXPENSES OF THE DEPART-**
19 **MENT OF DEFENSE.**

20 Paragraph (2) of section 127(d) of title 10, United
21 States Code, is amended to read as follows:

22 “(2) Each report submitted under paragraph (1)
23 shall include, for each individual expenditure covered by
24 such report in an amount in excess of \$100,000, the fol-
25 lowing:

1 “(A) A detailed description of the purpose of
2 such expenditure.

3 “(B) The amount of such expenditure.

4 “(C) An identification of the approving author-
5 ity for such expenditure.

6 “(D) A justification why other authorities avail-
7 able to the Department could not be used for such
8 expenditure.

9 “(E) Any other matters the Secretary considers
10 appropriate.”.

11 **Subtitle B—Counterdrug Activities**

12 **SEC. 1021. MODIFICATION OF AUTHORITY TO SUPPORT A** 13 **UNIFIED COUNTERDRUG AND COUNTERTER-** 14 **RORISM CAMPAIGN IN COLOMBIA.**

15 (a) ORGANIZATIONS WITH RESPECT TO WHICH AS-
16 SISTANCE MAY BE PROVIDED.—Subsection (a) of section
17 1021 of the Ronald W. Reagan National Defense Author-
18 ization Act for Fiscal Year 2005 (Public Law 108–375;
19 118 Stat. 2042), as most recently amended by section
20 1011(1) of the National Defense Authorization Act for
21 Fiscal Year 2018 (Public Law 115–91; 131 Stat. 1545),
22 is further amended—

23 (1) in paragraph (1), by striking “organizations
24 designated as” and all that follows and inserting
25 “the Revolutionary Armed Forces of Colombia

1 (FARC), the National Liberation Army (ELN), the
2 United Self-Defense Forces of Colombia (AUC), and
3 any covered organization that the Secretary of De-
4 fense, with the concurrence of the Secretary of
5 State, determines poses a threat to the national se-
6 curity interests of the United States.”;

7 (2) by redesignating paragraph (2) as para-
8 graph (3); and

9 (3) by inserting after paragraph (1) the fol-
10 lowing new paragraph (2):

11 “(2) For purposes of paragraph (1), a covered orga-
12 nization is any foreign terrorist organization, or other or-
13 ganization that is a non-state armed group, that—

14 “(A) promotes illicit economies;

15 “(B) employs violence to protect its interests;

16 “(C) has a military type structure, tactics, and
17 weapons that provide it the ability to carry out
18 large-scale violence;

19 “(D) challenges the security response capacity
20 of Colombia; and

21 “(E) has the capability to control territory.”.

22 (b) NOTICE ON ASSISTANCE.—Such section is further
23 amended—

24 (1) by redesignating subsections (e) and (f) as
25 subsections (f) and (g), respectively; and

1 (2) by inserting after subsection (d) the fol-
2 lowing new subsection (e):

3 “(e) NOTICE ON ASSISTANCE WITH RESPECT TO
4 COVERED ORGANIZATIONS.—(1) Not later than 30 days
5 before providing assistance pursuant to the authority in
6 subsection (a) with respect to a covered organization, the
7 Secretary of Defense shall submit to the appropriate com-
8 mittees of Congress a written notification of the intent to
9 use such authority with respect to such organization, in-
10 cluding the name of such organization, the characteristics
11 of such organization, and threat posed by such organiza-
12 tion.

13 “(2) In this subsection, the term ‘appropriate com-
14 mittees of Congress’ means—

15 “(A) the Committee on Armed Services and the
16 Committee on Foreign Relations of the Senate; and

17 “(B) the Committee on Armed Services and the
18 Committee on Foreign Affairs of the House of Rep-
19 resentatives.”.

20 **SEC. 1022. EXTENSION OF AUTHORITY FOR JOINT TASK**
21 **FORCES TO PROVIDE SUPPORT TO LAW EN-**
22 **FORCEMENT AGENCIES CONDUCTING**
23 **COUNTER-TERRORISM ACTIVITIES.**

24 (a) EXTENSION.—Subsection (b) of section 1022 of
25 the National Defense Authorization Act for Fiscal Year

1 2004 (Public Law 108–136; 10 U.S.C. 271 note) is
2 amended by striking “2020” and inserting “2022”.

3 (b) TECHNICAL CORRECTIONS.—Subsection (e) of
4 such section is amended—

5 (1) in paragraph (1), by inserting a period at
6 the end; and

7 (2) by adding at the end the following para-
8 graph (2):

9 “(2) For purposes of applying the definition of
10 transnational organized crime under paragraph (1) to this
11 section, the term ‘illegal means’, as it appears in such defi-
12 nition, includes the trafficking of money, human traf-
13 ficking, illicit financial flows, illegal trade in natural re-
14 sources and wildlife, trade in illegal drugs and weapons,
15 and other forms of illegal means determined by the Sec-
16 retary of Defense.”.

17 **SEC. 1023. SENSE OF CONGRESS REGARDING DEPARTMENT**
18 **OF DEFENSE COUNTERDRUG ACTIVITIES IN**
19 **THE TRANSIT ZONE AND CARIBBEAN BASIN.**

20 It is the sense of Congress that—

21 (1) combating transnational criminal organiza-
22 tions and illicit narcotics trafficking across the tran-
23 sit zone and the Caribbean basin is critical to the
24 national security of the United States;

1 (2) the Department of Defense should work
2 with the Department of Homeland Security, the De-
3 partment of State, and other relevant Federal,
4 State, local, and international partners to improve
5 surveillance capabilities and maximize the effective-
6 ness of counterdrug operations in the region; and

7 (3) the Secretary of Defense should, to the
8 greatest extent possible, ensure United States
9 Northern Command and United States Southern
10 Command have the necessary assets to support and
11 increase counter-drug activities within their respec-
12 tive areas of operations in the transit zone and the
13 Caribbean basin.

14 **SEC. 1024. ASSESSMENT OF IMPACT OF ANY PLANNED OR**
15 **PROPOSED BORDER WALL ON VOLUME OF IL-**
16 **LEGAL NARCOTICS.**

17 (a) **ASSESSMENT REQUIRED.**—The Secretary of De-
18 fense, in consultation with the Secretary of Homeland Se-
19 curity, shall conduct an assessment of the impact that any
20 planned or proposed border wall construction under sec-
21 tion 284 or 2808 of title 10, United States Code, along
22 the southern border of the United States would have on
23 the volume of illegal narcotics entering the United States.

24 (b) **REPORT.**—Not later than 90 days after the date
25 of the enactment of this Act, the Secretary of Defense and

1 the Secretary of Homeland Security shall jointly submit
2 to Congress a report on the assessment required by sub-
3 section (a).

4 **Subtitle C—Naval Vessels**

5 **SEC. 1031. MODIFICATION OF AUTHORITY TO PURCHASE** 6 **VESSELS USING FUNDS IN NATIONAL DE-** 7 **FENSE SEALIFT FUND.**

8 (a) IN GENERAL.—Section 2218(f)(3)(E) of title 10,
9 United States Code, is amended—

10 (1) in clause (i), by striking “ten new sealift
11 vessels” and inserting “ten new vessels that are sea-
12 lift vessels, auxiliary vessels, or a combination of
13 such vessels”; and

14 (2) in clause (ii), by striking “sealift”.

15 (b) EFFECTIVE DATE.—The amendments made by
16 subsection (a) shall take effect on October 1, 2019, and
17 shall apply with respect to fiscal years beginning on or
18 after that date.

19 **SEC. 1032. USE OF NATIONAL DEFENSE SEALIFT FUND FOR** 20 **PROCUREMENT OF TWO USED VESSELS.**

21 Pursuant to section 2218(f)(3) of title 10, United
22 States Code, and using amounts authorized to be appro-
23 priated for Operation and Maintenance, Navy, for fiscal
24 year 2020, the Secretary of the Navy shall seek to enter
25 into a contract for the procurement of two used vessels.

1 **SEC. 1033. TRANSPORTATION BY SEA OF SUPPLIES FOR**
2 **THE ARMED FORCES AND DEFENSE AGEN-**
3 **CIES.**

4 Section 2631 of title 10, United States Code, is
5 amended—

6 (1) in the first sentence of subsection (a), by in-
7 serting “or for a Defense Agency” after “Marine
8 Corps”; and

9 (2) in subsection (b)—

10 (A) by redesignating paragraphs (2) and
11 (3) as paragraphs (3) and (4), respectively;

12 (B) by inserting after paragraph (1) the
13 following new paragraph (2):

14 “(2) Before entering into a contract for the transpor-
15 tation by sea of fuel products under this section, the Sec-
16 retary shall provide a minimum variance of three days on
17 the shipment date.”; and

18 (C) in paragraph (4), as redesignated by
19 subparagraph (A), by striking “the requirement
20 described in paragraph (1)” and insert “a re-
21 quirement under paragraph (1) or (2)”.

22 **SEC. 1034. SENIOR TECHNICAL AUTHORITY FOR EACH**
23 **NAVAL VESSEL CLASS.**

24 (a) **SENIOR TECHNICAL AUTHORITY FOR EACH**
25 **CLASS REQUIRED.**—Chapter 863 of title 10, United

1 States Code, is amended by inserting after section 8669a
2 the following new section:

3 **“§ 8669b. Senior Technical Authority for each naval**
4 **vessel class**

5 “(a) SENIOR TECHNICAL AUTHORITY.—

6 “(1) DESIGNATION FOR EACH VESSEL CLASS
7 REQUIRED.—The Secretary of the Navy shall des-
8 ignate, in writing, a Senior Technical Authority for
9 each class of naval vessels as follows:

10 “(A) In the case of a class of vessels which
11 has received Milestone A approval, an approval
12 to enter into technology maturation and risk re-
13 duction, or an approval to enter into a subse-
14 quent Department of Defense or Department of
15 the Navy acquisition phase as of the date of the
16 enactment of the National Defense Authoriza-
17 tion Act for Fiscal Year 2020, not later than
18 30 days after such date of enactment.

19 “(B) In the case of any class of vessels
20 which has not received any approval described
21 in subparagraph (A) as of such date of enact-
22 ment, at or before the first of such approvals.

23 “(2) INDIVIDUALS ELIGIBLE FOR DESIGNA-
24 TION.—Each individual designated as a Senior
25 Technical Authority under paragraph (1) shall be an

1 employee of the Navy in the Senior Executive Serv-
2 ice in an organization of the Navy that—

3 “(A) possesses the technical expertise re-
4 quired to carry out the responsibilities specified
5 in subsection (b); and

6 “(B) operates independently of chains-of-
7 command for acquisition program management.

8 “(3) TERM.—Each Senior Technical Authority
9 shall be designated for a fixed term, not shorter
10 than the time anticipated to establish demonstrated
11 successful performance of the class of vessels con-
12 cerned in accordance with its approved capabilities
13 document, as determined by the Secretary at the
14 time of designation.

15 “(4) VOLUNTARY DEPARTURE.—If an indi-
16 vidual designated as a Senior Technical Authority
17 voluntarily departs the position before demonstrated
18 successful performance of the class of vessels con-
19 cerned, the Secretary shall designate, in writing, a
20 replacement, and shall notify, in writing, the con-
21 gressional defense committees not later than 90 days
22 after such departure.

23 “(5) REMOVAL.—An individual may be removed
24 involuntarily from designation as a Senior Technical
25 Authority only by the Secretary. Not later than 15

1 days after the involuntary removal of an individual
2 from such designation, the Secretary shall notify, in
3 writing, the congressional defense committees of the
4 removal, including the reasons for the removal. Not
5 later than 90 days after the involuntary removal, the
6 Secretary shall designate, in writing, a replacement,
7 and shall notify, in writing, the congressional de-
8 fense committees of such designation.

9 “(6) REASSIGNMENT FOR MISSION NEEDS.—
10 Subject to paragraphs (4) and (5), the Secretary
11 may reassign a Senior Technical Authority or re-
12 move an individual from designation as a Senior
13 Technical Authority in furtherance of Department of
14 the Navy mission needs.

15 “(b) RESPONSIBILITIES AND AUTHORITY.—Each
16 Senior Technical Authority shall be responsible for, and
17 have the authority to, establish, monitor, and approve
18 technical standards, tools, and processes for the class of
19 naval vessels for which designated under this section in
20 conformance with applicable laws and Department of De-
21 fense and Department of the Navy policies, requirements,
22 architectures, and standards.

23 “(c) LIMITATION ON OBLIGATION OF FUNDS ON
24 LEAD VESSEL IN VESSEL CLASS.—

1 “(1) IN GENERAL.—On or after January 1,
2 2021, funds authorized to be appropriated for Ship-
3 building and Conversion, Navy or Other Procure-
4 ment, Navy may not be obligated for the first time
5 on the lead vessel in a class of naval vessels unless
6 the Secretary of the Navy certifies as described in
7 paragraph (2).

8 “(2) CERTIFICATION ELEMENTS.—The certifi-
9 cation on a class of naval vessels described in this
10 paragraph is a certification containing each of the
11 following:

12 “(A) The name or names of the individual
13 or individuals designated as the Senior Tech-
14 nical Authority for such class of vessels, and
15 the qualifications and professional biography or
16 biographies of the individual or individuals so
17 designated.

18 “(B) A description by the Senior Technical
19 Authority of the systems engineering, tech-
20 nology, and ship integration risks for such class
21 of vessels.

22 “(C) The designation by the Senior Tech-
23 nical Authority of each critical hull, mechanical,
24 electrical, propulsion, and combat system of
25 such class of vessels, including systems relating

1 to power generation, power distribution, and
2 key operational mission areas.

3 “(D) The date on which the Senior Tech-
4 nical Authority approved the systems engineer-
5 ing, engineering development, and land-based
6 engineering and testing plans for such class of
7 vessels.

8 “(E) A description by the Senior Technical
9 Authority of the key technical knowledge objec-
10 tives and demonstrated system performance of
11 each plan approved as described in subpara-
12 graph (D).

13 “(F) A determination by the Senior Tech-
14 nical Authority that such plans are sufficient to
15 achieve thorough technical knowledge of critical
16 systems of such class of vessels before the start
17 of detail design and construction.

18 “(G) A determination by the Senior Tech-
19 nical Authority that actual execution of activi-
20 ties in support of such plans as of the date of
21 the certification have been and continue to be
22 effective and supportive of the acquisition
23 schedule for such class of vessels.

24 “(H) A description by the Senior Technical
25 Authority of other technology maturation and

1 risk reduction efforts not included in such plans
2 for such class of vessels taken as of the date of
3 the certification.

4 “(I) A certification by the Senior Technical
5 Authority that each critical system covered by
6 subparagraph (C) has been demonstrated
7 through testing of a prototype or identical com-
8 ponent in its final form, fit, and function in a
9 realistic environment.

10 “(J) A determination by the Secretary that
11 the plans approved as described in subpara-
12 graph (D) are fully funded and will be fully
13 funded in the future-years defense program for
14 the fiscal year beginning in the year in which
15 the certification is submitted.

16 “(K) A determination by the Secretary
17 that the Senior Technical Authority will ap-
18 prove, in writing, the ship specification for such
19 class of vessels before the request for proposals
20 for detail design, construction, or both, as ap-
21 plicable, is released.

22 “(3) DEADLINE FOR SUBMITTAL OF CERTIFI-
23 CATION.—The certification required by this sub-
24 section with respect to a class of naval vessels shall
25 be submitted, in writing, to the congressional de-

1 fense committees not fewer than 30 days before the
2 Secretary obligates for the first time funds author-
3 ized to be appropriated for Shipbuilding and Conver-
4 sion, Navy or Other Procurement, Navy for the lead
5 vessel in such class of naval vessels.

6 “(d) DEFINITIONS.—In this section:

7 “(1) The term ‘class of naval vessels’—

8 “(A) means any group of similar undersea
9 or surface craft procured with Shipbuilding and
10 Conversion, Navy or Other Procurement, Navy
11 funds, including manned, unmanned, and op-
12 tionally-manned craft; and

13 “(B) includes—

14 “(i) a substantially new class of craft
15 (including craft procured using ‘new start’
16 procurement); and

17 “(ii) a class of craft undergoing a sig-
18 nificant incremental change in its existing
19 class (such as a next ‘flight’ of destroyers
20 or next ‘block’ of attack submarines).

21 “(2) The term ‘future-years defense program’
22 has the meaning given that term in section 221 of
23 this title.

1 “(3) The term ‘Milestone A approval’ has the
2 meaning given that term in section 2431a of this
3 title.”.

4 (b) CLERICAL AMENDMENT.—The table of sections
5 at the beginning of chapter 863 of such title is amended
6 by inserting after the item relating to section 8669a the
7 following new item:

 “8669b. Senior Technical Authority for each naval vessel class.”.

8 **SEC. 1035. PERMANENT AUTHORITY FOR SUSTAINING**
9 **OPERATIONAL READINESS OF LITTORAL**
10 **COMBAT SHIPS ON EXTENDED DEPLOYMENT.**

11 Section 8680(a)(2) of title 10, United States Code,
12 is amended—

13 (1) in subparagraph (C)(ii)—

14 (A) by striking “means preservation or
15 corrosion control efforts and cleaning services”
16 and inserting “means—”; and

17 (B) by adding at the end the following new
18 subclauses:

19 “(I) the effort required to provide house-
20 keeping services throughout the ship;

21 “(II) the effort required to perform coating
22 maintenance and repair to exterior and interior
23 surfaces due to normal environmental condi-
24 tions; and

1 “(III) the effort required to clean mechan-
2 ical spaces, mission zones, and topside spaces.”;
3 and
4 (2) by striking subparagraph (D).

5 **SEC. 1036. FORMAL TRAINING FOR SHIPBOARD SYSTEM**
6 **PROGRAMS OF RECORD.**

7 (a) IN GENERAL.—The Secretary of the Navy shall
8 ensure that there is formal training provided for any ship-
9 board system that is a program of record on any Navy
10 surface vessel.

11 (b) TIMELINE FOR IMPLEMENTATION.—

12 (1) CURRENT PROGRAMS.—In the case of any
13 shipboard system program of record that is in use
14 as of the date of the enactment of this Act for which
15 no formal training is available, the Secretary shall
16 ensure that such training is available by not later
17 than 12 months after the date of the enactment of
18 this Act.

19 (2) FUTURE PROGRAMS.—In the case of any
20 shipboard system program of record that is first ac-
21 cepted by the Government after the date of the en-
22 actment of this Act, the Secretary shall ensure that
23 formal training is established for such program by
24 not later than 12 months after the date on which

1 the shipboard system program of record is first ac-
2 cepted by the Government.

3 **SEC. 1037. REPORT ON SHIPBUILDER TRAINING AND THE**
4 **DEFENSE INDUSTRIAL BASE.**

5 Not later than 180 days after the date of the enact-
6 ment of this Act, the Secretary of Defense, in coordination
7 with the Secretary of Labor, shall submit to the Com-
8 mittee on Armed Services and the Committee on Health,
9 Education, Labor, and Pensions of the Senate and the
10 Committee on Armed Services and the Committee on Edu-
11 cation and Labor of the House of Representatives a report
12 on shipbuilder training and hiring requirements necessary
13 to achieve the Navy's 30-year shipbuilding plan and to
14 maintain the shipbuilding readiness of the defense indus-
15 trial base. Such report shall include each of the following:

16 (1) An analysis and estimate of the time and
17 investment required for new shipbuilders to gain
18 proficiency in particular shipbuilding occupational
19 specialties, including detailed information about the
20 occupational specialty requirements necessary for
21 construction of naval surface ship and submarine
22 classes to be included in the Navy's 30-year ship-
23 building plan.

24 (2) An analysis of the age demographics and
25 occupational experience level (measured in years of

1 experience) of the shipbuilding defense industrial
2 workforce.

3 (3) An analysis of the potential time and invest-
4 ment challenges associated with developing and re-
5 taining shipbuilding skills in organizations that lack
6 intermediate levels of shipbuilding experience.

7 (4) Recommendations concerning how to ad-
8 dress shipbuilder training during periods of demo-
9 graphic transition, including whether emerging tech-
10 nologies, such as augmented reality, may aid in new
11 shipbuilder training.

12 (5) Recommendations concerning how to en-
13 courage young adults to enter the defense ship-
14 building industry and to develop the skills necessary
15 to support the shipbuilding defense industrial base.

16 **SEC. 1038. USE OF COMPETITIVE PROCEDURES FOR CVN-80**
17 **AND CVN-81 DUAL AIRCRAFT CARRIER CON-**
18 **TRACT.**

19 To the extent practicable and unless otherwise re-
20 quired by law, the Secretary of the Navy shall ensure that
21 competitive procedures are used with respect to any task
22 order or delivery order issued under a dual aircraft carrier
23 contract relating to the CVN-80 and CVN-81.

1 **SEC. 1039. REPORT ON EXPANDING NAVAL VESSEL MAINTEN-**
2 **NANCE.**

3 (a) REPORT REQUIRED.—Not later than May 1,
4 2020, the Secretary of the Navy shall submit to the con-
5 gressional defense committees a report on the feasibility
6 and advisability of allowing maintenance to be performed
7 on a naval vessel at a shipyard other than a homeport
8 shipyard of the vessel.

9 (b) ELEMENTS.—The report required under sub-
10 section (a) shall include the following:

11 (1) An assessment of the ability of homeport
12 shipyards to meet the current naval vessel mainte-
13 nance demands.

14 (2) An assessment of the ability of homeport
15 shipyards to meet the naval vessel maintenance de-
16 mands of the force structure assessment requirement
17 of the Navy for a 355-ship navy.

18 (3) An assessment of the ability of non-home-
19 port firms to augment repair work at homeport ship-
20 yards, including an assessment of the following:

21 (A) The capability and proficiency of ship-
22 yards in the Great Lakes, Gulf Coast, East
23 Coast, West Coast, and Alaska regions to per-
24 form technical repair work on naval vessels at
25 locations other than their homeports.

1 (B) The improvements to the capability
2 and capacity of shipyards in the Great Lakes,
3 Gulf Coast, East Coast, West Coast, and Alas-
4 ka regions that would be required to enable per-
5 formance of technical repair work on naval ves-
6 sels at locations other than their homeports.

7 (C) The types of naval vessels (such as
8 noncombatant vessels or vessels that only need
9 limited periods of time in shipyards) best suited
10 for repair work performed by shipyards in loca-
11 tions other than their homeports.

12 (D) The potential benefits to fleet readi-
13 ness of expanding shipyard repair work to in-
14 clude shipyards not located at the homeports of
15 naval vessels.

16 (E) The ability of non-homeport firms to
17 maintain surge capacity when homeport ship-
18 yards lack the capacity or capability to meet
19 homeport requirements.

20 (4) An assessment of the potential benefits of
21 expanding repair work for naval vessels to shipyards
22 not eligible for short-term work in accordance with
23 section 8669a(c) of title 10, United States Code.

24 (5) Such other related matters as the Secretary
25 of the Navy considers appropriate.

1 (c) RULES OF CONSTRUCTION.—

2 (1) REQUIREMENTS RELATING TO CONSTRU-
3 TION OF COMBATANT AND ESCORT VESSELS AND AS-
4 SIGNMENT OF VESSEL PROJECTS.—Nothing in this
5 section may be construed to override the require-
6 ments of section 8669a of title 10, United States
7 Code.

8 (2) NO FUNDING FOR SHIPYARDS OF NON-
9 HOMEPORT FIRMS.—Nothing in this section may be
10 construed to authorize funding for shipyards of non-
11 homeport firms.

12 (d) DEFINITIONS.—In this section:

13 (1) HOMEPORT SHIPYARD.—The term “home-
14 port shipyard” means a shipyard associated with a
15 firm capable of being awarded short-term work at
16 the homeport of a naval vessel in accordance with
17 section 8669a(c) of title 10, United States Code.

18 (2) SHORT-TERM WORK.—The term “short-
19 term work” has the meaning given that term in sec-
20 tion 8669a(c)(4) of such title.

21 **Subtitle D—Counterterrorism**

22 **SEC. 1041. MODIFICATION OF SUPPORT OF SPECIAL OPER-** 23 **ATIONS TO COMBAT TERRORISM.**

24 Section 127e of title 10, United States Code, is
25 amended—

1 (1) in subsection (a), by inserting “authorized”
2 before “ongoing”; and

3 (2) in subsection (d)(2)—

4 (A) in subparagraph (A), by inserting
5 “and a description of the authorized ongoing
6 operation” before the period at the end;

7 (B) by redesignating subparagraph (C) as
8 subparagraph (D);

9 (C) by striking subparagraphs (B) and in-
10 sserting the following new subparagraphs after
11 subparagraph (A):

12 “(B) A description of the foreign forces, ir-
13 regular forces, groups, or individuals engaged in
14 supporting or facilitating the authorized ongo-
15 ing operation who will receive support provided
16 under this section.

17 “(C) A detailed description of the support
18 provided or to be provided to the recipient.”;
19 and

20 (D) by adding at the end the following new
21 subparagraphs:

22 “(E) A detailed description of the legal
23 and operational authorities related to the au-
24 thorized ongoing operation, including relevant
25 execute orders issued by the Secretary of De-

1 fense and combatant commanders related to the
2 authorized ongoing operation, including an
3 identification of operational activities United
4 States Special Operations Forces are authorized
5 to conduct under such execute orders.

6 “(F) The duration for which the support is
7 expected to be provided and an identification of
8 the timeframe in which the provision of support
9 will be reviewed by the combatant commander
10 for a determination regarding the necessity of
11 continuation of support.”.

12 **SEC. 1042. EXTENSION OF PROHIBITION ON USE OF FUNDS**
13 **FOR TRANSFER OR RELEASE OF INDIVID-**
14 **UALS DETAINED AT UNITED STATES NAVAL**
15 **STATION, GUANTANAMO BAY, CUBA, TO CER-**
16 **TAIN COUNTRIES.**

17 Section 1035 of the John S. McCain National De-
18 fense Authorization Act for Fiscal Year 2019 (Public Law
19 115–232) is amended by striking “December 31, 2019”
20 and inserting “December 31, 2020”.

1 **SEC. 1043. EXTENSION OF PROHIBITION ON USE OF FUNDS**
2 **FOR TRANSFER OR RELEASE OF INDIVID-**
3 **UALS DETAINED AT UNITED STATES NAVAL**
4 **STATION, GUANTANAMO BAY, CUBA, TO THE**
5 **UNITED STATES.**

6 Section 1033 of the John S. McCain National De-
7 fense Authorization Act for Fiscal Year 2019 (Public Law
8 115–232) is amended by striking “December 31, 2019”
9 and inserting “December 31, 2020”.

10 **SEC. 1044. EXTENSION OF PROHIBITION ON USE OF FUNDS**
11 **TO CONSTRUCT OR MODIFY FACILITIES IN**
12 **THE UNITED STATES TO HOUSE DETAINEES**
13 **TRANSFERRED FROM UNITED STATES NAVAL**
14 **STATION, GUANTANAMO BAY, CUBA.**

15 Section 1034(a) of the John S. McCain National De-
16 fense Authorization Act for Fiscal Year 2019 (Public Law
17 115–232) is amended by striking “December 31, 2019”
18 and inserting “December 31, 2020”.

19 **SEC. 1045. EXTENSION OF PROHIBITION ON USE OF FUNDS**
20 **TO CLOSE OR RELINQUISH CONTROL OF**
21 **UNITED STATES NAVAL STATION, GUANTA-**
22 **NAMO BAY, CUBA.**

23 Section 1036 of the National Defense Authorization
24 Act for Fiscal Year 2018 (Public Law 115–91; 131 Stat.
25 1551), as amended by section 1032 of the John S. McCain
26 National Defense Authorization Act for Fiscal Year 2019

1 (Public Law 115–232; 132 Stat. 1953), is further amend-
2 ed by striking “or 2019” and inserting “, 2019, or 2020”.

3 **SEC. 1046. CHIEF MEDICAL OFFICER AT UNITED STATES**

4 **NAVAL STATION, GUANTANAMO BAY, CUBA.**

5 (a) CHIEF MEDICAL OFFICER.—

6 (1) IN GENERAL.—There shall be at United
7 States Naval Station, Guantanamo Bay, Cuba, a
8 Chief Medical Officer of United States Naval Sta-
9 tion, Guantanamo Bay (in this section referred to as
10 the “Chief Medical Officer”).

11 (2) GRADE.—The individual serving as Chief
12 Medical Officer shall be an officer of the Armed
13 Forces who holds a grade not below the grade of
14 colonel, or captain in the Navy.

15 (3) CHAIN OF COMMAND.—Notwithstanding
16 sections 162 and 164 of title 10, United States
17 Code, the Chief Medical Officer shall be assigned
18 and report to the Assistant Secretary of Defense for
19 Health Affairs, with duty at United States Naval
20 Station, Guantanamo Bay, Cuba, in the performance
21 of duties and the exercise of powers of the Chief
22 Medical Officer under this section.

23 (b) DUTIES.—

1 (1) IN GENERAL.—The Chief Medical Officer
2 shall oversee the provision of medical care to individ-
3 uals detained at Guantanamo.

4 (2) QUALITY OF CARE.—The Chief Medical Of-
5 ficer shall ensure that medical care provided as de-
6 scribed in paragraph (1) meets applicable standards
7 of care.

8 (c) POWERS.—

9 (1) IN GENERAL.—The Chief Medical Officer
10 shall make medical determinations relating to med-
11 ical care for individuals detained at Guantanamo, in-
12 cluding—

13 (A) decisions regarding assessment, diag-
14 nosis, and treatment; and

15 (B) determinations concerning medical ac-
16 commodations to living conditions and oper-
17 ating procedures for detention facilities.

18 (2) RESOLUTION OF DECLINATION TO FOLLOW
19 DETERMINATIONS.—If the commander of Joint Task
20 Force Guantanamo or the Commander of United
21 States Southern Command declines to follow a de-
22 termination of the Chief Medical Officer under para-
23 graph (1), the matter covered by such determination
24 shall be resolved by the Assistant Secretary of De-
25 fense for Health Affairs, in consultation with the As-

1 sistant Secretary of Defense for Special Operations
2 and Low Intensity Conflict, not later than seven
3 days after receipt by both Assistant Secretaries of
4 written notification of the matter from the Chief
5 Medical Officer.

6 (3) SECURITY CLEARANCES.—The appropriate
7 departments or agencies of the Federal Government
8 shall, to the extent practicable in accordance with
9 existing procedures and requirements, process expe-
10 ditiously any application and adjudication for a secu-
11 rity clearance required by the Chief Medical Officer
12 to carry out the Chief Medical Officer's duties and
13 powers under this section.

14 (d) ACCESS TO INDIVIDUALS, INFORMATION, AND
15 ASSISTANCE.—

16 (1) IN GENERAL.—The Chief Medical Officer
17 may secure directly from the Department of Defense
18 access to any individual, information, or assistance
19 that the Chief Medical Officer considers necessary to
20 enable the Chief Medical Officer to carry out this
21 section, including full access to the following:

22 (A) Any individual detained at Guanta-
23 namo.

24 (B) Any medical records of any individual
25 detained at Guantanamo.

1 (C) Medical professionals of the Depart-
2 ment who are working, or have worked, at
3 United States Naval Station, Guantanamo Bay.

4 (2) ACCESS UPON REQUEST.—Upon request of
5 the Chief Medical Officer, the Department shall
6 make available to the Chief Medical Officer on an
7 expeditious basis access to individuals, information,
8 and assistance as described in paragraph (1).

9 (3) LACK OF EXPEDITIOUS AVAILABILITY.—If
10 access to individuals, information, or assistance is
11 not made available to the Chief Medical Officer upon
12 request on an expeditious basis as required by para-
13 graph (2), the Chief Medical Officer shall notify the
14 Assistant Secretary of Defense for Health Affairs
15 and the Assistant Secretary of Defense for Special
16 Operations and Low Intensity Conflict, who shall
17 take actions to resolve the matter expeditiously.

18 (e) DEFINITIONS.—In this section:

19 (1) INDIVIDUAL DETAINED AT GUANTANAMO
20 DEFINED.—The term “individual detained at Guan-
21 tanamo” means an individual located at United
22 States Naval Station, Guantanamo Bay, Cuba, as of
23 October 1, 2009, who—

24 (A) is not a national of the United States
25 (as defined in section 101(a)(22) of the Immi-

1 gration and Nationality Act (8 U.S.C.
2 1101(a)(22)) or a member of the Armed Forces
3 of the United States; and

4 (B) is—

5 (i) in the custody or under the control
6 of the Department of Defense; or

7 (ii) otherwise detained at United
8 States Naval Station, Guantanamo Bay.

9 (2) **MEDICAL CARE.**—The term “medical care”
10 means physical and mental health care.

11 (3) **STANDARD OF CARE.**—The term “standard
12 of care” means evaluation and treatment that is ac-
13 cepted by medical experts and reflected in peer-re-
14 viewed medical literature as the appropriate medical
15 approach for a condition, symptoms, illness, or dis-
16 ease and that is widely used by healthcare profes-
17 sionals.

18 **SEC. 1047. INDEPENDENT ASSESSMENT ON GENDER AND**
19 **COUNTERING VIOLENT EXTREMISM.**

20 (a) **IN GENERAL.**—The Secretary of Defense, in con-
21 sultation with the Secretary of State, shall seek to enter
22 into a contract with a nonprofit entity or a federally fund-
23 ed research and development center independent of the
24 Department of Defense and the Department of State to

1 conduct research and analysis on the relationship between
2 gender and violent extremism.

3 (b) ELEMENTS.—The research and analysis con-
4 ducted under subsection (a) shall include consideration of
5 the following:

6 (1) The probable causes and historical trends of
7 women’s participation in violent extremist organiza-
8 tions.

9 (2) Potential ways in which women’s participa-
10 tion in violent extremism is likely to change in the
11 near- and medium-term.

12 (3) The relationship between violent extremism
13 and each of the following:

14 (A) Gender-based violence, abduction, and
15 human trafficking.

16 (B) The perceived role or value of women
17 at the community level, including with respect
18 to property and inheritance rights and bride-
19 price and dowry.

20 (C) Community opinions of killing or
21 harming of women.

22 (D) Violations of girls’ rights, including
23 child, early, and forced marriage and access to
24 education.

1 (4) Ways for the Department of Defense to en-
2 gage and support women and girls who are vulner-
3 able to extremist behavior and activities as a means
4 to counter violent extremism and terrorism.

5 (c) UTILIZATION.—The Secretary of Defense and the
6 Secretary of State shall utilize the results of the research
7 and analysis conducted under subsection (a) to inform the
8 strategic and operational objectives of the geographic com-
9 batant command, where appropriate. Such utilization shall
10 be in accordance with the Women, Peace, and Security
11 Act of 2017 (Public Law 115–68; 22 U.S.C. 2152j et
12 seq.).

13 (d) REPORTS.—

14 (1) IN GENERAL.—Not later than 270 days
15 after the date of the enactment of this Act, the non-
16 profit entity or federally funded research and devel-
17 opment center with which the Secretary of Defense
18 enters into the contract under subsection (a) shall
19 submit to the Secretary of Defense and Secretary of
20 State a report on the results of the research and
21 analysis required by subsection (a).

22 (2) SUBMISSION TO CONGRESS.—Not later than
23 one year after the date of the enactment of this Act,
24 the Secretary of Defense shall submit to the appro-

1 appropriate congressional committees each of the fol-
2 lowing:

3 (A) A copy of the report submitted under
4 paragraph (1) without change.

5 (B) Any comments, changes, recommenda-
6 tions, or other information provided by the Sec-
7 retary of Defense and the Secretary of State re-
8 lating to the research and analysis required by
9 subsection (a) and contained in such report.

10 (3) APPROPRIATE CONGRESSIONAL COMMIT-
11 TEES.—In this paragraph, the term “appropriate
12 congressional committees” means—

13 (A) the congressional defense committees;

14 (B) the Committee on Foreign Relations of
15 the Senate and the Committee on Foreign Af-
16 fairs of the House of Representatives; and

17 (C) the Permanent Select Committee on
18 Intelligence of the House of Representatives
19 and the Select Committee on Intelligence of the
20 Senate.

1 **Subtitle E—Miscellaneous**
2 **Authorities and Limitations**

3 **SEC. 1051. SCHEDULING OF DEPARTMENT OF DEFENSE EX-**
4 **ECUTIVE AIRCRAFT CONTROLLED BY SECRE-**
5 **TARIES OF MILITARY DEPARTMENTS.**

6 (a) IN GENERAL.—Chapter 2 of title 10, United
7 States Code, is amended by adding at the end the fol-
8 lowing new section:

9 **“§ 120. Department of Defense executive aircraft con-**
10 **trolled by Secretaries of military depart-**
11 **ments**

12 “(a) IN GENERAL.—The Secretary of Defense shall
13 ensure that the Chief of the Air Force Special Air Mission
14 Office is given the responsibility for coordination of sched-
15 uling all Department of Defense executive aircraft con-
16 trolled by the Secretaries of the military departments in
17 order to support required use travelers.

18 “(b) RESPONSIBILITIES.—(1) Not later than 180
19 days after the date of the enactment of this section, the
20 Secretary of each of the military departments shall execute
21 a memorandum of understanding with the Air Force Spe-
22 cial Air Mission Office regarding oversight and manage-
23 ment of executive aircraft controlled by that military de-
24 partment.

1 “(2) The Secretary of Defense shall be responsible
2 for prioritizing travel when requests exceed available execu-
3 tive airlift capability.

4 “(3) The Secretary of a military department shall
5 maintain overall authority for scheduling the required use
6 travelers of that military department on executive aircraft
7 controlled by the Secretary. When an executive aircraft
8 controlled by the Secretary of a military department is not
9 supporting required use travelers of that military depart-
10 ment, the Secretary of the military department shall make
11 such executive aircraft available for scheduling of other
12 required use travelers.

13 “(c) LIMITATIONS.—(1) The Secretary of Defense
14 may not establish a new command and control organiza-
15 tion to support aircraft.

16 “(2) No executive aircraft controlled by the Secretary
17 of a military department may be permanently stationed
18 at any location without a required use traveler without the
19 approval of the Secretary of Defense.

20 “(d) DEFINITIONS.—In this section:

21 “(1) The term ‘required use traveler’ has the
22 meaning given such term in Department of Defense
23 directive 4500.56, as in effect on the date of the en-
24 actment of this section.

1 “(2) The term ‘executive aircraft’ has the
2 meaning given such term in Department of Defense
3 directive 4500.43, as in effect on the date of the en-
4 actment of this section.”.

5 (b) CLERICAL AMENDMENT.—The table of sections
6 at the beginning of such chapter is amended by adding
7 at the end the following new item:

 “120. Department of Defense executive aircraft controlled by Secretaries of mili-
 tary departments.”.

8 **SEC. 1052. EXPLOSIVE ORDNANCE DEFENSE DISPOSAL**
9 **PROGRAM.**

10 (a) ROLES, RESPONSIBILITIES, AND AUTHORITIES.—
11 Subsection (b) of section 2284 of title 10, United States
12 Code, is amended—

13 (1) by redesignating paragraph (2) as para-
14 graph (3);

15 (2) in paragraph (1)—

16 (A) in subparagraph (A), by inserting
17 “and” after the semicolon;

18 (B) by redesignating subparagraph (B) as
19 paragraph (2), moving it to appear after para-
20 graph (1), and adjusting the margins accord-
21 ingly;

22 (C) by redesignating subparagraph (C) as
23 subparagraph (B);

1 (D) in subparagraph (B), as so redesign-
2 nated—

3 (i) by striking “joint program execu-
4 tive officer who” and inserting “training
5 and technology program that”;

6 (ii) by inserting “, provides common
7 individual training,” after “explosive ord-
8 nance disposal”;

9 (iii) by striking “and procurement”;

10 (iv) by inserting “for common tools”
11 after “activities”;

12 (v) by striking “and combatant com-
13 mands”; and

14 (E) by striking subparagraphs (D) and
15 (E);

16 (3) in paragraph (2), as redesignated by para-
17 graph (2)(B) of this subsection, by inserting “(A)”
18 after “paragraph (1)”;

19 (4) in paragraph (3), as redesignated by para-
20 graph (1) of this subsection, by striking “such as
21 weapon systems, manned and unmanned vehicles
22 and platforms, cyber and communication equipment,
23 and the integration of explosive ordnance disposal
24 sets, kits and outfits and explosive ordnance disposal

1 tools, equipment, sets, kits, and outfits developed by
2 the department.” and inserting “; and”; and

3 (5) by adding at the end the following new
4 paragraph:

5 “(4) the Secretary of the Army shall designate
6 an Army explosive ordnance disposal-qualified gen-
7 eral officer to serve as the co-chair of the Depart-
8 ment of Defense explosive ordnance disposal defense
9 program.”.

10 (b) DEFINITIONS.—Such section is further amended
11 by adding at the end the following new subsection:

12 “(d) DEFINITIONS.—In this section:

13 “(1) The term ‘explosive ordnance’ has the
14 meaning given such term in section 283(d) of this
15 title.

16 “(2) The term ‘explosive ordnance disposal’
17 means the detection, identification, on-site evalua-
18 tion, rendering safe, exploitation, recovery, and final
19 disposal of explosive ordnance.”.

1 **SEC. 1053. TECHNICAL CORRECTION AND EXTENSION OF**
2 **REPORTING REQUIREMENT REGARDING EN-**
3 **HANCEMENT OF INFORMATION SHARING**
4 **AND COORDINATION OF MILITARY TRAINING**
5 **BETWEEN DEPARTMENT OF HOMELAND SE-**
6 **CURITY AND DEPARTMENT OF DEFENSE.**

7 Section 1014 of the National Defense Authorization
8 Act for Fiscal Year 2017 (Public Law 114–328) is amend-
9 ed—

10 (1) by striking “section 371 of title 10, United
11 States Code” each place it appears and inserting
12 “section 271 of title 10, United States Code”; and

13 (2) in subsection (d)(3) by striking “January
14 31, 2020” and inserting “December 31, 2022”.

15 **SEC. 1054. NOTIFICATION ON THE PROVISION OF DEFENSE**
16 **SENSITIVE SUPPORT.**

17 Section 1055(b) of the National Defense Authoriza-
18 tion Act for Fiscal Year 2017 (Public Law 114–328; 10
19 U.S.C. 113 note) is amended—

20 (1) in paragraph (2)—

21 (A) by redesignating subparagraph (C) as
22 subparagraph (E); and

23 (B) by inserting after subparagraph (B)
24 the following new subparagraphs:

25 “(C) A description of the required duration
26 of the support.

1 “(D) A description of the initial costs for
2 the support.”; and

3 (2) by adding at the end the following new
4 paragraph:

5 “(5) SUSTAINMENT COSTS.—If the Secretary
6 determines that sustainment costs will be incurred
7 as a result of the provision of defense sensitive sup-
8 port, the Secretary, not later than 15 days after the
9 initial provision of such support, shall certify to the
10 congressional defense committees (and the congress-
11 sional intelligence committees with respect to mat-
12 ters relating to members of the intelligence commu-
13 nity) that such sustainment costs will not interfere
14 with the ability of the Department to execute oper-
15 ations, accomplish mission objectives, and maintain
16 readiness.”.

17 **SEC. 1055. REVISION TO AUTHORITIES RELATING TO MAIL**
18 **SERVICE FOR MEMBERS OF THE ARMED**
19 **FORCES AND DEPARTMENT OF DEFENSE CI-**
20 **VILIANS OVERSEAS.**

21 (a) ELIGIBILITY FOR FREE MAIL.—Section 3401(a)
22 of title 39, United States Code, is amended to read as
23 follows:

24 “(a)(1) First-class letter mail having the character of
25 personal correspondence shall be carried, at no cost to the

1 sender, in the manner provided by this section, when
2 mailed by an eligible individual described in paragraph (2)
3 and addressed to a place within the delivery limits of a
4 United States post office, if—

5 “(A) such letter mail is mailed by the eligible
6 individual at an Armed Forces post office estab-
7 lished in an overseas area designated by the Presi-
8 dent, where the Armed Forces of the United States
9 are deployed for a contingency operation as deter-
10 mined by the Secretary of Defense; or

11 “(B) the eligible individual is hospitalized as a
12 result of disease or injury incurred as a result of
13 service in an overseas area designated by the Presi-
14 dent under subparagraph (A).

15 “(2) An eligible individual described in this para-
16 graph is—

17 “(A) a member of the Armed Forces of the
18 United States on active duty, as defined in section
19 101 of title 10; or

20 “(B) a civilian employee of the Department of
21 Defense or a military department who is providing
22 support to military operations.”.

23 (b) SURFACE SHIPMENT OF MAIL AUTHORIZED.—
24 Section 3401 of title 39, United States Code, is amend-
25 ed—

1 (1) by striking subsection (c);

2 (2) by redesignating subsections (d), (e), (f),
3 and (g) as subsections (c), (d), (e), and (f), respec-
4 tively; and

5 (3) by amending subsection (b) to read as fol-
6 lows:

7 “(b) There shall be transported by surface or air,
8 consistent with the service purchased by the mailer, be-
9 tween Armed Forces post offices or from an Armed Forces
10 post office to a point of entry into the United States, the
11 following categories of mail matter which are mailed at
12 any such Armed Forces post office:

13 “(1) Letter mail communications having the
14 character of personal correspondence.

15 “(2) Any parcel exceeding 1 pound in weight
16 but less than 70 pounds in weight and less than 130
17 inches in length and girth combined.

18 “(3) Publications published not less frequently
19 than once per week and featuring principally current
20 news of interest to members of the Armed Forces of
21 the United States and the general public.”.

22 (c) TECHNICAL AND CONFORMING AMENDMENTS.—

23 (1) Section 3401 of title 39, United States
24 Code, is amended in the section heading by striking
25 “**and of friendly foreign nations**”.

1 (2) The table of sections for chapter 34 of title
2 39, United States Code, is amended by striking the
3 item relating to section 3401 and inserting the fol-
4 lowing:

“3401. Mailing privileges of members of Armed Forces of the United States.”.

5 **SEC. 1056. ACCESS TO AND USE OF MILITARY POST OF-**
6 **FICES BY UNITED STATES CITIZENS EM-**
7 **PLOYED OVERSEAS BY THE NORTH ATLANTIC**
8 **TREATY ORGANIZATION WHO PERFORM**
9 **FUNCTIONS IN SUPPORT OF MILITARY OPER-**
10 **ATIONS OF THE ARMED FORCES.**

11 Section 406 of title 39, United States Code, is
12 amended by adding at the end the following:

13 “(c)(1) The Secretary of Defense may authorize the
14 use of a post office established under subsection (a) in
15 a location outside the United States by citizens of the
16 United States—

17 “(A) who—

18 “(i) are employed by the North Atlantic
19 Treaty Organization; and

20 “(ii) perform functions in support of the
21 Armed Forces of the United States; and

22 “(B) if the Secretary makes a written deter-
23 mination that such use is—

24 “(i) in the best interests of the Depart-
25 ment of Defense; and

1 “(ii) otherwise authorized by applicable
2 host nation law or agreement.

3 “(2) No funds may be obligated or expended to estab-
4 lish, maintain, or expand a post office established under
5 subsection (a) for the purpose of use described in para-
6 graph (1) of this subsection.”.

7 **SEC. 1057. EXPENDITURE OF FUNDS FOR DEPARTMENT OF**
8 **DEFENSE INTELLIGENCE AND COUNTER-**
9 **INTELLIGENCE ACTIVITIES.**

10 (a) IN GENERAL.—Subject to subsections (b) and (c),
11 the Secretary of Defense may expend amounts made avail-
12 able for the Military Intelligence Program for any of fiscal
13 years 2020 through 2025 for intelligence and counterintel-
14 ligence activities for any purpose the Secretary determines
15 to be proper with regard to intelligence and counterintel-
16 ligence objects of a confidential, extraordinary, or emer-
17 gency nature. Such a determination is final and conclusive
18 upon the accounting officers of the United States.

19 (b) LIMITATION ON AMOUNT.—The Secretary of De-
20 fense may not expend more than five percent of the
21 amounts described in subsection (a) for any fiscal year for
22 objects described in that subsection unless—

23 (1) the Secretary notifies the congressional de-
24 fense committees and the congressional intelligence

1 committees of the intent to expend the amounts and
2 purpose of the expenditure; and

3 (2) 30 days have elapsed from the date on
4 which the Secretary provides the notice described in
5 paragraph (1).

6 (c) CERTIFICATION.—For each expenditure of funds
7 under this section, the Secretary shall certify that such
8 expenditure was made for an object of a confidential, ex-
9 traordinary, or emergency nature.

10 (d) REPORT.—Not later than December 31 of each
11 of 2020 through 2025, the Secretary of Defense shall sub-
12 mit to the congressional defense committees and the con-
13 gressional intelligence committees a report on expendi-
14 tures made under this section during the fiscal year pre-
15 ceding the year in which the report is submitted. Each
16 such report shall include, for each expenditure under this
17 section during the fiscal year covered by the report, a de-
18 scription, the purpose, the program element, and the cer-
19 tification required under section (c).

20 (e) LIMITATION ON DELEGATIONS.—The Secretary
21 of Defense may not delegate the authority under this sec-
22 tion with respect to any expenditure in excess of \$100,000.

23 (f) CONGRESSIONAL INTELLIGENCE COMMITTEES
24 DEFINED.—In this section, the term “congressional intel-
25 ligence committees” means—

1 (1) the Select Committee on Intelligence of the
2 Senate; and

3 (2) the Permanent Select Committee on Intel-
4 ligence of the House of Representatives.

5 **SEC. 1058. LIMITATION ON USE OF FUNDS FOR THE INAC-**
6 **TIVATION OF ARMY WATERCRAFT UNITS.**

7 None of the funds authorized to be appropriated by
8 this Act or otherwise made available for fiscal year 2020
9 may be obligated or expended for the inactivation of any
10 Army watercraft unit until the Secretary of Defense sub-
11 mits to Congress certification that—

12 (1) the Secretary has completed the Army
13 Watercraft Requirements Review; and

14 (2) the Secretary has entered into a contract
15 with a federally funded research and development
16 corporation for the review of the ability of the Army
17 to meet the watercraft requirements of the combat-
18 ant commanders and the effects on preparedness to
19 provide support to States and territories in connec-
20 tion with natural disasters, threats, and emer-
21 gencies.

22 **TITLE XI—CIVILIAN PERSONNEL**
23 **MATTERS**

Subtitle A—General Provisions

Sec. 1101. Defense Advanced Research Projects Agency personnel management
authority.

- Sec. 1102. Report on the probationary period for Department of Defense employees.
- Sec. 1103. Civilian personnel management.
- Sec. 1104. One-year extension of temporary authority to grant allowances, benefits, and gratuities to civilian personnel on official duty in a combat zone.
- Sec. 1105. One-year extension of authority to waive annual limitation on premium pay and aggregate limitation on pay for Federal civilian employees working overseas.
- Sec. 1106. Performance of civilian functions by military personnel.
- Sec. 1107. Extension of direct hire authority for domestic industrial base facilities and Major Range and Test Facilities Base.
- Sec. 1108. Authority to provide additional allowances and benefits for certain Defense Clandestine Service employees.
- Sec. 1109. Modification of direct hire authorities for the Department of Defense.
- Sec. 1110. Designating certain FEHBP and FEGLI services provided by Federal employees as excepted services under the Anti-Deficiency Act.
- Sec. 1111. Continuing supplemental dental and vision benefits and long-term care insurance coverage during a Government shutdown.
- Sec. 1112. Limitation on transfer of Office of Personnel Management.
- Sec. 1113. Assessment of Accelerated Promotion Program suspension.
- Sec. 1114. Reimbursement for Federal, State, and local income taxes incurred during travel, transportation, and relocation.
- Sec. 1115. Clarification of limitation on expedited hiring authority for post-secondary students.
- Sec. 1116. Modification of temporary assignments of Department of Defense employees to a private-sector organization.
- Sec. 1117. Extension of authority for part-time reemployment.

Subtitle B—Fair Chance Act

- Sec. 1121. Short title.
- Sec. 1122. Prohibition on criminal history inquiries prior to conditional offer for Federal employment.
- Sec. 1123. Prohibition on criminal history inquiries by contractors prior to conditional offer.
- Sec. 1124. Report on employment of individuals formerly incarcerated in Federal prisons.

Subtitle C—ATC Hiring Reform

- Sec. 1131. Short title; definition.
- Sec. 1132. Hiring of air traffic control specialists.
- Sec. 1133. Ensuring hiring preference for applicants with experience at an air traffic control facility of the National Guard.
- Sec. 1134. FAA reports on air traffic controller hiring and training.
- Sec. 1135. DOT Inspector General review and report.

1 **Subtitle A—General Provisions**

2 **SEC. 1101. DEFENSE ADVANCED RESEARCH PROJECTS**

3 **AGENCY PERSONNEL MANAGEMENT AU-** 4 **THORITY.**

5 Section 1599h(b)(1)(B) of title 10, United States
6 Code, is amended by striking “100 positions” and insert-
7 ing “140 positions”.

8 **SEC. 1102. REPORT ON THE PROBATIONARY PERIOD FOR** 9 **DEPARTMENT OF DEFENSE EMPLOYEES.**

10 (a) REPORT.—Not later than 1 year after the date
11 of the enactment of this Act, the Secretary of Defense
12 shall—

13 (1) conduct an independent review on the pro-
14 bationary periods applicable to Department of De-
15 fense employees under section 1599e of title 10,
16 United States Code; and

17 (2) submit a report on such review to the Com-
18 mittees on Armed Services and Oversight and Re-
19 form of the House of Representatives and the Com-
20 mittees on Armed Services and Homeland Security
21 and Governmental Affairs of the Senate.

22 (b) CONTENTS.—The review and report under sub-
23 section (a) shall cover the period beginning on the date
24 of the enactment of such section 1599e and ending on De-
25 cember 31, 2018, and include the following:

1 (1) An assessment and identification of the de-
2 mographics of each Department of Defense employee
3 who, during such period, was on a probationary pe-
4 riod and who was removed from the civil service,
5 subject to any disciplinary action (up to and includ-
6 ing removal), or who filed a claim or appeal with the
7 Office of Special Counsel or the Equal Employment
8 Opportunity Commission.

9 (2) A statistical assessment of the distribution
10 patterns with respect to any removal from the civil
11 service during such period of, or any disciplinary ac-
12 tion (up to and including a removal) taken during
13 such period against, any Department employee while
14 the employee was on a probationary period.

15 (3) An analysis of the best practices and abuses
16 of discretion by supervisors and managers of the De-
17 partment with respect to probationary periods.

18 (4) An assessment of the utility of the proba-
19 tionary period prescribed by such section 1599e on
20 the successful recruitment, retention, and profes-
21 sional development of civilian employees of the De-
22 partment, including any recommendation for regu-
23 latory or statutory changes the Secretary determines
24 to be appropriate.

1 (5) A discussion of the cases where the Depart-
2 ment made a determination to remove a Department
3 employee during the second year of such employee's
4 probationary period.

5 (6) A summary of how the Department has im-
6 plemented the authority provided in such section
7 1599e with respect to probationary periods, includ-
8 ing the number, and a demographic summary, of
9 each Department employee removed from the civil
10 service, subject to any disciplinary action (up to and
11 including removal), or who filed a claim or appeal
12 with the Office of Special Counsel or the Equal Em-
13 ployment Opportunity Commission during the sec-
14 ond year of any such employee's probationary pe-
15 riod.

16 (c) CONSULTATION.—The analysis and recommenda-
17 tions in the report required under subsection (a) shall be
18 prepared in consultation with Department of Defense em-
19 ployees and managers, labor organizations representing
20 such employees, staff of the Office of Special Counsel and
21 the Equal Employment Opportunity Commission, and at-
22 torneys representing Department employees in wrongful
23 termination actions.

1 **SEC. 1103. CIVILIAN PERSONNEL MANAGEMENT.**

2 Section 129 of title 10, United States Code, is
3 amended—

4 (1) in subsection (a)—

5 (A) in the first sentence, by striking “each
6 fiscal year” and inserting “each fiscal year pri-
7 marily”; and

8 (B) in the second sentence—

9 (i) by striking “Any” and inserting
10 “The management of such personnel in
11 any fiscal year shall not be subject solely
12 to any”; and

13 (ii) by striking “shall be developed”
14 and all that follows through “changed cir-
15 cumstances”; and

16 (2) in subsection (c)(2)—

17 (A) in each of subparagraphs (A) and (B),
18 by inserting “and associated cost” after each
19 instance of “projected size”; and

20 (B) in subparagraph (B), by striking “that
21 have been taken” and all that follows through
22 the period and inserting “to reduce the overall
23 costs of the total force of military, civilian, and
24 contract workforces.”.

1 **SEC. 1104. ONE-YEAR EXTENSION OF TEMPORARY AUTHOR-**
2 **ITY TO GRANT ALLOWANCES, BENEFITS, AND**
3 **GRATUITIES TO CIVILIAN PERSONNEL ON OF-**
4 **FICIAL DUTY IN A COMBAT ZONE.**

5 Paragraph (2) of section 1603(a) of the Emergency
6 Supplemental Appropriations Act for Defense, the Global
7 War on Terror, and Hurricane Recovery, 2006 (Public
8 Law 109–234; 120 Stat. 443), as added by section 1102
9 of the Duncan Hunter National Defense Authorization
10 Act for Fiscal Year 2009 (Public Law 110–417; 122 Stat.
11 4616) and as most recently amended by section 1115 of
12 the John S. McCain National Defense Authorization Act
13 for Fiscal Year 2019 (Public Law 115–232), is further
14 amended by striking “2020” and inserting “2021”.

15 **SEC. 1105. ONE-YEAR EXTENSION OF AUTHORITY TO WAIVE**
16 **ANNUAL LIMITATION ON PREMIUM PAY AND**
17 **AGGREGATE LIMITATION ON PAY FOR FED-**
18 **ERAL CIVILIAN EMPLOYEES WORKING OVER-**
19 **SEAS.**

20 Subsection (a) of section 1101 of the Duncan Hunter
21 National Defense Authorization Act for Fiscal Year 2009
22 (Public Law 110–417; 122 Stat. 4615), as most recently
23 amended by section 1104(a) of the John S. McCain Na-
24 tional Defense Authorization Act for Fiscal Year 2019
25 (Public Law 115–232; 132 Stat. 2001), is further amend-

1 ed by striking “through 2019” and inserting “through
2 2020”.

3 **SEC. 1106. PERFORMANCE OF CIVILIAN FUNCTIONS BY**
4 **MILITARY PERSONNEL.**

5 Subparagraph (B) of paragraph (1) of subsection (g)
6 of section 129a of title 10, United States Code, is amend-
7 ed to read as follows:

8 “(B) such functions may be performed by
9 military personnel for a period that does not ex-
10 ceed one year if the Secretary of the military
11 department concerned determines that—

12 “(i) the performance of such functions
13 by military personnel is required to ad-
14 dress critical staffing needs resulting from
15 a reduction in personnel or budgetary re-
16 sources by reason of an Act of Congress;
17 and

18 “(ii) the military department con-
19 cerned is in compliance with the policies,
20 procedures, and analysis required by this
21 section and section 129 of this title.”.

1 **SEC. 1107. EXTENSION OF DIRECT HIRE AUTHORITY FOR**
2 **DOMESTIC INDUSTRIAL BASE FACILITIES**
3 **AND MAJOR RANGE AND TEST FACILITIES**
4 **BASE.**

5 (a) IN GENERAL.—Subsection (a) of section 1125 of
6 the National Defense Authorization Act for Fiscal Year
7 2017 (Public Law 114–328), as amended by subsection
8 (a) of section 1102 of the National Defense Authorization
9 Act for Fiscal Year 2018 (Public Law 115–91), is further
10 amended by striking “through 2021,” and inserting
11 “through 2025,”.

12 (b) BRIEFING.—Subsection (b) of such section 1102
13 is amended by striking “fiscal years 2019 and 2021” and
14 inserting “fiscal years 2019 through 2025”.

15 **SEC. 1108. AUTHORITY TO PROVIDE ADDITIONAL ALLOW-**
16 **ANCES AND BENEFITS FOR CERTAIN DE-**
17 **ENSE CLANDESTINE SERVICE EMPLOYEES.**

18 Section 1603 of title 10, United States Code, is
19 amended by adding at the end the following new sub-
20 section:

21 “(c) ADDITIONAL ALLOWANCES AND BENEFITS FOR
22 CERTAIN EMPLOYEES OF THE DEFENSE CLANDESTINE
23 SERVICE.—(1) Beginning on the date on which the Sec-
24 retary of Defense submits the report under paragraph
25 (3)(A), in addition to the authority to provide compensa-
26 tion under subsection (a), the Secretary may provide a

1 covered employee allowances and benefits under paragraph
2 (1) of section 9904 of title 5 without regard to the limita-
3 tions in that section—

4 “(A) that the employee be assigned to activities
5 outside the United States; or

6 “(B) that the activities to which the employee
7 is assigned be in support of Department of Defense
8 activities abroad.

9 “(2) The Secretary may not provide allowances and
10 benefits under paragraph (1) to more than 125 covered
11 employees per year.

12 “(3)(A) The Secretary shall submit to the appro-
13 priate congressional committees a report containing a
14 strategy addressing the mission of the Defense Clandes-
15 tine Service during the period covered by the most recent
16 future-years defense program submitted under section 221
17 of this title, including—

18 “(i) how such mission will evolve during such
19 period;

20 “(ii) how the authority provided by paragraph
21 (1) will assist the Secretary in carrying out such
22 mission; and

23 “(iii) an implementation plan for carrying out
24 paragraph (1), including a projection of how much
25 the amount of the allowances and benefits provided

1 under such paragraph compare with the amount of
2 the allowances and benefits provided before the date
3 of the report.

4 “(B) Not later than December 31, 2020, and each
5 year thereafter, the Secretary shall submit to the appro-
6 priate congressional committees a report, with respect to
7 the fiscal year preceding the date on which the report is
8 submitted—

9 “(i) identifying the number of covered employ-
10 ees for whom the Secretary provided allowances and
11 benefits under paragraph (1); and

12 “(ii) evaluating the efficacy of such allowances
13 and benefits in enabling the execution of the objec-
14 tives of the Defense Intelligence Agency.

15 “(C) The reports under subparagraphs (A) and (B)
16 may be submitted in classified form.

17 “(4) In this subsection:

18 “(A) The term ‘appropriate congressional com-
19 mittees’ means—

20 “(i) the congressional defense committees;
21 and

22 “(ii) the Permanent Select Committee on
23 Intelligence of the House of Representatives
24 and the Select Committee on Intelligence of the
25 Senate.

1 “(B) The term ‘covered employee’ means an
2 employee in a defense intelligence position who is as-
3 signed to the Defense Clandestine Service at a loca-
4 tion in the United States that the Secretary deter-
5 mines has living costs equal to or higher than the
6 District of Columbia.”.

7 **SEC. 1109. MODIFICATION OF DIRECT HIRE AUTHORITIES**
8 **FOR THE DEPARTMENT OF DEFENSE.**

9 (a) IN GENERAL.—Section 9905 of title 5, United
10 States Code, is amended—

11 (1) in subsection (a)—

12 (A) by amending paragraph (2) to read as
13 follows:

14 “(2) Any cyber workforce position.”; and

15 (B) by adding after paragraph (4) the fol-
16 lowing:

17 “(5) Any scientific, technical, engineering, or
18 mathematics positions, including technicians, within
19 the defense acquisition workforce, or any category of
20 acquisition positions within the Department des-
21 ignated by the Secretary as a shortage or critical
22 need category.

23 “(6) Any scientific, technical, engineering, or
24 mathematics position, except any such position with-
25 in any defense Scientific and Technology Reinv-

1 tion Laboratory, for which a qualified candidate is
2 required to possess a bachelor’s degree or an ad-
3 vanced degree, or for which a veteran candidate is
4 being considered.

5 “(7) Any category of medical or health profes-
6 sional positions within the Department designated
7 by the Secretary as a shortage category or critical
8 need occupation.

9 “(8) Any childcare services position for which
10 there is a critical hiring need and a shortage of
11 childcare providers.

12 “(9) Any financial management, accounting,
13 auditing, actuarial, cost estimation, operational re-
14 search, or business or business administration posi-
15 tion for which a qualified candidate is required to
16 possess a finance, accounting, management or actu-
17 arial science degree or a related degree, or a related
18 degree of equivalent experience.

19 “(10) Any position, as determined by the Sec-
20 retary, for the purpose of assisting and facilitating
21 the efforts of the Department in business trans-
22 formation and management innovation.”; and

23 (2) by striking subsection (b) and inserting the
24 following:

25 “(b) SUNSET.—

1 “(1) IN GENERAL.—Except as provided in para-
2 graph (2), effective on September 30, 2025, the au-
3 thority provided under subsection (a) shall expire.

4 “(2) EXCEPTION.—Paragraph (1) shall not
5 apply to the authority provided under subsection (a)
6 to make appointments to positions described under
7 paragraph (5) of such subsection.

8 “(c) SUSPENSION OF OTHER HIRING AUTHORI-
9 TIES.—During the period beginning on the effective date
10 of the regulations issued to carry out the hiring authority
11 with respect to positions described in paragraphs (5)
12 through (10) of subsection (a) and ending on the date de-
13 scribed in subsection (b)(1), the Secretary of Defense may
14 not exercise or otherwise use any hiring authority provided
15 under the following provisions of law:

16 “(1) Sections 1599c(a)(2) and 1705(h) of title
17 10.

18 “(2) Sections 1112 and 1113 of the National
19 Defense Authorization Act for Fiscal Year 2016
20 (Public Law 114–92; 129 Stat. 1033).

21 “(3) Sections 1110 and 1643(a)(3) of the Na-
22 tional Defense Authorization Act for Fiscal Year
23 2017 (Public Law 114–328; 130 Stat. 2450 and
24 2602).

1 “(4) Sections 559 and 1101 of the National
2 Defense Authorization Act for Fiscal Year 2018
3 (Public Law 115–91; 131 Stat. 1406 and 1627).”.

4 (b) REPORT.—

5 (1) IN GENERAL.—Not later than February 1,
6 2021, the Secretary of Defense, in coordination with
7 the Director of the Office of Personnel Management,
8 shall provide for the conduct of an independent re-
9 view and report to the congressional defense commit-
10 tees and the Committee on Oversight and Reform of
11 the House of Representatives.

12 (2) CONTENTS.—The report required under
13 paragraph (1) shall—

14 (A) assess and identify steps that could be
15 taken to improve the competitive hiring process
16 at the Department and ensure that direct hir-
17 ing is conducted in a manner consistent with
18 ensuring a merit based civil service and a di-
19 verse workforce in the Department and the rest
20 of the Federal Government; and

21 (B) consider the feasibility and desirability
22 of using cohort hiring, or hiring “talent pools”,
23 instead of conducting all hiring on a position-
24 by-position basis.

1 (3) CONSULTATION.—The analysis and rec-
2 ommendations in the report required under para-
3 graph (1) shall be prepared in consultation with all
4 stakeholders, public sector unions, hiring managers,
5 career agency, and Office of Personnel Management
6 personnel specialists, and after a survey of public
7 sector employees and job applicants.

8 **SEC. 1110. DESIGNATING CERTAIN FEHBP AND FEGLI SERV-**
9 **ICES PROVIDED BY FEDERAL EMPLOYEES AS**
10 **EXCEPTED SERVICES UNDER THE ANTI-DEFI-**
11 **CIENCY ACT.**

12 (a) FEHBP.—Section 8905 of title 5, United States
13 Code, is amended by adding at the end the following:

14 “(i) Any services by an officer or employee under this
15 chapter relating to enrolling individuals in a health bene-
16 fits plan under this chapter, or changing the enrollment
17 of an individual already so enrolled, shall be deemed, for
18 purposes of section 1342 of title 31, services for emer-
19 gencies involving the safety of human life or the protection
20 of property.”.

21 (b) FEGLI.—Section 8702 of title 5, United States
22 Code, is amended by adding at the end the following:

23 “(d) Any services by an officer or employee under this
24 chapter relating to benefits under this chapter shall be
25 deemed, for purposes of section 1342 of title 31, services

1 for emergencies involving the safety of human life or the
2 protection of property.”.

3 (c) REGULATIONS.—

4 (1) IN GENERAL.—Not later than 90 days after
5 the date of the enactment of this Act, the Office of
6 Personnel Management shall prescribe regulations to
7 carry out the amendments made by subsections (a)
8 and (b).

9 (2) PAY STATUS FOR FURLOUGHED EMPLOY-
10 EES.—The regulations prescribed under paragraph
11 (1) for the amendments made by subsection (a) shall
12 provide that an employee furloughed as result of a
13 lapse in appropriations shall, during such lapse, be
14 deemed to be in a pay status for purposes of enroll-
15 ing or changing the enrollment (as the case may be)
16 of that employee under chapter 89 of title 5, United
17 States Code.

18 (d) APPLICATION.—The amendments made by sub-
19 section (a) and (b) shall apply to any lapse in appropria-
20 tions beginning on or after the date of enactment of this
21 Act.

1 **SEC. 1111. CONTINUING SUPPLEMENTAL DENTAL AND VI-**
2 **SION BENEFITS AND LONG-TERM CARE IN-**
3 **SURANCE COVERAGE DURING A GOVERN-**
4 **MENT SHUTDOWN.**

5 (a) IN GENERAL.—Title 5, United States Code, is
6 amended—

7 (1) in section 8956, by adding at the end the
8 following:

9 “(d) Coverage under a dental benefits plan under this
10 chapter for any employee or a covered TRICARE-eligible
11 individual enrolled in such a plan and who, as a result
12 of a lapse in appropriations, is furloughed or excepted
13 from furlough and working without pay shall continue
14 during such lapse and may not be cancelled as a result
15 of nonpayment of premiums or other periodic charges due
16 to such lapse.”;

17 (2) in section 8986, by adding at the end the
18 following:

19 “(d) Coverage under a vision benefits plan under this
20 chapter for any employee or a covered TRICARE-eligible
21 individual enrolled in such a plan and who, as a result
22 of a lapse in appropriations, is furloughed or excepted
23 from furlough and working without pay shall continue
24 during such lapse and may not be cancelled as a result
25 of nonpayment of premiums or other periodic charges due
26 to such lapse.”; and

1 (3) in section 9003, by adding at the end the
2 following:

3 “(e) EFFECT OF GOVERNMENT SHUTDOWN.—Cov-
4 erage under a master contract under this chapter for long-
5 term care insurance for an employee or member of the
6 uniformed services enrolled under such contract and who,
7 due to a lapse in appropriations, is furloughed or excepted
8 from furlough and working without pay shall continue
9 during such lapse and may not be cancelled as a result
10 of nonpayment of premiums or other periodic charges due
11 to such lapse.”.

12 (b) REGULATIONS.—

13 (1) IN GENERAL.—Consistent with paragraph
14 (2), the Director of the Office of Personnel Manage-
15 ment shall prescribe regulations under which pre-
16 miums for supplemental dental, supplemental vision,
17 or long-term care insurance under chapter 89A,
18 89B, or 90 (respectively) of title 5, United States
19 Code, (as amended by subsection (a)) that are un-
20 paid by an employee, a covered TRICARE-eligible
21 individual, or a member of the uniformed services
22 (as the case may be), as a result of that employee,
23 covered TRICARE-eligible individual, or member
24 being furloughed or excepted from furlough and
25 working without pay as a result of a lapse in appro-

1 or with the General Services Administration, the Office
2 of Management and Budget, or the Executive Office of
3 the President, until on or after the date that is 180 days
4 after the date on which the report required by subsection
5 (c) is submitted to the appropriate committees of Con-
6 gress, and subject to the enactment of any legislation re-
7 quired.

8 (b) INDEPENDENT STUDY AND REPORT.—

9 (1) IN GENERAL.—Not later than 30 days after
10 the date of the enactment of this Act, the Director
11 of the Office of Personnel Management (in this sec-
12 tion referred to as the “Director”) shall contract
13 with the National Academy of Public Administration
14 (in this section referred to as the “Academy”) to
15 conduct a study addressing each of the elements set
16 forth in paragraph (3) and to report the findings
17 and recommendations derived from such study.

18 (2) DEADLINE.—Not later than one year after
19 the date the contract required by paragraph (1) is
20 entered into, the Academy shall submit the report
21 prepared under such contract to the Director and
22 the appropriate committees of Congress.

23 (3) REQUIREMENTS.—The study and report re-
24 quired by paragraph (1) and (2) shall include a com-
25 prehensive assessment and analysis of—

1 (A) the statutory mandates assigned to the
2 Office of Personnel Management and the chal-
3 lenges associated with the Office's execution of
4 those mandates;

5 (B) the non-statutory functions, respon-
6 sibilities, authorities, services, systems, and pro-
7 grams performed or executed by the Office of
8 Personnel Management; the Office's justifica-
9 tion for carrying out such functions, respon-
10 sibilities, authorities, services, systems, and pro-
11 grams; and the challenges associated with the
12 Office's execution of same;

13 (C) the means, options, and recommended
14 courses of action for addressing the challenges
15 identified pursuant to subparagraphs (A) and
16 (B), including an analysis of the benefits, costs,
17 and feasibility of each option and the effect of
18 each on labor-management agreements;

19 (D) a timetable for the implementation of
20 options and recommended courses of action
21 identified pursuant to subparagraph (C);

22 (E) statutory or regulatory changes nec-
23 essary to execute any course of action rec-
24 ommended;

1 (F) the methods for involving, engaging
2 with, and receiving input from other Federal
3 agencies, departments, and entities potentially
4 affected by any change in the structure, func-
5 tions, responsibilities, authorities of the Office
6 of Personnel Management that may be rec-
7 ommended;

8 (G) the views of identified stakeholders, in-
9 cluding other Federal agencies, departments,
10 and entities; non-Federal entities or organiza-
11 tions representing customers or intended bene-
12 ficiaries of Office of Personnel Management
13 functions, services, systems, or programs; and
14 such individual customers and intended bene-
15 ficiaries; and

16 (H) such other matters as the Director
17 may prescribe.

18 (c) OPM REPORT.—

19 (1) IN GENERAL.—Not later than 180 days
20 after the date on which the report is submitted pur-
21 suant to subsection (b)(2) to the Director and the
22 appropriate committees of Congress, the Director, in
23 consultation with the General Services Administra-
24 tion, the Office of Management and Budget, and
25 other appropriate Federal agencies, departments, or

1 entities, shall submit to the appropriate committees
2 of Congress a report on the views of the Office of
3 Personnel Management on the findings and rec-
4 ommendations set forth in the report prepared under
5 subsection (b), together with any recommendations
6 for changes in the structure, functions, responsibil-
7 ities, and authorities of the Office of Personnel Man-
8 agement.

9 (2) BUSINESS CASE ANALYSIS.—Any rec-
10 ommendation submitted in the report under para-
11 graph (1) for change shall be accompanied by a
12 business case analysis setting forth the operational
13 efficiencies and cost savings (in both the short- and
14 long-terms) associated with such change, and a pro-
15 posal for legislative or administrative action required
16 to effect the change proposed.

17 (d) DEFINITION OF APPROPRIATE COMMITTEES OF
18 CONGRESS.—For purposes of this section, the term “ap-
19 propriate committees of Congress” are the Committees on
20 Appropriations and Homeland Security and Governmental
21 Affairs of the Senate and the Committees on Appropria-
22 tions and Oversight and Reform of the House of Rep-
23 resentatives.

1 **SEC. 1113. ASSESSMENT OF ACCELERATED PROMOTION**
2 **PROGRAM SUSPENSION.**

3 (a) IN GENERAL.—Not later than 90 days after the
4 date of the enactment of this Act, the Secretary of the
5 Navy shall conduct an assessment of the impacts resulting
6 from the Navy’s suspension in 2016 of the Accelerated
7 Promotion Program (in this section referred to as the
8 “APP”).

9 (b) ELEMENTS.—The assessment required under
10 subsection (a) shall include the following elements:

11 (1) An identification of the number of employ-
12 ees who were hired at the four public shipyards be-
13 tween January 23, 2016, and December 22, 2016,
14 covering the period in which APP was suspended,
15 and who would have otherwise been eligible for APP
16 had the program been in effect at the time they were
17 hired.

18 (2) An assessment for employees identified in
19 paragraph (1) to determine the difference between
20 wages earned from the date of hire to the date on
21 which wage data is collected for purposes of the as-
22 sessment and the wages which would have been
23 earned during this same period had that employee
24 participated in APP from the date of hire and been
25 promoted according to the average promotion time-

1 frame for participants hired in the five-year period
2 prior to the suspension.

3 (3) An assessment for each employee identified
4 in paragraph (1) to determine at what grade and
5 step each effected employee who would have met the
6 required experience and training to qualify for an
7 accelerated promotion would be on October 1, 2020,
8 had that employee been promoted according to the
9 average promotion timeframe for participants hired
10 in the five-year period prior to the suspension.

11 (4) An evaluation of existing authorities avail-
12 able to the Secretary to determine whether the Sec-
13 retary can take measures using those authorities to
14 provide the pay difference and corresponding inter-
15 est to each effected employee who has otherwise met
16 the required experience and training to qualify for
17 an accelerated promotion identified in paragraph (2)
18 and directly promote the employee to the grade and
19 step identified in paragraph (3).

20 (c) REPORT.—The Secretary shall submit to the con-
21 gressional defense committees a report on the results of
22 the assessment required under subsection (a) by not later
23 than June 1, 2020, and shall provide interim briefings
24 upon request.

1 **SEC. 1114. REIMBURSEMENT FOR FEDERAL, STATE, AND**
2 **LOCAL INCOME TAXES INCURRED DURING**
3 **TRAVEL, TRANSPORTATION, AND RELOCA-**
4 **TION.**

5 (a) IN GENERAL.—Section 5724b of title 5, United
6 States Code, is amended—

7 (1) in the section heading, by striking “**of em-**
8 **ployees transferred**”;

9 (2) in subsection (a)—

10 (A) in the first sentence, by striking “em-
11 ployee, or by an employee and such employee’s
12 spouse (if filing jointly), for any moving or stor-
13 age” and inserting “individual, or by an indi-
14 vidual and such individual’s spouse (if filing
15 jointly), for any travel, transportation, or relo-
16 cation”; and

17 (B) in the second sentence, by striking
18 “employee” and inserting “individual, or the in-
19 dividual”; and

20 (3) by striking subsection (b) and inserting the
21 following:

22 “(b) For purposes of this section, the term ‘travel,
23 transportation, or relocation expenses’ means all travel,
24 transportation, or relocation expenses reimbursed or fur-
25 nished in kind pursuant to this subchapter of chapter
26 41.”.

1 (b) TECHNICAL AND CONFORMING AMENDMENT.—
2 The table of sections for chapter 57 of title 5, United
3 States Code, is amended by striking the item relating to
4 section 5724b and inserting the following:

“5724b. Taxes on reimbursements for travel, transportation, and relocation ex-
penses”.

5 (c) RETROACTIVE EFFECTIVE DATE.—The amend-
6 ments made by this section shall take effect on January
7 1, 2018.

8 **SEC. 1115. CLARIFICATION OF LIMITATION ON EXPEDITED**
9 **HIRING AUTHORITY FOR POST-SECONDARY**
10 **STUDENTS.**

11 Section 3116(d)(1) of title 5, United States Code, is
12 amended to read as follows:

13 “(1) IN GENERAL.—Except as provided in para-
14 graph (2), the total number of students that the
15 head of an agency may appoint under this section
16 during a fiscal year may not exceed the number
17 equal to 15 percent of the number of students that
18 the agency head appointed during the previous fiscal
19 year to a position at the GS–11 level, or an equiva-
20 lent level, or below.”.

1 **SEC. 1116. MODIFICATION OF TEMPORARY ASSIGNMENTS**
2 **OF DEPARTMENT OF DEFENSE EMPLOYEES**
3 **TO A PRIVATE-SECTOR ORGANIZATION.**

4 Section 1599g(e)(2)(A) of title 10, United States
5 Code, is amended by inserting “permanent” after “with-
6 out the”.

7 **SEC. 1117. EXTENSION OF AUTHORITY FOR PART-TIME RE-**
8 **EMPLOYMENT.**

9 (a) CIVIL SERVICE RETIREMENT SYSTEM.—Section
10 8344(l)(7) of title 5, United States Code, is amended by
11 striking “December 31, 2019” and inserting “December
12 31, 2024”.

13 (b) FEDERAL EMPLOYEES RETIREMENT SYSTEM.—
14 Section 8468(i)(7) of title 5, United States Code, is
15 amended by striking “December 31, 2019” and inserting
16 “December 31, 2024”.

17 **Subtitle B—Fair Chance Act**

18 **SEC. 1121. SHORT TITLE.**

19 This subtitle may be cited as the “Fair Chance to
20 Compete for Jobs Act of 2019” or the “Fair Chance Act”.

21 **SEC. 1122. PROHIBITION ON CRIMINAL HISTORY INQUIRIES**
22 **PRIOR TO CONDITIONAL OFFER FOR FED-**
23 **ERAL EMPLOYMENT.**

24 (a) IN GENERAL.—Subpart H of part III of title 5,
25 United States Code, is amended by adding at the end the
26 following:

1 **“CHAPTER 92—PROHIBITION ON CRIMI-**
2 **NAL HISTORY INQUIRIES PRIOR TO**
3 **CONDITIONAL OFFER**

“Sec.

“9201. Definitions.

“9202. Limitations on requests for criminal history record information.

“9203. Agency policies; complaint procedures.

“9204. Adverse action.

“9205. Procedures.

“9206. Rules of construction.

4 **“§ 9201. Definitions**

5 “In this chapter—

6 “(1) the term ‘agency’ means ‘Executive agen-
7 cy’ as such term is defined in section 105 and in-
8 cludes—

9 “(A) the United States Postal Service and
10 the Postal Regulatory Commission; and

11 “(B) the Executive Office of the President;

12 “(2) the term ‘appointing authority’ means an
13 employee in the executive branch of the Government
14 of the United States that has authority to make ap-
15 pointments to positions in the civil service;

16 “(3) the term ‘conditional offer’ means an offer
17 of employment in a position in the civil service that
18 is conditioned upon the results of a criminal history
19 inquiry;

20 “(4) the term ‘criminal history record informa-
21 tion’—

1 “(A) except as provided in subparagraphs
2 (B) and (C), has the meaning given the term in
3 section 9101(a);

4 “(B) includes any information described in
5 the first sentence of section 9101(a)(2) that has
6 been sealed or expunged pursuant to law; and

7 “(C) includes information collected by a
8 criminal justice agency, relating to an act or al-
9 leged act of juvenile delinquency, that is analo-
10 gous to criminal history record information (in-
11 cluding such information that has been sealed
12 or expunged pursuant to law); and

13 “(5) the term ‘suspension’ has the meaning
14 given the term in section 7501.

15 **“§ 9202. Limitations on requests for criminal history**
16 **record information**

17 “(a) INQUIRIES PRIOR TO CONDITIONAL OFFER.—
18 Except as provided in subsections (b) and (c), an employee
19 of an agency may not request, in oral or written form (in-
20 cluding through the Declaration for Federal Employment
21 (Office of Personnel Management Optional Form 306) or
22 any similar successor form, the USAJOBS internet
23 website, or any other electronic means) that an applicant
24 for an appointment to a position in the civil service dis-
25 close criminal history record information regarding the ap-

1 plicant before the appointing authority extends a condi-
2 tional offer to the applicant.

3 “(b) OTHERWISE REQUIRED BY LAW.—The prohibi-
4 tion under subsection (a) shall not apply with respect to
5 an applicant for a position in the civil service if consider-
6 ation of criminal history record information prior to a con-
7 ditional offer with respect to the position is otherwise re-
8 quired by law.

9 “(c) EXCEPTION FOR CERTAIN POSITIONS.—

10 “(1) IN GENERAL.—The prohibition under sub-
11 section (a) shall not apply with respect to an appli-
12 cant for an appointment to a position—

13 “(A) that requires a determination of eligi-
14 bility described in clause (i), (ii), or (iii) of sec-
15 tion 9101(b)(1)(A);

16 “(B) as a Federal law enforcement officer
17 (as defined in section 115(c) of title 18); or

18 “(C) identified by the Director of the Of-
19 fice of Personnel Management in the regula-
20 tions issued under paragraph (2).

21 “(2) REGULATIONS.—

22 “(A) ISSUANCE.—The Director of the Of-
23 fice of Personnel Management shall issue regu-
24 lations identifying additional positions with re-
25 spect to which the prohibition under subsection

1 (a) shall not apply, giving due consideration to
2 positions that involve interaction with minors,
3 access to sensitive information, or managing fi-
4 nancial transactions.

5 “(B) COMPLIANCE WITH CIVIL RIGHTS
6 LAWS.—The regulations issued under subpara-
7 graph (A) shall—

8 “(i) be consistent with, and in no way
9 supersede, restrict, or limit the application
10 of title VII of the Civil Rights Act of 1964
11 (42 U.S.C. 2000e et seq.) or other relevant
12 Federal civil rights laws; and

13 “(ii) ensure that all hiring activities
14 conducted pursuant to the regulations are
15 conducted in a manner consistent with rel-
16 evant Federal civil rights laws.

17 **“§ 9203. Agency policies; complaint procedures**

18 “The Director of the Office of Personnel Manage-
19 ment shall—

20 “(1) develop, implement, and publish a policy to
21 assist employees of agencies in complying with sec-
22 tion 9202 and the regulations issued pursuant to
23 such section; and

24 “(2) establish and publish procedures under
25 which an applicant for an appointment to a position

1 in the civil service may submit a complaint, or any
2 other information, relating to compliance by an em-
3 ployee of an agency with section 9202.

4 **“§ 9204. Adverse action**

5 “(a) FIRST VIOLATION.—If the Director of the Office
6 of Personnel Management determines, after notice and an
7 opportunity for a hearing on the record, that an employee
8 of an agency has violated section 9202, the Director
9 shall—

10 “(1) issue to the employee a written warning
11 that includes a description of the violation and the
12 additional penalties that may apply for subsequent
13 violations; and

14 “(2) file such warning in the employee’s official
15 personnel record file.

16 “(b) SUBSEQUENT VIOLATIONS.—If the Director of
17 the Office of Personnel Management determines, after no-
18 tice and an opportunity for a hearing on the record, that
19 an employee that was subject to subsection (a) has com-
20 mitted a subsequent violation of section 9202, the Director
21 may take the following action:

22 “(1) For a second violation, suspension of the
23 employee for a period of not more than 7 days.

24 “(2) For a third violation, suspension of the
25 employee for a period of more than 7 days.

1 “(3) For a fourth violation—

2 “(A) suspension of the employee for a pe-
3 riod of more than 7 days; and

4 “(B) a civil penalty against the employee
5 in an amount that is not more than \$250.

6 “(4) For a fifth violation—

7 “(A) suspension of the employee for a pe-
8 riod of more than 7 days; and

9 “(B) a civil penalty against the employee
10 in an amount that is not more than \$500.

11 “(5) For any subsequent violation—

12 “(A) suspension of the employee for a pe-
13 riod of more than 7 days; and

14 “(B) a civil penalty against the employee
15 in an amount that is not more than \$1,000.

16 **“§ 9205. Procedures**

17 “(a) APPEALS.—The Director of the Office of Per-
18 sonnel Management shall by rule establish procedures pro-
19 viding for an appeal from any adverse action taken under
20 section 9204 by not later than 30 days after the date of
21 the action.

22 “(b) APPLICABILITY OF OTHER LAWS.—An adverse
23 action taken under section 9204 (including a determina-
24 tion in an appeal from such an action under subsection
25 (a) of this section) shall not be subject to—

1 “(1) the procedures under chapter 75; or

2 “(2) except as provided in subsection (a) of this
3 section, appeal or judicial review.

4 **“§ 9206. Rules of construction**

5 “Nothing in this chapter may be construed to—

6 “(1) authorize any officer or employee of an
7 agency to request the disclosure of information de-
8 scribed under subparagraphs (B) and (C) of section
9 9201(4); or

10 “(2) create a private right of action for any
11 person.”.

12 (b) REGULATIONS; EFFECTIVE DATE.—

13 (1) REGULATIONS.—Not later than 1 year after
14 the date of enactment of this subtitle, the Director
15 of the Office of Personnel Management shall issue
16 such regulations as are necessary to carry out chap-
17 ter 92 of title 5, United States Code (as added by
18 this subtitle).

19 (2) EFFECTIVE DATE.—Section 9202 of title 5,
20 United States Code (as added by this subtitle), shall
21 take effect on the date that is 2 years after the date
22 of enactment of this subtitle.

23 (c) TECHNICAL AND CONFORMING AMENDMENT.—

24 The table of chapters for part III of title 5, United States

1 Code, is amended by inserting after the item relating to
2 chapter 91 the following:

**“92. Prohibition on criminal history inquiries prior to
conditional offer 9201”.**

3 (d) APPLICATION TO LEGISLATIVE BRANCH.—

4 (1) IN GENERAL.—The Congressional Account-
5 ability Act of 1995 (2 U.S.C. 1301 et seq.) is
6 amended—

7 (A) in section 102(a) (2 U.S.C. 1302(a)),
8 by adding at the end the following:

9 “(12) Section 9202 of title 5, United States
10 Code.”;

11 (B) by redesignating section 207 (2 U.S.C.
12 1317) as section 208; and

13 (C) by inserting after section 206 (2
14 U.S.C. 1316) the following new section:

15 **“SEC. 207. RIGHTS AND PROTECTIONS RELATING TO CRIMI-
16 NAL HISTORY INQUIRIES.**

17 “(a) DEFINITIONS.—In this section, the terms ‘agen-
18 cy’, ‘criminal history record information’, and ‘suspension’
19 have the meanings given the terms in section 9201 of title
20 5, United States Code, except as otherwise modified by
21 this section.

22 “(b) RESTRICTIONS ON CRIMINAL HISTORY INQUIR-
23 IES.—

24 “(1) IN GENERAL.—

1 “(A) IN GENERAL.—Except as provided in
2 subparagraph (B), an employee of an employing
3 office may not request that an applicant for em-
4 ployment as a covered employee disclose crimi-
5 nal history record information if the request
6 would be prohibited under section 9202 of title
7 5, United States Code, if made by an employee
8 of an agency.

9 “(B) CONDITIONAL OFFER.—For purposes
10 of applying that section 9202 under subpara-
11 graph (A), a reference in that section 9202 to
12 a conditional offer shall be considered to be an
13 offer of employment as a covered employee that
14 is conditioned upon the results of a criminal
15 history inquiry.

16 “(2) RULES OF CONSTRUCTION.—The provi-
17 sions of section 9206 of title 5, United States Code,
18 shall apply to employing offices, consistent with reg-
19 ulations issued under subsection (d).

20 “(c) REMEDY.—

21 “(1) IN GENERAL.—The remedy for a violation
22 of subsection (b)(1) shall be such remedy as would
23 be appropriate if awarded under section 9204 of title
24 5, United States Code, if the violation had been
25 committed by an employee of an agency, consistent

1 with regulations issued under subsection (d), except
2 that the reference in that section to a suspension
3 shall be considered to be a suspension with the level
4 of compensation provided for a covered employee
5 who is taking unpaid leave under section 202.

6 “(2) PROCESS FOR OBTAINING RELIEF.—An
7 applicant for employment as a covered employee who
8 alleges a violation of subsection (b)(1) may rely on
9 the provisions of title IV (other than section 407 or
10 408, or a provision of this title that permits a per-
11 son to obtain a civil action or judicial review), con-
12 sistent with regulations issued under subsection (d).

13 “(d) REGULATIONS TO IMPLEMENT SECTION.—

14 “(1) IN GENERAL.—Not later than 18 months
15 after the date of enactment of the Fair Chance to
16 Compete for Jobs Act of 2019, the Board shall, pur-
17 suant to section 304, issue regulations to implement
18 this section.

19 “(2) PARALLEL WITH AGENCY REGULATIONS.—
20 The regulations issued under paragraph (1) shall be
21 the same as substantive regulations issued by the
22 Director of the Office of Personnel Management
23 under section 2(b)(1) of the Fair Chance to Com-
24 pete for Jobs Act of 2019 to implement the statu-
25 tory provisions referred to in subsections (a) through

1 (c) except to the extent that the Board may deter-
2 mine, for good cause shown and stated together with
3 the regulation, that a modification of such regula-
4 tions would be more effective for the implementation
5 of the rights and protections under this section.

6 “(e) EFFECTIVE DATE.—Section 102(a)(12) and
7 subsections (a) through (c) shall take effect on the date
8 on which section 9202 of title 5, United States Code, ap-
9 plies with respect to agencies.”.

10 (2) CLERICAL AMENDMENTS.—

11 (A) The table of contents in section 1(b) of
12 the Congressional Accountability Act of 1995
13 (Public Law 104–1; 109 Stat. 3) is amended—

14 (i) by redesignating the item relating
15 to section 207 as the item relating to sec-
16 tion 208; and

17 (ii) by inserting after the item relating
18 to section 206 the following new item:

“Sec. 207. Rights and protections relating to criminal history inquiries.”.

19 (B) Section 62(e)(2) of the Internal Rev-
20 enue Code of 1986 is amended by striking “or
21 207” and inserting “207, or 208”.

22 (e) APPLICATION TO JUDICIAL BRANCH.—Section
23 604 of title 28, United States Code, is amended by adding
24 at the end the following:

1 “(i) RESTRICTIONS ON CRIMINAL HISTORY INQUIR-
2 IES.—

3 “(1) DEFINITIONS.—In this subsection—

4 “(A) the terms ‘agency’ and ‘criminal his-
5 tory record information’ have the meanings
6 given those terms in section 9201 of title 5;

7 “(B) the term ‘covered employee’ means an
8 employee of the judicial branch of the United
9 States Government, other than—

10 “(i) any judge or justice who is enti-
11 tled to hold office during good behavior;

12 “(ii) a United States magistrate
13 judge; or

14 “(iii) a bankruptcy judge; and

15 “(C) the term ‘employing office’ means any
16 office or entity of the judicial branch of the
17 United States Government that employs covered
18 employees.

19 “(2) RESTRICTION.—A covered employee may
20 not request that an applicant for employment as a
21 covered employee disclose criminal history record in-
22 formation if the request would be prohibited under
23 section 9202 of title 5 if made by an employee of an
24 agency.

1 “(3) EMPLOYING OFFICE POLICIES; COMPLAINT
2 PROCEDURE.—The provisions of sections 9203 and
3 9206 of title 5 shall apply to employing offices and
4 to applicants for employment as covered employees,
5 consistent with regulations issued by the Director to
6 implement this subsection.

7 “(4) ADVERSE ACTION.—

8 “(A) ADVERSE ACTION.—The Director
9 may take such adverse action with respect to a
10 covered employee who violates paragraph (2) as
11 would be appropriate under section 9204 of
12 title 5 if the violation had been committed by
13 an employee of an agency.

14 “(B) APPEALS.—The Director shall by
15 rule establish procedures providing for an ap-
16 peal from any adverse action taken under sub-
17 paragraph (A) by not later than 30 days after
18 the date of the action.

19 “(C) APPLICABILITY OF OTHER LAWS.—
20 Except as provided in subparagraph (B), an ad-
21 verse action taken under subparagraph (A) (in-
22 cluding a determination in an appeal from such
23 an action under subparagraph (B)) shall not be
24 subject to appeal or judicial review.

25 “(5) REGULATIONS TO BE ISSUED.—

1 “(A) IN GENERAL.—Not later than 18
2 months after the date of enactment of the Fair
3 Chance to Compete for Jobs Act of 2019, the
4 Director shall issue regulations to implement
5 this subsection.

6 “(B) PARALLEL WITH AGENCY REGULA-
7 TIONS.—The regulations issued under subpara-
8 graph (A) shall be the same as substantive reg-
9 ulations promulgated by the Director of the Of-
10 fice of Personnel Management under section
11 2(b)(1) of the Fair Chance to Compete for Jobs
12 Act of 2019 except to the extent that the Direc-
13 tor of the Administrative Office of the United
14 States Courts may determine, for good cause
15 shown and stated together with the regulation,
16 that a modification of such regulations would be
17 more effective for the implementation of the
18 rights and protections under this subsection.

19 “(6) EFFECTIVE DATE.—Paragraphs (1)
20 through (4) shall take effect on the date on which
21 section 9202 of title 5 applies with respect to agen-
22 cies.”.

1 **SEC. 1123. PROHIBITION ON CRIMINAL HISTORY INQUIRIES**
2 **BY CONTRACTORS PRIOR TO CONDITIONAL**
3 **OFFER.**

4 (a) CIVILIAN AGENCY CONTRACTS.—

5 (1) IN GENERAL.—Chapter 47 of title 41,
6 United States Code, is amended by adding at the
7 end the following new section:

8 **“§ 4714. Prohibition on criminal history inquiries by**
9 **contractors prior to conditional offer**

10 **“(a) LIMITATION ON CRIMINAL HISTORY INQUIR-**
11 **IES.—**

12 **“(1) IN GENERAL.—**Except as provided in para-
13 graphs (2) and (3), an executive agency—

14 **“(A)** may not require that an individual or
15 sole proprietor who submits a bid for a contract
16 to disclose criminal history record information
17 regarding that individual or sole proprietor be-
18 fore determining the apparent awardee; and

19 **“(B)** shall require, as a condition of receiv-
20 ing a Federal contract and receiving payments
21 under such contract that the contractor may
22 not verbally, or through written form, request
23 the disclosure of criminal history record infor-
24 mation regarding an applicant for a position re-
25 lated to work under such contract before the

1 contractor extends a conditional offer to the ap-
2 plicant.

3 “(2) OTHERWISE REQUIRED BY LAW.—The
4 prohibition under paragraph (1) does not apply with
5 respect to a contract if consideration of criminal his-
6 tory record information prior to a conditional offer
7 with respect to the position is otherwise required by
8 law.

9 “(3) EXCEPTION FOR CERTAIN POSITIONS.—

10 “(A) IN GENERAL.—The prohibition under
11 paragraph (1) does not apply with respect to—

12 “(i) a contract that requires an indi-
13 vidual hired under the contract to access
14 classified information or to have sensitive
15 law enforcement or national security du-
16 ties; or

17 “(ii) a position that the Administrator
18 of General Services identifies under the
19 regulations issued under subparagraph
20 (B).

21 “(B) REGULATIONS.—

22 “(i) ISSUANCE.—Not later than 16
23 months after the date of enactment of the
24 Fair Chance to Compete for Jobs Act of
25 2019, the Administrator of General Serv-

1 ices, in consultation with the Secretary of
2 Defense, shall issue regulations identifying
3 additional positions with respect to which
4 the prohibition under paragraph (1) shall
5 not apply, giving due consideration to posi-
6 tions that involve interaction with minors,
7 access to sensitive information, or man-
8 aging financial transactions.

9 “(ii) COMPLIANCE WITH CIVIL RIGHTS
10 LAWS.—The regulations issued under
11 clause (i) shall—

12 “(I) be consistent with, and in no
13 way supersede, restrict, or limit the
14 application of title VII of the Civil
15 Rights Act of 1964 (42 U.S.C. 2000e
16 et seq.) or other relevant Federal civil
17 rights laws; and

18 “(II) ensure that all hiring activi-
19 ties conducted pursuant to the regula-
20 tions are conducted in a manner con-
21 sistent with relevant Federal civil
22 rights laws.

23 “(b) COMPLAINT PROCEDURES.—The Administrator
24 of General Services shall establish and publish procedures
25 under which an applicant for a position with a Federal

1 contractor may submit to the Administrator a complaint,
2 or any other information, relating to compliance by the
3 contractor with subsection (a)(1)(B).

4 “(c) ACTION FOR VIOLATIONS OF PROHIBITION ON
5 CRIMINAL HISTORY INQUIRIES.—

6 “(1) FIRST VIOLATION.—If the head of an execu-
7 tive agency determines that a contractor has vio-
8 lated subsection (a)(1)(B), such head shall—

9 “(A) notify the contractor;

10 “(B) provide 30 days after such notifica-
11 tion for the contractor to appeal the determina-
12 tion; and

13 “(C) issue a written warning to the con-
14 tractor that includes a description of the viola-
15 tion and the additional remedies that may apply
16 for subsequent violations.

17 “(2) SUBSEQUENT VIOLATION.—If the head of
18 an executive agency determines that a contractor
19 that was subject to paragraph (1) has committed a
20 subsequent violation of subsection (a)(1)(B), such
21 head shall notify the contractor, shall provide 30
22 days after such notification for the contractor to ap-
23 peal the determination, and, in consultation with the
24 relevant Federal agencies, may take actions, depend-

1 ing on the severity of the infraction and the contrac-
2 tor's history of violations, including—

3 “(A) providing written guidance to the
4 contractor that the contractor's eligibility for
5 contracts requires compliance with this section;

6 “(B) requiring that the contractor respond
7 within 30 days affirming that the contractor is
8 taking steps to comply with this section; and

9 “(C) suspending payment under the con-
10 tract for which the applicant was being consid-
11 ered until the contractor demonstrates compli-
12 ance with this section.

13 “(d) DEFINITIONS.—In this section:

14 “(1) CONDITIONAL OFFER.—The term ‘condi-
15 tional offer’ means an offer of employment for a po-
16 sition related to work under a contract that is condi-
17 tioned upon the results of a criminal history inquiry.

18 “(2) CRIMINAL HISTORY RECORD INFORMA-
19 TION.—The term ‘criminal history record informa-
20 tion’ has the meaning given that term in section
21 9201 of title 5.”.

22 (2) CLERICAL AMENDMENT.—The table of sec-
23 tions for chapter 47 of title 41, United States Code,
24 is amended by adding at the end the following new
25 item:

“4714. Prohibition on criminal history inquiries by contractors prior to conditional offer.”.

1 (3) EFFECTIVE DATE.—Section 4714 of title
2 41, United States Code, as added by paragraph (1),
3 shall apply with respect to contracts awarded pursu-
4 ant to solicitations issued after the effective date de-
5 scribed in section 1122(b)(2) of this subtitle.

6 (b) DEFENSE CONTRACTS.—

7 (1) IN GENERAL.—Chapter 137 of title 10,
8 United States Code, is amended by inserting after
9 section 2338 the following new section:

10 **“§ 2339. Prohibition on criminal history inquiries by**
11 **contractors prior to conditional offer**

12 “(a) LIMITATION ON CRIMINAL HISTORY INQUIR-
13 IES.—

14 “(1) IN GENERAL.—Except as provided in para-
15 graphs (2) and (3), the head of an agency—

16 “(A) may not require that an individual or
17 sole proprietor who submits a bid for a contract
18 to disclose criminal history record information
19 regarding that individual or sole proprietor be-
20 fore determining the apparent awardee; and

21 “(B) shall require as a condition of receiv-
22 ing a Federal contract and receiving payments
23 under such contract that the contractor may
24 not verbally or through written form request

1 the disclosure of criminal history record infor-
2 mation regarding an applicant for a position re-
3 lated to work under such contract before such
4 contractor extends a conditional offer to the ap-
5 plicant.

6 “(2) OTHERWISE REQUIRED BY LAW.—The
7 prohibition under paragraph (1) does not apply with
8 respect to a contract if consideration of criminal his-
9 tory record information prior to a conditional offer
10 with respect to the position is otherwise required by
11 law.

12 “(3) EXCEPTION FOR CERTAIN POSITIONS.—

13 “(A) IN GENERAL.—The prohibition under
14 paragraph (1) does not apply with respect to—

15 “(i) a contract that requires an indi-
16 vidual hired under the contract to access
17 classified information or to have sensitive
18 law enforcement or national security du-
19 ties; or

20 “(ii) a position that the Secretary of
21 Defense identifies under the regulations
22 issued under subparagraph (B).

23 “(B) REGULATIONS.—

24 “(i) ISSUANCE.—Not later than 16
25 months after the date of enactment of the

1 Fair Chance to Compete for Jobs Act of
2 2019, the Secretary of Defense, in con-
3 sultation with the Administrator of Gen-
4 eral Services, shall issue regulations identi-
5 fying additional positions with respect to
6 which the prohibition under paragraph (1)
7 shall not apply, giving due consideration to
8 positions that involve interaction with mi-
9 nors, access to sensitive information, or
10 managing financial transactions.

11 “(ii) COMPLIANCE WITH CIVIL RIGHTS
12 LAWS.—The regulations issued under
13 clause (i) shall—

14 “(I) be consistent with, and in no
15 way supersede, restrict, or limit the
16 application of title VII of the Civil
17 Rights Act of 1964 (42 U.S.C. 2000e
18 et seq.) or other relevant Federal civil
19 rights laws; and

20 “(II) ensure that all hiring activi-
21 ties conducted pursuant to the regula-
22 tions are conducted in a manner con-
23 sistent with relevant Federal civil
24 rights laws.

1 “(b) COMPLAINT PROCEDURES.—The Secretary of
2 Defense shall establish and publish procedures under
3 which an applicant for a position with a Department of
4 Defense contractor may submit a complaint, or any other
5 information, relating to compliance by the contractor with
6 subsection (a)(1)(B).

7 “(c) ACTION FOR VIOLATIONS OF PROHIBITION ON
8 CRIMINAL HISTORY INQUIRIES.—

9 “(1) FIRST VIOLATION.—If the Secretary of
10 Defense determines that a contractor has violated
11 subsection (a)(1)(B), the Secretary shall—

12 “(A) notify the contractor;

13 “(B) provide 30 days after such notifica-
14 tion for the contractor to appeal the determina-
15 tion; and

16 “(C) issue a written warning to the con-
17 tractor that includes a description of the viola-
18 tion and the additional remedies that may apply
19 for subsequent violations.

20 “(2) SUBSEQUENT VIOLATIONS.—If the Sec-
21 retary of Defense determines that a contractor that
22 was subject to paragraph (1) has committed a sub-
23 sequent violation of subsection (a)(1)(B), the Sec-
24 retary shall notify the contractor, shall provide 30
25 days after such notification for the contractor to ap-

1 peal the determination, and, in consultation with the
2 relevant Federal agencies, may take actions, depend-
3 ing on the severity of the infraction and the contrac-
4 tor’s history of violations, including—

5 “(A) providing written guidance to the
6 contractor that the contractor’s eligibility for
7 contracts requires compliance with this section;

8 “(B) requiring that the contractor respond
9 within 30 days affirming that the contractor is
10 taking steps to comply with this section; and

11 “(C) suspending payment under the con-
12 tract for which the applicant was being consid-
13 ered until the contractor demonstrates compli-
14 ance with this section.

15 “(d) DEFINITIONS.—In this section:

16 “(1) CONDITIONAL OFFER.—The term ‘condi-
17 tional offer’ means an offer of employment for a po-
18 sition related to work under a contract that is condi-
19 tioned upon the results of a criminal history inquiry.

20 “(2) CRIMINAL HISTORY RECORD INFORMA-
21 TION.—The term ‘criminal history record informa-
22 tion’ has the meaning given that term in section
23 9201 of title 5.”.

24 “(2) EFFECTIVE DATE.—Section 2339(a) of title
25 10, United States Code, as added by paragraph (1),

1 shall apply with respect to contracts awarded pursu-
2 ant to solicitations issued after the effective date de-
3 scribed in section 1122(b)(2) of this subtitle.

4 (3) CLERICAL AMENDMENT.—The table of sec-
5 tions for chapter 137 of title 10, United States
6 Code, is amended by inserting after the item relating
7 to section 2338 the following new item:

“2339. Prohibition on criminal history inquiries by contractors prior to condi-
tional offer.”.

8 (c) REVISIONS TO FEDERAL ACQUISITION REGULA-
9 TION.—

10 (1) IN GENERAL.—Not later than 18 months
11 after the date of enactment of this subtitle, the Fed-
12 eral Acquisition Regulatory Council shall revise the
13 Federal Acquisition Regulation to implement section
14 4714 of title 41, United States Code, and section
15 2339 of title 10, United States Code, as added by
16 this section.

17 (2) CONSISTENCY WITH OFFICE OF PERSONNEL
18 MANAGEMENT REGULATIONS.—The Federal Acquisi-
19 tion Regulatory Council shall revise the Federal Ac-
20 quisition Regulation under paragraph (1) to be con-
21 sistent with the regulations issued by the Director of
22 the Office of Personnel Management under section
23 1122(b)(1) to the maximum extent practicable. The
24 Council shall include together with such revision an

1 explanation of any substantive modification of the
2 Office of Personnel Management regulations, includ-
3 ing an explanation of how such modification will
4 more effectively implement the rights and protec-
5 tions under this section.

6 **SEC. 1124. REPORT ON EMPLOYMENT OF INDIVIDUALS**
7 **FORMERLY INCARCERATED IN FEDERAL**
8 **PRISONS.**

9 (a) DEFINITION.—In this section, the term “covered
10 individual”—

11 (1) means an individual who has completed a
12 term of imprisonment in a Federal prison for a Fed-
13 eral criminal offense; and

14 (2) does not include an alien who is or will be
15 removed from the United States for a violation of
16 the immigration laws (as such term is defined in sec-
17 tion 101 of the Immigration and Nationality Act (8
18 U.S.C. 1101)).

19 (b) STUDY AND REPORT REQUIRED.—The Director
20 of the Bureau of Justice Statistics, in coordination with
21 the Director of the Bureau of the Census, shall—

22 (1) not later than 180 days after the date of
23 enactment of this subtitle, design and initiate a
24 study on the employment of covered individuals after

1 their release from Federal prison, including by col-
2 lecting—

3 (A) demographic data on covered individ-
4 uals, including race, age, and sex; and

5 (B) data on employment and earnings of
6 covered individuals who are denied employment,
7 including the reasons for the denials; and

8 (2) not later than 2 years after the date of en-
9 actment of this subtitle, and every 5 years there-
10 after, submit a report that does not include any per-
11 sonally identifiable information on the study con-
12 ducted under paragraph (1) to—

13 (A) the Committee on Homeland Security
14 and Governmental Affairs of the Senate;

15 (B) the Committee on Health, Education,
16 Labor, and Pensions of the Senate;

17 (C) the Committee on Oversight and Re-
18 form of the House of Representatives; and

19 (D) the Committee on Education and
20 Labor of the House of Representatives.

21 **Subtitle C—ATC Hiring Reform**

22 **SEC. 1131. SHORT TITLE; DEFINITION.**

23 (a) **SHORT TITLE.**—This subtitle may be cited as the
24 “ATC Hiring Reform Act”.

1 (b) DEFINITION OF APPROPRIATE COMMITTEES OF
2 CONGRESS.—In this subtitle, the term “appropriate com-
3 mittees of Congress” means—

4 (1) the Committee on Oversight and Reform of
5 the House of Representatives;

6 (2) the Committee on Transportation and In-
7 frastructure of the House of Representatives;

8 (3) the Committee on Homeland Security and
9 Governmental Affairs of the Senate; and

10 (4) the Committee on Commerce, Science, and
11 Transportation of the Senate.

12 **SEC. 1132. HIRING OF AIR TRAFFIC CONTROL SPECIALISTS.**

13 Section 44506(f)(1)(B)(i) of title 49, United States
14 Code, is amended by striking “referring” and all that fol-
15 lows through “10 percent.” and inserting “giving further
16 preferential consideration, within each qualification cat-
17 egory based upon pre-employment testing results (includ-
18 ing application of veterans’ preference as required under
19 section 40122(g)(2)(B)), to pool 1 applicants described in
20 clause (ii) before pool 2 applicants described in clause
21 (iii).”.

1 **SEC. 1133. ENSURING HIRING PREFERENCE FOR APPLI-**
2 **CANTS WITH EXPERIENCE AT AN AIR TRAF-**
3 **FIC CONTROL FACILITY OF THE NATIONAL**
4 **GUARD.**

5 Section 44506(f)(1)(A)(ii) of title 49, United States
6 Code, is amended by inserting “(including a facility of the
7 National Guard)” after “Department of Defense”.

8 **SEC. 1134. FAA REPORTS ON AIR TRAFFIC CONTROLLER**
9 **HIRING AND TRAINING.**

10 (a) **REPORTS TO CONGRESS.**—Not later than Sep-
11 tember 30 of 2020, 2021, 2022, and 2023, the Adminis-
12 trator of the Federal Aviation Administration shall submit
13 to the appropriate committees of Congress a report re-
14 garding the hiring and training of air traffic controllers.

15 (b) **CONTENTS.**—Each report under subsection (a)
16 shall include the following information:

17 (1) The number of applicants, from each hiring
18 pool (by vacancy announcement beginning with va-
19 cancy announcement FAA-ATO-19-ALLSRCE-
20 61676 (issued on June 14, 2019)) who have done
21 the following:

22 (A) Applied for the position of air traffic
23 controller.

24 (B) Been issued a tentative offer letter for
25 the position of air traffic controller.

1 (C) Been issued a firm offer letter for the
2 position of air traffic controller.

3 (D) Been hired for the position of air traf-
4 fic controller.

5 (E) Reported to the FAA Academy for ini-
6 tial qualification training.

7 (F) Successfully passed Air Traffic Basics
8 training at the FAA Academy.

9 (G) Successfully passed Terminal initial
10 training at the FAA Academy.

11 (H) Successfully passed En Route initial
12 training at the FAA Academy.

13 (2) The average cost of training per individual
14 for each such hiring pool for the following:

15 (A) Air Traffic Basics training at the FAA
16 Academy.

17 (B) Terminal initial training at the FAA
18 Academy.

19 (C) En Route initial training at the FAA
20 Academy.

21 (3) The FAA Academy attrition rate for each
22 such hiring pool.

23 (4) The number of applicants, from each such
24 hiring pool, who have successfully completed quali-
25 fication training at their first FAA facility and the

1 number who are still in training at their first facil-
2 ity.

3 (5) Other information determined appropriate
4 by the Administrator of the Federal Aviation Admin-
5 istration.

6 **SEC. 1135. DOT INSPECTOR GENERAL REVIEW AND RE-**
7 **PORT.**

8 (a) REVIEW.—

9 (1) IN GENERAL.—The Inspector General of
10 the Department of Transportation (in this section
11 referred to as the “Inspector General”) shall con-
12 duct a review that assesses the assumptions and
13 methodologies used to develop the air traffic con-
14 troller pre-employment test. Such review shall in-
15 clude—

16 (A) what job-relevant aptitudes are meas-
17 ured by the air traffic controller pre-employ-
18 ment test and to what extent such aptitudes are
19 tested;

20 (B) the scoring methodology for the air
21 traffic controller pre-employment test, including
22 an assessment of whether such methodology is
23 applied uniformly for all classes of applicants;

24 (C) whether the air traffic controller pre-
25 employment test incorporates any biographical

1 questionnaire or assessment other than basic
2 identifiers, such as name and questions that as-
3 sess personal characteristics, and the extent to
4 which such biographical assumptions are relied
5 upon to assess air traffic controller applicants;

6 (D) the effectiveness of the pre-employ-
7 ment test, mental health screening, and any
8 other applicable pre-employment assessment to
9 determine whether an applicant possesses the
10 skills necessary to perform the duties of a con-
11 troller; and

12 (E) ways to improve the pre-employment
13 test and other applicable pre-employment as-
14 sessments as the Inspector General determines
15 appropriate.

16 (2) START DATE.—The Inspector General shall
17 initiate the review under paragraph (1) by not later
18 than 90 days after the date of enactment of this
19 Act.

20 (b) REPORT.—Not later than 180 days after the date
21 the Inspector General initiates the review under subsection
22 (a), the Inspector General shall submit to the appropriate
23 committees of Congress a report on such review.

1 **TITLE XII—MATTERS RELATING**
2 **TO FOREIGN NATIONS**

Subtitle A—Assistance and Training

- Sec. 1201. Modification of authority to build capacity of foreign security forces.
- Sec. 1202. Modification and extension of cross servicing agreements for loan of personnel protection and personnel survivability equipment in coalition operations.
- Sec. 1203. Modifications of authorities relating to acquisition and cross-servicing agreements.
- Sec. 1204. Modification of quarterly report on obligation and expenditure of funds for security cooperation programs and activities.
- Sec. 1205. Gender perspectives and participation by women in security cooperation activities.
- Sec. 1206. Plan to provide consistency of administration of authorities relating to vetting of units of security forces of foreign countries; modification of assessment, monitoring, and evaluation of security cooperation programs and activities.
- Sec. 1207. Extension of authority for support of special operations for irregular warfare.
- Sec. 1208. Extension and modification of Commanders' Emergency Response Program and elimination of certain payments to redress injury and loss.
- Sec. 1209. Two-year extension of program authority for Global Security Contingency Fund.
- Sec. 1210. Legal institutional capacity building initiative for foreign defense institutions.
- Sec. 1210A. Department of Defense support for stabilization activities in national security interest of the United States.

Subtitle B—Matters Relating to Afghanistan and Pakistan

- Sec. 1211. Extension of authority to transfer defense articles and provide defense services to the military and security forces of Afghanistan.
- Sec. 1212. Extension and modification of authority to acquire products and services produced in countries along a major route of supply to Afghanistan.
- Sec. 1213. Authority for certain payments to redress injury and loss.
- Sec. 1214. Extension and modification of semiannual report on enhancing security and stability in Afghanistan.
- Sec. 1215. Special Immigrant Visa program reporting requirement.
- Sec. 1216. Meaningful inclusion of Afghan women in peace negotiations.
- Sec. 1217. Extension and modification of authority for reimbursement of certain coalition nations for support provided to United States military operations.
- Sec. 1218. Support for reconciliation activities led by the Government of Afghanistan.
- Sec. 1219. Modification and extension of the Afghan Special Immigrant Visa Program.

Subtitle C—Matters Relating to Syria, Iraq, and Iran

- Sec. 1221. Modification of authority and limitation on use of funds to provide assistance to counter the Islamic State of Iraq and Syria.
- Sec. 1222. Extension and modification of authority to provide assistance to vetted Syrian groups and individuals.
- Sec. 1223. Modification of authority to support operations and activities of the Office of Security Cooperation in Iraq.
- Sec. 1224. Establishing a coordinator for detained ISIS members and relevant displaced populations in Syria.
- Sec. 1225. Report on lessons learned from efforts to liberate Mosul and Raqqah from control of the Islamic State of Iraq and Syria.
- Sec. 1226. Expansion of availability of financial assets of Iran to victims of terrorism.
- Sec. 1227. Report on the status of deconfliction channels with Iran.
- Sec. 1228. Prohibition on provision of weapons and other forms of support to certain organizations.

Subtitle D—Matters Relating to the Russian Federation

- Sec. 1231. Extension of limitation on military cooperation between the United States and Russia.
- Sec. 1232. Prohibition on availability of funds relating to sovereignty of Russia over Crimea.
- Sec. 1233. Sense of Congress on updating and modernizing existing agreements to avert miscalculation between the United States and Russia.
- Sec. 1234. United States participation in Open Skies Treaty.
- Sec. 1235. Modifications of briefing, notification, and reporting requirements relating to non-compliance by the Russian Federation with its obligations under the INF Treaty.
- Sec. 1236. Report on treaties relating to nuclear arms control.
- Sec. 1237. Reports relating to the New START Treaty.
- Sec. 1238. Report on military activities of the Russian Federation and the People's Republic of China in the Arctic region.
- Sec. 1239. Updated strategy to counter the threat of malign influence by the Russian Federation and other countries.

Subtitle E—Matters Relating to Europe and NATO

- Sec. 1241. Sense of Congress on support for the North Atlantic Treaty Organization.
- Sec. 1242. Prohibition on the use of funds to suspend, terminate, or provide notice of denunciation of the North Atlantic Treaty.
- Sec. 1243. Future years plans and planning transparency for the European Deterrence Initiative.
- Sec. 1244. Modification and extension of Ukraine Security Assistance Initiative.
- Sec. 1245. Limitation on transfer of F-35 aircraft to Turkey.
- Sec. 1246. Baltic defense assessment; extension and modification of security assistance for Baltic countries for joint program for interoperability and deterrence against aggression.
- Sec. 1247. Extension of authority for and report on training for Eastern European national security forces in the course of multilateral exercises.
- Sec. 1248. Extension and modification of NATO Special Operations Headquarters.
- Sec. 1249. North Atlantic Treaty Organization Joint Force Command.
- Sec. 1250. Report on North Atlantic Treaty Organization Readiness Initiative.

- Sec. 1250A. Repeal of prohibition on transfer of articles on the United States munitions list to the Republic of Cyprus.

Subtitle F—Matters Relating to the Indo-Pacific Region

- Sec. 1251. Modification of Indo-Pacific Maritime Security Initiative.
- Sec. 1252. Expansion of Indo-Pacific Maritime Security Initiative and limitation on use of funds.
- Sec. 1253. Report on resourcing United States defense requirements for the Indo-Pacific region and study on competitive strategies.
- Sec. 1254. Limitation on use of funds to reduce the total number of members of the Armed Forces serving on active duty who are deployed to South Korea.
- Sec. 1255. Report on direct, indirect, and burden-sharing contributions of Japan and South Korea.
- Sec. 1256. Sense of Congress on security commitments to the Governments of Japan and the Republic of Korea and trilateral cooperation among the United States, Japan, and the Republic of Korea.
- Sec. 1257. Sense of Congress on North Korea.
- Sec. 1258. Statement of policy and sense of Congress on, and strategy to fulfill obligations under, Mutual Defense Treaty with the Republic of the Philippines.
- Sec. 1259. Report on security cooperation with the Philippine National Police.
- Sec. 1260. Modification of annual report on military and security developments involving the People's Republic of China.
- Sec. 1260A. Report on foreign military activities in Pacific Island countries.
- Sec. 1260B. Report on cybersecurity activities with Taiwan.
- Sec. 1260C. Review and report related to the Taiwan Relations Act.
- Sec. 1260D. Sense of Congress on enhancement of the United States-Taiwan defense relationship.
- Sec. 1260E. Chinese foreign direct investment in countries of the Arctic region.
- Sec. 1260F. Sense of Congress on policy toward Hong Kong.
- Sec. 1260G. Sense of Congress on enhancing defense and security cooperation with the Republic of Singapore.
- Sec. 1260H. Authority to transfer funds for Bien Hoa dioxin cleanup.
- Sec. 1260I. Limitation on removal of Huawei Technologies Co. Ltd. from entity list of Bureau of Industry and Security.
- Sec. 1260J. Report on ZTE compliance with Superseding Settlement Agreement and Superseding Order.
- Sec. 1260K. Report on the lay-down of United States Marines in the Indo-Pacific Region.

Subtitle G—Other Matters

- Sec. 1261. Modification to report on legal and policy frameworks for the use of military force.
- Sec. 1262. Independent review of sufficiency of resources available to United States Southern Command and United States Africa Command.
- Sec. 1263. United States Central Command posture assessment and review.
- Sec. 1264. Limitation on production of nuclear proliferation assessment statements.
- Sec. 1265. Western Hemisphere resource assessment.
- Sec. 1266. Human rights in Brazil.
- Sec. 1267. Certification relating to assistance for Guatemala.
- Sec. 1268. Independent analysis of human rights situation in Honduras.

- Sec. 1269. Briefing on strategy to improve the efforts of the Nigerian military to prevent, mitigate, and respond to civilian harm.
- Sec. 1270. Report on implications of Chinese military presence in Djibouti.
- Sec. 1271. Rule of construction on the permanent stationing of United States Armed Forces in Somalia.
- Sec. 1272. Defense and diplomatic strategy for Libya.
- Sec. 1273. Prohibition on in-flight refueling to non-United States aircraft that engage in hostilities in the ongoing civil war in Yemen.
- Sec. 1274. Report on Saudi-led coalition strikes in Yemen.
- Sec. 1275. Reports on expenses incurred for in-flight refueling of Saudi coalition aircraft conducting missions relating to civil war in Yemen.
- Sec. 1276. Report on Saudi Arabia's human rights record.
- Sec. 1277. Report on intelligence community assessment relating to the killing of Washington Post columnist Jamal Khashoggi.
- Sec. 1278. United States-Israel cooperation to counter unmanned aerial systems.
- Sec. 1279. Extension and modification of authority for United States-Israel anti-tunnel cooperation activities.
- Sec. 1280. Report on cost imposition strategy.
- Sec. 1281. Modification of initiative to support protection of national security academic researchers from undue influence and other security threats.
- Sec. 1282. Modification of responsibility for policy on civilian casualty matters.
- Sec. 1283. Report on export of certain satellites to entities with certain beneficial ownership structures.
- Sec. 1284. Rule of construction relating to the use of military force.
- Sec. 1285. Reports and briefings on use of military force and support of partner forces.

1 **Subtitle A—Assistance and**
2 **Training**

3 **SEC. 1201. MODIFICATION OF AUTHORITY TO BUILD CAPAC-**
4 **ITY OF FOREIGN SECURITY FORCES.**

5 (a) **AUTHORITY.**—Subsection (a)(7) of section 333 of
6 title 10, United States Code, is amended by inserting “ex-
7 isting” before “international coalition operation”.

8 (b) **NOTICE AND WAIT ON ACTIVITIES UNDER PRO-**
9 **GRAMS.**—Subsection (e) of such section is amended by
10 adding at the end the following:

11 “(9) In the case of a program described in sub-
12 section (a), each of the following:

1 “(A) A description of whether assistance
2 under the program could be provided pursuant
3 to other authorities under this title, the Foreign
4 Assistance Act of 1961, or any other train and
5 equip authorities of the Department of Defense.

6 “(B) An identification of each such author-
7 ity described in subparagraph (A).”.

8 **SEC. 1202. MODIFICATION AND EXTENSION OF CROSS**
9 **SERVICING AGREEMENTS FOR LOAN OF PER-**
10 **SONNEL PROTECTION AND PERSONNEL SUR-**
11 **VIVABILITY EQUIPMENT IN COALITION OPER-**
12 **ATIONS.**

13 Section 1207 of the Carl Levin and Howard P.
14 “Buck” Mekeon National Defense Authorization Act for
15 Fiscal Year 2015 (10 U.S.C. 2342 note) is amended—

16 (1) by redesignating subsections (d) and (e) as
17 subsections (e) and (f), respectively;

18 (2) by inserting after subsection (c) the fol-
19 lowing:

20 “(d) **REPORTS TO CONGRESS.**—If the authority pro-
21 vided under this section is exercised during a fiscal year,
22 the Secretary of Defense shall, with the concurrence of
23 the Secretary of State, submit to the appropriate commit-
24 tees of Congress a report on the exercise of such authority
25 by not later than October 30 of the year in which such

1 fiscal year ends. Each report on the exercise of such au-
2 thority shall specify the recipient country of the equipment
3 loaned, the type of equipment loaned, and the duration
4 of the loan of such equipment.”; and

5 (3) in subsection (f), as redesignated, by strik-
6 ing “September 30, 2019” and inserting “December
7 31, 2024”.

8 **SEC. 1203. MODIFICATIONS OF AUTHORITIES RELATING TO**
9 **ACQUISITION AND CROSS-SERVICING AGREE-**
10 **MENTS.**

11 (a) DESIGNATION AND NOTICE OF INTENT TO
12 ENTER INTO AGREEMENT WITH NON-NATO COUN-
13 TRY.—Subsection (b) of section 2342 of title 10, United
14 States Code, is amended to read as follows:

15 “(b)(1) The Secretary of Defense may not designate
16 a country for an agreement under this section unless—

17 “(A) the Secretary, after consultation with the
18 Secretary of State, determines that the designation
19 of such country for such purpose is in the interest
20 of the national security of the United States; and

21 “(B) in the case of a country that is not a
22 member of the North Atlantic Treaty Organization,
23 the Secretary submits to the appropriate committees
24 of Congress notice of the intended designation not
25 less than 30 days before the date on which such

1 country is designated by the Secretary under sub-
2 section (a).

3 “(2) In the case of a country that is not a member
4 of the North Atlantic Treaty Organization, the Secretary
5 of Defense may not enter into an agreement under this
6 section unless the Secretary submits to the appropriate
7 committees of Congress a notice of intent to enter into
8 such an agreement not less than 30 days before the date
9 on which the Secretary enters into the agreement.”.

10 (b) OVERSIGHT RESPONSIBILITIES.—Such section is
11 further amended—

12 (1) by redesignating subsections (f) through (h)
13 as subsections (g) through (i), respectively; and

14 (2) by inserting after subsection (e) the fol-
15 lowing new subsection (f):

16 “(f) Not later than 30 days after the date of the en-
17 actment of the National Defense Authorization Act for
18 Fiscal Year 2020, the Secretary of Defense shall designate
19 an existing senior civilian or military official who shall
20 have primary responsibility for—

21 “(1) accounting for logistic support, supplies,
22 and services received or provided under acquisition
23 and cross-servicing agreements;

24 “(2) ensuring consistent standards and guid-
25 ance to the armed forces and combatant commands

1 in executing acquisition and cross-servicing agree-
2 ments;

3 “(3) overseeing and monitoring the implementa-
4 tion of acquisition and cross-servicing agreements in
5 coordination with the Under Secretary of Defense
6 for Policy; and

7 “(4) such other responsibilities as may be pre-
8 scribed by the Secretary.”.

9 (c) REGULATIONS.—Subsection (g) of such section,
10 as redesignated by subsection (b)(1), is amended to read
11 as follows:

12 “(g)(1) Not later than 90 days after the date of the
13 enactment of the National Defense Authorization Act for
14 Fiscal Year 2020, the Secretary of Defense shall prescribe
15 regulations to ensure that—

16 “(A) contracts entered into under this sub-
17 chapter are free from self-dealing, bribery, and con-
18 flict of interests;

19 “(B) adequate processes and controls are in
20 place to provide for the accurate accounting of logis-
21 tic support, supplies, and services received or pro-
22 vided under the authority of this subchapter; and

23 “(C) personnel responsible for accounting for
24 logistic support, supplies, and services received or

1 provided under such authority are fully trained and
2 aware of such responsibilities.

3 “(2)(A) Not later than 270 days after the
4 issuance of the regulations under paragraph (1), the
5 Comptroller General of the United States shall con-
6 duct a review of the implementation by the Secretary
7 of such regulations.

8 “(B) The review conducted under subparagraph
9 (A) shall—

10 “(i) assess the effectiveness of such regula-
11 tions and the implementation of such regula-
12 tions to ensure the effective management and
13 oversight of an agreement under subsection
14 (a)(1); and

15 “(ii) include any other matter the Comp-
16 troller General considers relevant.”.

17 (d) REPORTS.—Subsection (h) of such section, as re-
18 designated by subsection (b)(1), is amended—

19 (1) in paragraph (1), by striking “in effect”
20 and inserting “that have entered into force or were
21 applied provisionally”;

22 (2) in paragraph (2), by striking “date on
23 which the Secretary” and all that follows through
24 the period at the end and inserting “dates on which
25 the Secretary notified Congress—

1 “(A) pursuant to subsection (b)(1)(B) of
2 the designation of such country under sub-
3 section (a); and

4 “(B) pursuant to subsection (b)(2) of the
5 intent of the Secretary to enter into the agree-
6 ment.”;

7 (3) by amending paragraph (3) to read as fol-
8 lows:

9 “(3) The class of supply, total dollar amount,
10 the amount collected, and the outstanding balance of
11 logistic support, supplies, and services provided dur-
12 ing the preceding fiscal year under each such agree-
13 ment.”;

14 (4) by amending paragraph (4) to read as fol-
15 lows:

16 “(4) The class of supply, total dollar amount,
17 the amount collected, and the outstanding balance of
18 logistic support, supplies, and services received dur-
19 ing the preceding fiscal year under each such agree-
20 ment.”;

21 (5) by striking paragraph (5); and

22 (6) by adding at the end the following new
23 paragraphs:

24 “(5) With respect to any transaction for logistic
25 support, supplies, and services that has not been rec-

1 onced more than one year after the date on which
2 the transaction occurred, a description of the trans-
3 action that includes the following:

4 “(A) The date on which the transaction oc-
5 curred.

6 “(B) The country or organization to which
7 logistic support, supplies, and services were pro-
8 vided.

9 “(C) The value of the transaction.

10 “(6) An explanation of any waiver granted
11 under section 2347(c) during the preceding fiscal
12 year, including an identification of the relevant con-
13 tingency operation or non-combat operation.”.

14 **SEC. 1204. MODIFICATION OF QUARTERLY REPORT ON OB-**
15 **LIGATION AND EXPENDITURE OF FUNDS FOR**
16 **SECURITY COOPERATION PROGRAMS AND**
17 **ACTIVITIES.**

18 Section 381(b) of title 10, United States Code, is
19 amended by striking “30 days” and inserting “60 days”.

20 **SEC. 1205. GENDER PERSPECTIVES AND PARTICIPATION BY**
21 **WOMEN IN SECURITY COOPERATION ACTIVI-**
22 **TIES.**

23 Consistent with the Women, Peace, and Security Act
24 of 2017 (Public Law 115–68), the Secretary of Defense,
25 in coordination with the Secretary of State, should seek

1 to incorporate gender perspectives and participation by
2 women in security cooperation activities to the maximum
3 extent practicable.

4 **SEC. 1206. PLAN TO PROVIDE CONSISTENCY OF ADMINIS-**
5 **TRATION OF AUTHORITIES RELATING TO**
6 **VETTING OF UNITS OF SECURITY FORCES OF**
7 **FOREIGN COUNTRIES; MODIFICATION OF AS-**
8 **SESSMENT, MONITORING, AND EVALUATION**
9 **OF SECURITY COOPERATION PROGRAMS AND**
10 **ACTIVITIES.**

11 (a) IN GENERAL.—Not later than 180 days after the
12 date of the enactment of this Act, the Secretary of Defense
13 and Secretary of State shall jointly develop, implement,
14 and submit to the congressional defense committees, the
15 Committee on Foreign Relations of the Senate, and the
16 Committee on Foreign Affairs of the House of Representa-
17 tives a plan to provide consistency in administration of
18 section 362 of title 10, United States Code, and section
19 620M of the Foreign Assistance Act of 1961 (22 U.S.C.
20 2378d).

21 (b) MATTERS TO BE INCLUDED.—The plan required
22 by subsection (a) shall contain the following:

23 (1) Common standards and procedures which
24 shall be used by the Department of Defense and De-
25 partment of State to obtain and verify information

1 regarding the vetting of units of the security forces
2 of foreign countries for gross violation of human
3 rights under the authorities described in subsection
4 (a), including—

5 (A) public guidelines for external sources
6 to report information; and

7 (B) methods and criteria employed by the
8 Department of Defense and Department of
9 State to determine whether sources, source re-
10 porting, and allegations are credible.

11 (2) Measures to ensure the Department of De-
12 fense has read-only access to the International Vet-
13 ting and Security Tracking (INVEST) system, and
14 any successor or equivalent system.

15 (3) Measures to ensure the authorities de-
16 scribed in subsection (a) are applied to any foreign
17 forces, irregular forces, groups, and individuals that
18 receive training, equipment, or other assistance from
19 the United States military.

20 (c) FORM.—The plan required by subsection (a) shall
21 be submitted in unclassified form, but may include a clas-
22 sified annex.

23 (d) INTEGRATION OF HUMAN RIGHTS AND CIVILIAN
24 PROTECTION INTO ASSESSMENT, MONITORING, AND

1 EVALUATION OF SECURITY COOPERATION PROGRAMS
2 AND ACTIVITIES.—

3 (1) REPORTS REQUIRED.—The Secretary of
4 Defense shall submit to the appropriate congress-
5 sional committees an interim report and a final re-
6 port on the steps the Secretary will take to incor-
7 porate partner units' activities, as such activities re-
8 late to human rights and protection of civilians, into
9 the program elements described in section 383(b)(1)
10 of title 10, United States Code.

11 (2) DEADLINES.—

12 (A) INTERIM REPORT.—The interim report
13 required under paragraph (1) shall be sub-
14 mitted to the appropriate congressional commit-
15 tees not later than 180 days after the date of
16 the enactment of this Act and shall include a
17 summary of the progress of the Secretary in
18 implementing the steps described in such para-
19 graph.

20 (B) FINAL REPORT.—The final report re-
21 quired under paragraph (1) shall be submitted
22 to the appropriate congressional committees not
23 later than one year after the date of enactment
24 of this Act and shall specifically identify the ac-

1 tions the Secretary took to implement the steps
2 described in paragraph (1).

3 (3) APPROPRIATE CONGRESSIONAL COMMIT-
4 TEES DEFINED.—In this subsection, the term “ap-
5 propriate congressional committees” means the fol-
6 lowing:

7 (A) The Committee on Armed Services and
8 the Committee on Foreign Relations of the Sen-
9 ate.

10 (B) The Committee on Armed Services and
11 the Committee on Foreign Affairs of the House
12 of Representatives.

13 **SEC. 1207. EXTENSION OF AUTHORITY FOR SUPPORT OF**
14 **SPECIAL OPERATIONS FOR IRREGULAR WAR-**
15 **FARE.**

16 Section 1202(a) of the National Defense Authoriza-
17 tion Act for Fiscal Year 2018 (Public Law 115–91; 131
18 Stat. 1639) is amended by striking “2020” and inserting
19 “2023”.

20 **SEC. 1208. EXTENSION AND MODIFICATION OF COM-**
21 **MANDERS’ EMERGENCY RESPONSE PRO-**
22 **GRAM AND ELIMINATION OF CERTAIN PAY-**
23 **MENTS TO REDRESS INJURY AND LOSS.**

24 (a) EXTENSION AND MODIFICATION OF COM-
25 MANDERS’ EMERGENCY RESPONSE PROGRAM.—Section

1 1201 of the National Defense Authorization Act for Fiscal
2 Year 2012 (Public Law 112–81; 125 Stat. 1619), as most
3 recently amended by the John S. McCain National De-
4 fense Authorization Act for Fiscal Year 2019 (Public Law
5 115–232), is further amended—

6 (1) in subsection (a)—

7 (A) by striking “During the period begin-
8 ning on October 1, 2016, and ending on De-
9 cember 31, 2019” and inserting “During the
10 period beginning on October 1, 2019, and end-
11 ing on December 31, 2020”; and

12 (B) by striking “\$10,000,000” and insert-
13 ing “\$2,500,000”;

14 (2) in subsection (b)(1), by striking “of fiscal
15 years 2017 through 2019” and inserting “for each
16 of fiscal years 2017 through 2020”; and

17 (3) in subsection (f), in the first sentence, by
18 striking “during the period beginning on October 1,
19 2016, and ending on December 31, 2019” and in-
20 sserting “during the period beginning on October 1,
21 2019, and ending on December 31, 2020”.

22 (b) ELIMINATION OF AUTHORITY FOR CERTAIN PAY-
23 MENTS TO REDRESS INJURY AND LOSS IN AFGHANISTAN,
24 IRAQ, SYRIA, SOMALIA, LIBYA, AND YEMEN.—Section
25 1211 of the National Defense Authorization Act for Fiscal

1 Year 2017 (Public Law 114–328; 130 Stat. 2477), as
2 most recently amended by section 1224(a) of the John S.
3 McCain National Defense Authorization Act for Fiscal
4 Year 2019 (Public Law 115–232), is further amended by
5 striking subsection (b).

6 **SEC. 1209. TWO-YEAR EXTENSION OF PROGRAM AUTHORITY**
7 **FOR GLOBAL SECURITY CONTINGENCY FUND.**

8 Section 1207 of the National Defense Authorization
9 Act for Fiscal Year 2012 (22 U.S.C. 2151 note) is amend-
10 ed—

11 (1) in subsection (i)—

12 (A) in paragraph (1), by striking “Sep-
13 tember 30, 2019” and inserting “September 30,
14 2021”; and

15 (B) by amending paragraph (2) to read as
16 follows:

17 “(2) EXCEPTION.—Amounts appropriated and
18 transferred to the Fund before September 30, 2019,
19 shall remain available for obligation and expenditure
20 after that date, but only for activities under pro-
21 grams commenced under subsection (b) before Sep-
22 tember 30, 2019.”; and

23 (2) in subsection (o)—

1 (A) in the first sentence, by striking “Sep-
2 tember 30, 2019” and inserting “September 30,
3 2021”; and

4 (B) in the second sentence, by striking
5 “through 2019” and inserting “through 2021”.

6 **SEC. 1210. LEGAL INSTITUTIONAL CAPACITY BUILDING INI-**
7 **TIATIVE FOR FOREIGN DEFENSE INSTITU-**
8 **TIONS.**

9 (a) INITIATIVE.—The Secretary of Defense may
10 carry out, in accordance with section 332 of title 10,
11 United States Code, an initiative of legal institutional ca-
12 pacity building in collaboration with the appropriate min-
13 istry of defense (or security agency serving a similar de-
14 fense function) legal institutions that support the efforts
15 of one or more foreign countries to establish or improve
16 legal institutional capacity.

17 (b) PURPOSE.—The purpose of the initiative under
18 subsection (a) is to enhance, through advisory services,
19 training, or related training support services, as appro-
20 priate, the legal institutional capacity of the applicable for-
21 eign country to do the following:

22 (1) Integrate legal matters into the authority,
23 doctrine, and policies of the ministry of defense (or
24 security agency serving a similar defense function)
25 and forces of such country.

1 (2) Provide appropriate legal support to com-
2 manders conducting defense and national security
3 operations.

4 (3) With respect to defense and national secu-
5 rity law, institutionalize education, training, and
6 professional development for personnel and forces,
7 including uniformed lawyers, officers, noncommis-
8 sioned officers, and civilian lawyers and leadership
9 within such ministries of defense (and security agen-
10 cies serving a similar defense function).

11 (4) Establish a military justice system that is
12 objective, transparent, and impartial.

13 (5) Conduct effective and transparent command
14 and administrative investigations.

15 (6) Build the legal capacity of the forces and ci-
16 vilian personnel of ministries of defense (and secu-
17 rity agencies serving a similar defense function) to
18 provide equitable, transparent, and accountable in-
19 stitutions and provide for anti-corruption measures
20 within such institutions.

21 (7) Build capacity—

22 (A) to provide for the protection of civil-
23 ians consistent with the law of armed conflict
24 and human rights law; and

1 (B) to investigate incidents of civilian cas-
2 ualties.

3 (8) Promote understanding and observance of—

4 (A) the law of armed conflict;

5 (B) human rights and fundamental free-
6 doms;

7 (C) the rule of law; and

8 (D) civilian control of the military.

9 (9) Establish mechanisms for effective civilian
10 oversight of defense and national security legal insti-
11 tutions and legal matters.

12 (c) ELEMENTS.—The initiative under subsection (a)
13 shall include the following elements:

14 (1) A measure for monitoring the implementa-
15 tion of the initiative and evaluating the efficiency
16 and effectiveness of the initiative, in accordance with
17 section 383 of title 10, United States Code.

18 (2) An assessment of the organizational weak-
19 nesses for legal institutional capacity building of the
20 applicable foreign country, including baseline infor-
21 mation, an assessment of gaps in the capability and
22 capacity of the appropriate institutions of such coun-
23 try, and any other indicator of efficacy, in accord-
24 ance with section 383 of title 10, United States
25 Code.

1 (3) An engagement plan for building legal insti-
2 tutional capacity that addresses the weaknesses
3 identified under paragraph (2), including objectives,
4 milestones, and a timeline.

5 (d) REPORTS.—

6 (1) IN GENERAL.—Beginning in fiscal year
7 2020 through the fiscal year in which the initiative
8 under subsection (a) terminates, the Secretary of
9 Defense shall submit to the appropriate committees
10 of Congress an annual report on the legal institu-
11 tional capacity building activities carried out under
12 this section.

13 (2) INTEGRATION INTO OTHER CAPACITY
14 BUILDING REPORTS.—The report submitted under
15 paragraph (1) for a fiscal year shall be integrated
16 into the report required pursuant to subsection
17 (b)(2) of section 332 of title 10, United States Code,
18 for the fourth fiscal year quarter of such fiscal year.

19 (3) MATTERS TO BE INCLUDED.—Each report
20 submitted under paragraph (1) shall include the fol-
21 lowing:

22 (A) The same information required under
23 subsection (b)(2) of section 332 of title 10,
24 United States Code.

1 (B) The names of the one or more coun-
2 tries in which the initiative was conducted.

3 (C) For each such country—

4 (i) the purpose of the initiative;

5 (ii) the objectives, milestones, and
6 timeline of the initiative;

7 (iii) the number and type of advisors
8 assigned and deployed to the country, as
9 applicable; and

10 (iv) an assessment of the progress of
11 the implementation of the initiative.

12 (e) SUNSET.—The initiative under subsection (a)
13 shall terminate on December 31, 2024.

14 (f) FUNDING.—Amounts for programs carried out
15 pursuant to subsection (a) in a fiscal year, and for other
16 purposes in connection with such programs as authorized
17 by this section, may be derived only from amounts author-
18 ized to be appropriated for such fiscal year for the Depart-
19 ment of Defense for operation and maintenance, Defense-
20 wide, and available for the Defense Security Cooperation
21 Agency for such programs and purposes.

1 **SEC. 1210A. DEPARTMENT OF DEFENSE SUPPORT FOR STA-**
2 **BILIZATION ACTIVITIES IN NATIONAL SECU-**
3 **RITY INTEREST OF THE UNITED STATES.**

4 (a) IN GENERAL.—The Secretary of Defense may,
5 with the concurrence of the Secretary of State and in con-
6 sultation with the Administrator of the United States
7 Agency for International Development, provide support for
8 the stabilization activities of other Federal agencies speci-
9 fied in subsection (c)(1).

10 (b) DESIGNATION OF FOREIGN AREAS.—

11 (1) IN GENERAL.—Amounts authorized to be
12 provided pursuant to this section shall be available
13 only for support for stabilization activities—

14 (A) in a country specified in paragraph
15 (2); and

16 (B) that the Secretary of Defense, with the
17 concurrence of the Secretary of State, has de-
18 termined are in the national security interest of
19 the United States.

20 (2) SPECIFIED COUNTRIES.—The countries
21 specified in this paragraph are as follows:

22 (A) Iraq.

23 (B) Syria.

24 (C) Afghanistan.

25 (D) Somalia.

26 (c) SUPPORT TO OTHER AGENCIES.—

1 (1) IN GENERAL.—Support may be provided for
2 stabilization activities under subsection (a) to the
3 Department of State, the United States Agency for
4 International Development, or other Federal agen-
5 cies, on a reimbursable or nonreimbursable basis.
6 The authority to provide such support under this
7 paragraph on a reimbursable basis is in addition to
8 other authorities to provide support on such basis.

9 (2) TYPE OF SUPPORT.—Support under sub-
10 section (a) may consist of logistic support, supplies,
11 and services.

12 (d) REQUIREMENT FOR A STABILIZATION STRAT-
13 EGY.—

14 (1) LIMITATION.—With respect to any country
15 specified in subsection (b)(2), no amount of support
16 may be provided under subsection (a) until 15 days
17 after the date on which the Secretary of Defense,
18 with the concurrence of the Secretary of State, sub-
19 mits to the appropriate committees of Congress a
20 detailed report setting forth a stabilization strategy
21 for such country.

22 (2) ELEMENTS OF STRATEGY.—The stabiliza-
23 tion strategy required by paragraph (1) shall set
24 forth the following:

1 (A) The United States interests in con-
2 ducting stabilization activities in the country
3 specified in subsection (b)(2).

4 (B) The key foreign partners and actors in
5 such country.

6 (C) The desired end states and objectives
7 of the United States stabilization activities in
8 such country.

9 (D) The Department of Defense support
10 intended to be provided for the stabilization ac-
11 tivities of other Federal agencies under sub-
12 section (a).

13 (E) Any mechanism for civil-military co-
14 ordination regarding support for stabilization
15 activities.

16 (F) The mechanisms for monitoring and
17 evaluating the effectiveness of Department of
18 Defense support for United States stabilization
19 activities in the area.

20 (e) IMPLEMENTATION IN ACCORDANCE WITH GUID-
21 ANCE.—Support provided under subsection (a) shall be
22 implemented in accordance with the guidance of the De-
23 partment of Defense entitled “DoD Directive 3000.05
24 Stabilization”, dated December 13, 2018 (or successor
25 guidance).

1 (f) REPORT.—The Secretary of Defense, with the
2 concurrence of the Secretary of State, shall submit to the
3 appropriate committees of Congress on an annual basis
4 a report that includes the following:

5 (1) The identification of each foreign area with-
6 in countries specified in subsection (b)(2) for which
7 support to stabilization has occurred.

8 (2) The total amount spent by the Department
9 of Defense, broken out by recipient Federal agency
10 and activity.

11 (3) An assessment of the contribution of each
12 activity toward greater stability.

13 (4) An articulation of any plans for continued
14 Department of Defense support to stabilization in
15 the specified foreign area in order to maintain or im-
16 prove stability.

17 (5) Other matters as the Secretary of Defense
18 considers to be appropriate.

19 (g) USE OF FUNDS.—

20 (1) SOURCE OF FUNDS.—Amounts for activities
21 carried out under this section in a fiscal year shall
22 be derived only from amounts authorized to be ap-
23 propriated for such fiscal year for the Department
24 of Defense for Operation and Maintenance, Defense-
25 wide.

1 (2) LIMITATION.—Not more than \$18,000,000
2 in each fiscal year is authorized to be used to pro-
3 vide nonreimbursable support under this section.

4 (h) EXPIRATION.—The authority provided under this
5 section may not be exercised after December 31, 2020.

6 (i) DEFINITIONS.—In this section:

7 (1) APPROPRIATE COMMITTEES OF CON-
8 GRESS.—The term “appropriate committees of Con-
9 gress” means—

10 (A) the Committee on Armed Services and
11 the Committee on Foreign Relations of the Sen-
12 ate; and

13 (B) the Committee on Armed Services and
14 the Committee on Foreign Affairs of the House
15 of Representatives.

16 (2) LOGISTIC SUPPORT, SUPPLIES, AND SERV-
17 ICES.—The term “logistic support, supplies, and
18 services” has the meaning given the term in section
19 2350(1) of title 10, United States Code.

1 **Subtitle B—Matters Relating to**
2 **Afghanistan and Pakistan**

3 **SEC. 1211. EXTENSION OF AUTHORITY TO TRANSFER DE-**
4 **FENSE ARTICLES AND PROVIDE DEFENSE**
5 **SERVICES TO THE MILITARY AND SECURITY**
6 **FORCES OF AFGHANISTAN.**

7 (a) **EXTENSION OF AUTHORITY.**—Subsection (h) of
8 section 1222 of the National Defense Authorization Act
9 for Fiscal Year 2013 (Public Law 112–239; 126 Stat.
10 1992) is amended by striking “December 31, 2020” and
11 inserting “December 31, 2022”.

12 (b) **EXCESS DEFENSE ARTICLES.**—Subsection (i)(2)
13 of such section is amended by striking “December 31,
14 2020” each place it appears and inserting “December 31,
15 2022”.

16 **SEC. 1212. EXTENSION AND MODIFICATION OF AUTHORITY**
17 **TO ACQUIRE PRODUCTS AND SERVICES PRO-**
18 **DUCED IN COUNTRIES ALONG A MAJOR**
19 **ROUTE OF SUPPLY TO AFGHANISTAN.**

20 (a) **TERMINATION OF AUTHORITY.**—Subsection (f) of
21 section 801 of the National Defense Authorization Act for
22 Fiscal Year 2010 (Public Law 111–84; 123 Stat. 2399)
23 is amended by striking “December 31, 2019” and insert-
24 ing “December 31, 2021”.

1 (b) REPORT ON AUTHORITY.—Such section, as so
2 amended, is further amended by adding at the end the
3 following:

4 “(g) REPORT ON AUTHORITY.—

5 “(1) IN GENERAL.—Not later than March 1,
6 2020, and March 1, 2021, the Secretary of Defense
7 shall submit to the appropriate congressional com-
8 mittees a report on the use of the authority provided
9 in subsection (a). The report shall address, at a min-
10 imum, the following:

11 “(A) The number of determinations made
12 by the Secretary pursuant to subsection (b).

13 “(B) A description of the products and
14 services acquired using the authority.

15 “(C) The extent to which the use of the
16 authority has met the objectives of subpara-
17 graph (A), (B), or (C) of subsection (b)(2).

18 “(D) A list of the countries providing prod-
19 ucts or services as a result of a determination
20 made pursuant to subsection (b).

21 “(2) APPROPRIATE CONGRESSIONAL COMMIT-
22 TEES DEFINED.—For purposes of this subsection,
23 the term ‘appropriate congressional committees’
24 means—

1 “(A) the congressional defense committees;
2 and

3 “(B) the Committee on Foreign Affairs of
4 the House of Representatives and the Com-
5 mittee on Foreign Relations of the Senate.”.

6 **SEC. 1213. AUTHORITY FOR CERTAIN PAYMENTS TO RE-**
7 **DRESS INJURY AND LOSS.**

8 (a) **AUTHORITY.**—During the period beginning on the
9 date of the enactment of this Act and ending on December
10 31, 2022, not more than \$3,000,000 for each calendar
11 year, to be derived from funds authorized to be appro-
12 priated to the Office of the Secretary of Defense under
13 the Operation and Maintenance, Defense-wide account,
14 may be made available for ex gratia payments for damage,
15 personal injury, or death that is incident to the use of
16 force by the United States Armed Forces, a coalition that
17 includes the United States, a military organization sup-
18 porting the United States, or a military organization sup-
19 porting the United States or such coalition.

20 (b) **CONDITIONS ON PAYMENT.**—An ex gratia pay-
21 ment authorized pursuant to subsection (a) may be pro-
22 vided only if—

23 (1) the prospective foreign civilian recipient is
24 determined by the local military commander to be
25 friendly to the United States;

1 (2) a claim for damages would not be compen-
2 sable under chapter 163 of title 10, United States
3 Code (commonly known as the “Foreign Claims
4 Act”);

5 (3) the property damage, personal injury, or
6 death was not caused by action by an enemy;

7 (4) the claimant suffered property damage, per-
8 sonal injury, or death that was—

9 (A) caused by the United States Armed
10 Forces, a coalition that includes the United
11 States, or a military organization supporting
12 the United States or such a coalition; and

13 (B) occurred during an operation carried
14 out by the United States, such coalition, or
15 such military organization; and

16 (5) the claimant had no involvement in plan-
17 ning or executing an attack or other hostile action
18 that gave rise to the use of force by the United
19 States, such coalition, or such military organization
20 resulting in such property damage, personal injury,
21 or death.

22 (c) NATURE OF PAYMENT.—A payment provided
23 pursuant to the authority under subsection (a) may not
24 be construed or considered as an admission or acknowledg-

1 ment of any legal obligation to provide compensation for
2 any property damage, personal injury, or death.

3 (d) AMOUNT OF PAYMENTS.—If the Secretary of De-
4 fense determines a payment under subsection (a) to be ap-
5 propriate in a particular setting, the amounts of pay-
6 ments, if any, to be provided to civilians determined to
7 have suffered harm incident to the use of force by the
8 United States Armed Forces under the program should
9 be determined pursuant to regulations prescribed by the
10 Secretary and based on an assessment, conducted in con-
11 sultation with the Secretary of State, that includes such
12 factors as cultural appropriateness and prevailing eco-
13 nomic conditions. A copy of any regulations so prescribed
14 shall be provided to the congressional defense committees
15 upon finalization.

16 (e) LEGAL ADVICE.—Local military commanders
17 shall receive legal advice before making ex gratia pay-
18 ments under this subsection. The legal advisor, under reg-
19 ulations of the Department of Defense, shall advise on
20 whether an ex gratia payment is proper under this section
21 and applicable Department of Defense regulations.

22 (f) WRITTEN RECORD.—A written record of any ex
23 gratia payment offered pursuant to the authority under
24 subsection (a), and whether accepted or denied, shall be
25 kept by the local military commander and on a timely

1 basis submitted to the appropriate office in the Depart-
2 ment of Defense as determined by the Secretary of De-
3 fense.

4 (g) QUARTERLY REPORT.—Not later than 90 days
5 after the date of the enactment of this Act, and every 90
6 days thereafter, the Secretary of Defense shall submit to
7 the congressional defense committees a report including
8 the following:

9 (1) With respect to each ex gratia payment
10 made under the authority in this subsection or any
11 other authority during the preceding 90-day period,
12 each of the following:

13 (A) The amount used for such payments
14 and the country with respect to which each
15 such payment was made.

16 (B) The manner in which claims for such
17 payments were verified.

18 (C) The position of the official who ap-
19 proved the payment.

20 (D) The manner in which payments are
21 made.

22 (2) With respect to a preceding 90-day period
23 in which no ex gratia payments were made—

24 (A) whether any such payment was re-
25 fused, along with the reason for such refusal; or

1 (B) any other reason for which no such
2 payments were made.

3 (h) RELATION TO OTHER AUTHORITIES.—Notwith-
4 standing any other provision of law, the authority provided
5 by this section shall be construed as the sole authority
6 available to make ex gratia payments for property damage,
7 personal injury, or death that is incident to the use of
8 force by the United States Armed Forces.

9 **SEC. 1214. EXTENSION AND MODIFICATION OF SEMI-**
10 **ANNUAL REPORT ON ENHANCING SECURITY**
11 **AND STABILITY IN AFGHANISTAN.**

12 (a) EXTENSION.—Paragraph (2) of subsection (a) of
13 section 1225 of the Carl Levin and Howard P. “Buck”
14 McKeon National Defense Authorization Act for Fiscal
15 Year 2015 (Public Law 113–291; 127 Stat. 3550), as
16 most recently amended by section 1215 of the National
17 Defense Authorization Act for Fiscal Year 2018 (Public
18 Law 115–91; 131 Stat. 1649), is further amended by
19 striking “December 15, 2020” and inserting “December
20 15, 2022”.

21 (b) FORM.—Paragraph (3) of such subsection is
22 amended to read as follows:

23 “(3) FORM.—Each report required under para-
24 graph (1) shall be submitted in unclassified form

1 without any designation relating to dissemination
2 control, but may include a classified annex.”.

3 (c) MODIFICATION OF ELEMENTS.—Subsection (b)
4 of such section 1225, as amended by section 1215(b) of
5 the National Defense Authorization Act for Fiscal Year
6 2017 (Public Law 114–328; 130 Stat. 2480), is further
7 amended—

8 (1) in paragraph (1)—

9 (A) in the paragraph heading, by inserting
10 “AND TAKING INTO ACCOUNT THE AUGUST 2017
11 STRATEGY OF THE UNITED STATES” after
12 “2014”;

13 (B) by amending subparagraph (A) to read
14 as follows:

15 “(A) the strategy and objectives of any
16 post-2014 United States mission, including the
17 2017 South Asia Strategy of the United States
18 and any subsequent United States strategy, and
19 any mission agreed by the North Atlantic Trea-
20 ty Organization (NATO), that are pertinent
21 to—

22 “(i) training, advising, and assisting
23 the ANSF; or

24 “(ii) conducting counterterrorism oper-
25 ations in Afghanistan; and”;

1 (C) in subparagraph (B)—

2 (i) by striking the period at the end
3 and inserting a semicolon;

4 (ii) by striking “in the assessment of
5 any such” and inserting “in the assess-
6 ment of—

7 “(i) any such”; and

8 (iii) by adding at the end the fol-
9 lowing new clauses:

10 “(ii) the United States counterter-
11 rorism mission; and

12 “(iii) efforts by the Department of
13 Defense to support reconciliation efforts
14 and develop conditions for the expansion of
15 the reach of the Government of Afghani-
16 stan throughout Afghanistan.”;

17 (2) in paragraph (2)—

18 (A) by inserting “, including the progress
19 of the Government of Afghanistan on securing
20 Afghan territory and population,” after “the
21 current security conditions in Afghanistan”;
22 and

23 (B) by striking “and the Haqqani Net-
24 work” and inserting “the Haqqani Network,

1 and the Islamic State of Iraq and Syria
2 Khorasan”; and

3 (3) by adding at the end the following new
4 paragraph:

5 “(9) MONITORING AND EVALUATION MEASURES
6 RELATING TO ASFF.—A description of the moni-
7 toring and evaluation measures that the Department
8 of Defense and the Government of Afghanistan are
9 taking to ensure that funds of the Afghanistan Secu-
10 rity Forces Fund provided to the Government of Af-
11 ghanistan as direct government-to-government as-
12 sistance are not subject to waste, fraud, or abuse.”.

13 **SEC. 1215. SPECIAL IMMIGRANT VISA PROGRAM REPORT-**
14 **ING REQUIREMENT.**

15 (a) IN GENERAL.—Not later than 180 days after the
16 date of the enactment of this Act, the Inspector General
17 of the Department of State shall submit a report, which
18 may contain a classified annex, to—

19 (1) the Committee on the Judiciary, the Com-
20 mittee on Foreign Relations, and the Committee on
21 Armed Services of the Senate; and

22 (2) the Committee on the Judiciary, the Com-
23 mittee on Foreign Affairs, and the Committee on
24 Armed Services of the House of Representatives.

1 (b) CONTENTS.—The report submitted under sub-
2 section (a) shall evaluate the obstacles to effective protec-
3 tion of Afghan and Iraqi allies through the special immi-
4 grant visa programs and suggestions for improvements in
5 future programs, including information relating to—

6 (1) the hiring of locally employed staff and con-
7 tractors;

8 (2) documenting the identity and employment
9 of locally employed staff and contractors of the
10 United States Government, including the possibility
11 of establishing a central database of employees of
12 the United States Government and its contractors;

13 (3) the protection and safety of employees of lo-
14 cally employed staff and contractors;

15 (4) means of expediting processing at all stages
16 of the process for applicants, including consideration
17 of reducing required forms;

18 (5) appropriate staffing levels for expedited
19 processing domestically and abroad;

20 (6) the effect of uncertainty of visa availability
21 on visa processing;

22 (7) the cost and availability of medical examina-
23 tions; and

24 (8) means to reduce delays in interagency proc-
25 essing and security checks.

1 (c) CONSULTATION.—In preparing the report under
2 subsection (a), the Inspector General shall consult with
3 current and, to the extent possible, former employees of—

4 (1) the Department of State, Bureau of Con-
5 sular Affairs, Visa Office;

6 (2) the Department of State, Bureau of Near
7 Eastern Affairs and South and Central Asian Af-
8 fairs, Executive Office;

9 (3) the United States embassy in Kabul, Af-
10 ghanistan, Consular Section;

11 (4) the United States embassy in Baghdad,
12 Iraq, Consular Section;

13 (5) the Department of Homeland Security, U.S.
14 Citizenship and Immigration Services;

15 (6) the Department of Defense; and

16 (7) non-governmental organizations providing
17 legal aid in the special immigrant visa application
18 process.

19 **SEC. 1216. MEANINGFUL INCLUSION OF AFGHAN WOMEN IN**
20 **PEACE NEGOTIATIONS.**

21 (a) IN GENERAL.—The Secretary of State, in coordi-
22 nation with the Secretary of Defense, shall seek to ensure
23 the meaningful participation of Afghan women in the
24 peace process in Afghanistan in a manner consistent with
25 the Women, Peace, and Security Act of 2017 (22 U.S.C.

1 2152j et seq.), including through advocacy for the inclu-
2 sion of Afghan women in ongoing and future negotiations
3 to end the conflict in Afghanistan.

4 (b) REPORT.—Not later than 180 days after the date
5 of the enactment of this Act, the Secretary of State, in
6 coordination with the Secretary of Defense, shall submit
7 to the appropriate committees of Congress a report de-
8 scribing the steps taken to fulfill the duties of the Sec-
9 retary of State and the Secretary of Defense under sub-
10 section (a).

11 (c) APPROPRIATE COMMITTEES OF CONGRESS DE-
12 FINED.—In this section, the term “appropriate commit-
13 tees of Congress” means—

14 (1) the Committee on Armed Services and the
15 Committee on Foreign Relations of the Senate; and

16 (2) the Committee on Armed Services and the
17 Committee on Foreign Affairs of the House of Rep-
18 resentatives.

19 **SEC. 1217. EXTENSION AND MODIFICATION OF AUTHORITY**
20 **FOR REIMBURSEMENT OF CERTAIN COALI-**
21 **TION NATIONS FOR SUPPORT PROVIDED TO**
22 **UNITED STATES MILITARY OPERATIONS.**

23 (a) EXTENSION.—Subsection (a) of section 1233 of
24 the National Defense Authorization Act for Fiscal Year
25 2008 (Public Law 110–181; 122 Stat. 393), as most re-

1 cently amended by section 1225 of the John S. McCain
2 National Defense Authorization Act for Fiscal Year 2019
3 (Public Law 115–232), is further amended to read as fol-
4 lows:

5 “(a) **AUTHORITY.**—From funds made available for
6 the Department of Defense for the period beginning on
7 October 1, 2019, and ending on December 31, 2020, for
8 overseas contingency operations for operation and mainte-
9 nance, Defense-wide activities, the Secretary of Defense
10 may reimburse any key cooperating nation (other than
11 Pakistan) for—

12 “(1) logistical and military support provided by
13 that nation to or in connection with United States
14 military operations in Afghanistan, Iraq, or Syria;
15 and

16 “(2) logistical, military, and other support, in-
17 cluding access, provided by that nation to or in con-
18 nection with United States military operations de-
19 scribed in paragraph (1).”.

20 (b) **MODIFICATION TO LIMITATION.**—Subsection
21 (d)(1) of such section is amended—

22 (1) by striking “October 1, 2018, and ending
23 on December 31, 2019” and inserting “October 1,
24 2019, and ending on December 31, 2020”; and

1 (2) by striking “\$350,000,000” and inserting
2 “\$450,000,000”.

3 **SEC. 1218. SUPPORT FOR RECONCILIATION ACTIVITIES**
4 **LED BY THE GOVERNMENT OF AFGHANISTAN.**

5 (a) IN GENERAL.—The Secretary of Defense may,
6 with the concurrence of the Secretary of State, provide
7 covered support for reconciliation activities to one or more
8 designated persons or entities or Federal agencies.

9 (b) FRAMEWORK FOR USE OF AUTHORITY.—Not
10 later than 90 days after the date of the enactment of this
11 Act, the Secretary of Defense, with the concurrence of the
12 Secretary of State, shall submit to the appropriate com-
13 mittees of Congress a report on the use of the authority
14 under subsection (a) that includes—

- 15 (1) a framework for use of such authority;
16 (2) evaluation requirements; and
17 (3) a prioritization of covered support.

18 (c) DESIGNATION.—Not later than 15 days before
19 the Secretary of Defense designates an individual or orga-
20 nization as a designated person or entity, the Secretary
21 shall notify the congressional defense committees of the
22 intent of the Secretary to make such designation.

23 (d) REIMBURSEMENT.—

24 (1) DESIGNATED PERSONS OR ENTITIES.—The
25 Secretary of Defense may provide covered support to

1 a designated person or entity on a nonreimbursable
2 basis.

3 (2) FEDERAL AGENCIES.—The Secretary of De-
4 fense may provide covered support to a Federal
5 agency on a reimbursable or nonreimbursable basis.

6 (e) LOCATION OF COVERED SUPPORT.—

7 (1) IN GENERAL.—Except as provided in para-
8 graph (2), the Secretary of Defense may only pro-
9 vide covered support within Afghanistan.

10 (2) EXCEPTION.—Notwithstanding paragraph
11 (1), the Secretary of Defense may provide covered
12 support in Pakistan if the Secretary of Defense,
13 with the concurrence of the Secretary of State, de-
14 termines, and certifies to the appropriate committees
15 of Congress, that providing covered support in Paki-
16 stan is in the national security interest of the United
17 States.

18 (f) NOTIFICATION.—Not later than 15 days after the
19 date on which the Secretary of Defense provides covered
20 support in Pakistan, or an individual expenditure for cov-
21 ered support reaches a monetary threshold of \$75,000 or
22 greater, the Secretary shall submit to the appropriate
23 committees of Congress written notice that includes—

1 (1) the intended recipient of such covered sup-
2 port and the specific covered support to be provided;
3 and

4 (2) a description of the manner in which such
5 covered support facilitates reconciliation.

6 (g) FUNDING.—

7 (1) SOURCE OF FUNDS.—Amounts for covered
8 support may only be derived from amounts author-
9 ized to be appropriated for the Department of De-
10 fense for operation and maintenance.

11 (2) LIMITATION.—Not more than \$15,000,000
12 may be used in each fiscal year to provide covered
13 support under this section.

14 (h) RULE OF CONSTRUCTION.—Covered support
15 shall not be construed to violate section 2339, 2339A, or
16 2339B of title 18, United States Code.

17 (i) REPORTS.—

18 (1) IN GENERAL.—Not later than 90 days after
19 the date of the enactment of this Act, and quarterly
20 thereafter, the Secretary of Defense shall, with the
21 concurrence of the Secretary of State, submit to the
22 appropriate committees of Congress a report on cov-
23 ered support during the preceding 90-day period.

1 (2) ELEMENTS.—Each report under this sub-
2 section shall include, for the preceding reporting pe-
3 riod, the following:

4 (A) A summary of the reconciliation activi-
5 ties for which covered support was provided.

6 (B) A description of the covered support,
7 by class or type, and the designated person or
8 entity or Federal agency that received each
9 class or type of covered support.

10 (C) The total dollar amount of each class
11 or type of covered support, including budget de-
12 tails.

13 (D) The intended duration of each provi-
14 sion of covered support.

15 (E) Any other matter the Secretary of De-
16 fense considers appropriate.

17 (j) SUNSET.—The authority to carry out this section
18 shall terminate on December 31, 2020.

19 (k) DEFINITIONS.—In this section:

20 (1) APPROPRIATE COMMITTEES OF CON-
21 GRESS.—The term “appropriate committees of Con-
22 gress” means—

23 (A) the congressional defense committees;

24 (B) the Committee on Foreign Relations of
25 the Senate; and

1 (C) the Committee on Foreign Affairs of
2 the House of Representatives.

3 (2) COVERED SUPPORT.—

4 (A) IN GENERAL.—The term “covered sup-
5 port” means logistic support, supplies, and
6 services (as defined in section 2350 of title 10,
7 United States Code) and security provided
8 under this section.

9 (B) EXCLUSIONS.—The term “covered
10 support” does not include the following support,
11 supplies, or services described in section 2350
12 of title 10, United States Code:

13 (i) Ammunition, construction incident
14 to base operations support, training serv-
15 ices, and the temporary use of general pur-
16 pose vehicles.

17 (ii) With respect to any member of
18 the Taliban, transportation in vehicles or
19 on aircraft owned by the United States
20 Government.

21 (3) DESIGNATED PERSON OR ENTITY.—

22 (A) IN GENERAL.—The term “designated
23 person or entity” means an individual or orga-
24 nization designated by the Secretary of De-
25 fense, with the concurrence of the Secretary of

1 State, as necessary to facilitate a reconciliation
2 activity.

3 (B) EXCLUSION.—The term “designated
4 person or entity” does not include a Federal
5 agency or department.

6 (4) RECONCILIATION ACTIVITY.—The term
7 “reconciliation activity” means any activity intended
8 to support, facilitate, or enable a political settlement
9 between the Government of Afghanistan and the
10 Taliban for the purpose of ending the war in Af-
11 ghanistan.

12 (5) SECURITY.—The term “security” means
13 any measure determined by the Secretary of Defense
14 to be necessary to protect reconciliation activities
15 from hostile acts.

16 **SEC. 1219. MODIFICATION AND EXTENSION OF THE AF-**
17 **GHAN SPECIAL IMMIGRANT VISA PROGRAM.**

18 (a) PRINCIPAL ALIENS.—Subclause (I) of section
19 602(b)(2)(A)(ii) of the Afghan Allies Protection Act of
20 2009 (8 U.S.C. 1101 note) is amended to read as follows:

21 “(I) by, or on behalf of, the
22 United States Government; or”.

23 (b) EXTENSION OF AFGHAN SPECIAL IMMIGRANT
24 PROGRAM.—Section 602(b)(3)(F) of the Afghan Allies

1 Protection Act of 2009 (8 U.S.C. 1101 note) is amend-
2 ed—

3 (1) in the heading, by striking “2015, 2016, AND
4 2017” and inserting “2015 THROUGH 2020”;

5 (2) in the matter preceding clause (i), by strik-
6 ing “18,500” and inserting “22,500”;

7 (3) in clause (i), by striking “December 31,
8 2020” and inserting “December 31, 2021”; and

9 (4) in clause (ii), by striking “December 31,
10 2020” and inserting “December 31, 2021”.

11 **Subtitle C—Matters Relating to**
12 **Syria, Iraq, and Iran**

13 **SEC. 1221. MODIFICATION OF AUTHORITY AND LIMITATION**
14 **ON USE OF FUNDS TO PROVIDE ASSISTANCE**
15 **TO COUNTER THE ISLAMIC STATE OF IRAQ**
16 **AND SYRIA.**

17 (a) **LIMITATION ON USE OF FUNDS.**—Of the
18 amounts authorized to be appropriated for fiscal year
19 2020 by this Act for activities under section 1236 of the
20 Carl Levin and Howard P. “Buck” McKeon National De-
21 fense Authorization Act for Fiscal Year 2015 (Public Law
22 113–291; 128 Stat. 3558), as amended by this section,
23 not more than 50 percent may be obligated or expended
24 for such activities until the date on which the Secretary

1 of Defense submits to the congressional defense commit-
2 tees a report setting forth the following:

3 (1) An assessment of—

4 (A) security in liberated areas in Iraq;

5 (B) the extent to which security forces
6 trained and equipped, directly or indirectly, by
7 the United States are prepared to provide post-
8 conflict stabilization and security in such liber-
9 ated areas; and

10 (C) the effectiveness of security forces in
11 the post-conflict environment and an identifica-
12 tion of which such forces will provide post-con-
13 flict stabilization and security in such liberated
14 areas.

15 (2) A summary of available information relating
16 to the disposition of militia groups throughout Iraq,
17 with particular focus on groups in areas liberated
18 from ISIS or in sensitive areas with historically
19 mixed ethnic or minority communities.

20 (3) Any updates to or changes in the plan,
21 strategy, process, vetting requirements and process
22 as described in subsection (e) of such section 1236,
23 and end-use monitoring mechanisms and procedures.

1 (4) An identification of the specific units of the
2 Iraqi Security Forces to receive training and equip-
3 ment or other support in fiscal year 2020.

4 (5) A plan for ensuring that any vehicles or
5 equipment provided to the Iraqi Security Forces
6 pursuant to such authority are maintained in subse-
7 quent fiscal years using funds of Iraq.

8 (6) A description of any misuse or loss of pro-
9 vided equipment and how such misuse or loss is
10 being mitigated.

11 (7) An estimate, by fiscal year, of the funding
12 anticipated to be required for support of the Iraqi
13 Security Forces during the five fiscal years begin-
14 ning in fiscal year 2020.

15 (8) A plan for normalizing assistance to the
16 Iraqi Security Forces under chapter 16 of title 10,
17 United States Code, beginning in fiscal year 2020.

18 (9) A detailed plan for the obligation and ex-
19 penditure of the funds requested for fiscal year 2020
20 for the Department of Defense for stipends.

21 (10) A plan for the transition to the Govern-
22 ment of Iraq the responsibility for funding for sti-
23 pends for any fiscal year after fiscal year 2020.

24 (11) A description of how attacks against
25 United States or coalition personnel are being miti-

1 gated, statistics on any such attacks, including
2 “green-on-blue” attacks.

3 (12) A list of the forces or elements of forces
4 that are restricted from receiving assistance under
5 subsection (a) of such section 1236, other than the
6 forces or elements of forces with respect to which
7 the Secretary of Defense has exercised the waiver
8 authority under subsection (j) of such section 1236,
9 as a result of vetting required by subsection (e) of
10 such section 1236 or by section 362 of title 10,
11 United States Code, and a detailed description of
12 the reasons for such restriction, including for each
13 force or element, as applicable, the following:

14 (A) Information relating to gross violation
15 of human rights committed by such force or ele-
16 ment, including the time-frame of the alleged
17 violation.

18 (B) The source of the information de-
19 scribed in subparagraph (A) and an assessment
20 of the veracity of the information.

21 (C) The association of such force or ele-
22 ment with terrorist groups or groups associated
23 with the Government of Iran.

1 (D) The amount and type of any assist-
2 ance provided to such force or element by the
3 Government of Iran.

4 (b) FUNDING.—Subsection (g) of section 1236 of the
5 Carl Levin and Howard P. “Buck” McKeon National De-
6 fense Authorization Act for Fiscal Year 2015 (Public Law
7 113–291; 128 Stat. 3558) is amended—

8 (1) by striking “fiscal year 2019” and inserting
9 “fiscal year 2020”; and

10 (2) by striking “\$850,000,000” and inserting
11 “\$645,000,000”.

12 (c) CLARIFICATION WITH RESPECT TO SCOPE OF
13 AUTHORITY.—

14 (1) IN GENERAL.—Subsection (j)(2) of such
15 section 1236 is amended to read as follows:

16 “(2) SCOPE OF ASSISTANCE AUTHORITY.—Not-
17 withstanding paragraph (1), the authority granted
18 by subsection (a) may only be exercised in consulta-
19 tion with the Government of Iraq.”.

20 (2) TECHNICAL CORRECTION.—The heading of
21 subsection (j) of such section 1236 is amended by
22 inserting “; SCOPE” after “AUTHORITY”.

23 (d) TECHNICAL CORRECTION.—Subsection (c) of
24 such section 1236 is amended in the matter preceding

1 paragraph (1) by striking “subsection (a)(1)” and insert-
2 ing “subsection (b)(1)(A)”.

3 (e) **ADDITIONAL TECHNICAL CORRECTION.**—Effec-
4 tive as of December 12, 2017, and as if included therein
5 as enacted, section 1222 of the National Defense Author-
6 ization Act for Fiscal Year 2018 (Public Law 115–91; 131
7 Stat. 1651) is amended—

8 (1) by striking subsection (b); and

9 (2) by striking subsection (c)(3).

10 **SEC. 1222. EXTENSION AND MODIFICATION OF AUTHORITY**
11 **TO PROVIDE ASSISTANCE TO VETTED SYRIAN**
12 **GROUPS AND INDIVIDUALS.**

13 (a) **EXTENSION AND MODIFICATION.**—Section 1209
14 of the Carl Levin and Howard P. “Buck” McKeon Na-
15 tional Defense Authorization Act for Fiscal Year 2015
16 (Public Law 113–291; 128 Stat. 3559) is amended as fol-
17 lows:

18 (1) In subsection (a)—

19 (A) in the matter preceding paragraph (1),
20 by striking “with a cost” and all that follows
21 through “through December 31, 2019” and in-
22 serting “and sustainment to appropriately vet-
23 ted Syrian groups and individuals through De-
24 cember 31, 2020”; and

1 (B) by striking paragraphs (1) through (3)
2 and inserting the following:

3 “(1) Defending the Syrian people from attacks
4 by the Islamic State of Iraq and Syria.

5 “(2) Securing territory formerly controlled by
6 the Islamic State of Iraq and Syria.

7 “(3) Protecting the United States and its part-
8 ners and allies from the threats posed by the Islamic
9 State of Iraq and Syria, al Qaeda, and associated
10 forces in Syria.

11 “(4) Providing appropriate support to vetted
12 Syrian groups and individuals to conduct temporary
13 and humane detention and repatriation of Islamic
14 State of Iraq and Syria foreign terrorist fighters in
15 accordance with all laws and obligations related to
16 the conduct of such operations, including, as applica-
17 ble—

18 “(A) the law of armed conflict;

19 “(B) internationally recognized human
20 rights;

21 “(C) the principle of non-refoulement;

22 “(D) the Convention Against Torture and
23 Other Cruel, Inhuman or Degrading Treatment
24 or Punishment (done at New York on Decem-
25 ber 10, 1984); and

1 “(E) the United Nations Convention Relat-
2 ing to the Status of Refugees, done at Geneva
3 July 28, 1951 (as made applicable by the Pro-
4 tocol Relating to the Status of Refugees, done
5 at New York January 31, 1967 (19 UST
6 6223)).”.

7 (2) By amending subsection (b) to read as fol-
8 lows:

9 “(b) NOTICE BEFORE PROVISION OF ASSISTANCE.—

10 “(1) IN GENERAL.—In accordance with the re-
11 quirements under paragraph (2), the Secretary of
12 Defense shall notify the congressional defense com-
13 mittees in writing of the use of the relevant author-
14 ity to provide assistance and include the following:

15 “(A) The requirements and process used to
16 determine appropriately vetted recipients.

17 “(B) The mechanisms and procedures that
18 will be used to monitor and report to the appro-
19 priate congressional committees and leadership
20 of the House of Representatives and Senate on
21 unauthorized end-use of provided training and
22 equipment or other violations of relevant law by
23 appropriately vetted recipients.

1 “(C) The amount, type, and purpose of as-
2 sistance to be funded and the recipient of the
3 assistance.

4 “(D) The goals and objectives of the as-
5 sistance.

6 “(E) The number and role of United
7 States Armed Forces personnel involved.

8 “(F) Any other relevant details.

9 “(2) TIMING OF REQUIRED NOTICE.—A notice
10 described in paragraph (1) shall be required—

11 “(A) not later than 15 days before the ex-
12 penditure of each 10-percent increment of the
13 amount made available in fiscal year 2019 or
14 fiscal year 2020 to carry out the authorization
15 in this section; or

16 “(B) not later than 48 hours after such an
17 expenditure, if the Secretary determines that
18 extraordinary circumstances that affect the na-
19 tional security of the United States exist.”.

20 (3) By amending subsection (c) to read as fol-
21 lows:

22 “(c) FORM.—The notifications required under sub-
23 section (b) shall be submitted in unclassified form but may
24 include a classified annex.”.

1 (4) By amending subsection (d) to read as fol-
2 lows:

3 “(d) QUARTERLY PROGRESS REPORTS.—

4 “(1) IN GENERAL.—Beginning on January 15,
5 2020, and every 90 days thereafter, the Secretary of
6 Defense, in coordination with the Secretary of State,
7 shall submit to the appropriate congressional com-
8 mittees and leadership of the House of Representa-
9 tives and the Senate a progress report.

10 “(2) MATTERS TO BE INCLUDED.—Each
11 progress report under paragraph (1) shall include,
12 based on the most recent quarterly information, the
13 following:

14 “(A) A description of the appropriately
15 vetted recipients receiving assistance under sub-
16 section (a), including a description of their geo-
17 graphical locations, demographic profiles, polit-
18 ical affiliations, and current capabilities.

19 “(B) A description of training, equipment,
20 supplies, stipends, and other support provided
21 to appropriately vetted recipients under sub-
22 section (a) and a statement of the amount of
23 funds expended for such purposes during the
24 period covered by the report.

1 “(C) Any misuse or loss of provided train-
2 ing and equipment and how such misuse or loss
3 is being mitigated.

4 “(D) An assessment of the recruitment,
5 throughput, and retention rates of appropriately
6 vetted recipients.

7 “(E) An assessment of the operational ef-
8 fectiveness of appropriately vetted recipients in
9 meeting the purposes specified in subsection
10 (a).

11 “(F) A description of the current and
12 planned posture of United States forces and the
13 planned level of engagement by such forces with
14 appropriately vetted recipients, including the
15 oversight of equipment provided under this sec-
16 tion and the activities conducted by such appro-
17 priately vetted recipients.

18 “(G) A detailed explanation of the relation-
19 ship between appropriately vetted recipients and
20 civilian governance authorities, including a de-
21 scription of efforts to ensure appropriately vet-
22 ted recipients are subject to the control of com-
23 petent civilian authorities.

24 “(H) A description of United States Gov-
25 ernment stabilization objectives and activities

1 carried out in areas formerly controlled by the
2 Islamic State of Iraq and Syria, including sig-
3 nificant projects and funding associated with
4 such projects.

5 “(I) A description of coalition contribu-
6 tions to the purposes specified in subsection (a)
7 and other related stabilization activities.

8 “(J) With respect to Islamic State of Iraq
9 and Syria foreign terrorist fighters—

10 “(i) an estimate of the number of
11 such individuals being detained by appro-
12 priately vetted Syrian groups and individ-
13 uals;

14 “(ii) an estimate of the number of
15 such individuals that have been repatriated
16 and the countries to which such individuals
17 have been repatriated; and

18 “(iii) a description of United States
19 Government support provided to facilitate
20 the repatriation of such individuals.

21 “(I) An assessment of the extent
22 to which appropriately vetted Syrian
23 groups and individuals have enabled
24 progress toward establishing inclusive,
25 representative, accountable, and civil-

1 ian-led governance and security struc-
2 tures in territories liberated from the
3 Islamic State of Iraq and Syria.”.

4 (5) In subsection (e)(1)(A), by striking “in-
5 clude,” and all that follows through “(ISIL)” and
6 inserting “include the Islamic State of Iraq and
7 Syria”.

8 (6) By striking subsection (f) and inserting the
9 following:

10 “(f) RESTRICTION ON SCOPE OF ASSISTANCE IN THE
11 FORM OF WEAPONS.—

12 “(1) IN GENERAL.—The Secretary may only
13 provide assistance in the form of weapons pursuant
14 to the authority under subsection (a) if such weap-
15 ons are small arms or light weapons.

16 “(2) WAIVER.—The Secretary may waive the
17 restriction under paragraph (1) upon certification to
18 the appropriate congressional committees that such
19 provision of law would (but for the waiver) impede
20 national security objectives of the United States by
21 prohibiting, restricting, delaying, or otherwise lim-
22 iting the provision of assistance.”.

23 (5) In subsection (g)—

24 (A) by inserting “, at the end of the 15-
25 day period beginning on the date the Secretary

1 notifies the congressional defense committees of
2 the amount, source, and intended purpose of
3 such contributions” after “as authorized by this
4 section”; and

5 (B) by striking “operation and mainte-
6 nance accounts” and all that follows through
7 the end of the subsection and inserting “ac-
8 counts.”.

9 (6) By amending subsection (l) to read as fol-
10 lows:

11 “(l) LIMITATION ON COST OF CONSTRUCTION AND
12 REPAIR PROJECTS.—

13 “(1) IN GENERAL.—The cost of construction
14 and repair projects carried out under this section
15 may not exceed, in any fiscal year—

16 “(A) \$4,000,000 per project; or

17 “(B) \$20,000,000 in the aggregate.

18 “(2) FOREIGN CONTRIBUTIONS.—The limita-
19 tion under paragraph (1) shall not apply to the ex-
20 penditure of foreign contributions in excess of the
21 per-project or aggregate limitation set forth in that
22 paragraph.”.

23 (b) AVAILABILITY OF AUTHORITY.—Not more than
24 10 percent of the funds authorized to be appropriated for
25 the Department of Defense for activities under the author-

1 ity provided by section 1209 of the Carl Levin and How-
2 ard P. “Buck” McKeon National Defense Authorization
3 Act for Fiscal Year 2015 (Public Law 113–291; 128 Stat.
4 3559), as amended by subsection (a) of this section, may
5 be obligated or expended until the first quarterly report
6 required to be submitted pursuant to subsection (d) of
7 such section 1209 (as so amended) has been submitted
8 to the appropriate congressional committees and leader-
9 ship in accordance with such subsection.

10 **SEC. 1223. MODIFICATION OF AUTHORITY TO SUPPORT OP-**
11 **ERATIONS AND ACTIVITIES OF THE OFFICE**
12 **OF SECURITY COOPERATION IN IRAQ.**

13 (a) **MODIFICATION.**—Section 1215 of the National
14 Defense Authorization Act for Fiscal Year 2012 (10
15 U.S.C. 113 note) is amended as follows:

16 (1) **AUTHORITY.**—By amending subsection (a)
17 to read as follows:

18 “(a) **AUTHORITY.**—The Secretary of Defense may
19 support United States Government security cooperation
20 activities in Iraq by providing funds for the operations and
21 activities of the Office of Security Cooperation in Iraq.”.

22 (2) **TYPES OF SUPPORT.**—In subsection (b)—

23 (A) by striking the comma after “life sup-
24 port” and inserting “and”; and

1 (B) by striking “, and construction and
2 renovation of facilities”.

3 (3) LIMITATION ON AMOUNT.—In subsection
4 (c)—

5 (A) by striking “fiscal year 2019” and in-
6 serting “fiscal year 2020”; and

7 (B) by striking “\$45,300,000” and insert-
8 ing “\$30,000,000”.

9 (4) SOURCE OF FUNDS.—In subsection (d), by
10 striking “fiscal year 2019” and inserting “fiscal year
11 2020”.

12 (5) COVERAGE OF COSTS OF THE OFFICE OF
13 SECURITY COOPERATION IN IRAQ.—In subsection
14 (e)—

15 (A) in the heading, by striking “OF
16 OSCI”;

17 (B) by inserting “appropriate administra-
18 tive charges” after “includes” and

19 (C) by striking “, charges sufficient to re-
20 cover” and all that follows through “with such
21 sale”.

22 (6) ADDITIONAL AUTHORITY.—In subsection
23 (f), by adding at the end the following new para-
24 graph:

1 “(3) SUNSET.—The authority provided in this
2 subsection shall terminate on the date that is 90
3 days after the date of the enactment of the National
4 Defense Authorization Act for Fiscal Year 2020.”.

5 (7) REPORTS.—In subsection (g)—

6 (A) in paragraph (1), by striking “Sep-
7 tember 30, 2015” and inserting “September 30,
8 2020”; and

9 (B) in paragraph (2)—

10 (i) by striking “current” each place it
11 appears;

12 (ii) in subparagraph (A), by striking
13 “Iraq, including” and inserting “Iraq that
14 also addresses”;

15 (iii) in subparagraph (B), by striking
16 “the programs conducted” and all that fol-
17 lows through “will address” and inserting
18 “United States security assistance and se-
19 curity cooperation activities are intended to
20 address”; and

21 (iv) by amending subparagraph (F) to
22 read as follows:

23 “(F) An evaluation of the effectiveness of
24 United States efforts to promote respect for

1 human rights, military professionalism, and re-
2 spect for legitimate civilian authority in Iraq.”.

3 (b) LIMITATION ON AVAILABILITY OF FUNDS.—Such
4 section 1215 is further amended by adding at the end the
5 following:

6 “(h) LIMITATION ON AVAILABILITY OF FUNDS.—Of
7 the amount made available for fiscal year 2020 to carry
8 out section 1215 of the National Defense Authorization
9 Act for Fiscal Year 2012, not more than \$20,000,000 may
10 be obligated or expended for the Office of Security Co-
11 operation in Iraq until the date on which the Secretary
12 of Defense certifies to the congressional defense commit-
13 tees, the Committee on Foreign Affairs of the House of
14 Representatives, and the Committee on Foreign Relations
15 of the Senate, that each of the following reforms relating
16 to that Office has been completed:

17 “(1) The appointment of a Senior Defense Offi-
18 cial/Defense Attache to oversee the Office.

19 “(2) The development of a staffing plan to reor-
20 ganize the Office in a manner similar to that of
21 other security cooperation offices in the region that
22 emphasizes the placement of personnel with regional
23 or security cooperation expertise in key leadership
24 positions and closes duplicative or extraneous sec-
25 tions.

1 “(3) The initiation of bilateral engagement with
2 the Government of Iraq with the objective of estab-
3 lishing a joint mechanism for security assistance
4 planning, including a five-year security assistance
5 roadmap for developing sustainable military capacity
6 and capabilities and enabling defense institution
7 building and reform.”.

8 **SEC. 1224. ESTABLISHING A COORDINATOR FOR DETAINED**
9 **ISIS MEMBERS AND RELEVANT DISPLACED**
10 **POPULATIONS IN SYRIA.**

11 (a) IN GENERAL.—Not later than 60 days after the
12 date of the enactment of this Act, the President, in con-
13 sultation with the Secretary of Defense, the Secretary of
14 State, the Director of National Intelligence, the Secretary
15 of the Treasury, and the Attorney General, shall submit
16 to the appropriate committees of Congress a report identi-
17 fying whether a senior-level coordinator exists on all mat-
18 ters for the United States Government relating to ISIS
19 members who are in Syrian Democratic Forces custody,
20 including with respect to—

21 (1) the long-term disposition of such ISIS mem-
22 bers, including in all matters in connection with—

23 (A) repatriation, transfer, prosecution, and
24 intelligence-gathering;

1 (B) all multilateral and international en-
2 gagements led by the Department of State and
3 other agencies that are related to the current
4 and future handling, detention, and prosecution
5 of such ISIS members, including with the Inter-
6 national Criminal Police Organization; and

7 (C) coordinating the provision of technical
8 and evidentiary assistance to foreign countries
9 to aid in the successful prosecution of such
10 ISIS members, as appropriate, in accordance
11 with international humanitarian law and other
12 internationally recognized human rights and
13 rule of law standards; and

14 (2) all multilateral and international engage-
15 ments related to the humanitarian access, provision
16 of basic services, freedom of movement, security and
17 safe return of internally displaced persons and refu-
18 gees at camps or facilities in Syria that hold family
19 members of such ISIS members.

20 (b) DESIGNATION.—If the President is unable to
21 identify a senior-level coordinator for all matters described
22 in subsection (a), the President, in consultation with the
23 Secretary of Defense, the Secretary of State, the Director
24 of National Intelligence, the Secretary of the Treasury,
25 and the Attorney General, shall designate an existing offi-

1 cial within the executive branch to serve as senior-level co-
2 ordinator to coordinate, in conjunction with other relevant
3 agencies, all matters described in such subsection.

4 (c) RETENTION OF AUTHORITY.—The appointment
5 of a senior-level coordinator pursuant to subsection (b)
6 shall not deprive any agency of any authority to independ-
7 ently perform functions of that agency.

8 (d) ANNUAL REPORT.—

9 (1) IN GENERAL.—Not later than 180 days
10 after the date of the enactment of this Act, and not
11 less frequently than once each year thereafter
12 through January 31, 2021, the individual designated
13 under subsection (b) shall submit to the appropriate
14 committees of Congress a detailed report regarding
15 the following detained ISIS members:

16 (A) Alexanda Kotey.

17 (B) El Shafee Elsheikh.

18 (C) Aine Lesley Davis.

19 (D) Umm Sayyaf.

20 (E) Any other high-value detained ISIS
21 member that the coordinator reasonably deter-
22 mines to be subject to criminal prosecution.

23 (2) ELEMENTS.—The report under paragraph
24 (1) shall include, at a minimum, the following:

1 (A) A detailed description of the facilities
2 where detained ISIS members described in
3 paragraph (1) are being held, including security
4 and management of such facilities and adher-
5 ence to international humanitarian law stand-
6 ards.

7 (B) An analysis of all United States efforts
8 to prosecute detained ISIS members described
9 in paragraph (1) and the outcomes of such ef-
10 forts. Any information, the disclosure of which
11 may violate Department of Justice policy or
12 law, relating to a prosecution or investigation
13 may be withheld from a report under paragraph
14 (1).

15 (C) A detailed description of any option to
16 expedite prosecution of any detained ISIS mem-
17 ber described in paragraph (1), including in a
18 court of competent jurisdiction outside of the
19 United States.

20 (D) An analysis of factors on the ground
21 in Syria and Iraq that may result in the unin-
22 tended release of detained ISIS members de-
23 scribed in paragraph (1), and an assessment of
24 any measures available to mitigate such re-
25 leases.

1 (E) A detailed description of efforts to co-
2 ordinate the disposition and security of detained
3 ISIS members described in paragraph (1) with
4 other countries and international organizations,
5 including the International Criminal Police Or-
6 ganization, to ensure secure chains of custody
7 and locations of such ISIS members.

8 (F) An analysis of the manner in which
9 the United States Government communicates
10 on such proposals and efforts to the families of
11 United States citizens believed to be a victim of
12 a criminal act by a detained ISIS member.

13 (G) An analysis of all efforts between the
14 United States and partner countries within the
15 Global Coalition to Defeat ISIS or other coun-
16 tries to share intelligence or evidence that may
17 aid in the prosecution of ISIS members, and
18 any legal obstacles that may hinder such ef-
19 forts.

20 (H) A description of all multilateral and
21 international engagements related to the hu-
22 manitarian access and provision of basic serv-
23 ices to and freedom of movement and security
24 and safe return of internally displaced persons
25 and refugees at camps or facilities in Iraq,

1 Syria, or any other area affected by ISIS activ-
2 ity, including—

3 (i) any current or future potential
4 threats to United States national security
5 interests emanating from such individuals
6 (including an analysis of the Al-Hol camp
7 and annexes); and

8 (ii) United States Government plans
9 and strategies to respond to any such
10 threats.

11 (3) FORM.—The report under paragraph (1)
12 shall be submitted in unclassified form, but may in-
13 clude a classified annex.

14 (e) SUNSET.—The requirements under this section
15 shall sunset on January 31, 2021.

16 (f) DEFINITIONS.—In this section:

17 (1) APPROPRIATE COMMITTEES OF CON-
18 GRESS.—The term “appropriate committees of Con-
19 gress” means—

20 (A) the Committee on Armed Services, the
21 Committee on Foreign Relations, the Com-
22 mittee on the Judiciary, the Committee on
23 Banking, Housing, and Urban Affairs, the Se-
24 lect Committee on Intelligence, and the Com-
25 mittee on Appropriations of the Senate; and

1 (B) the Committee on Armed Services, the
2 Committee on Foreign Affairs, the Committee
3 on the Judiciary, Committee on Financial Serv-
4 ices, the Permanent Select Committee on Intel-
5 ligence, and the Committee on Appropriations
6 of the House of Representatives.

7 (2) ISIS MEMBER.—The term “ISIS member”
8 means a person who was part of, or substantially
9 supported, the Islamic State of Iraq and Syria.

10 **SEC. 1225. REPORT ON LESSONS LEARNED FROM EFFORTS**
11 **TO LIBERATE MOSUL AND RAQQAH FROM**
12 **CONTROL OF THE ISLAMIC STATE OF IRAQ**
13 **AND SYRIA.**

14 (a) REPORT REQUIRED.—Not later than 180 days
15 after the date of the enactment of this Act, the Secretary
16 of Defense shall submit to the congressional defense com-
17 mittees a report on lessons learned from coalition oper-
18 ations to liberate Mosul, Iraq, and Raqqah, Syria, from
19 control of the Islamic State of Iraq and Syria (ISIS).

20 (b) ELEMENTS.—The report required by subsection
21 (a) shall include a description of lessons learned in connec-
22 tion with each of the following:

23 (1) Combat in densely populated urban environ-
24 ments.

1 (2) Enablement of partner forces, including
2 unique aspects of conducting combined operations
3 with regular and irregular forces.

4 (3) Advise, assist, and accompany efforts, in-
5 cluding such efforts conducted remotely.

6 (4) Integration of United States general pur-
7 pose and special operations forces.

8 (5) Integration of United States and inter-
9 national forces.

10 (6) Irregular and unconventional warfare ap-
11 proaches, including the application of training and
12 doctrine by special operations and general purpose
13 forces.

14 (7) Use of command, control, communications,
15 computer, intelligence, surveillance, and reconnais-
16 sance systems and techniques.

17 (8) Logistics.

18 (9) Information operations.

19 (10) Targeting and weaponeering, including ef-
20 forts to avoid civilian casualties and other collateral
21 damage.

22 (11) Facilitation of flows of internally displaced
23 people and humanitarian assistance.

1 (12) Such other matters as the Secretary con-
2 siders appropriate and could benefit training, doc-
3 trine, and resourcing of future operations.

4 (c) FORM.—The report required by subsection (a)
5 shall be submitted in unclassified form, but may include
6 a classified annex.

7 **SEC. 1226. EXPANSION OF AVAILABILITY OF FINANCIAL AS-**
8 **SETS OF IRAN TO VICTIMS OF TERRORISM.**

9 Section 502 of the Iran Threat Reduction and Syria
10 Human Rights Act of 2012 (22 U.S.C. 8772) is amend-
11 ed—

12 (1) in subsection (a)(1)—

13 (A) in subparagraph (A), by striking “in
14 the United States” and inserting “by or”;

15 (B) in subparagraph (B), by inserting “,
16 or an asset that would be blocked if the asset
17 were located in the United States,” after
18 “unblocked)”; and

19 (C) in the flush text at the end—

20 (i) by inserting after “in aid of execu-
21 tion” the following: “, or to an order di-
22 recting that the asset be brought to the
23 State in which the court is located and
24 subsequently to execution or attachment in
25 aid of execution,”; and

1 (ii) by inserting “, without regard to
2 concerns relating to international comity”
3 after “resources for such an act”; and

4 (2) in subsection (b)—

5 (A) by striking “that are identified” and
6 inserting the following: “that are—
7 “(1) identified”;

8 (B) by striking the period at the end and
9 inserting “; and”; and

10 (C) by adding at the end the following:

11 “(2) identified in and the subject of proceedings
12 in the United States District Court for the Southern
13 District of New York in Peterson et al. v. Islamic
14 Republic of Iran et al., Case No. 13 Civ. 9195
15 (LAP).”.

16 **SEC. 1227. REPORT ON THE STATUS OF DECONFLICTION**
17 **CHANNELS WITH IRAN.**

18 (a) **IN GENERAL.**—Not later than 30 days after the
19 date of enactment of this Act, the President shall submit
20 to Congress a report on the status of deconfliction chan-
21 nels with Iran.

22 (b) **MATTERS TO BE INCLUDED.**—The report re-
23 quired by subsection (a) shall include the following:

24 (1) The status of United States diplomatic
25 deconfliction channels with Iran to prevent mis-

1 calculation, define ambiguities, and correct mis-
2 understandings that could otherwise lead to unin-
3 tended consequences, including unnecessary or
4 harmful military activity.

5 (2) The status of United States military-to-mili-
6 tary deconfliction channels with Iran to prevent mili-
7 tary and diplomatic miscalculation.

8 (3) An analysis of the need and rationale for bi-
9 lateral and multilateral deconfliction channels, in-
10 cluding an assessment of recent United States expe-
11 rience with such channels of communication with
12 Iran.

13 **SEC. 1228. PROHIBITION ON PROVISION OF WEAPONS AND**
14 **OTHER FORMS OF SUPPORT TO CERTAIN OR-**
15 **GANIZATIONS.**

16 None of the funds authorized to be appropriated by
17 this Act or otherwise made available for the Department
18 of Defense for fiscal year 2020 may be used to knowingly
19 provide weapons or any other form of support to Al Qaeda,
20 the Islamic State of Iraq and Syria (ISIS), Jabhat Fateh
21 al Sham, Hamas, Hizballah, Palestine Islamic Jihad, al-
22 Shabaab, Islamic Revolutionary Guard Corps, or any indi-
23 vidual or group affiliated with any such organization.

1 **Subtitle D—Matters Relating to the**
2 **Russian Federation**

3 **SEC. 1231. EXTENSION OF LIMITATION ON MILITARY CO-**
4 **OPERATION BETWEEN THE UNITED STATES**
5 **AND RUSSIA.**

6 Section 1232(a) of the National Defense Authoriza-
7 tion Act for Fiscal Year 2017 (Public Law 114–328; 130
8 Stat. 2488), is amended by striking “or 2019” and insert-
9 ing “, 2019, or 2020”.

10 **SEC. 1232. PROHIBITION ON AVAILABILITY OF FUNDS RE-**
11 **LATING TO SOVEREIGNTY OF RUSSIA OVER**
12 **CRIMEA.**

13 (a) PROHIBITION.—None of the funds authorized to
14 be appropriated by this Act or otherwise made available
15 for fiscal year 2020 for the Department of Defense may
16 be obligated or expended to implement any activity that
17 recognizes the sovereignty of Russia over Crimea.

18 (b) WAIVER.—The Secretary of Defense, with the
19 concurrence of the Secretary of State, may waive the pro-
20 hibition under subsection (a) if the Secretary of Defense—

21 (1) determines that a waiver is in the national
22 security interest of the United States; and

23 (2) on the date on which the waiver is invoked,
24 submits a notification of the waiver and a justifica-
25 tion of the reason for seeking the waiver to—

1 (A) the Committee on Armed Services and
2 the Committee on Foreign Relations of the Sen-
3 ate; and

4 (B) the Committee on Armed Services and
5 the Committee on Foreign Affairs of the House
6 of Representatives.

7 **SEC. 1233. SENSE OF CONGRESS ON UPDATING AND MOD-**
8 **ERNIZING EXISTING AGREEMENTS TO AVERT**
9 **MISCALCULATION BETWEEN THE UNITED**
10 **STATES AND RUSSIA.**

11 It is the sense of Congress that—

12 (1) conventional arms control and confidence
13 and security building measures have played an im-
14 portant role in helping to increase military trans-
15 parency and reduce the risk of miscalculation;

16 (2) Russia's violations of the sovereignty and
17 territorial integrity of Georgia and Ukraine, and
18 Russia's ongoing destabilizing and aggressive behav-
19 ior, has undermined peace, security, and stability in
20 Europe and beyond;

21 (3) Russia's unilateral suspension and violation
22 of the Treaty on Conventional Armed Forces in Eu-
23 rope, done at Vienna November 19, 1990, and en-
24 tered into force November 9, 1992, and selective im-
25 plementation of the Vienna Document of the Organi-

1 zation for Security and Cooperation in Europe 2011
2 have contributed to a greater risk of miscalculation;

3 (4) Russia's unsafe and unprofessional inter-
4 actions with United States aircraft and vessels—

5 (A) are contrary to the spirit of—

6 (i) the Agreement Between the Gov-
7 ernment of the United States and the Gov-
8 ernment of the Union of Soviet Socialist
9 Republics on the Prevention of Incidents
10 On and Over the High Seas, done at Mos-
11 cow May 25, 1972, and entered into force
12 May 25, 1972; and

13 (ii) the Agreement on the Prevention
14 of Dangerous Military Activities Agree-
15 ment, done at Moscow June 12, 1989, and
16 entered into force January 1, 1990; and

17 (B) erode military transparency, predict-
18 ability, and trust;

19 (5) the United States remains committed to up-
20 holding its current treaty obligations and commit-
21 ments with respect to conventional arms control and
22 confidence and security building measures; and

23 (6) the Secretary of Defense and the Secretary
24 of State should explore options, as practicable, for
25 updated or new frameworks for increasing military

1 transparency, stability, and reducing the risk of mis-
2 calculation, including through enhanced diplomatic
3 engagement and military-to-military dialogue.

4 **SEC. 1234. UNITED STATES PARTICIPATION IN OPEN SKIES**
5 **TREATY.**

6 (a) NOTIFICATION REQUIRED.—Not later than 120
7 days before the provision of notice of intent to withdraw
8 the United States from the Open Skies Treaty to either
9 treaty depository pursuant to Article XV of the Treaty,
10 the Secretary of Defense and the Secretary of State shall
11 jointly submit to the congressional defense committees, the
12 Committee on Foreign Affairs of the House of Representa-
13 tives, and the Committee on Foreign Relations of the Sen-
14 ate a notification that—

15 (1) such withdrawal is in the best interests of
16 the United States national security; and

17 (2) the other state parties to the Treaty have
18 been consulted with respect to such withdrawal.

19 (b) REPEAL OF LIMITATION ON USE OF FUNDS TO
20 VOTE TO APPROVE OR OTHERWISE ADOPT ANY IMPLE-
21 MENTING DECISION OF THE OPEN SKIES CONSULTATIVE
22 COMMISSION AND MODIFICATIONS TO REPORT.—

23 (1) IN GENERAL.—Section 1236 of the Na-
24 tional Defense Authorization Act for Fiscal Year

1 2017 (Public Law 114–328; 130 Stat. 2491) is
2 amended—

3 (A) by striking subsections (a) and (b);

4 and

5 (B) by redesignating subsections (c), (d),

6 (e), and (f) as subsections (a), (b), (c), and (d),

7 respectively.

8 (2) MODIFICATIONS TO REPORT.—Subsection
9 (a) of such section, as so redesignated, is amended—

10 (A) in the heading, by striking “Quarterly”

11 and inserting “Annual”;

12 (B) in paragraph (1)—

13 (i) by inserting “the Secretary of
14 State,” before “the Secretary of Energy”;

15 (ii) by striking “quarterly basis” and
16 inserting “annual basis”;

17 (iii) by striking “by the Russian Fed-
18 eration over the United States” and insert-
19 ing “by all parties to the Open Skies Trea-
20 ty, including the United States, under the
21 Treaty”; and

22 (iv) by striking “calendar quarter”
23 and inserting “preceding calendar year”;

24 and

1 (C) in paragraph (2), by striking subpara-
2 graphs (B), (C), and (D) and inserting the fol-
3 lowing:

4 “(B) In the case of an observation flight
5 by the United States, including an observation
6 flight over the territory of Russia—

7 “(i) an analysis of data collected that
8 supports United States intelligence and
9 military collection goals; and

10 “(ii) an assessment of data collected
11 regarding military activity that could not
12 be collected through other means.

13 “(C) In the case of an observation flight
14 over the territory of the United States—

15 “(i) an analysis of whether and the
16 extent to which any United States critical
17 infrastructure was the subject of image
18 capture activities of such observation
19 flight;

20 “(ii) an estimate for the mitigation
21 costs imposed on the Department of De-
22 fense or other United States Government
23 agencies by such observation flight; and

24 “(iii) an assessment of how such in-
25 formation is used by the parties conducting

1 the observation flight, for what purpose,
2 and how the information fits into the over-
3 all collection posture.”.

4 (3) FORM.—Subsection (c) of such section, as
5 so redesignated, is amended by striking “certifi-
6 cation, report, and notice” and inserting “report”.

7 (4) DEFINITIONS.—Subsection (d) of such sec-
8 tion, as so redesignated, is amended—

9 (A) by striking paragraphs (3) and (6);
10 and

11 (B) by redesignating paragraphs (4), (5),
12 and (7) as paragraphs (3), (4), and (5), respec-
13 tively.

14 (c) OPEN SKIES: IMPLEMENTATION PLAN.—Section
15 1235(a) of the National Defense Authorization Act for
16 Fiscal Year 2018 (Public Law 115–91; 131 Stat. 1660)
17 is amended—

18 (1) in paragraph (1)—

19 (A) by striking “during such fiscal year”
20 and inserting “during a calendar year”; and

21 (B) by striking “the President submits”
22 and all that follows and inserting “the Sec-
23 retary of Defense provides to the appropriate
24 congressional committees a report on a plan de-

1 scribed in paragraph (2) with respect to such
2 calendar year.”;

3 (2) in paragraph (2), by striking “such fiscal
4 year” and inserting “such calendar year”; and

5 (3) in paragraph (3), by striking “a fiscal year
6 and submit the updated plan” and inserting “a cal-
7 endar year and provide a report on the updated
8 plan”.

9 (d) DEFINITION OF OPEN SKIES TREATY; TREA-
10 TY.—In this section, the term “Open Skies Treaty” or
11 “Treaty” means the Treaty on Open Skies, done at Hel-
12 sinki March 24, 1992, and entered into force January 1,
13 2002.

14 **SEC. 1235. MODIFICATIONS OF BRIEFING, NOTIFICATION,**
15 **AND REPORTING REQUIREMENTS RELATING**
16 **TO NON-COMPLIANCE BY THE RUSSIAN FED-**
17 **ERATION WITH ITS OBLIGATIONS UNDER THE**
18 **INF TREATY.**

19 (a) BRIEFING REQUIREMENT.—Section 1244(d) of
20 the Carl Levin and Howard P. “Buck” McKeon National
21 Defense Authorization Act for Fiscal Year 2015 (Public
22 Law 113–291; 128 Stat. 3565; 22 U.S.C. 2593a note) is
23 amended—

24 (1) by striking “At the time” and inserting the
25 following:

1 “(1) IN GENERAL.—At the time”; and

2 (2) by adding at the end the following new
3 paragraph:

4 “(2) SUNSET.—The briefing requirement under
5 paragraph (1) shall be in effect so long as the INF
6 Treaty remains in force.”.

7 (b) NOTIFICATION REQUIREMENT RELATING TO CO-
8 ORDINATION WITH ALLIES.—Section 1243(c) of the Na-
9 tional Defense Authorization Act for Fiscal Year 2016
10 (Public Law 114–92; 129 Stat. 1601) is amended by add-
11 ing at the end the following new paragraph:

12 “(3) SUNSET.—The notification requirement
13 under paragraph (1) shall be in effect so long as the
14 INF Treaty remains in force.”.

15 (c) NOTIFICATION REQUIREMENT RELATING TO DE-
16 VELOPMENT, DEPLOYMENT, OR TEST OF A SYSTEM IN-
17 CONSISTENT WITH INF TREATY.—Section 1244(a) of the
18 National Defense Authorization Act for Fiscal Year 2018
19 (Public Law 115–91; 131 Stat. 1673; 22 U.S.C. 2593a
20 note) is amended by adding at the end the following new
21 paragraph:

22 “(3) SUNSET.—The notification requirement
23 under paragraph (1) shall be in effect so long as the
24 INF Treaty remains in force.”.

1 (d) REPORTING REQUIREMENT UNDER UKRAINE
2 FREEDOM SUPPORT ACT OF 2014.—Section 10(c) of the
3 Ukraine Freedom Support Act of 2014 (22 U.S.C. 8929)
4 is amended by adding at the end the following new para-
5 graph:

6 “(3) SUNSET.—The reporting requirement
7 under paragraph (1) shall be in effect so long as the
8 INF Treaty remains in force.”.

9 **SEC. 1236. REPORT ON TREATIES RELATING TO NUCLEAR**
10 **ARMS CONTROL.**

11 (a) FINDINGS.—Congress finds the following:

12 (1) On October 24, 2018, the House Committee
13 on Armed Services and House Committee on For-
14 eign Affairs wrote to the Secretary of Defense re-
15 questing information regarding the Administration’s
16 policies and strategies related to nuclear arms con-
17 trol.

18 (2) The Committees did not receive the re-
19 quested information from the Secretary of Defense.

20 (b) ASSESSMENT REQUIRED.—Not later than 120
21 days after the date of the enactment of this Act, the Sec-
22 retary of Defense, in consultation with the Secretary of
23 State and the Director of National Intelligence, shall sub-
24 mit to the Committee on Armed Services, the Permanent
25 Select Committee on Intelligence, and the Committee on

1 Foreign Affairs of the House of Representatives and the
2 Committee on Armed Services, the Select Committee on
3 Intelligence, and the Committee on Foreign Relations of
4 the Senate an assessment that includes each of the fol-
5 lowing:

6 (1) The implications, in terms of military threat
7 to the United States or its allies in Europe, of Rus-
8 sian deployment of intermediate-range cruise and
9 ballistic missiles without restriction.

10 (2) What new capabilities the United States
11 might need in order to pursue additional tech-
12 nologies or programs to offset such Russian capabili-
13 ties, and the costs associated with such capabilities,
14 technologies, and programs.

15 (3) An assessment of the threat to the United
16 States of Russia's strategic nuclear force in the
17 event the New START Treaty lapses.

18 (4) What measures could have been taken short
19 of withdrawal, including economic, military, and dip-
20 lomatic options, to increase pressure on Russia for
21 violating the INF Treaty.

22 (5) The status of all consultations with allies
23 pertaining to the INF Treaty and the threat posed
24 by Russian forces that are noncompliant with the
25 obligations of such treaty.

1 (6) The impact that Russian withdrawal from
2 the INF Treaty and the expiration of the New
3 START Treaty could have on long-term United
4 States-Russia strategic stability.

5 (c) WITHHOLDING OF FUNDS.—Until the date of the
6 submission of the assessment required by subsection (b),
7 an amount that is equal to 20 percent of the total amount
8 authorized to be appropriated to the Office of the Sec-
9 retary of Defense under the Operations and Maintenance,
10 Defense-Wide account for the travel of persons shall be
11 withheld from obligation or expenditure.

12 (d) DEFINITIONS.—In this section:

13 (1) NEW START TREATY.—The term “New
14 START Treaty” means the Treaty between the
15 United States of America and the Russian Federa-
16 tion on Measures for the Further Reduction and
17 Limitation of Strategic Offensive Arms, signed at
18 Prague April 8, 2010, and entered into force Feb-
19 ruary 5, 2011.

20 (2) INF TREATY.—The term “INF Treaty”
21 means the Treaty between the United States of
22 America and the Union of Soviet Socialist Republics
23 on the Elimination of Their Intermediate-Range and
24 Shorter-Range Missiles, signed at Washington De-

1 cember 8, 1987, and entered into force June 1,
2 1988.

3 **SEC. 1237. REPORTS RELATING TO THE NEW START TREA-**
4 **TY.**

5 (a) SENSE OF CONGRESS.—It is the sense of Con-
6 gress that legally binding, verifiable limits on Russian
7 strategic nuclear forces are in the national security inter-
8 est of the United States.

9 (b) PRIOR NOTIFICATION FOR WITHDRAWAL.—Not
10 later than 120 days before the provision to Russia, pursu-
11 ant to Article XIV of the New Start Treaty, of notice of
12 intent to withdraw the United States from the Treaty, the
13 Secretary of Defense and the Secretary of State shall
14 jointly submit to the congressional defense committees, the
15 Committee on Foreign Affairs of the House of Representa-
16 tives, and the Committee on Foreign Relations of the Sen-
17 ate a notification that includes a description of the ex-
18 traordinary events jeopardizing the United States' su-
19 preme interests accompanying such notice of intent to
20 withdraw in accordance with the requirements of such Ar-
21 ticle XIV.

22 (c) ASSESSMENTS FROM DIRECTOR OF NATIONAL
23 INTELLIGENCE.—

24 (1) RELATING TO EXPIRATION OF NEW START
25 TREATY.—Not later than 180 days after the date of

1 the enactment of this Act, the Director of National
2 Intelligence shall submit to the appropriate congress-
3 sional committees an assessment of the implications
4 of the expiration of the New START Treaty without
5 the United States and Russia having entered into a
6 new arms control agreement. The assessment shall
7 include the following elements:

8 (A) An assessment of possible changes to
9 the Russian nuclear force structure through
10 2026, if the Treaty expires in 2021 without re-
11 placement, including Russia's ability and intent
12 to deploy strategic nuclear warheads and deliv-
13 ery vehicles above the central limits of the
14 Treaty and with respect to possible future stra-
15 tegic nuclear weapons research and development
16 programs.

17 (B) An assessment of the verification and
18 transparency benefits of the Treaty and a de-
19 scription of the Treaty's impact on the United
20 States' understanding of Russia's nuclear
21 forces.

22 (C) An assessment of what actions would
23 be necessary for the United States to remediate
24 the loss of the Treaty's verification and trans-
25 parency benefits if the Treaty is not extended

1 and a new arms control agreement is not con-
2 cluded, and an estimate of the remedial re-
3 sources required to ensure no concomitant loss
4 of understanding of Russia's nuclear forces as
5 practicable.

6 (2) RELATING TO RUSSIA'S WILLINGNESS TO
7 ENGAGE IN NUCLEAR ARMS CONTROL NEGOTIA-
8 TIONS.—Not later than 180 days after the date of
9 the enactment of this Act, the Director of National
10 Intelligence shall submit to the appropriate congress-
11 sional committees an assessment of Russia's willing-
12 ness to engage in nuclear arms control negotiations
13 and Russia's priorities in these negotiations. The as-
14 sessment shall include the following elements:

15 (A) An assessment of Russia's willingness
16 to extend the New START Treaty and its likely
17 negotiating position to discuss such an exten-
18 sion with the United States.

19 (B) An assessment of Russia's interest in
20 negotiating a broader arms control agreement
21 that would include nuclear weapons systems not
22 accountable under the New START Treaty, in-
23 cluding non-strategic nuclear weapons.

24 (C) An assessment of what concessions
25 Russia would likely seek from the United States

1 during such negotiations, including what addi-
2 tional United States' military capabilities Rus-
3 sia would seek to limit, in any broader arms
4 control negotiation.

5 (D) Any other matter the Director deter-
6 mines to be relevant.

7 (d) REPORTS AND BRIEFING FROM SECRETARY OF
8 STATE.—

9 (1) RELATING TO NATO, NATO MEMBER COUN-
10 TRIES, AND OTHER UNITED STATES ALLIES.—Not
11 later than 180 days after the date of the enactment
12 of this Act, the Secretary of State, in consultation
13 with the Secretary of Defense, shall submit a report
14 and provide a briefing to the appropriate congress-
15 sional committees that includes—

16 (A) an assessment of the likely reactions of
17 the North Atlantic Treaty Organization
18 (NATO), NATO member countries, and other
19 United States allies and partners to the expira-
20 tion of the New START Treaty without the
21 entry into force of a new nuclear arms control
22 agreement between the United States and Rus-
23 sia; and

24 (B) a description of the consultations un-
25 dertaken with allies relating to the Treaty.

1 (2) RELATING TO ONGOING IMPLEMENTATION
2 OF THE NEW START TREATY.—Not later than 60
3 days after the date of the enactment of this Act, and
4 again not later than September 1, 2020, the Sec-
5 retary of State, in consultation with the Secretary of
6 Defense, shall submit a report to the appropriate
7 congressional committees with an assessment of the
8 following elements:

9 (A) Whether the Russian Federation re-
10 mains in compliance with its obligations under
11 the New START Treaty.

12 (B) Whether continuing implementation of
13 the New START Treaty remains in the na-
14 tional security interest of the United States.

15 (3) RELATING TO OTHER MATTERS.—Not later
16 than 90 days after the date of the enactment of this
17 Act, and every 180 days thereafter until the New
18 START Treaty is extended beyond February 2021
19 or expires, the Secretary of State, in consultation
20 with the Secretary of Defense, shall provide a brief-
21 ing to the appropriate congressional committees that
22 includes the following elements:

23 (A) A description of any discussions with
24 Russia on the Treaty or a multilateral arms
25 control treaty with Russia and other countries

1 on the reduction and limitation of strategic of-
2 fensive arms, and discussions addressing the
3 disparity between the non-strategic nuclear
4 weapons stockpiles of Russia and of the United
5 States, at the Assistant Secretary level, Amba-
6 sadorial level, or higher.

7 (B) The dates, locations, discussion topics,
8 and Russian interlocutors involved in those dis-
9 cussions.

10 (C) An identification of the United States
11 Government departments and agencies involved
12 in the discussions.

13 (D) The types of systems, both nuclear
14 and nonnuclear, discussed by either side in such
15 discussions as the potential subjects of an
16 agreement.

17 (E) Whether formal negotiations to extend
18 the Treaty or negotiate a new agreement have
19 occurred.

20 (e) REPORT AND BRIEFING FROM SECRETARY OF
21 DEFENSE.—

22 (1) IN GENERAL.—Not later than 180 days
23 after the date of the enactment of this Act, the Sec-
24 retary of Defense, in consultation with the Secretary
25 of Energy, shall submit a report to the congressional

1 defense committees that includes an assessment of
2 the manner and extent to which the United States
3 nuclear force structure could change if the New
4 START Treaty expires in 2021, including current
5 and planned nuclear modernization programs, and
6 associated costs.

7 (2) ADDITIONAL REPORT UPON EXPIRATION.—
8 Not later than April 5, 2021, the Secretary of De-
9 fense, in consultation with the Secretary of Energy,
10 shall, if the New START Treaty has expired prior
11 to such date, submit a plan describing the manner
12 in which the United States nuclear force structure
13 will change, including current and planned nuclear
14 modernization programs and associated costs.

15 (f) FORM.—Each report, plan, or assessment re-
16 quired by this section shall be submitted in unclassified
17 form, but may include a classified annex.

18 (g) DEFINITIONS.—In this section:

19 (1) APPROPRIATE CONGRESSIONAL COMMIT-
20 TEES.—The term “appropriate congressional com-
21 mittees” means—

22 (A) the Committee on Foreign Relations,
23 the Committee on Armed Services, and the Se-
24 lect Committee on Intelligence of the Senate;
25 and

1 (B) the Committee on Foreign Affairs, the
2 Committee on Armed Services, and the Perma-
3 nent Select Committee on Intelligence of the
4 House of Representatives.

5 (2) NEW START TREATY; TREATY.—The terms
6 “New START Treaty” and “Treaty” mean the
7 Treaty between the United States of America and
8 the Russian Federation on Measures for the Further
9 Reduction and Limitation of Strategic Offensive
10 Arms, signed on April 8, 2010, and entered into
11 force on February 5, 2011.

12 **SEC. 1238. REPORT ON MILITARY ACTIVITIES OF THE RUS-**
13 **SIAN FEDERATION AND THE PEOPLE’S RE-**
14 **PUBLIC OF CHINA IN THE ARCTIC REGION.**

15 (a) IN GENERAL.—Not later than 180 days after the
16 date of the enactment of this Act, the Secretary of De-
17 fense, in consultation with the Secretary of State and the
18 Director of National Intelligence, shall submit to the ap-
19 propriate committees of Congress the following:

20 (1) A report on any military activities of the
21 Russian Federation in the Arctic region.

22 (2) A report on any military activities of the
23 People’s Republic of China in the Arctic region.

24 (b) MATTERS TO BE INCLUDED.—The reports under
25 subsection (a) shall include, with respect to the Russian

1 Federation or the People's Republic of China, as applica-
2 ble, the following:

3 (1) A description of military activities of such
4 country in the Arctic region, including—

5 (A) the emplacement of military infrastruc-
6 ture, equipment, or forces;

7 (B) any exercises or other military activi-
8 ties; and

9 (C) activities that are non-military in na-
10 ture, but are considered to have military or
11 other strategic implications.

12 (2) An assessment of—

13 (A) the intentions of such activities;

14 (B) the extent to which such activities af-
15 fect or threaten the interests of the United
16 States and allies in the Arctic region; and

17 (C) any response to such activities by the
18 United States or allies.

19 (3) A description of future plans and require-
20 ments with respect to such activities.

21 (c) FORM.—Each report under subsection (a) shall
22 be submitted in classified form, but may include an un-
23 classified executive summary.

1 (d) APPROPRIATE COMMITTEES OF CONGRESS DE-
2 FINED.—In this section, the term “appropriate commit-
3 tees of Congress” means—

4 (1) the Committee on Armed Services, the
5 Committee on Foreign Relations, the Committee on
6 Appropriations, and the Select Committee on Intel-
7 ligence of the Senate; and

8 (2) the Committee on Armed Services, the
9 Committee on Foreign Affairs, the Committee on
10 Appropriations, and the Permanent Select Com-
11 mittee on Intelligence of the House of Representa-
12 tives.

13 **SEC. 1239. UPDATED STRATEGY TO COUNTER THE THREAT**
14 **OF MALIGN INFLUENCE BY THE RUSSIAN**
15 **FEDERATION AND OTHER COUNTRIES.**

16 (a) IN GENERAL.—The Secretary of Defense and the
17 Secretary of State, in coordination with the appropriate
18 United States Government officials, shall jointly update,
19 with the additional elements described in subsection (b),
20 the comprehensive strategy to counter the threat of malign
21 influence developed pursuant to section 1239A of the Na-
22 tional Defense Authorization Act for Fiscal Year 2018
23 (Public Law 115–91; 131 Stat. 1667).

24 (b) ADDITIONAL ELEMENTS.—The updated strategy
25 required under subsection (a) shall include the following:

1 (1) With respect to each element specified in
2 paragraphs (1) through (7) of subsection (b) of such
3 section 1239A, actions to counter the threat of ma-
4 lign influence operations by the People’s Republic of
5 China and any other country engaged in significant
6 malign influence operations.

7 (2) A description of the interagency organiza-
8 tional structures and procedures for coordinating the
9 implementation of the comprehensive strategy for
10 countering malign influence by the Russian Federa-
11 tion, China, and any other country engaged in sig-
12 nificant malign influence operations.

13 (c) REPORT.—Not later than 180 days after the date
14 of the enactment of this Act, the Secretary of Defense and
15 the Secretary of State shall jointly submit to the appro-
16 priate committees of Congress a report detailing the up-
17 dated strategy required under subsection (a).

18 (d) APPROPRIATE COMMITTEES OF CONGRESS DE-
19 FINED.—In this section, the term “appropriate commit-
20 tees of Congress” has the meaning given the term in sub-
21 section (e) of such section 1239A.

1 **Subtitle E—Matters Relating to**
2 **Europe and NATO**

3 **SEC. 1241. SENSE OF CONGRESS ON SUPPORT FOR THE**
4 **NORTH ATLANTIC TREATY ORGANIZATION.**

5 It is the sense of Congress that—

6 (1) the North Atlantic Treaty Organization
7 (NATO) is critical to achieving United States na-
8 tional security interests and defense objectives
9 around the world;

10 (2) NATO is the most successful military alli-
11 ance in history, founded on the principles of democ-
12 racy, individual liberty, and the rule of law, and its
13 contributions to the collective defense are indispen-
14 sable to the security, prosperity, and freedom of its
15 members;

16 (3) membership in NATO is a cornerstone of
17 the security and national defense of the United
18 States;

19 (4) the United States commitment to the
20 NATO alliance has been foundational to the rules-
21 based international order for seven decades, helping
22 to sustain a system of mutual security and shared
23 values and enhance the United States security
24 through common defense;

1 (5) the United States must remain ironclad in
2 its commitment to uphold its obligations under the
3 North Atlantic Treaty, including Article 5 of such
4 Treaty;

5 (6) the United States should deepen strategic
6 and defense cooperation with non-NATO European
7 partners, and encourage NATO cooperation with
8 such partners;

9 (7) the United States should encourage defense
10 cooperation that complements and strengthens
11 NATO collective defense, interoperability, and allies'
12 commitment to Article 3 of the North Atlantic Trea-
13 ty; and

14 (8) the United States should pursue a long-
15 term policy to strengthen relationships with NATO
16 allies, oppose efforts to undermine and divide the
17 NATO alliance, invest in long-term efforts to deter
18 aggression against NATO allies and counter cam-
19 paigns aimed at eroding shared values of the alli-
20 ance, and enhance interoperability and planning for
21 collective defense.

1 **SEC. 1242. PROHIBITION ON THE USE OF FUNDS TO SUS-**
2 **PEND, TERMINATE, OR PROVIDE NOTICE OF**
3 **DENUNCIATION OF THE NORTH ATLANTIC**
4 **TREATY.**

5 Notwithstanding any other provision of law, no funds
6 may be obligated, expended, or otherwise made available
7 during the period beginning on the date of the enactment
8 of this Act and ending on December 31, 2020, to take
9 any action to suspend, terminate, or provide notice of de-
10 nunciation of the North Atlantic Treaty, done at Wash-
11 ington, D.C. on April 4, 1949.

12 **SEC. 1243. FUTURE YEARS PLANS AND PLANNING TRANS-**
13 **PARENCY FOR THE EUROPEAN DETERRENCE**
14 **INITIATIVE.**

15 (a) AMENDMENTS.—Section 1273 of the National
16 Defense Authorization Act for Fiscal Year 2018 (Public
17 Law 115–91; 131 Stat. 1696) is amended as follows:

18 (1) In the section heading, by striking “**PLAN**”
19 and inserting “**PLANS**”.

20 (2) In subsection (a) to read as follows:

21 “(a) INITIAL PLAN.—Not later than December 31,
22 2019, the Secretary of Defense, in consultation with the
23 Commander of the United States European Command,
24 shall submit to the congressional defense committees a fu-
25 ture years plan on activities and resources of the Euro-

1 pean Deterrence Initiative (EDI) for fiscal year 2020 and
2 not fewer than the four succeeding fiscal years.”.

3 (3) MATTERS TO BE INCLUDED.—In subsection
4 (b)—

5 (A) in paragraph (1) to read as follows:

6 “(1) A description of the objectives of the EDI,
7 including a description of—

8 “(A) the intended force structure and posture
9 of the assigned and allocated forces within
10 the area of responsibility of the United States
11 European Command for the last fiscal year of
12 the plan; and

13 “(B) the manner in which such force
14 structure and posture support the implementa-
15 tion of the National Defense Strategy.”;

16 (B) in paragraph (5), by striking “required
17 infrastructure investments” and inserting “re-
18 quired infrastructure and military construction
19 investments”; and

20 (C) in paragraph (8)—

21 (i) in subparagraph (E), by striking
22 “and” at the end;

23 (ii) in subparagraph (F), by striking
24 the period at the end and inserting a semi-
25 colon; and

1 (iii) by adding at the end the fol-
2 lowing:

3 “(G) a detailed assessment of the re-
4 sources necessary to achieve the requirements
5 of the plan, including specific cost estimates for
6 each project under the EDI to support in-
7 creased presence, exercises and training, en-
8 hanced prepositioning, improved infrastructure,
9 and building partnership capacity;

10 “(H) a detailed timeline to achieve the
11 force posture and capabilities, including perma-
12 nent force posture requirements; and

13 “(I) a detailed explanation of any signifi-
14 cant modifications to activities and resources as
15 compared to the future years plan on activities
16 and resources of the EDI submitted for the pre-
17 vious year.”.

18 (4) By redesignating subsections (c) and (d) as
19 subsections (d) and (e), respectively.

20 (5) By inserting after subsection (b) the fol-
21 lowing:

22 “(c) SUBSEQUENT PLANS.—

23 “(1) IN GENERAL.—Not later than the date on
24 which the Secretary of Defense submits to Congress
25 the budget request for the Department of Defense

1 for fiscal year 2021 and each fiscal year thereafter,
2 the Secretary, in consultation with the Commander
3 of the United States European Command, shall sub-
4 mit to the congressional defense committees a future
5 years plan on activities and resources of the Euro-
6 pean Deterrence Initiative for such fiscal year and
7 not fewer than the four succeeding fiscal years.

8 “(2) MATTERS TO BE INCLUDED.—The plan re-
9 quired under paragraph (1) shall include—

10 “(A) the matters described in subsection
11 (b); and

12 “(B) a detailed explanation of any signifi-
13 cant modifications in requirements or resources,
14 as compared to the plan submitted under such
15 subsection (b).”.

16 (6) In subsection (d), as redesignated, by strik-
17 ing “The plan required under subsection (a)” and
18 inserting “The plans required under subsections (a)
19 and (c)”.

20 (7) In subsection (e), as redesignated, by strik-
21 ing “LIMITATIONS” and all that follows through “In
22 the case of” and inserting “LIMITATIONS.—In the
23 case of”.

24 (b) BUDGET DISPLAY INFORMATION.—The Sec-
25 retary of Defense shall include in the materials submitted

1 to Congress by the Secretary in support of the budget of
2 the President for fiscal year 2021 and each fiscal year
3 thereafter (as submitted under section 1105 of title 31,
4 United States Code), a detailed budget display for the Eu-
5 ropean Deterrence Initiative that includes the following in-
6 formation (regardless of whether the funding line is for
7 overseas contingency operations):

8 (1) With respect to procurement accounts—

9 (A) amounts displayed by account, budget
10 activity, line number, line item, and line item
11 title; and

12 (B) a description of the requirements for
13 each such amounts specific to the Initiative.

14 (2) With respect to research, development, test,
15 and evaluation accounts—

16 (A) amounts displayed by account, budget
17 activity, line number, program element, and
18 program element title; and

19 (B) a description of the requirements for
20 each such amounts specific to the Initiative.

21 (3) With respect to operation and maintenance
22 accounts—

23 (A) amounts displayed by account title,
24 budget activity title, line number, and sub-
25 activity group title; and

1 (B) a description of how such amounts will
2 specifically be used.

3 (4) With respect to military personnel ac-
4 counts—

5 (A) amounts displayed by account, budget
6 activity, budget subactivity, and budget sub-
7 activity title; and

8 (B) a description of the requirements for
9 each such amounts specific to the Initiative.

10 (5) With respect to each project under military
11 construction accounts (including with respect to un-
12 specified minor military construction and amounts
13 for planning and design), the country, location,
14 project title, and project amount by fiscal year.

15 (c) END OF FISCAL YEAR REPORT.—Not later than
16 November 30, 2020, and annually thereafter, the Sec-
17 retary of Defense shall submit to the congressional defense
18 committees a report that contains—

19 (1) a detailed summary of funds obligated for
20 the European Deterrence Initiative for the preceding
21 fiscal year; and

22 (2) a detailed comparison of funds obligated for
23 the European Deterrence Initiative for the preceding
24 fiscal year to amounts requested for the Initiative
25 for that fiscal year in the materials submitted to

1 Congress by the Secretary in support of the budget
2 of the President for that fiscal year as required by
3 subsection (c), including with respect to each of the
4 accounts described in paragraphs (1), (2), (3), (4),
5 and (5) of subsection (b) and the information re-
6 quired under each such paragraph.

7 (d) INTERIM BRIEFING.—Not later than March 30,
8 2021, and annually thereafter, the Secretary of Defense
9 shall provide the congressional defense committees with an
10 interim briefing on the status of all matters covered by
11 the end of fiscal year report required by section (c).

12 **SEC. 1244. MODIFICATION AND EXTENSION OF UKRAINE SE-**
13 **URITY ASSISTANCE INITIATIVE.**

14 Section 1250 of the National Defense Authorization
15 Act for Fiscal Year 2016 (Public Law 114–92; 129 Stat.
16 1068) is amended—

17 (1) in subsection (a), by striking “in coordina-
18 tion with the Secretary of State” and inserting
19 “with the concurrence of the Secretary of State”;

20 (2) in subsection (b)—

21 (A) by amending paragraph (11) to read
22 as follows:

23 “(11) Air defense and coastal defense radars,
24 and systems to support effective command and con-

1 trol and integration of air defense and coastal de-
2 fense capabilities.”;

3 (B) by redesignating paragraphs (14) and
4 (15) as paragraphs (15) and (16), respectively;

5 (C) by inserting after paragraph (13) the
6 following:

7 “(14) Coastal defense and anti-ship missile sys-
8 tems.”; and

9 (D) in paragraph (15), as so redesignated,
10 by striking “paragraphs (1) through (13)” and
11 inserting “paragraphs (1) through (14)”;
12 (3) in subsection (c)—

13 (A) in paragraph (1), by striking “50 per-
14 cent of the funds available for fiscal year 2019
15 pursuant to subsection (f)(4)” and inserting
16 “50 percent of the funds available for fiscal
17 year 2020 pursuant to subsection (f)(5)”;

18 (B) in paragraph (3), by striking “fiscal
19 year 2019” and inserting “fiscal year 2020”;
20 and

21 (C) in paragraph (5), by striking “Of the
22 funds available for fiscal year 2019 pursuant to
23 subsection (f)(4)” and inserting “Of the funds
24 available for fiscal year 2020 pursuant to sub-
25 section (f)(5)”;

1 (4) in subsection (f), by adding at the end the
2 following:

3 “(5) For fiscal year 2020, \$300,000,000.”; and

4 (5) in subsection (h), by striking “December
5 31, 2021” and inserting “December 31, 2022”.

6 **SEC. 1245. LIMITATION ON TRANSFER OF F-35 AIRCRAFT**
7 **TO TURKEY.**

8 (a) **LIMITATION.**—None of the funds authorized to
9 be appropriated or otherwise made available for the De-
10 partment of Defense may be used to do the following, and
11 the Department may not otherwise do the following:

12 (1) Transfer, facilitate the transfer, or author-
13 ize the transfer of, any F-35 aircraft or related sup-
14 port equipment or parts to Turkey.

15 (2) Transfer intellectual property, technical
16 data, or material support necessary for, or related
17 to, any maintenance or support of the F-35 aircraft
18 necessary to establish Turkey’s indigenous F-35 ca-
19 pability.

20 (3) Construct a storage facility for, or otherwise
21 facilitate the storage in Turkey of, any F-35 air-
22 craft transferred to Turkey.

23 (b) **WAIVER.**—

24 (1) **CERTIFICATION.**—The Secretary of De-
25 fense, jointly with the Secretary of State, may waive

1 the limitation under subsection (a) only if the Secre-
2 taries submit to the appropriate committees of Con-
3 gress a written certification that contains a deter-
4 mination by the Secretaries, and any relevant docu-
5 mentation on which the determination is based, that
6 the Government of Turkey, having previously accept-
7 ed delivery of the S-400 air and missile defense sys-
8 tem from the Russian Federation—

9 (A) no longer possesses the S-400 air and
10 missile defense system or any other equipment,
11 materials, or personnel associated with such
12 system;

13 (B) has provided credible assurances that
14 the Government of Turkey will not in the future
15 accept delivery of such system; and

16 (C) has not, since July 31, 2019, pur-
17 chased or accepted delivery of defense equip-
18 ment from the Russian Federation in addition
19 to the S-400 air and missile defense system
20 that would increase the risk of compromising
21 the capabilities of the F-35 aircraft and its as-
22 sociated systems.

23 (2) NOTICE AND WAIT REQUIREMENT.—The
24 Secretary of Defense and the Secretary of State may
25 not waive the limitation under subsection (a) until

1 90 days after the date on which the Secretaries sub-
2 mit the certification under paragraph (1).

3 (c) SENSE OF CONGRESS.—It is the sense of Con-
4 gress that—

5 (1) Turkey’s possession of the S–400 air and
6 missile defense system adversely affects the national
7 security of Turkey, the United States, and all mem-
8 bers of the North Atlantic Treaty Alliance;

9 (2) the United States offer of the Patriot air
10 and missile defense system to Turkey constituted a
11 viable alternative to Turkey’s acquisition of the S–
12 400 air and missile defense system;

13 (3) acceptance of the S–400 air and missile
14 defense system by Turkey constitutes a significant
15 transaction within the meaning of section 231(a) of
16 the Countering Russian Influence in Europe and
17 Eurasia Act of 2017 (22 U.S.C. 9525(a)); and

18 (4) the President should implement the Coun-
19 tering Russian Influence in Europe and Eurasia Act
20 of 2017 (Public Law 115–44; 131 Stat. 886) by im-
21 posing and applying sanctions under section 235 of
22 that Act (22 U.S.C. 9529) with respect to any indi-
23 vidual or entity determined to have engaged in such
24 significant transaction as if such person were a
25 sanctioned person for purposes of such section.

1 (d) AUTHORIZATION OF EXPENDITURE.—

2 (1) IN GENERAL.—The Secretary of Defense is
3 authorized—

4 (A) to fly up to 6 Turkish F–35 aircraft
5 (tail numbers AT–1 thru AT–6) to a storage lo-
6 cation in the United States; and

7 (B) to induct these aircraft into a long-
8 term storage condition.

9 (2) STORAGE, PLAN, AND DISPOSITION OF AIR-
10 CRAFT AND EQUIPMENT.—The Secretary of Defense
11 may expend up to \$30,000,000 of funds authorized
12 to be appropriated for fiscal year 2020 for the De-
13 partment of Defense to conduct activities associated
14 with storage, preservation, and developing a plan for
15 the final disposition of such F–35 aircraft and Turk-
16 ish F–35 aircraft equipment, including full mission
17 simulators, helmet mounted display systems, air sys-
18 tem maintenance trainer, and ancillary mission
19 equipment, as a result of efforts taken by the United
20 States to limit, reduce, or terminate Turkey’s status
21 as a member of the F–35 Joint Strike Fighter coop-
22 erative program.

23 (3) REPORT REQUIRED.—Not later than 90
24 days after the enactment of this Act, the Secretary
25 of Defense shall provide to the congressional defense

1 committees a report outlining the long-term plan for
2 the disposition of such assets, including options for
3 recovery of costs from Turkey and for unilateral use
4 of such assets by the Department of Defense.

5 (4) NOTIFICATION REQUIRED.—Not later than
6 15 days before any expenditure of funds in an
7 amount of \$15,000,000 or more pursuant to the au-
8 thority described in paragraph (1), the Secretary
9 shall provide to the congressional defense commit-
10 tees a written notification describing the activities to
11 be conducted.

12 (e) APPROPRIATE COMMITTEES OF CONGRESS DE-
13 FINED.—In this section, the term “appropriate commit-
14 tees of Congress” means—

- 15 (1) the congressional defense committees; and
16 (2) the Committee on Foreign Relations of the
17 Senate and the Committee on Foreign Affairs of the
18 House of Representatives.

19 **SEC. 1246. BALTIC DEFENSE ASSESSMENT; EXTENSION AND**
20 **MODIFICATION OF SECURITY ASSISTANCE**
21 **FOR BALTIC COUNTRIES FOR JOINT PRO-**
22 **GRAM FOR INTEROPERABILITY AND DETER-**
23 **RENCE AGAINST AGGRESSION.**

24 (a) BALTIC DEFENSE ASSESSMENT.—Not later than
25 1 year after the date of the enactment of this Act, the

1 Secretary of Defense and the Secretary of State shall
2 jointly conduct a comprehensive, multilateral assessment
3 of the military requirements of Lithuania, Latvia, and Es-
4 tonia to deter and resist aggression by Russia that—

5 (1) provides an assessment of past and current
6 initiatives to improve the efficiency, effectiveness,
7 readiness and interoperability of Lithuania, Latvia,
8 and Estonia's national defense capabilities; and

9 (2) assesses the manner in which to achieve
10 such improvements, including future resource re-
11 quirements and recommendations, by undertaking
12 activities in the following areas:

13 (A) Activities to increase the rotational
14 and forward presence, improve the capabilities,
15 and enhance the posture and response readiness
16 of the United States or NATO forces in the
17 Baltic region.

18 (B) Activities to improve air defense sys-
19 tems, including modern air-surveillance capabili-
20 ties.

21 (C) Activities to improve counter-un-
22 manned aerial system capabilities.

23 (D) Activities to improve command and
24 control capabilities through increasing commu-
25 nications, technology, and intelligence capacity

1 and coordination, including secure and hard-
2 ened communications.

3 (E) Activities to improve intelligence, sur-
4 veillance, and reconnaissance capabilities.

5 (F) Activities to enhance maritime domain
6 awareness.

7 (G) Activities to improve military and de-
8 fense infrastructure, logistics, and access, par-
9 ticularly transport of military supplies and
10 equipment.

11 (H) Investments to ammunition stocks and
12 storage.

13 (I) Activities and training to enhance cyber
14 security and electronic warfare capabilities.

15 (J) Bilateral and multilateral training and
16 exercises.

17 (K) New and existing cost-sharing mecha-
18 nisms with United States and NATO allies to
19 reduce financial burden.

20 (b) REPORT.—Not later than 1 year after the date
21 of the enactment of this Act, the Secretary of Defense and
22 the Secretary of State jointly shall submit to the appro-
23 priate congressional committees a report, which shall be
24 submitted in unclassified form but may include a classified
25 annex, that includes each of the following:

1 (1) A report on the findings of the assessment
2 conducted pursuant to subsection (a).

3 (2) A list of any recommendations resulting
4 from such assessment.

5 (3) An assessment of the resource requirements
6 to achieve the objectives described in subsection
7 (a)(1) with respect to the national defense capability
8 of Baltic countries, including potential investments
9 by host countries.

10 (4) A plan for the United States to use appro-
11 priate security cooperation authorities or other au-
12 thorities to—

13 (A) facilitate relevant recommendations in-
14 cluded in the list described in paragraph (2);

15 (B) expand joint training between the
16 Armed Forces and the military of Lithuania,
17 Latvia, or Estonia, including with the participa-
18 tion of other NATO allies; and

19 (C) support United States foreign military
20 sales and other equipment transfers to Baltic
21 countries, especially for the activities described
22 in subparagraphs (A) through (I) of subsection
23 (a)(2).

1 (5) A comprehensive list of authorities and
2 funding sources used for security cooperation with
3 the Baltic countries, including—

4 (A) a description of the funds made avail-
5 able and used to provide assistance through
6 each authority, if any, during the last two
7 years;

8 (B) whether the authority to provide as-
9 sistance pursuant to section 1279D of the Na-
10 tional Defense Authorization Act for Fiscal
11 Year 2018 (22 U.S.C. 2753 note) was used,
12 and whether any alternative authorities exist
13 under which the Secretary can provide such as-
14 sistance; and

15 (C) a determination whether any new au-
16 thorities or funds are needed to achieve the ob-
17 jectives described in subsection (a)(1).

18 (e) MODIFICATION OF SECURITY ASSISTANCE AU-
19 THORITIES.—Subsection (e) of section 1279D of the Na-
20 tional Defense Authorization Act for Fiscal Year 2018 (22
21 U.S.C. 2753 note) is amended by inserting after para-
22 graph (4) the following:

23 “(5) Command, control, communications, com-
24 puters, intelligence, surveillance, and reconnaissance
25 (C4ISR) equipment.”.

1 (d) FUNDING.—Subsection (f) of such section 1279D
2 is amended—

3 (1) in paragraph (2), by striking
4 “\$100,000,000” and inserting “\$125,000,000”; and
5 (2) by adding at the end the following new
6 paragraph:

7 “(3) MATCHING AMOUNT.—The amount of as-
8 sistance provided under subsection (a) for procure-
9 ment described in subsection (b) may not exceed the
10 aggregate amount contributed to such procurement
11 by the Baltic nations.”.

12 (e) EXTENSION.—Subsection (g) of such section
13 1279D is amended by striking “December 31, 2020” and
14 inserting “December 31, 2021”.

15 (f) APPROPRIATE CONGRESSIONAL COMMITTEES.—
16 In this section, the term “appropriate congressional com-
17 mittees” means—

18 (1) the Committee on Armed Services, the
19 Committee on Foreign Relations, the Select Com-
20 mittee on Intelligence, and the Committee on Appro-
21 priations of the Senate; and

22 (2) the Committee on Armed Services, the
23 Committee on Foreign Affairs, the Permanent Select
24 Committee on Intelligence, and the Committee on
25 Appropriations of the House of Representatives.

1 **SEC. 1247. EXTENSION OF AUTHORITY FOR AND REPORT**
2 **ON TRAINING FOR EASTERN EUROPEAN NA-**
3 **TIONAL SECURITY FORCES IN THE COURSE**
4 **OF MULTILATERAL EXERCISES.**

5 (a) EXTENSION.—Subsection (h) of section 1251 of
6 the National Defense Authorization Act for Fiscal Year
7 2016 (10 U.S.C. 333 note) is amended—

8 (1) in the first sentence, by striking “December
9 31, 2020” and inserting “December 31, 2021”; and

10 (2) in the second sentence, by striking “for for
11 the period beginning on October 1, 2015, and ending
12 on December 31, 2020” and inserting “for the pe-
13 riod beginning on October 1, 2015, and ending on
14 December 31, 2021”.

15 (b) REPORT.—

16 (1) IN GENERAL.—Not later than 180 days
17 after the date of the enactment of this Act, the Sec-
18 retary of Defense, in consultation with the Com-
19 mander of United States European Command, shall
20 submit to the congressional defense committees a re-
21 port on the authority for training Eastern European
22 national security forces in the course of multilateral
23 exercises under the authority of such section.

24 (2) MATTERS TO BE INCLUDED.—The report
25 required by paragraph (1) shall include the fol-
26 lowing:

1 (A) For each recipient country, a descrip-
2 tion of—

3 (i) the training provided pursuant to
4 such authority beginning in fiscal year
5 2016; and

6 (ii) payments of incremental expenses
7 incurred by the country as the direct result
8 of such training.

9 (B) A description of the elements of the
10 U.S. European Command theater campaign
11 plan advanced by such authority.

12 (C) An assessment whether the training
13 and payment of the incremental expenses in-
14 curred by each recipient country as the direct
15 result of participation in such training could be
16 provided pursuant to other training or security
17 cooperation authorities of the Department of
18 Defense.

19 (D) Any recommendations of the Secretary
20 of Defense regarding such authority.

21 (E) Any other matter the Secretary of De-
22 fense considers appropriate.

1 **SEC. 1248. EXTENSION AND MODIFICATION OF NATO SPE-**
2 **CIAL OPERATIONS HEADQUARTERS.**

3 (a) **AUTHORIZATION.**—Subsection (a) of section 1244
4 of the National Defense Authorization Act for Fiscal Year
5 2010 (Public Law 111–84; 123 Stat. 2541) is amended
6 by striking “2020” and inserting “2024”.

7 (b) **REPEAL OF CERTIFICATION; LIMITATION.**—Such
8 section is amended—

9 (1) by striking subsection (c); and

10 (2) by inserting after subsection (b) the fol-
11 lowing new subsection:

12 “(c) **LIMITATION.**—Of the amounts made available
13 under subsection (a) for fiscal year 2020, not more than
14 90 percent of such amounts may be obligated or expended
15 until the Secretary of Defense, acting through the Assist-
16 ant Secretary of Defense for Special Operations and Low
17 Intensity Conflict, submits to the congressional defense
18 committees a report on the decision to realign responsibil-
19 ities for overseeing and supporting NSHQ from U.S. Spe-
20 cial Operations Command to U.S. European Command,
21 including—

22 “(1) a justification and description of the im-
23 pact of such realignment; and

24 “(2) a description of how such realignment will
25 strengthen the role of the NSHQ in fostering special
26 operations capabilities within NATO.”.

1 (c) ANNUAL REPORT.—Such section, as so amended,
2 is further amended by adding at the end the following new
3 subsection:

4 “(d) ANNUAL REPORT.—Not later than March 1 of
5 each year until 2024, the Secretary of Defense shall sub-
6 mit to the congressional defense committees and the Com-
7 mittee on Foreign Relations of the Senate and the Com-
8 mittee on Foreign Affairs of the House of Representatives
9 a report regarding support for the NSHQ. Each report
10 shall include the following:

11 “(1) The total amount of funding provided by
12 the United States and other NATO nations to the
13 NSHQ for operating costs of the NSHQ.

14 “(2) A description of the activities carried out
15 with such funding, including—

16 “(A) the amount of funding allocated for
17 each such activity;

18 “(B) the extent to which other NATO na-
19 tions participate in each such activity;

20 “(C) the extent to which each such activity
21 is carried out in coordination or cooperation
22 with the Joint Special Operations University;

23 “(D) the extent to which each such activity
24 is carried out in relation to other security co-

1 operation activities, exercises, or operations of
2 the Department of Defense;

3 “(E) the extent to which each such activity
4 is designed to meet the purposes set forth in
5 paragraphs (1) through (5) of subsection (b);
6 and

7 “(F) an assessment of the extent to which
8 each such activity will promote the mission of
9 the NSHQ.

10 “(3) Other contributions, financial or in kind,
11 provided by the United States and other NATO na-
12 tions in support of the NSHQ.

13 “(4) Any other matters that the Secretary of
14 Defense considers appropriate.”.

15 **SEC. 1249. NORTH ATLANTIC TREATY ORGANIZATION JOINT**
16 **FORCE COMMAND.**

17 (a) IN GENERAL.—Subchapter II of chapter 138 of
18 title 10, United States Code, is amended by adding at the
19 end the following new section:

20 **“§ 2350n North Atlantic Treaty Organization Joint**
21 **Force Command**

22 “(a) AUTHORIZATION.—The Secretary of Defense
23 shall authorize the establishment of, and the participation
24 by members of the armed forces in, the North Atlantic
25 Treaty Organization Joint Force Command (in this sec-

1 tion referred to as the ‘Joint Force Command’), to be es-
2 tablished in the United States.

3 “(b) USE OF DEPARTMENT OF DEFENSE FACILITIES
4 AND EQUIPMENT.—The Secretary may use facilities and
5 equipment of the Department of Defense to support the
6 Joint Force Command.

7 “(c) AVAILABILITY OF FUNDS.—Amounts authorized
8 to be appropriated to the Department of Defense shall be
9 available to carry out the purposes of this section.”.

10 (b) CONFORMING AMENDMENT.—The table of sec-
11 tions at the beginning of subchapter II of chapter 138 of
12 title 10, United States Code, is amended by adding at the
13 end the following new item:

“2350n. North Atlantic Treaty Organization Joint Force Command.”.

14 **SEC. 1250. REPORT ON NORTH ATLANTIC TREATY ORGANI-**
15 **ZATION READINESS INITIATIVE.**

16 (a) REPORT.—Not later than October 1, 2020, the
17 Secretary of Defense shall submit to the congressional de-
18 fense committees a report on the North Atlantic Treaty
19 Organization (NATO) Readiness Initiative, which shall in-
20 clude assessments of the following:

21 (1) The number of units North Atlantic Treaty
22 Organization allies have pledged against the bench-
23 mark to provide an additional 30 air attack squad-
24 rons, 30 naval combat vessels, and 30 mechanized
25 battalions ready to fight in not more than 30 days.

1 (2) The procedure by which the North Atlantic
2 Treaty Organization certifies, reports, and ensures
3 that the Supreme Allied Commander Europe
4 (SACEUR) maintains a detailed understanding of
5 the readiness of the forces described in paragraph
6 (1).

7 (3) The North Atlantic Treaty Organization
8 plan to maintain the readiness of such forces in fu-
9 ture years.

10 (b) FORM.—The report required by subsection (a)
11 shall be submitted in unclassified form, but may include
12 a classified annex.

13 **SEC. 1250A. REPEAL OF PROHIBITION ON TRANSFER OF AR-**
14 **TICLES ON THE UNITED STATES MUNITIONS**
15 **LIST TO THE REPUBLIC OF CYPRUS.**

16 (a) SENSE OF CONGRESS.—It is the sense of Con-
17 gress that—

18 (1) allowing for the export, re-export or trans-
19 fer of arms subject to the United States Munitions
20 List (part 121 of title 22, Code of Federal Regula-
21 tions) to the Republic of Cyprus would advance
22 United States security interests in Europe by help-
23 ing to reduce the dependence of the Government of
24 the Republic of Cyprus on other countries, including
25 countries that pose challenges to United States in-

1 terests around the world, for defense-related mate-
2 riel; and

3 (2) it is in the interest of the United States to
4 continue to support United Nations-facilitated ef-
5 forts toward a comprehensive solution to the division
6 of Cyprus.

7 (b) MODIFICATION OF PROHIBITION.—Section
8 620C(e) of the Foreign Assistance Act of 1961 (22 U.S.C.
9 2373(e)) is amended—

10 (1) in paragraph (1), by striking “Any agree-
11 ment” and inserting “Except as provided in para-
12 graph (3), any agreement”; and

13 (2) by adding at the end the following new
14 paragraph:

15 “(3) The requirement under paragraph (1) shall not
16 apply to any sale or other provision of any defense article
17 or defense service to Cyprus if the end-user of such de-
18 fense article or defense service is the Government of the
19 Republic of Cyprus.”.

20 (c) EXCLUSION OF THE GOVERNMENT OF THE RE-
21 PUBLIC OF CYPRUS FROM CERTAIN RELATED REGULA-
22 TIONS.—

23 (1) IN GENERAL.—Subject to subsection (d)
24 and except as provided in paragraph (2), beginning
25 on the date of the enactment of this Act, the Sec-

1 retary of State shall not apply a policy of denial for
2 exports, re-exports, or transfers of defense articles
3 and defense services destined for or originating in
4 the Republic of Cyprus if—

5 (A) the request is made by or on behalf of
6 the Government of the Republic of Cyprus; and

7 (B) the end-user of such defense articles or
8 defense services is the Government of the Re-
9 public of Cyprus.

10 (2) EXCEPTION.—This exclusion shall not apply
11 to any denial based upon credible human rights con-
12 cerns.

13 (d) LIMITATIONS ON THE TRANSFER OF ARTICLES
14 ON THE UNITED STATES MUNITIONS LIST TO THE RE-
15 PUBLIC OF CYPRUS.—

16 (1) IN GENERAL.—The policy of denial for ex-
17 ports, re-exports, or transfers of defense articles on
18 the United States Munitions List to the Republic of
19 Cyprus shall remain in place unless the President
20 determines and certifies to the appropriate congres-
21 sional committees not less than annually that—

22 (A) the Government of the Republic of Cy-
23 prus is continuing to cooperate with the United
24 States Government in efforts to implement re-

1 forms on anti-money laundering regulations and
2 financial regulatory oversight; and

3 (B) the Government of the Republic of Cy-
4 prus has made and is continuing to take the
5 steps necessary to deny Russian military vessels
6 access to ports for refueling and servicing.

7 (2) WAIVER.—The President may waive the
8 limitations contained in this subsection for one fiscal
9 year if the President determines that it is essential
10 to the national security interests of the United
11 States to do so.

12 (3) APPROPRIATE CONGRESSIONAL COMMIT-
13 TEES DEFINED.—In this section, the term “appro-
14 priate congressional committees” means—

15 (A) the Committee on Foreign Relations
16 and the Committee on Armed Services of the
17 Senate; and

18 (B) the Committee on Foreign Affairs and
19 the Committee on Armed Services of the House
20 of Representatives.

1 **Subtitle F—Matters Relating to the**
2 **Indo-Pacific Region**

3 **SEC. 1251. MODIFICATION OF INDO-PACIFIC MARITIME SE-**
4 **CURITY INITIATIVE.**

5 (a) TYPES OF ASSISTANCE AND TRAINING.—Sub-
6 section (c)(2)(A) of section 1263 of the National Defense
7 Authorization Act for Fiscal Year 2016 (10 U.S.C. 2282
8 note) is amended by inserting “the law of armed conflict,
9 the rule of law, and” after “respect for”.

10 (b) NOTICE TO CONGRESS ON ASSISTANCE AND
11 TRAINING.—Subsection (g)(1) of such section is amend-
12 ed—

13 (1) in subparagraph (A), by inserting at the
14 end before the period the following: “, the specific
15 unit or units whose capacity to engage in activities
16 under a program of assistance or training to be pro-
17 vided under subsection (a) will be built under the
18 program, and the amount, type, and purpose of the
19 support to be provided”;

20 (2) by redesignating subparagraph (F) as sub-
21 paragraph (J); and

22 (3) by inserting after subparagraph (E) the fol-
23 lowing new subparagraphs:

24 “(F) Information, including the amount,
25 type, and purpose, on assistance and training

1 provided under subsection (a) during the three
2 preceding fiscal years, if applicable.

3 “(G) A description of the elements of the
4 theater campaign plan of the geographic com-
5 batant command concerned and the interagency
6 integrated country strategy that will be ad-
7 vanced by the assistance and training provided
8 under subsection (a).

9 “(H) A description of whether assistance
10 and training provided under subsection (a)
11 could be provided pursuant to—

12 “(i) section 333 of title 10, United
13 States Code, or other security cooperation
14 authorities of the Department of Defense;
15 or

16 “(ii) security cooperation authorities
17 of the Department of State.

18 “(I) An identification of each such author-
19 ity described in subparagraph (H).”.

20 (c) ANNUAL MONITORING REPORTS.—Such section
21 is amended—

22 (1) by redesignating subsection (h) as sub-
23 section (j); and

24 (2) by inserting after subsection (g) the fol-
25 lowing new subsection:

1 “(h) ANNUAL MONITORING REPORTS.—

2 “(1) IN GENERAL.—Not later than March 1,
3 2020, and annually thereafter, the Secretary of De-
4 fense shall submit to the appropriate committees of
5 Congress a report setting forth, for the preceding
6 calendar year, the following:

7 “(A) An assessment, by recipient foreign
8 country, of—

9 “(i) the country’s capabilities relating
10 to maritime security and maritime domain
11 awareness;

12 “(ii) the country’s capability enhance-
13 ment priorities, including how such prior-
14 ities relate to the theater campaign strat-
15 egy, country plan, and theater campaign
16 plan relating to maritime security and
17 maritime domain awareness;

18 “(B) A discussion, by recipient foreign
19 country, of—

20 “(i) priority capabilities that the De-
21 partment of Defense plans to enhance
22 under the authority under subsection (a)
23 and priority capabilities the Department
24 plans to enhance under separate United

1 States security cooperation and security
2 assistance authorities; and

3 “(ii) the anticipated timeline for as-
4 sistance and training for each such capa-
5 bility.

6 “(C) Information, by recipient foreign
7 country, on the status of funds allocated for as-
8 sistance and training provided under subsection
9 (a), including funds allocated but not yet obli-
10 gated or expended.

11 “(D) Information, by recipient foreign
12 country, on the delivery and use of assistance
13 and training provided under subsection (a).

14 “(E) Information, by recipient foreign
15 country, on the timeliness of the provision of
16 assistance and training under subsection (a) as
17 compared to the timeliness of the provision of
18 assistance and training previously provided to
19 the foreign country under subsection (a).

20 “(F) A description of the reasons the De-
21 partment of Defense chose to utilize the author-
22 ity for assistance and training under subsection
23 (a) in the preceding calendar year.

24 “(G) An explanation of any impediments
25 to timely obligation or expenditure of funds al-

1 located for assistance and training under sub-
2 section (a) or any significant delay in the deliv-
3 ery of such assistance and training.

4 “(2) APPROPRIATE COMMITTEES OF CONGRESS
5 DEFINED.—In this subsection, the term ‘appropriate
6 committees of Congress’ has the meaning given the
7 term in subsection (g)(2).”.

8 (d) LIMITATION.—Such section, as so amended, is
9 further amended by inserting after subsection (h), as
10 added by subsection (c)(2), the following:

11 “(i) LIMITATION.—The provision of assistance and
12 training pursuant to a program under subsection (a) shall
13 be subject to the provisions of section 383 of title 10,
14 United States Code.”.

15 **SEC. 1252. EXPANSION OF INDO-PACIFIC MARITIME SECU-**
16 **RITY INITIATIVE AND LIMITATION ON USE OF**
17 **FUNDS.**

18 (a) EXPANSION OF RECIPIENT COUNTRIES.—Sub-
19 section (b) of section 1263 of the National Defense Au-
20 thorization Act for Fiscal Year 2016 (10 U.S.C. 333 note)
21 is amended by adding at the end the following new para-
22 graphs:

23 “(8) The Federated States of Micronesia.

24 “(9) The Independent State of Samoa.

25 “(10) The Kingdom of Tonga.

- 1 “(11) Papua New Guinea.
2 “(12) The Republic of Fiji.
3 “(13) The Republic of Kiribati.
4 “(14) The Republic of the Marshall Islands.
5 “(15) The Republic of Nauru.
6 “(16) The Republic of Palau.
7 “(17) The Republic of Vanuatu.
8 “(18) The Solomon Islands.
9 “(19) Tuvalu.”.

10 (b) LIMITATION ON USE OF FUNDS.—

11 (1) IN GENERAL.—None of the funds author-
12 ized to be appropriated for the Indo-Pacific Mari-
13 time Security Initiative under such section may be
14 obligated or expended to provide training or assist-
15 ance to a recipient country described in any of para-
16 graphs (8) through (19) of subsection (b) of such
17 section until the date on which the Secretary of De-
18 fense, with the concurrence of the Secretary of
19 State, submits to the appropriate committees of
20 Congress a report on security cooperation with and
21 security assistance to such countries.

22 (2) REPORT.—The report referred to in para-
23 graph (1) shall include the following:

24 (A) An identification of elements of the
25 theater campaign plan of the geographic com-

1 batant command concerned and the interagency
2 integrated country strategy that will be ad-
3 vanced by expansion of security cooperation and
4 assistance programs and activities to such re-
5 cipient countries.

6 (B) An assessment of the capabilities, and
7 a description of the capability enhancement pri-
8 orities, of each such country.

9 (C) A description of the manner in which
10 United States security cooperation and assist-
11 ance authorities, including assistance provided
12 pursuant to other security cooperation authori-
13 ties of the Department of Defense or security
14 assistance authorities of the Department of
15 State, may be used to enhance the priority ca-
16 pabilities of each such country.

17 (D) A description, as appropriate, of the
18 manner in which the Secretary of Defense, to-
19 gether with the Secretary of State, shall ensure
20 that security cooperation with and security as-
21 sistance to such countries complement regional
22 engagement efforts undertaken by United
23 States allies, including the Pacific Step-Up ef-
24 forts of the Government of Australia and the

1 “Pacific Reset” efforts of the Government of
2 New Zealand.

3 (E) A description of absorption capacity
4 and sustainability issues for each such country
5 and a plan to resolve such issues.

6 (F) An identification of the estimated an-
7 nual cost for such assistance and training for
8 fiscal years 2020 through 2025.

9 (c) APPROPRIATE COMMITTEES OF CONGRESS DE-
10 FINED.—In this section, the term “appropriate commit-
11 tees of Congress” means—

12 (1) the congressional defense committees;

13 (2) the Committee on Foreign Relations and
14 the Subcommittee on State, Foreign Operations, and
15 Related Programs of the Committee on Appropria-
16 tions of the Senate; and

17 (3) the Committee on Foreign Affairs and the
18 Subcommittee on State, Foreign Operations, and
19 Related Programs of the Committee on Appropria-
20 tions of the House of Representatives.

21 **SEC. 1253. REPORT ON RESOURCING UNITED STATES DE-**
22 **FENSE REQUIREMENTS FOR THE INDO-PA-**
23 **CIFIC REGION AND STUDY ON COMPETITIVE**
24 **STRATEGIES.**

25 (a) REPORT REQUIRED.—

1 (1) IN GENERAL.—Not later than March 15,
2 2020, the Commander of United States Indo-Pacific
3 Command shall submit to the congressional defense
4 committees a report containing the independent as-
5 sessment of the Commander with respect to the ac-
6 tivities and resources required, for fiscal years 2022
7 through 2026, to achieve the following objectives:

8 (A) The implementation of the National
9 Defense Strategy with respect to the Indo-Pa-
10 cific region.

11 (B) The maintenance or restoration of the
12 comparative military advantage of the United
13 States with respect to the People’s Republic of
14 China.

15 (C) The reduction of the risk of executing
16 contingency plans of the Department of De-
17 fense.

18 (2) MATTERS TO BE INCLUDED.—The report
19 required under paragraph (1) shall include the fol-
20 lowing:

21 (A) A description of the intended force
22 structure and posture of assigned and allocated
23 forces within the area of responsibility of
24 United States Indo-Pacific Command for fiscal

1 year 2026 to achieve the objectives described in
2 paragraph (1).

3 (B) An assessment of capabilities require-
4 ments to achieve such objectives.

5 (C) An assessment of logistics require-
6 ments, including personnel, equipment, supplies,
7 storage, and maintenance needs to achieve such
8 objectives.

9 (D) An identification of required infra-
10 structure and military construction investments
11 to achieve such objectives.

12 (E) An assessment of security cooperation
13 activities or resources required to achieve such
14 objectives.

15 (F)(i) A plan to fully resource United
16 States force posture and capabilities, includ-
17 ing—

18 (I) a detailed assessment of the re-
19 sources necessary to address the elements
20 described in subparagraphs (A) through
21 (E), including specific cost estimates for
22 recommended investments or projects—

23 (aa) to increase joint force
24 lethality;

1 (bb) to enhance force design and
2 posture;

3 (cc) to support a robust exercise,
4 experimentation, and innovation pro-
5 gram; and

6 (dd) to strengthen cooperation
7 with allies and partners; and

8 (II) a detailed timeline to achieve the
9 intended force structure and posture de-
10 scribed in subparagraph (A).

11 (ii) The specific cost estimates required by
12 clause (i)(I) shall, to the maximum extent prac-
13 ticable, include the following:

14 (I) With respect to procurement ac-
15 counts—

16 (aa) amounts displayed by ac-
17 count, budget activity, line number,
18 line item, and line item title; and

19 (bb) a description of the require-
20 ments for each such amount.

21 (II) With respect to research, develop-
22 ment, test, and evaluation accounts—

23 (aa) amounts displayed by ac-
24 count, budget activity, line number,

1 program element, and program ele-
2 ment title; and

3 (bb) a description of the require-
4 ments for each such amount.

5 (III) With respect to operation and
6 maintenance accounts—

7 (aa) amounts displayed by ac-
8 count title, budget activity title, line
9 number, and subactivity group title;
10 and

11 (bb) a description of the specific
12 manner in which each such amount
13 would be used.

14 (IV) With respect to military per-
15 sonnel accounts—

16 (aa) amounts displayed by ac-
17 count, budget activity, budget sub-
18 activity, and budget subactivity title;
19 and

20 (bb) a description of the require-
21 ments for each such amount.

22 (V) With respect to each project
23 under military construction accounts (in-
24 cluding unspecified minor military con-
25 struction and amounts for planning and

1 design), the country, location, project title,
2 and project amount for each fiscal year.

3 (VI) With respect to any expenditure
4 or proposed appropriation not described in
5 subclause (I) through (V), a level of detail
6 equivalent or greater than the level of de-
7 tail provided in the future-years defense
8 program submitted pursuant to section
9 221(a) of title 10, United States Code.

10 (3) FORM.—The report required under para-
11 graph (1) may be submitted in classified form, but
12 shall include an unclassified summary.

13 (4) AVAILABILITY.—Not later than March 15,
14 2020, the Commander of United States Indo-Pacific
15 Command shall make the report available to the Sec-
16 retary of Defense, the Under Secretary of Defense
17 for Policy, the Under Secretary of Defense (Comp-
18 troller), the Director of Cost Assessment and Pro-
19 gram Evaluation, the Chairman of the Joint Chiefs
20 of Staff, the Secretaries of the military departments,
21 and the chiefs of staff of each military service.

22 (b) BRIEFINGS REQUIRED.—

23 (1) INITIAL BRIEFING.—Not later than April
24 15, 2020, the Secretary of Defense (acting through
25 the Under Secretary of Defense for Policy, the

1 Under Secretary of Defense (Comptroller), and the
2 Director of Cost Assessment and Program Evaluation
3 tion) and the Chairman of the Joint Chiefs of Staff
4 shall provide to the congressional defense commit-
5 tees a joint briefing, and any written comments the
6 Secretary of Defense and the Chairman of the Joint
7 Chiefs of Staff consider necessary, with respect to
8 their assessments of the report submitted under sub-
9 section (a), including their assessments of the feasi-
10 bility and advisability of the plan required by para-
11 graph (2)(F) of that subsection.

12 (2) SUBSEQUENT BRIEFING.—Not later than
13 April 30, 2020, the Secretary of the Air Force, the
14 Secretary of the Army, and the Secretary of the
15 Navy shall provide to the congressional defense com-
16 mittees a joint briefing, and documents as appro-
17 priate, with respect to their assessments of the re-
18 port submitted under subsection (a), including their
19 assessments of the feasibility and advisability of the
20 plan required by paragraph (2)(F) of that sub-
21 section.

22 (c) STUDY ON COMPETITIVE STRATEGIES WITH RE-
23 SPECT TO THE PEOPLE’S REPUBLIC OF CHINA.—

24 (1) IN GENERAL.—The Secretary of Defense,
25 acting through the Director of the Office of Net As-

1 sessment, shall conduct a study on not fewer than
2 three possible long-term competitive strategies with
3 respect to the People's Republic of China that fo-
4 cuses on the identification of opportunities to shape
5 strategic competition to the advantage of the United
6 States.

7 (2) REPORT.—Not later than one year after the
8 date of the enactment of this Act, the Secretary of
9 Defense shall submit to the congressional defense
10 committees the results of the study required under
11 paragraph (1).

12 **SEC. 1254. LIMITATION ON USE OF FUNDS TO REDUCE THE**
13 **TOTAL NUMBER OF MEMBERS OF THE**
14 **ARMED FORCES SERVING ON ACTIVE DUTY**
15 **WHO ARE DEPLOYED TO SOUTH KOREA.**

16 None of the funds authorized to be appropriated by
17 this Act may be used to reduce the total number of mem-
18 bers of the Armed Forces serving on active duty who are
19 deployed to South Korea below 28,500 until 90 days after
20 the date on which the Secretary of Defense certifies to
21 the congressional defense committees the following:

22 (1) Such a reduction is in the national security
23 interest of the United States and will not signifi-
24 cantly undermine the security of United States allies
25 in the region.

1 (2) The Secretary has appropriately consulted
2 with allies of the United States, including South
3 Korea and Japan, regarding such a reduction.

4 **SEC. 1255. REPORT ON DIRECT, INDIRECT, AND BURDEN-**
5 **SHARING CONTRIBUTIONS OF JAPAN AND**
6 **SOUTH KOREA.**

7 (a) IN GENERAL.—Not later than the date agreed to
8 in accordance with subsection (e)(2), the Comptroller Gen-
9 eral of the United States shall submit to the appropriate
10 congressional committees a report on the direct, indirect,
11 and burden-sharing contributions of Japan and South
12 Korea to support overseas military installations of the
13 United States and United States Armed Forces deployed
14 to or permanently stationed in Japan and South Korea,
15 respectively.

16 (b) ELEMENTS.—The report required by subsection
17 (a) shall include the following:

18 (1) The benefits to United States national secu-
19 rity and regional security derived from the forward
20 presence of the Armed Forces in the Indo-Pacific re-
21 gion, including Japan and South Korea.

22 (2) For calendar year 2016 and each subse-
23 quent calendar year, the overall cost for the presence
24 of the Armed Forces in Japan and South Korea and

1 the breakdown of such costs between the United
2 States and the respective host nations.

3 (3) For calendar year 2016 and each subse-
4 quent calendar year, a description of the one-time
5 and recurring costs associated with the presence of
6 the Armed Forces in Japan and South Korea, in-
7 cluding—

8 (A) costs to relocate the Armed Forces
9 within Japan and South Korea and to realign
10 the Armed Forces from Japan and South
11 Korea;

12 (B) military personnel costs;

13 (C) operation and maintenance costs; and

14 (D) military construction costs.

15 (4) A description of direct, indirect, and bur-
16 den-sharing contributions of Japan and South
17 Korea, including—

18 (A) contributions for labor costs associated
19 with the presence of the Armed Forces;

20 (B) contributions to military construction
21 projects of the Department of Defense, includ-
22 ing planning, design, environmental reviews,
23 construction, construction management costs,
24 rents on privately-owned land, facilities, labor,
25 utilities, and vicinity improvements;

1 (C) contributions such as loan guarantees
2 on public-private venture housing and payment-
3 in-kind for facilities returned to Japan and
4 South Korea;

5 (D) contributions accepted for labor, logis-
6 tics, utilities, facilities, and any other purpose;
7 and

8 (E) other contributions, such as Camp
9 Humphreys and the Futenma Replacement Fa-
10 cility, as determined appropriate by the Comp-
11 troller General.

12 (5) The methodology and accounting procedures
13 used to measure and track direct, indirect, and bur-
14 den-sharing contributions made by Japan and South
15 Korea.

16 (c) DESCRIPTION OF CONTRIBUTIONS IN UNITED
17 STATES DOLLARS.—The report required by subsection (a)
18 shall describe the direct, indirect, and burden-sharing con-
19 tributions of Japan and South Korea in United States dol-
20 lars and shall specify the exchange rates used to determine
21 the United States dollar value of such contributions.

22 (d) FORM.—The report required by subsection (a)
23 shall be submitted in unclassified form without any des-
24 ignation relating to dissemination control, but may contain
25 a classified annex.

1 (e) BRIEFING.—Not later than March 2, 2020, the
2 Comptroller General shall provide to the appropriate con-
3 gressional committees an interim briefing—

4 (1) on the status of the report and initial find-
5 ings; and

6 (2) to agree on the date on which to submit the
7 report required by subsection (a).

8 (f) SUPPORT FROM THE DEPARTMENT OF DE-
9 FENSE.—The Secretary of Defense shall provide the
10 Comptroller General with timely access to the appropriate
11 information, data, and analyses necessary to fulfill the re-
12 quirement under subsection (a) in a timely, thorough, and
13 independent manner.

14 (g) APPROPRIATE CONGRESSIONAL COMMITTEES
15 DEFINED.—In this section, the term “appropriate con-
16 gressional committees” means—

17 (1) the congressional defense committees; and

18 (2) the Committee on Foreign Relations of the
19 Senate and the Committee on Foreign Affairs of the
20 House of Representatives.

1 **SEC. 1256. SENSE OF CONGRESS ON SECURITY COMMIT-**
2 **MENTS TO THE GOVERNMENTS OF JAPAN**
3 **AND THE REPUBLIC OF KOREA AND TRI-**
4 **LATERAL COOPERATION AMONG THE UNITED**
5 **STATES, JAPAN, AND THE REPUBLIC OF**
6 **KOREA.**

7 It is the sense of Congress that—

8 (1) the United States remains committed to its
9 alliances with Japan and the Republic of Korea,
10 which are—

11 (A) essential to the peace and stability in
12 the Indo-Pacific region; and

13 (B) based on the shared values of democ-
14 racy, the rule of law, free and open markets,
15 and respect for human rights;

16 (2) cooperation among the United States,
17 Japan, and the Republic of Korea is essential for
18 confronting regional and global challenges, includ-
19 ing—

20 (A) preventing the proliferation of weapons
21 of mass destruction;

22 (B) combating piracy;

23 (C) assisting victims of conflict and dis-
24 aster worldwide;

25 (D) protecting maritime security; and

1 (E) ensuring freedom of navigation, com-
2 merce, and overflight in the Indo-Pacific region;

3 (3) the United States, Japan, and the Republic
4 of Korea share deep concern that the nuclear and
5 ballistic missile programs, the conventional military
6 capabilities, and the chemical and biological weapons
7 programs of the Democratic People's Republic of
8 Korea, together with the long history of aggression
9 and provocation by the Democratic People's Repub-
10 lic of Korea, pose grave threats to peace and sta-
11 bility on the Korean Peninsula and in the Indo-Pa-
12 cific region;

13 (4) the United States views security cooperation
14 between Japan and the Republic of Korea as essen-
15 tial to maintaining peace and stability in the Indo-
16 Pacific region, promoting mutual interests, and ad-
17 dressing shared concerns;

18 (5) the bilateral military intelligence-sharing
19 pact between Japan and the Republic of Korea,
20 signed on November 23, 2016, and the trilateral in-
21 telligence sharing agreement among the United
22 States, Japan, and the Republic of Korea, signed on
23 December 29, 2015, are critical to security in the
24 Indo-Pacific region and should be maintained; and

1 (6) recognizing that the security of the United
2 States, Japan, and the Republic of Korea are inter-
3 twined by common threats, including from the
4 Democratic People’s Republic of Korea, the United
5 States strongly encourages—

6 (A) strengthened bilateral security ties be-
7 tween Japan and the Republic of Korea; and

8 (B) deeper trilateral defense coordination
9 and cooperation, including through expanded
10 exercises, training, senior-level exchanges, and
11 information sharing.

12 **SEC. 1257. SENSE OF CONGRESS ON NORTH KOREA.**

13 It is the sense of Congress that—

14 (1) diplomacy, economic sanctions, and credible
15 deterrence are essential to address North Korea’s il-
16 licit weapons of mass destruction program and the
17 conventional threat that North Korea poses to
18 United States forces on the Korean Peninsula and
19 to United States allies in the region;

20 (2) North Korea’s recent missile tests are de-
21 stabilizing, increase regional tensions, and run
22 counter to the spirit of diplomatic negotiations;

23 (3) every effort should be made to deter actions
24 by North Korea that could lead to a military con-
25 frontation, which would pose extreme risks to—

1 (A) United States military personnel;

2 (B) noncombatants, including United
3 States citizens and citizens of United States al-
4 lies; and

5 (C) regional security;

6 (4) a sustained and credible diplomatic process
7 based on concrete measures to achieve the
8 denuclearization of North Korea and an eventual
9 end to the Korean War should be pursued;

10 (5) continued actions by North Korea that run
11 counter to diplomatic negotiations call into question
12 North Korea's intentions and commitment to a dip-
13 lomatic solution; and

14 (6) until such time as North Korea no longer
15 poses a threat to the United States or United States
16 allies, the United States should, in concert with such
17 allies, continue to deter North Korea through cred-
18 ible defense and deterrence posture.

19 **SEC. 1258. STATEMENT OF POLICY AND SENSE OF CON-**
20 **GRESS ON, AND STRATEGY TO FULFILL OBLI-**
21 **GATIONS UNDER, MUTUAL DEFENSE TREATY**
22 **WITH THE REPUBLIC OF THE PHILIPPINES.**

23 (a) STATEMENT OF POLICY.—It is the policy of the
24 United States that—

1 (1) while the United States has long adopted an
2 approach that takes no position on the ultimate dis-
3 position of the disputed sovereignty claims in the
4 South China Sea, disputing states should—

5 (A) resolve their disputes peacefully with-
6 out the threat or use of force; and

7 (B) ensure that their maritime claims are
8 consistent with international law; and

9 (2) an armed attack on the armed forces, public
10 vessels, or aircraft of the Republic of the Philippines
11 in the Pacific, including the South China Sea, would
12 trigger the mutual defense obligations of the United
13 States under Article IV of the Mutual Defense Trea-
14 ty “to meet common dangers in accordance with its
15 constitutional processes”.

16 (b) SENSE OF CONGRESS.—It is the sense of Con-
17 gress that the Secretary of State and the Secretary of De-
18 fense should—

19 (1) affirm the commitment of the United States
20 to the Mutual Defense Treaty;

21 (2) preserve and strengthen the military alli-
22 ance of the United States with the Republic of the
23 Philippines;

1 (3) prioritize efforts to develop a shared under-
2 standing of alliance commitments and defense plan-
3 ning; and

4 (4) provide appropriate support to the Republic
5 of the Philippines to strengthen the self-defense ca-
6 pabilities of the Republic of the Philippines, particu-
7 larly in the maritime domain.

8 (c) STRATEGY REQUIRED.—

9 (1) IN GENERAL.—Not later than 1 year after
10 the date of the enactment of this Act, the Secretary
11 of Defense, in consultation with the Secretary of
12 State, shall submit to the appropriate committees of
13 Congress a report that sets forth the strategy of the
14 Department of Defense for achieving the objectives
15 described in subsection (b).

16 (2) ELEMENTS OF STRATEGY.—The strategy
17 required by paragraph (1) shall include the fol-
18 lowing:

19 (A) A description of the national security
20 interests and objectives of the United States
21 furthered by the Mutual Defense Treaty.

22 (B) A description of the regional security
23 environment, including—

24 (i) an assessment of threats to both
25 the United States and the Republic of the

1 Philippines national security interests in
2 the region and the role of the Department
3 in addressing such threats;

4 (ii) a description of the strategic secu-
5 rity challenges that are detrimental to re-
6 gional peace and global stability, including
7 challenges posed by the People's Republic
8 of China, violent extremist organizations,
9 and natural disasters; and

10 (iii) a description of each violent ex-
11 tremist organization that presents a threat
12 to the Republic of the Philippines, includ-
13 ing, with respect to each such organiza-
14 tion—

15 (I) the primary objectives of the
16 organization;

17 (II) an assessment of—

18 (aa) the capacity and capa-
19 bility of the organization;

20 (bb) the transnational threat
21 posed by the organization;

22 (cc) recent trends in the ca-
23 pability and influence of the or-
24 ganization;

1 (dd) the potential for the or-
2 ganization to reconstitute, ex-
3 pand, or otherwise pose a signifi-
4 cant transnational threat; and

5 (ee) the conditions that con-
6 tribute to efforts of the organiza-
7 tion to reconstitute, expand, or
8 pose such a threat; and

9 (III) a description of the metrics
10 used to assess the capability and in-
11 fluence of the organization.

12 (C) A description of Department objectives
13 with the Republic of the Philippines, includ-
14 ing—

15 (i) the benchmarks for assessing
16 progress towards such objectives; and

17 (ii) the Department strategy to
18 achieve such objectives, including
19 through—

20 (I) defense cooperation;

21 (II) use of security cooperation
22 authorities; and

23 (III) other support or activities
24 in the Republic of the Philippines.

1 (D) An identification of all current and
2 planned Department resources, programs, and
3 activities to support the strategy required by
4 paragraph (1), including a review of the neces-
5 sity of an ongoing named operation and the cri-
6 teria used to determine such necessity.

7 (d) DEFINITIONS.—In this section:

8 (1) APPROPRIATE COMMITTEES OF CON-
9 GRESS.—The term “appropriate committees of Con-
10 gress” means—

11 (A) the congressional defense committees;
12 and

13 (B) the Committee on Foreign Relations of
14 the Senate and the Committee on Foreign Af-
15 fairs of the House of Representatives.

16 (2) MUTUAL DEFENSE TREATY.—The term
17 “Mutual Defense Treaty” means the Mutual De-
18 fense Treaty between the Republic of the Philippines
19 and the United States of America, done at Wash-
20 ington August 30, 1951.

21 **SEC. 1259. REPORT ON SECURITY COOPERATION WITH THE**
22 **PHILIPPINE NATIONAL POLICE.**

23 (a) REPORT.—Not later than 150 days after the date
24 of the enactment of this Act, the Secretary of Defense,
25 in concurrence with the Secretary of State, shall submit

1 to the appropriate congressional committees a report con-
2 cerning security sector assistance programs with the Phil-
3 ippine National Police.

4 (b) MATTERS TO BE INCLUDED.—The report re-
5 quired by subsection (a) shall include the following:

6 (1) A description of current and planned secu-
7 rity sector assistance programs with the Philippine
8 National Police.

9 (2) The purpose, objectives, and type of train-
10 ing, equipment, or assistance provided under each
11 such program or activity.

12 (3) An identification of the lead agency respon-
13 sible for each such program or activity.

14 (4) An identification of the authority or au-
15 thorities under which each such program or activity
16 is conducted.

17 (5) A description of the process and criteria
18 used to determine utilization of each such authority
19 or authorities.

20 (6) A description of how each such program or
21 activity advances United States national security in-
22 terests as it relates to the Department's strategy re-
23 garding the Philippines.

1 (7) An identification of the specific units of the
2 Philippine National Police to receive training, equip-
3 ment, or assistance under each such program.

4 (8) A description of the process and criteria by
5 which specific units of the Philippine National Police
6 are selected as recipients of such programs and ac-
7 tivities, including an assessment of the comparative
8 value of working with units of law enforcement and
9 units of the military forces of the Philippines.

10 (9) An assessment of the current operational ef-
11 fectiveness of such units and a description of the
12 metrics used to make such assessment.

13 (10) An identification of priority capabilities of
14 such units to enhance through training, equipment,
15 or assistance under each such program or activity.

16 (11) A plan to identify, monitor, track, and as-
17 sess the ability of each such program or activity to
18 meet each of the objectives described pursuant to
19 paragraph (2) to enhance the capabilities of each
20 such unit.

21 (12) An identification of any units of the Phil-
22 ippine National Police that are determined or
23 credibly alleged to have committed human rights
24 abuses.

1 (13) A description of the relationship between
2 any units of the Philippine National Police identified
3 pursuant to paragraph (12) and any unit identified
4 pursuant to paragraph (7).

5 (14) A description of the current or previous
6 role, if any, of each unit identified pursuant to para-
7 graph (7) in the anti-drug campaign.

8 (15) An assessment of the ability of the United
9 States to identify the units described in paragraph
10 (12).

11 (16) Any other matters the Secretary of De-
12 fense determines should be included.

13 (c) FORM.—The report required by subsection (a)
14 shall be submitted in unclassified form without any des-
15 ignation relating to dissemination control, but may contain
16 a classified annex.

17 (d) APPROPRIATE CONGRESSIONAL COMMITTEES
18 DEFINED.—In this section, the term “appropriate con-
19 gressional committees” means—

20 (1) the congressional defense committees; and

21 (2) the Committee on Foreign Relations of the
22 Senate and the Committee on Foreign Affairs of the
23 House of Representatives.

1 **SEC. 1260. MODIFICATION OF ANNUAL REPORT ON MILI-**
2 **TARY AND SECURITY DEVELOPMENTS IN-**
3 **VOLVING THE PEOPLE'S REPUBLIC OF**
4 **CHINA.**

5 (a) MODIFICATION TO ANNUAL REPORT REQUIRE-
6 MENTS.—Section 1202 of the National Defense Author-
7 ization Act for Fiscal Year 2000 (10 U.S.C. 113 note)
8 is amended as follows:

9 (1) In subsection (a), by inserting “, in con-
10 sultation with the heads of other Federal depart-
11 ments and agencies as appropriate,” after “the Sec-
12 retary of Defense”.

13 (2) In subsection (b)—

14 (A) by amending paragraph (26) to read
15 as follows:

16 “(26) The relationship between Chinese over-
17 seas investment, including the Belt and Road Initia-
18 tive, the Digital Silk Road, and any state-owned or
19 controlled digital or physical infrastructure projects
20 of China, and Chinese security and military strategy
21 objectives, including—

22 “(A) an assessment of the Chinese invest-
23 ments or projects likely, or with significant po-
24 tential, to be converted into military assets of
25 China;

1 “(B) an assessment of the Chinese invest-
2 ments or projects of greatest concern with re-
3 spect to United States national security inter-
4 ests;

5 “(C) a description of any Chinese invest-
6 ment or project located in another country that
7 is linked to military cooperation with such
8 country, such as cooperation on satellite naviga-
9 tion or arms production;

10 “(D) an assessment of any Chinese invest-
11 ment, project, or associated agreement in or
12 with another country that presents significant
13 financial risk for the country or may undermine
14 the sovereignty of such country; and

15 “(E) an assessment of the implications for
16 United States military or governmental inter-
17 ests related to denial of access, compromised in-
18 telligence activities, and network advantages of
19 Chinese investments or projects in other coun-
20 tries.”; and

21 (B) by adding at the end the following:

22 “(29) Developments relating to the China Coast
23 Guard, including an assessment of—

24 “(A) how the change in the Guard’s com-
25 mand structure to report to China’s Central

1 Military Commission affects the Guard's status
2 as a law enforcement entity;

3 “(B) the implications of such command
4 structure with respect to the use of the Guard
5 as a coercive tool to conduct ‘gray zone’ activi-
6 ties in the East China Sea and the South China
7 Sea; and

8 “(C) how the change in such command
9 structure may affect interactions between the
10 Guard and the United States Navy.

11 “(30) An assessment of the military-to-military
12 relations between China and Russia, including an
13 identification of mutual and competing interests.

14 “(31) An assessment of China's expansion of its
15 surveillance state, including—

16 “(A) any correlation of such expansion
17 with its oppression of its citizens or its threat
18 to United States national security interests
19 around the world; and

20 “(B) an overview of the extent to which
21 such surveillance corresponds to an overall re-
22 spect, or lack thereof, for human rights in
23 China, especially for religious and ethnic mi-
24 norities.”.

25 (3) In subsection (c)—

1 (A) by striking “and the” each place it ap-
2 pears and inserting “, the”;

3 (B) in paragraph (1), by striking “of the
4 Senate.” and inserting “, and the Select Com-
5 mittee on Intelligence of the Senate.”; and

6 (C) in paragraph (2), by striking “Com-
7 mittee on International Relations of the House
8 of Representatives.” and inserting “Committee
9 on Foreign Affairs, and the Permanent Select
10 Committee on Intelligence of the House of Rep-
11 resentatives.”

12 (b) **ADDITIONAL DEFINED TERM.**—Such section
13 1202, as so amended, is further amended by adding at
14 the end the following:

15 “(d) **STATE-OWNED OR CONTROLLED DIGITAL OR**
16 **PHYSICAL INFRASTRUCTURE PROJECT OF CHINA.**—

17 “(1) **IN GENERAL.**—For purposes of subsection
18 (b)(26), the term ‘state-owned or controlled digital
19 or physical infrastructure project of China’ means a
20 transportation, energy, or information technology in-
21 frastructure project that is—

22 “(A) owned, controlled, under the direct or
23 indirect influence of, or subsidized by—

24 “(i) the Government of the People’s
25 Republic of China, including any agency

1 within such Government and any subdivi-
2 sion or other unit of government at any
3 level of jurisdiction within China;

4 “(ii) any agent or instrumentality of
5 such Government, including such agencies
6 or subdivisions; or

7 “(iii) the Chinese Communist Party;
8 or

9 “(B) a project of any Chinese company op-
10 erating in a sector identified as a strategic in-
11 dustry in the Chinese Government’s ‘Made in
12 China 2025’ strategy to make China a ‘manu-
13 facturing power’ as a core national interest.

14 “(2) OWNED; CONTROLLED.—For purposes
15 paragraph (1)(A), with respect to a project—

16 “(A) the term ‘owned’ means a majority or
17 controlling interest, whether by value or voting
18 interest, in that project, including through fidu-
19 ciaries, agents, or other means; and

20 “(B) the term ‘controlled’ means the power
21 by any means to determine or influence, directly
22 or indirectly, important matters affecting the
23 project, regardless of the level of ownership and
24 whether or not that power is exercised.”.

1 **SEC. 1260A. REPORT ON FOREIGN MILITARY ACTIVITIES IN**
2 **PACIFIC ISLAND COUNTRIES.**

3 (a) IN GENERAL.—Not later than 120 days after the
4 date of the enactment of this Act, the Under Secretary
5 of Defense for Intelligence, in coordination with the Direc-
6 tor of the Defense Intelligence Agency and the Director
7 of National Intelligence, shall submit to the congressional
8 defense committees a report specifying and analyzing—

9 (1) strategic interests of foreign militaries in
10 Pacific Island countries, known or emerging foreign
11 partnerships or alliances with non-Pacific Island
12 countries, and foreign military training, exercises, or
13 operations in the region, excluding with countries
14 who are members of the Southeast Asia Treaty Or-
15 ganization;

16 (2) gaps in intelligence collection capabilities
17 and activities that prevent or may prevent a com-
18 prehensive understanding of current intelligence as-
19 sessments for Pacific Island countries; and

20 (3) plans to overcome any current intelligence
21 collection deficiencies, including an analysis of both
22 United States and allied and partner intelligence col-
23 lection capabilities and activities.

24 (b) PACIFIC ISLAND COUNTRY DEFINED.—In this
25 section, the term “Pacific Island country” includes any of
26 the following countries: The Republic of Fiji, the Republic

1 Kiribati, the Marshall Islands, the Federated States of Mi-
2 cronesia, the Republic of Nauru, the Republic of Palau,
3 the Independent State of Samoa, the Solomon Islands, the
4 Kingdom of Tonga, Tuvalu, and the Republic of Vanuatu.

5 **SEC. 1260B. REPORT ON CYBERSECURITY ACTIVITIES WITH**
6 **TAIWAN.**

7 Not later than 180 days after the date of the enact-
8 ment of this Act, the Secretary of Defense shall submit
9 to the congressional defense committees a report on the
10 following:

11 (1) The feasibility of establishing a high-level,
12 interagency United States-Taiwan working group for
13 coordinating responses to emerging issues related to
14 cybersecurity.

15 (2) A discussion of the Department of De-
16 fense's current and future plans to engage with Tai-
17 wan in cybersecurity activities.

18 (3) A discussion of obstacles encountered in
19 forming, executing, or implementing agreements
20 with Taiwan for cybersecurity activities.

21 (4) Any other matters the Secretary of Defense
22 determines should be included.

1 **SEC. 1260C. REVIEW AND REPORT RELATED TO THE TAI-**
2 **WAN RELATIONS ACT.**

3 (a) REVIEW.—The Secretary of Defense, in coordina-
4 tion with the Secretary of State, shall conduct a review
5 of—

6 (1) whether, and the means by which, as appli-
7 cable, the Government of the People’s Republic of
8 China or the Chinese Communist Party are affect-
9 ing, including through military, economic, informa-
10 tion, digital, diplomatic, or any other form of coer-
11 cion—

12 (A) the security, or the social and eco-
13 nomic system, of the people of Taiwan;

14 (B) the military balance of power between
15 the People’s Republic of China and Taiwan; or

16 (C) the expectation that the future of Tai-
17 wan will continue to be determined by peaceful
18 means; and

19 (2) the role of United States policy toward Tai-
20 wan with respect to the implementation of the 2017
21 National Security Strategy and the 2018 National
22 Defense Strategy.

23 (b) REPORT.—

24 (1) IN GENERAL.—Not later than 180 days
25 after the date of the enactment of this Act, the Sec-
26 retary of Defense, in coordination with the Secretary

1 of State, shall provide to the appropriate committees
2 of Congress a report on the review under subsection
3 (a).

4 (2) MATTERS TO BE INCLUDED.—The report
5 under paragraph (1) shall include the following:

6 (A) The assessments resulting from the re-
7 view.

8 (B) Recommendations on legislative
9 changes or Department of Defense or Depart-
10 ment of State policy changes necessary to en-
11 sure that the United States continues to meets
12 its obligations to Taiwan under the Taiwan Re-
13 lations Act (22 U.S.C. 3301 et seq.).

14 (C) Guidelines for—

15 (i) new defense requirements, includ-
16 ing requirements relating to information
17 and digital space;

18 (ii) exchanges between senior-level ci-
19 vilian and military officials of the United
20 States and Taiwan; and

21 (iii) the regular transfer of defense ar-
22 ticles, especially defense articles that are
23 mobile, survivable, and cost effective, to
24 most effectively deter attacks and support

1 the asymmetric defense strategy of Tai-
2 wan.

3 (c) APPROPRIATE COMMITTEES OF CONGRESS DE-
4 FINED.—In this section, the term “appropriate commit-
5 tees of Congress” means—

6 (1) the Committee on Armed Services and the
7 Committee on Foreign Relations of the Senate; and

8 (2) the Committee on Armed Services and the
9 Committee on Foreign Affairs of the House of Rep-
10 representatives.

11 **SEC. 1260D. SENSE OF CONGRESS ON ENHANCEMENT OF**
12 **THE UNITED STATES-TAIWAN DEFENSE RELA-**
13 **TIONSHIP.**

14 It is the sense of Congress that—

15 (1) Taiwan is a vital partner of the United
16 States and is critical to a free and open Indo-Pacific
17 region;

18 (2) the Taiwan Relations Act (22 U.S.C. 3301
19 et seq.) and the “Six Assurances” are both corner-
20 stones of United States relations with Taiwan;

21 (3) the United States should continue to
22 strengthen defense and security cooperation with
23 Taiwan to support the development of capable,
24 ready, and modern defense forces necessary for Tai-
25 wan to maintain a sufficient self-defense capability;

1 (4) consistent with the Taiwan Relations Act
2 (22 U.S.C. 3301 et seq.), the United States should
3 strongly support the acquisition by Taiwan of de-
4 fense articles and services through foreign military
5 sales, direct commercial sales, and industrial co-
6 operation, with an emphasis on anti-ship, coastal de-
7 fense, anti-armor, air defense, defensive naval min-
8 ing, and resilient command and control capabilities
9 that support the asymmetric defense strategy of Tai-
10 wan;

11 (5) the President and Congress should deter-
12 mine the nature and quantity of such defense arti-
13 cles and services based solely upon their judgment of
14 the needs of Taiwan, as required by the Taiwan Re-
15 lations Act and in accordance with procedures estab-
16 lished by law;

17 (6) the United States should continue efforts to
18 improve the predictability of United States arms
19 sales to Taiwan by ensuring timely review of and re-
20 sponse to requests of Taiwan for defense articles
21 and services;

22 (7) the Secretary of Defense should promote
23 policies concerning exchanges that enhance the secu-
24 rity of Taiwan, including—

1 (A) opportunities with Taiwan for practical
2 training and military exercises that—

3 (i) enable Taiwan to maintain a suffi-
4 cient self-defense capability, as described
5 in section 3(a) of the Taiwan Relations Act
6 (22 U.S.C. 3302(a)); and

7 (ii) emphasize capabilities consistent
8 with the asymmetric defense strategy of
9 Taiwan;

10 (B) exchanges between senior defense offi-
11 cials and general officers of the United States
12 and Taiwan, consistent with the Taiwan Travel
13 Act (Public Law 115–135), especially for the
14 purpose of enhancing cooperation on defense
15 planning and improving the interoperability of
16 United States and Taiwan forces; and

17 (C) opportunities for exchanges between
18 junior officers and senior enlisted personnel of
19 the United States and Taiwan;

20 (8) the United States and Taiwan should ex-
21 pand cooperation in humanitarian assistance and
22 disaster relief;

23 (9) the Secretary of Defense should consider
24 options, including exercises and ship visits, as appro-
25 priate, to expand the scale and scope of humani-

1 tarian assistance and disaster response cooperation
2 with Taiwan and other regional partners so as to
3 improve disaster response planning and prepared-
4 ness; and

5 (10) the Secretary of Defense should continue
6 regular transits of United States Navy vessels
7 through the Taiwan Strait, commend the armed
8 forces of France for their April 6, 2019, legal transit
9 of the Taiwan Strait, and encourage allies and part-
10 ners to follow suit in conducting such transits, in
11 order to demonstrate the commitment of the United
12 States and its allies and partners to fly, sail, and op-
13 erate anywhere international law allows.

14 **SEC. 1260E. CHINESE FOREIGN DIRECT INVESTMENT IN**
15 **COUNTRIES OF THE ARCTIC REGION.**

16 (a) INDEPENDENT STUDY.—

17 (1) IN GENERAL.—Not later than 45 days after
18 the date of enactment of this Act, the Secretary of
19 Defense shall seek to enter into a contract with a
20 federally-funded research and development center
21 described in paragraph (2) to complete an inde-
22 pendent study of Chinese foreign direct investment
23 in countries of the Arctic region, with a focus on the
24 effects of such foreign direct investment on United

1 States national security and near-peer competition
2 in the Arctic region.

3 (2) FEDERALLY-FUNDED RESEARCH AND DE-
4 VELOPMENT CENTER DESCRIBED.—A federally-fund-
5 ed research and development center described in this
6 paragraph is a federally-funded research and devel-
7 opment center that—

8 (A) has access to relevant data and dem-
9 onstrated data-sets regarding foreign direct in-
10 vestment in the Arctic region; and

11 (B) has access to policy experts throughout
12 the United States and the Arctic region.

13 (b) ELEMENTS.—The study required by subsection
14 (a) shall include the following:

15 (1) Projects in the Arctic that are directly or
16 indirectly funded by public and private Chinese enti-
17 ties, to—

18 (A) build public infrastructure;

19 (B) finance infrastructure;

20 (C) lease mineral and oil and gas leases;

21 (D) purchase real estate;

22 (E) extract or process, including smelting,
23 minerals and oil and gas;

1 (F) engage in shipping or to own and oper-
2 ate or construct shipping infrastructure, includ-
3 ing ship construction;

4 (G) lay undersea cables; and

5 (H) manufacture, own or operate tele-
6 communications capabilities and infrastructure.

7 (2) An analysis of the legal environment in
8 which Chinese foreign direct investment are occur-
9 ring in the United States, Russia, Canada, Green-
10 land, Norway, and Iceland. The analysis should in-
11 clude—

12 (A) an assessment of the efficacy of mech-
13 anisms for screening foreign direct investment
14 in the United States, Russia, Canada, Green-
15 land, Norway, and Iceland;

16 (B) an assessment of the degree to which
17 there is transparency in Chinese foreign direct
18 investment in countries of the Arctic region;

19 (C) an assessment of the criteria used to
20 assess potential Chinese foreign direct invest-
21 ment in countries of the Arctic region;

22 (D) an assessment of the efficacy of meth-
23 ods for monitoring approved Chinese foreign di-
24 rect investment in countries of the Arctic re-
25 gion; and

1 (E) an assessment of public reporting of
2 the decision to approve such Chinese foreign di-
3 rect investment.

4 (3) A comparison of Chinese foreign direct in-
5 vestment in countries of the Arctic region to other
6 countries with major investments in such countries,
7 including India, Japan, South Korea, the Nether-
8 lands, and France.

9 (4) An assessment of the environmental impact
10 of past Chinese investments in oil and gas, mineral,
11 and infrastructure projects in the Arctic region, in-
12 cluding the degree to which Chinese investors are re-
13 quired to comply with local environmental laws and
14 post bonds to assure remediation if a project be-
15 comes bankrupt.

16 (5) A review of the 2018 Chinese Arctic Policy
17 and other relevant public and nonpublic Chinese pol-
18 icy documents to determine the following:

19 (A) China's strategic objectives in the Arc-
20 tic region from a military, economic, territorial,
21 and political perspective.

22 (B) China's goals in the Arctic region with
23 respect to its relations with the United States
24 and Russia, including the degree to which ac-
25 tivities of China in the region are an extension

1 of China's strategic competition with the United
2 States.

3 (C) Whether any active or planned infra-
4 structure investments are likely to result in a
5 regular presence of Chinese military vessels or
6 the establishment of military bases in the Arctic
7 region.

8 (D) The extent to which Chinese research
9 activities in the Arctic region are a front for
10 economic activities, including illegal economic
11 espionage, intelligence gathering, and support
12 for future Chinese military activities in the re-
13 gion.

14 (E) The degree to which Arctic littoral
15 states are susceptible to the political and eco-
16 nomic risks of unregulated foreign direct invest-
17 ment.

18 (F) The vulnerability of semi-autonomous
19 regions, such as tribal lands, to Chinese foreign
20 direct investment, including the influence of
21 legal controls and political or economic manipu-
22 lation with respect to such vulnerability.

23 (G) The implications of China's Arctic de-
24 velopment and participation model with respect

1 to forecasting China's military, economy, terri-
2 torial, and political activities.

3 (6) Policy and legislative recommendations to
4 enhance the position of the United States in affairs
5 of the Arctic region, including—

6 (A) recommendations for how the United
7 States would best interact with nongovern-
8 mental organizations such as the World Bank,
9 Arctic Council, United Nations General Assem-
10 bly, and International Maritime Organization;

11 (B) recommendations to pursue or not
12 pursue the formation of an Arctic Development
13 Bank and, if pursued, how to organize, fund,
14 and operate the bank;

15 (C) measures the United States can take
16 to promote regional governance and eliminate
17 the soft-power influence from Chinese foreign
18 direct investment, in particular, steps where the
19 United States and Russia should cooperate; and

20 (D) the possibility of negotiating a regional
21 arrangement to regulate foreign direct invest-
22 ment in countries of the Arctic region.

23 (c) REPORT TO DEPARTMENT OF DEFENSE.—Not
24 later than 720 days after the date of the enactment of
25 this Act, the federally-funded research and development

1 center with respect to which the Secretary of Defense has
2 entered into a contract under subsection (a) shall submit
3 to the Secretary a report containing the study under sub-
4 sections (a) and (b).

5 (d) REPORT TO CONGRESS.—Not later than 750 days
6 after the date of the enactment of this Act, the Secretary
7 of Defense shall submit to the appropriate congressional
8 committees the report under subsection (c), without
9 change.

10 (e) APPROPRIATE CONGRESSIONAL COMMITTEE DE-
11 FINED.—In this section, the term “appropriate congres-
12 sional committees” means—

- 13 (1) the congressional defense committees;
- 14 (2) the Committee on Foreign Relations and
15 the Committee on Commerce, Science, and Trans-
16 portation of the Senate; and
- 17 (3) the Committee on Foreign Affairs and the
18 Committee on Transportation and Infrastructure of
19 the House of Representatives.

20 **SEC. 1260F. SENSE OF CONGRESS ON POLICY TOWARD**
21 **HONG KONG.**

22 It is the sense of Congress that—

- 23 (1) Congress stands unequivocally with the peo-
24 ple of Hong Kong as they defend their rights and

1 freedoms and preserve their autonomy against the
2 People's Republic of China;

3 (2) the Government of the People's Republic of
4 China should—

5 (A) abide fully by its commitments in the
6 Sino-British Joint Declaration of 1984 to allow
7 the people of Hong Kong a high degree of au-
8 tonomy to govern Hong Kong;

9 (B) adhere fully to Hong Kong's Basic
10 Law of 1997; and

11 (C) immediately cease and desist in its in-
12 terference in the political and legal affairs of
13 Hong Kong;

14 (3) the decision of authorities of the Hong
15 Kong Special Autonomous Region in September
16 2019 to fully withdraw the proposed amendments to
17 the Fugitive Offenders Ordinance of Hong Kong is
18 a necessary first step and should be followed by ef-
19 forts to resolve the remaining demands raised by
20 protestors who represent a broad cross-section of
21 Hong Kong, which are that authorities—

22 (A) drop all charges against individuals
23 who have been arrested for participating in po-
24 litical protests;

1 (B) retract the proclamation that the pro-
2 tests were riots;

3 (C) establish a thorough and independent
4 investigation into police brutality; and

5 (D) implement genuine universal suffrage
6 for the election of the Chief Executive and all
7 Legislative Council members of Hong Kong;

8 (4) the United States should—

9 (A) work with like-minded countries to
10 stand with the people of Hong Kong;

11 (B) encourage more responsible behavior
12 by the People's Republic of China; and

13 (C) impose consequences in the event that
14 the authorities of the People's Republic of
15 China and Hong Kong continue to violate fun-
16 damental agreements regarding the autonomy
17 of Hong Kong;

18 (5) the People's Republic of China should re-
19 frain from use of any organization within the mili-
20 tary, paramilitary, or law enforcement apparatus of
21 the People's Republic of China to engage in violent
22 suppression in Hong Kong;

23 (6) in the event of use of force by the Govern-
24 ment of the People's Republic of China against

1 protestors in Hong Kong, Congress will recommend
2 swift action by the United States, including—

3 (A) a fundamental reevaluation of the spe-
4 cial treatment of Hong Kong under the Hong
5 Kong Policy Act of 1992 (Public Law 102–383;
6 106 Stat. 1448) and other United States law,
7 particularly in areas of law in which the Peo-
8 ple’s Republic of China is exploiting Hong Kong
9 to the detriment of United States interests and
10 values; and

11 (B) coordinated actions with like-minded
12 countries to impose meaningful costs on the
13 People’s Republic of China, including the impo-
14 sition of sanctions, travel restrictions, and other
15 actions against responsible senior officials in
16 the Chinese Communist Party, the People’s
17 Liberation Army, and the People’s Armed Po-
18 lice; and

19 (7) if at any point the Government of Hong
20 Kong implements legislation that affects, directly or
21 indirectly, the interests of the United States with re-
22 spect to an agreement the United States maintains
23 with Hong Kong, including a future reconsideration
24 of amendments to the Fugitive Offenders Ordinance
25 of Hong Kong, the United States should conduct a

1 full review of all relevant agreements between the
2 United States and Hong Kong and make necessary
3 adjustments to those agreements to safeguard
4 United States interests.

5 **SEC. 1260G. SENSE OF CONGRESS ON ENHANCING DEFENSE**
6 **AND SECURITY COOPERATION WITH THE RE-**
7 **PUBLIC OF SINGAPORE.**

8 It is the sense of Congress that—

9 (1) the United States and the Republic of
10 Singapore have built a strong, enduring, and for-
11 ward-looking strategic partnership based on long-
12 standing and mutually beneficial cooperation, includ-
13 ing through security, defense, economic, and people-
14 to-people ties;

15 (2) robust security cooperation between the
16 United States and the Republic of Singapore is cru-
17 cial to promoting peace and stability in the Indo-Pa-
18 cific region;

19 (3) the status of the Republic of Singapore as
20 a major security cooperation partner of the United
21 States, as recognized in the 2005 Strategic Frame-
22 work Agreement between the United States and the
23 Republic of Singapore for a Closer Partnership in
24 Defense and Security, plays an important role in the
25 global network of strategic partnerships, especially

1 in promoting maritime security and countering ter-
2 rorism;

3 (4) the United States values the Republic of
4 Singapore's provision of access to its military facili-
5 ties, which supports the continued security presence
6 of the United States in Southeast Asia and across
7 the Indo-Pacific region;

8 (5) the United States should continue to wel-
9 come the presence of the military forces of the Re-
10 public of Singapore in the United States for exer-
11 cises and training, and should consider opportunities
12 to expand such activities at additional locations in
13 the United States, as appropriate; and

14 (6) as the United States and the Republic of
15 Singapore have renewed the 1990 Memorandum of
16 Understanding Regarding the United States Use of
17 Facilities in Singapore, the United States should—

18 (A) continue to enhance defense and secu-
19 rity cooperation with the Republic of Singapore
20 to promote peace and stability in the Indo-Pa-
21 cific region based on common interests and
22 shared values;

23 (B) reinforce the status of the Republic of
24 Singapore as a major security cooperation part-
25 ner of the United States; and

1 (C) explore additional steps to better facili-
2 tate interoperability between the United States
3 Armed Forces and the military forces of the
4 Republic of Singapore to promote peace and
5 stability in the Indo-Pacific region.

6 **SEC. 1260H. AUTHORITY TO TRANSFER FUNDS FOR BIEN**
7 **HOA DIOXIN CLEANUP.**

8 (a) **TRANSFER AUTHORITY.**—Notwithstanding sec-
9 tion 2215 of title 10, United States Code, the Secretary
10 of Defense may transfer to the Secretary of State, for use
11 by the United States Agency for International Develop-
12 ment, amounts to be used for the Bien Hoa dioxin cleanup
13 in Vietnam.

14 (b) **LIMITATION ON AMOUNT.**—Not more than
15 \$15,000,000 may be transferred in fiscal year 2020 under
16 the transfer authority in subsection (a).

17 (c) **ADDITIONAL TRANSFER AUTHORITY.**—The
18 transfer authority in subsection (a) is in addition to any
19 other transfer authority available to the Department of
20 Defense.

21 (d) **NOTICE ON EXERCISE OF AUTHORITY.**—If the
22 Secretary of Defense determines to use the transfer au-
23 thority in subsection (a), the Secretary shall notify the
24 congressional defense committees of that determination

1 not later than 30 days before the Secretary uses the trans-
2 fer authority.

3 **SEC. 1260I. LIMITATION ON REMOVAL OF HUAWEI TECH-**
4 **NOLOGIES CO. LTD. FROM ENTITY LIST OF**
5 **BUREAU OF INDUSTRY AND SECURITY.**

6 (a) IN GENERAL.—The Secretary of Commerce may
7 not remove Huawei Technologies Co. Ltd. or any of its
8 affiliates (in this section collectively referred to as
9 “Huawei”) from the entity list unless and until the Sec-
10 retary certifies to the appropriate congressional commit-
11 tees that—

12 (1) Huawei has sufficiently resolved or settled
13 the charges that were the basis for the addition of
14 Huawei to the entity list in a manner that is con-
15 sistent with the standards for the removal of an en-
16 tity from the entity list under the Export Adminis-
17 tration Regulations;

18 (2) Huawei has sufficiently resolved or settled
19 any other charges that Huawei violated sanctions
20 imposed by the United States;

21 (3) regulations have been implemented that suf-
22 ficiently restrict exporting to, and importing from,
23 the United States items that would pose a national
24 security threat to telecommunications systems in the
25 United States; and

1 (4) the Department of Commerce has miti-
2 gated, to the maximum extent possible, other threats
3 to the national security of the United States posed
4 by Huawei.

5 (b) REPORT.—

6 (1) IN GENERAL.—Not later than 60 days after
7 the date of the enactment of this Act, and annually
8 thereafter, the Secretary of Commerce shall submit
9 to the appropriate congressional committees a report
10 on licenses issued for exports to Huawei.

11 (2) MATTERS TO BE INCLUDED.—For each
12 such license, the report required by paragraph (1)
13 shall describe—

14 (A) the items authorized for export;

15 (B) the end-uses of the items;

16 (C) the identities of the companies granted
17 the license; and

18 (D) how the approval of the license is con-
19 sistent with the national security licensing pol-
20 icy set forth in the Export Administration Reg-
21 ulations.

22 (3) DISCLOSURE BY APPROPRIATE CONGRES-
23 SIONAL COMMITTEES.—Subclause (ii) of section
24 1761(h)(2)(B) of the Export Control Reform Act of
25 2018 (50 U.S.C. 4820(h)(2)(B)) shall apply with re-

1 spect to information in a report received by the ap-
2 propriate congressional committees under paragraph
3 (1) to the same extent and in the same manner as
4 such subclause (ii) applies with respect to informa-
5 tion made available under subclause (i) of such sec-
6 tion 1761(h)(2)(B).

7 (c) DEFINITIONS.—In this section:

8 (1) APPROPRIATE CONGRESSIONAL COMMIT-
9 TEES.—The term “appropriate congressional com-
10 mittees” means—

11 (A) the Committee on Banking, Housing,
12 and Urban Affairs and the Select Committee on
13 Intelligence of the Senate; and

14 (B) the Committee on Foreign Affairs and
15 the Permanent Select Committee on Intelligence
16 of the House of Representatives.

17 (2) ENTITY LIST.—The term “entity list”
18 means the list maintained by the Bureau of Industry
19 and Security and set forth in Supplement No. 4 to
20 part 744 of title 15, Code of Federal Regulations.

21 (3) EXPORT ADMINISTRATION REGULATIONS.—
22 The term “Export Administration Regulations”
23 means subchapter C of chapter VII of title 15, Code
24 of Federal Regulations.

1 **SEC. 1260J. REPORT ON ZTE COMPLIANCE WITH SUPER-**
2 **SEDING SETTLEMENT AGREEMENT AND SU-**
3 **PERSEDING ORDER.**

4 (a) IN GENERAL.—Not later than 180 days after the
5 date of the enactment of this Act, and annually thereafter,
6 the President shall submit to Congress a report on the
7 compliance of Zhongxing Telecommunications Equipment
8 Corporation (ZTE Corporation) and ZTE Kangxun Tele-
9 communications Ltd. (ZTE Kangxun) (collectively,
10 “ZTE”) with the Superseding Settlement Agreement and
11 Superseding Order reached with the Department of Com-
12 merce on June 8, 2018.

13 (b) FORM.—The report required by subsection (a)
14 shall be submitted in unclassified form and publicly acces-
15 sible, but may include a classified annex.

16 **SEC. 1260K. REPORT ON THE LAY-DOWN OF UNITED STATES**
17 **MARINES IN THE INDO-PACIFIC REGION.**

18 (a) REPORT.—Not later than 180 days after the date
19 of the enactment of this Act, the Secretary of Defense
20 shall submit to the congressional defense committees a re-
21 port on the implementation of the planned distributed lay-
22 down of members of the United States Marine Corps in
23 Okinawa, Guam, Hawaii, Australia, and other locations.

24 (b) ELEMENTS.—The report required by subsection
25 (a) shall include the following:

1 (1) A description of the relationship between
2 the planned distributed lay-down in the Indo-Pacific
3 region and the implementation of the National De-
4 fense Strategy with respect to such region.

5 (2) An assessment of the impact of the planned
6 distributed lay-down on the ability of the Armed
7 Forces to respond to current and future contin-
8 gencies in the area of responsibility of United States
9 Indo-Pacific Command that reflects contingency
10 plans of the Department of Defense.

11 (3) A description of—

12 (A) the implementation timeline for the
13 planned distributed lay-down; and

14 (B) progress made on the planned distrib-
15 uted lay-down, as compared with such timeline.

16 (4) A description of the adequacy of current
17 and expected training resources at each location as-
18 sociated with the planned distributed lay-down, in-
19 cluding—

20 (A) the ability to train against the full
21 spectrum of threats from near-peer or peer
22 threats; and

23 (B) any projected limitation due to polit-
24 ical, environmental, or other limiting factors.

1 (5) A description of sustainment concepts to
2 support the planned distributed lay-down, including
3 an assessment of the manner in which the planned
4 distributed lay-down will impact logistics and
5 sustainment requirements in support of contingency
6 plans of the Department of Defense.

7 (6) An updated and detailed description of any
8 military construction projects required to execute the
9 distributed lay-down.

10 (7) A description of any recommended revision
11 to the current implementation plan, including any
12 recommended new investment associated with any
13 such revision relating to basing, access, and
14 prepositioning in the Indo-Pacific region.

15 **Subtitle G—Other Matters**

16 **SEC. 1261. MODIFICATION TO REPORT ON LEGAL AND POL-** 17 **ICY FRAMEWORKS FOR THE USE OF MILI-** 18 **TARY FORCE.**

19 Section 1264 of the National Defense Authorization
20 Act for Fiscal Year 2018 (Public Law 115–91; 131 Stat.
21 1689) is amended—

22 (1) in the heading for subsection (a), by strik-
23 ing “Initial” and inserting “Annual”;

1 (2) in subsection (a)(1), by striking “90 days
2 after the date of the enactment of this Act” and in-
3 serting “March 1 of each year”;

4 (3) in subsection (a)(2), by striking “during the
5 period” and all that follows to the end and inserting:
6 “from the preceding year, including—

7 “(A) a list of all foreign forces, irregular
8 forces, groups, or individuals for which a deter-
9 mination has been made that force could legally
10 be used under the Authorization for Use of
11 Military Force (Public Law 107–40), includ-
12 ing—

13 “(i) the legal and factual basis for
14 such determination; and

15 “(ii) a description of whether force
16 has been used against each such foreign
17 force, irregular force, group, or individual;
18 and

19 “(B) the criteria and any changes to the
20 criteria for designating a foreign force, irreg-
21 ular force, group, or individual as lawfully tar-
22 getable, as a high value target, and as formally
23 or functionally a member of a group covered
24 under the Authorization for Use of Military
25 Force.”; and

1 (4) in subsection (c), by adding at the end the
2 following: “The unclassified portion of each report
3 shall, at a minimum, include each change made to
4 the legal and policy frameworks during the pre-
5 ceding year and the legal, factual, and policy jus-
6 tifications for such changes, and shall be made avail-
7 able to the public at the same time it is submitted
8 to the appropriate congressional committees.”.

9 **SEC. 1262. INDEPENDENT REVIEW OF SUFFICIENCY OF RE-**
10 **SOURCES AVAILABLE TO UNITED STATES**
11 **SOUTHERN COMMAND AND UNITED STATES**
12 **AFRICA COMMAND.**

13 (a) **IN GENERAL.**—The Secretary of Defense shall
14 seek to enter into a contract with a not-for-profit entity
15 or federally funded research and development center inde-
16 pendent of the Department of Defense to conduct a review
17 of the sufficiency of resources available to United States
18 Southern Command and United States Africa Command
19 to carry out their respective missions in support of United
20 States national security objectives.

21 (b) **MATTERS TO BE INCLUDED.**—The review de-
22 scribed in subsection (a) shall include—

23 (1) a review of current and emerging United
24 States national security interests in the United

1 States Southern Command and United States Africa
2 Command areas of responsibilities;

3 (2) a review of the National Defense Strategy
4 and its implications for United States presence and
5 activities in the United States Southern Command
6 and United States Africa Command areas of respon-
7 sibilities;

8 (3) a comparative analysis of the National De-
9 fense Strategy and the Theater Campaign Plans of
10 United States Southern Command and United
11 States Africa Command, which shall include a de-
12 scription of differences, if any, between the guidance
13 and objectives outlined in the National Defense
14 Strategy and those of the respective Theater Cam-
15 paign Plans;

16 (4) a review of the sufficiency of the resources
17 available to United States Southern Command and
18 United States Africa Command, including personnel,
19 human resources, and financial resources as well as
20 other non-Department of Defense resources available
21 to United States Southern Command and United
22 States Africa Command, in promoting United States
23 national security interests;

24 (5) an assessment of the level of regional exper-
25 tise and experience of the leadership of each such

1 combatant command and their subordinate organiza-
2 tions, service components, and task forces, to include
3 personnel from agencies other than the Department
4 of Defense;

5 (6) a description of the strategic objectives and
6 end states in the geographic region for which each
7 such combatant command has responsibility and a
8 comparison of the importance and priority of the re-
9 sources available to each such combatant command
10 to perform its mission; and

11 (7) an assessment of the ability of each such
12 combatant command to carry out their respective
13 missions based on available resources, including non-
14 Department of Defense resources.

15 (c) ACCESS TO INFORMATION.—The not-for-profit
16 entity or federally funded research and development center
17 with which the Secretary enters into the contract under
18 subsection (a) shall have full and direct access to all infor-
19 mation related to resources available to United States
20 Southern Command and United States Africa Command.

21 (d) REPORT.—

22 (1) IN GENERAL.—The Secretary of Defense
23 shall require, as a term of the contract entered into
24 under subsection (a), that not later than 240 days
25 after the date of the enactment of this Act, the not-

1 for-profit entity or federally funded research and de-
2 velopment center with which the Secretary of De-
3 fense enters into the contract under subsection (a)
4 shall submit to the Secretary of Defense, the Sec-
5 retary of State, and the Administrator of the United
6 States Agency for International Development a re-
7 port that contains the assessment required by sub-
8 section (a).

9 (2) SUBMISSION TO CONGRESS.—Not later than
10 1 year after the date of the enactment of this Act,
11 the Secretary of Defense shall submit to the con-
12 gressional defense committees—

13 (A) a copy of such report without change;

14 and

15 (B) any comments the Secretary of De-
16 fense considers appropriate.

17 **SEC. 1263. UNITED STATES CENTRAL COMMAND POSTURE**
18 **ASSESSMENT AND REVIEW.**

19 (a) ASSESSMENT AND REVIEW REQUIRED.—

20 (1) IN GENERAL.—Not later than 30 days after
21 the date of the enactment of this Act, the Secretary
22 of Defense shall seek to enter into an agreement
23 with a federally funded research and development
24 center to conduct an independent assessment and
25 comprehensive review of United States military force

1 posture and capabilities in the United States Central
2 Command area of responsibility for the purpose of
3 clarifying and evolving United States military force
4 posture and basing throughout such area of respon-
5 sibility in accordance with the strategic guidance of
6 the National Defense Strategy during the posture
7 review period.

8 (2) MATTERS TO BE INCLUDED.—The assess-
9 ment and review conducted under paragraph (1)
10 shall include, for the posture review period, the fol-
11 lowing:

12 (A) An assessment of the threats and chal-
13 lenges in the United States Central Command
14 area of responsibility, including threats and
15 challenges posed to United States interests by
16 near-peer competitors.

17 (B) An explanation of the policy and stra-
18 tegic frameworks for addressing the threats and
19 challenges identified under subparagraph (A).

20 (C) An identification of current and future
21 United States military force posture and capa-
22 bilities necessary to counter threats, deter con-
23 flict, and defend United States national security
24 interests in the United States Central Com-
25 mand area of responsibility.

1 (D) An assessment of threats and
2 vulnerabilities to current basing, posture, and
3 readiness in the United States Central Com-
4 mand area of responsibility.

5 (E) An assessment of the basing, coopera-
6 tive security locations, and other infrastructure
7 necessary to support steady state operations in
8 support of the theater campaign plan and po-
9 tential contingencies that may arise in or affect
10 the United States Central Command area of re-
11 sponsibility, including any potential efficiencies
12 and risk mitigation measures to be taken.

13 (F) An assessment of the risks and trade-
14 offs to United States Central Command prior-
15 ities resulting from the reorientation of re-
16 sources toward National Defense Strategy pri-
17 orities and a description of methods to mitigate
18 any negative impact of such reorientation.

19 (G) An explanation of the manner in which
20 a modernized global operating model or dy-
21 namic force employment approach may yield ef-
22 ficiencies and increase strategic flexibility while
23 achieving United States military objectives in
24 the United States Central Command area of re-
25 sponsibility.

1 (H) An articulation of the United States
2 nonmilitary efforts and activities necessary to
3 enable the achievement of United States na-
4 tional security interests in the United States
5 Central Command area of responsibility.

6 (I) Any other matter considered relevant.

7 (b) RESULTS.—The federally funded research and
8 development center concerned shall submit to the Sec-
9 retary the results of the assessment and review under sub-
10 section (a), which shall include the following:

11 (1) Considerations and recommendations for
12 improving posture, basing, and readiness in the
13 United States Central Command area of responsi-
14 bility.

15 (2) Alternative basing and posture options to
16 reduce costs, enhance readiness, improve posture,
17 and align with National Defense Strategy priorities.

18 (3) Any legislative recommendations—

19 (A) to support and facilitate National De-
20 fense Strategy implementation with respect to
21 United States Central Command; and

22 (B) to modernize or improve basing, pos-
23 ture, and readiness in the United States Cen-
24 tral Command area of responsibility.

25 (c) SUBMITTAL TO CONGRESS.—

1 (1) **IN GENERAL.**—Not later than July 1, 2020,
2 the Secretary shall submit to the congressional de-
3 fense committees an unaltered copy of the results
4 under subsection (b), together with the written per-
5 spectives of the Secretary and the Chairman of the
6 Joint Chiefs of Staff with respect to such results.

7 (2) **FORM.**—The submission under paragraph
8 (1) shall be submitted in unclassified form, but may
9 include a classified annex.

10 (d) **POSTURE REVIEW PERIOD DEFINED.**—In this
11 section, the term “posture review period” means the pe-
12 riod beginning on the date that is five years after the date
13 of the enactment of this Act and ending on the date that
14 is 15 years after such date of enactment.

15 **SEC. 1264. LIMITATION ON PRODUCTION OF NUCLEAR PRO-**
16 **LIFERATION ASSESSMENT STATEMENTS.**

17 (a) **LIMITATION.**—The Secretary of State may not
18 provide to the President, and the President may not sub-
19 mit to Congress, a Nuclear Proliferation Assessment
20 Statement described in subsection a. of section 123 of the
21 Atomic Energy Act of 1954 (42 U.S.C. 2153) with respect
22 to a proposed cooperation agreement with any country
23 that has not signed and implemented an Additional Pro-
24 tocol with the International Atomic Energy Agency, other
25 than a country with which, as of June 19, 2019, there

1 is in effect a civilian nuclear cooperation agreement pursu-
2 ant to such section 123.

3 (b) WAIVER.—The limitation under subsection (a)
4 shall be waived with respect to a particular country begin-
5 ning on the date that is 90 days after the date on which
6 the President submits to the appropriate congressional
7 committees a report describing the manner in which such
8 agreement would advance the national security and de-
9 fense interests of the United States and not contribute to
10 the proliferation of nuclear weapons.

11 (c) FORM.—The report described in subsection (b)
12 shall be submitted in unclassified form but may include
13 a classified annex.

14 (d) APPROPRIATE CONGRESSIONAL COMMITTEES
15 DEFINED.—In this section, the term “appropriate con-
16 gressional committees” means—

17 (1) the Committee on Armed Services and the
18 Committee on Foreign Relations of the Senate; and

19 (2) the Committee on Armed Services and the
20 Committee on Foreign Affairs of the House of Rep-
21 resentatives.

22 **SEC. 1265. WESTERN HEMISPHERE RESOURCE ASSESS-**
23 **MENT.**

24 (a) IN GENERAL.— The Secretary of Defense shall
25 seek to enter into a contract with an independent, non-

1 governmental institute described in section 501(e)(3) of
2 the Internal Revenue Code of 1986, and exempt from tax
3 under section 501(a) of such Code, that has recognized
4 credentials and expertise in national security and military
5 affairs to conduct an accounting of and an assessment of
6 the sufficiency of resources available to the United States
7 Southern Command (SOUTHCOM), United States
8 Northern Command (NORTHCOM), Department of
9 State, and United States Agency for International Devel-
10 opment (USAID) to carry out their respective missions in
11 the Western Hemisphere.

12 (b) MATTERS TO BE INCLUDED.—The assessment
13 described in subsection (a) shall include each of the fol-
14 lowing:

15 (1) An accounting and description of the funds
16 available to SOUTHCOM, NORTHCOM, the De-
17 partment of State, and USAID.

18 (2) A list of bilateral and multilateral military
19 training and exercises with allies and partner coun-
20 tries in the Western Hemisphere.

21 (3) A description of the security force activities
22 of the United States in the Western Hemisphere.

23 (4) A description of the activities of the Depart-
24 ments of State and Defense in addressing security
25 challenges in the Western Hemisphere.

1 (5) Cyber domain activities of the United States
2 and those actions in concert with allied and partner
3 countries in the Western Hemisphere.

4 (6) A description of the funding for all inter-
5 national military education and training programs.

6 (7) An overview of all foreign military sales and
7 foreign military financing programs with partner
8 countries in the Western Hemisphere.

9 (8) A list of investments, programs, or partner-
10 ships in the Western Hemisphere by China, Iran,
11 Russia, or other adversarial groups or countries that
12 threaten the national security of the United States.

13 (9) Recommendations for actions the Depart-
14 ment of Defense, the Department of State, and
15 USAID could take to advance United States na-
16 tional security interests in the Western Hemisphere.

17 (c) ACCESS TO INFORMATION.—The independent,
18 non-governmental institute described in subsection (a)
19 with which the Secretary enters into a contract pursuant
20 to such subsection shall have full and direct access to all
21 information related to resources available to
22 SOUTHCOM, NORTHCOM, the Department of State,
23 and USAID.

24 (d) REPORTS REQUIRED.—

1 (1) REPORT OF ASSESSMENT.—The Secretary
2 of Defense shall include as a term in the contract
3 entered into pursuant to subsection (a) that the
4 independent, non-governmental institute shall submit
5 to the Secretary of Defense, the Secretary of State,
6 and the Administrator of the USAID a report con-
7 taining the assessment described in such subsection
8 not later than 240 days after the date of the enact-
9 ment of this Act.

10 (2) REPORT TO CONGRESS.—Not later than 1
11 year after the date of the enactment of this Act, the
12 Secretary of Defense shall submit to the appropriate
13 congressional committees a report that includes—

14 (A) an unedited copy of the report sub-
15 mitted in accordance to paragraph (1); and

16 (B) any comments, changes, recommenda-
17 tions, or other information of the Secretary of
18 Defense, the Secretary of State, and the Ad-
19 ministrator of the United States Agency for
20 International Development determine appro-
21 priate that relates to the assessment required
22 by subsection (a) and contained in such report.

23 (3) FORM.—The report required by paragraph
24 (2) shall be submitted in unclassified form but may
25 include a classified annex.

1 (e) APPROPRIATE CONGRESSIONAL COMMITTEES DE-
2 FINED.—The term “appropriate congressional commit-
3 tees” means—

4 (1) the Committee on Armed Services, the
5 Committee on Appropriations, and the Committee on
6 Foreign Relations of the Senate; and

7 (2) the Committee on Armed Services, the
8 Committee on Appropriations, and the Committee on
9 Foreign Affairs of the House of Representatives.

10 **SEC. 1266. HUMAN RIGHTS IN BRAZIL.**

11 (a) IN GENERAL.—Not later than 180 days after the
12 date of the enactment of this Act, the Secretary of De-
13 fense, in coordination with the Secretary of State, shall
14 submit to the appropriate congressional committees a re-
15 port that includes the following:

16 (1) A description of the security cooperation re-
17 lationship between the United States and Brazil, in-
18 cluding a description of United States objectives,
19 any ongoing or planned security cooperation activi-
20 ties with the military forces of Brazil, and an identi-
21 fication of priority capabilities of the military forces
22 of Brazil that the Department could enhance.

23 (2) An assessment of the capabilities of the
24 military forces of Brazil.

1 (3) A description of the human rights climate
2 in Brazil, an assessment of the Brazilian military
3 forces' adherence to human rights, and a description
4 of any ongoing or planned cooperative activities be-
5 tween the United States and Brazil focused on
6 human rights.

7 (4) An identification of any Brazilian military
8 and security force units that are determined or
9 credibly alleged to have engaged in human rights
10 violations and have received or purchased United
11 States equipment or training.

12 (5) A description of the manner and extent to
13 which a security cooperation strategy between the
14 United States and Brazil could address any human
15 rights abuses identified pursuant to paragraph (3)
16 or (4), encourage accountability, and promote re-
17 form through training on human rights, rule of law,
18 and rules of engagement.

19 (6) Any other matter the Secretary determines
20 to be relevant.

21 (b) APPROPRIATE CONGRESSIONAL COMMITTEES
22 DEFINED.—In this section, the term “appropriate con-
23 gressional committees” means—

24 (1) the Committee on Armed Services and the
25 Committee on Foreign Relations of the Senate; and

1 (2) the Committee on Armed Services and the
2 Committee on Foreign Affairs of the House of Rep-
3 resentatives.

4 **SEC. 1267. CERTIFICATION RELATING TO ASSISTANCE FOR**
5 **GUATEMALA.**

6 (a) IN GENERAL.—Prior to the transfer of any vehi-
7 cles by the Department of Defense to a joint task force
8 of the Ministry of Defense or the Ministry of the Interior
9 of Guatemala during fiscal year 2020, the Secretary of
10 Defense shall certify to the appropriate congressional com-
11 mittees that such ministries have made a credible commit-
12 ment to use such equipment only for the uses for which
13 they were intended.

14 (b) APPROPRIATE CONGRESSIONAL COMMITTEES
15 DEFINED.—In this section, the term “appropriate con-
16 gressional committees” means—

17 (1) the Committee on Armed Services, the
18 Committee on Appropriations, and the Committee on
19 Foreign Affairs of the House of Representatives;
20 and

21 (2) the Committee on Armed Services, the
22 Committee on Appropriations, and the Committee on
23 Foreign Relations of the Senate.

1 **SEC. 1268. INDEPENDENT ANALYSIS OF HUMAN RIGHTS**
2 **SITUATION IN HONDURAS.**

3 (a) ANALYSIS REQUIRED.—

4 (1) IN GENERAL.—Not later than 90 days after
5 the date of the enactment of this Act, the Secretary
6 of Defense shall select and enter into an agreement
7 with an independent think tank or a federally fund-
8 ed research and development center to conduct an
9 analysis of the compliance of the military and secu-
10 rity forces of Honduras with international human
11 rights laws and standards.

12 (2) MATTERS TO BE INCLUDED.—The analysis
13 under paragraph (1) shall include the following:

14 (A) A description of the military-to-mili-
15 tary activities between the United States and
16 Honduras, including the manner in which De-
17 partment of Defense engagement with the mili-
18 tary and security forces of Honduras supports
19 the National Defense Strategy.

20 (B) An analysis of the activities of the
21 military and security forces of Honduras with
22 respect to human rights activists, including—

23 (i) a description of the processes and
24 procedures of the Department to identify
25 human rights violations; and

1 (ii) an analysis of whether such proc-
2 esses and procedures comply with Depart-
3 ment policy on adherence to human rights
4 and international law.

5 (C) With respect to United States national
6 security interests, an analysis of the challenges
7 posed by corruption within the military and se-
8 curity forces of Honduras, including—

9 (i) an analysis of participation, if any,
10 by the military and security forces of Hon-
11 duras in illegal narcotics trafficking activi-
12 ties; and

13 (ii) the processes and procedures with-
14 in the military and security forces of Hon-
15 duras to ensure accountability for such ac-
16 tivities.

17 (D) An analysis of—

18 (i) the security cooperation provided
19 to Honduras by the Department during
20 the 3-year period preceding the date of the
21 enactment of this Act; and

22 (ii) the extent to which such coopera-
23 tion has improved accountability, trans-
24 parency, and compliance to international
25 human rights laws and standards in the

1 security and military operations of the
2 Government of Honduras.

3 (E)(i) An identification of the units of the
4 military and security forces of Honduras
5 trained by the Department.

6 (ii) An analysis of the role such units have
7 had, if any, in the training, deployment, and
8 command of the Military Police for Public
9 Order (PMOP) in Honduras.

10 (F) An analysis of the security cooperation
11 of the Department with military intelligence
12 and special forces units of Honduras.

13 (G) An analysis of the relative importance
14 of providing development assistance to Hon-
15 duras to achieve United States national security
16 objectives, including countering the proliferation
17 of illegal narcotics flows through Honduras.

18 (H) Recommendations on the development
19 of future security cooperation with Honduras
20 that prioritizes—

21 (i) compliance of the military and se-
22 curity forces of Honduras with human
23 rights laws and standards;

24 (ii) citizen security; and

1 (iii) the advancement of United States
2 national security interests with respect to
3 countering the proliferation of illegal nar-
4 cotics flows through Honduras.

5 (I) Any other matters the Secretary con-
6 siders necessary and relevant to United States
7 national security interests.

8 (b) REPORT.—Not later than 270 days after the date
9 of the enactment of this Act, the entity selected under sub-
10 section (a) shall submit to the appropriate committees of
11 Congress a report on the results of the analysis conducted
12 under that subsection.

13 (c) DEPARTMENT OF DEFENSE SUPPORT.—The Sec-
14 retary shall provide the entity selected under subsection
15 (a) with timely access to appropriate information, data,
16 and analyses necessary to carry out such analysis in a
17 thorough and independent manner.

18 (d) APPROPRIATE COMMITTEES OF CONGRESS DE-
19 FINED.—In this section, the term “appropriate commit-
20 tees of Congress” means—

- 21 (1) the Committee on Armed Services and the
22 Committee on Foreign Relations of the Senate; and
- 23 (2) the Committee on Armed Services and the
24 Committee on Foreign Affairs of the House of Rep-
25 resentatives.

1 **SEC. 1269. BRIEFING ON STRATEGY TO IMPROVE THE EF-**
2 **FORTS OF THE NIGERIAN MILITARY TO PRE-**
3 **VENT, MITIGATE, AND RESPOND TO CIVILIAN**
4 **HARM.**

5 Not later than 180 days after the date of the enact-
6 ment of this Act, the Secretary of Defense and the Sec-
7 retary of State shall jointly provide to the congressional
8 defense committees, the Committee on Foreign Relations
9 of the Senate, and the Committee on Foreign Affairs of
10 the House of Representatives a briefing on—

11 (1) the current strategy to improve defense in-
12 stitutions and security sector forces in Nigeria re-
13 quired by section 1279A of the National Defense
14 Authorization Act for Fiscal Year 2018 (Public Law
15 115–91; 131 Stat. 1701);

16 (2) any efforts planned or under way to assist
17 the Nigerian military to improve its efforts to pre-
18 vent, mitigate, and respond to civilian harm;

19 (3) an assessment of the effectiveness of such
20 training; and

21 (4) an overall assessment of efforts by the Gov-
22 ernment of Nigeria to improve civilian protection,
23 accountability for human rights violations, and
24 transparency in the defense institutions and security
25 sector force.

1 **SEC. 1270. REPORT ON IMPLICATIONS OF CHINESE MILI-**
2 **TARY PRESENCE IN DJIBOUTI.**

3 (a) IN GENERAL.—Not later than 180 days after the
4 date of the enactment of this Act, the Secretary of Defense
5 shall submit to the congressional defense committees a re-
6 port that contains a comprehensive strategy to address se-
7 curity concerns posed by the Chinese People’s Liberation
8 Army Support Base in Djibouti to United States military
9 installations and logistics chains in sub-Saharan Africa
10 and the Middle East.

11 (b) MATTERS TO BE INCLUDED.—The report re-
12 quired by subsection (a) shall include the following:

13 (1) An assessment of the potential military, in-
14 telligence, and logistical threats facing regional
15 United States military infrastructure, supply chains,
16 and operations due to Chinese military presence in
17 Djibouti and a description of any efforts to mitigate
18 such threats.

19 (2) An assessment of Djibouti’s Chinese-held
20 public debt as well as any other potential means of
21 Chinese economic coercion, and a description of the
22 strategic vulnerabilities posed to the United States if
23 China moves to claim the Port of Djibouti or other
24 key logistical assets in repayment.

25 (3) A description of the specific operational
26 challenges facing the United States military in the

1 Horn of Africa and the Middle East in the event
2 that access to the Port of Djibouti becomes limited
3 or lost in its entirety, as well as a description of any
4 contingency plans in the event of such scenarios.

5 (4) An identification of the measures in place to
6 mitigate risk of escalation between United States
7 and Chinese military assets in Djibouti or any addi-
8 tional mechanisms that may be advisable.

9 (5) Any other matters the Secretary of Defense
10 considers appropriate.

11 (c) FORM.—The report required under subsection (a)
12 shall be submitted in unclassified form, but may include
13 a classified annex.

14 **SEC. 1271. RULE OF CONSTRUCTION ON THE PERMANENT**
15 **STATIONING OF UNITED STATES ARMED**
16 **FORCES IN SOMALIA.**

17 Nothing in this Act may be construed to authorize
18 the permanent stationing of members of the Armed Forces
19 in Somalia.

20 **SEC. 1272. DEFENSE AND DIPLOMATIC STRATEGY FOR**
21 **LIBYA.**

22 (a) REPORT REQUIRED.—Not later than 270 days
23 after the date of enactment of this Act, the Secretary of
24 Defense and the Secretary of State shall jointly submit
25 to the appropriate congressional committees a report that

1 contains a description of the United States defense and
2 diplomatic strategy for Libya.

3 (b) ELEMENTS.—The report required by subsection
4 (a) shall include the following elements:

5 (1) An explanation of the defense and diplo-
6 matic strategy for Libya, including a description of
7 the ends, ways, and means inherent to the strategy,
8 and the role of the Armed Forces in supporting the
9 strategy.

10 (2) An explanation of the policy and legal au-
11 thorities of the Department of Defense and the De-
12 partment of State required to support the strategy.

13 (3) A detailed description of Department of De-
14 fense security partnerships with Libyan actors.

15 (4) A detailed description of Libyan and exter-
16 nal security actors and an assessment of how those
17 actors advance or undermine stability in Libya and
18 United States strategic interests in Libya, including
19 United States interests in a political settlement to
20 the conflict in Libya.

21 (5) A detailed description of the military activi-
22 ties of external actors in Libya, including assess-
23 ments of whether those activities—

1 (A) have undermined progress towards sta-
2 bilization of Libya, including the United Na-
3 tions-led negotiations;

4 (B) involve United States-origin equipment
5 and violate contractual conditions of acceptable
6 use of such equipment; or

7 (C) violate or seek to violate the United
8 Nations arms embargo on Libya imposed pur-
9 suant to United Nations Security Council Reso-
10 lution 1970 (2011).

11 (6) A description of any plans to integrate the
12 United States defense and diplomatic resources nec-
13 essary to implement the strategy.

14 (7) Any other matters the Secretaries considers
15 appropriate.

16 (c) FORM.—The report required by subsection (a)
17 shall be submitted in unclassified form, but may include
18 a classified annex.

19 (d) APPROPRIATE CONGRESSIONAL COMMITTEES
20 DEFINED.—In this section, the term “appropriate con-
21 gressional committees” means—

22 (1) the Committee on Armed Services, the
23 Committee on Foreign Relations, and the Committee
24 on Appropriations of the Senate; and

1 (2) the Committee on Armed Services, the
2 Committee on Foreign Affairs, and the Committee
3 on Appropriations of the House of Representatives.

4 **SEC. 1273. PROHIBITION ON IN-FLIGHT REFUELING TO**
5 **NON-UNITED STATES AIRCRAFT THAT EN-**
6 **GAGE IN HOSTILITIES IN THE ONGOING CIVIL**
7 **WAR IN YEMEN.**

8 For the two-year period beginning on the date of the
9 enactment of this Act, the Department of Defense may
10 not provide in-flight refueling pursuant to section 2342
11 of title 10, United States Code, or any other applicable
12 statutory authority, to non-United States aircraft that en-
13 gage in hostilities in the ongoing civil war in Yemen unless
14 and until a declaration of war or a specific statutory au-
15 thorization for such use of United States Armed Forces
16 has been enacted.

17 **SEC. 1274. REPORT ON SAUDI-LED COALITION STRIKES IN**
18 **YEMEN.**

19 (a) IN GENERAL.—Not later than 90 days after the
20 date of the enactment of this Act, and annually thereafter
21 for two years, the Secretary of Defense, in consultation
22 with the Secretary of State and the Director of National
23 Intelligence, shall submit to the appropriate congressional
24 committees a report on civilian casualties caused by the

1 Saudi-led coalition and by the Houthis as part of the civil
2 war in Yemen.

3 (b) MATTERS TO BE INCLUDED.—Each such report
4 shall contain the following:

5 (1) An estimate of the number of civilian cas-
6 ualties resulting from operations by the Saudi-led
7 coalition and by the Houthis during the preceding
8 year.

9 (2) An assessment of whether members of the
10 Saudi-led coalition and the Houthis followed the
11 norms and practices the United States military em-
12 ploys to avoid civilian casualties and ensure propor-
13 tionality.

14 (3) An assessment of whether operations exe-
15 cuted by members of the Saudi-led coalition and by
16 the Houthis are in compliance with the United
17 States' interpretation of the laws governing armed
18 conflict and proportionality.

19 (4) Any other matters the Secretary determines
20 to be relevant.

21 (c) APPROPRIATE CONGRESSIONAL COMMITTEE DE-
22 FINED.—In this section, the term “appropriate congres-
23 sional committees” means—

24 (1) the congressional defense committees; and

1 (2) the Committee on Foreign Relations and
2 the Select Committee on Intelligence of the Senate;
3 and

4 (3) the Committee on Foreign Affairs and the
5 Permanent Select Committee on Intelligence of the
6 House of Representatives.

7 **SEC. 1275. REPORTS ON EXPENSES INCURRED FOR IN-**
8 **FLIGHT REFUELING OF SAUDI COALITION**
9 **AIRCRAFT CONDUCTING MISSIONS RELATING**
10 **TO CIVIL WAR IN YEMEN.**

11 (a) REPORTS REQUIRED.—

12 (1) IN GENERAL.—Not later than 30 days after
13 the date of the enactment of this Act, and every 30
14 days thereafter, the Secretary of Defense shall sub-
15 mit a report to the appropriate committees of Con-
16 gress detailing the expenses incurred by the United
17 States in providing in-flight refueling services for
18 Saudi or Saudi-led coalition non-United States air-
19 craft conducting missions as part of the civil war in
20 Yemen during the period of March 1, 2015, through
21 November 11, 2018, and the extent to which such
22 expenses have been reimbursed by members of the
23 Saudi-led coalition.

24 (2) ELEMENTS.—Each report required under
25 paragraph (1) shall include the following:

1 (A) The total expenses incurred by the
2 United States in providing in-flight refueling
3 services, including fuel, flight hours, and other
4 applicable expenses, to Saudi or Saudi-led coal-
5 ition, non-United States aircraft conducting mis-
6 sions as part of the civil war in Yemen.

7 (B) The amount of the expenses described
8 in subparagraph (A) that has been reimbursed
9 by each member of the Saudi-led coalition.

10 (C) Any action taken by the United States
11 to recoup the remaining expenses described in
12 subparagraph (A), including any commitments
13 by members of the Saudi-led coalition to reim-
14 burse the United States for such expenses.

15 (3) SUNSET.—The reporting requirement under
16 paragraph (1) shall cease to be effective on the date
17 on which the Secretary certifies to the appropriate
18 committees of Congress that all expenses incurred by
19 the United States in providing in-flight refueling
20 services for Saudi or Saudi-led coalition non-United
21 States aircraft conducting missions as part of the
22 civil war in Yemen during the period of March 1,
23 2015, through November 11, 2018, have been reim-
24 bursed.

1 (b) APPROPRIATE COMMITTEES OF CONGRESS DE-
2 FINED.—In this section, the term “appropriate commit-
3 tees of Congress” means—

4 (1) the Committee on Armed Services of the
5 Senate;

6 (2) the Committee on Armed Services of the
7 House of Representatives;

8 (3) the Committee on Foreign Relations of the
9 Senate; and

10 (4) the Committee on Foreign Affairs of the
11 House of Representatives.

12 **SEC. 1276. REPORT ON SAUDI ARABIA’S HUMAN RIGHTS**
13 **RECORD.**

14 (a) IN GENERAL.—Not later than 30 days after the
15 date of the enactment of this Act, the Secretary of State
16 shall submit to the appropriate congressional committees
17 a report in writing that—

18 (1) describes the extent to which officials of the
19 Government of Saudi Arabia, including members of
20 the military or security services, are responsible for
21 or complicit in gross violations of internationally rec-
22 ognized human rights, including violations of the
23 human rights of journalists, bloggers, human rights
24 defenders, and those who support women’s rights or
25 religious freedom;

1 (2) describes violations of human rights in
2 Saudi Arabia by officials of the Government of
3 Saudi Arabia, including against journalists, bloggers,
4 human rights defenders, and civil society activists;

5 (3) describes United States actions to address
6 Saudi violations of human rights, including against
7 journalists, bloggers, human rights defenders, and
8 civil society activists, including demands for clem-
9 ency review of these cases;

10 (4) describes any intolerant content in edu-
11 cational materials published by Saudi Arabia's Min-
12 istry of Education that are used in schools both in-
13 side Saudi Arabia and at schools throughout the
14 world; and

15 (5) describes United States actions to encour-
16 age Saudi Arabia to retrieve and destroy materials
17 with intolerant material and revise teacher manuals
18 and retrain teachers to reflect changes in edu-
19 cational materials and promote tolerance.

20 (b) FORM.—The report required by subsection (a)
21 shall be submitted in unclassified form, but may include
22 a classified annex.

23 (c) APPROPRIATE CONGRESSIONAL COMMITTEES DE-
24 FINED.—In the section, the term “appropriate congres-
25 sional committees” means—

1 (1) the Committee on Foreign Relations and
2 the Select Committee on Intelligence of the Senate;
3 and

4 (2) the Committee on Foreign Affairs and the
5 Permanent Select Committee on Intelligence of the
6 House of Representatives.

7 **SEC. 1277. REPORT ON INTELLIGENCE COMMUNITY AS-**
8 **SESSMENT RELATING TO THE KILLING OF**
9 **WASHINGTON POST COLUMNIST JAMAL**
10 **KHASHOGGI.**

11 (a) IN GENERAL.—Not later than 30 days after the
12 date of the enactment of this Act, the Director of National
13 Intelligence shall submit to the appropriate congressional
14 committees a report consisting of—

15 (1) a determination and presentation of evi-
16 dence with respect to the advance knowledge and
17 role of any current or former official of the Govern-
18 ment of Saudi Arabia or any current or former sen-
19 ior Saudi political figure over the directing, ordering,
20 or tampering of evidence in the killing of Wash-
21 ington Post columnist Jamal Khashoggi; and

22 (2) a list of foreign persons that the Director
23 of National Intelligence has high confidence—

24 (A) were responsible for, or complicit in,
25 ordering, controlling, or otherwise directing an

1 act or acts contributing to or causing the death
2 of Jamal Khashoggi;

3 (B) knowingly and materially assisted,
4 sponsored, or provided financial, material, or
5 technological support for, or goods or services
6 in support of, an activity described in subpara-
7 graph (A); or

8 (C) impeded the impartial investigation of
9 the killing of Jamal Khashoggi, including
10 through the tampering of evidence relating to
11 the investigation.

12 (b) FORM.—

13 (1) IN GENERAL.—The report required by sub-
14 section (a) shall be submitted in unclassified form,
15 but may include a classified annex.

16 (2) NAMES OF FOREIGN PERSONS LISTED.—
17 The name of each foreign person listed in the report
18 described in subsection (a)(2) shall be included in
19 the unclassified portion of the report unless the Di-
20 rector of National Intelligence determines that such
21 disclosure would undermine United States intel-
22 ligence sources and methods or threaten the national
23 security interests of the United States.

24 (c) DEFINED.—In this section:

1 (1) APPROPRIATE CONGRESSIONAL COMMIT-
2 TEES.—The term “appropriate congressional com-
3 mittees” means—

4 (A) the Committee on Foreign Affairs and
5 the Permanent Select Committee on Intelligence
6 of the House of Representatives; and

7 (B) the Committee on Foreign Relations
8 and the Select Committee on Intelligence of the
9 Senate.

10 (2) KNOWINGLY.—The term “knowingly”, with
11 respect to conduct, a circumstance, or a result,
12 means that a person has actual knowledge, or should
13 have known, of the conduct, the circumstance, or the
14 result.

15 **SEC. 1278. UNITED STATES-ISRAEL COOPERATION TO**
16 **COUNTER UNMANNED AERIAL SYSTEMS.**

17 (a) AUTHORITY TO ESTABLISH CAPABILITIES TO
18 COUNTER UNMANNED AERIAL SYSTEMS.—

19 (1) IN GENERAL.—The Secretary of Defense,
20 upon request of the Ministry of Defense of Israel
21 and in consultation with the Secretary of State and
22 the Director of National Intelligence, is authorized
23 to carry out research, development, test, and evalua-
24 tion activities, on a joint basis with Israel, to estab-
25 lish capabilities for countering unmanned aerial sys-

1 tems that threaten the United States or Israel. Any
2 activities carried out pursuant to such authority
3 shall be conducted in a manner that appropriately
4 protects sensitive technology and information and
5 the national security interests of the United States
6 and Israel.

7 (2) REPORT.—The activities described in para-
8 graph (1) and subsection (b) may not be carried out
9 until after the Secretary of Defense submits to the
10 appropriate committees of Congress a report setting
11 forth the following:

12 (A) A memorandum of agreement between
13 the United States and Israel regarding sharing
14 of research and development costs for the capa-
15 bilities described in paragraph (1), and any
16 supporting documents.

17 (B) A certification that the memorandum
18 of agreement—

19 (i) requires sharing of costs of
20 projects, including in-kind support, be-
21 tween the United States and Israel;

22 (ii) establishes a framework to nego-
23 tiate the rights to any intellectual property
24 developed under the memorandum of
25 agreement; and

1 (iii) requires the United States Gov-
2 ernment to receive semiannual reports on
3 expenditure of funds, if any, by the Gov-
4 ernment of Israel, including a description
5 of what the funds have been used for,
6 when funds were expended, and an identi-
7 fication of entities that expended the
8 funds.

9 (b) SUPPORT IN CONNECTION WITH THE PRO-
10 GRAM.—

11 (1) IN GENERAL.—The Secretary of Defense is
12 authorized to provide maintenance and sustainment
13 support to Israel for the research, development, test,
14 and evaluation activities authorized in subsection
15 (a)(1). Such authority includes authority to install
16 equipment necessary to carry out such research, de-
17 velopment, test, and evaluation activities.

18 (2) REPORT.—Support may not be provided
19 under paragraph (1) until 15 days after the Sec-
20 retary submits to the appropriate committees of
21 Congress a report setting forth a detailed description
22 of the support to be provided.

23 (3) MATCHING CONTRIBUTION.—

24 (A) IN GENERAL.—Except as provided in
25 subparagraph (B), support may not be provided

1 under this subsection unless the Government of
2 Israel contributes an amount not less than the
3 amount of support to be so provided to the pro-
4 gram, project, or activity for which the support
5 is to be so provided in the calendar year in
6 which the support is provided.

7 (B) EXCEPTION.—Subject to paragraph
8 (4), the Secretary may use amounts available to
9 the Secretary in excess of the amount contrib-
10 uted by the Government of Israel to provide
11 support under this subsection for costs associ-
12 ated with any unique national requirement
13 identified by the United States with respect to
14 countering unmanned aerial systems.

15 (4) ANNUAL LIMITATION ON AMOUNT.—The
16 amount of support provided under this subsection in
17 any year may not exceed \$25,000,000.

18 (5) USE OF CERTAIN AMOUNTS FOR RDT&E AC-
19 TIVITIES IN THE UNITED STATES.—Of the amount
20 provided by the United States in support under
21 paragraph (1), not less than 50 percent of such
22 amount shall be used for research, development,
23 test, and evaluation activities in the United States in
24 connection with such support.

1 (c) LEAD AGENCY.—The Secretary of Defense shall
2 designate an appropriate research and development entity
3 of a military department as the lead agency of the Depart-
4 ment of Defense in carrying out this section.

5 (d) SEMIANNUAL REPORTS.—The Secretary of De-
6 fense shall submit to the appropriate committees of Con-
7 gress on a semiannual basis a report that contains a copy
8 of the most recent semiannual report provided by the Gov-
9 ernment of Israel to the Department of Defense pursuant
10 to subsection (a)(2)(B)(iii).

11 (e) APPROPRIATE COMMITTEES OF CONGRESS DE-
12 FINED.—In this section, the term “appropriate commit-
13 tees of Congress” means—

14 (1) the Committee on Armed Services, the
15 Committee on Foreign Relations, the Committee on
16 Homeland Security, the Committee on Appropria-
17 tions, and the Select Committee on Intelligence of
18 the Senate; and

19 (2) the Committee on Armed Services, the
20 Committee on Foreign Affairs, the Committee on
21 Homeland Security, the Committee on Appropria-
22 tions, and the Permanent Select Committee on Intel-
23 ligence of the House of Representatives.

24 (f) SUNSET.—The authority in this section to carry
25 out activities described in subsection (a), and to provide

1 support described in subsection (b), shall expire on De-
2 cember 31, 2024.

3 **SEC. 1279. EXTENSION AND MODIFICATION OF AUTHORITY**
4 **FOR UNITED STATES-ISRAEL ANTI-TUNNEL**
5 **COOPERATION ACTIVITIES.**

6 (a) **MODIFICATION OF AUTHORITY.**—Subsection (a)
7 of section 1279 of the National Defense Authorization Act
8 for Fiscal Year 2016 (22 U.S.C. 8606 note) is amended,
9 in the first sentence, by striking “and to establish capabili-
10 ties for countering unmanned aerial systems”.

11 (b) **EXCEPTION TO MATCHING CONTRIBUTION RE-**
12 **QUIREMENT.**—Subsection (b)(3) of such section is amend-
13 ed—

14 (1) by striking “Support” and inserting the fol-
15 lowing:

16 “(A) **IN GENERAL.**—Except as provided in
17 subparagraph (B), support”; and

18 (2) by adding at the end the following:

19 “(B) **EXCEPTION.**—Subject to paragraph
20 (4), the Secretary may use amounts available to
21 the Secretary in excess of the amount contrib-
22 uted by the Government of Israel to provide
23 support under this subsection for costs associ-
24 ated with any unique national requirement

1 identified by the United States with respect to
2 anti-tunnel capabilities.”.

3 (c) EXTENSION.—Subsection (f) of such section is
4 amended by striking “December 31, 2020” and inserting
5 “December 31, 2024”.

6 **SEC. 1280. REPORT ON COST IMPOSITION STRATEGY.**

7 (a) IN GENERAL.—Not later than 180 days after the
8 date of the enactment of this Act, the Secretary of De-
9 fense, in consultation with the heads of other Federal de-
10 partments and agencies, as appropriate, shall submit to
11 the congressional defense committees a report describing
12 the cost imposition strategies of the Department of De-
13 fense with respect to the People’s Republic of China and
14 the Russian Federation.

15 (b) ELEMENTS.—The report under subsection (a)
16 shall include the following:

17 (1) A description of the manner in which the
18 future-years defense program and current oper-
19 ational concepts of the Department are designed to
20 impose costs on the People’s Republic of China and
21 the Russian Federation, including—

22 (A) political, economic, budgetary, human
23 capital, and technology costs; and

24 (B) costs associated with military effi-
25 ciency and effectiveness.

1 (2) A description of the policies and processes
2 of the Department relating to the development and
3 execution of cost imposition strategies.

4 (c) FORM.—The report under subsection (a) shall be
5 submitted in classified form, and shall include an unclassi-
6 fied summary.

7 **SEC. 1281. MODIFICATION OF INITIATIVE TO SUPPORT PRO-**
8 **TECTION OF NATIONAL SECURITY ACADEMIC**
9 **RESEARCHERS FROM UNDUE INFLUENCE**
10 **AND OTHER SECURITY THREATS.**

11 (a) IN GENERAL.—Subsection (a) of section 1286 of
12 the John S. McCain National Defense Authorization Act
13 for Fiscal Year 2019 (Public Law 115–232) is amended,
14 in the matter preceding paragraph (1), by striking “aca-
15 demic institutions” and inserting “institutions of higher
16 education”.

17 (b) ADDITIONAL REQUIREMENTS.—Subsection (c) of
18 such section is amended—

19 (1) by amending paragraph (2) to read as fol-
20 lows:

21 “(2) Training developed and delivered in con-
22 sultation with institutions of higher education and
23 appropriate Government agencies, and other support
24 to institutions of higher education, to promote secu-
25 rity and limit undue influence on institutions of

1 higher education and personnel, including Depart-
2 ment of Defense financial support to carry out such
3 activities, that—

4 “(A) emphasizes best practices for protec-
5 tion of sensitive national security information;
6 and

7 “(B) includes the dissemination of unclas-
8 sified materials and resources for identifying
9 and protecting against emerging threats to in-
10 stitutions of higher education, including specific
11 counterintelligence information and advice de-
12 veloped specifically for faculty and academic re-
13 searchers based on actual identified threats.”;

14 (2) in paragraph (3), by striking “and academic
15 institutions”;

16 (3) in paragraph (7), by striking “academic in-
17 stitution” and inserting “institution of higher edu-
18 cation”; and

19 (4) by adding at the end the following new
20 paragraph:

21 “(8) A list, developed and continuously updated
22 in consultation with the Bureau of Industry and Se-
23 curity of the Department of Commerce, the Director
24 of National Intelligence, United States institutions
25 of higher education that conduct significant Depart-

1 ment of Defense research or engineering activities,
2 and other appropriate individuals and organizations,
3 of academic institutions of the People’s Republic of
4 China, the Russian Federation, and other countries,
5 that—

6 “(A) have a history of improper technology
7 transfer, intellectual property theft, or cyber or
8 human espionage;

9 “(B) operate under the direction of the
10 military forces or intelligence agency of the ap-
11 plicable country;

12 “(C) are known—

13 “(i) to recruit foreign individuals for
14 the purpose of transferring knowledge to
15 advance military or intelligence efforts; or

16 “(ii) to provide misleading informa-
17 tion or otherwise attempt to conceal the
18 connections of an individual or institution
19 to a defense or an intelligence agency of
20 the applicable country; or

21 “(D) pose a serious risk of improper tech-
22 nology transfer of data, technology, or research
23 that is not published or publicly available.”.

1 (c) PROCEDURES FOR ENHANCED INFORMATION
2 SHARING.—Subsection (d) of such section is amended to
3 read as follows:

4 “(d) PROCEDURES FOR ENHANCED INFORMATION
5 SHARING.—

6 “(1) IN GENERAL.—Not later than October 1,
7 2020, for the purpose of maintaining appropriate se-
8 curity controls over research activities, technical in-
9 formation, and intellectual property, the Secretary,
10 in conjunction with appropriate public and private
11 entities, shall establish streamlined procedures to
12 collect appropriate information relating to individ-
13 uals, including United States citizens and foreign
14 nationals, who participate in defense research and
15 development activities (other than basic research).

16 “(2) PROTECTION FROM RELEASE.—The proce-
17 dures required by paragraph (1) shall include proce-
18 dures to protect such information from release, con-
19 sistent with applicable regulations.

20 “(3) REPORTING TO GOVERNMENT INFORMA-
21 TION SYSTEMS AND REPOSITORIES.—The procedures
22 required by paragraph (1) may include procedures
23 developed, in coordination with appropriate public
24 and private entities, to report such information to

1 existing Government information systems and re-
2 positories.”.

3 (d) ANNUAL REPORT.—Subsection (e) of such sec-
4 tion is amended—

5 (1) in the subsection heading, by inserting “AN-
6 NUAL” before “REPORT”;

7 (2) in paragraph (1), by striking “one year
8 after the date of the enactment” and all that follows
9 through “the Secretary” and inserting “April 30,
10 2020, and annually thereafter, the Secretary, acting
11 through appropriate Government officials (including
12 the Under Secretary for Research and Engineer-
13 ing),”; and

14 (3) in paragraph (2), by adding at the end the
15 following new subparagraph:

16 “(F) Identification of any incident relating
17 to undue influence to security threats to aca-
18 demic research activities funded by the Depart-
19 ment of Defense, including theft of property or
20 intellectual property relating to a project fund-
21 ed by the Department at an institution of high-
22 er education.”.

1 **SEC. 1282. MODIFICATION OF RESPONSIBILITY FOR POLICY**
2 **ON CIVILIAN CASUALTY MATTERS.**

3 Section 936 of the John S. McCain National Defense
4 Authorization Act for Fiscal Year 2019 (Public Law 115–
5 232; 10 U.S.C. 134 note) is amended—

6 (1) in subsection (b)—

7 (A) in paragraph (3), by inserting “appro-
8 priate to the specific regional circumstances”
9 after “publicly available means”;

10 (B) in paragraph (5)—

11 (i) in subparagraph (A), by inserting
12 “, including for acknowledging the status
13 of any individuals killed or injured who
14 were believed to be enemy combatants, but
15 subsequently determined to be non-combat-
16 ants” after “operations”; and

17 (ii) in subparagraph (B)—

18 (I) by inserting “or other assist-
19 ance” after “payments”; and

20 (II) by striking “necessary” and
21 inserting “reasonable and culturally
22 appropriate”; and

23 (C) in paragraph (7), by striking “and” at
24 the end;

25 (D) by redesignating paragraph (8) as
26 paragraph (9); and

1 (E) by inserting after paragraph (7) the
2 following:

3 “(8) cultivating, developing, retaining, and dis-
4 seminating—

5 “(A) lessons learned for integrating civilian
6 protection into operational planning and identi-
7 fying the proximate cause or causes of civilian
8 casualties; and

9 “(B) practices developed to prevent, miti-
10 gate, or respond to such casualties;”;

11 (2) by redesignating subsection (c) as sub-
12 section (d);

13 (3) by inserting after subsection (b) the fol-
14 lowing:

15 “(c) COORDINATION.—The senior civilian official des-
16 igned under subsection (a) shall develop and implement
17 steps to increase coordination with the relevant Chiefs of
18 Mission and other appropriate positions in the Depart-
19 ment of State with respect to the policies required pursu-
20 ant to subsection (a) and other matters or assistance re-
21 lated to civilian harm, resulting from military oper-
22 ations.”; and

23 (4) by inserting after subsection (d), as so re-
24 designated, the following:

1 “(e) BRIEFING.—Not later than 180 days after the
2 date of the enactment of this subsection, the senior civilian
3 official designated under subsection (a) shall provide to
4 the congressional defense committees a briefing on—

5 “(1) the updates made to the policy developed
6 by the senior civilian official pursuant to this sec-
7 tion; and

8 “(2) the efforts of the Department to imple-
9 ment such updates.”.

10 **SEC. 1283. REPORT ON EXPORT OF CERTAIN SATELLITES**
11 **TO ENTITIES WITH CERTAIN BENEFICIAL**
12 **OWNERSHIP STRUCTURES.**

13 (a) IN GENERAL.—Not later than 180 days after the
14 date of the enactment of this Act, the Secretary of Com-
15 merce, in consultation with the heads of appropriate agen-
16 cies, shall submit to the appropriate congressional commit-
17 tees a report on addressing the threat or potential threat
18 posed by the export, reexport, or in-country transfer of
19 satellites described in section 1261(c)(1) of the National
20 Defense Authorization Act for Fiscal Year 2013 (Public
21 Law 112–239; 22 U.S.C. 2778 note) to entities described
22 in subsection (b).

23 (b) ENTITIES DESCRIBED.—

1 (1) IN GENERAL.—An entity described in this
2 subsection is an entity the beneficial owner of which
3 is—

4 (A) an individual who is a citizen or na-
5 tional of a country described in section
6 1261(c)(2) of the National Defense Authoriza-
7 tion Act for Fiscal Year 2013;

8 (B) an entity organized under the laws of
9 or otherwise subject to the jurisdiction of such
10 a country;

11 (C) the government of such a country; or

12 (D) any other individual or entity the Sec-
13 retary determines would detrimentally affect the
14 national security of the United States.

15 (2) DETERMINATION OF BENEFICIAL OWNER-
16 SHIP.—For purposes of paragraph (1), the Secretary
17 shall identify a person as the beneficial owner of an
18 entity—

19 (A) in a manner that is not less stringent
20 than the manner set forth in section 240.13d-
21 3 of title 17, Code of Federal Regulations (as
22 in effect on the date of the enactment of this
23 Act); and

24 (B) based on a threshold, to be determined
25 by the Secretary, based on an assessment of

1 whether the person's position would give the
2 person an opportunity to control the use of a
3 satellite described in section 1261(c)(1) of the
4 National Defense Authorization Act for Fiscal
5 Year 2013 and exported, reexported, or trans-
6 ferred in country to the entity.

7 (c) ELEMENTS.—The report required by subsection
8 (a) shall include the following:

9 (1) An evaluation of whether satellites described
10 in section 1261(c)(1) of the National Defense Au-
11 thorization Act for Fiscal Year 2013 have been ex-
12 ported, reexported, or transferred in-country, di-
13 rectly or indirectly, to entities described in sub-
14 section (b).

15 (2) An examination of the effect on national se-
16 curity of the potential export, reexport, or in-country
17 transfer of satellites in compliance with section
18 1261(c) of the National Defense Authorization Act
19 for Fiscal Year 2013 in circumstances in which the
20 services, bandwidth, or functions of the satellites
21 could subsequently be leased or sold to, or otherwise
22 used by, an entity described in subsection (b).

23 (3) An examination of the effect on national se-
24 curity of not limiting the export, reexport, or in-

1 country transfer of such satellites to entities de-
2 scribed in subsection (b).

3 (4) Recommendations for, and an assessment of
4 the effectiveness of, a licensing condition that would
5 prohibit or limit the export, reexport, or in-country
6 transfer of such satellites to, or the use of such sat-
7 ellites by, entities described in subsection (b).

8 (5) An assessment, based on realistic and jus-
9 tifiable assumptions and forecasts, of the economic
10 implications of and potential harm caused by a li-
11 censing condition described in paragraph (4) on the
12 United States industries that develop or produce sat-
13 ellites and commercial telecommunications equip-
14 ment that do not have direct national security ties.

15 (6) An evaluation of the resources necessary to
16 ensure the ability of the Bureau of Industry and Se-
17 curity of the Department of Commerce—

18 (A) to adequately identify and analyze the
19 beneficial owners of entities in decisions relating
20 to—

21 (i) issuing licenses for the export, re-
22 export, or in-country transfer of such sat-
23 ellites to such entities; or

24 (ii) the ultimate end uses and end-
25 users of such satellites; and

1 (B) when evaluating such a decision—

2 (i) to have full knowledge of the po-
3 tential end-user of the satellite and the
4 current beneficial owner of the entity; and

5 (ii) to be able to determine whether
6 issuing the license would be inconsistent
7 with the goal of preventing entities de-
8 scribed in subsection (b) from accessing or
9 using such satellites.

10 (d) FORM.—The report required by subsection (a)
11 shall be submitted in unclassified form, but may include
12 a classified annex.

13 (e) APPROPRIATE CONGRESSIONAL COMMITTEES DE-
14 FINED.—In this section, the term “appropriate congres-
15 sional committees” means—

16 (1) the Committee on Armed Services, the
17 Committee on Banking, Housing, and Urban Af-
18 fairs, the Committee on Commerce, Science, and
19 Transportation, the Committee on Foreign Rela-
20 tions, and the Select Committee on Intelligence of
21 the Senate; and

22 (2) the Committee on Armed Services, the
23 Committee on Financial Services, the Committee on
24 Energy and Commerce, the Committee on Foreign

1 Affairs, and the Permanent Select Committee on In-
2 telligence of the House of Representatives.

3 **SEC. 1284. RULE OF CONSTRUCTION RELATING TO THE USE**
4 **OF MILITARY FORCE.**

5 Nothing in this Act, or any amendment made by this
6 Act, may be construed to authorize the use of military
7 force, including the use of military force against Iran or
8 any other country.

9 **SEC. 1285. REPORTS AND BRIEFINGS ON USE OF MILITARY**
10 **FORCE AND SUPPORT OF PARTNER FORCES.**

11 (a) IN GENERAL.—Not later than 180 days after the
12 date of the enactment of this Act, and every 180 days
13 thereafter, the President shall submit to the congressional
14 defense committees, the Committee on Foreign Relations
15 of the Senate, and the Committee on Foreign Affairs of
16 the House of Representatives a report on actions taken
17 pursuant to the Authorization for Use of Military Force
18 (Public Law 107–40) against those countries or organiza-
19 tions described in such law, as well as any actions taken
20 to command, coordinate, participate in the movement of,
21 or accompany the regular or irregular military forces of
22 any foreign country or government when such forces are
23 engaged in hostilities or in situations where imminent in-
24 volvement in hostilities is clearly indicated by the cir-
25 cumstances, during the preceding 180-day period.

1 (b) MATTERS TO BE INCLUDED.—The report re-
2 quired by subsection (a) shall include, with respect to the
3 time period for which the report was submitted, the fol-
4 lowing:

5 (1) A list of each country or organization with
6 respect to which force has been used pursuant to the
7 Authorization for Use of Military Force, including
8 the legal and factual basis for the determination
9 that authority under such law applies with respect to
10 each such country or organization.

11 (2) An intelligence assessment of the risk to the
12 United States posed by each such country or organi-
13 zation.

14 (3) A list of each country in which operations
15 were conducted pursuant to such law and a descrip-
16 tion of the circumstances necessitating the use of
17 force pursuant to such law, including whether the
18 country is designated as an area of active hostilities.

19 (4) A general description of the status of oper-
20 ations conducted pursuant to such law as well as a
21 description of the expected scope and duration of
22 such operations.

23 (5) A list of each partner force and country
24 with respect to which United States Armed Forces
25 have commanded, coordinated, participated in the

1 movement of, or accompanied the regular or irreg-
2 ular forces of any foreign country or government
3 that have engaged in hostilities or there existed an
4 imminent threat that such forces would become en-
5 engaged in hostilities, including—

6 (A) a delineation of any such instances in
7 which such United States Armed Forces were
8 or were not operating under the Authorization
9 for Use of Military Force; and

10 (B) a determination of whether the foreign
11 forces, irregular forces, groups, or individuals
12 against which such hostilities occurred are cov-
13 ered by such law.

14 (6) A description of the actual and proposed
15 contributions, including financing, equipment, train-
16 ing, troops, and logistical support, provided by each
17 foreign country that participates in any international
18 coalition with the United States to combat a country
19 or organization described in the Authorization for
20 Use of Military Force.

21 (c) FORM.—The information required under para-
22 graphs (1) and (2) of subsection (b) shall be submitted
23 in unclassified form.

24 (d) OTHER REPORTS.—If United States Armed
25 Forces are introduced into hostilities, or into situations

1 where imminent involvement in hostilities is clearly indi-
2 cated by the circumstances, against any country, organiza-
3 tion, or person pursuant to statutory or constitutional au-
4 thorities other than Authorization for Use of Military
5 Force, the President shall comply with the reporting re-
6 quirements under—

7 (1) this section to the same extent and in the
8 same manner as if such actions had been taken
9 under Authorization for Use of Military Force;

10 (2) the War Powers Resolution (50 U.S.C.
11 1541 et seq.); and

12 (3) any other applicable provision of law.

13 (e) BRIEFINGS.—At least once during each 180-day
14 period described in subsection (a), the President shall pro-
15 vide to the congressional defense committees, the Com-
16 mittee on Foreign Relations of the Senate, and the Com-
17 mittee on Foreign Affairs of the House of Representatives
18 a briefing on the matters covered by the report required
19 under this section for such period.

20 **TITLE XIII—COOPERATIVE**
21 **THREAT REDUCTION**

Sec. 1301. Funding allocations; specification of cooperative threat reduction funds.

1 **SECTION 1301. FUNDING ALLOCATIONS; SPECIFICATION OF**
2 **COOPERATIVE THREAT REDUCTION FUNDS.**

3 (a) FUNDING ALLOCATIONS.—Of the \$338,700,000
4 authorized to be appropriated to the Department of De-
5 fense for fiscal year 2010 in section 301 and made avail-
6 able by the funding table in division D for the Department
7 of Defense Cooperative Threat Reduction Program estab-
8 lished under section 1321 of the Department of Defense
9 Cooperative Threat Reduction Act (50 U.S.C. 3711), the
10 following amounts may be obligated for the purposes spec-
11 ified:

12 (1) For strategic offensive arms elimination,
13 \$492,000.

14 (2) For chemical weapons destruction,
15 \$12,856,000.

16 (3) For global nuclear security, \$33,919,000.

17 (4) For cooperative biological engagement,
18 \$183,642,000.

19 (5) For proliferation prevention, \$79,869,000.

20 (6) For activities designated as Other Assess-
21 ments/Administrative Costs, \$27,922,000.

22 (b) SPECIFICATION OF COOPERATIVE THREAT RE-
23 Duction FUNDS.—Funds appropriated pursuant to the
24 authorization of appropriations in section 301 and made
25 available by the funding table in division D for the Depart-
26 ment of Defense Cooperative Threat Reduction Program

1 shall be available for obligation for fiscal years 2020,
2 2021, and 2022.

3 **TITLE XIV—OTHER**
4 **AUTHORIZATIONS**

Subtitle A—Military Programs

- Sec. 1401. Working capital funds.
- Sec. 1402. Chemical agents and munitions destruction, defense.
- Sec. 1403. Drug interdiction and counter-drug activities, defense-wide.
- Sec. 1404. Defense inspector general.
- Sec. 1405. Defense health program.

Subtitle B—Other Matters

- Sec. 1411. Authority for transfer of funds to joint Department of Defense-Department of Veterans Affairs Medical Facility Demonstration Fund for Captain James A. Lovell Health Care Center, Illinois.
- Sec. 1412. Authorization of appropriations for Armed Forces Retirement Home.

5 **Subtitle A—Military Programs**

6 **SEC. 1401. WORKING CAPITAL FUNDS.**

7 Funds are hereby authorized to be appropriated for
8 fiscal year 2020 for the use of the Armed Forces and other
9 activities and agencies of the Department of Defense for
10 providing capital for working capital and revolving funds,
11 as specified in the funding table in section 4501.

12 **SEC. 1402. CHEMICAL AGENTS AND MUNITIONS DESTRUC-**
13 **TION, DEFENSE.**

14 (a) **AUTHORIZATION OF APPROPRIATIONS.**—Funds
15 are hereby authorized to be appropriated for the Depart-
16 ment of Defense for fiscal year 2020 for expenses, not oth-
17 erwise provided for, for Chemical Agents and Munitions

1 Destruction, Defense, as specified in the funding table in
2 section 4501.

3 (b) USE.—Amounts authorized to be appropriated
4 under subsection (a) are authorized for—

5 (1) the destruction of lethal chemical agents
6 and munitions in accordance with section 1412 of
7 the Department of Defense Authorization Act, 1986
8 (50 U.S.C. 1521); and

9 (2) the destruction of chemical warfare materiel
10 of the United States that is not covered by section
11 1412 of such Act.

12 **SEC. 1403. DRUG INTERDICTION AND COUNTER-DRUG AC-**
13 **TIVITIES, DEFENSE-WIDE.**

14 Funds are hereby authorized to be appropriated for
15 the Department of Defense for fiscal year 2020 for ex-
16 penses, not otherwise provided for, for Drug Interdiction
17 and Counter-Drug Activities, Defense-wide, as specified in
18 the funding table in section 4501.

19 **SEC. 1404. DEFENSE INSPECTOR GENERAL.**

20 Funds are hereby authorized to be appropriated for
21 the Department of Defense for fiscal year 2020 for ex-
22 penses, not otherwise provided for, for the Office of the
23 Inspector General of the Department of Defense, as speci-
24 fied in the funding table in section 4501.

1 **SEC. 1405. DEFENSE HEALTH PROGRAM.**

2 Funds are hereby authorized to be appropriated for
3 fiscal year 2020 for the Defense Health Program for use
4 of the Armed Forces and other activities and agencies of
5 the Department of Defense for providing for the health
6 of eligible beneficiaries, as specified in the funding table
7 in section 4501.

8 **Subtitle B—Other Matters**

9 **SEC. 1411. AUTHORITY FOR TRANSFER OF FUNDS TO JOINT**
10 **DEPARTMENT OF DEFENSE-DEPARTMENT OF**
11 **VETERANS AFFAIRS MEDICAL FACILITY DEM-**
12 **ONSTRATION FUND FOR CAPTAIN JAMES A.**
13 **LOVELL HEALTH CARE CENTER, ILLINOIS.**

14 (a) **AUTHORITY FOR TRANSFER OF FUNDS.**—Of the
15 funds authorized to be appropriated by section 1405 and
16 available for the Defense Health Program for operation
17 and maintenance, \$127,000,000 may be transferred by the
18 Secretary of Defense to the Joint Department of Defense—
19 Department of Veterans Affairs Medical Facility Dem-
20 onstration Fund established by subsection (a)(1) of sec-
21 tion 1704 of the National Defense Authorization Act for
22 Fiscal Year 2010 (Public Law 111–84; 123 Stat. 2571).
23 For purposes of subsection (a)(2) of such section 1704,
24 any funds so transferred shall be treated as amounts au-
25 thorized and appropriated specifically for the purpose of
26 such a transfer.

1 (b) USE OF TRANSFERRED FUNDS.—For the pur-
2 poses of subsection (b) of such section 1704, facility oper-
3 ations for which funds transferred under subsection (a)
4 may be used are operations of the Captain James A.
5 Lovell Federal Health Care Center, consisting of the
6 North Chicago Veterans Affairs Medical Center, the Navy
7 Ambulatory Care Center, and supporting facilities des-
8 ignated as a combined Federal medical facility under an
9 operational agreement covered by section 706 of the Dun-
10 can Hunter National Defense Authorization Act for Fiscal
11 Year 2009 (Public Law 110–417; 122 Stat. 4500).

12 **SEC. 1412. AUTHORIZATION OF APPROPRIATIONS FOR**
13 **ARMED FORCES RETIREMENT HOME.**

14 There is hereby authorized to be appropriated for fis-
15 cal year 2020 from the Armed Forces Retirement Home
16 Trust Fund the sum of \$64,300,000 for the operation of
17 the Armed Forces Retirement Home.

18 **TITLE XV—AUTHORIZATION OF**
19 **ADDITIONAL APPROPRIA-**
20 **TIONS FOR OVERSEAS CON-**
21 **TINGENCY OPERATIONS**

Sec. 1501. Purpose.

Sec. 1502. Treatment as additional authorizations.

Subtitle A—Authorization of Appropriations for Overseas Contingency
Operations

Sec. 1511. Overseas contingency operations.

Sec. 1512. Procurement.

Sec. 1513. Research, development, test, and evaluation.

Sec. 1514. Operation and maintenance.

- Sec. 1515. Military personnel.
- Sec. 1516. Working capital funds.
- Sec. 1517. Drug interdiction and counter-drug activities, defense-wide.
- Sec. 1518. Defense inspector general.
- Sec. 1519. Defense health program.
- Sec. 1520. Afghanistan security forces fund.
- Sec. 1520A. Special transfer authority.

Subtitle B—Authorization of Appropriations for Emergency Funds for
Recovery and Restoration

- Sec. 1521. Procurement.
- Sec. 1522. Research, development, test, and evaluation.
- Sec. 1523. Operation and maintenance.
- Sec. 1524. Restriction on transfer of funds authorized by this subtitle.

1 SEC. 1501. PURPOSE.

2 The purposes of this title are to authorize appropria-
3 tions for the Department of Defense for fiscal year
4 2020—

5 (1) to provide additional funds for overseas con-
6 tingency operations being carried out by the Armed
7 Forces; and

8 (2) to provide additional emergency funds for
9 the recovery and restoration of military missions and
10 activities at military installations in California, Flor-
11 ida, North Carolina, and Nebraska that were im-
12 pacted by natural disasters.

13 SEC. 1502. TREATMENT AS ADDITIONAL AUTHORIZATIONS.

14 The amounts authorized to be appropriated by this
15 title are in addition to amounts otherwise authorized to
16 be appropriated by this Act.

1 **Subtitle A—Authorization of Ap-**
2 **propriations for Overseas Con-**
3 **tingency Operations**

4 **SEC. 1511. OVERSEAS CONTINGENCY OPERATIONS.**

5 Funds are hereby authorized to be appropriated for
6 fiscal year 2020 for the Department of Defense for over-
7 seas contingency operations in such amounts as may be
8 designated as provided in section 251(b)(2)(A)(ii) of the
9 Balanced Budget and Emergency Deficit Control Act of
10 1985 (2 U.S.C. 901(b)(2)(A)(ii)).

11 **SEC. 1512. PROCUREMENT.**

12 Funds are hereby authorized to be appropriated for
13 fiscal year 2020 for procurement accounts for the Army,
14 the Navy and the Marine Corps, the Air Force, and De-
15 fense-wide activities, as specified in the funding table in
16 section 4102.

17 **SEC. 1513. RESEARCH, DEVELOPMENT, TEST, AND EVALUA-**
18 **TION.**

19 Funds are hereby authorized to be appropriated for
20 fiscal year 2020 for the use of the Department of Defense
21 for research, development, test, and evaluation, as speci-
22 fied in the funding table in section 4202.

23 **SEC. 1514. OPERATION AND MAINTENANCE.**

24 Funds are hereby authorized to be appropriated for
25 fiscal year 2020 for the use of the Armed Forces and other

1 activities and agencies of the Department of Defense for
2 expenses, not otherwise provided for, for operation and
3 maintenance, as specified in the funding table in section
4 4302.

5 **SEC. 1515. MILITARY PERSONNEL.**

6 Funds are hereby authorized to be appropriated for
7 fiscal year 2020 for the use of the Armed Forces and other
8 activities and agencies of the Department of Defense for
9 expenses, not otherwise provided for, military personnel
10 accounts, as specified in the funding table in section 4402.

11 **SEC. 1516. WORKING CAPITAL FUNDS.**

12 Funds are hereby authorized to be appropriated for
13 fiscal year 2020 for the use of the Armed Forces and other
14 activities and agencies of the Department of Defense for
15 providing capital for working capital and revolving funds,
16 as specified in the funding table in section 4502.

17 **SEC. 1517. DRUG INTERDICTION AND COUNTER-DRUG AC-**
18 **TIVITIES, DEFENSE-WIDE.**

19 Funds are hereby authorized to be appropriated for
20 the Department of Defense for fiscal year 2020 for ex-
21 penses, not otherwise provided for, for Drug Interdiction
22 and Counter-Drug Activities, Defense-wide, as specified in
23 the funding table in section 4502.

1 **SEC. 1518. DEFENSE INSPECTOR GENERAL.**

2 Funds are hereby authorized to be appropriated for
3 the Department of Defense for fiscal year 2020 for ex-
4 penses, not otherwise provided for, for the Office of the
5 Inspector General of the Department of Defense, as speci-
6 fied in the funding table in section 4502.

7 **SEC. 1519. DEFENSE HEALTH PROGRAM.**

8 Funds are hereby authorized to be appropriated for
9 the Department of Defense for fiscal year 2020 for ex-
10 penses, not otherwise provided for, for the Defense Health
11 Program, as specified in the funding table in section 4502.

12 **SEC. 1520. AFGHANISTAN SECURITY FORCES FUND.**

13 (a) CONTINUATION OF PRIOR AUTHORITIES AND NO-
14 TICE AND REPORTING REQUIREMENTS.—Funds available
15 to the Department of Defense for the Afghanistan Secu-
16 rity Forces Fund for fiscal year 2020 shall be subject to
17 the conditions contained in—

18 (1) subsections (b) through (f) of section 1513
19 of the National Defense Authorization Act for Fiscal
20 Year 2008 (Public Law 110–181; 122 Stat. 428);
21 and

22 (2) section 1521(d)(1) of the National Defense
23 Authorization Act for Fiscal Year 2017 (Public Law
24 114–328; 130 Stat. 2577).

25 (b) EQUIPMENT DISPOSITION.—

1 (1) ACCEPTANCE OF CERTAIN EQUIPMENT.—
2 Subject to paragraph (2), the Secretary of Defense
3 may accept equipment that is procured using
4 amounts authorized to be appropriated for the Af-
5 ghanistan Security Forces Fund by this Act and is
6 intended for transfer to the security forces of the
7 Ministry of Defense and the Ministry of the Interior
8 of the Government of Afghanistan, but is not accept-
9 ed by such security forces.

10 (2) CONDITIONS ON ACCEPTANCE OF EQUIP-
11 MENT.—Before accepting any equipment under the
12 authority provided by paragraph (1), the Com-
13 mander of United States forces in Afghanistan shall
14 make a determination that such equipment was pro-
15 cured for the purpose of meeting requirements of the
16 security forces of the Ministry of Defense and the
17 Ministry of the Interior of the Government of Af-
18 ghanistan, as agreed to by both the Government of
19 Afghanistan and the Government of the United
20 States, but is no longer required by such security
21 forces or was damaged before transfer to such secu-
22 rity forces.

23 (3) ELEMENTS OF DETERMINATION.—In mak-
24 ing a determination under paragraph (2) regarding
25 equipment, the Commander of United States forces

1 in Afghanistan shall consider alternatives to the ac-
2 ceptance of such equipment by the Secretary. An ex-
3 planation of each determination, including the basis
4 for the determination and the alternatives consid-
5 ered, shall be included in the relevant quarterly re-
6 port required under paragraph (5).

7 (4) TREATMENT AS DEPARTMENT OF DEFENSE
8 STOCKS.—Equipment accepted under the authority
9 provided by paragraph (1) may be treated as stocks
10 of the Department of Defense upon notification to
11 the congressional defense committees of such treat-
12 ment.

13 (5) QUARTERLY REPORTS ON EQUIPMENT DIS-
14 POSITION.—

15 (A) IN GENERAL.—Not later than 90 days
16 after the date of the enactment of this Act and
17 every 90-day period thereafter during which the
18 authority provided by paragraph (1) is exer-
19 cised, the Secretary shall submit to the congress-
20 sional defense committees a report describing
21 the equipment accepted during the period cov-
22 ered by such report under the following:

23 (i) This subsection.

24 (ii) Section 1521(b) of the National
25 Defense Authorization Act for Fiscal Year

1 2017 (Public Law 114–328; 130 Stat.
2 2575).

3 (iii) Section 1531(b) of the National
4 Defense Authorization Act for Fiscal Year
5 2016 (Public Law 114–92; 129 Stat.
6 1088).

7 (iv) Section 1532(b) of the Carl Levin
8 and Howard P. “Buck” McKeon National
9 Defense Authorization Act for Fiscal Year
10 2015 (Public Law 113–291; 128 Stat.
11 3613).

12 (v) Section 1531(d) of the National
13 Defense Authorization Act for Fiscal Year
14 2014 (Public Law 113–66; 127 Stat. 938;
15 10 U.S.C. 2302 note).

16 (B) ELEMENTS.—Each report under sub-
17 paragraph (A) shall include a list of all equip-
18 ment that was accepted during the period cov-
19 ered by such report and treated as stocks of the
20 Department of Defense and copies of the deter-
21 minations made under paragraph (2), as re-
22 quired by paragraph (3).

23 (c) SECURITY OF AFGHAN WOMEN.—

24 (1) IN GENERAL.—Of the funds available to the
25 Department of Defense for the Afghan Security

1 Forces Fund for fiscal year 2020, it is the goal that
2 \$45,500,000, but in no event less than \$10,000,000,
3 shall be used for—

4 (A) the recruitment, integration, retention,
5 training, and treatment of women in the Af-
6 ghan National Defense and Security Forces;
7 and

8 (B) the recruitment, training, and con-
9 tracting of female security personnel for future
10 elections.

11 (2) TYPES OF PROGRAMS AND ACTIVITIES.—

12 Such programs and activities may include—

13 (A) efforts to recruit and retain women
14 into the Afghan National Defense and Security
15 Forces, including the special operations forces;

16 (B) programs and activities of the Direc-
17 torate of Human Rights and Gender Integra-
18 tion of the Ministry of Defense of Afghanistan
19 and the Office of Human Rights, Gender and
20 Child Rights of the Ministry of Interior of Af-
21 ghanistan;

22 (C) development and dissemination of gen-
23 der and human rights educational and training
24 materials and programs within the Ministry of

1 Defense and the Ministry of Interior of Afghan-
2 istan;

3 (D) efforts to address harassment and vio-
4 lence against women within the Afghan Na-
5 tional Defense and Security Forces;

6 (E) improvements to infrastructure that
7 address the requirements of women serving in
8 the Afghan National Defense and Security
9 Forces, including appropriate equipment for fe-
10 male security and police forces, and transpor-
11 tation for policewomen to their station;

12 (F) support for Afghanistan National Po-
13 lice Family Response Units;

14 (G) security provisions for high-profile fe-
15 male police and military officers;

16 (H) programs to promote conflict preven-
17 tion, management, and resolution through the
18 meaningful participation of Afghan women in
19 the Afghan National Defense and Security
20 Forces, by exposing Afghan women and girls to
21 the activities of and careers available with such
22 forces, encouraging their interest in such ca-
23 reers, or developing their interest and skills nec-
24 essary for service in such forces; and

1 (I) enhancements to Afghan National De-
2 fense and Security Forces recruitment pro-
3 grams for targeted advertising with the goal of
4 increasing the number of female recruits.

5 (d) ASSESSMENT OF AFGHANISTAN PROGRESS ON
6 OBJECTIVES.—

7 (1) ASSESSMENT REQUIRED.—Not later than
8 June 1, 2020, the Secretary of Defense shall, in con-
9 sultation with the Secretary of State, submit to the
10 Committee on Armed Services and the Committee on
11 Foreign Affairs of the House of Representatives and
12 the Committee on Armed Services and the Com-
13 mittee on Foreign Relations of the Senate an assess-
14 ment describing—

15 (A) the progress of the Government of the
16 Islamic Republic of Afghanistan toward meeting
17 shared security objectives; and

18 (B) the efforts of the Government of the
19 Islamic Republic of Afghanistan to manage, em-
20 ploy, and sustain the equipment and inventory
21 provided under subsection (a).

22 (2) MATTERS TO BE INCLUDED.—In conducting
23 the assessment required by paragraph (1), the Sec-
24 retary of Defense shall include each of the following:

1 (A) The extent to which the Government of
2 Afghanistan has a strategy for, and has taken
3 steps toward, increased accountability and the
4 reduction of corruption within the Ministry of
5 Defense and the Ministry of Interior of Afghan-
6 istan.

7 (B) The extent to which the capability and
8 capacity of the Afghan National Defense and
9 Security Forces have improved as a result of
10 Afghanistan Security Forces Fund investment,
11 including through training, and an articulation
12 of the metrics used to assess such improve-
13 ments.

14 (C) The extent to which the Afghan Na-
15 tional Defense and Security Forces have been
16 able to increase pressure on the Taliban, al-
17 Qaeda, the Haqqani network, the Islamic State
18 of Iraq and Syria-Khorasan, and other terrorist
19 organizations, including by re-taking territory,
20 defending territory, and disrupting attacks.

21 (D) The distribution practices of the Af-
22 ghan National Defense and Security Forces and
23 whether the Government of Afghanistan is en-
24 suring that supplies, equipment, and weaponry
25 supplied by the United States are appropriately

1 distributed to, and employed by, security forces
2 charged with fighting the Taliban and other
3 terrorist organizations.

4 (E) A description of—

5 (i) the policy governing the use of Ac-
6 quisition and Cross Servicing Agreements
7 (ACSA) in Afghanistan;

8 (ii) each ACSA transaction by type,
9 amount, and recipient for the period begin-
10 ning on October 1, 2018, and ending De-
11 cember 31, 2019; and

12 (iii) for any transactions from the
13 United States to Afghan military forces,
14 an explanation for why such transaction
15 was not carried out under the authorities
16 of the Afghanistan Security Forces Fund.

17 (F) The extent to which the Government
18 of Afghanistan has designated the appropriate
19 staff, prioritized the development of relevant
20 processes, and provided or requested the alloca-
21 tion of resources necessary to support a peace
22 and reconciliation process in Afghanistan.

23 (G) A description of the ability of the Min-
24 istry of Defense and the Ministry of Interior of
25 Afghanistan to manage and account for pre-

1 viously divested equipment, including a descrip-
2 tion of any vulnerabilities or weaknesses of the
3 internal controls of such Ministry of Defense
4 and Ministry of Interior and any plan in place
5 to address shortfalls.

6 (H) A description of any significant irreg-
7 ularities in the divestment of equipment to the
8 Afghan National Defense and Security Forces
9 during the period beginning on May 1, 2019,
10 and ending on May 1, 2020, including any
11 major losses of such equipment or any inability
12 on the part of the Afghan National Defense and
13 Security Forces to account for equipment so
14 procured.

15 (I) A description of the sustainment and
16 maintenance costs required during the 5-year
17 period beginning on the date of the enactment
18 of this Act, for major weapons platforms pre-
19 viously divested, and a description of the plan
20 for the Afghan National Defense and Security
21 Forces to maintain such platforms in the fu-
22 ture.

23 (J) The extent to which the Government of
24 Afghanistan is adhering to conditions for receiv-
25 ing assistance established in annual financial

1 commitment letters or any other bilateral agree-
2 ments with the United States.

3 (K) The extent to which the Government
4 of Afghanistan has made progress in achieving
5 security sector benchmarks as outlined by the
6 United States-Afghan Compact (commonly
7 known as the “Kabul Compact”) and a descrip-
8 tion of any other documents, plans, or agree-
9 ments used by the United States to measure se-
10 curity sector progress.

11 (L) Such other factors as the Secretaries
12 consider appropriate.

13 (3) FORM.—The assessment required by para-
14 graph (1) shall be submitted in unclassified form,
15 but may include a classified annex.

16 (4) WITHHOLDING OF ASSISTANCE FOR INSUF-
17 FICIENT PROGRESS.—

18 (A) IN GENERAL.—If the Secretary of De-
19 fense determines, in coordination with the Sec-
20 retary of State and pursuant to the assessment
21 under paragraph (1), that the Government of
22 Afghanistan has made insufficient progress in
23 the areas described in paragraph (2), the Sec-
24 retary of Defense shall—

1 (i) withhold \$480,000,000, to be de-
2 rived from amounts made available for as-
3 sistance for the Afghan National Defense
4 and Security Forces, from expenditure or
5 obligation until the date on which the Sec-
6 retary certifies to the congressional defense
7 committees that the Government of Af-
8 ghanistan has made sufficient progress;
9 and

10 (ii) notify the congressional defense
11 committees not later than 30 days before
12 withholding such funds.

13 (B) WAIVER.—If the Secretary of Defense
14 determines that withholding such assistance
15 would impede the national security objectives of
16 the United States by prohibiting, restricting,
17 delaying, or otherwise limiting the provision of
18 assistance, the Secretary may waive the with-
19 holding requirement under subparagraph (A) if
20 the Secretary, in coordination with the Sec-
21 retary of State, certifies such determination to
22 the congressional defense committees not later
23 than 30 days before the effective date of the
24 waiver.

1 (e) ADDITIONAL REPORTING REQUIREMENTS.—The
2 Secretary of Defense shall include in the materials sub-
3 mitted in support of the budget for fiscal year 2021 that
4 is submitted by the President under section 1105(a) of
5 title 31, United States Code, each of the following:

6 (1) The amount of funding provided in fiscal
7 year 2019 through the Afghanistan Security Forces
8 Fund to the Government of Afghanistan in the form
9 of direct government-to-government assistance or on-
10 budget assistance for the purposes of supporting any
11 entity of such government, including the Afghan Na-
12 tional Defense and Security Forces, the Afghan Min-
13 istry of Interior, or the Afghan Ministry of Defense.

14 (2) The amount of funding provided and antici-
15 pated to be provided, as of the date of the submis-
16 sion of the materials, in fiscal year 2020 through
17 such Fund in such form.

18 (3) To the extent the amount described in para-
19 graph (2) exceeds the amount described in para-
20 graph (1), an explanation as to the reason why the
21 such amount is greater and the specific entities and
22 purposes that were supported by such increase.

23 **SEC. 1520A. SPECIAL TRANSFER AUTHORITY.**

24 (a) AUTHORITY TO TRANSFER AUTHORIZATIONS.—

1 (1) **AUTHORITY.**—Upon determination by the
2 Secretary of Defense that such action is necessary in
3 the national interest, the Secretary may transfer
4 amounts of authorizations made available to the De-
5 partment of Defense in this subtitle for fiscal year
6 2020 between any such authorizations for that fiscal
7 year (or any subdivisions thereof). Amounts of au-
8 thorizations so transferred shall be merged with and
9 be available for the same purposes as the authoriza-
10 tion to which transferred.

11 (2) **LIMITATION.**—The total amount of author-
12 izations that the Secretary may transfer under the
13 authority of this subsection may not exceed
14 \$2,000,000,000.

15 (b) **TERMS AND CONDITIONS.**—Transfers under this
16 section shall be subject to the same terms and conditions
17 as transfers under section 1001.

18 (c) **ADDITIONAL AUTHORITY.**—The transfer author-
19 ity provided by this section is in addition to the transfer
20 authority provided under section 1001.

1 **Subtitle B—Authorization of Ap-**
2 **propriations for Emergency**
3 **Funds for Recovery and Res-**
4 **toration**

5 **SEC. 1521. PROCUREMENT.**

6 Funds are hereby authorized to be appropriated for
7 fiscal year 2020 for procurement accounts for the Army,
8 the Navy and the Marine Corps, the Air Force, and De-
9 fense-wide activities, as specified in the funding table in
10 section 4103.

11 **SEC. 1522. RESEARCH, DEVELOPMENT, TEST, AND EVALUA-**
12 **TION.**

13 Funds are hereby authorized to be appropriated for
14 fiscal year 2020 for the use of the Department of Defense
15 for research, development, test, and evaluation, as speci-
16 fied in the funding table in section 4203.

17 **SEC. 1523. OPERATION AND MAINTENANCE.**

18 Funds are hereby authorized to be appropriated for
19 fiscal year 2020 for the use of the Armed Forces and other
20 activities and agencies of the Department of Defense for
21 expenses, not otherwise provided for, for operation and
22 maintenance, as specified in the funding table in section
23 4303.

1 **SEC. 1524. RESTRICTION ON TRANSFER OF FUNDS AUTHOR-**
2 **IZED BY THIS SUBTITLE.**

3 (a) **AUTHORITY.**—Upon determination by the Sec-
4 retary of Defense that such action is necessary in the na-
5 tional interest, the Secretary may transfer amounts of au-
6 thorizations made available to the Department of Defense
7 in this subtitle for fiscal year 2020 between any such au-
8 thorizations for that fiscal year (or any subdivisions there-
9 of). Amounts of authorizations so transferred shall be
10 merged with the authorization to which transferred and
11 shall be available for the recovery and restoration of mili-
12 tary missions and activities at military installations in
13 California, Florida, North Carolina, and Nebraska im-
14 pacted by natural disasters.

15 (b) **ADDITIONAL AUTHORITY.**—The transfer author-
16 ity provided by this section is in addition to the transfer
17 authority provided under sections 1001 and 1520A.

18 (c) **TERMS AND CONDITIONS.**—Transfers under this
19 section shall be subject to the same terms and conditions
20 as transfers under section 1001.

21 **TITLE XVI—STRATEGIC PRO-**
22 **GRAMS, CYBER, AND INTEL-**
23 **LIGENCE MATTERS**

Subtitle A—Space Activities

Sec. 1601. Repeal of requirement to establish United States Space Command
as a subordinate unified command of the United States Stra-
tegic Command.

- Sec. 1602. Coordination of modernization efforts relating to military-code capable GPS receiver cards.
- Sec. 1603. Demonstration of backup and complementary positioning, navigation, and timing capabilities of Global Positioning System.
- Sec. 1604. Annual determination on plan on full integration and exploitation of overhead persistent infrared capability.
- Sec. 1605. Space-based environmental monitoring mission requirements.
- Sec. 1606. Resilient enterprise ground architecture.
- Sec. 1607. Prototype program for multi-global navigation satellite system receiver development.
- Sec. 1608. Commercial space situational awareness capabilities.
- Sec. 1609. Program to enhance and improve launch support and infrastructure.
- Sec. 1610. Preparation to implement plan for use of allied launch vehicles.
- Sec. 1611. Independent study on plan for deterrence in space.
- Sec. 1612. Study on leveraging diverse commercial satellite remote sensing capabilities.
- Sec. 1613. Annual report on Space Command and Control program.
- Sec. 1614. Report on space debris.

Subtitle B—Defense Intelligence and Intelligence-Related Activities

- Sec. 1621. Redesignation of Under Secretary of Defense for Intelligence as Under Secretary of Defense for Intelligence and Security.
- Sec. 1622. Modifications to ISR Integration Council and annual briefing requirements.
- Sec. 1623. Modification of annual authorization of appropriations for National Flagship Language Initiative.
- Sec. 1624. Improving the onboarding methodology for intelligence personnel.
- Sec. 1625. Defense Counterintelligence and Security Agency activities on facilitating access to local criminal records historical data.
- Sec. 1626. Survey and report on alignment of intelligence collections capabilities and activities with Department of Defense requirements.
- Sec. 1627. Reports on Consolidated Adjudication Facility of the Defense Counterintelligence and Security Agency.
- Sec. 1628. Report on the expanded purview of the Defense Counterintelligence and Security Agency.
- Sec. 1629. Termination of requirement for Department of Defense facility access clearances for joint ventures composed of previously-cleared entities.

Subtitle C—Cyberspace-Related Matters

- Sec. 1631. Matters relating to military operations in the information environment.
- Sec. 1632. Notification requirements for sensitive military cyber operations.
- Sec. 1633. Evaluation of cyber vulnerabilities of major weapon systems of the Department of Defense.
- Sec. 1634. Quarterly assessments of the readiness of Cyber Mission Forces.
- Sec. 1635. Cyber posture review.
- Sec. 1636. Modification of elements of assessment required for termination of dual-hat arrangement for Commander of the United States Cyber Command.
- Sec. 1637. Modification of cyber scholarship program.
- Sec. 1638. Tier 1 exercise of support to civil authorities for a cyber incident.
- Sec. 1639. Extension of the Cyberspace Solarium Commission.

- Sec. 1640. Authority to use operation and maintenance funds for cyber operations-peculiar capability development projects.
- Sec. 1641. Role of Chief Information Officer in improving enterprise-wide cybersecurity.
- Sec. 1642. Notification of delegation of authorities to the Secretary of Defense for military operations in cyberspace.
- Sec. 1643. Limitation of funding for Consolidated Afloat Networks and Enterprise Services.
- Sec. 1644. Annual military cyberspace operations report.
- Sec. 1645. Annual report on cyber attacks and intrusions against the Department of Defense by certain foreign entities.
- Sec. 1646. Control and analysis of Department of Defense data stolen through cyberspace.
- Sec. 1647. Use of National Security Agency cybersecurity expertise to support evaluation of commercial cybersecurity products.
- Sec. 1648. Framework to enhance cybersecurity of the United States defense industrial base.
- Sec. 1649. Report on cybersecurity training programs.
- Sec. 1650. National Security Presidential Memorandums relating to Department of Defense operations in cyberspace.
- Sec. 1651. Reorientation of Big Data Platform program.
- Sec. 1652. Zero-based review of Department of Defense cyber and information technology personnel.
- Sec. 1653. Study on improving cyber career paths in the Navy.
- Sec. 1654. Accreditation standards and processes for cybersecurity and information technology products and services.
- Sec. 1655. Study on future cyber warfighting capabilities of Department of Defense.
- Sec. 1656. Study to determine the optimal strategy for structuring and manning elements of the Joint Force Headquarters–Cyber Organizations, Joint Mission Operations Centers, and Cyber Operations–Integrated Planning Elements.
- Sec. 1657. Cyber governance structures and Principal Cyber Advisors on military cyber force matters.
- Sec. 1658. Designation of test networks for testing and accreditation of cybersecurity products and services.
- Sec. 1659. Consortia of universities to advise Secretary of Defense on cybersecurity matters.
- Sec. 1660. Joint assessment of Department of Defense cyber red team capabilities, capacity, demand, and requirements.

Subtitle D—Nuclear Forces

- Sec. 1661. Conforming amendment to Council on Oversight of the National Leadership Command, Control, and Communications System.
- Sec. 1662. Modification of authorities relating to nuclear command, control, and communications system.
- Sec. 1663. Briefings on meetings held by Nuclear Weapons Council.
- Sec. 1664. Consideration of budget matters at meetings of Nuclear Weapons Council.
- Sec. 1665. Improvement to annual report on the modernization of the nuclear weapons enterprise.
- Sec. 1666. Expansion of officials required to conduct biennial assessments of delivery platforms for nuclear weapons and nuclear command and control system.

- Sec. 1667. Extension of annual briefing on costs of forward-deploying nuclear weapons in Europe.
- Sec. 1668. Elimination of conventional requirement for long-range standoff weapon.
- Sec. 1669. Briefing on long-range standoff weapon and sea-launched cruise missile.
- Sec. 1670. Extension of prohibition on availability of funds for mobile variant of ground-based strategic deterrent missile.
- Sec. 1671. Reports on development of ground-based strategic deterrent weapon.
- Sec. 1672. Prohibition on reduction of the intercontinental ballistic missiles of the United States.
- Sec. 1673. Independent study on policy of no-first-use of nuclear weapons.
- Sec. 1674. Independent study on risks of nuclear terrorism and nuclear war.
- Sec. 1675. Report on military-to-military dialogue to reduce risks of miscalculation leading to nuclear war.
- Sec. 1676. Report on nuclear forces of the United States and near-peer countries.
- Sec. 1677. Report on operation of conventional forces of military departments under employment or threat of employment of nuclear weapons.
- Sec. 1678. Report on operation of conventional forces of certain combatant commands under employment or threat of employment of nuclear weapons.
- Sec. 1679. Briefings on plan for future-systems-level architecture of nuclear command, control, and communications systems.
- Sec. 1680. Sense of Congress on nuclear deterrence commitments of the United States.

Subtitle E—Missile Defense Programs

- Sec. 1681. National missile defense policy.
- Sec. 1682. Development of space-based ballistic missile intercept layer.
- Sec. 1683. Development of hypersonic and ballistic missile tracking space sensor payload.
- Sec. 1684. Modifications to required testing by Missile Defense Agency of ground-based midcourse defense element of ballistic missile defense system.
- Sec. 1685. Iron Dome short-range rocket defense system and Israeli cooperative missile defense program co-development and co-production.
- Sec. 1686. Limitation on availability of funds for lower tier air and missile defense sensor.
- Sec. 1687. Plan for the redesigned kill vehicle replacement.
- Sec. 1688. Organization, authorities, and billets of the Missile Defense Agency.
- Sec. 1689. Annual assessment of ballistic missile defense system.
- Sec. 1690. Command and control, battle management, and communications program.
- Sec. 1691. Missile defense interceptor site in contiguous United States.
- Sec. 1692. Independent study on impacts of missile defense development and deployment.
- Sec. 1693. Report and briefing on multi-volume kill capability.

Subtitle F—Other Matters

- Sec. 1694. Extension of authorization for protection of certain facilities and assets from unmanned aircraft.

- Sec. 1695. Repeal of requirement for commission on electromagnetic pulse attacks and similar events.
- Sec. 1696. Repeal of review requirement for ammonium perchlorate report.
- Sec. 1697. Transferability of conventional prompt global strike weapon system technologies to surface-launched platforms.
- Sec. 1698. Prohibition on availability of funds for certain offensive ground-launched ballistic or cruise missile systems.
- Sec. 1699. Hard and deeply buried targets.

1 **Subtitle A—Space Activities**

2 **SEC. 1601. REPEAL OF REQUIREMENT TO ESTABLISH** 3 **UNITED STATES SPACE COMMAND AS A SUB-** 4 **ORDINATE UNIFIED COMMAND OF THE** 5 **UNITED STATES STRATEGIC COMMAND.**

6 (a) **IN GENERAL.**—Section 169 of title 10, United
7 States Code, is repealed.

8 (b) **TECHNICAL AND CONFORMING AMENDMENTS.**—

9 (1) The table of sections for chapter 6 of title
10 10, United States Code, is amended by striking the
11 item relating to section 169.

12 (2) Section 2273a(d)(3) of title 10, United
13 States Code, is amended by striking “The Com-
14 mander of the United States Strategic Command,
15 acting through the United States Space Command,”
16 and inserting “The Commander of the United States
17 Space Command, or, if no such command exists, the
18 Commander of the United States Strategic Com-
19 mand,”.

1 **SEC. 1602. COORDINATION OF MODERNIZATION EFFORTS**
2 **RELATING TO MILITARY-CODE CAPABLE GPS**
3 **RECEIVER CARDS.**

4 Section 1610 of the John S. McCain National De-
5 fense Authorization Act for Fiscal Year 2019 (Public Law
6 115–232; 132 Stat. 2111; 10 U.S.C. 2281 note) is amend-
7 ed—

8 (1) in subsection (b)(2), by striking the period
9 at the end and inserting “, including with respect to
10 each program of the Department that requires M-
11 code capable receiver cards.”; and

12 (2) in subsection (c), by striking the period at
13 the end and inserting “, and shall clarify the roles
14 of the Chief Information Officer and the Council on
15 Oversight of the Department of Defense Positioning,
16 Navigation, and Timing Enterprise with respect to
17 M-code modernization efforts.”.

18 **SEC. 1603. DEMONSTRATION OF BACKUP AND COMPLEMEN-**
19 **TARY POSITIONING, NAVIGATION, AND TIM-**
20 **ING CAPABILITIES OF GLOBAL POSITIONING**
21 **SYSTEM.**

22 Effective on June 1, 2019, section 1606 of the Na-
23 tional Defense Authorization Act for Fiscal Year 2018
24 (Public Law 115–91; 131 Stat. 1725) is amended—

25 (1) in subsection (c)(2), by striking “the date
26 that is 18 months after the date of the enactment

1 of this Act” and inserting “December 31, 2020”;
2 and

3 (2) in subsection (d), by striking “18 months
4 after the date of the enactment of this Act” and in-
5 serting “December 31, 2020”.

6 **SEC. 1604. ANNUAL DETERMINATION ON PLAN ON FULL IN-**
7 **TEGRATION AND EXPLOITATION OF OVER-**
8 **HEAD PERSISTENT INFRARED CAPABILITY.**

9 Section 1618(c) of the National Defense Authoriza-
10 tion Act for Fiscal Year 2016 (Public Law 114–92; 10
11 U.S.C. 2431 note) is amended by striking “for a fiscal
12 year” and inserting “for each of fiscal years 2021 through
13 2028”.

14 **SEC. 1605. SPACE-BASED ENVIRONMENTAL MONITORING**
15 **MISSION REQUIREMENTS.**

16 (a) **PROCUREMENT OF MODERNIZED PATHFINDER**
17 **PROGRAM SATELLITE.—**

18 (1) **IN GENERAL.—**The Secretary of the Air
19 Force shall procure a modernized pathfinder pro-
20 gram satellite that—

21 (A) addresses space-based environmental
22 monitoring mission requirements;

23 (B) reduces the risk that the Department
24 of Defense experiences a gap in meeting such
25 requirements during the period beginning Janu-

1 ary 1, 2023, and ending December 31, 2025;
2 and

3 (C) is launched not later than January 1,
4 2023.

5 (2) TYPE OF SATELLITE.—The satellite de-
6 scribed in paragraph (1) may be a free-flyer or a
7 hosted payload satellite.

8 (3) PLAN.—Not later than 60 days after the
9 date of the enactment of this Act, the Secretary of
10 the Air Force shall submit to the appropriate con-
11 gressional committees a plan to procure and launch
12 the satellite described in paragraph (1), including
13 with respect to—

14 (A) the requirements for such satellite, in-
15 cluding operational requirements;

16 (B) timelines for such procurement and
17 launch;

18 (C) costs for such procurement and launch;

19 and

20 (D) the launch plan.

21 (4) PROCEDURES.—The Secretary of the Air
22 Force shall ensure that the satellite described in
23 paragraph (1) is procured using full and open com-
24 petition through the use of competitive procedures.

1 (5) WITHHOLDING OF FUNDS.—The amount
2 equal to 10 percent of the total amount authorized
3 to be appropriated to the Office of the Secretary of
4 Air Force for the travel of persons under the Oper-
5 ations and Maintenance, Defense-Wide account shall
6 be withheld from obligation or expenditure until the
7 date on which a contract is awarded for the procure-
8 ment of the satellite described in paragraph (1).

9 (b) WEATHER SYSTEM SATELLITE.—The Secretary
10 of the Air Force shall ensure that the electro-optical/infra-
11 red weather system satellite—

12 (1) meets space-based environmental moni-
13 toring mission requirements;

14 (2) is procured using full and open competition
15 through the use of competitive procedures; and

16 (3) is launched not later than September 30,
17 2025.

18 (c) DEFINITIONS.—In this section:

19 (1) The term “appropriate congressional com-
20 mittees” means—

21 (A) the congressional defense committees;

22 and

23 (B) the Permanent Select Committee on
24 Intelligence of the House of Representatives

1 and the Select Committee on Intelligence of the
2 Senate.

3 (2) The term “space-based environmental moni-
4 toring mission requirements” means the national se-
5 curity requirements for cloud characterization and
6 theater weather imagery.

7 **SEC. 1606. RESILIENT ENTERPRISE GROUND ARCHITEC-**
8 **TURE.**

9 (a) SENSE OF CONGRESS.—It is the sense of Con-
10 gress that the Secretary of the Air Force, to advance the
11 security of the space assets of the Department of Defense,
12 should—

13 (1) expand on complementary efforts within the
14 Air Force that promote the adoption of a resilient
15 enterprise ground architecture that is responsive to
16 new and changing threats and can rapidly integrate
17 new capabilities to make the warfighting force of the
18 United States more resilient in a contested
19 battlespace; and

20 (2) prioritize the swift transition of space
21 ground architecture to a common platform and le-
22 verage commercial capabilities in concurrence with
23 the 2015 intent memorandum of the Commander of
24 the Air Force Space Command.

1 (b) FUTURE ARCHITECTURE.—The Secretary of De-
2 fense shall, to the extent practicable—

3 (1) develop future satellite ground architectures
4 of the Department of Defense to be compatible with
5 complementary commercial systems that can support
6 uplink and downlink capabilities with dual-band
7 spacecraft; and

8 (2) emphasize that future ground architecture
9 transition away from stove-piped systems to a serv-
10 ice-based platform that provides members of the
11 Armed Forces with flexible and adaptable capabili-
12 ties that—

13 (A) use, as applicable, commercially avail-
14 able capabilities and technologies for increased
15 resiliency and cost savings; and

16 (B) build commercial opportunity and inte-
17 gration across the range of resilient space sys-
18 tems.

19 (c) REPORT.—Not later than 180 days after the date
20 of the enactment of this Act, the Secretary of Defense
21 shall submit to the congressional defense committees a re-
22 port on the future architecture described in subsection (b).

1 **SEC. 1607. PROTOTYPE PROGRAM FOR MULTI-GLOBAL**
2 **NAVIGATION SATELLITE SYSTEM RECEIVER**
3 **DEVELOPMENT.**

4 (a) PROTOTYPE MULTI-GNSS PROGRAM.—The Sec-
5 retary of the Air Force shall carry out a program to proto-
6 type an M-code based, multi-global navigation satellite
7 system receiver that is capable of receiving covered signals
8 to increase the resilience and capability of military posi-
9 tion, navigation, and timing equipment against threats to
10 the Global Positioning System and to deter the likelihood
11 of attack on the worldwide Global Positioning System by
12 reducing the benefits of such an attack.

13 (b) ELEMENTS.—In carrying out the program under
14 subsection (a), the Secretary shall—

15 (1) with respect to each covered signal that
16 could be received by the prototype receiver under
17 such program, conduct an assessment of the relative
18 benefits and risks of using that signal, including
19 with respect to any existing or needed monitoring in-
20 frastructure that would alert users of the Depart-
21 ment of Defense of potentially corrupted signal in-
22 formation, and the cyber risks and challenges of in-
23 corporating such signals into a properly designed re-
24 ceiver;

1 (2) ensure that monitoring systems are able to
2 include any monitoring network of the United States
3 or allies of the United States;

4 (3) conduct an assessment of the benefits and
5 risks, including with respect to the compatibility of
6 non-United States global navigation satellite system
7 signals with existing position, navigation, and timing
8 equipment of the United States, and the extent to
9 which the capability to receive such signals would
10 impact current receiver or antenna design; and

11 (4) conduct an assessment of the desirability of
12 establishing a program for the development and de-
13 ployment of the receiver system described in sub-
14 section (a) in a manner that—

15 (A) is a cooperative effort, coordinated
16 with the Secretary of State, between the United
17 States and the allies of the United States that
18 may also have interest in funding a multi-global
19 navigation satellite system and M-code pro-
20 gram; and

21 (B) the Secretary of Defense, in coordina-
22 tion with the Secretary of State, ensures that
23 the United States has access to sufficient in-
24 sight into trusted signals of allied systems to

1 assure potential reliance by the United States
2 on such signals.

3 (c) BRIEFING.—Not later than 120 days after the
4 date of the enactment of this Act, the Secretary, in coordi-
5 nation with the Air Force GPS User Equipment Program
6 office, shall provide to the congressional defense commit-
7 tees a briefing on a plan to carry out the program under
8 subsection (a) that includes—

9 (1) the estimated cost, including total cost and
10 out-year funding requirements for a program to de-
11 velop and deploy the receiver system described in
12 subsection (a);

13 (2) the schedule for such program;

14 (3) a plan for how the results of the program
15 could be incorporated into future blocks of the Glob-
16 al Positioning System military user equipment pro-
17 gram; and

18 (4) the recommendations and analysis contained
19 in the study sponsored by the Department of De-
20 fense conducted by the MITRE Corporation on the
21 risks, benefits, and approaches to adding multi-glob-
22 al navigation satellite system capabilities to military
23 user equipment.

24 (d) REPORT.—Not later than 150 days after the date
25 of the enactment of this Act, the Secretary of Defense

1 shall submit to the congressional defense committees a re-
2 port containing—

3 (1) an explanation of how the Secretary intends
4 to comply with section 1609 of the John S. McCain
5 National Defense Authorization Act for Fiscal Year
6 2019 (Public Law 115–232; 10 U.S.C. 2281 note);

7 (2) an outline of any potential cooperative ef-
8 forts acting in accordance with the North Atlantic
9 Treaty Organization, the European Union, or Japan
10 that would support such compliance;

11 (3) an assessment of the potential to host, or
12 incorporate through software-defined payloads, Glob-
13 al Positioning System M-code functionality onto al-
14 lied global navigation satellite system systems; and

15 (4) an assessment of new or enhanced moni-
16 toring capabilities that would be needed to incor-
17 porate global navigation satellite system
18 functionality into weapon systems of the Depart-
19 ment.

20 (e) LIMITATION.—Of the funds authorized to be ap-
21 propriated by this Act or otherwise made available for fis-
22 cal year 2020 for increment 2 of the acquisition of military
23 Global Positioning System user equipment terminals, not
24 more than 90 percent may be obligated or expended until
25 the date on which the briefing has been provided under

1 subsection (c) and the report has been submitted under
2 subsection (d).

3 (f) WAIVER AUTHORITY FOR TRUSTED SIGNALS CA-
4 PABILITIES.—Section 1609(a)(2)(B) of the John S.
5 McCain National Defense Authorization Act for Fiscal
6 Year 2019 (Public Law 115–232; 10 U.S.C. 2281 note)
7 is amended by striking “such capability” and inserting
8 “the capability to add multi-Global Navigation Satellite
9 System signals to provide substantive military utility”.

10 (g) DEFINITIONS.—In this section:

11 (1) The term “allied systems” means—

12 (A) the Galileo system of the European
13 Union;

14 (B) the QZSS system of Japan; and

15 (C) upon designation by the Secretary of
16 Defense, in consultation with the Director of
17 National Intelligence—

18 (i) the NAVIC system of India; and

19 (ii) any similarly associated wide area
20 augmentation systems.

21 (2) The term “covered signals”—

22 (A) means global navigation satellite sys-
23 tem signals from—

24 (i) allied systems; and

25 (ii) non-allied systems; and

1 (B) includes both encrypted signals and
2 open signals.

3 (3) The term “encrypted signals” means global
4 navigation satellite system signals that incorporate
5 encryption or other internal methods to authenticate
6 signal information.

7 (4) The term “M-code” means, with respect to
8 global navigation satellite system signals, military
9 code that provides enhanced positioning, navigation,
10 and timing capabilities and improved resistance to
11 existing and emerging threats, such as jamming.

12 (5) The term “non-allied systems” means—

13 (A) the Russian GLONASS system; and

14 (B) the Chinese Beidou system.

15 (6) The term “open signals” means global navi-
16 gation satellite system that do not include encryption
17 or other internal methods to authenticate signal in-
18 formation.

19 **SEC. 1608. COMMERCIAL SPACE SITUATIONAL AWARENESS**
20 **CAPABILITIES.**

21 (a) CERTIFICATION.—Not later than 90 days after
22 the date of the enactment of this Act, the Secretary of
23 the Air Force, without delegation, shall certify to the con-
24 gressional defense committees that the Air Force is using
25 commercial space situational awareness services.

1 (b) LIMITATION.—Of the funds authorized to be ap-
2 propriated by this Act or otherwise made available for fis-
3 cal year 2020 for the enterprise space battle management
4 command and control, not more than 85 percent may be
5 obligated or expended until the date on which the Sec-
6 retary of the Air Force makes the certification under sub-
7 section (a).

8 (c) REPORT.—Not later than March 1, 2020, the
9 Secretary of the Air Force shall submit to the congres-
10 sional defense committees a report on using commercial
11 space situational awareness services to fill the space situa-
12 tional awareness requirements that were not filled in the
13 Joint Space Operations Center Mission Center. The report
14 shall include the following:

15 (1) A description of current domestic commer-
16 cial capabilities to detect and track space objects in
17 low-Earth orbit below the 10 centimeter threshold of
18 legacy systems.

19 (2) A description of current domestic best-in-
20 breed commercial capabilities that can meet such re-
21 quirements.

22 (3) Estimates of the timelines, milestones, and
23 funding requirements to procure a near-term solu-
24 tion to meet such requirements until the develop-

1 ment programs of the Air Force are projected to be
2 operationally fielded.

3 (d) **COMMERCIAL SPACE SITUATIONAL AWARENESS**
4 **SERVICES DEFINED.**—In this section, the term “commer-
5 cial space situational awareness services” means commer-
6 cial space situational awareness processing software and
7 data from commercial sensors to address warfighter re-
8 quirements and fill gaps in current space situational capa-
9 bilities of the Air Force.

10 **SEC. 1609. PROGRAM TO ENHANCE AND IMPROVE LAUNCH**
11 **SUPPORT AND INFRASTRUCTURE.**

12 (a) **IN GENERAL.**—In support of the policy described
13 in section 2273(a) of title 10, United States Code, the Sec-
14 retary of Defense, in coordination with the Administrator
15 of the Federal Aviation Administration, may carry out a
16 program to enhance infrastructure and improve support
17 activities for the processing and launch of Department of
18 Defense small-class and medium-class payloads.

19 (b) **PROGRAM.**—The program under subsection (a)
20 shall include improvements to operations at launch ranges
21 and Federal Aviation Administration-licensed spaceports
22 that are consistent with, and necessary to permit, the use
23 of such launch ranges and spaceports by the Department.

24 (c) **CONSULTATION.**—In carrying out the program
25 under subsection (a), the Secretary may consult with cur-

1 rent and anticipated users of launch ranges and Federal
2 Aviation Administration-licensed spaceports, including the
3 Space Rapid Capabilities Office.

4 (d) COOPERATION.—In carrying out the program
5 under subsection (a), the Secretary may enter into a con-
6 tract or agreement under section 2276 of title 10, United
7 States Code.

8 (e) REPORT.—Not later than 270 days after the date
9 of the enactment of this Act, the Secretary shall submit
10 to the appropriate committees of Congress a report de-
11 scribing a plan for the program under subsection (a).

12 (f) APPROPRIATE COMMITTEES OF CONGRESS DE-
13 FINED.—In this section, the term “appropriate commit-
14 tees of Congress” means—

15 (1) the congressional defense committees;

16 (2) the Committee on Commerce, Science, and
17 Transportation and the Select Committee on Intel-
18 ligence of the Senate; and

19 (3) the Committee on Transportation and In-
20 frastructure, the Committee on Science, Space, and
21 Technology, and the Permanent Select Committee
22 on Intelligence of the House of Representatives.

1 **SEC. 1610. PREPARATION TO IMPLEMENT PLAN FOR USE**
2 **OF ALLIED LAUNCH VEHICLES.**

3 (a) PREPARATION.—The Secretary of Defense, in co-
4 ordination with the Director of National Intelligence, shall
5 take actions necessary to prepare to implement the plan
6 developed pursuant to section 1603 of the National De-
7 fense Authorization Act for Fiscal Year 2017 (Public Law
8 114–328; 130 Stat. 2584) regarding using allied launch
9 vehicles to meet the requirements for achieving the policy
10 relating to assured access to space set forth in section
11 2273 of title 10, United States Code.

12 (b) ACTIONS REQUIRED.—In carrying out subsection
13 (a), the Secretary shall—

14 (1) identify the satellites of the United States
15 that would be appropriate to be launched on an al-
16 lied launch vehicle;

17 (2) assess the relevant provisions of Federal
18 law, regulations, and policies governing the launch of
19 national security satellites and determine whether
20 any legislative, regulatory, or policy actions (includ-
21 ing with respect to waivers) would be necessary to
22 allow for the launch of a national security satellite
23 on an allied launch vehicle; and

24 (3) address any certification requirements nec-
25 essary for such use of allied launch vehicles and the

1 estimated cost, schedule, and actions necessary to
2 certify allied launch vehicles for such use.

3 (c) SUBMISSION TO CONGRESS.—Not later than 90
4 days after the date of the enactment of this Act, the Sec-
5 retary of Defense shall submit to the appropriate congres-
6 sional committees a report on preparing to implement the
7 plan described in subsection (a), including information re-
8 garding each action required by paragraphs (1), (2), and
9 (3) of subsection (b).

10 (d) APPROPRIATE CONGRESSIONAL COMMITTEES
11 DEFINED.—In this section, the term “appropriate con-
12 gressional committees” means—

- 13 (1) the congressional defense committees; and
14 (2) the Permanent Select Committee on Intel-
15 ligence of the House of Representatives and the Se-
16 lect Committee on Intelligence of the Senate.

17 **SEC. 1611. INDEPENDENT STUDY ON PLAN FOR DETER-**
18 **RENCE IN SPACE.**

19 (a) INDEPENDENT STUDY.—

20 (1) IN GENERAL.—Not later than 30 days after
21 the date of the enactment of this Act, the Secretary
22 of Defense shall seek to enter into a contract with
23 a federally funded research and development center
24 or other independent entity to conduct a study on
25 deterrence in space.

1 (2) MATTERS INCLUDED.—The study under
2 paragraph (1) shall include, at a minimum, the fol-
3 lowing:

4 (A) An assessment of the existing range of
5 major studies and writings on space deterrence
6 and a comprehensive comparative analysis of
7 the conclusions of such studies and writings.

8 (B) An examination, using appropriate an-
9 alytical tools, of the approaches proposed by
10 such studies and writings with respect to cre-
11 ating conditions of deterrence suitable for use
12 in the space domain, including, at a minimum,
13 an assessment of all aspects of deterrence in
14 space, including varying classification, strate-
15 gies to deny benefit or impose cost, and space
16 mission assurance (including resilience, active
17 defense, and reconstitution).

18 (C) A determination, made either by ex-
19 tending such studies and writings or through
20 new analysis, of a holistic and comprehensive
21 theory of deterrence in space appropriate for
22 use in defense planning.

23 (D) An evaluation of existing policies, pro-
24 grams, and plans of the Department of Defense
25 to provide an assessment of the likely effective-

1 ness of those policies, programs, and plans to
2 achieve effective space deterrence.

3 (b) ASSESSMENT BY DEFENSE POLICY BOARD.—Not
4 later than 180 days after the date of the enactment of
5 this Act, the Defense Policy Board shall submit to the Sec-
6 retary of Defense an assessment of the study under sub-
7 section (a)(1), including, at a minimum—

8 (1) a determination of the soundness of the
9 study;

10 (2) a description of any disagreements the
11 Board has with the conclusions of such study, in-
12 cluding recommended changes or clarifications to
13 such conclusions the Board determines appropriate;
14 and

15 (3) changes to the policies, programs, and plans
16 of the Department of Defense that the Board rec-
17 ommends based on such study and the changes and
18 clarifications described in paragraph (2).

19 (c) REPORT.—Not later than 270 days after the date
20 of the enactment of this Act, the Secretary shall submit
21 to the congressional defense committees, the Committee
22 on Foreign Affairs of the House of Representatives, and
23 the Committee on Foreign Relations of the Senate a re-
24 port that contains the following:

1 (1) The study under subsection (a)(1), without
2 change.

3 (2) The assessment under subsection (b), with-
4 out change.

5 (3) Based on such study and assessment, a de-
6 scription of any changes to the policies, programs,
7 and plans of the Department of Defense that the
8 Secretary recommends to enhance deterrence in
9 space, including with respect to—

10 (A) considerations and decision on reduc-
11 ing the opportunities and incentives for adver-
12 saries to attack space systems of the United
13 States or allies of the United States;

14 (B) new architectures, including pro-
15 liferated systems, hosted payloads, nontradi-
16 tional orbits, and reconstitution among others;

17 (C) appropriate uses of partnering with
18 both commercial entities and allies to improve
19 deterrence in space;

20 (D) necessary capabilities to enhance the
21 protection of space systems to achieve improved
22 deterrence;

23 (E) bilateral, multilateral, and unilateral
24 measures, including confidence-building meas-
25 ures, that could be taken to reduce the risk of

1 miscalculation that would lead to an attack in
2 space;

3 (F) policies and capability requirements
4 with regard to attribution of an attack in space;

5 (G) policies with regard to retaliatory
6 measures either in space or on the ground;

7 (H) authorities with regard to decisions
8 and actions to defend assets of the United
9 States in space; and

10 (I) changes to current war plans, routine
11 operations (including information sharing), and
12 demonstration and test procedures that could
13 enhance the capability of the United States to
14 signal the intentions and capabilities of the
15 United States in an effective manner.

16 (d) BRIEFING.—Not later than 270 days after the
17 date of the enactment of this Act, the Secretary shall pro-
18 vide to the congressional defense committees, the Com-
19 mittee on Foreign Affairs of the House of Representatives,
20 and the Committee on Foreign Relations of the Senate
21 a briefing on the study under subsection (a)(1) and the
22 assessment under subsection (b).

1 **SEC. 1612. STUDY ON LEVERAGING DIVERSE COMMERCIAL**
2 **SATELLITE REMOTE SENSING CAPABILITIES.**

3 (a) STUDY.—The Secretary of Defense, in consulta-
4 tion with the Director of National Intelligence, shall con-
5 duct a study on the status of the transition from the Na-
6 tional Geospatial-Intelligence Agency to the National Re-
7 connaissance Office of the leadership role in acquiring
8 commercial satellite remote sensing data on behalf of the
9 Department of Defense and the intelligence community
10 (as defined in section 3 of the National Security Act of
11 1947 (50 U.S.C. 3003)).

12 (b) ELEMENTS.—In conducting the study under sub-
13 section (a), the Secretary shall study—

14 (1) commercial geospatial intelligence require-
15 ments for the National Geospatial-Intelligence Agen-
16 cy and the combatant commands;

17 (2) plans of the National Reconnaissance Office
18 to meet the requirements specified in paragraph (1)
19 through the acquisition of all levels of resolution
20 data from multiple commercial providers; and

21 (3) plans of the National Reconnaissance Office
22 to further develop such programs with commercial
23 companies to continue to support, while also expand-
24 ing, adoption by the geospatial intelligence user com-
25 munity of the Department of Defense.

1 (c) SUBMISSION.—Not later than 90 days after the
2 date of the enactment of this Act, the Secretary shall sub-
3 mit to the congressional defense committees, the Perma-
4 nent Select Committee on Intelligence of the House of
5 Representatives, and the Select Committee on Intelligence
6 of the Senate a report on the study conducted under sub-
7 section (a).

8 **SEC. 1613. ANNUAL REPORT ON SPACE COMMAND AND**
9 **CONTROL PROGRAM.**

10 (a) REPORTS REQUIRED.—

11 (1) INITIAL REPORT.—Not later than May 1,
12 2020, the Secretary of the Air Force shall submit to
13 the Under Secretary of Defense for Acquisition and
14 Sustainment, the congressional defense committees,
15 and the Comptroller General of the United States,
16 a report on the Space Command and Control pro-
17 gram for fiscal year 2021.

18 (2) SUBSEQUENT REPORTS.—For each of fiscal
19 years 2022 through 2025, concurrent with the sub-
20 mittal to Congress of the budget of the Department
21 of Defense with the budget of the President for the
22 subsequent fiscal year under section 1105(a) of title
23 31, United States Code, the Secretary of the Air
24 Force shall submit to the Under Secretary of De-
25 fense for Acquisition and Sustainment, the congress-

1 sional defense committees, and the Comptroller Gen-
2 eral of the United States, an annual report on the
3 Space Command and Control program.

4 (b) MATTERS TO BE INCLUDED.—Each report re-
5 quired by subsection (a) shall include the following:

6 (1) A description of any modification to the
7 metrics established by the Secretary in the acquisi-
8 tion strategy for the program.

9 (2) The short-term objectives for the subse-
10 quent fiscal year.

11 (3) For the preceding fiscal year—

12 (A) a description of—

13 (i) the ongoing, achieved, and deferred
14 objectives;

15 (ii) the challenges encountered and
16 the lessons learned;

17 (iii) the modifications made or
18 planned so as to incorporate such lessons
19 learned into subsequent efforts to address
20 challenges; and

21 (iv) the cost, schedule, and perform-
22 ance effects of such modifications; and

23 (B) a full survey of combatant command
24 requirements, including Commanders' Inte-

1 grated Priorities Lists, and impacts with re-
2 spect to the program.

3 (4) A description of potential future combatant
4 command requirements being considered with re-
5 spect to the program.

6 (c) REVIEW OF REPORTS AND BRIEFING BY COMP-
7 TROLLER GENERAL.—With respect to each report sub-
8 mitted under this section, the Comptroller General shall
9 review and provide to the congressional defense commit-
10 tees a briefing on a date mutually agreed on by the Comp-
11 troller General and the congressional defense committees.

12 **SEC. 1614. REPORT ON SPACE DEBRIS.**

13 (a) IN GENERAL.—Not later than 240 days after the
14 date of the enactment of this Act, the Secretary of Defense
15 shall submit to the appropriate congressional committees
16 a report on the risks posed by man-made space debris in
17 low-Earth orbit, including—

18 (1) recommendations with respect to the reme-
19 diation of such risks; and

20 (2) outlines of plans to reduce the incidence of
21 such space debris.

22 (b) APPROPRIATE CONGRESSIONAL COMMITTEES
23 DEFINED.—In this section, the term “appropriate con-
24 gressional committees” means—

1 (1) the Committee on Armed Services and the
2 Committee on Science, Space, and Technology of the
3 House of Representatives; and

4 (2) the Committee on Armed Services and the
5 Committee on Commerce, Science, and Transpor-
6 tation of the Senate.

7 **Subtitle B—Defense Intelligence**
8 **and Intelligence-Related Activities**

9 **SEC. 1621. REDESIGNATION OF UNDER SECRETARY OF DE-**
10 **FENSE FOR INTELLIGENCE AS UNDER SEC-**
11 **RETARY OF DEFENSE FOR INTELLIGENCE**
12 **AND SECURITY.**

13 (a) REDESIGNATION OF UNDER SECRETARY.—

14 (1) IN GENERAL.—The Under Secretary of De-
15 fense for Intelligence is hereby redesignated as the
16 Under Secretary of Defense for Intelligence and Se-
17 curity.

18 (2) SERVICE OF INCUMBENT IN POSITION.—

19 The individual serving as Under Secretary of De-
20 fense for Intelligence as of the date of the enactment
21 of this Act may serve as Under Secretary of Defense
22 for Intelligence and Security commencing as of that
23 date without further appointment under section 137
24 of title 10, United States Code (as amended by sub-
25 section (c)(1)(A)(ii)).

1 (3) REFERENCE.—Any reference in any law,
2 regulation, map, document, paper, or other record of
3 the United States to the Under Secretary of Defense
4 for Intelligence shall be deemed to be a reference to
5 the Under Secretary of Defense for Intelligence and
6 Security.

7 (b) REDESIGNATION OF RELATED DEPUTY UNDER
8 SECRETARY.—

9 (1) IN GENERAL.—The Deputy Under Sec-
10 retary of Defense for Intelligence is hereby redesign-
11 ated as the Deputy Under Secretary of Defense for
12 Intelligence and Security.

13 (2) SERVICE OF INCUMBENT IN POSITION.—
14 The individual serving as Deputy Under Secretary of
15 Defense for Intelligence as of the date of the enact-
16 ment of this Act may serve as Deputy Under Sec-
17 retary of Defense for Intelligence and Security com-
18 mencing as of that date without further appointment
19 under section 137a of title 10, United States Code
20 (as amended by subsection (c)(1)(B)).

21 (3) REFERENCE.—Any reference in any law,
22 regulation, map, document, paper, or other record of
23 the United States to the Deputy Under Secretary of
24 Defense for Intelligence shall be deemed to be a ref-

1 erence to the Deputy Under Secretary of Defense
2 for Intelligence and Security.

3 (c) RULE OF CONSTRUCTION REGARDING EFFECTS
4 OF REDESIGNATION.—Nothing in this section shall be
5 construed to modify or expand the authorities, resources,
6 responsibilities, roles, or missions of the Under Secretary
7 of Defense for Intelligence and Security, as redesignated
8 by this section.

9 (d) PROTECTION OF PRIVACY AND CIVIL LIB-
10 ERTIES.—Section 137 of title 10, United States Code, is
11 amended—

12 (1) by redesignating subsection (c) as sub-
13 section (d); and

14 (2) by inserting after subsection (b) the fol-
15 lowing new subsection (c):

16 “(c) The protection of privacy and civil liberties in
17 accordance with Federal law and the regulations and di-
18 rectives of the Department of Defense shall be a top pri-
19 ority for the Under Secretary of Defense for Intelligence
20 and Security.”.

21 (e) CONFORMING AMENDMENTS.—

22 (1) TITLE 10.—Title 10, United States Code, is
23 amended as follows:

24 (A) In each provision as follows, by strik-
25 ing “Under Secretary of Defense for Intel-

1 ligence” and inserting “Under Secretary of De-
2 fense for Intelligence and Security”:

3 (i) Section 131(b)(3)(F).

4 (ii) Section 137, each place it appears.

5 (iii) Section 139a(d)(6).

6 (iv) Section 139b(c)(2)(E).

7 (v) Section 181(d)(1)(B).

8 (vi) Section 393(b)(2)(C).

9 (vii) Section 426, each place it ap-
10 pears.

11 (viii) Section 430(a).

12 (B) In section 137a(c)(6), by striking
13 “Deputy Under Secretary of Defense for Intel-
14 ligence” and inserting “Deputy Under Sec-
15 retary of Defense for Intelligence and Secu-
16 rity”.

17 (C) The heading of section 137 is amended
18 to read as follows:

19 **“§ 137. Under Secretary of Defense for Intelligence
20 and Security”.**

21 (D) The table of sections at the beginning
22 of chapter 4 is amended by striking the item re-
23 lating to section 137 and inserting the following
24 new item:

 “137. Under Secretary of Defense for Intelligence and Security.”.

1 (2) TITLE 5.—Title 5, United States Code, is
2 amended as follows:

3 (A) In section 5314, by striking “Under
4 Secretary of Defense for Intelligence” and in-
5 serting “Under Secretary of Defense for Intel-
6 ligence and Security”.

7 (B) In section 5315, by striking “Deputy
8 Under Secretary of Defense for Intelligence”
9 and inserting “Deputy Under Secretary of De-
10 fense for Intelligence and Security”.

11 **SEC. 1622. MODIFICATIONS TO ISR INTEGRATION COUNCIL**
12 **AND ANNUAL BRIEFING REQUIREMENTS.**

13 (a) ISR INTEGRATION COUNCIL.—Subsection (a) of
14 section 426 of title 10, United States Code, is amended
15 to read as follows:

16 “(a) ISR INTEGRATION COUNCIL.—(1) The Under
17 Secretary of Defense for Intelligence and Security shall
18 establish an Intelligence, Surveillance, and Reconnaissance
19 Integration Council—

20 “(A) to assist the Secretary of Defense in carrying
21 out the responsibilities of the Secretary under
22 section 105(a) of the National Security Act of 1947
23 (50 U.S.C. 3038(a));

24 “(B) to assist the Under Secretary with respect
25 to matters relating to—

1 “(i) integration of intelligence and counter-
2 intelligence capabilities and activities under sec-
3 tion 137(b) of this title of the military depart-
4 ments, intelligence agencies of the Department
5 of Defense, and relevant combatant commands;
6 and

7 “(ii) coordination of related developmental
8 activities of such departments, agencies, and
9 combatant commands; and

10 “(C) to otherwise provide a means to facilitate
11 such integration and coordination.

12 “(2) The Council shall be composed of—

13 “(A) the Under Secretary, who shall chair the
14 Council;

15 “(B) the directors of the intelligence agencies of
16 the Department of Defense;

17 “(C) the senior intelligence officers of the
18 armed forces and the regional and functional com-
19 batant commands;

20 “(D) the Director for Intelligence of the Joint
21 Chiefs of Staff; and

22 “(E) the Director for Operations of the Joint
23 Chiefs of Staff.

24 “(3) The Under Secretary shall invite the participa-
25 tion of the Director of National Intelligence (or a rep-

1 representative of the Director) in the proceedings of the
2 Council.

3 “(4) The Under Secretary may designate additional
4 participants to attend the proceedings of the Council, as
5 the Under Secretary determines appropriate.”

6 (b) ANNUAL BRIEFINGS.—Such section is further
7 amended by striking subsections (b) and (c) and inserting
8 the following new subsection (b):

9 “(b) ANNUAL BRIEFINGS ON THE INTELLIGENCE
10 AND COUNTERINTELLIGENCE REQUIREMENTS OF THE
11 COMBATANT COMMANDS.—(1) The Chairman of the Joint
12 Chiefs of Staff shall provide to the congressional defense
13 committees and the congressional intelligence committees
14 a briefing on the following:

15 “(A) The intelligence and counterintelligence
16 requirements, by specific intelligence capability type,
17 of each of the relevant combatant commands.

18 “(B) For the year preceding the year in which
19 the briefing is provided, the fulfillment rate for each
20 of the relevant combatant commands of the validated
21 intelligence and counterintelligence requirements, by
22 specific intelligence capability type, of such combat-
23 ant command.

24 “(C) A risk analysis identifying the critical gaps
25 and shortfalls in efforts to address operational and

1 strategic requirements of the Department of Defense
2 that would result from the failure to fulfill the vali-
3 dated intelligence and counterintelligence require-
4 ments of the relevant combatant commands.

5 “(D) A mitigation plan to balance and offset
6 the gaps and shortfalls identified under subpara-
7 graph (C), including with respect to spaceborne, air-
8 borne, ground, maritime, and cyber intelligence, sur-
9 veillance, and reconnaissance capabilities.

10 “(E) For the year preceding the year in which
11 the briefing is provided—

12 “(i) the number of intelligence and coun-
13 terintelligence requests of each commander of a
14 relevant combatant command determined by the
15 Joint Chiefs of Staff to be a validated require-
16 ment, and the total of capacity of such requests
17 provided to each such commander;

18 “(ii) with respect to such validated require-
19 ments—

20 “(I) the quantity of intelligence and
21 counterintelligence capabilities or activities,
22 by specific intelligence capability type, that
23 the Joint Chiefs of Staff requested each
24 military department to provide; and

1 “(II) the total of capacity of such re-
2 quests so provided by each such military
3 department; and

4 “(iii) a qualitative assessment of the align-
5 ment of intelligence and counterintelligence ca-
6 pabilities and activities with the program of
7 analysis for each combat support agency and
8 intelligence center of a military service that is
9 part of—

10 “(I) the Defense Intelligence Enter-
11 prise; and

12 “(II) the intelligence community.

13 “(2) The Under Secretary of Defense for Intelligence
14 and Security shall provide to the congressional defense
15 committees and the congressional intelligence committees
16 a briefing on short-, mid-, and long-term strategies to ad-
17 dress the validated intelligence and counterintelligence re-
18 quirements of the relevant combatant commands, includ-
19 ing with respect to spaceborne, airborne, ground, mari-
20 time, and cyber intelligence, surveillance, and reconnais-
21 sance capabilities.

22 “(3) The briefings required by paragraphs (1) and
23 (2) shall be provided at the same time that the President’s
24 budget is submitted pursuant to section 1105(a) of title
25 31 for each of fiscal years 2021 through 2025.

1 “(4) In this subsection:

2 “(A) The term ‘congressional intelligence com-
3 mittees’ has the meaning given that term in section
4 3 of the National Security Act of 1947 (50 U.S.C.
5 3003).

6 “(B) The term ‘Defense Intelligence Enterprise’
7 means the organizations, infrastructure, and meas-
8 ures, including policies, processes, procedures, and
9 products, of the intelligence, counterintelligence, and
10 security components of each of the following:

11 “(i) The Department of Defense.

12 “(ii) The Joint Staff.

13 “(iii) The combatant commands.

14 “(iv) The military departments.

15 “(v) Other elements of the Department of
16 Defense that perform national intelligence, de-
17 fense intelligence, intelligence-related, counter-
18 intelligence, or security functions.

19 “(C) The term ‘fulfillment rate’ means the per-
20 centage of combatant command intelligence and
21 counterintelligence requirements satisfied by avail-
22 able, acquired, or realigned intelligence and counter-
23 intelligence capabilities or activities.

1 “(D) The term ‘intelligence community’ has the
2 meaning given that term in section 3 of the National
3 Security Act of 1947 (50 U.S.C. 3003).”.

4 **SEC. 1623. MODIFICATION OF ANNUAL AUTHORIZATION OF**
5 **APPROPRIATIONS FOR NATIONAL FLAGSHIP**
6 **LANGUAGE INITIATIVE.**

7 Section 811(a) of the David L. Boren National Secu-
8 rity Education Act of 1991 (50 U.S.C. 1911(a)) is amend-
9 ed—

10 (1) by striking “fiscal year 2003” and inserting
11 “fiscal year 2020”; and

12 (2) by striking “\$10,000,000” and inserting
13 “\$16,000,000”.

14 **SEC. 1624. IMPROVING THE ONBOARDING METHODOLOGY**
15 **FOR INTELLIGENCE PERSONNEL.**

16 (a) IN GENERAL.—The Secretary of Defense and the
17 Director of National Intelligence shall, consistent with De-
18 partment of Defense Instruction 1400.25, as in effect on
19 the day before the date of the enactment of this Act—

20 (1) not later than 180 days after the date of
21 the enactment of this Act, submit to the appropriate
22 committees of Congress a report that outlines a
23 common methodology for measuring onboarding in
24 elements of the intelligence community, including
25 human resources and security processes;

1 (2) not later than one year after the date of the
2 enactment of this Act, issue metrics for assessing
3 key phases in the onboarding described in paragraph
4 (1) for which results will be reported by the date
5 that is 90 days after the date of such issuance;

6 (3) not later than 180 days after the date of
7 the enactment of this Act, submit to the appropriate
8 committees of Congress a report on collaboration
9 among elements of the intelligence community on
10 their onboarding processes;

11 (4) not later than 180 days after the date of
12 the enactment of this Act, submit to the appropriate
13 committees of Congress a report on employment of
14 automated mechanisms in elements of the intel-
15 ligence community, including for tracking personnel
16 as they pass through each phase of the onboarding
17 process; and

18 (5) not later than December 31, 2020, dis-
19 tribute surveys to human resources offices and appli-
20 cants about their experiences with the onboarding
21 process in elements of the intelligence community.

22 (b) DEFINITIONS.—In this section:

23 (1) The term “appropriate committees of Con-
24 gress” means—

1 (A) the Select Committee on Intelligence
2 and the Committee on Armed Services of the
3 Senate; and

4 (B) the Permanent Select Committee on
5 Intelligence and the Committee on Armed Serv-
6 ices of the House of Representatives.

7 (2) The term “intelligence community” has the
8 meaning given such term in section 3 of the Na-
9 tional Security Act of 1947 (50 U.S.C. 3003).

10 **SEC. 1625. DEFENSE COUNTERINTELLIGENCE AND SECU-**
11 **RITY AGENCY ACTIVITIES ON FACILITATING**
12 **ACCESS TO LOCAL CRIMINAL RECORDS HIS-**
13 **TORICAL DATA.**

14 (a) **ACTIVITY AUTHORIZED.**—Subject to subsection
15 (c), the Director of the Defense Counterintelligence and
16 Security Agency may carry out a set of activities to reduce
17 the time and cost of accessing State, local, and tribal law
18 enforcement records for the background investigations re-
19 quired for current and prospective Federal Government
20 employees and contractors.

21 (b) **ACTIVITIES CHARACTERIZED.**—The activities
22 carried out under subsection (a) shall include only that
23 training, education, and direct assistance to State, local,
24 and tribal communities needed for the purpose of stream-
25 lining access to historical criminal record data.

1 (c) LIMITATIONS.—

2 (1) COMMENCEMENT OF ACTIVITIES.—The Di-
3 rector may not commence carrying out any activities
4 under subsection (a) until the date that is 90 days
5 after the date on which the Director submits the re-
6 port required by subsection (d)(1).

7 (2) LEGAL AND REPORTING OBLIGATIONS.—
8 The Director shall ensure that no activity carried
9 out under subsection (a) obligates a State, local, or
10 tribal entity to any additional legal or reporting obli-
11 gation to the Defense Counterintelligence and Secu-
12 rity Agency.

13 (3) SCOPE.—No activity may be carried out
14 under subsection (a) that applies to any matter out-
15 side the limited purpose of conducting background
16 investigations for current and prospective Federal
17 Government employees and contractors.

18 (4) CONSISTENCY WITH ACCESS PROVIDED.—
19 The Director shall ensure that the activities carried
20 out under subsection (a) are carried out in a manner
21 that is consistent with the access provided by Fed-
22 eral law enforcement entities to the Defense Coun-
23 terintelligence and Security Agency.

24 (d) REPORTS.—

1 (1) INITIAL REPORT.—Not later than 90 days
2 after the date of the enactment of this Act, the Di-
3 rector shall submit to the congressional defense com-
4 mittees, the Select Committee on Intelligence of the
5 Senate, and the Permanent Select Committee on In-
6 telligence of the House of Representatives a report
7 that details a concept of operation for the set of ac-
8 tivities authorized by subsection (a).

9 (2) ANNUAL REPORTS.—Not later than one
10 year after the date on which the Director submits a
11 report pursuant to paragraph (1) and not less fre-
12 quently than once each year thereafter, the Director
13 shall submit to the congressional defense commit-
14 tees, the Select Committee on Intelligence of the
15 Senate, and the Permanent Select Committee on In-
16 telligence of the House of Representatives a detailed
17 report on the activities carried out by the Director
18 under subsection (a).

19 **SEC. 1626. SURVEY AND REPORT ON ALIGNMENT OF INTEL-**
20 **LIGENCE COLLECTIONS CAPABILITIES AND**
21 **ACTIVITIES WITH DEPARTMENT OF DEFENSE**
22 **REQUIREMENTS.**

23 (a) SURVEY AND REVIEW.—

24 (1) IN GENERAL.—Not later than 120 days
25 after the date of the enactment of this Act, the

1 Under Secretary of Defense for Intelligence and Se-
2 curity, in coordination with the Chairman of the
3 Joint Chiefs of Staff and the Director of National
4 Intelligence, shall—

5 (A) review the organization, posture, cur-
6 rent and planned investments, and processes of
7 the intelligence collections capabilities and ac-
8 tivities, for the purpose of assessing the suffi-
9 ciency, integration, and interoperability of such
10 capabilities and activities to support the current
11 and future requirements of the Department of
12 Defense; and

13 (B) conduct a survey of each geographic
14 and functional combatant command, with re-
15 spect to intelligence collections capabilities and
16 activities, to assess—

17 (i) the current state of the support of
18 such capabilities and activities to military
19 operations;

20 (ii) whether the posture of such capa-
21 bilities and activities is sufficient to ad-
22 dress the requirements of the Department
23 of Defense;

24 (iii) the extent to which such capabili-
25 ties and activities address gaps and defi-

1 iciencies with respect to the operational re-
2 quirements of the Global Campaign Plans,
3 as identified in the most recent readiness
4 reviews conducted by the Joint Staff; and
5 (iv) whether current and planned in-
6 vestments in such capabilities and activi-
7 ties are sufficient to address near-, mid-,
8 and long-term spaceborne, airborne, terres-
9 trial, and human collection capability re-
10 quirements.

11 (2) ELEMENTS.—The survey and review under
12 paragraph (1) shall include the following:

13 (A) A comprehensive assessment of intel-
14 ligence collections capabilities and activities,
15 and whether such capabilities and activities—

16 (i) are appropriately postured and suf-
17 ficiently resourced to meet current and fu-
18 ture requirements of the Department of
19 Defense;

20 (ii) are appropriately balanced to ad-
21 dress operational and strategic defense in-
22 telligence requirements; and

23 (iii) are sufficiently integrated and
24 interoperable between activities of the Mili-
25 tary Intelligence Program and the National

1 Intelligence Program to respond to emerg-
2 ing requirements of the Department of De-
3 fense.

4 (B) With respect to each geographic and
5 functional combatant command—

6 (i) information on the gaps and defi-
7 ciencies, by specific intelligence capability
8 type, described in paragraph (1)(B)(iii);

9 (ii) a review of the alignment of such
10 gaps and deficiencies with the intelligence,
11 surveillance, and reconnaissance submis-
12 sions to the integrated priorities list for
13 the period beginning with the completion
14 of the most recent readiness reviews con-
15 ducted by the Joint Staff and ending on
16 the date of the commencement of the sur-
17 vey and review under subsection (a); and

18 (iii) detailed information on the allo-
19 cation and realignment of intelligence col-
20 lections capabilities and activities to ad-
21 dress—

22 (I) such gaps and deficiencies;
23 and

1 (II) such intelligence, surveil-
2 lance, and reconnaissance submis-
3 sions.

4 (b) REPORT.—

5 (1) SUBMISSION.—Not later than 270 days
6 after the date of the enactment of this Act, the
7 Under Secretary of Defense for Intelligence and Se-
8 curity shall submit to the appropriate congressional
9 committees a report on the findings of the Under
10 Secretary with respect to the survey and review
11 under subsection (a)(1).

12 (2) CONTENT.—The report under paragraph
13 (1) shall include—

14 (A) an evaluation of—

15 (i) the organization, posture, current
16 and planned investments, and processes of
17 the intelligence collections capabilities and
18 activities, including the extent to which
19 such capabilities and activities enable the
20 geographic and functional combatant com-
21 mands to meet the operational and stra-
22 tegic requirements of the Department of
23 Defense;

24 (ii) the use or planned use by each ge-
25 ographic and functional combatant com-

1 mand of intelligence collections capabilities
2 and activities available to such command
3 to address operational and strategic re-
4 quirements of the Department of Defense;

5 (iii) the gaps and deficiencies de-
6 scribed in subsection (a)(1)(B)(iii), if any,
7 that prohibit each geographic and func-
8 tional combatant command from the most
9 effective use of the intelligence collections
10 capabilities and activities to address pri-
11 ority requirements of the Department of
12 Defense;

13 (iv) the accepted risk by the Secretary
14 of Defense from the prioritization of cer-
15 tain Department of Defense requirements
16 with respect to the allocation of intelligence
17 collections capabilities and activities; and

18 (v) the alignment and responsiveness
19 of intelligence collections capabilities and
20 activities with respect to the planning re-
21 quirements for the Program of Analysis of
22 each combat support agency that is part
23 of—

24 (I) the Defense Intelligence En-
25 terprise; and

1 (II) the intelligence community;

2 and

3 (B) recommendations, if any, to improve
4 the sufficiency, responsiveness, and interoper-
5 ability of intelligence collections capabilities and
6 activities to fulfill the operational and strategic
7 requirements of the Department of Defense.

8 (3) FORM.—The report under paragraph (1)
9 shall be submitted in unclassified form without any
10 designation relating to dissemination control, but
11 may contain a classified annex.

12 (c) DEFINITIONS.—In this section:

13 (1) The term “appropriate congressional com-
14 mittees” means—

15 (A) the congressional defense committees;

16 and

17 (B) the congressional intelligence commit-
18 tees.

19 (2) The term “combat support agency” has the
20 meaning given that term in section 193(f) of title
21 10, United States Code.

22 (3) The term “Defense Intelligence Enterprise”
23 has the meaning given that term in section
24 1633(c)(2) of the National Defense Authorization

1 Act for Fiscal Year 2017 (Public Law 114–328; 130
2 Stat. 2600).

3 (4) The term “intelligence collections capabili-
4 ties and activities” means the totality of intelligence
5 collections systems and processes which enable the
6 tasking, processing, exploitation, and dissemination
7 capabilities, capacity, and activities of the Defense
8 Intelligence Enterprise.

9 (5) The term “intelligence community” has the
10 meaning given that term in section 3 of the National
11 Security Act of 1947 (50 U.S.C. 3003).

12 (6) The term “congressional intelligence com-
13 mittees” has the meaning given that term in section
14 3 of the National Security Act of 1947 (50 U.S.C.
15 3003).

16 **SEC. 1627. REPORTS ON CONSOLIDATED ADJUDICATION**
17 **FACILITY OF THE DEFENSE COUNTERINTEL-**
18 **LIGENCE AND SECURITY AGENCY.**

19 (a) REPORTS.—On a semiannual basis during the pe-
20 riod beginning on the date of the enactment of this Act
21 and ending on the date specified in subsection (b), and
22 annually thereafter, the Director of the Defense Counter-
23 intelligence and Security Agency shall submit to the con-
24 gressional defense committees a report on the processes
25 in place for adjudicating security clearances and the

1 progress made to address the backlog of security clearance
2 applications, including—

3 (1) metrics used by the Director to evaluate the
4 inventory and timeliness of adjudicating security
5 clearance cases; and

6 (2) details on the resources used by the Direc-
7 tor in carrying out the security clearance mission of
8 the Consolidated Adjudication Facility.

9 (b) DETERMINATION AND BRIEFING.—Upon the date
10 on which the Director of the Defense Counterintelligence
11 and Security Agency determines both that the backlog of
12 security clearance adjudications has been substantially
13 eliminated and that the timeline to conduct background
14 investigations reflects the type of investigation being con-
15 ducted and the level of clearance required, the Director
16 shall—

17 (1) notify the congressional defense committees
18 of such determination; and

19 (2) provide to such committees a briefing on
20 the progress made by the Director with respect to
21 security clearance adjudications.

1 **SEC. 1628. REPORT ON THE EXPANDED PURVIEW OF THE**
2 **DEFENSE COUNTERINTELLIGENCE AND SE-**
3 **CURITY AGENCY.**

4 (a) REPORT REQUIRED.—Not later than 90 days
5 after the date of the enactment of this Act, the Secretary
6 of Defense shall submit to Congress a report on the De-
7 fense Counterintelligence and Security Agency.

8 (b) CONTENTS.—The report submitted under sub-
9 section (a) shall include the following:

10 (1) Identification of the resources and authori-
11 ties appropriate for the inspector general for the ex-
12 panded purview of the Defense Counterintelligence
13 and Security Agency.

14 (2) Identification of the resources and authori-
15 ties needed to perform the civil liberties and privacy
16 officer function of the Defense Counterintelligence
17 and Security Agency.

18 (3) An assessment of the security protocols in
19 effect for personally identifiable information held by
20 the Defense Counterintelligence and Security Agen-
21 cy.

22 (4) An assessment of the governance structure
23 of the Defense Counterintelligence and Security
24 Agency as it relates to the Department of Defense,
25 including with respect to status, authorities, and
26 leadership.

1 (5) An assessment of the governance structure
2 of the Defense Counterintelligence and Security
3 Agency as it relates to interagency partners, includ-
4 ing the Office of Management and Budget, the Of-
5 fice of the Director of National Intelligence, and the
6 Office of Personnel Management.

7 (6) The methodology the Defense Counterintel-
8 ligence and Security Agency will prioritize requests
9 for background investigation requests from govern-
10 ment agencies and industry.

11 **SEC. 1629. TERMINATION OF REQUIREMENT FOR DEPART-**
12 **MENT OF DEFENSE FACILITY ACCESS CLEAR-**
13 **ANCES FOR JOINT VENTURES COMPOSED OF**
14 **PREVIOUSLY-CLEARED ENTITIES.**

15 A clearance for access to a Department of Defense
16 installation or facility may not be required for a joint ven-
17 ture if that joint venture is composed entirely of entities
18 that are currently cleared for access to such installation
19 or facility.

20 **Subtitle C—Cyberspace-Related**
21 **Matters**

22 **SEC. 1631. MATTERS RELATING TO MILITARY OPERATIONS**
23 **IN THE INFORMATION ENVIRONMENT.**

24 (a) PRINCIPAL INFORMATION OPERATIONS ADVI-
25 SOR.—

1 (1) IN GENERAL.—Chapter 19 of title 10,
2 United States Code, is amended by adding at the
3 end the following new section:

4 **“§ 397. Principal Information Operations Advisor**

5 “(a) DESIGNATION.—Not later than 30 days after
6 the enactment of this Act, the Secretary of Defense shall
7 designate, from among officials appointed to a position in
8 the Department of Defense by and with the advice and
9 consent of the Senate, a Principal Information Operations
10 Advisor to act as the principal advisor to the Secretary
11 on all aspects of information operations conducted by the
12 Department.

13 “(b) RESPONSIBILITIES.—The Principal Information
14 Operations Advisor shall have the following responsibil-
15 ities:

16 “(1) Oversight of policy, strategy, planning, re-
17 source management, operational considerations, per-
18 sonnel, and technology development across all the
19 elements of information operations of the Depart-
20 ment.

21 “(2) Overall integration and supervision of the
22 deterrence of, conduct of, and defense against infor-
23 mation operations.

24 “(3) Promulgation of policies to ensure ade-
25 quate coordination and deconfliction with the De-

1 partment of State, the intelligence community (as
2 such term is defined in section 3 of the National Se-
3 curity Act of 1947 (50 U.S.C. 3003)), and other rel-
4 evant agencies and departments of the Federal Gov-
5 ernment.

6 “(4) Coordination with the head of the Global
7 Engagement Center to support the purpose of the
8 Center (as set forth by section 1287(a)(2) of the
9 National Defense Authorization Act for Fiscal Year
10 2017 (Public Law 114–328; 22 U.S.C. 2656 note))
11 and liaison with the Center and other relevant Fed-
12 eral Government entities to support such purpose.

13 “(5) Establishing and supervising a rigorous
14 risk management process to mitigate the risk of po-
15 tential exposure of United States Persons to infor-
16 mation intended exclusively for foreign audiences.

17 “(6) Promulgation of standards for the attribu-
18 tion or public acknowledgment, if any, of operations
19 in the information environment.

20 “(7) Development of guidance for, and pro-
21 motion of, the capability of the Department to liai-
22 son with the private sector and academia on matters
23 relating to the influence activities of malign actors.

1 “(8) Such other matters relating to information
2 operations as the Secretary shall specify for pur-
3 poses of this subsection.”.

4 (2) CLERICAL AMENDMENTS.—

5 (A) CHAPTER 19.—

6 (i) CHAPTER HEADING.—The heading
7 of chapter 19 of such title is amended to
8 read as follows:

9 **“CHAPTER 19—CYBER AND INFORMATION**
10 **OPERATIONS MATTERS”.**

11 (ii) TABLE OF SECTIONS.—The table
12 of sections at the beginning of chapter 19
13 of such title is amended by inserting at the
14 end the following new item:

 “397. Principal Information Operations Advisor.”.

15 (B) TABLE OF CHAPTERS.—The table of
16 chapters for part I of subtitle A of such title is
17 amended by striking the item relating to chap-
18 ter 19 and inserting the following new item:

“19. Cyber and Information Operations Matters 391”.

19 (b) AFFIRMING THE AUTHORITY OF THE SECRETARY
20 OF DEFENSE TO CONDUCT MILITARY OPERATIONS IN
21 THE INFORMATION ENVIRONMENT.—(1) Congress affirms
22 that the Secretary of Defense is authorized to conduct
23 military operations, including clandestine operations, in
24 the information environment to defend the United States,

1 allies of the United States, and interests of the United
2 States, including in response to malicious influence activi-
3 ties carried out against the United States or a United
4 States person by a foreign power.

5 (2) The military operations referred to in paragraph
6 (1), when appropriately authorized include the conduct of
7 military operations short of hostilities and in areas outside
8 of areas of active hostilities for the purpose of preparation
9 of the environment, influence, force protection, and deter-
10 rence of hostilities.

11 (c) TREATMENT OF CLANDESTINE MILITARY OPER-
12 ATIONS IN THE INFORMATION ENVIRONMENT AS TRADI-
13 TIONAL MILITARY ACTIVITIES.—A clandestine military
14 operation in the information environment shall be consid-
15 ered a traditional military activity for the purposes of sec-
16 tion 503(e)(2) of the National Security Act of 1947 (50
17 U.S.C. 3093(e)(2)).

18 (d) QUARTERLY INFORMATION OPERATIONS BRIEF-
19 INGS.—(1) Not less frequently than once each quarter, the
20 Secretary of Defense shall provide the congressional de-
21 fense committees a briefing on significant military oper-
22 ations, including all clandestine operations in the informa-
23 tion environment, carried out by the Department of De-
24 fense during the immediately preceding quarter.

1 (2) Each briefing under paragraph (1) shall include,
2 with respect to the military operations in the information
3 environment described in such paragraph, the following:

4 (A) An update, disaggregated by geographic
5 and functional command, that describes the oper-
6 ations carried out by the commands.

7 (B) An overview of authorities and legal issues
8 applicable to the operations, including any relevant
9 legal limitations.

10 (C) An outline of any interagency activities and
11 initiatives relating to the operations.

12 (D) Such other matters as the Secretary con-
13 siders appropriate.

14 (e) RULE OF CONSTRUCTION.—Nothing in this sec-
15 tion may be construed to limit, expand, or otherwise alter
16 the authority of the Secretary to conduct military oper-
17 ations, including clandestine operations, in the informa-
18 tion environment, to authorize specific military operations,
19 or to limit, expand, or otherwise alter or otherwise affect
20 the War Powers Resolution (50 U.S.C. 1541 et seq.) or
21 an authorization for use of military force that was in effect
22 on the day before the date of the enactment of this Act.

23 (f) CROSS-FUNCTIONAL TEAM.—

24 (1) ESTABLISHMENT.—The Principal Informa-
25 tion Operations Advisor shall integrate the expertise

1 in all elements of information operations and per-
2 spectives of appropriate organizations within the Of-
3 fice of the Secretary of Defense, Joint Staff, military
4 departments, Defense Agencies, and combatant com-
5 mands by establishing and maintaining a full-time
6 cross-functional team composed of subject-matter ex-
7 perts selected from those organizations.

8 (2) SELECTION AND ORGANIZATION.—The
9 cross-functional team established under paragraph
10 (1) shall be selected, organized, and managed in a
11 manner consistent with section 911 of the National
12 Defense Authorization Act for Fiscal Year 2017
13 (Public Law 114–328; 10 U.S.C. 111 note).

14 (g) STRATEGY AND POSTURE REVIEW.—

15 (1) STRATEGY AND POSTURE REVIEW RE-
16 QUIRED.—Not later than 270 days after the date of
17 the enactment of this Act, the Secretary of Defense,
18 acting through the Principal Information Operations
19 Advisor under section 397 of title 10, United States
20 Code (as added by subsection (a)) and the cross-
21 functional team established under subsection (f)(1),
22 shall—

23 (A) develop or update, as appropriate, a
24 strategy for operations in the information envi-
25 ronment, including how such operations will be

1 synchronized across the Department of Defense
2 and the global, regional, and functional inter-
3 ests of the combatant commands;

4 (B) conduct an information operations pos-
5 ture review, including an analysis of capability
6 gaps that inhibit the Department's ability to
7 successfully execute the strategy developed or
8 updated pursuant to subparagraph (A);

9 (C) designate Information Operations
10 Force Providers and Information Operations
11 Joint Force Trainers for the Department of
12 Defense;

13 (D) develop and persistently manage a
14 joint lexicon for terms related to information
15 operations, including "information operations",
16 "information environment", "operations in the
17 information environment", and "information re-
18 lated capabilities"; and

19 (E) determine the collective set of combat
20 capabilities that will be treated as part of oper-
21 ations in the information environment, includ-
22 ing cyber warfare, space warfare, military infor-
23 mation support operations, electronic warfare,
24 public affairs, and civil affairs.

1 (2) COORDINATION ON CERTAIN CYBER MAT-
2 TERS.—For any matters in the strategy and posture
3 review under paragraph (1) that involve or relate to
4 Department of Defense cyber capabilities, the Prin-
5 cipal Information Operations Advisor shall fully col-
6 laborate with the Principal Cyber Advisor to the
7 Secretary of Defense.

8 (3) ELEMENTS.—At a minimum, the strategy
9 developed or updated pursuant to paragraph (1)(A)
10 shall include the following:

11 (A) The establishment of lines of effort,
12 objectives, and tasks that are necessary to im-
13 plement such strategy and eliminate the capa-
14 bility gaps identified under paragraph (1)(B).

15 (B) In partnership with the Principal
16 Cyber Advisor to the Secretary of Defense and
17 in coordination with any other component or
18 Department of Defense entity as selected by the
19 Secretary of Defense, an evaluation of any or-
20 ganizational changes that may be required with-
21 in the Office of the Secretary of Defense, in-
22 cluding potential changes to Under Secretary or
23 Assistant Secretary-level positions to com-
24 prehensively conduct oversight of policy develop-
25 ment, capabilities, and other aspects of oper-

1 ations in the information environment as deter-
2 mined pursuant to the information operations
3 posture review under paragraph (1)(B).

4 (C) An assessment of various models for
5 operationalizing information operations, includ-
6 ing the feasibility and advisability of estab-
7 lishing an Army Information Warfare Com-
8 mand.

9 (D) A review of the role of information op-
10 erations in combatant commander operational
11 planning, the ability of combatant commanders
12 to respond to hostile acts by adversaries, and
13 the ability of combatant commanders to engage
14 and build capacity with allies.

15 (E) A review of the law, policies, and au-
16 thorities relating to, and necessary for, the
17 United States to conduct military operations,
18 including clandestine military operations, in the
19 information environment.

20 (4) SUBMISSION TO CONGRESS.—Upon comple-
21 tion, the Secretary of Defense shall present the
22 strategy for operations in the information environ-
23 ment and the information operations posture review
24 under subparagraphs (A) and (B), respectively, of

1 paragraph (1) to the Committees on Armed Services
2 of the House of Representatives and the Senate.

3 (h) REPORT.—

4 (1) IN GENERAL.—Not later than 90 days after
5 the date of the enactment of this Act, the Secretary
6 of Defense shall provide the Committee on Armed
7 Services of the Senate and the Committee on Armed
8 Services of the House of Representatives a report
9 for the structuring and manning of information op-
10 erations capabilities and forces across the Depart-
11 ment of Defense. The Secretary shall provide such
12 Committees with quarterly updates on such plan.

13 (2) ELEMENTS.—The plan required under
14 paragraph (1) shall address the following:

15 (A) How the Department of Defense will
16 organize to develop a combined information op-
17 erations strategy and posture review under sub-
18 section (g).

19 (B) How the Department will fulfill the
20 roles and responsibilities of the Principal Infor-
21 mation Operations Advisor under section 397 of
22 title 10, United States Code (as added by sub-
23 section (a)).

1 (C) How the Department will establish the
2 information operations cross-functional team
3 under subsection (f)(1).

4 (D) How the Department will utilize
5 boards and working groups involving senior-
6 level Department representatives on information
7 operations.

8 (E) Such other matters as the Secretary of
9 Defense considers appropriate.

10 (i) DEFINITIONS.—In this section:

11 (1) The terms “foreign person” and “United
12 States person” have the meanings given such terms
13 in section 101 of the Foreign Intelligence Surveil-
14 lance Act of 1978 (50 U.S.C. 1801).

15 (2) The term “hostilities” has the same mean-
16 ing as such term is used in the War Powers Resolu-
17 tion (50 U.S.C. 1541 et seq.).

18 (3) The term “clandestine military operation in
19 the information environment” means an operation or
20 activity, or associated preparatory actions, author-
21 ized by the President or the Secretary of Defense,
22 that—

23 (A) is marked by, held in, or conducted
24 with secrecy, where the intent is that the oper-

1 ation or activity will not be apparent or ac-
2 knowledge publicly; and

3 (B) is to be carried out—

4 (i) as part of a military operation plan
5 approved by the President or the Secretary
6 of Defense;

7 (ii) to deter, safeguard, or defend
8 against attacks or malicious influence ac-
9 tivities against the United States, allies of
10 the United States, and interests of the
11 United States;

12 (iii) in support of hostilities or mili-
13 tary operations involving the United States
14 armed forces; or

15 (iv) in support of military operations
16 short of hostilities and in areas where hos-
17 tilities are not occurring for the purpose of
18 preparation of the environment, influence,
19 force protection, and deterrence.

20 **SEC. 1632. NOTIFICATION REQUIREMENTS FOR SENSITIVE**
21 **MILITARY CYBER OPERATIONS.**

22 Section 395 of title 10, United States Code, is
23 amended—

1 (1) in subsection (b)(3), by inserting “, signed
2 by the Secretary, or the Secretary’s designee,” after
3 “written notification”; and

4 (2) in subsection (c)—

5 (A) in paragraph (1)—

6 (i) in subparagraph (A), by striking
7 “and” after the semicolon at the end;

8 (ii) by redesignating subparagraph
9 (B) as subparagraph (C); and

10 (iii) by inserting after subparagraph
11 (A) the following new subparagraph:

12 “(B) is determined to—

13 “(i) have a medium or high collateral
14 effects estimate;

15 “(ii) have a medium or high intel-
16 ligence gain or loss;

17 “(iii) have a medium or high prob-
18 ability of political retaliation, as deter-
19 mined by the political military assessment
20 contained within the associated concept of
21 operations;

22 “(iv) have a medium or high prob-
23 ability of detection when detection is not
24 intended; or

1 “(v) result in medium or high collat-
2 eral effects; and”;

3 (B) in paragraph (2)(B), by striking “out-
4 side the Department of Defense Information
5 Networks to defeat an ongoing or imminent
6 threat”.

7 **SEC. 1633. EVALUATION OF CYBER VULNERABILITIES OF**
8 **MAJOR WEAPON SYSTEMS OF THE DEPART-**
9 **MENT OF DEFENSE.**

10 Section 1647 of the National Defense Authorization
11 Act for Fiscal Year 2016 (Public Law 114–92) is amended
12 by adding at the end the following new subsections:

13 “(f) **WRITTEN NOTIFICATION.**—If the Secretary de-
14 termines that the Department will not complete an evalua-
15 tion of the cyber vulnerabilities of each major weapon sys-
16 tem of the Department by the date specified in subsection
17 (a)(1), the Secretary shall provide to the congressional de-
18 fense committees written notification relating to each such
19 incomplete evaluation. Such a written notification shall in-
20 clude the following:

21 “(1) An identification of each major weapon
22 system for which an evaluation will not be complete
23 by the date specified in subsection (a)(1), the antici-
24 pated date of completion of the evaluation of each
25 such weapon system, and a description of the re-

1 maintaining work to be done for the evaluation of each
2 such weapon system.

3 “(2) A justification for the inability to complete
4 such an evaluation by the date specified in sub-
5 section (a)(1).

6 “(g) REPORT.—The Secretary, acting through the
7 Under Secretary of Defense for Acquisition and
8 Sustainment, shall provide a report to the congressional
9 defense committees upon completion of the requirement
10 for an evaluation of the cyber vulnerabilities of each major
11 weapon system of the Department under this section.
12 Such report shall include the following:

13 “(1) An identification of cyber vulnerabilities of
14 each major weapon system requiring mitigation.

15 “(2) An identification of current and planned
16 efforts to address the cyber vulnerabilities of each
17 major weapon system requiring mitigation, including
18 efforts across the doctrine, organization, training,
19 materiel, leadership and education, personnel, and
20 facilities of the Department.

21 “(3) A description of joint and common cyber
22 vulnerability mitigation solutions and efforts, includ-
23 ing solutions and efforts across the doctrine, organi-
24 zation, training, materiel, leadership and education,
25 personnel, and facilities of the Department.

1 “(4) A description of lessons learned and best
2 practices regarding evaluations of the cyber
3 vulnerabilities and cyber vulnerability mitigation ef-
4 forts relating to major weapon systems, including an
5 identification of useful tools and technologies for dis-
6 covering and mitigating vulnerabilities, such as those
7 specified in section 1657 of the John S. McCain Na-
8 tional Defense Authorization Act for Fiscal Year
9 2019 (Public Law 115–232), and steps taken to in-
10 stitutionalize the use of these tools and technologies.

11 “(5) A description of efforts to share lessons
12 learned and best practices regarding evaluations of
13 the cyber vulnerabilities and cyber vulnerability miti-
14 gation efforts of major weapon systems across the
15 Department.

16 “(6) An identification of measures taken to in-
17 stitutionalize evaluations of cyber vulnerabilities of
18 major weapon systems, including an identification of
19 which major weapon systems evaluated under this
20 section will be reevaluated in the future, when these
21 evaluations will occur, and how evaluations will
22 occur for future major weapon systems.

23 “(7) Information relating to guidance, proc-
24 esses, procedures, or other activities established to
25 mitigate or address the likelihood of cyber

1 vulnerabilities of major weapon systems by incorpo-
2 ration of lessons learned in the research, develop-
3 ment, test, evaluation, and acquisition cycle, includ-
4 ing promotion of cyber education of the acquisition
5 workforce.

6 “(8) An identification of systems to be incor-
7 porated into or that have been incorporated into the
8 National Security Agency’s Strategic Cybersecurity
9 Program and the status of these systems in the Pro-
10 gram.

11 “(9) Any other matters the Secretary deter-
12 mines relevant.”.

13 **SEC. 1634. QUARTERLY ASSESSMENTS OF THE READINESS**
14 **OF CYBER MISSION FORCES.**

15 (a) IN GENERAL.—Section 484(b) of title 10, United
16 States Code, is amended—

17 (1) by redesignating paragraph (4) as para-
18 graph (5); and

19 (2) by inserting after paragraph (3) the fol-
20 lowing new paragraph (4):

21 “(4) An overview of the readiness of the Cyber
22 Mission Forces to perform assigned missions that—

23 “(A) address all of the abilities of such
24 Forces to conduct cyberspace operations based

1 on capability and capacity of personnel, equip-
2 ment, training, and equipment condition—

3 “(i) using both quantitative and quali-
4 tative metrics; and

5 “(ii) in a way that is common to all
6 military departments; and

7 “(B) is consistent with readiness reporting
8 pursuant to section 482 of this title.”.

9 (b) METRICS.—

10 (1) ESTABLISHMENT REQUIRED.—The Sec-
11 retary of Defense shall establish metrics for the as-
12 sessment of the readiness of the Cyber Mission
13 Forces of the Department of Defense.

14 (2) BRIEFINGS REQUIRED.—Not later than 90
15 days after the date of the enactment of this Act and
16 quarterly thereafter until completion of the estab-
17 lishment of the metrics under paragraph (1), the
18 Secretary shall provide a briefing to the congres-
19 sional defense committees on such metrics, including
20 progress as required pursuant to subsection (c).

21 (c) MODIFICATION OF READINESS REPORTING SYS-
22 TEM.—Not later than 180 days after the date of the enact-
23 ment of this Act, the Secretary shall take such actions
24 as the Secretary considers appropriate to ensure that the
25 comprehensive readiness reporting system established pur-

1 suant to section 117(a) of title 10, United States Code,
2 covers matters relating to the readiness of the Cyber Mis-
3 sion Forces—

4 (1) using the metrics established pursuant to
5 subsection (b)(1); and

6 (2) in a manner that is consistent with sections
7 117 and 482 of such title.

8 (d) **FIRST QUARTERLY BRIEFING ASSESSING CYBER**
9 **READINESS.**—The amendments made by subsection (a)
10 shall take effect on the date that is 180 days after the
11 date of the enactment of this Act.

12 **SEC. 1635. CYBER POSTURE REVIEW.**

13 Section 1644 of the National Defense Authorization
14 Act for Fiscal Year 2018 (Public Law 115–91) is amend-
15 ed—

16 (1) in subsection (a), by inserting “, not later
17 than December 31, 2022, and quadrennially there-
18 after,” before “conduct”;

19 (2) in subsection (b), by striking “the review”
20 and inserting “each review”;

21 (3) in subsection (c)—

22 (A) in the matter preceding paragraph (1),
23 by striking “The review” and inserting “Each
24 review”;

1 (B) by redesignating paragraph (9) as
2 paragraph (11); and

3 (C) by inserting after paragraph (8) the
4 following new paragraphs:

5 “(9) An assessment of the potential costs, bene-
6 fits, and value, if any, of establishing a cyber force
7 as a separate uniformed service.

8 “(10) Any recurrent problems or capability
9 gaps that remain unaddressed since the previous
10 posture review.”;

11 (4) in subsection (d)—

12 (A) in paragraph (1), by striking “the
13 cyber” and inserting “each cyber”;

14 (B) in paragraph (2), by striking “The re-
15 port” and inserting “Each report”; and

16 (C) by striking paragraph (3); and

17 (5) in subsection (e), by striking “period begin-
18 ning on the date that is five years after the date of
19 the enactment of this Act and ending on the date
20 that is 10 years after such date of enactment” and
21 inserting “eight-year period that begins on the date
22 of each review conducted under subsection (a)”.

1 **SEC. 1636. MODIFICATION OF ELEMENTS OF ASSESSMENT**
2 **REQUIRED FOR TERMINATION OF DUAL-HAT**
3 **ARRANGEMENT FOR COMMANDER OF THE**
4 **UNITED STATES CYBER COMMAND.**

5 Section 1642 of the National Defense Authorization
6 Act for Fiscal Year 2017 (130 Stat. 2601; Public Law
7 114–328) is amended—

8 (1) in subsection (b)(2)(C)—

9 (A) in clause (ii), by inserting “and na-
10 tional intelligence operations” after “oper-
11 ations”;

12 (B) by amending clause (iii) to read as fol-
13 lows:

14 “(iii) The tools, weapons, and accesses
15 used in and available for military cyber op-
16 erations are sufficient for achieving re-
17 quired effects and United States Cyber
18 Command is capable of acquiring or devel-
19 oping such tools, weapons, and accesses.”;
20 and

21 (C) by amending clause (vi) to read as fol-
22 lows:

23 “(vi) The Cyber Mission Force has
24 achieved full operational capability and has
25 demonstrated the capacity to execute the

1 cyber missions of the Department, includ-
2 ing the following:

3 “(I) Execution of national-level
4 missions through cyberspace, includ-
5 ing deterrence and disruption of ad-
6 versary cyber activity.

7 “(II) Defense of the Department
8 of Defense Information Network.

9 “(III) Support for other combat-
10 ant commands, including targeting of
11 adversary military assets.”;

12 (2) by redesignating subsection (c) as sub-
13 section (d); and

14 (3) by inserting after subsection (b) the fol-
15 lowing new subsection:

16 “(c) BIENNIAL BRIEFING.—

17 “(1) IN GENERAL.—Not later than 90 days
18 after the date of the enactment of this subsection
19 and biennially thereafter, the Secretary of Defense
20 and the Director of National Intelligence shall pro-
21 vide to the appropriate committees of Congress
22 briefings on the nature of the National Security
23 Agency and United States Cyber Command’s cur-
24 rent and future partnership. Briefings under this

1 subsection shall not terminate until the certification
2 specified in subsection (a) is issued.

3 “(2) ELEMENTS.—Each briefing under this
4 subsection shall include status updates on the cur-
5 rent and future National Security Agency-United
6 States Cyber Command partnership efforts, includ-
7 ing relating to the following:

8 “(A) Common infrastructure and capa-
9 bility acquisition.

10 “(B) Operational priorities and partner-
11 ship.

12 “(C) Research and development partner-
13 ship.

14 “(D) Executed documents, written memo-
15 randa of agreements or understandings, and
16 policies issued governing such current and fu-
17 ture partnership.

18 “(E) Projected long-term efforts.”.

19 **SEC. 1637. MODIFICATION OF CYBER SCHOLARSHIP PRO-**
20 **GRAM.**

21 Section 2200a(a)(1) of title 10, United States Code,
22 is amended by striking “or advanced degree, or a certifi-
23 cation,” and inserting “advanced degree, or certificate”.

1 **SEC. 1638. TIER 1 EXERCISE OF SUPPORT TO CIVIL AU-**
2 **THORITIES FOR A CYBER INCIDENT.**

3 Section 1648 of the John S. McCain National De-
4 fense Authorization Act for Fiscal Year 2019 (Public Law
5 115–232) is amended—

6 (1) in subsection (a), by striking “The” and in-
7 serting “Not later than May 1, 2020, the”; and

8 (2) by adding at the end the following new sub-
9 section:

10 “(c) **LIMITATION.**—Of the funds authorized to be ap-
11 propriated by this Act or otherwise made available for fis-
12 cal year 2020 for the Department of Defense for the
13 White House Communications Agency, not more than 90
14 percent of such funds may be obligated or expended until
15 the initiation of the tier 1 exercise required under sub-
16 section (a).”.

17 **SEC. 1639. EXTENSION OF THE CYBERSPACE SOLARIUM**
18 **COMMISSION.**

19 Paragraph (1) of section 1652(k) of the John S.
20 McCain National Defense Authorization Act for Fiscal
21 Year 2019 (Public Law 115–232) is amended by striking
22 “September 1, 2019” and inserting “April 30, 2020”.

1 **SEC. 1640. AUTHORITY TO USE OPERATION AND MAINTEN-**
2 **NANCE FUNDS FOR CYBER OPERATIONS-PE-**
3 **CULIAR CAPABILITY DEVELOPMENT**
4 **PROJECTS.**

5 (a) IN GENERAL.—The Secretary of Defense and
6 each Secretary of the military departments concerned may
7 obligate and expend not more than \$3,000,000 of amounts
8 authorized to be appropriated for operation and mainte-
9 nance per service in each of fiscal years 2020 through
10 2022 to carry out cyber operations-peculiar capability de-
11 velopment projects.

12 (b) NOTIFICATION.—Not later than 15 days after ex-
13 ercising the authority provided for in subsection (a), the
14 Secretary of Defense, or his designee, and each Secretary
15 of the military departments concerned, or their designees,
16 shall notify the congressional defense committees of such
17 exercise for projects exceeding \$500,000.

18 (c) REPORT.—Not later than December 31 of each
19 year through 2022, the Secretary of Defense shall submit
20 to the congressional defense committees a report on obli-
21 gations and expenditures made pursuant to the authority
22 provided for in subsection (a). Each such report shall in-
23 clude a full description and evaluation of each of the cyber
24 operations-peculiar capability development projects that is
25 the subject of each such obligation or expenditure, defini-
26 tions and standards for cyber operations-peculiar require-

1 ments, transition plans, and any other matters the Sec-
2 retary determines relevant.

3 **SEC. 1641. ROLE OF CHIEF INFORMATION OFFICER IN IM-**
4 **PROVING ENTERPRISE-WIDE CYBERSECU-**
5 **RITY.**

6 (a) IN GENERAL.—In carrying out the responsibil-
7 ities established in section 142 of title 10, United States
8 Code, the Chief Information Officer of the Department of
9 Defense shall, to the maximum extent practicable, ensure
10 that the cybersecurity programs and capabilities of the
11 Department—

12 (1) fit into an enterprise-wide cybersecurity ar-
13 chitecture;

14 (2) are maximally interoperable with each
15 other, including those programs and capabilities de-
16 ployed by the components of the Department;

17 (3) enhance enterprise-level visibility and re-
18 sponsiveness to threats; and

19 (4) are developed, procured, instituted, and
20 managed in a cost-efficient manner, exploiting
21 economies of scale and enterprise-wide services and
22 discouraging unnecessary customization and piece-
23 meal acquisition.

24 (b) REQUIREMENTS.—In carrying out subsection (a),
25 the Chief Information Officer shall—

1 (1) manage and modernize the cybersecurity ar-
2 chitecture of the Department, including—

3 (A) ensuring the cybersecurity architecture
4 of the Department maximizes cybersecurity ca-
5 pability, network, and endpoint activity data
6 sharing across Department components;

7 (B) ensuring the cybersecurity architecture
8 of the Department supports improved automa-
9 ticity of cybersecurity detection and response;
10 and

11 (C) modernizing and configuring the De-
12 partment's standardized deployed perimeter,
13 network-level, and endpoint capabilities to im-
14 prove interoperability, meet pressing capability
15 needs, and negate common adversary tactics,
16 techniques, and procedures;

17 (2) establish mechanisms to enable and man-
18 date, as necessary, cybersecurity capability and net-
19 work and endpoint activity data-sharing across De-
20 partment components;

21 (3) make mission data, through data tagging,
22 automatic transmission, and other means, accessible
23 and discoverable by Department components other
24 than owners of such mission data;

1 (4) incorporate into the cybersecurity architec-
2 ture of the Department emerging cybersecurity tech-
3 nologies from the Defense Advanced Research
4 Projects Agency, the Strategic Capabilities Office,
5 the Defense Innovation Unit, the laboratories of the
6 military departments, and the commercial sector;

7 (5) ensure that the Department possesses the
8 necessary computing infrastructure, through tech-
9 nology refresh, installation or acquisition of band-
10 width, and the use of cloud computing power, to
11 host and enable necessary cybersecurity capabilities;
12 and

13 (6) utilize the Department's cybersecurity ex-
14 pertise to improve cybersecurity performance, oper-
15 ations, and acquisition, including—

16 (A) the cybersecurity testing, architecting,
17 and engineering expertise of the National Secu-
18 rity Agency; and

19 (B) the technology policy, workforce, and
20 engineering expertise of the Defense Digital
21 Service.

1 **SEC. 1642. NOTIFICATION OF DELEGATION OF AUTHORI-**
2 **TIES TO THE SECRETARY OF DEFENSE FOR**
3 **MILITARY OPERATIONS IN CYBERSPACE.**

4 (a) IN GENERAL.—The Secretary of Defense shall
5 provide written notification to the Committee on Armed
6 Services of the House of Representatives and the Com-
7 mittee on Armed Services of the Senate of the following:

8 (1) Authorities delegated to the Secretary by
9 the President for military operations in cyberspace
10 that are otherwise held by the National Command
11 Authority, not later than 15 days after any such del-
12 egation. A notification under this paragraph shall in-
13 clude a description of the authorities delegated to
14 the Secretary.

15 (2) Concepts of operations approved by the Sec-
16 retary pursuant to delegated authorities described in
17 paragraph (1), not later than 15 days after any such
18 approval. A notification under this paragraph shall
19 include the following:

20 (A) A description of authorized activities
21 to be conducted or planned to be conducted
22 pursuant to such authorities.

23 (B) The defined military objectives relating
24 to such authorities.

25 (C) A list of countries in which such au-
26 thorities may be exercised.

1 (D) A description of relevant orders issued
2 by the Secretary in accordance with such au-
3 thorities.

4 (b) PROCEDURES.—

5 (1) IN GENERAL.—The Secretary of Defense
6 shall establish and submit to the Committee on
7 Armed Services of the House of Representatives and
8 the Committee on Armed Services of the Senate pro-
9 cedures for complying with the requirements of sub-
10 section (a), consistent with the national security of
11 the United States and the protection of operational
12 integrity. The Secretary shall promptly notify such
13 committees in writing of any changes to such proce-
14 dures at least 14 days prior to the adoption of any
15 such changes.

16 (2) SUFFICIENCY.—The Committee on Armed
17 Services of the House of Representatives and the
18 Committee on Armed Services of the Senate shall
19 ensure that committee procedures designed to pro-
20 tect from unauthorized disclosure classified informa-
21 tion relating to national security of the United
22 States are sufficient to protect the information that
23 is submitted to such committees pursuant to this
24 section.

1 (3) NOTIFICATION IN EVENT OF UNAUTHOR-
2 IZED DISCLOSURE.—In the event of an unauthorized
3 disclosure of authorities covered by this section, the
4 Secretary of Defense shall ensure, to the maximum
5 extent practicable, that the Committee on Armed
6 Services of the House of Representatives and the
7 Committee on Armed Services of the Senate are no-
8 tified immediately. Notification under this paragraph
9 may be verbal or written, but in the event of a
10 verbal notification, a written notification signed by
11 the Secretary shall be provided by not later than 48
12 hours after the provision of such verbal notification.

13 **SEC. 1643. LIMITATION OF FUNDING FOR CONSOLIDATED**
14 **AFLOAT NETWORKS AND ENTERPRISE SERV-**
15 **ICES.**

16 Of the funds authorized to be appropriated by this
17 Act for fiscal year 2020 for the Consolidated Afloat Net-
18 works and Enterprise Services, not more than 85 percent
19 of such funds may be obligated or expended until the Sec-
20 retary of the Navy and the Chief Information Officer of
21 the Department of Defense independently certify to the
22 congressional defense committees, the Permanent Select
23 Committee on Intelligence of the House of Representa-
24 tives, and the Select Committee on Intelligence of the Sen-
25 ate that recommendations in the Audit of Consolidated

1 Afloat Networks and Enterprise Services Security Safe-
2 guards (DODIG-2019-072) have been implemented.

3 **SEC. 1644. ANNUAL MILITARY CYBERSPACE OPERATIONS**
4 **REPORT.**

5 (a) IN GENERAL.—Not later than March 1 of each
6 year, the Secretary of Defense shall provide to the con-
7 gressional defense committees a written report summa-
8 rizing all named military cyberspace operations conducted
9 in the previous calendar year, including cyber effects, op-
10 erations, cyber effects enabling operations, and cyber oper-
11 ations conducted as defensive operations. Each such sum-
12 mary should be organized by adversarial country and
13 should include the following for each named operation:

14 (1) An identification of the objective and pur-
15 pose.

16 (2) Descriptions of the impacted countries, or-
17 ganizations, or forces, and nature of the impact.

18 (3) A description of methodologies used for the
19 cyber effects operation or cyber effects enabling op-
20 eration.

21 (4) An identification of the Cyber Mission
22 Force teams, or other Department of Defense entity
23 or units, that conducted such operation, and sup-
24 porting teams, entities, or units.

1 tacks and intrusions in the previous 12 months by agents
2 or associates of the Governments of the Russian Federa-
3 tion, the People's Republic of China, the Islamic Republic
4 of Iran, and the Democratic People's Republic of Korea
5 against or into the information systems (as such term is
6 defined in section 3502 of title 44, United States Code)
7 of—

8 (1) the Department of Defense; and

9 (2) any contractor of the Department of De-
10 fense that works on sensitive United States military
11 technology.

12 (b) FORM.—The report required by subsection (a)
13 shall be submitted in classified form. The data in such
14 report shall be aggregated from U.S. Cyber Command, the
15 Defense Information Systems Agency, the military serv-
16 ices and Department of Defense agencies, the Joint Staff,
17 and the Office of the Secretary of Defense.

18 **SEC. 1646. CONTROL AND ANALYSIS OF DEPARTMENT OF**
19 **DEFENSE DATA STOLEN THROUGH CYBER-**
20 **SPACE.**

21 (a) REQUIREMENTS.—If the Secretary of Defense de-
22 termines that significant Department of Defense data may
23 have been stolen through cyberspace and evidence of theft
24 of the data in question—

1 (1) is in the possession of a component of the
2 Department, the Secretary shall—

3 (A) either transfer or replicate and trans-
4 fer such Department data in a prompt and se-
5 cure manner to a secure repository with access
6 by Department personnel appropriately limited
7 on a need-to-know basis or otherwise ensure
8 such consistent access to the relevant data by
9 other means;

10 (B) ensure the Department applies such
11 automated analytic tools and capabilities to the
12 repository of potentially compromised data as
13 are necessary to rapidly understand the scope
14 and effect of the potential compromise;

15 (C) for high priority and mission critical
16 Department systems, develop analytic products
17 that characterize the scope of data com-
18 promised;

19 (D) ensure that relevant mission-affected
20 entities in the Department are made aware of
21 the theft or possible theft and, as damage as-
22 sessment and mitigation proceeds, are kept ap-
23 prised of the extent of the data stolen; and

24 (E) ensure that Department counterintel-
25 ligence organizations are—

1 (i) fully integrated with any damage
2 assessment team assigned to the breach;

3 (ii) fully informed of the data that
4 have or potentially have been stolen and
5 the effect of such theft; and

6 (iii) provided resources and tasked, in
7 conjunction with subject matter experts
8 and responsible authorities, to immediately
9 and appropriately respond, including
10 through the development and execution of
11 relevant countermeasures, to any breach
12 involving espionage and data theft; or

13 (2) is in the possession of or under controls or
14 restrictions imposed by the Federal Bureau of Inves-
15 tigation, or a national counterintelligence or intel-
16 ligence organization, the Secretary shall determine,
17 jointly with the Director of the Federal Bureau of
18 Investigation or the Director of National Intel-
19 ligence, as appropriate, the most expeditious process,
20 means, and conditions for carrying out the activities
21 otherwise required by paragraph (1).

22 (b) RECOMMENDATIONS.—Not later than 90 days
23 after the date of the enactment of this Act, the Secretary
24 shall submit to the congressional defense committees such
25 recommendations as the Secretary may have for legislative

1 or administrative action to address such barriers that may
2 be inhibiting the implementation of this section.

3 **SEC. 1647. USE OF NATIONAL SECURITY AGENCY CYBERSE-**
4 **CURITY EXPERTISE TO SUPPORT EVALUA-**
5 **TION OF COMMERCIAL CYBERSECURITY**
6 **PRODUCTS.**

7 (a) **ADVISORY MISSION.**—The National Security
8 Agency shall, as a mission in its role in securing the infor-
9 mation systems of the Department of Defense, advise and
10 assist the Department of Defense in its evaluation and
11 adoption of cybersecurity products and services from in-
12 dustry, especially the commercial cybersecurity sector.

13 (b) **PROGRAM TO IMPROVE ACQUISITION OF CYBER-**
14 **SECURITY PRODUCTS AND SERVICES.**—

15 (1) **ESTABLISHMENT.**—Consistent with sub-
16 section (a), the Director of the National Security
17 Agency shall establish a permanent program con-
18 sisting of market research, testing, and expertise
19 transmission, or augments to existing programs, to
20 improve the evaluation by the Department of De-
21 fense of cybersecurity products and services.

22 (2) **REQUIREMENTS.**—Under the program es-
23 tablished pursuant to paragraph (1), the Director
24 shall, independently and at the request of the com-
25 ponents of the Department of Defense—

1 (A) test and evaluate commercially avail-
2 able cybersecurity products and services
3 using—

4 (i) generally known cyber operations
5 techniques; and

6 (ii) tools and cyber operations tech-
7 niques and advanced tools and techniques
8 available to the National Security Agency;

9 (B) develop and establish standard proce-
10 dures, techniques, and threat-informed metrics
11 to perform the testing and evaluation required
12 by subparagraph (A); and

13 (C) advise the Chief Information Officer
14 and the components of the Department of De-
15 fense on the merits and disadvantages of evalu-
16 ated cybersecurity products, including with re-
17 spect to—

18 (i) any synergies between products;

19 (ii) value;

20 (iii) matters relating to operation and
21 maintenance; and

22 (iv) matters relating to customization
23 requirements.

24 (3) LIMITATIONS.—The program established
25 under paragraph (1) may not—

- 1 (A) by used to accredit cybersecurity prod-
2 ucts and services for use by the Department;
3 (B) create approved products lists; or
4 (C) be used for the procurement and field-
5 ing of cybersecurity products on behalf of the
6 Department.

7 **SEC. 1648. FRAMEWORK TO ENHANCE CYBERSECURITY OF**
8 **THE UNITED STATES DEFENSE INDUSTRIAL**
9 **BASE.**

10 (a) FRAMEWORK REQUIRED.—Not later than Feb-
11 ruary 1, 2020, the Secretary of Defense shall develop a
12 consistent, comprehensive framework to enhance cyberse-
13 curity for the United States defense industrial base.

14 (b) ELEMENTS.—The framework developed pursuant
15 to subsection (a) shall include the following:

16 (1) Identification of unified cybersecurity stand-
17 ards, regulations, metrics, ratings, third-party cer-
18 tifications, or requirements to be imposed on the de-
19 fense industrial base for the purpose of assessing the
20 cybersecurity of individual contractors.

21 (2) Roles and responsibilities of the Under Sec-
22 retary of Defense for Acquisition and Sustainment,
23 the Under Secretary of Defense for Intelligence and
24 Security, the Chief Information Officer, the Director
25 of the Protecting Critical Technologies Task Force,

1 and the Secretaries of the military departments re-
2 lating to the following:

3 (A) Establishing and ensuring compliance
4 with cybersecurity standards, regulations, and
5 policies.

6 (B) Deconflicting existing cybersecurity
7 standards, regulations, and policies.

8 (C) Coordinating with and providing as-
9 sistance to the defense industrial base for cy-
10 bersecurity matters, particularly as relates to
11 the programs and processes described in para-
12 graphs (8) and (9).

13 (D) Management and oversight of the ac-
14 quisition process, including responsibility deter-
15 mination, solicitation, award, and contractor
16 management, relating to cybersecurity stand-
17 ards, regulations, metrics, ratings, third-party
18 certifications, or requirements.

19 (3) The responsibilities of the prime contrac-
20 tors, and all subcontractors in the supply chain, for
21 implementing the required cybersecurity standards,
22 regulations, metrics, ratings, third-party certifi-
23 cations, and requirements identified under para-
24 graph (1).

1 (4) Definitions for “Controlled Unclassified In-
2 formation” (CUI) and “For Official Use Only”
3 (FOUO), as well as policies regarding protecting in-
4 formation designated as either of such.

5 (5) Methods and programs for managing con-
6 trolled unclassified information, and for limiting the
7 presence of unnecessary sensitive information on
8 contractor networks.

9 (6) A plan to provide implementation guidance,
10 education, manuals, and, as necessary, direct tech-
11 nical support or assistance, to contractors on mat-
12 ters relating to cybersecurity.

13 (7) Quantitative metrics for assessing the effec-
14 tiveness of the overall framework over time, with re-
15 spect to the exfiltration of controlled unclassified in-
16 formation from the defense industrial base.

17 (8) A comprehensive list of current and planned
18 Department of Defense programs to assist the de-
19 fense industrial base with cybersecurity compliance
20 requirements of the Department, including those
21 programs that provide training, expertise, and fund-
22 ing, and maintain approved security products lists
23 and approved providers lists.

1 (9) Processes for enhanced threat information
2 sharing between the Department of Defense and the
3 defense industrial base.

4 (c) MATTERS FOR CONSIDERATION.—In developing
5 the framework pursuant to subsection (a), the Secretary
6 shall consider the following:

7 (1) Designating an official to be responsible for
8 the cybersecurity of the defense industrial base.

9 (2) Risk-based methodologies, standards,
10 metrics, and tiered cybersecurity requirements for
11 the defense industrial base, including third-party
12 certifications such as the Cybersecurity Maturity
13 Model Certification pilot program, as the basis for a
14 mandatory Department standard.

15 (3) Tailoring cybersecurity requirements for
16 small- and medium-sized contractors based on a
17 risk-based approach.

18 (4) Ensuring a consistent approach across the
19 Department to cybersecurity standards, regulations,
20 metrics, ratings, third-party certifications, or re-
21 quirements of the defense industrial base.

22 (5) Ensuring the Department's traceability and
23 visibility of cybersecurity compliance of suppliers to
24 all levels of the supply chain.

1 (6) Evaluating incentives and penalties for cy-
2 bersecurity performance of suppliers.

3 (7) Integrating cybersecurity and traditional
4 counterintelligence measures, requirements, and pro-
5 grams.

6 (8) Establishing a secure software development
7 environment (DevSecOps) in a cloud environment in-
8 side the perimeter of the Department for contractors
9 to perform their development work.

10 (9) Establishing a secure cloud environment
11 through which contractors may access the data of
12 the Department needed for their contract work.

13 (10) An evaluation of the resources and utiliza-
14 tion of Department programs to assist the defense
15 industrial base in complying with cybersecurity com-
16 pliance requirements referred to in subsection (b)(1).

17 (11) Technological means, operational concepts,
18 reference architectures, offensive counterintelligence
19 operation concepts, and plans for operationalization
20 to complicate adversary espionage, including
21 honeypotting and data obfuscation.

22 (12) Implementing enhanced security vulner-
23 ability assessments for contractors working on crit-
24 ical acquisition programs, technologies, manufac-
25 turing capabilities, and research areas.

1 (13) Identifying ways to better leverage tech-
2 nology and employ machine learning or artificial in-
3 telligence capabilities, such as Internet Protocol
4 monitoring and data integrity capabilities, to be ap-
5 plied to contractor information systems that host,
6 receive, or transmit controlled unclassified informa-
7 tion.

8 (14) Developing tools to easily segregate pro-
9 gram data to only allow subcontractors access to
10 their specific information.

11 (15) Appropriate communications of threat as-
12 sessments of the defense industrial base to the ac-
13 quisition workforce at all classification levels.

14 (16) A single Sector Coordinating Council for
15 the defense industrial base.

16 (17) Appropriate communications with the de-
17 fense industrial base on the impact of cybersecurity
18 requirements in contracting and procurement deci-
19 sions.

20 (d) CONSULTATION.—In developing the framework
21 required pursuant to subsection (a), the Secretary shall
22 consult with the following:

23 (1) Industry groups representing the defense in-
24 dustrial base.

25 (2) Contractors in the defense industrial base.

1 (3) The Director of the National Institute of
2 Standards and Technology.

3 (4) The Secretary of Energy.

4 (5) The Director of National Intelligence.

5 (6) Relevant Federal regulatory agencies.

6 (e) BRIEFING.—

7 (1) IN GENERAL.—Not later than March 11,
8 2020, the Secretary of Defense shall provide the
9 congressional defense committees with a briefing on
10 the framework developed pursuant to subsection (a).

11 (2) CONTENTS.—The briefing required by para-
12 graph (1) shall include the following:

13 (A) An overview of the framework devel-
14 oped pursuant to subsection (a).

15 (B) Identification of such pilot programs
16 as the Secretary considers may be required to
17 improve the cybersecurity of the defense indus-
18 trial base.

19 (C) Implementation timelines and identi-
20 fication of costs.

21 (D) Such recommendations as the Sec-
22 retary may have for legislative action to im-
23 prove the cybersecurity of the defense industrial
24 base.

25 (f) QUARTERLY BRIEFINGS.—

1 (1) IN GENERAL.—Not less frequently than
2 once each quarter after the briefing provided pursu-
3 ant to subsection (e) until February 1, 2022, the
4 Secretary of Defense shall brief the congressional
5 defense committees on the status of development
6 and implementation of the framework developed pur-
7 suant to subsection (a).

8 (2) COORDINATION WITH OTHER BRIEFINGS.—
9 Each briefing under paragraph (1) shall be con-
10 ducted in conjunction with a quarterly briefing
11 under section 484(a) of title 10, United States Code.

12 (3) ELEMENTS.—Each briefing under para-
13 graph (1) shall include the following:

14 (A) The current status of the development
15 and implementation of the framework developed
16 pursuant to subsection (a).

17 (B) A description of the efforts undertaken
18 by the Secretary to evaluate the matters for
19 consideration set forth in subsection (c).

20 (C) The current status of any pilot pro-
21 grams the Secretary is carrying out to develop
22 the framework.

1 **SEC. 1649. REPORT ON CYBERSECURITY TRAINING PRO-**
2 **GRAMS.**

3 Not later than 240 days after the date of the enact-
4 ment of this Act, the Secretary of Defense shall submit
5 to the Committee on Armed Services of the House of Rep-
6 resentatives and the Committee on Armed Services of the
7 Senate a report that accounts for all of the efforts, pro-
8 grams, initiatives, and investments of the Department of
9 Defense to train elementary, secondary, and postsec-
10 ondary students in fields related to cybersecurity, cyber
11 defense, and cyber operations. The report shall—

12 (1) include information on the metrics used to
13 evaluate such efforts, programs, initiatives, and in-
14 vestments, and identify overlaps or redundancies
15 across the such efforts, programs, initiatives, and in-
16 vestments; and

17 (2) address how the Department leverages such
18 efforts, programs, initiatives, and investments in the
19 recruitment and retention of both the civilian and
20 military cyber workforces.

21 **SEC. 1650. NATIONAL SECURITY PRESIDENTIAL MEMORAN-**
22 **DUMS RELATING TO DEPARTMENT OF DE-**
23 **FENSE OPERATIONS IN CYBERSPACE.**

24 Not later than 30 days after the date of the enact-
25 ment of this Act, upon request of the congressional de-
26 fense committees, the President shall allow for such com-

1 mittees to read a copy of all National Security Presidential
2 Memorandums relating to Department of Defense oper-
3 ations in cyberspace at an appropriately cleared facility
4 of the requesting committee's choosing. At the conclusion
5 of such reading, such documents shall be collected and re-
6 turned to the President.

7 **SEC. 1651. REORIENTATION OF BIG DATA PLATFORM PRO-**
8 **GRAM.**

9 (a) REORIENTATION OF PROGRAM.—

10 (1) IN GENERAL.—Not later than January 1,
11 2021, the Secretary of Defense shall—

12 (A) reorient the Big Data Platform pro-
13 gram as specified in this section; and

14 (B) align the reorientation effort under an
15 existing line of effort of the Cyber Strategy of
16 the Department of Defense.

17 (2) OVERSIGHT OF IMPLEMENTATION.—The
18 Secretary shall act through the Principal Cyber Ad-
19 visor and the supporting Cross Functional Team in
20 the oversight of the implementation of paragraph
21 (1).

22 (b) COMMON BASELINE AND SECURITY CLASSIFICA-
23 TION SCHEME.—

24 (1) IN GENERAL.—Not later than January 1,
25 2021, the Secretary shall establish a common base-

1 line and security classification scheme for the collec-
2 tion, storage, processing, querying, analysis, and ac-
3 cessibility of a common and comprehensive set of
4 metadata from sensors, applications, appliances,
5 products, and systems deployed across the Depart-
6 ment of Defense Information Network (DODIN) to
7 enable the discovery, tracking, and remediation of
8 cybersecurity threats.

9 (2) REQUIREMENTS.—In carrying out para-
10 graph (1), the Secretary shall—

11 (A) take such actions as the Secretary con-
12 siders necessary to standardize deployed infra-
13 structure, including the Department of De-
14 fense’s perimeter capabilities at the Internet
15 Access Points, the Joint Regional Security
16 Stacks, or other approved solutions, and the
17 routing of data laterally and vertically from De-
18 partment of Defense Information Network seg-
19 ments and tiers, to enable standard and com-
20 prehensive metadata collection;

21 (B) take such actions as the Secretary con-
22 siders necessary to standardize deployed cyber-
23 security applications, products, and sensors and
24 the routing of data laterally and vertically from
25 Department of Defense Information Network

1 segments and tiers, to enable standard and
2 comprehensive metadata collection;

3 (C) develop an enterprise-wide architecture
4 and strategy for—

5 (i) where to place sensors or extract
6 data from network information technology,
7 operational technology, and cybersecurity
8 appliances, applications, products, and sys-
9 tems for cybersecurity purposes;

10 (ii) which metadata data records
11 should be universally sent to Big Data
12 Platform instances and which metadata
13 data records, if any, should be locally re-
14 tained; and

15 (iii) expeditiously and efficiently
16 transmitting metadata records to the Big
17 Data Platform instances, including the ac-
18 quisition and installation of further data
19 bandwidth;

20 (D) determine the appropriate number, or-
21 ganization, and functions of separate Big Data
22 Platform instances, and whether the Big Data
23 Platform instances that are currently managed
24 by Department of Defense components, includ-

1 ing the military services, should instead be
2 jointly and regionally organized, or terminated;

3 (E) determine the appropriate roles of the
4 Defense Information Systems Agency's Acrop-
5 olis, United States Cyber Command's Scarif,
6 and any similar Big Data Platforms as enter-
7 prise-wide real-time cybersecurity situational
8 awareness capabilities or as complements or re-
9 placements for component level Big Data Plat-
10 form instances;

11 (F) ensure that all Big Data Platform in-
12 stances are engineered and approved to enable
13 standard access and expeditious query capabili-
14 ties by the Unified Platform, the network de-
15 fense service providers, and the Cyber Mission
16 Forces, with centrally managed authentication
17 and authorization services;

18 (G) prohibit and remove barriers to infor-
19 mation sharing, distributed query, data anal-
20 ysis, and collaboration across Big Data Plat-
21 form instances, such as incompatible interfaces,
22 interconnection service agreements, and the im-
23 position of accreditation boundaries;

24 (H) transition all Big Data Platform in-
25 stances to a cloud computing environment in

1 alignment with the cloud strategy of the Chief
2 Information Officer of the Department of De-
3 fense;

4 (I) consider whether packet capture data-
5 bases should continue to be maintained sepa-
6 rately from the Big Data Platform instances,
7 managed at the secret level of classification,
8 and treated as malware-infected when the pack-
9 et data are copies of packets extant in the De-
10 partment of Defense Information Network;

11 (J) in the case that the Secretary decides
12 to sustain the status quo on packet capture
13 databases, ensure that analysts operating on or
14 from the Unified Platform, the Big Data Plat-
15 form instances, the network defense services
16 providers, and the Cyber Mission Forces can di-
17 rectly access packets and query the database;
18 and

19 (K) consider whether the Joint Artificial
20 Intelligence Center's cybersecurity artificial in-
21 telligence national mission initiative, and any
22 other similar initiatives, should include an ap-
23 plication for the metadata residing in the Big
24 Data Platform instances.

1 (c) LIMIT ON DATA AND DATA INDEXING SCHEMA.—

2 The Secretary shall ensure that the Unified Platform and
3 the Big Data Platform programs achieve data and data
4 indexing schema standardization and integration to ensure
5 interoperability, access, and sharing by and between Big
6 Data Platform and other data sources and stores.

7 (d) ANALYTICS AND APPLICATION SOURCING AND
8 COLLABORATION.—The Secretary shall ensure that the
9 services, U.S. Cyber Command, and Defense Information
10 Systems Agency—

11 (1) seek advanced analytics and applications
12 from Government and commercial sources that can
13 be executed on the deployed Big Data Platform ar-
14 chitecture; and

15 (2) collaborate with vendors offering commer-
16 cial analytics and applications, including support to
17 refactoring commercial capabilities to the Govern-
18 ment platform where industry can still own the intel-
19 lectual property embedded in the analytics and ap-
20 plications.

21 (e) BRIEFING REQUIRED.—Not later than 180 days
22 after the date of the enactment of this Act and not less
23 frequently than once every 180 days thereafter until the
24 activities required by subsection (a)(1) are completed, the
25 Secretary shall brief the congressional defense committees

1 on the activities of the Secretary in carrying out sub-
2 section (b).

3 **SEC. 1652. ZERO-BASED REVIEW OF DEPARTMENT OF DE-**
4 **FENSE CYBER AND INFORMATION TECH-**
5 **NOLOGY PERSONNEL.**

6 (a) REVIEW REQUIRED.—Not later than January 1,
7 2021, each head of a covered department, component, or
8 agency shall—

9 (1) complete a zero-based review of the cyber
10 and information technology personnel of the head's
11 covered department, component, or agency; and

12 (2) provide the Principal Cyber Advisor, the
13 Chief Information Officer of the Department of De-
14 fense, and the Under Secretary of Defense for Per-
15 sonnel and Readiness the findings of the head with
16 respect to the head's covered department, compo-
17 nent, or agency.

18 (b) COVERED DEPARTMENTS, COMPONENTS, AND
19 AGENCIES.—For purposes of this section, a covered de-
20 partment, component, or agency is—

21 (1) an independent Department of Defense
22 component or agency;

23 (2) the Office of the Secretary of Defense;

24 (3) a component of the Joint Staff;

25 (4) a military department or an armed force; or

1 (5) a reserve component of the Armed Forces.

2 (c) SCOPE OF REVIEW.—As part of a review con-
3 ducted pursuant to subsection (a)(1), the head of a cov-
4 ered department, component, or agency shall, with respect
5 to the covered department, component, or agency of the
6 head—

7 (1) assess military, civilian, and contractor posi-
8 tions and personnel performing cyber and informa-
9 tion technology missions;

10 (2) determine the roles and functions assigned
11 by reviewing existing position descriptions and con-
12 ducting interviews to quantify the current workload
13 performed by military, civilian, and contractor work-
14 force;

15 (3) compare the Department's manning with
16 the manning of comparable industry organizations;

17 (4) include evaluation of the utility of cyber-
18 and information technology-focused missions, posi-
19 tions, and personnel within such components—

20 (A) to assess the effectiveness and effi-
21 ciency of current activities;

22 (B) to assess the necessity of increasing,
23 reducing, or eliminating resources; and

24 (C) to guide prioritization of investment
25 and funding;

1 (5) develop recommendations and objectives for
2 organizational, manning, and equipping change, tak-
3 ing into account anticipated developments in infor-
4 mation technologies, workload projections, automa-
5 tion and process enhancements, and Department re-
6 quirements;

7 (6) develop a gap analysis, contrasting the cur-
8 rent organization and the objectives developed pur-
9 suant to paragraph (5); and

10 (7) develop roadmaps of prioritized activities
11 and a timeline for implementing the activities to
12 close the gaps identified pursuant to paragraph (6).

13 (d) ELEMENTS.—In carrying out a review pursuant
14 to subsection (a)(1), the head of a covered department,
15 component, or agency shall consider the following:

16 (1) Whether position descriptions and coding
17 designators for given cybersecurity and information
18 technology roles are accurate indicators of the work
19 being performed.

20 (2) Whether the function of any cybersecurity
21 or information technology position or personnel can
22 be replaced by acquisition of cybersecurity or infor-
23 mation technology products or automation.

24 (3) Whether a given component or subcompo-
25 nent is over- or under-resourced in terms of per-

1 sonnel, using industry standards as a benchmark
2 where applicable.

3 (4) Whether cybersecurity service provider posi-
4 tions and personnel fit coherently into the enter-
5 prise-wide cybersecurity architecture and with the
6 Department's cyber protection teams.

7 (5) Whether the function of any cybersecurity
8 or information technology position or personnel
9 could be conducted more efficiently or effectively by
10 enterprise-level cyber or information technology per-
11 sonnel.

12 (e) FURNISHING DATA AND ANALYSIS.—

13 (1) DATA AND ANALYSIS.—In carrying out sub-
14 section (a)(2), each head of a covered department,
15 component, or agency, shall furnish to the Principal
16 Cyber Advisor, the Chief Information Officer, and
17 the Under Secretary a description of the analysis
18 that led to the findings submitted under such sub-
19 section and the data used in such analysis.

20 (2) CERTIFICATION.—The Principal Cyber Ad-
21 visor, the Chief Information Officer, and the Under
22 Secretary of Defense shall jointly review each sub-
23 mittal under subsection (a)(2) and certify whether
24 the findings and analysis are in compliance with the
25 requirements of this section.

1 (f) RECOMMENDATIONS.—After receiving findings
2 submitted by a head of a covered department, component,
3 or agency pursuant to paragraph (2) of subsection (a)
4 with respect to a review conducted by the head pursuant
5 to paragraph (1) of such subsection, the Principal Cyber
6 Advisor, the Chief Information Officer, and the Under
7 Secretary shall jointly provide to such head such rec-
8 ommendations as the Principal Cyber Advisor, the Chief
9 Information Officer, and the Under Secretary may have
10 for changes in manning or acquisition that proceed from
11 such review.

12 (g) IMPLEMENTATION.—The Principal Cyber Advi-
13 sor, the Chief Information Officer, and the Under Sec-
14 retary shall jointly oversee and assist in the implementa-
15 tion of the roadmaps developed pursuant to subsection
16 (c)(7) and the recommendations developed pursuant to
17 subsection (f).

18 (h) IN-PROGRESS REVIEWS.—Not later than six
19 months after the date of the enactment of this Act and
20 not less frequently than once every six months thereafter
21 until the Principal Cyber Advisor, the Chief Information
22 Officer, and the Under Secretary give the briefing re-
23 quired by subsection (i), the Principal Cyber Advisor, the
24 Chief Information Officer, and the Under Secretary shall
25 jointly—

1 (1) conduct in-progress reviews of the status of
2 the reviews required by subsection (a)(1); and

3 (2) provide the congressional defense commit-
4 tees with a briefing on such in-progress reviews.

5 (i) FINAL BRIEFING.—After all of the reviews have
6 been completed under paragraph (1) of subsection (a),
7 after receiving all of the findings pursuant to paragraph
8 (2) of such subsection, and not later than June 1, 2021,
9 the Principal Cyber Advisor, the Chief Information Offi-
10 cer, and the Under Secretary shall jointly provide to the
11 congressional defense committees a briefing on the find-
12 ings of the Principal Cyber Advisor, the Chief Information
13 Officer, and the Under Secretary with respect to such re-
14 views, including such recommendations as the Principal
15 Cyber Advisor, the Chief Information Officer, and the
16 Under Secretary may have for changes to the budget of
17 the Department as a result of such reviews.

18 (j) DEFINITION OF ZERO-BASED REVIEW.—In this
19 section, the term “zero-based review” means a review in
20 which an assessment is conducted with each item, position,
21 or person costed anew, rather than in relation to its size
22 or status in any previous budget.

1 **SEC. 1653. STUDY ON IMPROVING CYBER CAREER PATHS IN**
2 **THE NAVY.**

3 (a) STUDY REQUIRED.—Not later than October 1,
4 2020, the Secretary of the Navy and the Chief of Naval
5 Operations shall jointly—

6 (1) complete a study on methods to improve
7 military and civilian cyber career paths within the
8 Navy; and

9 (2) submit to the congressional defense commit-
10 tees a report on the findings of the Secretary and
11 Chief with respect to the study completed pursuant
12 to paragraph (1), including all of the data used in
13 such study.

14 (b) ELEMENTS.—The report submitted pursuant to
15 subsection (a)(2) shall include the following:

16 (1) A plan for implementing career paths for ci-
17 vilian and military personnel tailored to develop ex-
18 pertise in cyber skill sets, including skill sets appro-
19 priate for offensive and defensive military cyber op-
20 erations. Such plan should also evaluate the current
21 Cyber Warfare Engineer career field for officers, in-
22 cluding options for expanding the career field beyond
23 current plans.

24 (2) Suggested changes to the processes that
25 govern the identification of talent and career pro-
26 gression of the civilian and military workforce.

1 (3) A methodology for a cyber workforce assign-
2 ment policy that deliberately builds depth and
3 breadth of knowledge regarding the conduct of cyber
4 operations throughout an entire career.

5 (4) Possible enhancements to identifying, re-
6 cruiting, training, and retaining the civilian and
7 military cyber workforce, especially for Interactive
8 On-Net operators and tool developers.

9 (5) Recommendations for legislative and admin-
10 istrative actions to address the findings and rec-
11 ommendations of the Secretary and the Chief with
12 respect to the study completed pursuant to sub-
13 section (a)(1).

14 (c) CONSULTATION.—In conducting the study re-
15 quired by subsection (a)(1), the Secretary and the Chief
16 shall consult with the following:

17 (1) The Principal Cyber Advisor of the Depart-
18 ment of Defense.

19 (2) The Secretary of the Air Force.

20 (3) The Commander of the United States Cyber
21 Command.

22 (4) The Air Force Chief of Staff.

23 (5) The Secretary of the Army.

24 (6) The Army Chief of Staff.

25 (7) The Commandant of the Marine Corps.

1 (8) The Under Secretary of Defense for Per-
2 sonnel and Readiness.

3 (9) The Chief Information Officer of the De-
4 partment of Defense.

5 **SEC. 1654. ACCREDITATION STANDARDS AND PROCESSES**
6 **FOR CYBERSECURITY AND INFORMATION**
7 **TECHNOLOGY PRODUCTS AND SERVICES.**

8 (a) ASSESSMENT.—Consistent with the responsibil-
9 ities and duties outlined in section 142 of title 10, United
10 States Code, the Chief Information Officer of the Depart-
11 ment of Defense shall conduct an enterprise assessment
12 of accreditation standards and processes for cybersecurity
13 and information technology products and services.

14 (b) REPORT.—

15 (1) IN GENERAL.—Not later than April 1,
16 2020, the Chief Information Officer shall submit to
17 the congressional defense committees a report on the
18 assessment conducted under subsection (a).

19 (2) CONTENTS.—The report submitted under
20 paragraph (1) shall include the following:

21 (A) The findings of the Chief Information
22 Officer with respect to the assessment con-
23 ducted under subsection (a).

24 (B) A description of the modifications pro-
25 posed or implemented to accreditation stand-

1 ards and processes arising out of the assess-
2 ment.

3 (C) A description of how the Department
4 will increasingly automate accreditation proc-
5 esses, pursue agile development, incorporate
6 machine learning, and foster reciprocity across
7 authorizing officials.

8 **SEC. 1655. STUDY ON FUTURE CYBER WARFIGHTING CAPA-**
9 **BILITIES OF DEPARTMENT OF DEFENSE.**

10 (a) **STUDY REQUIRED.**—Not later than 30 days after
11 the date of the enactment of this Act, the Secretary of
12 Defense shall direct the Defense Science Board to carry
13 out a study on the future cyber warfighting capabilities
14 of the Department of Defense.

15 (b) **PARTICIPATION.**—Participants in the study shall
16 include the following:

17 (1) Such members of the Board, including
18 members of the Task Force on Cyber Deterrence of
19 the Board, as the Chairman of the Board considers
20 appropriate for the study.

21 (2) Such additional temporary members or con-
22 tracted support as the Secretary—

23 (A) selects from those recommended by the
24 Chairman for purposes of the study; and

1 (B) considers to have significant technical,
2 policy, or military expertise.

3 (c) ELEMENTS.—The study conducted pursuant to
4 subsection (a) shall include the following:

5 (1) A technical evaluation of the Joint Cyber
6 Warfighting Architecture of the Department, espe-
7 cially the Unified Platform, Joint Cyber Command
8 and Control, and Persistent Cyber Training Envi-
9 ronment, including with respect to the following:

10 (A) The suitability of the requirements
11 and, as relevant, the delivered capability of such
12 architecture to modern cyber warfighting.

13 (B) Such requirements or capabilities as
14 may be absent or underemphasized in such ar-
15 chitecture.

16 (C) The speed of development and acquisi-
17 tion as compared to mission need.

18 (D) Identification of potential duplication
19 of efforts among the programs and concepts
20 evaluated.

21 (E) The coherence of such architecture
22 with the National Mission Teams and Combat
23 Mission Teams of the Cyber Mission Force, as
24 constituted and organized on the day before the
25 date of the enactment of this Act.

1 (F) The coherence of such architecture
2 with the Cyber Protection Teams of the Cyber
3 Mission Force and the cybersecurity service
4 providers of the Department, as constituted and
5 organized on the day before the date of the en-
6 actment of this Act.

7 (G) The coherence of such architecture
8 with the concepts of persistent engagement and
9 defending forward as incorporated in the 2018
10 Department of Defense Cyber Strategy, includ-
11 ing with respect to operational concepts such as
12 consistent spy-on-spy engagement, securing ad-
13 versary operating pictures, and preemptively
14 feeding indicators and warning to defensive op-
15 erators.

16 (2) A technical evaluation of the tool develop-
17 ment and acquisition programs of the Department,
18 including with respect to the following:

19 (A) The suitability of planned tool suite
20 and cyber armory constructs of the United
21 States Cyber Command to modern cyber
22 warfighting.

23 (B) The speed of development and acquisi-
24 tion as compared to mission need.

1 (C) The resourcing and effectiveness of the
2 internal tool development of the United States
3 Cyber Command as compared to the tool devel-
4 opment of the National Security Agency.

5 (D) The resourcing and effectiveness of the
6 internal tool development of the United States
7 Cyber Command as compared to its acquisition.

8 (E) The coherence of such programs with
9 the concepts of persistent engagement and de-
10 fending forward as incorporated in the 2018
11 Department of Defense Cyber Strategy, includ-
12 ing with respect to operational concepts such as
13 consistent spy-on-spy engagement, securing ad-
14 versary operating pictures, and preemptively
15 feeding indicators and warning to defensive op-
16 erators.

17 (3) An evaluation of the operational planning
18 and targeting of the United States Cyber Command,
19 including support for regional combatant commands,
20 and suitability for modern cyber warfighting.

21 (4) Development of such recommendations as
22 the Board may have for legislative or administrative
23 action relating to the future cyber warfighting capa-
24 bilities of the Department.

1 (d) ACCESS TO INFORMATION.—The Secretary shall
2 provide the Board with timely access to appropriate infor-
3 mation, data, resources, and analysis so that the Board
4 may conduct a thorough and independent analysis as re-
5 quired under this section.

6 (e) REPORT.—

7 (1) TRANSMITTAL TO SECRETARY.—Not later
8 than November 1, 2021, the Board shall transmit to
9 the Secretary a final report on the study conducted
10 pursuant to subsection (a).

11 (2) TRANSMITTAL TO CONGRESS.—Not later
12 than 30 days after the date on which the Secretary
13 receives the final report under paragraph (1), the
14 Secretary shall submit to the congressional defense
15 committees such report and such comments as the
16 Secretary considers appropriate.

17 **SEC. 1656. STUDY TO DETERMINE THE OPTIMAL STRATEGY**
18 **FOR STRUCTURING AND MANNING ELE-**
19 **MENTS OF THE JOINT FORCE HEAD-**
20 **QUARTERS-CYBER ORGANIZATIONS, JOINT**
21 **MISSION OPERATIONS CENTERS, AND CYBER**
22 **OPERATIONS-INTEGRATED PLANNING ELE-**
23 **MENTS.**

24 (a) STUDY.—

1 (1) IN GENERAL.—The Principal Cyber Advisor
2 of the Department of Defense shall conduct a study
3 to determine the optimal strategy for structuring
4 and manning elements of the following:

5 (A) Joint Force Headquarters—Cyber orga-
6 nizations.

7 (B) Joint Mission Operations Centers.

8 (C) Cyber Operations—Integrated Planning
9 Elements.

10 (D) Joint Cyber Centers.

11 (2) ELEMENTS.—The study conducted under
12 subsection (a) shall include assessment of the fol-
13 lowing:

14 (A) Operational effects on the military
15 services if the entities listed in subparagraphs
16 (A) through (C) of paragraph (1) are restruc-
17 tured from organizations that are service com-
18 ponent organizations to joint organizations.

19 (B) Organizational effects on the military
20 services if the billets associated with the entities
21 listed in subparagraphs (A) through (C) of
22 paragraph (1) are transferred to United States
23 Cyber Command and designated as joint billets
24 for joint qualification purposes.

1 (C) Operational and organizational effects
2 on the military services, United States Cyber
3 Command, other combatant commands, and the
4 Joint Staff if the entities listed in subpara-
5 graphs (A) through (D) of paragraph (1) are
6 realigned, restructured, or consolidated.

7 (b) REPORT.—

8 (1) IN GENERAL.—Not later than 180 days
9 after the date of the enactment of this Act, the Prin-
10 cipal Cyber Advisor shall submit to the Committee
11 on Armed Services of the Senate and the Committee
12 on Armed Services of the House of Representatives
13 a report on the study conducted under subsection
14 (a).

15 (2) CONTENTS.—The report submitted under
16 paragraph (1) shall contain the following:

17 (A) The findings of the Principal Cyber
18 Advisor with respect to the study conducted
19 under subsection (a).

20 (B) Details of the operational and organi-
21 zational effects assessed under subsection
22 (a)(2).

23 (C) A plan to carry out the transfer de-
24 scribed in subsection (a)(2)(B) and the associ-
25 ated costs, as appropriate.

1 (D) A plan to realign, restructure, or con-
2 solidate the entities listed in subparagraphs (A)
3 through (D) of subsection (a)(1).

4 (E) Such other matters as the Principal
5 Cyber Advisor considers appropriate.

6 **SEC. 1657. CYBER GOVERNANCE STRUCTURES AND PRIN-**
7 **CIPAL CYBER ADVISORS ON MILITARY CYBER**
8 **FORCE MATTERS.**

9 (a) DESIGNATION.—

10 (1) IN GENERAL.—Not later than 270 days
11 after the date of the enactment of this Act, each of
12 the secretaries of the military departments, in con-
13 sultation with the service chiefs, shall appoint an
14 independent Principal Cyber Advisor for each service
15 to act as the principal advisor to the relevant sec-
16 retary on all cyber matters affecting that military
17 service.

18 (2) NATURE OF POSITION.—Each Principal
19 Cyber Advisor position under paragraph (1) shall—

20 (A) be a senior civilian leadership position,
21 filled by a senior member of the Senior Execu-
22 tive Service, not lower than the equivalent of a
23 3-star general officer, or by exception a com-
24 parable military officer with extensive cyber ex-
25 perience;

1 (B) exclusively occupy the Principal Cyber
2 Advisor position and not assume any other posi-
3 tion or responsibility in the relevant military de-
4 partment;

5 (C) be independent of the relevant service's
6 chief information officer; and

7 (D) report directly to and advise the sec-
8 retary of the relevant military department and
9 advise the relevant service's senior uniformed
10 officer.

11 (3) NOTIFICATION.—Each of the secretaries of
12 the military departments shall notify the Committees
13 on Armed Services of the Senate and House of Rep-
14 resentatives of his or her Principal Cyber Advisor
15 appointment. In the case that the appointee is a
16 military officer, the notification shall include a jus-
17 tification for the selection and an explanation of the
18 appointee's ability to execute the responsibilities of
19 the Principal Cyber Advisor.

20 (b) RESPONSIBILITIES OF PRINCIPAL CYBER ADVI-
21 SORS.—Each Principal Cyber Advisor under subsection
22 (a) shall be responsible for advising both the secretary of
23 the relevant military department and the senior uniformed
24 military officer of the relevant military service and imple-
25 menting the Department of Defense Cyber Strategy within

1 the service by coordinating and overseeing the execution
2 of the service's policies and programs relevant to the fol-
3 lowing:

4 (1) The recruitment, resourcing, and training of
5 military cyberspace operations forces, assessment of
6 these forces against standardized readiness metrics,
7 and maintenance of these forces at standardized
8 readiness levels.

9 (2) Acquisition of offensive, defensive, and De-
10 partment of Defense Information Networks cyber ca-
11 pabilities for military cyberspace operations.

12 (3) Cybersecurity management and operations.

13 (4) Acquisition of cybersecurity tools and capa-
14 bilities, including those used by cybersecurity service
15 providers.

16 (5) Evaluating, improving, and enforcing a cul-
17 ture of cybersecurity warfighting and accountability
18 for cybersecurity and cyberspace operations.

19 (6) Cybersecurity and related supply chain risk
20 management of the industrial base.

21 (7) Cybersecurity of Department of Defense in-
22 formation systems, information technology services,
23 and weapon systems, including the incorporation of
24 cybersecurity threat information as part of secure

1 development processes, cybersecurity testing, and the
2 mitigation of cybersecurity risks.

3 (c) COORDINATION.—To ensure service compliance
4 with the Department of Defense Cyber Strategy, each
5 Principal Cyber Advisor under subsection (a) shall work
6 in close coordination with the following:

7 (1) Service chief information officers.

8 (2) Service cyber component commanders.

9 (3) Principal Cyber Advisor to the Secretary of
10 Defense.

11 (4) Department of Defense Chief Information
12 Officer.

13 (5) Defense Digital Service.

14 (d) BUDGET CERTIFICATION AUTHORITY.—

15 (1) IN GENERAL.—Each of the secretaries of
16 the military departments shall require service com-
17 ponents with responsibilities associated with cyber-
18 space operations forces, offensive or defensive cyber-
19 space operations and capabilities, and cyberspace
20 issues relevant to the duties specified in subsection
21 (b) to transmit the proposed budget for such respon-
22 sibilities for a fiscal year and for the period covered
23 by the future-years defense program submitted to
24 Congress under section 221 of title 10, United
25 States Code, for that fiscal year to the relevant serv-

1 ice's Principal Cyber Advisor for review under sub-
2 paragraph (B) before submitting the proposed budg-
3 et to the department's comptroller.

4 (2) REVIEW.—Each Principal Cyber Advisor
5 under subsection (a)(1) shall review each proposed
6 budget transmitted under paragraph (1) and submit
7 to the secretary of the relevant military department
8 a report containing the comments of the Principal
9 Cyber Advisor with respect to all such proposed
10 budgets, together with the certification of the Prin-
11 cipal Cyber Advisor regarding whether each pro-
12 posed budget is adequate.

13 (3) REPORT.—Not later than March 31 of each
14 year, each of the secretaries of the military depart-
15 ments shall submit to the congressional defense com-
16 mittees a report specifying each proposed budget for
17 the subsequent fiscal year contained in the most-re-
18 cent report submitted under paragraph (2) that the
19 Principal Cyber Advisor did not certify to be ade-
20 quate. The report of the secretary shall include a
21 discussion of the actions that the secretary took or
22 proposes to take, together with any additional com-
23 ments that the Secretary considers appropriate re-
24 garding the adequacy or inadequacy of the proposed
25 budgets.

1 (e) PRINCIPAL CYBER ADVISORS' BRIEFING TO CON-
2 GRESS.—Not later than February 1, 2021, and biannually
3 thereafter, each Principal Cyber Advisor under subsection
4 (a) shall brief the Committees on Armed Services of the
5 Senate and House of Representatives on that Advisor's ac-
6 tivities and ability to perform the functions specified in
7 subsection (b).

8 (f) REVIEW OF CURRENT RESPONSIBILITIES.—

9 (1) IN GENERAL.—Not later than January 1,
10 2021, each of the secretaries of the military depart-
11 ments shall review the relevant military depart-
12 ment's current governance model for cybersecurity
13 with respect to current authorities and responsibil-
14 ities.

15 (2) ELEMENTS.—Each review under paragraph
16 (1) shall include the following:

17 (A) An assessment of whether additional
18 changes beyond the appointment of a Principal
19 Cyber Advisor pursuant to subsection (a) are
20 required.

21 (B) Consideration of whether the current
22 governance structure and assignment of au-
23 thorities—

24 (i) enable effective governance;

1 (ii) enable effective Chief Information
2 Officer and Chief Information Security Of-
3 ficer action;

4 (iii) are adequately consolidated so
5 that the authority and responsibility for
6 cybersecurity risk management are clear
7 and at an appropriate level of seniority;

8 (iv) provide authority to a single indi-
9 vidual to certify compliance of Department
10 of Defense information systems and infor-
11 mation technology services with all current
12 cybersecurity standards; and

13 (v) support efficient coordination
14 across the military services, the Office of
15 the Secretary of Defense, the Defense In-
16 formation Systems Agency, and United
17 States Cyber Command.

18 (3) BRIEFING.—Not later than October 1,
19 2020, each of the secretaries of the military depart-
20 ments shall brief the Committees on Armed Services
21 of the Senate and House of Representatives on the
22 findings of the Secretary with respect to the review
23 conducted by the Secretary pursuant to paragraph
24 (1).

1 **SEC. 1658. DESIGNATION OF TEST NETWORKS FOR TESTING**
2 **AND ACCREDITATION OF CYBERSECURITY**
3 **PRODUCTS AND SERVICES.**

4 (a) DESIGNATION.—Not later than April 1, 2020, the
5 Secretary of Defense shall designate, for use by the De-
6 fense Information Systems Agency and such other compo-
7 nents of the Department of Defense as the Secretary con-
8 siders appropriate, three test networks for the testing and
9 accreditation of cybersecurity products and services.

10 (b) REQUIREMENTS.—The networks designated
11 under subsection (a) shall—

12 (1) be of sufficient scale to realistically test cy-
13 bersecurity products and services;

14 (2) feature substantially different architectures
15 and configurations;

16 (3) be live, operational networks; and

17 (4) feature cybersecurity processes, tools, and
18 technologies that are appropriate for test purposes
19 and representative of the processes, tools, and tech-
20 nologies that are widely used throughout the Depart-
21 ment.

22 (c) ACCESS.—Upon request, information generated in
23 the testing and accreditation of cybersecurity products and
24 services shall be made available to the Office of the Direc-
25 tor, Operational Test and Evaluation.

1 **SEC. 1659. CONSORTIA OF UNIVERSITIES TO ADVISE SEC-**
2 **RETARY OF DEFENSE ON CYBERSECURITY**
3 **MATTERS.**

4 (a) ESTABLISHMENT AND FUNCTION.—The Sec-
5 retary of Defense shall establish one or more consortia of
6 universities to assist the Secretary on cybersecurity mat-
7 ters relating to the following:

8 (1) To provide the Secretary a formal mecha-
9 nism to communicate with consortium or consortia
10 members regarding the Department of Defense’s cy-
11 bersecurity strategic plans, cybersecurity require-
12 ments, and priorities for basic and applied cyberse-
13 curity research.

14 (2) To advise the Secretary on the needs of aca-
15 demic institutions related to cybersecurity and re-
16 search conducted on behalf of the Department and
17 provide feedback to the Secretary from members of
18 the consortium or consortia.

19 (3) To serve as a focal point or focal points for
20 the Secretary and the Department for the academic
21 community on matters related to cybersecurity, cy-
22 bersecurity research, conceptual and academic devel-
23 opments in cybersecurity, and opportunities for clos-
24 er collaboration between academia and the Depart-
25 ment.

1 (4) To provide to the Secretary access to the
2 expertise of the institutions of the consortium or
3 consortia on matters relating to cybersecurity.

4 (5) To align the efforts of such members in
5 support of the Department.

6 (b) MEMBERSHIP.—The consortium or consortia es-
7 tablished under subsection (a) shall be open to all univer-
8 sities that have been designated as centers of academic
9 excellence by the Director of the National Security Agency
10 or the Secretary of Homeland Security.

11 (c) ORGANIZATION.—

12 (1) DESIGNATION OF ADMINISTRATIVE CHAIR
13 AND TERMS.—For each consortium established
14 under subsection (a), the Secretary of Defense,
15 based on recommendations from the members of the
16 consortium, shall designate one member of the con-
17 sortium to function as an administrative chair of the
18 consortium for a term with a specific duration speci-
19 fied by the Secretary.

20 (2) SUBSEQUENT TERMS.—No member of a
21 consortium designated under paragraph (1) may
22 serve as the administrative chair of that consortium
23 for two consecutive terms.

1 (3) DUTIES OF ADMINISTRATIVE CHAIR.—Each
2 administrative chair designated under paragraph (1)
3 for a consortium shall—

4 (A) act as the leader of the consortium for
5 the term specified by the Secretary under para-
6 graph (1);

7 (B) be the liaison between the consortium
8 and the Secretary;

9 (C) distribute requests from the Secretary
10 for advice and assistance to appropriate mem-
11 bers of the consortium and coordinate responses
12 back to the Secretary; and

13 (D) act as a clearinghouse for Department
14 of Defense requests relating to assistance on
15 matters relating to cybersecurity and to provide
16 feedback to the Secretary from members of the
17 consortium.

18 (4) EXECUTIVE COMMITTEE.—For each Consor-
19 tium, the Secretary, in consultation with the admin-
20 istrative chair, may form an executive committee
21 comprised of university representatives to assist the
22 chair with the management and functions of the
23 consortia. Executive committee institutions may not
24 serve consecutive terms before all other consortium

1 institutions have been afforded the opportunity to
2 hold the position.

3 (d) CONSULTATION.—The Secretary, or a senior level
4 designee, shall meet with each consortium not less fre-
5 quently than twice per year, or at a periodicity agreed to
6 between the Department and each such consortium.

7 (e) PROCEDURES.—The Secretary shall establish pro-
8 cedures for organizations within the Department to access
9 the work product produced by and the research, capabili-
10 ties, and expertise of a consortium established under sub-
11 section (a) and the universities that constitute such con-
12 sortium.

13 **SEC. 1660. JOINT ASSESSMENT OF DEPARTMENT OF DE-**
14 **FENSE CYBER RED TEAM CAPABILITIES, CA-**
15 **PACITY, DEMAND, AND REQUIREMENTS.**

16 (a) JOINT ASSESSMENT REQUIRED.—Not later than
17 180 days after the date of the enactment of this Act, the
18 Secretary of Defense shall, in coordination with the Chief
19 Information Officer of the Department of Defense, Prin-
20 cipal Cyber Advisor, and the Director of Operational Test
21 and Evaluation—

22 (1) conduct a joint assessment of Department
23 cyber red team capabilities, capacity, demand, and
24 future requirements that affect the Department's

1 ability to develop, test, and maintain secure systems
2 in a cyber environment; and

3 (2) brief the congressional defense committees
4 on the results of the joint assessment.

5 (b) ELEMENTS.—The joint assessment required by
6 subsection (a)(1) shall—

7 (1) specify demand for cyber red team support
8 for acquisition and operations;

9 (2) specify shortfalls in meeting demand and
10 future requirements, disaggregated by the Depart-
11 ment of Defense component or agency and by mili-
12 tary department;

13 (3) examine funding and retention initiatives to
14 increase cyber red team capacity to meet demand
15 and future requirements identified to support the
16 testing, training, and development communities;

17 (4) examine the feasibility and benefit of devel-
18 oping and procuring a common Red Team Inte-
19 grated Capabilities Stack that better utilizes in-
20 creased capacity of cyber ranges and better models
21 the capabilities and tactics, techniques, and proce-
22 dures of adversaries;

23 (5) examine the establishment of oversight and
24 assessment metrics for Department cyber red teams;

1 (6) assess the implementation of common devel-
2 opment efforts for tools, techniques, and training;

3 (7) assess potential industry and academic part-
4 nerships and services;

5 (8) assess the mechanisms and procedures in
6 place to deconflict red-team activities and defensive
7 cyber operations on active networks;

8 (9) assess the use of Department cyber per-
9 sonnel in training as red team support;

10 (10) assess the use of industry and academic
11 partners and contractors as red team support and
12 the cost- and resource-effectiveness of such support;
13 and

14 (11) assess the need for permanent, high-end
15 dedicated red-teaming activities to model sophisti-
16 cated adversaries' attacking critical Department sys-
17 tems and infrastructure.

18 **Subtitle D—Nuclear Forces**

19 **SEC. 1661. CONFORMING AMENDMENT TO COUNCIL ON** 20 **OVERSIGHT OF THE NATIONAL LEADERSHIP** 21 **COMMAND, CONTROL, AND COMMUNICA-** 22 **TIONS SYSTEM.**

23 Section 171a of title 10, United States Code, is
24 amended by striking “, Technology, and Logistics” each
25 place it appears and inserting “and Sustainment”.

1 **SEC. 1662. MODIFICATION OF AUTHORITIES RELATING TO**
2 **NUCLEAR COMMAND, CONTROL, AND COM-**
3 **MUNICATIONS SYSTEM.**

4 (a) DUTIES AND POWERS OF UNDER SECRETARY OF
5 DEFENSE FOR ACQUISITION AND SUSTAINMENT.—Sec-
6 tion 133b(b) of title 10, United States Code, is amended—

7 (1) by redesignating paragraphs (4), (5), (6),
8 and (7) as paragraphs (5), (6), (7), and (8), respec-
9 tively;

10 (2) by inserting after paragraph (3) the fol-
11 lowing new paragraph (4):

12 “(4) establishing policies for, and providing
13 oversight, guidance, and coordination with respect
14 to, the nuclear command, control, and communica-
15 tions system;” and

16 (3) in paragraph (6), as redesignated by para-
17 graph (1), by inserting after “overseeing the mod-
18 ernization of nuclear forces” the following: “, includ-
19 ing the nuclear command, control, and communica-
20 tions system,”.

21 (b) DUTIES AND RESPONSIBILITIES OF CHIEF IN-
22 FORMATION OFFICER.—Section 142(b)(1) of such title is
23 amended—

24 (1) by striking subparagraph (G); and

25 (2) by redesignating subparagraphs (H) and (I)
26 as subparagraphs (G) and (H), respectively.

1 **SEC. 1663. BRIEFINGS ON MEETINGS HELD BY NUCLEAR**
2 **WEAPONS COUNCIL.**

3 Section 179 of title 10, United States Code, is
4 amended by adding at the end the following new sub-
5 section:

6 “(g) SEMIANNUAL BRIEFINGS.—(1) Not later than
7 February 1 and August 1 of each year, the Council shall
8 provide to the congressional defense committees a briefing
9 on, with respect to the six-month period preceding the
10 briefing—

11 “(A) the dates on which the Council met; and

12 “(B) except as provided by paragraph (2), a
13 summary of any decisions made by the Council pur-
14 suant to subsection (d) at each such meeting and
15 the rationale for and options that informed such de-
16 cisions.

17 “(2) The Council shall not be required to include in
18 a briefing under paragraph (1) the matters described in
19 subparagraph (B) of that paragraph with respect to deci-
20 sions of the Council relating to the budget of the President
21 for a fiscal year if the budget for that fiscal year has not
22 been submitted to Congress under section 1105 of title
23 31 as of the date of the briefing.”.

24 **SEC. 1664. CONSIDERATION OF BUDGET MATTERS AT**
25 **MEETINGS OF NUCLEAR WEAPONS COUNCIL.**

26 (a) ATTENDANCE.—

1 (1) REQUIREMENT.—Except as provided by
2 subsection (b), each official described in paragraph
3 (2) shall attend the meetings of the Nuclear Weap-
4 ons Council established by section 179 of title 10,
5 United States Code, and the meetings of the Stand-
6 ing and Safety Committee of the Council, or such a
7 successor committee. Each such official shall attend
8 such meetings as advisors on matters within the au-
9 thority and expertise of the official.

10 (2) OFFICIALS DESCRIBED.—The officials de-
11 scribed in this paragraph are each of the following
12 officials (or the designees of the officials):

13 (A) The Director of Cost Assessment and
14 Program Evaluation of the Department of De-
15 fense.

16 (B) The Director of the Office of Manage-
17 ment and Budget of the National Nuclear Secu-
18 rity Administration.

19 (C) The Director for Cost Estimating and
20 Program Evaluation of the National Nuclear
21 Security Administration.

22 (D) The Director of the Office of Manage-
23 ment and Budget.

24 (b) EXCEPTION.—On a case-by-case basis, the Chair-
25 man of the Nuclear Weapons Council, without delegation,

1 may exclude the attendance of an official at a meeting pur-
2 suant to subsection (a) because of specific requirements
3 relating to classified information or other exigent cir-
4 cumstances as determined by the Chairman.

5 **SEC. 1665. IMPROVEMENT TO ANNUAL REPORT ON THE**
6 **MODERNIZATION OF THE NUCLEAR WEAP-**
7 **ONS ENTERPRISE.**

8 (a) EXTENSION.—Subsection (a) of section 1043 of
9 the National Defense Authorization Act for Fiscal Year
10 2012 (Public Law 112–81; 125 Stat. 1576), as most re-
11 cently amended by section 1670 of the John S. McCain
12 National Defense Authorization Act for Fiscal Year 2019
13 (Public Law 115–232; 132 Stat. 2157), is further amend-
14 ed in paragraph (1) by striking “2023” and inserting
15 “2024”.

16 (b) ACQUISITION COSTS.—Subsection (b)(1) of such
17 section is amended—

18 (1) in subparagraph (B), by striking “; and”
19 and inserting the following: “, including an estimate
20 of the acquisition costs during such period for pro-
21 grams relating to such life extension, modernization,
22 or replacement;”;

23 (2) in subparagraph (C), by striking the end
24 period and inserting “; and”; and

25 (3) by adding at the end the following:

1 “(D) an estimate of the relative percentage
2 of total acquisition costs of the military depart-
3 ments and of the Department of Defense dur-
4 ing such period represented by the acquisition
5 costs estimated under subparagraph (B).”.

6 (c) TRANSFER OF PROVISION.—

7 (1) CODIFICATION.—Such section 1043, as
8 amended by subsections (a) and (b), is—

9 (A) transferred to chapter 24 of title 10,
10 United States Code;

11 (B) inserted after section 492;

12 (C) redesignated as section 492a; and

13 (D) amended—

14 (i) in the enumerator, by striking
15 “**SEC.**” and inserting “**§**”; and

16 (ii) in the section heading—

17 (I) by striking the period at the
18 end; and

19 (II) by conforming the typeface
20 and typestyle, including capitalization,
21 to the typeface and typestyle as used
22 in the section heading of section 491
23 of such title.

24 (2) CLERICAL AMENDMENT.—The table of sec-
25 tions at the beginning of chapter 24 of title 10,

1 United States Code, is amended by inserting after
2 the item relating to section 492 the following new
3 item:

“492a. Annual report on the plan for the nuclear weapons stockpile, nuclear weapons complex, nuclear weapons delivery systems, and nuclear weapons command and control system.”.

4 **SEC. 1666. EXPANSION OF OFFICIALS REQUIRED TO CON-**
5 **DUCT BIENNIAL ASSESSMENTS OF DELIVERY**
6 **PLATFORMS FOR NUCLEAR WEAPONS AND**
7 **NUCLEAR COMMAND AND CONTROL SYSTEM.**

8 Section 492(d) of title 10, United States Code, is
9 amended—

10 (1) in paragraph (2), by striking “; and” and
11 inserting a semicolon;

12 (2) in paragraph (3), by striking the period at
13 the end and inserting “; and”; and

14 (3) by adding at the end the following new
15 paragraph:

16 “(4) the Commander of the United States Air
17 Forces in Europe.”.

18 **SEC. 1667. EXTENSION OF ANNUAL BRIEFING ON COSTS OF**
19 **FORWARD-DEPLOYING NUCLEAR WEAPONS**
20 **IN EUROPE.**

21 Section 1656(a) of the National Defense Authoriza-
22 tion Act for Fiscal Year 2016 (Public Law 114–92; 129
23 Stat. 1124) is amended by striking “2021” and inserting
24 “2024”.

1 **SEC. 1668. ELIMINATION OF CONVENTIONAL REQUIRE-**
2 **MENT FOR LONG-RANGE STANDOFF WEAPON.**

3 Subsection (a) of section 217 of the National Defense
4 Authorization Act for Fiscal Year 2014 (Public Law 113–
5 66; 127 Stat. 706), as amended by section 1662 of the
6 John S. McCain National Defense Authorization Act for
7 Fiscal Year 2019 (Public Law 115–232; 132 Stat. 2152),
8 is amended to read as follows:

9 “(a) LONG-RANGE STANDOFF WEAPON.—The Sec-
10 retary of the Air Force shall develop a follow-on air-
11 launched cruise missile to the AGM–86 that—

12 “(1) achieves initial operating capability for nu-
13 clear missions prior to the retirement of the nuclear-
14 armed AGM–86; and

15 “(2) is capable of internal carriage and employ-
16 ment for nuclear missions on the next-generation
17 long-range strike bomber.”.

18 **SEC. 1669. BRIEFING ON LONG-RANGE STANDOFF WEAPON**
19 **AND SEA-LAUNCHED CRUISE MISSILE.**

20 Not later than 90 days after the date of the enact-
21 ment of this Act, the Under Secretary of Defense for Ac-
22 quisition and Sustainment, in consultation with the Ad-
23 ministrator for Nuclear Security, shall provide to the Com-
24 mittees on Armed Services of the Senate and the House
25 of Representatives a briefing on potential opportunities—

1 (1) to increase commonality between the long-
2 range standoff weapon and the sea-launched cruise
3 missile; and

4 (2) to leverage, in the development of the sea-
5 launched cruise missile, technologies developed, or
6 under development as of the date of the briefing, as
7 part of the long-range standoff weapon program.

8 **SEC. 1670. EXTENSION OF PROHIBITION ON AVAILABILITY**
9 **OF FUNDS FOR MOBILE VARIANT OF**
10 **GROUND-BASED STRATEGIC DETERRENT**
11 **MISSILE.**

12 Section 1664 of the National Defense Authorization
13 Act for Fiscal Year 2017 (Public Law 114–328; 130 Stat.
14 2615), as most recently amended by section 1666 of the
15 John S. McCain National Defense Authorization Act for
16 Fiscal Year 2019 (Public Law 115–232; 132 Stat. 2155),
17 is further amended by striking “for any of fiscal years
18 2017 through 2020” and inserting “for any of fiscal years
19 2017 through 2024”.

20 **SEC. 1671. REPORTS ON DEVELOPMENT OF GROUND-BASED**
21 **STRATEGIC DETERRENT WEAPON.**

22 (a) ANNUAL REPORT REQUIRED.—Not later than
23 February 15, 2020, and annually thereafter until the date
24 on which the ground-based strategic deterrent weapon re-
25 ceives Milestone C approval (as defined in section 2366

1 of title 10, United States Code), the Secretary of the Air
2 Force, in coordination with the Administrator for Nuclear
3 Security and the Chairman of the Nuclear Weapons Coun-
4 cil established by section 179 of title 10, United States
5 Code, shall submit to the congressional defense commit-
6 tees a report describing the joint development of the
7 ground-based strategic deterrent weapon, including the
8 missile developed by the Air Force and the W87-1 war-
9 head modification program conducted by the National Nu-
10 clear Security Administration.

11 (b) ELEMENTS.—The report required by subsection
12 (a) shall include the following:

13 (1) An estimate of the date on which the
14 ground-based strategic deterrent weapon will reach
15 initial operating capability.

16 (2) A description of any development milestones
17 for the missile developed by the Air Force or the
18 warhead developed by the National Nuclear Security
19 Administration that depend on corresponding
20 progress at the other agency.

21 (3) A description of coordination efforts be-
22 tween the Air Force and the National Nuclear Secu-
23 rity Administration during the year preceding sub-
24 mission of the report.

1 (4) A description of any schedule delays pro-
2 jected by the Air Force or the National Nuclear Se-
3 curity Administration, including delays related to in-
4 frastructure capacity and subcomponent production,
5 associated costs, and the anticipated effect such
6 delays would have on the schedule of work of the
7 other agency.

8 (5) Plans to mitigate the effects of any delays
9 described in paragraph (4).

10 (c) **ADDITIONAL REPORT.**—If the Air Force receives
11 only one bid for the engineering and manufacturing devel-
12 opment phase of the ground-based strategic deterrent pro-
13 gram, the Secretary shall, not later than 60 days after
14 awarding a contract for that phase, submit to the congres-
15 sional defense committees a report assessing the risks and
16 costs resulting from receiving only one bid for that phase
17 and plans to mitigate such risks and costs.

18 (d) **FORM.**—Each report required by subsection (a)
19 or (c) shall be submitted in unclassified form, but may
20 include a classified annex.

21 **SEC. 1672. PROHIBITION ON REDUCTION OF THE INTER-**
22 **CONTINENTAL BALLISTIC MISSILES OF THE**
23 **UNITED STATES.**

24 (a) **PROHIBITION.**—Except as provided in subsection
25 (b), none of the funds authorized to be appropriated by

1 this Act for fiscal year 2020 for the Department of De-
2 fense may be obligated or expended for the following, and
3 the Department may not otherwise take any action to do
4 the following:

5 (1) Reduce, or prepare to reduce, the respon-
6 siveness or alert level of the intercontinental ballistic
7 missiles of the United States.

8 (2) Reduce, or prepare to reduce, the quantity
9 of deployed intercontinental ballistic missiles of the
10 United States to a number less than 400.

11 (b) EXCEPTION.—The prohibition in subsection (a)
12 shall not apply to any of the following activities:

13 (1) The maintenance or sustainment of inter-
14 continental ballistic missiles.

15 (2) Ensuring the safety, security, or reliability
16 of intercontinental ballistic missiles.

17 **SEC. 1673. INDEPENDENT STUDY ON POLICY OF NO-FIRST-**
18 **USE OF NUCLEAR WEAPONS.**

19 (a) STUDY.—Not later than 30 days after the date
20 of the enactment of this Act, the Secretary of Defense
21 shall seek to enter into a contract with a federally funded
22 research and development center to conduct a study on
23 the United States adopting a policy to not use nuclear
24 weapons first.

1 (b) MATTERS INCLUDED.—The study under sub-
2 section (a) shall include the following:

3 (1) An assessment of the benefits and risks of
4 adopting a policy to not use nuclear weapons first to
5 reduce the risk of miscalculation in a crisis.

6 (2) An assessment of the views of the allies of
7 the United States with respect to the United States
8 adopting such a policy, including whether, and if so
9 how, any concerns regarding such a policy could be
10 mitigated, including the value of engaging such allies
11 to offer credible extended deterrence assurances.

12 (3) An assessment of which foreign countries
13 have stated or adopted such a policy, including the
14 credibility of any such policies and how they affect
15 planning and operations.

16 (4) An assessment of how adversaries of the
17 United States might view a declaration of such a
18 policy.

19 (5) An assessment of the benefits and risks of
20 such a policy with respect to nuclear nonprolifera-
21 tion.

22 (6) An assessment of changes in force posture
23 and force requirements, if any, and costs or savings,
24 that such a policy would require or allow.

1 (7) Any other matters the Secretary determines
2 appropriate.

3 (c) SUBMISSION TO DOD.—Not later than 240 days
4 after the date of the enactment of this Act, the federally
5 funded research and development center shall submit to
6 the Secretary the study under subsection (a).

7 (d) SUBMISSION TO CONGRESS.—

8 (1) INTERIM BRIEFING.—Not later than 120
9 days after the date of the enactment of this Act, the
10 Secretary shall provide to the appropriate congress-
11 sional committees an interim briefing on the study
12 under subsection (a).

13 (2) STUDY.—Not later than 270 days after the
14 date of the enactment of this Act, the Secretary
15 shall submit to the appropriate congressional com-
16 mittees the study under subsection (a), without
17 change.

18 (e) FORM.—The study under subsection (a) shall be
19 submitted under subsections (c) and (d)(2) in unclassified
20 form, but may include a classified annex.

21 (f) APPROPRIATE CONGRESSIONAL COMMITTEES DE-
22 FINED.—In this section, the term “appropriate congress-
23 sional committees” means—

24 (1) the congressional defense committees; and

1 (2) the Committee on Foreign Affairs of the
2 House of Representatives and the Committee on
3 Foreign Relations of the Senate.

4 **SEC. 1674. INDEPENDENT STUDY ON RISKS OF NUCLEAR**
5 **TERRORISM AND NUCLEAR WAR.**

6 (a) IN GENERAL.—Not later than 30 days after the
7 date of the enactment of this Act, the Secretary of Defense
8 shall enter into an agreement with the National Academy
9 of Sciences to conduct a study on—

10 (1) whether a risk assessment framework is ap-
11 plicable to determining the potential risks of nuclear
12 terrorism and nuclear war; and

13 (2) the implications for national security of as-
14 sumptions in nuclear policy and doctrine.

15 (b) MATTERS INCLUDED.—The study under sub-
16 section (a) shall—

17 (1) identify risks described in paragraph (1) of
18 that subsection;

19 (2) assess prior literature on such risks;

20 (3) assess the role that quantitative and non-
21 quantitative analytical methods can play in assessing
22 such risks, including the limitations of such analysis;

23 (4) identify and examine the assumptions about
24 nuclear risks that underlie the national security
25 strategy of the United States; and

1 (5) describe the consequences of the methods
2 and assumptions that have been, are, or could be
3 used in developing the nuclear security strategy of
4 the United States.

5 (c) RECOMMENDATIONS.—Based on findings under
6 subsection (b), the study may provide recommendations
7 with respect to improving the use of a risk assessment
8 framework described in subsection (a)(1).

9 (d) SUBMISSION.—Not later than one year after the
10 date of the enactment of this Act, the Secretary shall sub-
11 mit to the congressional defense committees the study
12 under subsection (a), without change.

13 (e) FORM.—The study shall be submitted in unclassi-
14 fied form, but may include a classified annex.

15 **SEC. 1675. REPORT ON MILITARY-TO-MILITARY DIALOGUE**
16 **TO REDUCE RISKS OF MISCALCULATION**
17 **LEADING TO NUCLEAR WAR.**

18 Not later than 120 days after the date of the enact-
19 ment of this Act, the Secretary of Defense, in coordination
20 with the Secretary of State, shall submit to the congres-
21 sional defense committees, the Committee on Foreign Af-
22 fairs of the House of Representatives, and the Committee
23 on Foreign Relations of the Senate a report containing
24 the following:

25 (1) A description of—

1 (A) current discussions between the United
2 States Armed Forces and military counterparts
3 from governments of foreign countries to reduce
4 the risks of miscalculation, unintended con-
5 sequences, or accidents that could precipitate
6 the use of one or more nuclear weapons; and

7 (B) bilateral and multilateral agreements
8 to which the United States is a party that pro-
9 vide for or facilitate military-to-military dia-
10 logue to address such risks.

11 (2) An assessment of the extent to which, if
12 any, that military-to-military dialogue to reduce such
13 risks is consistent with or supportive of other efforts
14 conducted between the United States Government
15 and foreign governments, or between nongovern-
16 mental organizations and foreign counterparts, to
17 reduce such risks.

18 (3) An assessment conducted jointly by the Sec-
19 retary of Defense and the Chairman of the Joint
20 Chiefs of Staff, and in consultation with the Direc-
21 tor of National Intelligence—

22 (A) on the risks and benefits of estab-
23 lishing, in addition to the discussions described
24 in paragraph (1)(A), military-to-military discus-
25 sions with the Russian Federation, Iran, the

1 People's Republic of China, and North Korea to
2 address the risks described in that paragraph,
3 including with respect to policy, cost, and oper-
4 ational matters; and

5 (B) of the willingness of the governments
6 of those countries to engage in such discus-
7 sions.

8 **SEC. 1676. REPORT ON NUCLEAR FORCES OF THE UNITED**
9 **STATES AND NEAR-PEER COUNTRIES.**

10 (a) REPORT.—Not later than February 15, 2020, the
11 Secretary of Defense, in coordination with the Director of
12 National Intelligence, shall submit to the appropriate com-
13 mittees of Congress a report on the nuclear forces of the
14 United States and near-peer countries.

15 (b) ELEMENTS.—The report under subsection (a)
16 shall include the following:

17 (1) An assessment of the current and planned
18 nuclear systems of the United States, including with
19 respect to research and development timelines, de-
20 ployment timelines, and force size.

21 (2) An assessment of the current and planned
22 nuclear systems of the People's Republic of China,
23 including with respect to research and development
24 timelines, deployment timelines, and force size.

1 (3) An assessment of the current and planned
2 nuclear systems of the Russian Federation, including
3 with respect to research and development timelines,
4 deployment timelines, and force size, including—

5 (A) deployed nuclear weapons not covered
6 by the New START Treaty;

7 (B) nuclear weapons in development that
8 would not be covered by the New START Trea-
9 ty; and

10 (C) strategic nuclear weapons that are not
11 deployed.

12 (c) FORM.—The report under subsection (a) shall be
13 submitted in unclassified form, but may include a classi-
14 fied annex.

15 (d) DEFINITIONS.—In this section:

16 (1) APPROPRIATE COMMITTEES OF CON-
17 GRESS.—The term “appropriate committees of Con-
18 gress” means—

19 (A) the Committee on Armed Services and
20 the Select Committee on Intelligence of the
21 Senate; and

22 (B) the Committee on Armed Services and
23 the Permanent Select Committee on Intelligence
24 of the House of Representatives.

1 (2) NEW START TREATY.—The term “New
2 START Treaty” means the Treaty between the
3 United States of America and the Russian Federa-
4 tion on Measures for the Further Reduction and
5 Limitation of Strategic Offensive Arms, signed at
6 Prague April 8, 2010, and entered into force Feb-
7 ruary 5, 2011.

8 **SEC. 1677. REPORT ON OPERATION OF CONVENTIONAL**
9 **FORCES OF MILITARY DEPARTMENTS UNDER**
10 **EMPLOYMENT OR THREAT OF EMPLOYMENT**
11 **OF NUCLEAR WEAPONS.**

12 (a) IN GENERAL.—Not later than one year after the
13 date of the enactment of this Act, the Secretary of De-
14 fense, in coordination with the Secretary of the Air Force,
15 the Secretary of the Army, and the Secretary of the Navy,
16 shall submit to the congressional defense committees a re-
17 port detailing the views of each such Secretary on the abil-
18 ity of conventional forces under the authority of that Sec-
19 retary to operate effectively under employment or threat
20 of employment of nuclear weapons by the United States,
21 an ally of the United States, or an adversary of the United
22 States, including with respect to—

23 (1) measures taken to maximize the likelihood
24 that such forces could continue to operate;

1 (2) risks or gaps in the capabilities of such
2 forces that would result from the employment or
3 threat of employment of nuclear weapons; and

4 (3) how the capabilities and limitations of such
5 forces would impact decisions to continue or termi-
6 nate operations.

7 (b) FORM OF REPORT.—The report required by sub-
8 section (a) shall be submitted in classified form but shall
9 be accompanied by an unclassified summary appropriate
10 for release to the public.

11 **SEC. 1678. REPORT ON OPERATION OF CONVENTIONAL**
12 **FORCES OF CERTAIN COMBATANT COM-**
13 **MANDS UNDER EMPLOYMENT OR THREAT OF**
14 **EMPLOYMENT OF NUCLEAR WEAPONS.**

15 (a) IN GENERAL.—Not later than one year after the
16 date of the enactment of this Act, the Chairman of the
17 Joint Chiefs of Staff, in coordination with the Commander
18 of the United States European Command, the Commander
19 of the United States Indo-Pacific Command, and the Com-
20 mander of the United States Strategic Command, shall
21 submit to the congressional defense committees a report
22 detailing the views of the Chairman and each such Com-
23 mander on the ability of conventional forces under the au-
24 thority of that Commander to execute contingency plans
25 under employment or threat of employment of nuclear

1 weapons by the United States, an ally of the United
2 States, or an adversary of the United States, including
3 with respect to—

4 (1) measures taken to maximize the likelihood
5 that such forces could continue to operate;

6 (2) risks or gaps in the capabilities of such
7 forces that would result from the employment or
8 threat of employment of nuclear weapons; and

9 (3) how the capabilities and limitations of such
10 forces would impact decisions to continue or termi-
11 nate operations.

12 (b) FORM OF REPORT.—The report required by sub-
13 section (a) shall be submitted in classified form but shall
14 be accompanied by an unclassified summary appropriate
15 for release to the public.

16 **SEC. 1679. BRIEFINGS ON PLAN FOR FUTURE-SYSTEMS-**
17 **LEVEL ARCHITECTURE OF NUCLEAR COM-**
18 **MAND, CONTROL, AND COMMUNICATIONS**
19 **SYSTEMS.**

20 (a) IN GENERAL.—Not later than February 15,
21 2020, and every 180 days thereafter through fiscal year
22 2025, the Commander of the United States Strategic
23 Command, in coordination with the Under Secretary of
24 Defense for Acquisition and Sustainment, shall provide to
25 the congressional defense committees a briefing on the

1 plan of the Department of Defense for the future-systems-
2 level architecture of the nuclear command, control, and
3 communications systems.

4 (b) ELEMENTS.—Each briefing required by sub-
5 section (a) shall address the following:

6 (1) Near- and long-term plans and options con-
7 sidered as of the date of the briefing in determining
8 the future-systems-level architecture of the nuclear
9 command, control, and communications systems, in-
10 cluding options to maximize resilience of such sys-
11 tems.

12 (2) Requirements, including with respect to cy-
13 bersecurity, survivability, and reliability, including
14 levels of redundancy.

15 (3) The risks and benefits of replicating the leg-
16 acy architecture for such systems.

17 (4) The risks and benefits of using different ar-
18 chitectures for such systems, including using hosted
19 payloads in space payloads.

20 (5) Security considerations for such systems,
21 including classification and requirements and plans
22 to ensure supply chain security.

23 (6) Classification options and decisions with re-
24 spect to such architecture and systems to deter at-
25 tacks on such systems.

1 (7) Timelines and general cost estimates for
2 long-term investments in such systems, to the extent
3 possible at the time of the briefing.

4 (8) Risks and benefits of pursuing agreements
5 with adversaries of the United States, including po-
6 tential agreements not to target nuclear command,
7 control, and communications systems through ki-
8 netic, nonkinetic, or cyber attacks.

9 (9) Required levels of civilian and military
10 staffing within the United States Strategic Com-
11 mand, the Office of the Secretary of Defense, and
12 any other relevant component of the Department of
13 Defense to evaluate or execute such architecture,
14 and an estimate of when such levels of staffing will
15 be achieved.

16 (10) Any other matters the Secretary considers
17 appropriate.

18 **SEC. 1680. SENSE OF CONGRESS ON NUCLEAR DETER-**
19 **RENCE COMMITMENTS OF THE UNITED**
20 **STATES.**

21 It is the sense of Congress that—

22 (1) credible extended deterrence commitments
23 make key contributions to the security of the United
24 States, international stability, and the nonprolifera-
25 tion objectives of the United States;

1 (2) the nuclear forces of the United States, as
2 well as the independent nuclear forces of other mem-
3 bers of the North Atlantic Treaty Organization (in
4 this section referred to as “NATO”), continue to
5 play a critical role in the security of the NATO alli-
6 ance;

7 (3) United States forward-deployed nuclear
8 weapons and dual-capable aircraft in Europe con-
9 tribute to the assurance of allies of the United
10 States of the commitment of the United States to
11 their security and to the deterrence and defense pos-
12 ture of NATO; and

13 (4) nuclear-certified F-35A aircraft will provide
14 the most advanced nuclear fighter capability in the
15 current and future anti-access area denial environ-
16 ments.

17 **Subtitle E—Missile Defense** 18 **Programs**

19 **SEC. 1681. NATIONAL MISSILE DEFENSE POLICY.**

20 (a) POLICY.—Subsection (a) of section 1681 of the
21 National Defense Authorization Act for Fiscal Year 2017
22 (Public Law 114–328; 10 U.S.C. 2431 note) is amended
23 to read as follows:

24 “(a) POLICY.—It is the policy of the United States
25 to—

1 “(1) maintain and improve, with funding sub-
2 ject to the annual authorization of appropriations
3 and the annual appropriation of funds for National
4 Missile Defense—

5 “(A) an effective, layered missile defense
6 system capable of defending the territory of the
7 United States against the developing and in-
8 creasingly complex missile threat posed by
9 rogue states; and

10 “(B) an effective regional missile defense
11 system capable of defending the allies, partners,
12 and deployed forces of the United States
13 against increasingly complex missile threats;
14 and

15 “(2) rely on nuclear deterrence to address more
16 sophisticated and larger quantity near-peer inter-
17 continental missile threats to the homeland of the
18 United States.”.

19 (b) REDESIGNATION REQUIREMENT.—Not later than
20 the date on which the President submits to Congress the
21 annual budget request of the President for fiscal year
22 2021 pursuant to section 1105 of title 31, United States
23 Code, the Secretary of Defense shall, as the Secretary con-
24 siders appropriate, redesignate all strategies, policies, pro-
25 grams, and systems under the jurisdiction of the Secretary

1 to reflect that missile defense programs of the United
2 States defend against ballistic, cruise, and hypersonic mis-
3 siles in all phases of flight.

4 **SEC. 1682. DEVELOPMENT OF SPACE-BASED BALLISTIC**
5 **MISSILE INTERCEPT LAYER.**

6 Section 1688 of the National Defense Authorization
7 Act for Fiscal Year 2018 (Public Law 115–91; 10 U.S.C.
8 2431 note) is amended—

9 (1) by striking subsection (e); and

10 (2) by redesignating subsection (d) as sub-
11 section (c).

12 **SEC. 1683. DEVELOPMENT OF HYPERSONIC AND BALLISTIC**
13 **MISSILE TRACKING SPACE SENSOR PAYLOAD.**

14 (a) DEVELOPMENT.—Section 1683 of the National
15 Defense Authorization Act for Fiscal Year 2018 (Public
16 Law 115–91; 10 U.S.C. 2431 note) is amended—

17 (1) by redesignating subsections (d), (e), (f),
18 (g), and (h), as subsections (e), (f), (g), (h), and (j),
19 respectively; and

20 (2) by inserting after subsection (c) the fol-
21 lowing new subsection (d):

22 “(d) HYPERSONIC AND BALLISTIC MISSILE TRACK-
23 ING SPACE SENSOR PAYLOAD.—

24 “(1) DEVELOPMENT.—The Director of the Mis-
25 sile Defense Agency, in coordination with the Direc-

1 tor of the Space Development Agency and the Sec-
2 retary of the Air Force, as appropriate, shall—

3 “(A) develop a hypersonic and ballistic
4 missile tracking space sensor payload; and

5 “(B) include such payload as a component
6 of the sensor architecture developed under sub-
7 section (a).

8 “(2) ASSIGNMENT OF PRIMARY RESPONSI-
9 BILITY.—Not later than 30 days after the date of
10 the enactment of the National Defense Authoriza-
11 tion Act for Fiscal Year 2020, the Secretary of De-
12 fense shall—

13 “(A) assign the Director of the Missile De-
14 fense Agency with the principal responsibility
15 for the development and deployment of a
16 hypersonic and ballistic tracking space sensor
17 payload; and

18 “(B) submit to the congressional defense
19 committees a certification of such assignment.”.

20 (b) UPDATED PLAN.—Such section is further amend-
21 ed by inserting after subsection (h), as redesignated by
22 subsection (a), the following new subsection:

23 “(i) UPDATED PLAN.—Not later than 90 days after
24 the date of the enactment of the National Defense Author-
25 ization Act for Fiscal Year 2020, the Secretary of Defense

1 shall submit to the appropriate congressional committees
2 an update to the plan under subsection (h), including with
3 respect to the following:

4 “(1) How the Director of the Missile Defense
5 Agency, the Director of the Defense Advanced Re-
6 search Projects Agency, the Secretary of the Air
7 Force, and the Director of the Space Development
8 Agency, will each participate in the development of
9 the sensor architecture under subsection (a) and the
10 inclusion of the hypersonic and ballistic missile
11 tracking space sensor payload as a component of
12 such architecture pursuant to subsection (d), with
13 respect to both prototype and operational capabili-
14 ties, including how each such official will work to-
15 gether to avoid duplication of efforts.

16 “(2) How such payload will address the require-
17 ment of the United States Strategic Command for a
18 hypersonic and ballistic missile tracking space sens-
19 ing capability.

20 “(3) The estimated costs (in accordance with
21 subsection (e)) to develop, acquire, and deploy, and
22 the lifecycle costs to operate and sustain, the pay-
23 load under subsection (d) and include such payload
24 in the sensor architecture developed under sub-
25 section (a).”.

1 (c) CONFORMING AMENDMENT.—Subsection (h)(1)
2 of such section, as redesignated by subsection (a), is
3 amended by striking “with subsection (d)” and inserting
4 “with subsection (e)”.

5 **SEC. 1684. MODIFICATIONS TO REQUIRED TESTING BY MIS-**
6 **SILE DEFENSE AGENCY OF GROUND-BASED**
7 **MIDCOURSE DEFENSE ELEMENT OF BAL-**
8 **LISTIC MISSILE DEFENSE SYSTEM.**

9 Section 1689(b) of the National Defense Authoriza-
10 tion Act for Fiscal Year 2017 (Public Law 114–328; 130
11 Stat. 2631; 10 U.S.C. 2431 note) is amended—

12 (1) in the matter preceding paragraph (1), by
13 striking “, when possible,”; and

14 (2) in paragraph (3), by inserting “, including
15 the use of threat-representative countermeasures”
16 before the period.

17 **SEC. 1685. IRON DOME SHORT-RANGE ROCKET DEFENSE**
18 **SYSTEM AND ISRAELI COOPERATIVE MISSILE**
19 **DEFENSE PROGRAM CO-DEVELOPMENT AND**
20 **CO-PRODUCTION.**

21 (a) IRON DOME SHORT-RANGE ROCKET DEFENSE
22 SYSTEM.—

23 (1) AVAILABILITY OF FUNDS.—Of the funds
24 authorized to be appropriated by this Act for fiscal
25 year 2020 for procurement, Defense-wide, and avail-

1 able for the Missile Defense Agency, not more than
2 \$95,000,000 may be provided to the Government of
3 Israel to procure components for the Iron Dome
4 short-range rocket defense system through co-pro-
5 duction of such components in the United States by
6 industry of the United States.

7 (2) CONDITIONS.—

8 (A) AGREEMENT.—Funds described in
9 paragraph (1) for the Iron Dome short-range
10 rocket defense program shall be available sub-
11 ject to the terms and conditions in the Agree-
12 ment Between the Department of Defense of
13 the United States of America and the Ministry
14 of Defense of the State of Israel Concerning
15 Iron Dome Defense System Procurement,
16 signed on March 5, 2014, as amended to in-
17 clude co-production for Tamir interceptors.

18 (B) CERTIFICATION.—Not later than 30
19 days prior to the initial obligation of funds de-
20 scribed in paragraph (1), the Director of the
21 Missile Defense Agency and the Under Sec-
22 retary of Defense for Acquisition and
23 Sustainment shall jointly submit to the appro-
24 priate congressional committees—

1 (i) a certification that the amended bi-
2 lateral international agreement specified in
3 subparagraph (A) is being implemented as
4 provided in such agreement; and

5 (ii) an assessment detailing any risks
6 relating to the implementation of such
7 agreement.

8 (b) ISRAELI COOPERATIVE MISSILE DEFENSE PRO-
9 GRAM, DAVID'S SLING WEAPON SYSTEM CO-PRODUC-
10 TION.—

11 (1) IN GENERAL.—Subject to paragraph (3), of
12 the funds authorized to be appropriated for fiscal
13 year 2020 for procurement, Defense-wide, and avail-
14 able for the Missile Defense Agency not more than
15 \$50,000,000 may be provided to the Government of
16 Israel to procure the David's Sling Weapon System,
17 including for co-production of parts and components
18 in the United States by United States industry.

19 (2) AGREEMENT.—Provision of funds specified
20 in paragraph (1) shall be subject to the terms and
21 conditions in the bilateral co-production agreement,
22 including—

23 (A) a one-for-one cash match is made by
24 Israel or in another matching amount that oth-

1 otherwise meets best efforts (as mutually agreed to
2 by the United States and Israel); and

3 (B) co-production of parts, components,
4 and all-up rounds (if appropriate) in the United
5 States by United States industry for the Da-
6 vid's Sling Weapon System is not less than 50
7 percent.

8 (3) CERTIFICATION AND ASSESSMENT.—The
9 Under Secretary of Defense for Acquisition and
10 Sustainment shall submit to the appropriate con-
11 gressional committees—

12 (A) a certification that the Government of
13 Israel has demonstrated the successful comple-
14 tion of the knowledge points, technical mile-
15 stones, and production readiness reviews re-
16 quired by the research, development, and tech-
17 nology agreement and the bilateral co-produc-
18 tion agreement for the David's Sling Weapon
19 System; and

20 (B) an assessment detailing any risks re-
21 lating to the implementation of such agreement.

22 (c) ISRAELI COOPERATIVE MISSILE DEFENSE PRO-
23 GRAM, ARROW 3 UPPER TIER INTERCEPTOR PROGRAM
24 CO-PRODUCTION.—

1 (1) IN GENERAL.—Subject to paragraph (2), of
2 the funds authorized to be appropriated for fiscal
3 year 2020 for procurement, Defense-wide, and avail-
4 able for the Missile Defense Agency not more than
5 \$55,000,000 may be provided to the Government of
6 Israel for the Arrow 3 Upper Tier Interceptor Pro-
7 gram, including for co-production of parts and com-
8 ponents in the United States by United States in-
9 dustry.

10 (2) CERTIFICATION.—The Under Secretary of
11 Defense for Acquisition and Sustainment shall sub-
12 mit to the appropriate congressional committees a
13 certification that—

14 (A) the Government of Israel has dem-
15 onstrated the successful completion of the
16 knowledge points, technical milestones, and pro-
17 duction readiness reviews required by the re-
18 search, development, and technology agreement
19 for the Arrow 3 Upper Tier Interceptor Pro-
20 gram;

21 (B) funds specified in paragraph (1) will
22 be provided on the basis of a one-for-one cash
23 match made by Israel or in another matching
24 amount that otherwise meets best efforts (as

1 mutually agreed to by the United States and
2 Israel);

3 (C) the United States has entered into a
4 bilateral international agreement with Israel
5 that establishes, with respect to the use of such
6 funds—

7 (i) in accordance with subparagraph
8 (D), the terms of co-production of parts
9 and components on the basis of the great-
10 est practicable co-production of parts, com-
11 ponents, and all-up rounds (if appropriate)
12 by United States industry and minimizes
13 nonrecurring engineering and facilitization
14 expenses to the costs needed for co-produc-
15 tion;

16 (ii) complete transparency on the re-
17 quirement of Israel for the number of
18 interceptors and batteries that will be pro-
19 cured, including with respect to the pro-
20 curement plans, acquisition strategy, and
21 funding profiles of Israel;

22 (iii) technical milestones for co-pro-
23 duction of parts and components and pro-
24 curement;

1 (iv) a joint affordability working
2 group to consider cost reduction initiatives;
3 and

4 (v) joint approval processes for third-
5 party sales; and

6 (D) the level of co-production described in
7 subparagraph (C)(i) for the Arrow 3 Upper
8 Tier Interceptor Program is not less than 50
9 percent.

10 (d) NUMBER.—In carrying out paragraph (2) of sub-
11 section (b) and paragraph (2) of subsection (c), the Under
12 Secretary may submit—

13 (1) one certification covering both the David's
14 Sling Weapon System and the Arrow 3 Upper Tier
15 Interceptor Program; or

16 (2) separate certifications for each respective
17 system.

18 (e) TIMING.—The Under Secretary shall submit to
19 the congressional defense committees the certification and
20 assessment under subsection (b)(3) and the certification
21 under subsection (c)(2) by not later than 30 days before
22 the funds specified in paragraph (1) of subsections (b) and
23 (c) for the respective system covered by the certification
24 are provided to the Government of Israel.

1 (f) APPROPRIATE CONGRESSIONAL COMMITTEES DE-
2 FINED.—In this section, the term “appropriate congres-
3 sional committees” means the following:

4 (1) The congressional defense committees.

5 (2) The Committee on Foreign Relations of the
6 Senate and the Committee on Foreign Affairs of the
7 House of Representatives.

8 **SEC. 1686. LIMITATION ON AVAILABILITY OF FUNDS FOR**
9 **LOWER TIER AIR AND MISSILE DEFENSE SEN-**
10 **SOR.**

11 (a) LIMITATION.—Of the funds authorized to be ap-
12 propriated by this Act or otherwise made available for fis-
13 cal year 2020 for the Army for the lower tier air and mis-
14 sile defense sensor, not more than 75 percent may be obli-
15 gated or expended until the Secretary of the Army submits
16 the report under subsection (b).

17 (b) REPORT.—The Secretary of the Army shall sub-
18 mit to the congressional defense committees a report on
19 the test and demonstration of lower tier air and missile
20 defense sensors that occurred during the third quarter of
21 fiscal year 2019. Such report shall include the following:

22 (1) An explanation of how the test and dem-
23 onstration was conducted and what the test and
24 demonstration set out to achieve, including—

1 (A) an explanation of the performance
2 specifications used; and

3 (B) a description of the emulated threats
4 used in the test and demonstration and how
5 such threats compare to emerging regional air
6 and missile threats.

7 (2) An explanation of the capability of the sen-
8 sor system that the Secretary determined to be the
9 winner of the test and demonstration, including with
10 respect to—

11 (A) the capability of such sensor system
12 against key threats and requirements, including
13 whether such sensor system will be delivered
14 with full 360-degree coverage and the ability of
15 such sensor system to detect, track, and surveil
16 targets;

17 (B) the estimated procurement and life-
18 cycle costs of operating such sensor system; and

19 (C) the cost, timeline, and approach that
20 will be used to integrate the lower tier air and
21 missile defense sensor with other sensors using
22 the Integrated Air and Missile Defense Battle
23 Command System.

24 (3) An explanation of whether future perform-
25 ance improvements to the lower tier air and missile

1 defense sensor are conditional on intellectual prop-
2 erty and how such improvements will be made if the
3 United States does not own such intellectual prop-
4 erty.

5 **SEC. 1687. PLAN FOR THE REDESIGNED KILL VEHICLE RE-**
6 **PLACEMENT.**

7 (a) SENSE OF CONGRESS.—It is the sense of Con-
8 gress that—

9 (1) the decision by the Department of Defense
10 to terminate the redesigned kill vehicle contract on
11 August 22, 2019, due to technological problems en-
12 countered during development will result in a delay
13 to the fielding of an additional 20 ground-based
14 interceptors at Fort Greely, Alaska, which had been
15 planned to be emplaced by the end of calendar year
16 2023;

17 (2) to ensure that the future next-generation
18 improved homeland defense interceptor program will
19 deliver the required capability, have rigorous tech-
20 nical and acquisition oversight, and maintain sched-
21 ule milestones, thereby mitigating the risk of similar
22 issues as experienced with the redesigned kill vehicle,
23 the acquisition strategy for such program should be
24 reviewed and jointly approved by both the Under
25 Secretary of Defense for Research and Engineering

1 and the Under Secretary of Defense for Acquisition
2 and Sustainment, with input by stakeholders across
3 the Department of Defense prior to proceeding with
4 development efforts and awarding a contract; and

5 (3) the Department, including the Missile De-
6 fense Agency, should uphold “fly before you buy”
7 principles in such new acquisition strategy to ensure
8 the overall system and components have been rigor-
9 ously flight-tested prior to making procurement deci-
10 sions.

11 (b) LIMITATION.—Of the funds authorized to be ap-
12 propriated by this Act or otherwise made available for fis-
13 cal year 2020 for the Missile Defense Agency for the next-
14 generation improved homeland defense interceptor, not
15 more than 50 percent may be obligated or expended until
16 the date on which the Secretary of Defense submits the
17 report under subsection (c).

18 (c) REPORT.—The Secretary of Defense shall submit
19 to the congressional defense committees a report on the
20 next-generation improved homeland defense interceptor
21 program to replace the redesigned kill vehicle. The report
22 shall include the following:

23 (1) Updated threat assessments by the intel-
24 ligence community informing system threshold and
25 objective requirements.

1 (2) Updated requirements to address current
2 and emerging threats.

3 (3) Technical, programmatic, and cost analyses
4 conducted on courses of action and alternatives to
5 meet capability requirements, including—

6 (A) an independent cost estimate for each
7 course of action considered; and

8 (B) an evaluation of the technical readi-
9 ness level of the overall system and the compo-
10 nents for each course of action considered.

11 (4) Options considered to address reliability ef-
12 forts of the current fleet, understanding known defi-
13 ciencies, and the impact of not addressing such ef-
14 forts and deficiencies until the delivery of the next-
15 generation improved homeland defense interceptors.

16 (5) An obsolescence, refurbishment, and
17 sustainment plan for all ground-based interceptor
18 silos, including any impacts to the construction, de-
19 livery, and sustainment of missile field 4 located at
20 Fort Greely, Alaska, taking into account the delay to
21 emplacing additional interceptors.

22 (6) Possible opportunities as a result of the im-
23 pacts described in paragraph (4) for improvements
24 to missile fields located at Fort Greely other than
25 missile field 4, including additional infrastructure or

1 components required, and estimated schedules and
2 costs for such opportunities.

3 (7) A determination of the appropriate fleet mix
4 of ground-based interceptor kill vehicles and boosters
5 to maximize overall system effectiveness and in-
6 crease capacity and capability, including the costs
7 and benefits of continued inclusion of capability en-
8 hancement II block 1 interceptors after the fielding
9 of the next-generation improved homeland defense
10 interceptor.

11 **SEC. 1688. ORGANIZATION, AUTHORITIES, AND BILLETS OF**
12 **THE MISSILE DEFENSE AGENCY.**

13 (a) INDEPENDENT STUDY.—

14 (1) ASSESSMENT.—In accordance with para-
15 graph (2), the Secretary of Defense shall seek to
16 enter into a contract with a federally funded re-
17 search and development center to conduct a study
18 assessing—

19 (A) the organization of the Missile Defense
20 Agency under the Under Secretary of Defense
21 for Research and Engineering pursuant to sec-
22 tion 205(b) of title 10, United States Code;

23 (B) alternative ways to organize the Agen-
24 cy under other officials of the Department of
25 Defense, including the Under Secretary for Ac-

1 quisition and Sustainment and any other offi-
2 cial of the Department the federally funded re-
3 search and development center determines ap-
4 propriate; and

5 (C) transitioning the Agency to the stand-
6 ard acquisition process pursuant to Department
7 of Defense Instruction 5000, including both the
8 risks and benefits of making such a transition.

9 (2) SCOPE OF STUDY.—Before entering into the
10 contract with a federally funded research and devel-
11 opment center to conduct the study under paragraph
12 (1), the Secretary shall provide to the congressional
13 defense committees an update on the scope of such
14 study.

15 (3) SUBMISSION TO DOD.—Not later than 180
16 days after the date of the enactment of this Act, the
17 federally funded research and development center
18 shall submit to the Secretary the study conducted
19 under paragraph (1).

20 (4) SUBMISSION TO CONGRESS.—Not later than
21 30 days after the date on which the federally funded
22 research and development center submits to the Sec-
23 retary the study under paragraph (1), the Secretary
24 shall submit to the congressional defense committees
25 the study, without change.

1 (b) NOTIFICATION ON CHANGES TO NON-STANDARD
2 ACQUISITION PROCESSES AND RESPONSIBILITIES.—

3 (1) REQUIREMENTS.—The Secretary may not
4 make any changes to the missile defense non-stand-
5 ard acquisition processes and responsibilities de-
6 scribed in paragraph (2) until the Secretary, without
7 delegation—

8 (A) has consulted with the Under Sec-
9 retary of Defense for Research and Engineer-
10 ing, the Under Secretary of Defense for Acqui-
11 sition and Sustainment, the Under Secretary of
12 Defense for Policy, the secretaries of the mili-
13 tary departments, the Chairman of the Joint
14 Chiefs of Staff, the Commander of United
15 States Strategic Command, the Commander of
16 United States Northern Command, and the Di-
17 rector of the Missile Defense Agency;

18 (B) certifies to the congressional defense
19 committees that the Secretary has coordinated
20 the changes with and received the views of the
21 individuals referred to in subparagraph (A);

22 (C) submits to the congressional defense
23 committees a report describing the changes, the
24 rationale for the changes, and the views of the

1 individuals referred to in subparagraph (A)
2 with respect to such changes; and

3 (D) a period of 120 days has elapsed fol-
4 lowing the date on which the Secretary submits
5 such report.

6 (2) NON-STANDARD ACQUISITION PROCESSES
7 AND RESPONSIBILITIES DESCRIBED.—The non-
8 standard acquisition processes and responsibilities
9 described in this paragraph are such processes and
10 responsibilities described in—

11 (A) the memorandum of the Secretary of
12 Defense titled “Missile Defense Program Direc-
13 tion” signed on January 2, 2002;

14 (B) Department of Defense Directive
15 5134.09, as in effect on the date of the enact-
16 ment of this Act; and

17 (C) United States Strategic Command In-
18 struction 583–3.

19 (c) LIMITATION ON CERTAIN TRANSFERS OF BIL-
20 LETS.—During fiscal year 2020, the Secretary of Defense
21 may not transfer civilian or military billets from the Mis-
22 sile Defense Agency to any element of the Department
23 under the Under Secretary of Defense for Research and
24 Engineering until, for each such transfer—

1 (1) the Secretary notifies the congressional de-
2 fense committees of such proposed transfer; and

3 (2) a period of 90 days has elapsed following
4 the date of such notification.

5 **SEC. 1689. ANNUAL ASSESSMENT OF BALLISTIC MISSILE**
6 **DEFENSE SYSTEM.**

7 (a) ANNUAL ASSESSMENT.—As part of the annual
8 report of the Director of Operational Test and Evaluation
9 submitted to Congress under section 139 of title 10,
10 United States Code, the Director shall include an assess-
11 ment of the ballistic missile defense system and all of the
12 elements of the system that have been fielded or are
13 planned, as of the date of the assessment, including—

14 (1) the operational effectiveness, suitability, and
15 survivability of the ballistic missile defense system
16 and the elements of the system that have been field-
17 ed or tested; and

18 (2) the adequacy and sufficiency of the test pro-
19 gram of such system as of the date of the assess-
20 ment, including with respect to the operational real-
21 ism of the tests.

22 (b) FORM.—Each assessment under subsection (a)
23 may be submitted in unclassified form, and may include
24 a classified annex.

1 **SEC. 1690. COMMAND AND CONTROL, BATTLE MANAGE-**
2 **MENT, AND COMMUNICATIONS PROGRAM.**

3 (a) **LIMITATION ON SALE.**—The Director of the Mis-
4 sile Defense Agency may not release the command and
5 control, battle management, and communications program
6 for export until the date on which the Director submits
7 the report under subsection (b).

8 (b) **REPORT.**—Not later than 90 days after the date
9 of the enactment of this Act, the Director shall submit
10 to the congressional defense committees, the Committee
11 on Foreign Affairs of the House of Representatives, and
12 the Committee on Foreign Relations of the Senate a re-
13 port containing the following:

14 (1) An explanation of the rationale of the Di-
15 rector for considering to export the command and
16 control, battle management, and communications
17 program (or any variants thereof) in light of the
18 critical role of the program in the strategic national
19 defense of the United States and the allies of the
20 United States against ballistic missile attack.

21 (2) The findings of the market research and
22 analysis conducted by the Director regarding export-
23 able command and control solutions for ballistic mis-
24 sile defense, including such solutions that are inter-
25 nationally available.

1 **SEC. 1691. MISSILE DEFENSE INTERCEPTOR SITE IN CON-**
2 **TIGUOUS UNITED STATES.**

3 (a) REPORT.—Not later than January 31, 2020, the
4 Secretary of Defense shall submit to the congressional de-
5 fense committees a report on the designation made on
6 June 26, 2019, of a preferred potential future missile field
7 site in the contiguous United States from the sites evalu-
8 ated pursuant to section 227 of the National Defense Au-
9 thorization Act for Fiscal Year 2013 (Public Law 112–
10 239; 126 Stat. 1678). The report shall address the fol-
11 lowing:

12 (1) The environmental impact statement pre-
13 pared pursuant to such section 227.

14 (2) The strategic and operational effectiveness
15 of the site, including with respect to the location
16 that is the most advantageous site in providing cov-
17 erage to the entire contiguous United States, includ-
18 ing having the capability to provide shoot-assess-
19 shoot coverage to the entire contiguous United
20 States.

21 (3) Construction remediation efforts and im-
22 pacts to the existing environment at the site.

23 (4) The existing infrastructure at the site.

24 (5) The costs to construct, equip, and operate
25 the site.

1 (b) FORM.—The report under subsection (a) shall be
2 submitted in unclassified form, but may include a classi-
3 fied annex.

4 (c) RULE OF CONSTRUCTION.—Nothing in this sec-
5 tion may be construed—

6 (1) as requiring the Secretary of Defense to
7 begin a military construction project relating to the
8 missile defense site in the contiguous United States;
9 or

10 (2) as a statement that there is any current
11 military requirement for such a site.

12 (d) CONFORMING REPEAL.—Section 1681 of the Na-
13 tional Defense Authorization Act for Fiscal Year 2018
14 (Public Law 115–91; 131 Stat. 1776) is repealed.

15 **SEC. 1692. INDEPENDENT STUDY ON IMPACTS OF MISSILE**
16 **DEFENSE DEVELOPMENT AND DEPLOYMENT.**

17 (a) STUDY.—Not later than 30 days after the date
18 of the enactment of this Act, the Secretary of Defense
19 shall seek to enter into an agreement with a federally
20 funded research and development center to conduct a
21 study on the impacts of the development and deployment
22 of homeland missile defenses of the United States on the
23 security of the United States as a whole.

24 (b) MATTERS INCLUDED.—The study under sub-
25 section (a) shall—

1 to the congressional defense committees a report, and
2 shall provide to such committees a briefing, on an assess-
3 ment of potential roles for a multi-volume kill capability
4 in a future architecture of the ballistic missile defense sys-
5 tem. Such report and briefing shall include the following:

6 (1) An assessment of the current technology
7 readiness level of necessary components and the
8 technology readiness levels needed for an operational
9 system.

10 (2) An assessment of the costs and a com-
11 prehensive development and testing schedule to de-
12 ploy a multi-volume kill capability.

13 (3) A concept of operations with respect to how
14 a multi-volume kill capability could be employed and
15 how such a capability compares to single-kill ground-
16 based midcourse defense system interceptors.

17 **Subtitle F—Other Matters**

18 **SEC. 1694. EXTENSION OF AUTHORIZATION FOR PROTEC-** 19 **TION OF CERTAIN FACILITIES AND ASSETS** 20 **FROM UNMANNED AIRCRAFT.**

21 (a) IN GENERAL.—Subsection (i) of section 130i of
22 title 10, United States Code, is amended by striking
23 “2020” both places it appears and inserting “2023”.

24 (b) TECHNICAL CORRECTIONS.—Such section is
25 amended—

1 (1) in subsection (i)(1), as amended by sub-
2 section (a), by striking “of subsection (j)(3)” and in-
3 serting “of subsection (j)(3)(C)”; and

4 (2) in subsection (j)(6), by striking “in” and all
5 that follows through the period at the end and in-
6 serting “in section 44801 of title 49”.

7 **SEC. 1695. REPEAL OF REQUIREMENT FOR COMMISSION ON**
8 **ELECTROMAGNETIC PULSE ATTACKS AND**
9 **SIMILAR EVENTS.**

10 Section 1691 of the National Defense Authorization
11 Act for Fiscal Year 2018 (Public Law 115–91; 131 Stat.
12 1786) is repealed.

13 **SEC. 1696. REPEAL OF REVIEW REQUIREMENT FOR AMMO-**
14 **NIUM PERCHLORATE REPORT.**

15 Section 1694 of the National Defense Authorization
16 Act for Fiscal Year 2018 (Public Law 115–91; 131 Stat.
17 1792) is amended by striking subsection (d).

18 **SEC. 1697. TRANSFERABILITY OF CONVENTIONAL PROMPT**
19 **GLOBAL STRIKE WEAPON SYSTEM TECH-**
20 **NOLOGIES TO SURFACE-LAUNCHED PLAT-**
21 **FORMS.**

22 (a) SURFACE-LAUNCHED TECHNOLOGIES.—The Sec-
23 retary of the Navy shall ensure that the technologies devel-
24 oped for the conventional prompt global strike weapon sys-
25 tem are transferrable to a surface-launched platform.

1 (b) REPORT.—Not later than 120 days after the date
2 of the enactment of this Act, the Secretary of the Navy
3 shall submit to the congressional defense committees a re-
4 port on the programmatic changes required to integrate
5 the conventional prompt global strike weapon system into
6 current or future surface combatant ships.

7 **SEC. 1698. PROHIBITION ON AVAILABILITY OF FUNDS FOR**
8 **CERTAIN OFFENSIVE GROUND-LAUNCHED**
9 **BALLISTIC OR CRUISE MISSILE SYSTEMS.**

10 (a) PROHIBITION.—None of the funds authorized to
11 be appropriated by this Act or otherwise made available
12 for fiscal year 2020 for the Department of Defense may
13 be obligated or expended for the procurement or deploy-
14 ment of an offensive ground-launched ballistic or cruise
15 missile system with a range between 500 and 5,500 kilo-
16 meters.

17 (b) REPORT.—Not later than January 31, 2020, the
18 Secretary of Defense shall submit to the congressional de-
19 fense committees a report, and provide a briefing, that in-
20 cludes the following:

21 (1) An evaluation of the capabilities required to
22 execute contingency plans in the areas of responsi-
23 bility of the United States European Command and
24 the United States Indo-Pacific Command using of-

1 fensive ground-launched missile systems of ranges in
2 excess of 500 kilometers.

3 (2) An evaluation of what types of systems (in-
4 cluding the range and flight profile of such systems),
5 if any, could be used to meet the required capabili-
6 ties identified under paragraph (1).

7 (3) The results of an analysis of alternatives
8 conducted by the Chairman of the Joint Chiefs of
9 Staff and the Director of Cost Assessment and Pro-
10 gram Evaluation that considers—

11 (A) conventional missile systems, including
12 ground-, sea-, and air-launched missiles, that
13 could be deployed to meet the required capabili-
14 ties identified under paragraph (1);

15 (B) the cost, schedule, and feasibility of
16 tailored acquisition strategies for each such sys-
17 tem considered;

18 (C) simulations and games that were per-
19 formed to inform the analysis of alternatives;

20 (D) benefits and risks of such different
21 types of systems, including operational consid-
22 erations in contested environments; and

23 (E) any other operational or programmatic
24 considerations determined relevant by the
25 Chairman or the Director.

1 (4) Options for basing any such missile system
2 in, or deploying any such missile system to, Europe
3 or the Indo-Pacific region, including any agreements
4 required for such options and potential timelines to
5 implement such options.

6 (5) A list of any governments of a foreign coun-
7 try consulted about such possible deployments, and
8 a summary of the reaction of each such government.

9 (6) A discussion of whether deploying such mis-
10 sile systems on the territory of a NATO ally would
11 require a consensus decision by NATO.

12 (c) FORM.—The report under subsection (b) shall be
13 submitted in unclassified form, but may contain a classi-
14 fied annex.

15 **SEC. 1699. HARD AND DEEPLY BURIED TARGETS.**

16 (a) BRIEFING REQUIRED.—

17 (1) IN GENERAL.—Not later than December 1,
18 2019, the Chairman of the Joint Chiefs of Staff
19 shall, in consultation with the Commander of the
20 United States Strategic Command, provide to the
21 congressional defense committees a classified brief-
22 ing on hard and deeply buried targets.

23 (2) ELEMENTS.—The briefing required by
24 paragraph (1) shall include the following:

1 (A) An estimate of the total number of
2 high-value hard and deeply buried targets asso-
3 ciated with United States military operations
4 plans.

5 (B) A description of the contents, func-
6 tions, and hardening characteristics of the tar-
7 gets described in subparagraph (A), as well as
8 their level of protection by anti-access and area
9 denial capabilities.

10 (C) An assessment of the current ability
11 of, and requirement, cost, and implications for
12 deterrence and strategic stability for, the
13 United States to hold such targets at risk using
14 existing conventional and nuclear capabilities.

15 (D) An assessment of the potential ability
16 of, and requirement, cost, and implications for
17 deterrence and strategic stability for, the
18 United States to hold such targets at risk using
19 projected conventional and nuclear capabilities
20 as of 2030.

21 (b) PLAN REQUIRED.—Not later than February 15,
22 2020, the Secretary of Defense shall develop a plan detail-
23 ing the requirement, cost, and implications for deterrence
24 and strategic stability for the United States to possess by

1 2025 the capabilities to pose a credible threat against tar-
2 gets described in the briefing required by subsection (a).

3 **TITLE XVII—REPORTS AND**
4 **OTHER MATTERS**

Subtitle A—Studies and Reports

- Sec. 1701. Modification of annual reporting requirements on defense man-
power.
- Sec. 1702. Termination of requirement for submittal to Congress of certain re-
curring reports.
- Sec. 1703. Modification of annual report on civilian casualties in connection
with United States military operations.
- Sec. 1704. Extension of requirement for briefings on the national biodefense
strategy.
- Sec. 1705. Authorization of appropriations for title III of the Defense Produc-
tion Act of 1950.
- Sec. 1706. Report on the Department of Defense plan for mass-casualty dis-
aster response operations in the Arctic.
- Sec. 1707. Transmittal to Congress of requests for assistance from other de-
partments of the Federal Government that are approved by the
Department of Defense.
- Sec. 1708. Report and briefing on implementation of national defense strategy.
- Sec. 1709. Actions to increase analytic support.
- Sec. 1710. Inclusion of certain individuals investigated by Inspectors General in
the semiannual report.
- Sec. 1711. Annual report on Joint Military Information Support Operations
Web Operations Center.
- Sec. 1712. Mobility capability requirements study.
- Sec. 1713. Assessment of special operations force structure.
- Sec. 1714. Army aviation strategic plan and modernization roadmap.
- Sec. 1715. Report on ground-based long-range artillery to counter land and
maritime threats.
- Sec. 1716. Independent review of transportation working-capital fund.
- Sec. 1717. Geographic command risk assessment of proposed use of certain air-
craft capabilities.
- Sec. 1718. Report on backlog of personnel security clearance adjudications.
- Sec. 1719. Report regarding outstanding Government Accountability Office rec-
ommendations.
- Sec. 1720. Report on National Guard and United States Northern Command
capacity to meet homeland defense and security incidents.
- Sec. 1721. Assessment of standards, processes, procedures, and policy relating
to civilian casualties.
- Sec. 1722. Report on transfers of equipment to prohibited entities.
- Sec. 1723. Annual report on strikes undertaken by the United States against
terrorist targets outside areas of active hostilities.
- Sec. 1724. Review and assessment of mitigation of military helicopter noise.

Subtitle B—Other Matters

- Sec. 1731. Technical, conforming, and clerical amendments.

- Sec. 1732. Establishment of lead Inspector General for an overseas contingency operation based on Secretary of Defense notification.
- Sec. 1733. Clarification of authority of Inspectors General for overseas contingency operations.
- Sec. 1734. Employment status of annuitants for Inspectors General for overseas contingency operations.
- Sec. 1735. Extension of National Security Commission on Artificial Intelligence.
- Sec. 1736. Exemption from calculation of monthly income, for purposes of bankruptcy laws, of certain payments from the Department of Veterans Affairs and the Department of Defense.
- Sec. 1737. Extension of postage stamp for breast cancer research.
- Sec. 1738. National Commission on Military Aviation Safety.
- Sec. 1739. Guarantee of residency for spouses of members of the uniformed services.
- Sec. 1740. Electromagnetic pulses and geomagnetic disturbances.
- Sec. 1741. Improvements to Manufacturing USA Program.
- Sec. 1742. Regional innovation program.
- Sec. 1743. Aviation workforce development.
- Sec. 1744. Oversight of Department of Defense execute orders.
- Sec. 1745. Processes and procedures for notifications regarding special operations forces.
- Sec. 1746. Securing American science and technology.
- Sec. 1747. Standardized policy guidance for calculating aircraft operation and sustainment costs.
- Sec. 1748. Special Federal Aviation Regulation Working Group.
- Sec. 1749. Prohibition on names related to the Confederacy.
- Sec. 1750. Support for National Maritime Heritage Grants program.
- Sec. 1751. Support for world language advancement and readiness.
- Sec. 1752. Designation of Department of Defense strategic Arctic ports.
- Sec. 1753. Independent studies regarding potential cost savings with respect to the nuclear security enterprise and force structure .
- Sec. 1754. Comprehensive Department of Defense policy on collective self-defense.
- Sec. 1755. Policy regarding the transition of data and applications to the cloud.
- Sec. 1756. Integrated public alert and warning system.
- Sec. 1757. Improving quality of information in background investigation request packages.
- Sec. 1758. Parole in place for members of the Armed Forces and certain military dependents.
- Sec. 1759. Report on reducing the backlog in legally required historical declassification obligations of the Department of Defense.
- Sec. 1760. Military type certification for light attack experimentation aircraft.

1 **Subtitle A—Studies and Reports**

2 **SEC. 1701. MODIFICATION OF ANNUAL REPORTING RE-** 3 **QUIREMENTS ON DEFENSE MANPOWER.**

4 (a) CONVERSION OF ANNUAL REQUIREMENTS RE-
5 PORT INTO ANNUAL PROFILE REPORT.—Section 115a of
6 title 10, United States Code, is amended—

7 (1) in subsection (a)—

8 (A) in the matter preceding paragraph (1),
9 by striking the first two sentences and inserting
10 the following new sentence: “Not later than
11 April 1 each year, the Secretary of Defense
12 shall submit to Congress a defense manpower
13 profile report.”;

14 (B) in paragraph (1), by adding “and” at
15 the end;

16 (C) in paragraph (2), by striking “; and”
17 and inserting a period; and

18 (D) by striking paragraph (3);

19 (2) in subsection (b)—

20 (A) by striking “(1)”; and

21 (B) by striking paragraphs (2) and (3);

22 and

23 (3) in subsection (c), by striking “the fol-
24 lowing:” and all that follows and inserting “the
25 manpower required for support and overhead func-

1 tions within the armed forces and the Department of
2 Defense.”.

3 (b) CONVERSION OF CERTAIN CURRENT REPORT
4 ELEMENTS INTO SEPARATE, MODIFIED REPORTS.—Such
5 section is further amended—

6 (1) in subsection (d), by striking “The Sec-
7 retary shall also include in each such report” and in-
8 serting “Not later than April 1 each year, the Sec-
9 retary shall submit to Congress a report that sets
10 forth”; and

11 (2) in subsection (e)(1), by striking “In each
12 such report, the Secretary shall also include” and in-
13 serting “Not later than April 1 each year, the Sec-
14 retary shall submit to Congress a report that sets
15 forth”;

16 (3) in subsection (f)—

17 (A) in the matter preceding paragraph (1),
18 by striking “The Secretary shall also include in
19 each such report” and inserting “Not later than
20 June 1 each year, the Secretary shall submit to
21 Congress a report that sets forth”; and

22 (B) in paragraph (1), by striking “and es-
23 timates of such numbers for the current fiscal
24 year and subsequent fiscal years”;

25 (4) in subsection (g)—

1 (A) in the matter preceding paragraph (1),
2 by striking “In each report submitted under
3 subsection (a), the Secretary shall also include
4 a detailed discussion” and inserting “Not later
5 than September 1 each year, the Secretary shall
6 submit to Congress a report that sets forth a
7 detailed discussion, current as of the preceding
8 fiscal year,”; and

9 (B) by striking “the year” each place it
10 appears and inserting “the fiscal year”; and

11 (5) in subsection (h), by striking “In each such
12 report, the Secretary shall include a separate report”
13 and inserting “Not later than April 1 each year, the
14 Secretary shall submit to Congress a report”.

15 (c) CONFORMING AND CLERICAL AMENDMENTS.—

16 (1) HEADING AMENDMENT.—The heading of
17 such section is amended to read as follows:

18 **“§ 115a. Annual defense manpower profile report and**
19 **related reports”.**

20 (2) CLERICAL AMENDMENT.—The table of sec-
21 tions at the beginning of chapter 3 of such title is
22 amended by striking the item relating to section
23 115a and inserting the following new item:

“115a. Annual defense manpower profile report and related reports.”.

1 **SEC. 1702. TERMINATION OF REQUIREMENT FOR SUB-**
2 **MITTAL TO CONGRESS OF CERTAIN RECUR-**
3 **RING REPORTS.**

4 (a) **TERMINATION.**—Effective on December 30,
5 2021, each report described in subsection (b) that is still
6 required to be submitted to Congress as of such effective
7 date shall no longer be required to be submitted to Con-
8 gress.

9 (b) **COVERED REPORTS.**—A report described in this
10 subsection is any of the following:

11 (1) The report required by section 1696(b) of
12 the John S. McCain National Defense Authorization
13 Act for Fiscal Year 2019 (Public Law 115–232).

14 (2) The report required by section 1071(b)(1)
15 of the National Defense Authorization Act for Fiscal
16 Year 2018 (Public Law 115–91).

17 (3) The report required by section 1788a(d) of
18 title 10, United States Code, as added by section
19 555 of such Act.

20 (4) The report required under section 709(g) of
21 the National Defense Authorization Act for Fiscal
22 Year 2017 (Public Law 114–328; 10 U.S.C. 1071
23 note).

24 (5) The report required by section 1292(a)(2)
25 of such Act (22 U.S.C. 2751 note).

1 (6) The quarterly report required by section
2 1236(e) of such Act.

3 (7) The annual certification required by section
4 1666 of such Act (10 U.S.C. 2431 note).

5 (8) The updates required under paragraph (3)
6 of subsection (a) of section 1694 of such Act to the
7 report required under paragraph (1) of such sub-
8 section.

9 (9) The notifications required by section 1695
10 of such Act.

11 (10) The report required under section 522(g)
12 of the National Defense Authorization Act for Fiscal
13 Year 2016 (Public Law 114–92).

14 (c) CONFORMING REPEAL.—

15 (1) IN GENERAL.—Section 1788a of title 10,
16 United States Code, is amended by striking sub-
17 section (d).

18 (2) EFFECTIVE DATE.—The amendment made
19 by paragraph (1) shall take effect on December 30,
20 2021.

21 (d) REQUIREMENT FOR PREPARATION OF CERTAIN
22 REPORTS TO CONGRESS BY CIVILIAN EMPLOYEES OF THE
23 FEDERAL GOVERNMENT AND MEMBERS OF THE ARMED
24 FORCES.—

1 (1) REQUIREMENT.—Except as expressly other-
2 wise provided in the provision of law requiring such
3 report, any report submitted to Congress pursuant
4 to a provision of a national defense authorization
5 Act that is enacted on or after the date that is three
6 years after the date of the enactment of this Act
7 shall be written by civilian employees of the Federal
8 Government, members of the Armed Forces, or both,
9 and not by contractor employees of the Federal Gov-
10 ernment.

11 (2) BRIEFING.—Not later than one year after
12 the date of the enactment of this Act, the Secretary
13 of Defense shall brief the Committees on Armed
14 Services of the Senate and the House of Representa-
15 tives on the actions to be taken to ensure compliance
16 with the requirement in paragraph (1), including on
17 any impediments to compliance with the require-
18 ment.

19 **SEC. 1703. MODIFICATION OF ANNUAL REPORT ON CIVIL-**
20 **IAN CASUALTIES IN CONNECTION WITH**
21 **UNITED STATES MILITARY OPERATIONS.**

22 (a) IN GENERAL.—Section 1057 of the National De-
23 fense Authorization Act for Fiscal Year 2018 (Public Law
24 115–91), as amended by section 1062 of the John S.

1 McCain National Defense Authorization Act for Fiscal
2 Year 2019 (Public Law 115–232), is amended—

3 (1) in subsection (b)—

4 (A) by redesignating paragraphs (5) and
5 (6) as paragraphs (8) and (9), respectively; and

6 (B) by striking paragraphs (3) and (4) and
7 inserting the following new paragraphs:

8 “(3) A description of the process by which the
9 Department of Defense investigates allegations of ci-
10 vilian casualties resulting from United States mili-
11 tary operations, including how the Department in-
12 corporates information from interviews with wit-
13 nesses, civilian survivors of United States oper-
14 ations, and public reports or other nongovernmental
15 sources.

16 “(4) A description of—

17 “(A) steps taken by the Department to
18 mitigate harm to civilians in conducting such
19 operations; and

20 “(B) in the case of harm caused by such
21 an operation to a civilian, any ex gratia pay-
22 ment or other assistance provided to the civilian
23 or the family of the civilian.

24 “(5) A description of any allegations of civilian
25 casualties made by public or non-governmental

1 sources formally investigated by the Department of
2 Defense.

3 “(6) A description of the general reasons for
4 any discrepancies between the assessments of the
5 United States and reporting from nongovernmental
6 organizations regarding non-combatant deaths re-
7 sulting from strikes and operations undertaken by
8 the United States.

9 “(7) The definitions of ‘combatant’ and ‘non-
10 combatant’ used in the preparation of the report,
11 which shall be consistent with the laws of armed
12 conflict.”; and

13 (2) in subsection (e), by striking “five years”
14 and inserting “seven years”.

15 (b) CLASSIFICATION.—The Law Revision Counsel is
16 directed to place such section 1057 in a note following sec-
17 tion 113 of title 10, United States Code.

18 **SEC. 1704. EXTENSION OF REQUIREMENT FOR BRIEFINGS**

19 **ON THE NATIONAL BIODEFENSE STRATEGY.**

20 Section 1086(d) of the National Defense Authoriza-
21 tion Act for Fiscal year 2017 (Public Law 114–328; 130
22 Stat. 2423; 6 U.S.C. 104(d)) is amended by striking
23 “March 1, 2019” and inserting “March 1, 2025”.

1 **SEC. 1705. AUTHORIZATION OF APPROPRIATIONS FOR**
2 **TITLE III OF THE DEFENSE PRODUCTION ACT**
3 **OF 1950.**

4 (a) IN GENERAL.—Section 711 of the Defense Pro-
5 duction Act of 1950 (50 U.S.C. 4561) is amended by add-
6 ing at the end the following: “In addition to the appropria-
7 tions authorized by the previous sentence, there is author-
8 ized to be appropriated \$117,000,000 for each of fiscal
9 years 2020 through 2024 to carry out title III.”.

10 (b) ANNUAL BRIEFING REQUIRED.—Not later than
11 180 days after the date of the enactment of this Act, and
12 annually thereafter for five years, the Secretary of De-
13 fense, or the designee of the Secretary, shall brief the
14 Committee on Financial Services of the House of Rep-
15 resentatives and the Committee on Banking, Housing, and
16 Urban Affairs of the Senate on activities undertaken in
17 the preceding year with respect to title III of the Defense
18 Production Act of 1950 (50 U.S.C. 4531 et seq.).

19 **SEC. 1706. REPORT ON THE DEPARTMENT OF DEFENSE**
20 **PLAN FOR MASS-CASUALTY DISASTER RE-**
21 **SPONSE OPERATIONS IN THE ARCTIC.**

22 (a) SENSE OF CONGRESS.—It is the sense of Con-
23 gress that—

24 (1) the Department of Defense may be called
25 upon to support the Coast Guard and other agencies
26 of the Department of Homeland Security in re-

1 sponding to any mass-casualty disaster response op-
2 erations in the Arctic;

3 (2) coordination between the Department of
4 Defense and the Coast Guard might be necessary for
5 responding to a mass-casualty event in the Arctic;
6 and

7 (3) prior planning for Arctic mass-casualty dis-
8 aster response operations will bolster the response of
9 the Federal Government to a mass-casualty disaster
10 in the Arctic environment.

11 (b) REPORT.—Not later than 180 days after the date
12 of the enactment of this Act, the Secretary of Defense
13 shall, in coordination with the Secretary of Homeland Se-
14 curity, submit to the appropriate committees of Congress
15 a report on the plan of the Department of Defense for
16 assisting mass-casualty disaster response operations in the
17 Arctic.

18 (c) ELEMENTS.—The report required by subsection
19 (b) shall include the following:

20 (1) A description of the assets that could be
21 made available to support other agencies and depart-
22 ments of the Federal Government for mass-casualty
23 disaster response operations in the Arctic.

24 (2) A description and assessment of the com-
25 mand, control, and coordination relationships that

1 would be useful to integrate rescue forces for such
2 operations from multiple agencies and departments
3 of the Federal Government.

4 (3) A description and assessment of the com-
5 munications assets that could be made available in
6 support of other agencies and departments of the
7 Federal Government for communication and coordi-
8 nation in such operations.

9 (4) A description of any cooperative arrange-
10 ments with Canada and other regional partners in
11 providing rescue assets and infrastructure in connec-
12 tion with such operations.

13 (5) A description of available medical infra-
14 structure and assets that could be made available in
15 support of other agencies and departments of the
16 Federal Government for aeromedical evacuation in
17 connection with such operations.

18 (6) A description of available shelter locations
19 that could be made available in support of other
20 agencies and departments of the Federal Govern-
21 ment for use in connection with such operations, in-
22 cluding the number of people that can be sheltered
23 per location.

24 (7) An assessment of logistical challenges that
25 evacuations from the Arctic in connection with such

1 operations entail, including potential rotary and
2 fixed-wing aircraft trans-load locations and onward
3 movement requirements.

4 (d) APPROPRIATE COMMITTEES OF CONGRESS DE-
5 FINED.—In this section, the term “appropriate commit-
6 tees of Congress” means—

7 (1) the Committee on Armed Services, the
8 Committee on Homeland Security and Governmental
9 Affairs, and the Committee on Appropriations of the
10 Senate; and

11 (2) the Committee on Armed Services, the
12 Committee on Homeland Security, and the Com-
13 mittee on Appropriations of the House of Represent-
14 atives.

15 **SEC. 1707. TRANSMITTAL TO CONGRESS OF REQUESTS FOR**
16 **ASSISTANCE FROM OTHER DEPARTMENTS OF**
17 **THE FEDERAL GOVERNMENT THAT ARE AP-**
18 **PROVED BY THE DEPARTMENT OF DEFENSE.**

19 (a) REQUESTS FOLLOWING APPROVAL.—Not later
20 than seven calendar days after the Department of Defense
21 approves a Request for Assistance from the Department
22 of Homeland Security or the Department of Health and
23 Human Services, the Secretary of Defense shall electroni-
24 cally transmit to the Committees on Armed Services of

1 the Senate and the House of Representatives a copy of
2 such Request for Assistance.

3 (b) OFFICIAL RESPONSES TO APPROVED RE-
4 QUESTS.—At the same time the Secretary of Defense sub-
5 mits to the Secretary of Homeland Security or the Sec-
6 retary of Health and Human Services an official response
7 of the Department of Defense approving a Request for As-
8 sistance from the Department of Homeland Security or
9 the Department of Health and Human Services, as appli-
10 cable, the Secretary of Defense shall electronically trans-
11 mit to the Committees on Armed Services of the Senate
12 and the House of Representatives a copy of such official
13 response.

14 **SEC. 1708. REPORT AND BRIEFING ON IMPLEMENTATION**
15 **OF NATIONAL DEFENSE STRATEGY.**

16 (a) REPORT AND BRIEFING.—In addition to the as-
17 sessment required under section 113(g)(1)(F) of title 10,
18 United States Code, by not later than April 30, 2020, the
19 Secretary of Defense shall submit to the congressional de-
20 fense committees a report, and provide an accompanying
21 briefing, on the implementation of the national defense
22 strategy required under section 113(g) of title 10, United
23 States Code. Such report and briefing shall include each
24 of the following:

1 (1) An explanation of the joint operational con-
2 cepts to deter and, if necessary, to defeat strategic
3 competitors, including—

4 (A) an evaluation of the risks associated
5 with the employment of such joint operational
6 concepts;

7 (B) the ways of adapting innovative joint
8 operational concepts to strategically significant
9 scenarios;

10 (C) the ways that such joint operational
11 concepts address operational challenges to
12 achieve advantages against strategic competi-
13 tors in the nuclear, space, and cyber domains;
14 and

15 (D) the employment of the force in peace-
16 time to dissuade strategic competitors from
17 conducting malign activities below the threshold
18 of open warfare, including an evaluation of the
19 use of Dynamic Force Employment and the
20 Global Operating Model.

21 (2) The force posture changes and the United
22 States defense investments required to implement
23 the national defense strategy.

24 (3) Adjustments to research and development
25 projects and programs of record, including any addi-

1 tions, deletions, or modifications intended to align
2 force management, including Joint Force develop-
3 ment and design, required to implement the national
4 defense strategy.

5 (4) An assessment of the personnel and organi-
6 zational changes required to implement the national
7 defense strategy.

8 (5) The resources and defense investments nec-
9 essary to support the operational concepts and their
10 implementation.

11 (b) INDEPENDENT STUDIES.—

12 (1) STUDIES REQUIRED.—

13 (A) IN GENERAL.—The Secretary of De-
14 fense shall provide for the performance of two
15 independent studies on the development of joint
16 operational concepts within the Department of
17 Defense in accordance with this subsection.

18 (B) SUBMITTAL TO CONGRESS.—Not later
19 than October 1, 2020, the Secretary shall sub-
20 mit to the congressional defense committees the
21 results of each study required under subpara-
22 graph (A).

23 (C) FORM.—Each study required under
24 subparagraph (A) shall be submitted in unclas-
25 sified form, but may include a classified annex.

1 (2) ENTITIES TO PERFORM STUDIES.—The Sec-
2 retary shall provide for the studies under paragraph
3 (1) to be performed as follows:

4 (A) One study shall be performed by a fed-
5 erally funded research and development center.

6 (B) One study shall be performed by an
7 independent, non-governmental institute, which
8 is described in section 501(c)(3) of the Internal
9 Revenue Code of 1986 and which is exempt
10 from taxation under section 501(a) of such
11 Code, and which has recognized credentials and
12 expertise in national security and military af-
13 fairs.

14 (3) PERFORMANCE OF STUDIES.—

15 (A) INDEPENDENT PERFORMANCE.—The
16 Secretary shall require the studies required
17 under this subsection to be conducted independ-
18 ently of one another.

19 (B) MATTERS TO BE CONSIDERED.—In
20 performing a study under this subsection, the
21 organization performing the study shall con-
22 sider the following matters:

23 (i) An assessment of the Department
24 of Defense Capstone Concept of Joint Op-

1 erations process to define, develop, and im-
2 prove joint operational concepts.

3 (ii) An evaluation of how the Depart-
4 ment is validating new joint operational
5 concepts through experimentation and mili-
6 tary exercises.

7 (iii) The effectiveness of joint oper-
8 ational concepts to accomplish the objective
9 of deterring and defeating strategic com-
10 petitors, including an evaluation of the
11 risks associated with each joint operational
12 concept.

13 (iv) The ability of joint operational
14 concepts to promote or to effectuate stra-
15 tegic objectives, defense policies, and budg-
16 etary priorities.

17 (v) Recommendations to alter or im-
18 prove joint operational concepts.

19 (vi) Such other matters as the Sec-
20 retary of Defense determines to be appro-
21 priate.

22 **SEC. 1709. ACTIONS TO INCREASE ANALYTIC SUPPORT.**

23 (a) IN GENERAL.—The Secretary of Defense shall di-
24 rect the Under Secretary of Defense for Policy, the Direc-
25 tor of the Joint Staff, and the Director of Cost Assess-

1 ment and Program Evaluation, in consultation with the
2 Secretary of each of the military services, to jointly de-
3 velop and implement a plan to strengthen the analytic ca-
4 pabilities, expertise, and processes necessary to implement
5 the national defense strategy, as required under section
6 113(g) of title 10, United States Code.

7 (b) ELEMENTS.—The plan under subsection (a) shall
8 include—

9 (1) an assessment of the decision support capa-
10 bility of the Department of Defense to support deci-
11 sion-making, specifically the analytic expertise avail-
12 able to inform senior leader decisions that link na-
13 tional defense strategy objectives with approaches to
14 competing effectively across the full spectrum of en-
15 gagement against strategic competitors;

16 (2) an analytic approach to force structure de-
17 velopment, including an assessment of the major ele-
18 ments, products, and milestones of the force plan-
19 ning process of the Department;

20 (3) the conclusions and recommendations of the
21 Defense Planning and Analysis Community initia-
22 tive;

23 (4) the progress of the Department in imple-
24 menting the recommendations of the Comptroller

1 General of the United States set forth in Govern-
2 ment Accountability Office Report (GAO-19-40C);

3 (5) the progress of the Under Secretary, the
4 Chairman of the Joint Chiefs of Staff, and the Di-
5 rector of Cost Assessment and Program Evaluation
6 in implementing paragraph (5) of section 134(b) of
7 title 10, United States Code, as added by section
8 902(b) of the John S. McCain National Defense Au-
9 thorization Act for Fiscal Year 2019 (Public Law
10 115-232); and

11 (6) such other matters as the Secretary of De-
12 fense determines to be appropriate.

13 (c) BRIEFING REQUIRED.—Not later than March 1,
14 2020, the Secretary of Defense shall provide to the con-
15 gressional defense committees a briefing on the plan under
16 subsection (a).

17 **SEC. 1710. INCLUSION OF CERTAIN INDIVIDUALS INVES-**
18 **TIGATED BY INSPECTORS GENERAL IN THE**
19 **SEMIANNUAL REPORT.**

20 Section 5(a)(19) of the Inspector General Act of
21 1978 (Public Law 95–452; 5 U.S.C. App.) is amended by
22 inserting “the name of the senior government official (as
23 defined by the department or agency) if already made pub-
24 lic by the Office, and” after “including”.

1 **SEC. 1711. ANNUAL REPORT ON JOINT MILITARY INFORMA-**
2 **TION SUPPORT OPERATIONS WEB OPER-**
3 **ATIONS CENTER.**

4 (a) IN GENERAL.—Not later than March 1 of 2020,
5 and each subsequent year until the termination date speci-
6 fied in subsection (c), the Assistant Secretary of Defense
7 for Special Operations and Low-Intensity Conflict and the
8 Commander of United States Special Operations Com-
9 mand shall jointly submit to the congressional defense
10 committees a report on the activities of the Joint Military
11 Information Support Operations Web Operations Center
12 (hereinafter referred to as the “JMWC”) during the most
13 recently concluded fiscal year.

14 (b) ELEMENTS.—The report required by subsection
15 (a) shall include each of the following, for the fiscal year
16 covered by the report:

17 (1) Definitions of initial operating capability
18 and full operational capability as such terms relate
19 to the JMWC.

20 (2) A detailed description of all activities con-
21 ducted or planned to be conducted toward achieving
22 initial operating capability and full operational capa-
23 bility of the JMWC.

24 (3) A list of all associated funding requested for
25 each program element for achieving initial operating
26 capability and full operational capability.

1 (4) A detailed description of validated doctrine,
2 organization, training, materiel, leadership and edu-
3 cation, personnel, facilities, and policy requirements
4 relating to establishment and operation of the
5 JMWC.

6 (5) A description of current JMWC capabilities,
7 including information technology infrastructure and
8 contractual arrangements.

9 (6) A list of all physical locations hosting
10 JMWC capabilities.

11 (7) The number of military, contractor, and ci-
12 vilian personnel associated with the JMWC and any
13 affiliated agency, service, or other Department of
14 Defense entity.

15 (8) A description of the JMWC personnel orga-
16 nizational structure.

17 (9) An identification of inherently governmental
18 functions relating to administration of the JMWC
19 and execution of Military Information Support Oper-
20 ations (hereinafter referred to as “MISO)” pro-
21 grams enabled by the JMWC.

22 (10) A detailed description of frameworks,
23 metrics, and capabilities to measure the effectiveness
24 of MISO programs enabled by the JMWC.

1 (11) A list of all associated funding requested
2 by program element from each of the geographic
3 combatant commanders for MISO programs enabled
4 by the JMWC and a description of such MISO ac-
5 tivities.

6 (12) An assessment of the effectiveness of
7 MISO programs enabled by the JMWC.

8 (13) A description of efforts and activities con-
9 ducted to share best practices and leverage lessons
10 learned across the Department of Defense relating
11 to MISO programs enabled by the JMWC, as well
12 as a description of such best practices and lessons
13 learned.

14 (14) An identification of liaisons and detailees
15 to the JMWC from agencies and elements of the De-
16 partment of Defense and other elements of the Fed-
17 eral Government.

18 (15) Activities and efforts conducted to syn-
19 chronize and deconflict MISO programs within the
20 Department of Defense and with interagency and
21 international partners related to strategic commu-
22 nications, as appropriate.

23 (16) Such other information as the Assistant
24 Secretary and the Commander determine appro-
25 priate.

1 (c) TERMINATION.—The requirement to submit a re-
2 port under this section shall terminate on January 1,
3 2025.

4 **SEC. 1712. MOBILITY CAPABILITY REQUIREMENTS STUDY.**

5 (a) IN GENERAL.—The Commander of the United
6 States Transportation Command, in coordination with the
7 Chairman of the Joint Chiefs of Staff, the Secretaries of
8 the military departments, and the commanders of the com-
9 batant commands, shall conduct a study of the end-to-end,
10 full-spectrum mobility requirements to fulfill the national
11 defense strategy required by section 113(g) of title 10,
12 United States Code, for 2018. Such study shall be com-
13 pleted not later than January 1, 2021.

14 (b) ELEMENTS OF STUDY.—The study required
15 under subsection (a) shall include each of the following:

16 (1) An assessment of the ability of the pro-
17 grammed airlift aircraft, tanker aircraft, sealift
18 ships, and key mobility enablers to meet the inte-
19 grated mobility requirements in expected strategic
20 environments, as defined by the guidance in such
21 national defense strategy.

22 (2) An identification, quantification, and de-
23 scription of the associated risk-to-mission (as de-
24 fined by Chairman of the Joint Chiefs of Staff Man-

1 ual 3105.01, Joint Risk Analysis) required to fulfill
2 such strategy, including—

3 (A) as assessment of risk-to-mission associ-
4 ated with achieving strategic and operational
5 objectives using the programmed airlift aircraft,
6 tanker aircraft, sealift ships, and key mobility
7 enablers; and

8 (B) a description of the combinations of
9 airlift aircraft, tanker aircraft, sealift ships, and
10 key mobility enabler requirements and capabili-
11 ties that provide low, moderate, significant, and
12 high levels of risk-to-mission to fulfill such
13 strategy.

14 (3) An identification of any mobility capability
15 gaps, shortfalls, overlaps, or excesses, including—

16 (A) an assessment of associated risks with
17 respect to the ability to conduct operations; and

18 (B) recommended mitigation strategies
19 where possible.

20 (4) The articulation of all key assumptions and
21 decisions made and excursions examined in con-
22 ducting the study with respect to—

23 (A) risk;

24 (B) programmed forces and infrastructure;

1 (C) the availability of commercial airlift
2 and commercial United States sealift capabili-
3 ties and resources, when applicable;

4 (D) aircraft usage rates, aircraft mission
5 availability rates, aircraft mission capability
6 rates, aircrew ratios, aircrew production, and
7 aircrew readiness rates;

8 (E) readiness, crewing, and activation
9 rates for sealift ships;

10 (F) prepositioning, forward stationing,
11 seabasing, engineering, and infrastructure;

12 (G) demand signals used to represent mis-
13 sions described in the national defense strategy
14 for 2018, in competition and wartime;

15 (H) concurrency and global integration of
16 demand signals;

17 (I) integrated global presence and basing
18 strategy;

19 (J) host nation or third-country support;

20 (K) adversary actions to degrade and dis-
21 rupt United States mobility operations;

22 (L) adversary actions that threaten free-
23 dom of navigation on international waterways,
24 including attacks on foreign ships and crews;

1 (M) aircraft being used for training or un-
2 dergoing depot maintenance or modernization
3 or ships undergoing depot maintenance;

4 (N) mobility enabling forces availability,
5 readiness, and use;

6 (O) logistics concept of operations, includ-
7 ing any support concepts, methods, combat sup-
8 port forces, and combat service support forces,
9 that are required to enable the projection and
10 enduring support to forces both deployed and in
11 combat for each analytic scenario;

12 (P) anticipated attrition rates for the as-
13 sessed force structure; and

14 (Q) such other matters as the Commander
15 determines appropriate.

16 (5) Such other elements as the Commander de-
17 termines appropriate.

18 (c) REPORTS AND BRIEFINGS.—

19 (1) INTERIM REPORT AND BRIEFING.—Not
20 later than June 1, 2020, the Commander of the
21 United States Transportation Command, in coordi-
22 nation with the Chairman of the Joint Chiefs of
23 Staff, the Secretaries of the military departments,
24 and the commanders of the combatant commands,
25 shall—

1 (A) submit to the congressional defense
2 committees an interim report on the study; and

3 (B) provide to such committees a briefing
4 on the report.

5 (2) FINAL REPORT AND BRIEFING.—Not later
6 than January 1, 2021, the Commander of the
7 United States Transportation Command, in coordi-
8 nation with the Chairman of the Joint Chiefs of
9 Staff, the Secretaries of the military departments,
10 and the commanders of the combatant commands,
11 shall—

12 (A) submit to the congressional defense
13 committees a final report on the study; and

14 (B) provide to such committees a briefing
15 on the report.

16 (3) FORM OF REPORTS.—The reports required
17 by paragraphs (1) and (2) shall be submitted in un-
18 classified form, but may include a classified annex.

19 (d) DEFINITION OF SEALIFT SHIP.—In this section,
20 the term “sealift ship” includes surge sealift vessels, tank-
21 er vessels, and non-governmental vessels incorporated as
22 part of the maritime logistics enterprise.

1 **SEC. 1713. ASSESSMENT OF SPECIAL OPERATIONS FORCE**
2 **STRUCTURE.**

3 (a) **ASSESSMENT.**—Not later than 30 days after the
4 date of the enactment of this Act, the Secretary of Defense
5 shall seek to enter into an agreement with a federally
6 funded research and development center for the conduct
7 of an independent assessment of the force structure and
8 roles and responsibilities of special operations forces.

9 (b) **MATTERS TO BE CONSIDERED.**—In performing
10 the assessment under this section, the federally funded re-
11 search and development center shall consider the following
12 matters:

13 (1) The most recent national defense strategy
14 under section 113(g) of title 10, United States Code.

15 (2) Special operations activities, as described in
16 section 167(k) of title 10, United States Code.

17 (3) Potential future national security threats to
18 the United States.

19 (4) Ongoing counterterrorism and contingency
20 operations of the United States.

21 (5) The demand for special operations forces by
22 geographic combatant commanders for security co-
23 operation, exercises, and other missions that could
24 be executed by conventional forces.

25 (6) Other government and non-government
26 analyses that would contribute to the assessment

1 through variations in study assumptions or potential
2 scenarios.

3 (7) The role of emerging technology on special
4 operations forces.

5 (8) Opportunities for reduced operation and
6 sustainment costs of special operations.

7 (9) Current and projected capabilities of other
8 United States Armed Forces that could affect force
9 structure capability and capacity requirements of
10 special operations forces.

11 (10) The process by which United States Spe-
12 cial Operations Command determines force size and
13 structure.

14 (11) The size, composition, and organizational
15 structure of United States Special Operations Com-
16 mand headquarters and subordinate headquarters
17 elements.

18 (12) The readiness of special operations forces
19 for assigned missions and future conflicts.

20 (13) The adequacy of special operations force
21 structure for meeting the goals of the National Mili-
22 tary Strategy under section 153(b) of title 10,
23 United States Code.

24 (14) Any other matters deemed relevant.

1 (c) ASSESSMENT RESULTS.—The results of the as-
2 sessment under this section shall include each of the fol-
3 lowing:

4 (1) Considerations and recommendations for
5 improving the readiness of special operations forces.

6 (2) Alternative headquarters and force struc-
7 ture options to reduce administrative costs and en-
8 hance operational effectiveness.

9 (3) Legislative recommendations with respect to
10 section 167 of title 10, United States Code, and
11 other relevant provisions of law.

12 (d) SUBMISSION TO CONGRESS.—Not later than July
13 1, 2020, the Secretary shall submit to the congressional
14 defense committees an unaltered copy of the assessment
15 required under subsection (a) together with the views of
16 the Assistant Secretary of Defense for Special Operations
17 and Low-Intensity Conflict and the Commander of United
18 States Special Operations Command on the assessment
19 and the recommendations included in the assessment.

20 **SEC. 1714. ARMY AVIATION STRATEGIC PLAN AND MOD-**
21 **ERNIZATION ROADMAP.**

22 (a) STRATEGIC PLAN AND MODERNIZATION ROAD-
23 MAP.—

1 (1) IN GENERAL.—The Secretary of the Army
2 shall develop a comprehensive strategic plan for
3 Army aviation, which shall—

4 (A) ensure the alignment between require-
5 ments, both current and future, and Army
6 budget submissions to meet such requirements;
7 and

8 (B) inform the preparation of future de-
9 fense program and budget requests by the Sec-
10 retary, and the consideration of such requests
11 by Congress.

12 (2) ELEMENTS.—The plan required by para-
13 graph (1) shall include the following:

14 (A) An assessment of all missions for
15 Army aviation, both current missions and those
16 missions necessary to support the national de-
17 fense strategy and the U.S. Army in Multi-Do-
18 main Operations 2028 concept.

19 (B) An analysis of platforms, capabilities,
20 and capacities necessary to fulfill such current
21 and future Army aviation missions.

22 (C) The anticipated life cycle budget asso-
23 ciated with each platform, capability, and ca-
24 pacity requirement for both current and future
25 requirements.

1 (D) An analysis showing operational, budg-
2 et, and schedule trade-offs between sustainment
3 of currently fielded capabilities, modernization
4 of currently fielded capabilities, and develop-
5 ment and production of new capabilities.

6 (b) REPORT TO CONGRESS.—Not later than March
7 30, 2020, the Secretary of the Army shall submit to the
8 congressional defense committees a report containing—

9 (1) the comprehensive strategic plan required
10 by subsection (a); and

11 (2) a sustainment and modernization plan for
12 carrying out such strategic plan through fiscal year
13 2028.

14 **SEC. 1715. REPORT ON GROUND-BASED LONG-RANGE AR-**
15 **TILLERY TO COUNTER LAND AND MARITIME**
16 **THREATS.**

17 (a) IN GENERAL.—Not later than March 1, 2020, the
18 Secretary of Defense shall submit to the Committees on
19 Armed Services of the Senate and House of Representa-
20 tives a report on the efforts by the Army and Marine
21 Corps to develop and deploy ground-based long-range
22 rocket and cannon artillery to counter land and maritime
23 threats.

24 (b) ELEMENTS.—The report required by subsection
25 (a) shall include each of the following:

1 (1) An assessment of ongoing and future Army
2 and Marine Corps efforts to develop and deploy
3 ground-based long-range rocket and cannon artillery
4 to counter land and maritime fires in the areas of
5 operations of United States Indo-Pacific Command
6 and United States European Command.

7 (2) An assessment of and recommendations for
8 how the Department of Defense can improve the de-
9 velopment and deployment of such artillery.

10 (3) An analysis, assessment, and determination
11 of how such artillery employed in support of the
12 United States and allied forces will be stationed, de-
13 ployed, operationally positioned, and controlled to
14 operate effectively against potential adversaries
15 throughout the depth of their tactical, operational,
16 and strategic formations, including any rec-
17 ommendations of the Secretary regarding how such
18 capabilities and support could be enhanced.

19 (c) FORM OF REPORT.—The report required by sub-
20 section (a) shall be submitted in unclassified form, but
21 may contain a classified annex.

22 **SEC. 1716. INDEPENDENT REVIEW OF TRANSPORTATION**
23 **WORKING-CAPITAL FUND.**

24 (a) IN GENERAL.—Not later than 30 days after the
25 date of the enactment of this Act, the Secretary of De-

1 fense, in coordination with the Secretary of each of the
2 military departments, shall enter into a contract with a
3 federally funded research and development center for the
4 conduct of an independent review of the transportation
5 working-capital fund (hereinafter referred to as the
6 “TWCF”) of the United States Transportation Command.

7 (b) MATTERS FOR INCLUSION.—The review con-
8 ducted under subsection (a) shall include each of the fol-
9 lowing:

10 (1) The viability of the TWCF as it is struc-
11 tured as of the date of the enactment of this Act.

12 (2) An assessment of any instances in which ex-
13 cess TWCF funds were used for procurement or
14 modernization efforts that would not otherwise have
15 been funded using amounts made available for oper-
16 ation and maintenance.

17 (3) Recommendations for how the TWCF could
18 be restructured in order to make the fund more ef-
19 fective and efficient.

20 (4) Potential alternative funding mechanisms
21 for certain components of the TWCF, including the
22 channel system.

23 (5) Any other matters the Secretaries jointly
24 determine appropriate.

1 (c) REPORT.—Not later than March 1, 2021, the
2 Secretary of Defense and the Secretary of each of the mili-
3 tary departments shall jointly submit the to the congres-
4 sional defense committees a copy of the review conducted
5 under subsection (a).

6 **SEC. 1717. GEOGRAPHIC COMMAND RISK ASSESSMENT OF**
7 **PROPOSED USE OF CERTAIN AIRCRAFT CA-**
8 **PABILITIES.**

9 (a) IN GENERAL.—Not later than March 31, 2020,
10 each commander of a geographic combatant command
11 shall submit to the congressional defense committees a re-
12 port containing an assessment of the level of operational
13 risk to that command posed by the plans of the Depart-
14 ment of the Navy and Department of the Air Force to
15 provide a mix of fifth generation and advanced fourth gen-
16 eration tactical aircraft capabilities to meet near-, mid-,
17 and far-term contingency and steady-state operational re-
18 quirements against adversaries in support of the objectives
19 of the 2018 national defense strategy.

20 (b) ASSESSMENT OF RISK.—In assessing levels of
21 operational risk under subsection (a), a commander shall
22 use the military risk matrix of the Chairman of the Joint
23 Chiefs of Staff, as described in CJCS Instruction
24 3401.01E.

1 (c) GEOGRAPHIC COMBATANT COMMAND.—In this
2 section, the term “geographic combatant command”
3 means each of the following:

4 (1) United States European Command.

5 (2) United States Indo-Pacific Command.

6 (3) United States Africa Command.

7 (4) United States Southern Command.

8 (5) United States Northern Command.

9 (6) United States Central Command.

10 **SEC. 1718. REPORT ON BACKLOG OF PERSONNEL SECURITY**

11 **CLEARANCE ADJUDICATIONS.**

12 (a) IN GENERAL.—Not later than 120 days after the
13 date of the enactment of this Act, and quarterly thereafter
14 for three years, the Security Executive Agent, in coordina-
15 tion with members of the Performance Accountability
16 Council established pursuant to Executive Order 13467,
17 shall submit to Congress a report on the backlog of per-
18 sonnel security clearance adjudications conducted by all
19 Government agencies that adjudicate decisions for security
20 clearances. Such report shall include—

21 (1) the size of the backlog of personnel security
22 clearance adjudications, by agency, for the fiscal
23 quarter preceding the quarter during which the re-
24 port is submitted;

1 (2) the average length of time, for each security
2 clearance sensitivity level, to carry out an initial ad-
3 judication and an adjudication following a periodic
4 reinvestigation, by agency;

5 (3) the number of cases referred to the Consoli-
6 dated Adjudication Facility of the Department of
7 Defense;

8 (4) the number of initial investigations adju-
9 dicated by the Consolidated Adjudication Facility;

10 (5) the number of periodic reinvestigations ad-
11 judicated by the Consolidated Adjudication Facility;

12 (6) the number of cases adjudicated by the
13 Consolidated Adjudication Facility stemming from
14 participation in a continuous evaluation program;

15 (7) the number of personnel enrolled in a con-
16 tinuous evaluation program as opposed to subject to
17 a periodic reinvestigation;

18 (8) the number of adjudicators by agency; and

19 (9) a backlog mitigation plan, which shall in-
20 clude—

21 (A) the identification of the cause of, and
22 recommendations to remedy, the adjudication
23 backlog at Federal agencies; and

24 (B) the steps the Security Executive
25 Agent, established pursuant to Executive Order

1 13467, shall take to reduce the adjudication
2 backlog.

3 (b) **PUBLIC AVAILABILITY.**—Each report required
4 under subsection (a) shall be made publicly available.

5 **SEC. 1719. REPORT REGARDING OUTSTANDING GOVERN-**
6 **MENT ACCOUNTABILITY OFFICE REC-**
7 **COMMENDATIONS.**

8 Not later than September 30, 2020, the Secretary of
9 Defense shall submit to the congressional defense commit-
10 tees a report that includes—

11 (1) a list of the priority recommendations iden-
12 tified by the Comptroller General of the United
13 States regarding matters of the Department of De-
14 fense that the Secretary has not implemented due to
15 funding limitations.

16 (2) the estimated cost associated with imple-
17 menting such recommendations.

18 **SEC. 1720. REPORT ON NATIONAL GUARD AND UNITED**
19 **STATES NORTHERN COMMAND CAPACITY TO**
20 **MEET HOMELAND DEFENSE AND SECURITY**
21 **INCIDENTS.**

22 Not later than September 30, 2020, the Chief of the
23 National Guard Bureau shall, in consultation with the
24 Commander of United States Northern Command, submit

1 to the congressional defense committees a report setting
2 forth the following:

3 (1) A clarification of the roles and missions,
4 structure, capabilities, and training of the National
5 Guard and the United States Northern Command,
6 and an identification of emerging gaps and shortfalls
7 in light of current homeland security threats to our
8 country.

9 (2) A list of the resources that each State and
10 Territory National Guard has at its disposal that
11 are available to respond to a homeland defense or
12 security incident, with particular focus on a multi-
13 State electromagnetic pulse event.

14 (3) The readiness and resourcing status of
15 forces listed pursuant to paragraph (2).

16 (4) The current strengths and areas of improve-
17 ment in working with State and Federal interagency
18 partners.

19 (5) The current assessments that address Na-
20 tional Guard readiness and resourcing of regular
21 United States Northern Command forces postured
22 to respond to homeland defense and security inci-
23 dents.

1 (6) A roadmap to 2040 that addresses readi-
2 ness across the spectrum of long-range emerging
3 threats facing the United States.

4 **SEC. 1721. ASSESSMENT OF STANDARDS, PROCESSES, PRO-**
5 **CEDURES, AND POLICY RELATING TO CIVIL-**
6 **IAN CASUALTIES.**

7 (a) **ASSESSMENT.**—The Secretary of Defense shall
8 seek to enter into an agreement with a federally funded
9 research and development center for the conduct of an
10 independent assessment of Department of Defense stand-
11 ards, processes, procedures, and policy relating to civilian
12 casualties resulting from United States military oper-
13 ations.

14 (b) **MATTERS TO BE CONSIDERED.**—In conducting
15 the assessment under this section, the federally funded re-
16 search and development center shall consider the following
17 matters:

18 (1) Department of Defense policy relating to ci-
19 vilian casualties resulting from United States mili-
20 tary operations.

21 (2) Standards, processes, and procedures for in-
22 ternal assessments and investigations of civilian cas-
23 ualties resulting from United States military oper-
24 ations.

1 (3) Standards, processes, and procedures for
2 identifying, assessing, investigating, and responding
3 to reports of civilian casualties resulting from United
4 States military operations from the public and non-
5 governmental entities and sources.

6 (4) Combatant command resourcing and orga-
7 nizational constructs for assessing and investigating
8 civilian casualties resulting from United States mili-
9 tary operations.

10 (5) Mechanisms for public and non-govern-
11 mental entities to report civilian casualties that may
12 have resulted from United States military operations
13 to the Department of Defense.

14 (6) Standards and processes for accurately re-
15 cording kinetic strikes, including raids, strikes, and
16 other missions, and civilian casualties resulting from
17 United States military operations.

18 (7) An analysis of general reasons for any dis-
19 parity between third party public estimates and offi-
20 cial United States Government estimates of civilian
21 casualties resulting from United States or joint mili-
22 tary operations.

23 (8) The standardization of dissemination and
24 institutionalization across the Department of De-
25 fense and the combatant commands of lessons

1 learned from United States military operations as a
2 means of reducing the likelihood of civilian casual-
3 ties from United States military operations.

4 (9) Any other matters the Secretary of Defense
5 determines appropriate.

6 (c) RECOMMENDATIONS FOR IMPROVEMENTS.—The
7 results of the assessment under this section shall include
8 recommendations for improvements to standards, proc-
9 esses, procedures, policy, and organizational constructs re-
10 lating to civilian casualties resulting from United States
11 military operations.

12 (d) SUBMISSION OF REPORT.—

13 (1) IN GENERAL.—Not later than July 1, 2020,
14 the Secretary of Defense shall submit to the con-
15 gressional defense committees a report setting forth
16 an unaltered copy of the assessment under this sec-
17 tion, together with the views of the Secretary on the
18 assessment and on the recommendations included
19 pursuant to subsection (c).

20 (2) FORM OF REPORT.—The report under para-
21 graph (1) shall be submitted in unclassified form,
22 but may contain a classified annex.

23 (3) PUBLIC AVAILABILITY.—The Secretary
24 shall make the unclassified form of the report under
25 paragraph (1) available to the public.

1 **SEC. 1722. REPORT ON TRANSFERS OF EQUIPMENT TO PRO-**
2 **HIBITED ENTITIES.**

3 (a) ANNUAL REPORT.—Not later than March 1,
4 2021, and each subsequent year through 2025, the Sec-
5 retary of Defense, in coordination with the Secretary of
6 State, shall submit to the appropriate committees of Con-
7 gress a report on the transfer of defense articles during
8 the year preceding the year during which the report is sub-
9 mitted to any of the following:

10 (1) Any security force unit that has committed
11 a gross violation of human rights in violation of sec-
12 tion 362 of title 10, United States Code, or section
13 620M of the Foreign Assistance Act of 1961 (22
14 U.S.C. 2378d).

15 (2) Any group or organization prohibited by law
16 from receiving assistance from the United States.

17 (b) MATTERS TO BE INCLUDED.—The report re-
18 quired by subsection (a) shall include the following:

19 (1) A description of any confirmed instance in
20 which the government of a foreign state that has re-
21 ceived defense articles pursuant to a Department of
22 Defense assistance authority subsequently trans-
23 ferred any such articles to a unit of that foreign
24 state that is prohibited from receiving assistance
25 from the United States by reason of a determination
26 by the Secretary of Defense or the Secretary of

1 State that there is credible evidence that such unit
2 has committed a gross violation of human rights.

3 (2) A description of any instance, confirmed or
4 under investigation, in which the government of a
5 foreign state that has received defense articles pur-
6 suant to a Department of Defense assistance author-
7 ity subsequently transferred any such articles to a
8 group or organization that is prohibited by law from
9 receiving assistance from the United States.

10 (c) APPROPRIATE COMMITTEES OF CONGRESS DE-
11 FINED.—In this section, the term “appropriate commit-
12 tees of Congress” means—

13 (1) the Committee on Armed Services and the
14 Committee on Foreign Relations of the Senate; and

15 (2) the Committee on Armed Services and the
16 Committee on Foreign Affairs of the House of Rep-
17 resentatives.

18 **SEC. 1723. ANNUAL REPORT ON STRIKES UNDERTAKEN BY**
19 **THE UNITED STATES AGAINST TERRORIST**
20 **TARGETS OUTSIDE AREAS OF ACTIVE HOS-**
21 **TILITIES.**

22 (a) ANNUAL REPORT.—Not later than May 1 2020,
23 and annually thereafter until 2022, the Director of Na-
24 tional Intelligence and the Secretary of Defense shall
25 jointly submit to Congress a report on the number of

1 strikes undertaken by the United States against terrorist
2 targets outside areas of active hostilities during the pre-
3 ceding calendar year, as well as assessments of combatant
4 and non-combatant deaths resulting from those strikes.

5 (b) CONTENTS OF REPORT.—The report required by
6 subsection (a) shall include—

7 (1) information obtained from relevant agencies
8 regarding the general sources of information and
9 methodology used to conduct the assessments of
10 combatant and non-combatant deaths;

11 (2) to the extent feasible and appropriate, the
12 general reasons for discrepancies between post-strike
13 assessments from the United States and credible re-
14 porting from nongovernmental organizations regard-
15 ing non-combatant deaths resulting from strikes un-
16 dertaken by the United States against terrorist tar-
17 gets outside areas of active hostilities.

18 (c) REVIEW OF POST-STRIKE REPORTING.—In pre-
19 paring a report under this section, the Director and the
20 Secretary shall, to the maximum extent practicable, review
21 relevant and credible post-strike all-source reporting, in-
22 cluding such information from nongovernmental sources,
23 for the purpose of ensuring that this reporting is available
24 to and considered by relevant agencies in their assessment
25 of deaths.

1 (d) FORM OF REPORT.—The report required under
2 subsection (a) shall be submitted in unclassified form, but
3 may include a classified annex.

4 **SEC. 1724. REVIEW AND ASSESSMENT OF MITIGATION OF**
5 **MILITARY HELICOPTER NOISE.**

6 (a) IN GENERAL.—The Secretary of Defense, in co-
7 ordination with the Chairman of the Joint Chiefs of Staff,
8 shall conduct a review and assessment of military heli-
9 copter noise in the National Capital Region. Such review
10 and assessment shall include—

11 (1) a study on the causes and effects of military
12 helicopter noise on communities and individuals in
13 the National Capital Region;

14 (2) recommendations to mitigate the effects of
15 military helicopter noise on individuals, structures,
16 and property values in the National Capital Region;
17 and

18 (3) the extent to which the Department has
19 processes in place for collecting, analyzing, and man-
20 aging military helicopter noise complaints from the
21 general public across the National Capital Region.

22 (b) FOCUS.—In conducting the review under sub-
23 section (a), the Secretary and the Chairman of the Joint
24 Chiefs of Staff shall focus on all military helicopter flights

1 in the National Capital Region, including helicopters from
2 the Army, Air Force, and Marine Corps.

3 (c) REPORT.—Not later than six months after the
4 date of the enactment of this Act, the Secretary shall sub-
5 mit to Congress a report on the results of the review con-
6 ducted under subsection (a). Such report shall include a
7 description of the policies and procedures currently being
8 used by the Army, Air Force, and Marine Corps in the
9 National Capital Region to mitigate the impact of heli-
10 copter noise as well as the means to track compliance with
11 these internal practices to ensure compliance.

12 (d) DEFINITION OF NATIONAL CAPITAL REGION.—
13 In this section, the term “National Capital Region” has
14 the meaning given the term in section 2574 of title 10,
15 United States Code.

16 **Subtitle B—Other Matters**

17 **SEC. 1731. TECHNICAL, CONFORMING, AND CLERICAL** 18 **AMENDMENTS.**

19 (a) TITLE 10, UNITED STATES CODE.—Title 10,
20 United States Code, is amended as follows:

21 (1) The table of chapters at the beginning of
22 subtitle A, and at the beginning of part I of such
23 subtitle, are each amended by striking the item re-
24 lating to chapter 9A and inserting the following:

“9A. Audit 240a”.

1 (2) The table of chapters at the beginning of
2 subtitle A, and at the beginning of part I of such
3 subtitle, are each amended by striking the item re-
4 lating to chapter 112 and inserting the following:

“112. Cyber Scholarship Program 2200”.

5 (3) Section 113(j)(1) is amended by inserting
6 “the” before “congressional defense committees”.

7 (4) Section 119a is amended in each of the sub-
8 section headings for subsections (a) and (b) by strik-
9 ing “AACMS” and inserting “ACCMS”.

10 (5) Section 127(c)(1) is amended by inserting
11 “the” before “congressional defense committees”.

12 (6) Section 130i is amended—

13 (A) in subsection (i)(1), by inserting “(C)”
14 after “(j)(3)”; and

15 (B) in subsection (j)(6), by striking
16 “40101” and inserting “44802”.

17 (7) Section 131(b)(8) is amended by redesign-
18 ating subparagraph (I) as subparagraph (F).

19 (8) Section 132 is amended by redesignating
20 subsection (e) as subsection (d).

21 (9) The item relating to section 169 in the table
22 of sections at the beginning of chapter 6 is amended
23 by inserting a period after “Command”.

1 (10) The item relating to section 183a in the
2 table of sections at the beginning of chapter 7 is
3 amended to read as follows:

 “183a. Military Aviation and Installation Assurance Clearinghouse for review of
 mission obstructions.”.

4 (11) Section 187(a)(2)(C) is amended by strik-
5 ing “Assistant Secretary of the Army for Acquisi-
6 tion, Technology, and Logistics” and inserting “As-
7 sistant Secretary of the Army for Acquisition, Logis-
8 tics, and Technology”.

9 (12) Section 222a(d)(3)(A) is amended by in-
10 serting “had” before “been”.

11 (13) Section 222b(a) is amended by striking
12 “United States Code,”.

13 (14) Section 284 is amended—

14 (A) by striking “section 376” both places
15 it appears and inserting “section 276”;

16 (B) in subsection (f), by inserting “)” after
17 “Stat. 1564”;

18 (C) in subsection (g)(2), by striking “sec-
19 tion 375” and inserting “section 275”; and

20 (D) in subsection (h)(1)(A)(vi)(VI) by
21 striking “section 1004 of the National Defense
22 Authorization Act for Fiscal Year 1991 (10
23 U.S.C. 374 note) and”.

1 (15) The table of sections at the beginning of
2 subchapter V of chapter 16 is amended by striking
3 “Sec.” after the item relating to section 350.

4 (16) Section 341(e)(2)(A) is amended by add-
5 ing a period at the end.

6 (17) Section 526(k) is amended by inserting
7 “the” before “number of general officers”.

8 (18) Section 649j is amended by striking “(a)
9 IN GENERAL.—The” and inserting “The”.

10 (19) Section 651(a) is amended by inserting
11 “shall serve” after “(50 U.S.C. 3806(d)(1))”.

12 (20) The heading of section 928b (article 128b
13 of the Uniform Code of Military Justice) is amended
14 to read as follows:

15 **“§ 928b. Art. 128b. Domestic violence”.**

16 (21) Section 1034(b)(1)(B)(ii) is amended by
17 striking “subsection (i)” and inserting “subsection
18 (j)”;

19 (22) Section 1073c(a) is amended by redesignig-
20 nating the second paragraph (4) as paragraph (6).

21 (23) Section 1075(d)(1) is amended in the table
22 by striking “25% of out of network” and inserting
23 “25% out of network”.

1 (24) Section 1076d(d)(1) is amended by strik-
2 ing “section 1075 of this section” and inserting
3 “section 1075 of this title”.

4 (25) Section 1076e(d)(1) is amended by strik-
5 ing “section 1075 of this section” and inserting
6 “section 1075 of this title”.

7 (26) Section 1142(c)(3) is amended by striking
8 “paragraph (2)(B)” and inserting “paragraph
9 (2)(C)”.

10 (27) Section 1762(c) is amended by striking “in
11 at any one time” and inserting “at any one time in”.

12 (28) Section 1788a is amended in subsection
13 (d)(1) by striking “Not later than March 1, 2019,
14 and each March 1 thereafter” and inserting “Not
15 later than March 1 each year”.

16 (29) Section 2208(u) is amended by inserting
17 “of this title” after “2805” each place it appears.

18 (30) Section 2216(b)(1) is amended by striking
19 “subsection (c)(1)(B)(iii)” and inserting “subsection
20 (c)(1)(B)(ii)”.

21 (31) Section 2222(i)(11) is amended by striking
22 “subsection (a)(6)(A)” and inserting “subsection
23 (e)(6)(A)”.

24 (32) Section 2228(a)(2) is amended by striking
25 the second period at the end.

1 (33) The item relating to section 2229b in the
2 table of sections at the beginning of chapter 131 is
3 amended to read as follows:

 “2229b. Comptroller General assessment of acquisition programs and initia-
 tives.”.

4 (34) Section 2273(b)(1) is amended by insert-
5 ing a semicolon at the end.

6 (35) The heading for section 2279d is amended
7 by striking the period at the end.

8 (36) The heading of section 2284, as added by
9 section 311(a) of the John S. McCain National De-
10 fense Authorization Act for Fiscal Year 2019 (Pub-
11 lic Law 115–232; 132 Stat. 1708), is amended to
12 read as follows:

13 **“§ 2284. Explosive Ordnance Disposal Defense Pro-**
14 **gram”.**

15 (37) Section 2304(f)(1)(B) is amended—

16 (A) in clause (ii), by striking “paragraph
17 (6)(A)” and inserting “paragraph (5)(A)”; and

18 (B) in clause (iii), by striking “paragraph
19 (6)(B)” and inserting “paragraph (5)(B)”.

20 (38) Section 2305a(d)(1) is amended by strik-
21 ing “a indefinite” and inserting “an indefinite”.

22 (39)(A) Section 2304e is amended by striking
23 the last four words of the section heading.

24 (B) Section 2323a is amended—

1 (i) in the section heading, by striking the
2 last six words; and

3 (ii) in subsection (e)—

4 (I) in paragraph (1), by striking “102
5 Stat. 2468;”;

6 (II) in paragraph (2), by striking
7 “(25 U.S.C. 450b(d))” and inserting “(25
8 U.S.C. 5304(d))”; and

9 (III) in paragraph (3), by striking
10 “(25 U.S.C. 450b(e))” and inserting “(25
11 U.S.C. 5304(e))”.

12 (C) The table of sections at the beginning of
13 chapter 137 is amended by striking the last four
14 words of the item relating to section 2304e and the
15 last six words of the item relating to section 2323a.

16 (40) Section 2307(a)(1) is amended by striking
17 “may” and inserting “may—”.

18 (41) Section 2313b(d) is amended by striking
19 “an task order” both places it appears and inserting
20 “a task order”.

21 (42) Section 2329(g)(1) is amended by striking
22 “‘bridge contact’” and inserting “‘bridge con-
23 tract’”.

1 (43) Section 2339a(e)(5) is amended by strik-
2 ing “section 3542(b)” and inserting “section
3 3552(b)(6)”.

4 (44) Section 2366a(c)(1)(F) is amended by
5 striking “section 2366a(b)(6) of this title” and in-
6 serting “subsection (b)(6)”.

7 (45) Section 2368(f)(1) is amended by striking
8 “transition” and inserting “transaction”.

9 (46) Section 2371b(d)(1)(C) is amended by
10 striking “other than” after “sources”.

11 (47) Section 2380B is amended—

12 (A) by inserting “section” before “2376(1)
13 of this title”; and

14 (B) by striking “purposed of” and insert-
15 ing “purposes of”.

16 (48) Section 2401(e)(2) is amended by striking
17 “subsection (f)” and inserting “subsection (g)”.

18 (49) The item relating to section 2439 in the
19 table of sections at the beginning of chapter 144 is
20 amended to read as follows:

“2439. Negotiation of price for technical data before development, production,
or sustainment of major weapon systems.”.

21 (50) The item relating to subchapter II in the
22 table of subchapters for chapter 144B is amended to
23 read as follows:

**“II. Development, Prototyping, and Deployment of
Weapon System Components or Tech-
nology2447a”.**

1 (51) Section 2447a(a) is amended by striking
2 “after fiscal year 2017”.

3 (52) Section 2547(b)(2) is amended—
4 (A) by striking “material” and inserting
5 “materiel”; and

6 (B) by striking “Material” both places it
7 appears and inserting “Materiel”.

8 (53) Section 2802(e)(1) is amended by striking
9 “shall comply with” and inserting “shall—
10 “(A) comply with”.

11 (54) Section 2804(b) is amended, in the second
12 sentence—

13 (A) by striking “(1)” and “(2)”; and
14 (B) by striking “project and” and insert-
15 ing “project,”.

16 (55) Section 2805(d)(1)(B) is amended by in-
17 serting “under” after “made available”.

18 (56) Section 2835a(c) is amended by striking
19 “(1) The Secretary” and inserting “The Secretary”.

20 (57) Section 2879(a)(2)(A) is amended by
21 striking the comma after “2017”.

22 (58) Section 2913(c) is amended by striking
23 “government a gas or electric utility” and inserting
24 “government gas or electric utility”.

1 (59) The item relating to section 2914 in the
2 table of sections at the beginning of chapter 173 is
3 amended to read as follows:

“2914. Energy resilience and conservation construction projects.”.

4 (60)(A) The heading of section 8749, as
5 amended by section 1114(b)(2) and redesignated by
6 section 807(d)(6) of the John S. McCain National
7 Defense Authorization Act for Fiscal Year 2019
8 (Public Law 115–232), is amended by capitalizing
9 the initial letter of the fifth, sixth, and seventh
10 words and the initial letter of the last two words.

11 (B) The heading of section 8749a, as added by
12 section 1114(a) and redesignated by section 8(d)(6)
13 of the John S. McCain National Defense Authoriza-
14 tion Act for Fiscal Year 2019 (Public Law 115–
15 232), is amended by capitalizing the initial letter of
16 the fifth, sixth, and seventh words.

17 (61) Section 9069(a) is amended by striking
18 “are” and inserting “is”.

19 (62) Section 10217(e)(4) is amended by strik-
20 ing “shall an individual” and inserting “shall be an
21 individual”.

22 (63) The item relating to section 2568a in the
23 table of sections at the beginning of chapter 152 is
24 amended to read as follows:

“2568a. Damaged personal protective equipment: award to members separating from the armed forces and veterans.”.

1 (64) Section 7016(b)(5)(A) is amended by
2 striking “Assistant Secretary of the Army for Acqui-
3 sition, Technology, and Logistics” and inserting
4 “Assistant Secretary of the Army for Acquisition,
5 Logistics, and Technology”.

6 (b) NDAA FOR FISCAL YEAR 2019.—Effective as of
7 August 13, 2018, and as if included therein as enacted,
8 the John S. McCain National Defense Authorization Act
9 for Fiscal Year 2019 (Public Law 115–232) is amended
10 as follows:

11 (1) Section 331(g)(2) (132 Stat. 1724) is
12 amended by inserting “of such title” after “chapter
13 2”.

14 (2) Section 844(b) (132 Stat. 1881) is amended
15 by striking “This section and the amendments made
16 by this section” and inserting “The amendment
17 made by subsection (a)”.

18 (3) Section 1246(1)(B) (132 Stat. 2049) is
19 amended by adding at the end before the semicolon
20 the following: “and transferring it to appear after
21 paragraph (15)”.

22 (4) Section 2805(c) (132 Stat. 2262; 10 U.S.C.
23 2864 note) is amended by striking “United Facilities
24 Criteria” and inserting “Unified Facilities Criteria”.

1 (c) NDAA FOR FISCAL YEAR 2018.—Effective as of
2 December 12, 2017, and as if included therein as enacted,
3 section 1609(b)(3) of the National Defense Authorization
4 Act for Fiscal Year 2018 (Public Law 115–91; 131 Stat.
5 1728; 10 U.S.C. 2273 note) is amended by striking “,
6 and,” and inserting “, and”.

7 (d) NDAA FOR FISCAL YEAR 2017.—Effective as of
8 December 23, 2016, and as if included therein as enacted,
9 section 233(c)(2)(C)(ii) of the National Defense Author-
10 ization Act for Fiscal Year 2018 (Public Law 114–328;
11 130 Stat. 2061; 10 U.S.C. 2358 note) is amended by
12 striking “Assistant Secretary of the Army for Acquisition,
13 Technology, and Logistics” and inserting “Assistant Sec-
14 retary of the Army for Acquisition, Logistics, and Tech-
15 nology”.

16 (e) NDAA FOR FISCAL YEAR 2012.—Effective as of
17 December 31, 2011, and as if included therein as enacted,
18 section 315 of the National Defense Authorization Act for
19 Fiscal Year 2012 (Public Law 112–81; 125 Stat. 1358;
20 10 U.S.C. 2911 note) is amended by redesignating sub-
21 sections (d), (e), and (f) as subsections (c), (d), and (e),
22 respectively.

23 (f) COORDINATION WITH OTHER AMENDMENTS
24 MADE BY THIS ACT.—For purposes of applying amend-
25 ments made by provisions of this Act other than this sec-

1 tion, the amendments made by this section shall be treated
2 as having been enacted immediately before any such
3 amendments by other provisions of this Act.

4 **SEC. 1732. ESTABLISHMENT OF LEAD INSPECTOR GENERAL**
5 **FOR AN OVERSEAS CONTINGENCY OPER-**
6 **ATION BASED ON SECRETARY OF DEFENSE**
7 **NOTIFICATION.**

8 (a) NOTIFICATION ON COMMENCEMENT OF OCO.—
9 Section 113 of title 10, United States Code, is amended
10 by adding at the end the following new subsection:

11 “(n) NOTIFICATION OF CERTAIN OVERSEAS CONTIN-
12 GENCY OPERATIONS FOR PURPOSES OF INSPECTOR GEN-
13 ERAL ACT OF 1978.—The Secretary of Defense shall pro-
14 vide the Chair of the Council of Inspectors General on In-
15 tegrity and Efficiency written notification of the com-
16 mencement or designation of a military operation as an
17 overseas contingency operation upon the earlier of—

18 “(1) a determination by the Secretary that the
19 overseas contingency operation is expected to exceed
20 60 days; or

21 “(2) the date on which the overseas contingency
22 operation exceeds 60 days.”.

23 (b) ESTABLISHMENT OF LEAD INSPECTOR GENERAL
24 BASED ON NOTIFICATION.—Section 8L of the Inspector
25 General Act of 1978 (5 U.S.C. App.) is amended—

1 (1) in subsection (a)—

2 (A) by striking “Upon the commencement”
3 and all that follows through “the Chair” and
4 inserting “The Chair”; and

5 (B) by inserting before the period at the
6 end the following: “upon the earlier of—

7 “(1) the commencement or designation of a
8 military operation as an overseas contingency oper-
9 ation that exceeds 60 days; or

10 “(2) receipt of a notification under section
11 113(n) of title 10, United States Code, with respect
12 to an overseas contingency operation”; and

13 (2) in subsection (d)(1), by striking “the com-
14 mencement or designation of the military operation
15 concerned as an overseas contingency operation that
16 exceeds 60 days” and inserting “the earlier of—

17 “(A) the commencement or designation of
18 the military operation concerned as an overseas
19 contingency operation that exceeds 60 days; or

20 “(B) receipt of a notification under section
21 113(n) of title 10, United States Code, with re-
22 spect to an overseas contingency operation”.

1 **SEC. 1733. CLARIFICATION OF AUTHORITY OF INSPECTORS**
2 **GENERAL FOR OVERSEAS CONTINGENCY OP-**
3 **ERATIONS.**

4 Section 8L(d)(2) of the Inspector General Act of
5 1978 (5 U.S.C. App.) is amended—

6 (1) in subparagraph (D)—

7 (A) in clause (i), by striking “to exercise”
8 and all that follows through “such matter” and
9 inserting “to identify and coordinate with the
10 Inspector General who has principal jurisdiction
11 over the matter to ensure effective oversight”;
12 and

13 (B) by adding at the end the following:

14 “(iii)(I) Upon written request by the In-
15 spector General with principal jurisdiction over
16 a matter with respect to the contingency oper-
17 ation, and with the approval of the lead Inspec-
18 tor General, an Inspector General specified in
19 subsection (c) may provide investigative support
20 or conduct an independent investigation of an
21 allegation of criminal activity by any United
22 States personnel, contractor, subcontractor,
23 grantee, or vendor in the applicable theater of
24 operations.

25 “(II) In the case of a determination by the
26 lead Inspector General that no Inspector Gen-

1 eral has principal jurisdiction over a matter
2 with respect to the contingency operation, the
3 lead Inspector General may—

4 “(aa) conduct an independent inves-
5 tigation of an allegation described in sub-
6 clause (I); or

7 “(bb) request that an Inspector Gen-
8 eral specified in subsection (c) conduct
9 such investigation.”; and

10 (2) by adding at the end the following:

11 “(I) To enhance cooperation among In-
12 spectors General and encourage comprehensive
13 oversight of the contingency operation, any In-
14 specter General responsible for conducting over-
15 sight of any program or operation performed in
16 support of the contingency operation may, to
17 the maximum extent practicable and consistent
18 with the duties, responsibilities, policies, and
19 procedures of such Inspector General—

20 “(i) coordinate such oversight activi-
21 ties with the lead Inspector General; and

22 “(ii) provide information requested by
23 the lead Inspector General relating to the
24 responsibilities of the lead Inspector Gen-

1 eral described in subparagraphs (B), (C),
2 and (G).”.

3 **SEC. 1734. EMPLOYMENT STATUS OF ANNUITANTS FOR IN-**
4 **SPECTORS GENERAL FOR OVERSEAS CONTIN-**
5 **GENCY OPERATIONS.**

6 Section 8L(d) of the Inspector General Act of 1978
7 (5 U.S.C. App.) is amended—

8 (1) in paragraph (2)(E), by inserting “(without
9 regard to subsection (b)(2) of such section)” after
10 “United States Code,”;

11 (2) in paragraph (3), by amending subpara-
12 graph (C) to read as follows:

13 “(C)(i) An annuitant receiving an annuity
14 under the Foreign Service Retirement and Disability
15 System or the Foreign Service Pension System
16 under chapter 8 of title I of the Foreign Service Act
17 of 1980 (22 U.S.C. 4041 et seq.) who is reemployed
18 under this subsection—

19 “(I) shall continue to receive the annuity;
20 and

21 “(II) shall not be considered a participant
22 for purposes of chapter 8 of title I of the For-
23 eign Service Act of 1980 (22 U.S.C. 4041 et
24 seq.) or an employee for purposes of subchapter

1 III of chapter 83 or chapter 84 of title 5,
2 United States Code.

3 “(ii) An annuitant described in clause (i) may
4 elect in writing for the reemployment of the annu-
5 itnant under this subsection to be subject to section
6 824 of the Foreign Service Act of 1980 (22 U.S.C.
7 4064). A reemployed annuitant shall make an elec-
8 tion under this clause not later than 90 days after
9 the date of the reemployment of the annuitant.”;
10 and

11 (3) by adding at the end the following:

12 “(5)(A) A person employed by a lead Inspector Gen-
13 eral for an overseas contingency operation under this sec-
14 tion shall acquire competitive status for appointment to
15 any position in the competitive service for which the em-
16 ployee possesses the required qualifications upon the com-
17 pletion of 2 years of continuous service as an employee
18 under this section.

19 “(B) No person who is first employed as described
20 in subparagraph (A) more than 2 years after the date of
21 the enactment of the National Defense Authorization Act
22 for Fiscal Year 2020 may acquire competitive status
23 under subparagraph (A).”.

1 **SEC. 1735. EXTENSION OF NATIONAL SECURITY COMMIS-**
2 **SION ON ARTIFICIAL INTELLIGENCE.**

3 (a) **EXTENSION.**—Subsection (e) of section 1051 of
4 the John S. McCain National Defense Authorization Act
5 for Fiscal Year 2019 (Public Law 115–232; 132 Stat.
6 1962) is amended by striking “October 1, 2020” and in-
7 serting “October 1, 2021”.

8 (b) **AUTHORITY TO ACCEPT GIFTS.**—Subsection (a)
9 of such section is amended by adding at the end the fol-
10 lowing new paragraph:

11 “(8) **AUTHORITY TO ACCEPT GIFTS.**—The Com-
12 mission may accept, use, and dispose of gifts or do-
13 nations of services, goods, and property from non-
14 Federal entities for the purposes of aiding and facili-
15 tating the work of the Commission. The authority in
16 this paragraph does not extend to gifts of money.”.

17 (c) **REPORTS.**—Subsection (c) of such section is
18 amended—

19 (1) by redesignating paragraph (3) as para-
20 graph (4); and

21 (2) by inserting after paragraph (1) the fol-
22 lowing new paragraphs:

23 “(2) **INTERIM REPORTS.**—Not later than each
24 of December 1, 2019, and December 1, 2020, the
25 Commission shall submit as described in that para-

1 graph an interim report on the review required
2 under subsection (b).

3 “(3) FINAL REPORT.—Not later than March 1,
4 2021, the Commission shall submit as described in
5 paragraph (1) a comprehensive final report on the
6 review required under subsection (b).”.

7 **SEC. 1736. EXEMPTION FROM CALCULATION OF MONTHLY**
8 **INCOME, FOR PURPOSES OF BANKRUPTCY**
9 **LAWS, OF CERTAIN PAYMENTS FROM THE DE-**
10 **PARTMENT OF VETERANS AFFAIRS AND THE**
11 **DEPARTMENT OF DEFENSE.**

12 Section 101(10A) of title 11, United States Code, is
13 amended by striking subparagraph (B) and inserting the
14 following:

15 “(B)(i) includes any amount paid by any
16 entity other than the debtor (or in a joint case
17 the debtor and the debtor’s spouse), on a reg-
18 ular basis for the household expenses of the
19 debtor or the debtor’s dependents (and, in a
20 joint case, the debtor’s spouse if not otherwise
21 a dependent); and

22 “(ii) excludes—

23 “(I) benefits received under the Social
24 Security Act (42 U.S.C. 301 et seq.);

1 “(II) payments to victims of war
2 crimes or crimes against humanity on ac-
3 count of their status as victims of such
4 crimes;

5 “(III) payments to victims of inter-
6 national terrorism or domestic terrorism,
7 as those terms are defined in section 2331
8 of title 18, on account of their status as
9 victims of such terrorism; and

10 “(IV) any monthly compensation, pen-
11 sion, pay, annuity, or allowance paid under
12 title 10, 37, or 38 in connection with a dis-
13 ability, combat-related injury or disability,
14 or death of a member of the uniformed
15 services, except that any retired pay ex-
16 cluded under this subclause shall include
17 retired pay paid under chapter 61 of title
18 10 only to the extent that such retired pay
19 exceeds the amount of retired pay to which
20 the debtor would otherwise be entitled if
21 retired under any provision of title 10
22 other than chapter 61 of that title.”.

1 **SEC. 1737. EXTENSION OF POSTAGE STAMP FOR BREAST**
2 **CANCER RESEARCH.**

3 Section 414(h) of title 39, United States Code, is
4 amended by striking “2019” and inserting “2027”.

5 **SEC. 1738. NATIONAL COMMISSION ON MILITARY AVIATION**
6 **SAFETY.**

7 (a) **EXTENSION OF DEADLINE FOR REPORT.**—Sub-
8 section (h)(2) of section 1087 of the John S. McCain Na-
9 tional Defense Authorization Act for Fiscal Year 2019
10 (Public Law 115–232) is amended by striking “March 1,
11 2020” and inserting “December 1, 2020”.

12 (b) **SECRETARY OF DEFENSE REPORT.**—Such sec-
13 tion is further amended by adding at the end the following
14 new subsection:

15 “(m) **REPORT TO CONGRESS.**—Not later than 120
16 days after the date of the submittal of the report under
17 subsection (h)(2), the Secretary of Defense, in coordina-
18 tion with the Secretary of each of the military depart-
19 ments, shall submit to the Committees on Armed Services
20 of the Senate and House of Representatives a report that
21 includes each of the following:

22 “(1) An assessment of the findings and conclu-
23 sions of the Commission.

24 “(2) The plan of the Secretaries for imple-
25 menting the recommendations of the Commission.

1 regardless of the date on which the marriage of the spouse
2 and the servicemember occurred.”.

3 (b) CLERICAL AMENDMENT.—The table of contents
4 in section 1(b) of such Act is amended by inserting after
5 the item relating to section 706 the following new item:
“Sec. 707. Guarantee of residency for spouses of servicemembers.”.

6 **SEC. 1740. ELECTROMAGNETIC PULSES AND GEOMAGNETIC**
7 **DISTURBANCES.**

8 (a) EMP AND GMD MITIGATION RESEARCH AND
9 DEVELOPMENT.—

10 (1) THREAT ASSESSMENT, RESPONSE, AND RE-
11 COVERY.—Section 320 of the Homeland Security
12 Act of 2002 (6 U.S.C. 195f) is amended—

13 (A) in the section heading, by inserting
14 “**AND THREAT ASSESSMENT, RESPONSE,**
15 **AND RECOVERY**” after “**DEVELOPMENT**”;
16 and

17 (B) by adding at the end the following:

18 “(d) THREAT ASSESSMENT, RESPONSE, AND RECOV-
19 ERY.—

20 “(1) ROLES AND RESPONSIBILITIES.—

21 “(A) DISTRIBUTION OF INFORMATION.—

22 “(i) IN GENERAL.—Beginning not
23 later than June 19, 2020, the Secretary
24 shall provide timely distribution of infor-
25 mation on EMPs and GMDs to Federal,

1 State, and local governments, owners and
2 operators of critical infrastructure, and
3 other persons determined appropriate by
4 the Secretary.

5 “(ii) BRIEFING.—The Secretary shall
6 brief the appropriate congressional com-
7 mittees on the effectiveness of the distribu-
8 tion of information under clause (i).

9 “(B) RESPONSE AND RECOVERY.—

10 “(i) IN GENERAL.—The Administrator
11 of the Federal Emergency Management
12 Agency shall—

13 “(I) coordinate the response to
14 and recovery from the effects of
15 EMPs and GMDs on critical infra-
16 structure, in coordination with the
17 heads of appropriate Sector-Specific
18 Agencies, and on matters related to
19 the bulk power system, in consultation
20 with the Secretary of Energy and the
21 Federal Energy Regulatory Commis-
22 sion; and

23 “(II) to the extent practicable,
24 incorporate events that include EMPs

1 and extreme GMDs as a factor in pre-
2 paredness scenarios and exercises.

3 “(ii) IMPLEMENTATION.—The Admin-
4 istrator of the Federal Emergency Man-
5 agement Agency, in coordination with the
6 Director of the Cybersecurity and Infra-
7 structure Security Agency, and on matters
8 related to the bulk power system, the Sec-
9 retary of Energy and the Federal Energy
10 Regulatory Commission, shall—

11 “(I) not later than June 19,
12 2020, develop plans and procedures to
13 coordinate the response to and recov-
14 ery from EMP and GMD events; and

15 “(II) not later than December
16 21, 2020, conduct a national exercise
17 to test the preparedness and response
18 of the Nation to the effect of an EMP
19 or extreme GMD event.

20 “(C) RESEARCH AND DEVELOPMENT.—

21 “(i) IN GENERAL.—The Secretary, in
22 coordination with the heads of relevant
23 Sector-Specific Agencies, shall—

24 “(I) without duplication of exist-
25 ing or ongoing efforts, conduct re-

1 search and development to better un-
2 derstand and more effectively model
3 the effects of EMPs and GMDs on
4 critical infrastructure (which shall not
5 include any system or infrastructure
6 of the Department of Defense or any
7 system or infrastructure of the De-
8 partment of Energy associated with
9 nuclear weapons activities); and

10 “(II) develop technologies to en-
11 hance the resilience of and better pro-
12 tect critical infrastructure.

13 “(ii) PLAN.—Not later than March
14 26, 2020, and in coordination with the
15 heads of relevant Sector-Specific Agencies,
16 the Secretary shall submit to the appro-
17 priate congressional committees a research
18 and development action plan to rapidly ad-
19 dress modeling shortfall and technology de-
20 velopment.

21 “(D) EMERGENCY INFORMATION SYS-
22 TEM.—

23 “(i) IN GENERAL.—The Administrator
24 of the Federal Emergency Management
25 Agency, in coordination with relevant

1 stakeholders, shall maintain a network of
2 systems, such as the alerting capabilities of
3 the integrated public alert and warning
4 system authorized under section 526, that
5 are capable of providing appropriate emer-
6 gency information to the public before (if
7 possible), during, and in the aftermath of
8 an EMP or GMD.

9 “(ii) BRIEFING.—Not later than De-
10 cember 21, 2020, the Administrator of the
11 Federal Emergency Management Agency,
12 shall brief the appropriate congressional
13 committees regarding the maintenance of
14 systems, including the alerting capabilities
15 of the integrated public alert and warning
16 system authorized under section 526.

17 “(E) QUADRENNIAL RISK ASSESSMENTS.—

18 “(i) IN GENERAL.—The Secretary, in
19 coordination with the Secretary of Defense,
20 the Secretary of Energy, and the Secretary
21 of Commerce, and informed by intelligence-
22 based threat assessments, shall conduct a
23 quadrennial EMP and GMD risk assess-
24 ment.

1 “(ii) BRIEFINGS.—Not later than
2 March 26, 2020, and every four years
3 thereafter until 2032, the Secretary, the
4 Secretary of Defense, the Secretary of En-
5 ergy, and the Secretary of Commerce shall
6 provide a briefing to the appropriate con-
7 gressional committees regarding the quad-
8 rennial EMP and GMD risk assessment.

9 “(iii) ENHANCING RESILIENCE.—The
10 Secretary, in coordination with the Sec-
11 retary of Defense, the Secretary of Energy,
12 the Secretary of Commerce, and the heads
13 of other relevant Sector-Specific Agencies,
14 shall use the results of the quadrennial
15 EMP and GMD risk assessments to better
16 understand and to improve resilience to the
17 effects of EMPs and GMDs across all crit-
18 ical infrastructure sectors, including co-
19 ordinating the prioritization of critical in-
20 frastructure at greatest risk to the effects
21 of EMPs and GMDs.

22 “(2) COORDINATION.—

23 “(A) REPORT ON TECHNOLOGICAL OP-
24 TIONS.—Not later than December 21, 2020,
25 and every four years thereafter until 2032, the

1 Secretary, in coordination with the Secretary of
2 Defense, the Secretary of Energy, the heads of
3 other appropriate agencies, and, as appropriate,
4 private-sector partners, shall submit to the ap-
5 propriate congressional committees, a report
6 that—

7 “(i) assesses the technological options
8 available to improve the resilience of crit-
9 ical infrastructure to the effects of EMPs
10 and GMDs; and

11 “(ii) identifies gaps in available tech-
12 nologies and opportunities for technological
13 developments to inform research and devel-
14 opment activities.

15 “(B) TEST DATA.—

16 “(i) IN GENERAL.—Not later than
17 December 20, 2020, the Secretary, in co-
18 ordination with the heads of Sector-Spe-
19 cific Agencies, the Secretary of Defense,
20 and the Secretary of Energy, shall—

21 “(I) review test data regarding
22 the effects of EMPs and GMDs on
23 critical infrastructure systems, net-
24 works, and assets representative of
25 those throughout the Nation; and

1 “(II) identify any gaps in the test
2 data.

3 “(ii) PLAN.—Not later than 180 days
4 after identifying gaps in test data under
5 clause (i), the Secretary, in coordination
6 with the heads of Sector-Specific Agencies
7 and in consultation with the Secretary of
8 Defense and the Secretary of Energy, shall
9 use the sector partnership structure identi-
10 fied in the National Infrastructure Protec-
11 tion Plan to develop an integrated cross-
12 sector plan to address the identified gaps.

13 “(iii) IMPLEMENTATION.—The heads
14 of each agency identified in the plan devel-
15 oped under clause (ii) shall implement the
16 plan in collaboration with the voluntary ef-
17 forts of the private sector, as appropriate.

18 “(3) DEFINITIONS.—In this subsection:

19 “(A) The term ‘appropriate congressional
20 committees’ means—

21 “(i) the Committee on Homeland Se-
22 curity and Governmental Affairs, the Com-
23 mittee on Armed Services, the Committee
24 on Energy and Natural Resources, and the

1 Committee on Commerce, Science, and
2 Transportation of the Senate; and

3 “(ii) the Committee on Transportation
4 and Infrastructure, the Committee on
5 Homeland Security, the Committee on
6 Armed Services, the Committee on Energy
7 and Commerce, and the Committee on
8 Science, Space and Technology of the
9 House of Representatives.

10 “(B) The terms ‘prepare’ and ‘prepared-
11 ness’ mean the actions taken to plan, organize,
12 equip, train, and exercise to build and sustain
13 the capabilities necessary to prevent, protect
14 against, mitigate the effects of, respond to, and
15 recover from those threats that pose the great-
16 est risk to the security of the homeland, includ-
17 ing the prediction and notification of impending
18 EMPs and GMDs.

19 “(C) The term ‘Sector-Specific Agency’
20 has the meaning given that term in section
21 2201.

22 “(e) RULE OF CONSTRUCTION.—Nothing in this sec-
23 tion may be construe—

24 “(1) to affect in any manner the authority of
25 the executive branch to implement Executive Order

1 13865, dated March 26, 2019, and entitled ‘Coordi-
2 nating National Resilience to Electromagnetic
3 Pulses’, or any other authority existing on the day
4 before the date of enactment of this subsection of
5 any other component of the Department or any
6 other Federal department or agency, including the
7 authority provided to the Sector-Specific Agency
8 specified in section 61003(c) of division F of the
9 Fixing America’s Surface Transportation Act (6
10 U.S.C. 121 note), including the authority under sec-
11 tion 215 of the Federal Power Act (16 U.S.C.
12 824o), and including the authority of independent
13 agencies to be independent; or

14 “(2) as diminishing or transferring any authori-
15 ties vested in the Administrator of the Federal
16 Emergency Management Agency or in the Agency
17 prior to the date of the enactment of this sub-
18 section.”.

19 (2) TECHNICAL AND CONFORMING AMEND-
20 MENT.—The table of sections in section 1(b) of the
21 Homeland Security Act of 2002 is amended by strik-
22 ing the item relating to section 320 and inserting
23 the following:

“Sec. 320. EMP and GMD mitigation research and development and threat as-
assessment, response, and recovery.”.

1 (b) CONSULTATION WITH SECRETARY OF ENERGY
2 IN PREPARATION OF QUADRENNIAL HOMELAND SECU-
3 RITY REVIEW.—Section 707 of the Homeland Security
4 Act of 2002 (6 U.S.C. 347) is amended—

5 (1) in subsection (a)(3)(A), by inserting “the
6 Secretary of Energy,” after “the Secretary of Agri-
7 culture”; and

8 (2) in subsection (c)(2)(B), by inserting after
9 review the following “or for purposes of the quadren-
10 nial EMP and GMD risk assessment under section
11 320(d)(1)(E)”.

12 (c) NATIONAL ESSENTIAL FUNCTIONS.—

13 (1) UPDATED OPERATIONAL PLANS.—Not later
14 than March 20, 2020, each agency that supports a
15 national essential function shall prepare updated
16 operational plans documenting the procedures and
17 responsibilities of the agency relating to preparing
18 for, protecting against, and mitigating the effects of
19 EMPs and GMDs.

20 (2) DEFINITION OF NATIONAL ESSENTIAL
21 FUNCTION.—In this subsection, the term “national
22 essential functions” means the overarching respon-
23 sibilities of the Federal Government to lead and sus-
24 tain the Nation before, during, and in the aftermath
25 of a catastrophic emergency, such as an EMP or

1 GMD that adversely affects the performance of the
2 Federal Government.

3 (d) BENCHMARKS.—Not later than March 26, 2020,
4 and as appropriate thereafter, the Secretary of Energy,
5 in consultation with the Secretary of Defense, the Sec-
6 retary of Homeland Security, and, as appropriate, the pri-
7 vate sector, may develop or update, as necessary, quan-
8 titative and voluntary benchmarks that sufficiently de-
9 scribe the physical characteristics of EMPs, including
10 waveform and intensity, in a form that is useful to and
11 can be shared with owners and operators of critical infra-
12 structure. Nothing in this subsection shall affect the au-
13 thority of the Electric Reliability Organization to develop
14 and enforce, or the authority of the Federal Energy Regu-
15 latory Commission to approve, reliability standards.

16 (e) PILOT TEST BY DHS TO EVALUATE ENGINEER-
17 ING APPROACHES.—

18 (1) IN GENERAL.—Not later than September
19 22, 2020, the Secretary of Homeland Security, act-
20 ing through the Under Secretary for Science and
21 Technology of the Department of Homeland Secu-
22 rity, in coordination with the Director of the Cyber-
23 security and Infrastructure Security Agency and the
24 Administrator of the Federal Emergency Manage-
25 ment Agency, the Secretary of Defense, and the Sec-

1 retary of Energy, and in consultation with the pri-
2 vate sector, as appropriate, shall develop and imple-
3 ment a pilot test to evaluate available engineering
4 approaches for mitigating the effects of EMPs and
5 GMDs on the most vulnerable critical infrastructure
6 systems, networks, and assets.

7 (2) BRIEFING.—Not later than 90 days after
8 the date on which the pilot test described in para-
9 graph (1) is completed, the Secretary of Homeland
10 Security, acting through the Under Secretary for
11 Science and Technology of the Department of
12 Homeland Security, in coordination with the Direc-
13 tor of the Cybersecurity and Infrastructure Security
14 Agency and the Administrator of the Federal Emer-
15 gency Management Agency, the Secretary of De-
16 fense, and the Secretary of Energy, shall jointly
17 brief the appropriate congressional committees on
18 the cost and effectiveness of the evaluated ap-
19 proaches.

20 (f) PILOT TEST BY DOD TO EVALUATE ENGINEER-
21 ING APPROACHES.—

22 (1) IN GENERAL.—Not later than September
23 22, 2020, the Secretary of Defense, in consultation
24 with the Secretary of Homeland Security and the
25 Secretary of Energy, shall conduct a pilot test to

1 evaluate engineering approaches for hardening a
2 strategic military installation, including infrastruc-
3 ture that is critical to supporting that installation,
4 against the effects of EMPs and GMDs.

5 (2) REPORT.—Not later than 180 days after
6 completing the pilot test described in paragraph (1),
7 the Secretary of Defense shall submit to the appro-
8 priate congressional committees a report regarding
9 the cost and effectiveness of the evaluated ap-
10 proaches.

11 (g) COMMUNICATIONS OPERATIONAL PLANS.—Not
12 later than December 21, 2020, the Secretary of Homeland
13 Security, after holding a series of joint meetings with the
14 Administrator of the Federal Emergency Management
15 Agency, the Director of the Cybersecurity and Infrastruc-
16 ture Security Agency, the Secretary of Defense, the Under
17 Secretary of Commerce for Standards and Technology, the
18 Assistant Secretary of Commerce for Communications and
19 Information, the Federal Communications Commission,
20 and the Secretary of Transportation, shall submit to the
21 appropriate congressional committees a report—

22 (1) assessing the effects of EMPs and GMDs
23 on critical communications infrastructure; and

1 (2) recommending any necessary changes to
2 operational plans to enhance national response and
3 recovery efforts after an EMP or GMD.

4 (h) DEFINITIONS.—In this section:

5 (1) The term “appropriate congressional com-
6 mittees” has the meaning given that term in sub-
7 section (d) of section 320 of the Homeland Security
8 Act of 2002, as added by subsection (a) of this sec-
9 tion; and

10 (2) The terms “critical infrastructure”,
11 “EMP”, and “GMD” have the meanings given such
12 terms in section 2 of the Homeland Security Act of
13 2002 (6 U.S.C. 101).

14 **SEC. 1741. IMPROVEMENTS TO MANUFACTURING USA PRO-**
15 **GRAM.**

16 (a) IN GENERAL.—Section 34 of the National Insti-
17 tute of Standards and Technology Act (15 U.S.C. 278s)
18 is amended to read as follows:

19 **“SEC. 34. MANUFACTURING USA.**

20 “(a) DEFINITIONS.—In this section:

21 “(1) AGENCY HEAD.—The term ‘agency head’
22 means the head of any Executive agency (as defined
23 in section 105 of title 5, United States Code), other
24 than the Department of Defense.

1 “(2) REGIONAL INNOVATION INITIATIVE.—The
2 term ‘regional innovation initiative’ has the meaning
3 given such term in section 27(f)(1) of the Stevenson-
4 Wydler Technology Innovation Act of 1980 (15
5 U.S.C. 3722(f)(1)).

6 “(b) ESTABLISHMENT OF MANUFACTURING USA
7 PROGRAM.—

8 “(1) IN GENERAL.—The Secretary shall estab-
9 lish within the Institute a program to be known as
10 the ‘Manufacturing United States of America Pro-
11 gram’ or the ‘Manufacturing USA Program’ (re-
12 ferred to in this section as the ‘Program’).

13 “(2) PURPOSES OF PROGRAM.—The purposes of
14 the Program are—

15 “(A) to improve the competitiveness of
16 United States manufacturing and to increase
17 the production of goods manufactured predomi-
18 nantly within the United States;

19 “(B) to stimulate United States leadership
20 in advanced manufacturing research, innova-
21 tion, and technology;

22 “(C) to facilitate the transition of innova-
23 tive technologies into scalable, cost-effective,
24 and high-performing manufacturing capabili-
25 ties;

1 “(D) to facilitate access by manufacturing
2 enterprises to capital-intensive infrastructure,
3 including high-performance electronics and
4 computing, and the supply chains that enable
5 these technologies;

6 “(E) to accelerate the development of an
7 advanced manufacturing workforce;

8 “(F) to facilitate peer exchange of and the
9 documentation of best practices in addressing
10 advanced manufacturing challenges;

11 “(G) to leverage non-Federal sources of
12 support to promote a stable and sustainable
13 business model without the need for long-term
14 Federal funding;

15 “(H) to create and preserve jobs; and

16 “(I) to contribute to the development of re-
17 gional innovation initiatives across the United
18 States.

19 “(3) SUPPORT.—The Secretary, acting through
20 the Director, shall carry out the purposes set forth
21 in paragraph (2) by supporting—

22 “(A) the Manufacturing USA Network es-
23 tablished under subsection (b); and

24 “(B) the establishment of Manufacturing
25 USA institutes.

1 “(4) DIRECTOR.—The Secretary shall carry out
2 the Program through the Director.

3 “(c) ESTABLISHMENT OF MANUFACTURING USA
4 NETWORK.—

5 “(1) IN GENERAL.—As part of the Program,
6 the Secretary shall establish a network of Manufac-
7 turing USA institutes.

8 “(2) DESIGNATION.—The network established
9 under paragraph (1) shall be known as the ‘Manu-
10 facturing United States of America Network’ or the
11 ‘Manufacturing USA Network’ (referred to in this
12 section as the ‘Network’).

13 “(d) MANUFACTURING USA INSTITUTES.—

14 “(1) IN GENERAL.—For purposes of this sec-
15 tion, a Manufacturing USA institute is an institute
16 that—

17 “(A) has been established by a person or
18 group of persons to address challenges in ad-
19 vanced manufacturing and to assist manufac-
20 turers in retaining or expanding industrial pro-
21 duction and jobs in the United States;

22 “(B) has a predominant focus on a manu-
23 facturing process, novel material, enabling tech-
24 nology, supply chain integration methodology,
25 or another relevant aspect of advanced manu-

1 facturing, such as nanotechnology applications,
2 advanced ceramics, photonics and optics, com-
3 posites, biobased and advanced materials, flexi-
4 ble hybrid technologies, tool development for
5 microelectronics, food manufacturing, super-
6 conductors, advanced battery technologies, ro-
7 botics, advanced sensors, quantum information
8 science, supply chain water optimization, aero-
9 nautics and advanced materials, and graphene
10 and graphene commercialization;

11 “(C) has the potential—

12 “(i) to improve the competitiveness of
13 United States manufacturing, including
14 key advanced manufacturing technologies
15 such as nanotechnology, advanced ceram-
16 ics, photonics and optics, composites,
17 biobased and advanced materials, flexible
18 hybrid technologies, tool development for
19 microelectronics, food manufacturing,
20 superconductors, advanced battery tech-
21 nologies, robotics, advanced sensors, quan-
22 tum information science, supply chain
23 water optimization, aeronautics and ad-
24 vanced materials, and graphene and
25 graphene commercialization;

1 “(ii) to accelerate non-Federal invest-
2 ment in advanced manufacturing produc-
3 tion capacity in the United States; or

4 “(iii) to enable the commercial appli-
5 cation of new technologies or industry-wide
6 manufacturing processes; and

7 “(D) includes active participation among
8 representatives from multiple industrial entities,
9 research universities, community colleges, and
10 other entities as appropriate, which may include
11 industry-led consortia, career and technical edu-
12 cation schools, Federal laboratories, State,
13 local, and Tribal governments, businesses, edu-
14 cational institutions, and nonprofit organiza-
15 tions.

16 “(2) ACTIVITIES.—

17 “(A) REQUIRED ACTIVITIES.—For pur-
18 poses of this section, a Manufacturing USA in-
19 stitute is also an institute that carries out the
20 following:

21 “(i) Research, development, and dem-
22 onstration projects, including proof-of-con-
23 cept development and prototyping, to re-
24 duce the cost, time, or risk of commer-
25 cializing new technologies and improve-

1 ments in existing technologies, processes,
2 products, and research and development of
3 materials to solve precompetitive industrial
4 problems with economic or national secu-
5 rity implications.

6 “ (ii) Development and implementation
7 of education, training, and workforce re-
8 cruitment courses, materials, and pro-
9 grams addressing workforce needs through
10 training and education programs at all ap-
11 propriate education levels, including pro-
12 grams on applied engineering.

13 “ (iii) Development of innovative meth-
14 odologies and practices for supply chain in-
15 tegration and introduction of new tech-
16 nologies into supply chains, as appropriate.

17 “ (iv) Outreach and engagement with
18 small and medium-sized manufacturing en-
19 terprises, including women, minority, and
20 veteran owned manufacturing enterprises,
21 in addition to large manufacturing enter-
22 prises.

23 “ (v) Development of roadmaps or
24 leveraging of existing roadmaps with re-
25 spect to technology areas being pursued by

1 that Manufacturing USA institute that
2 take into account the research and develop-
3 ment undertaken at other Manufacturing
4 USA institutes and Federal agencies with
5 respect to such areas.

6 “(B) PERMISSIBLE ACTIVITIES.—In addi-
7 tion to the activities set forth under subpara-
8 graph (A), a Manufacturing USA institute may
9 carry out such other activities as may be con-
10 sistent with the purposes set forth under sub-
11 section (b)(2).

12 “(3) ADDITIONAL MANUFACTURING USA INSTI-
13 TUTES.—

14 “(A) IN GENERAL.—Except as provided in
15 subparagraph (C), the National Additive Manu-
16 facturing Innovation Institute and other manu-
17 facturing institutes formally recognized as Manu-
18 facturing USA institutes pursuant to Federal
19 law or executive actions, or under pending
20 interagency review for such recognition as of
21 December 16, 2014, shall be considered Manu-
22 facturing USA institutes for purposes of this
23 section.

24 “(B) NETWORK PARTICIPATION.—Except
25 as provided in subparagraph (C), an institute

1 that is substantially similar to an institute de-
2 scribed by paragraphs (1) and (2) but does not
3 meet every element of such description and does
4 not receive financial assistance under subsection
5 (e) may, upon request of the institute, be recog-
6 nized as a Manufacturing USA institute by the
7 Secretary for purposes of participation in the
8 Network.

9 “(C) APPLICABILITY.—Effective beginning
10 on the date of the enactment of the National
11 Defense Authorization Act for Fiscal Year
12 2020, an institute shall be treated as a Manu-
13 facturing USA institute under this section and
14 subject to subsections (b)(2), (d), and (e) in the
15 same manner and to the same extent as such
16 provisions apply to a Manufacturing USA insti-
17 tute described by paragraphs (1) and (2) if
18 such institute—

19 “(i)(I) is, as of such date of enact-
20 ment, considered a Manufacturing USA in-
21 stitute under subparagraph (A) or recog-
22 nized as a Manufacturing USA institute
23 under subparagraph (B); and

24 “(II) as of such date of enactment, re-
25 ceives Federal financial assistance under

1 subsection (e) or otherwise consistent with
2 the purposes of this section;

3 “(ii) is under pending agency review
4 for such recognition as of such date of en-
5 actment; or

6 “(iii) is currently funded by the De-
7 partment of Energy.

8 “(e) FINANCIAL ASSISTANCE TO ESTABLISH AND
9 SUPPORT MANUFACTURING USA INSTITUTES.—

10 “(1) FINANCIAL ASSISTANCE AUTHORIZED.—

11 Under the Program, the Secretary and the Secretary
12 of Energy shall, and every other agency head may,
13 award financial assistance to a person or group of
14 persons to assist the person or group of persons in
15 planning, establishing, or supporting a Manufac-
16 turing USA institute.

17 “(2) PERIOD AND RENEWAL OF AWARDS.—

18 “(A) INITIAL PERIODS.—An award of fi-
19 nancial assistance under paragraph (1) shall be
20 awarded for an initial period of not less than 5
21 years and not more than 7 years.

22 “(B) RENEWAL OF AWARDS.—

23 “(i) RENEWAL AUTHORIZED.—An
24 award of financial assistance under para-
25 graph (1) may be renewed for additional

1 periods, with each period not to exceed the
2 duration of the initial period of the award,
3 subject to a rigorous merit review.

4 “(ii) CONSIDERATION OF PERFORM-
5 ANCE STANDARDS.—In carrying out a rig-
6 orous merit review under clause (i) for re-
7 newal of an award under such clause for a
8 Manufacturing USA institute, an agency
9 head shall consider the extent to which the
10 institute has made progress in meeting the
11 standards of performance established pur-
12 suant to paragraph (5)(C).

13 “(iii) INITIAL FAILURE TO MEET PER-
14 FORMANCE STANDARDS.—If, pursuant to a
15 rigorous merit review under clause (i) for
16 renewal of an award under such clause for
17 a Manufacturing USA institute, an agency
18 head finds that the institute does not meet
19 the standards for performance established
20 pursuant to paragraph (5)(C), the agency
21 head shall—

22 “(I) notify the institute of any
23 deficiencies in the performance of the
24 institute; and

1 “(II) provide the institute one
2 year to remedy such deficiencies.

3 “(iv) FURTHER FAILURE TO MEET
4 PERFORMANCE STANDARDS.—If a Manu-
5 facturing USA institute fails to remedy a
6 deficiency identified or to show significant
7 improvement in performance during the 1-
8 year period set forth under clause
9 (iii)(II)—

10 “(I) the institute shall not be eli-
11 gible for renewed award under clause
12 (i); and

13 “(II) the agency head that con-
14 ducted the review for renewal shall
15 notify the institute of such ineligi-
16 bility.

17 “(v) CONTINUATION OF EXISTING
18 MANUFACTURING USA INSTITUTES.—Not
19 withstanding clauses (i) through (iv), a
20 Manufacturing USA institute already in
21 existence or undergoing a renewal process
22 prior to December 1, 2019—

23 “(I) may continue to receive sup-
24 port for the duration of the original

1 funding award beginning on the date
2 of establishment of that institute; and
3 “(II) shall be eligible for renewal
4 of that funding pursuant to clause (i).

5 “(3) APPLICATION FOR FINANCIAL ASSIST-
6 ANCE.—

7 “(A) IN GENERAL.—A person or group of
8 persons seeking financial assistance under para-
9 graph (1) shall submit to an agency head an
10 application therefor at such time, in such man-
11 ner, and containing such information as the
12 agency head may require.

13 “(B) REQUIREMENTS.—An application
14 submitted under subparagraph (A) for an insti-
15 tute shall, at a minimum include the following:

16 “(i) A description of the specific
17 sources and amounts of non-Federal finan-
18 cial support for the institute on the date fi-
19 nancial assistance is sought.

20 “(ii) A description of the anticipated
21 sources and amounts of non-Federal finan-
22 cial support during the period for which
23 the institute could be eligible for continued
24 Federal financial assistance under this sec-
25 tion.

1 “(4) SELECTION.—

2 “(A) COMPETITIVE, MERIT REVIEW.—In
3 awarding financial assistance under paragraph
4 (1), an agency head shall—

5 “(i) use a competitive, merit review
6 process that includes review by a diverse
7 group of individuals with relevant expertise
8 from both the private and public sectors;
9 and

10 “(ii) ensure that the technology focus
11 of a Manufacturing USA institute does not
12 substantially duplicate the technology focus
13 of any other Manufacturing USA institute.

14 “(B) PARTICIPATION IN PROCESS.—

15 “(i) PROHIBITION ON PARTICIPATION
16 BY POLITICAL APPOINTEES.—The review
17 required by subparagraph (A)(i) may not
18 include a review by a group of individuals
19 that includes a political appointee.

20 “(ii) CONFLICT OF INTEREST POLI-
21 CIES.—Each agency head shall implement
22 a conflict of interest policy that—

23 “(I) ensures public transparency
24 and accountability in the process used
25 under subparagraph (A)(i); and

1 “(II) requires full disclosure of
2 any real or potential conflicts of inter-
3 est on the parts of individuals that
4 participate in the process used under
5 subparagraph (A)(i).

6 “(iii) DEFINITION OF POLITICAL AP-
7 POINTEE.—For purposes of this subpara-
8 graph, the term ‘political appointee’ has
9 the meaning given such term in section
10 714(h) of title 38, United States Code.

11 “(C) CONSIDERATIONS.—In selecting a
12 person or group of persons who submitted an
13 application to an agency head under paragraph
14 (3) for an award of financial assistance under
15 paragraph (1) for a Manufacturing USA insti-
16 tute, the agency head shall consider, at a min-
17 imum, the following:

18 “(i) The potential of the Manufac-
19 turing USA institute to advance domestic
20 manufacturing and the likelihood of eco-
21 nomic impact, including the creation or
22 preservation of jobs, in the predominant
23 focus areas of the institute.

24 “(ii) The commitment of continued fi-
25 nancial support, advice, participation, and

1 other contributions from non-Federal
2 sources, to provide leverage and resources
3 to promote a stable and sustainable busi-
4 ness model.

5 “(iii) Whether the financial support
6 provided to the Manufacturing USA insti-
7 tute from non-Federal sources exceeds the
8 requested Federal financial assistance.

9 “(iv) How the Manufacturing USA in-
10 stitute will increase the non-Federal invest-
11 ment in advanced manufacturing research
12 in the United States.

13 “(v) How the Manufacturing USA in-
14 stitute will engage with small and medium-
15 sized manufacturing enterprises to improve
16 the capacity of such enterprises to com-
17 mercialize new processes and technologies
18 and to improve the domestic supply chain.

19 “(vi) How the Manufacturing USA in-
20 stitute will carry out educational and work-
21 force activities that meet industrial needs
22 related to the predominant focus areas of
23 the institute.

24 “(vii) How the Manufacturing USA
25 institute will advance economic competi-

1 tiveness and generate substantial benefits
2 to the Nation that extend beyond the di-
3 rect return to participants in the Program.

4 “(viii) Whether the predominant focus
5 of the Manufacturing USA institute is a
6 manufacturing process, novel material, en-
7 abling technology, supply chain integration
8 methodology, or other relevant aspect of
9 advanced manufacturing that has not al-
10 ready been commercialized, marketed, dis-
11 tributed, or sold by another entity.

12 “(ix) How the Manufacturing USA in-
13 stitute will strengthen and leverage the in-
14 dustrial, research, entrepreneurship, and
15 other assets of a region.

16 “(x) How the Manufacturing USA in-
17 stitute will encourage the education and
18 training of veterans and individuals with
19 disabilities.

20 “(5) PERFORMANCE MEASUREMENT, TRANS-
21 PARENCY, AND ACCOUNTABILITY.—For each award
22 of financial assistance under paragraph (1) by an
23 agency head, the agency head shall—

24 “(A) develop metrics to assess the effec-
25 tiveness of the activities funded in making

1 progress toward the purposes of the Program
2 set forth under subsection (b)(2), including the
3 effectiveness of Manufacturing USA institutes
4 in advancing technology readiness levels or
5 manufacturing readiness levels;

6 “(B) establish standards for the perform-
7 ance of Manufacturing USA institutes that are
8 based on the metrics developed under subpara-
9 graph (A); and

10 “(C) for each Manufacturing USA insti-
11 tute supported by the award, 5 years after the
12 initial award and every 5 years thereafter until
13 Federal financial assistance under this sub-
14 section is discontinued, conduct an assessment
15 of the institute to confirm whether the perform-
16 ance of the institute is meeting the standards
17 for performance established under subpara-
18 graph (B).

19 “(6) COLLABORATION.—In awarding financial
20 assistance under paragraph (1), an agency head, in
21 coordination with the National Program Office, as
22 the agency head considers appropriate, may collabo-
23 rate with Federal departments and agencies whose
24 missions contribute to or are affected by advanced
25 manufacturing, including, as the agency head con-

1 siders appropriate, the Department of Agriculture,
2 the Department of Defense, the Department of Edu-
3 cation, the Department of Energy, the Department
4 of Labor, the Food and Drug Administration, the
5 National Aeronautics and Space Administration, the
6 National Institutes of Health, and the National
7 Science Foundation.

8 “(7) MATCHING FUNDS AND PREFERENCES.—

9 “(A) IN GENERAL.—Except as provided in
10 subparagraph (B), an agency head may not,
11 with respect to a Manufacturing USA institute,
12 award financial assistance under paragraph (1)
13 or renew an award of financial assistance under
14 paragraph (2) unless the agency head deter-
15 mines that non-Federal funding comprises 50
16 percent or more of the total amount of funding
17 made available for the operation and support of
18 the institute.

19 “(B) WAIVERS.—An agency head awarding
20 financial assistance under paragraph (1) with
21 respect to a Manufacturing USA institute may
22 waive the requirements of subparagraph (A) in
23 the case of satellite centers, large capital facili-
24 ties, equipment purchases, workforce develop-
25 ment, or general operations.

1 “(f) GRANT PROGRAM FOR PUBLIC SERVICE ACTIVI-
2 TIES FOR MANUFACTURING USA INSTITUTES WITHOUT
3 FEDERAL FUNDING.—The Secretary may award a grant
4 on a competitive basis to a Manufacturing USA institute
5 that is not receiving financial assistance under subsection
6 (e) to carry out workforce development, outreach to small-
7 and medium-sized manufacturers, and other activities
8 that—

9 “(1) are determined by the Secretary to be in
10 the national interest; and

11 “(2) are unlikely to receive private sector finan-
12 cial support.

13 “(g) AUTHORIZATION OF APPROPRIATIONS.—

14 “(1) NIST INDUSTRIAL TECHNICAL SERVICES
15 ACCOUNT.—To the extent provided for in advance by
16 appropriations Acts, the Secretary may use amounts
17 appropriated to the Industrial Technical Services ac-
18 count to carry out this section as follows:

19 “(A) For each of the fiscal years 2015
20 through 2019, an amount not to exceed
21 \$5,000,000.

22 “(B) For each of fiscal years 2020 through
23 2030, such amounts as may be necessary to
24 carry out this section.

1 “(2) DEPARTMENT OF ENERGY.—There are au-
2 thorized to be appropriated to the Secretary of En-
3 ergy for the provision of financial assistance under
4 subsection (e) by the Department of Energy
5 amounts as follows:

6 “(A) \$70,000,000 for each of fiscal years
7 2020, 2021, and 2022.

8 “(B) \$84,000,000 for each of fiscal years
9 2023 and 2024.

10 “(h) NATIONAL PROGRAM OFFICE.—

11 “(1) ESTABLISHMENT.—The Secretary shall es-
12 tablish, within the Institute, the National Office of
13 the Manufacturing USA Network (referred to in this
14 section as the ‘National Program Office’), which
15 shall oversee and carry out the Program.

16 “(2) FUNCTIONS.—The functions of the Na-
17 tional Program Office are—

18 “(A) to oversee the planning, management,
19 and coordination of the Program;

20 “(B) to coordinate with and, as appro-
21 priate, enter into memorandums of under-
22 standing with Federal departments and agen-
23 cies whose missions contribute to or are af-
24 fected by advanced manufacturing, including
25 the Department of Agriculture, the Department

1 of Defense, the Department of Education, the
2 Department of Energy, the Department of
3 Labor, the Food and Drug Administration, the
4 National Aeronautics and Space Administra-
5 tion, the National Institutes of Health, and the
6 National Science Foundation, to carry out the
7 purposes set forth under subsection (b)(2);

8 “(C) to develop, not later than December
9 16, 2015, and update not less frequently than
10 once every 3 years thereafter, a strategic plan
11 to guide the Program;

12 “(D) to establish such procedures, proc-
13 esses, and criteria as may be necessary and ap-
14 propriate to maximize cooperation and coordi-
15 nate the activities of the Program with pro-
16 grams and activities of other Federal depart-
17 ments and agencies whose missions contribute
18 to or are affected by advanced manufacturing;

19 “(E) to establish a clearinghouse of public
20 information related to the activities of the Pro-
21 gram;

22 “(F) to act as a convener of the Network;

23 “(G) to work with Federal agencies that
24 are not sponsoring or supporting a Manufac-
25 turing USA institute to explore and develop op-

1 tions for sponsoring or supporting a Manufac-
2 turing USA institute;

3 “(H) to work with Federal agencies that
4 are sponsoring or supporting a Manufacturing
5 USA institute to develop and implement net-
6 work-wide performance goals with measurable
7 targets and timelines;

8 “(I) to help develop pilot programs that
9 may be implemented by the Manufacturing
10 USA institutes to address specific purposes of
11 the Program, including to accelerate technology
12 transfer to the private sector and to develop en-
13 trepreneurship programs;

14 “(J) to provide support services to promote
15 workforce development activities;

16 “(K) to identify and disseminate best prac-
17 tices for workforce education and training
18 across the Network and further enhance col-
19 laboration among Manufacturing USA insti-
20 tutes in developing and implementing such
21 practices;

22 “(L) to collaborate with the Department of
23 Labor, the Department of Education, industry,
24 career and technical education schools, local
25 community colleges, universities, and labor or-

1 organizations to provide input, as appropriate, for
2 the development of national certifications for
3 advanced manufacturing workforce skills in the
4 technology areas of the Manufacturing USA in-
5 stitutes; and

6 “(M) to coordinate with Manufacturing
7 USA institutes to develop best practices for the
8 membership agreements and coordination of
9 similar project solicitations.

10 “(3) RECOMMENDATIONS.—In developing and
11 updating the strategic plan under paragraph (2)(C),
12 the Secretary shall solicit recommendations and ad-
13 vice from a wide range of stakeholders, including in-
14 dustry, small and medium-sized manufacturing en-
15 terprises, research universities, community colleges,
16 State, Tribal, and local governments, and other rel-
17 evant organizations and institutions on an ongoing
18 basis.

19 “(4) REPORT TO CONGRESS.—Upon completion,
20 the Secretary shall transmit the strategic plan re-
21 quired under paragraph (2)(C) to the Committee on
22 Commerce, Science, and Transportation of the Sen-
23 ate and the Committee on Science, Space, and Tech-
24 nology of the House of Representatives.

1 “(5) HOLLINGS MANUFACTURING EXTENSION
2 PARTNERSHIP.—

3 “(A) IN GENERAL.—The Secretary shall
4 ensure that the National Program Office
5 leverages the capabilities of the Hollings Manu-
6 facturing Extension Partnership into Program
7 planning to ensure—

8 “(i) significant outreach to, participa-
9 tion of, and engagement of small- and me-
10 dium-sized manufacturers in Manufac-
11 turing USA institutes across the entirety
12 of the manufacturing supply chain; and

13 “(ii) that the results of the Program,
14 including technologies developed by the
15 Program, reach small- and medium-sized
16 manufacturers and that such entities have
17 access to technical assistance, as appro-
18 priate, in deploying those technologies.

19 “(B) LIAISONS.—The Secretary may pro-
20 vide financial assistance to a manufacturing ex-
21 tension center established as part of the Hol-
22 lings Manufacturing Extension Partnership to
23 support the purposes of the Program by pro-
24 viding services in one or more of the following
25 areas:

1 “(i) Support services for small- and
2 medium-sized manufacturers, that many
3 include the designation of a liaison.

4 “(ii) Assistance with workforce devel-
5 opment.

6 “(iii) Technology transfer for small
7 and medium-sized manufacturers.

8 “(iv) Such other areas as the Sec-
9 retary determines appropriate to support
10 the purposes of the Program.

11 “(6) DETAILEES.—Any Federal Government
12 employee may be detailed to the National Program
13 Office without reimbursement. Such detail shall be
14 without interruption or loss of civil service status or
15 privilege.

16 “(i) REPORTING AND AUDITING.—

17 “(1) ANNUAL REPORTS TO THE SECRETARY.—

18 “(A) IN GENERAL.—Not less frequently
19 than once each year, each agency head that is
20 providing financial assistance under subsection
21 (e) shall—

22 “(i) require each recipient of such fi-
23 nancial assistance submit to the agency
24 head a report that describes the finances
25 and performance of the Manufacturing

1 USA institute with respect to which the fi-
2 nancial assistance is awarded; and

3 “(ii) submit to the Secretary each re-
4 port received by the agency head under
5 clause (i).

6 “(B) ELEMENTS.—Each report submitted
7 under subparagraph (A) shall include:

8 “(i) an accounting of expenditures of
9 amounts awarded to the recipient under
10 subsection (e); and

11 “(ii) consistent with the standards for
12 performance established under subsection
13 (e)(5)(B), a description of the performance
14 of the Manufacturing USA institute with
15 respect to—

16 “(I) its goals, plans, financial
17 support, and accomplishments; and

18 “(II) how the Manufacturing
19 USA institute has furthered the pur-
20 poses set forth under subsection
21 (b)(2).

22 “(2) ANNUAL REPORTS TO CONGRESS.—

23 “(A) IN GENERAL.—Not less frequently
24 than once each year until December 31, 2030,
25 the Secretary shall submit a report to Congress

1 that describes the performance of the Program
2 during the most recent 1-year period.

3 “(B) ELEMENTS.—Each report submitted
4 under subparagraph (A) shall include, for the
5 period covered by the report—

6 “(i) a summary and assessment of the
7 reports received by the Secretary under
8 paragraph (1);

9 “(ii) an accounting of the funds ex-
10 pended by the Secretary under the Pro-
11 gram, including any waivers made under
12 subsection (e)(7)(B);

13 “(iii) an assessment of the participa-
14 tion in, and contributions to, the Network
15 by any Manufacturing USA institutes not
16 receiving financial assistance under sub-
17 section (e); and

18 “(iv) an assessment of the Program
19 with respect to meeting the purposes set
20 forth under subsection (b)(2).

21 “(3) ASSESSMENTS BY COMPTROLLER GENERAL
22 OF THE UNITED STATES.—

23 “(A) ASSESSMENTS.—Not less frequently
24 than once every 3 years, the Comptroller Gen-
25 eral of the United States shall submit to Con-

1 gress an assessment of the operation of the
2 Program during the most recent 3-year period,
3 including an assessment of the progress made
4 towards achieving the goals specified in the na-
5 tional strategic plan for advanced manufac-
6 turing required under section 102(b)(7) of the
7 America COMPETES Reauthorization Act of
8 2010 (42 U.S.C. 6622(b)(7)).

9 “(B) ELEMENTS.—Each assessment sub-
10 mitted under subparagraph (A) shall include,
11 for the period covered by the report—

12 “(i) a review of the management, co-
13 ordination, and industry utility of the Pro-
14 gram;

15 “(ii) an assessment of the extent to
16 which the Program has furthered the pur-
17 poses set forth under subsection (b)(2);

18 “(iii) such recommendations for legis-
19 lative and administrative action as the
20 Comptroller General considers appropriate
21 to improve the Program; and

22 “(iv) an assessment as to whether any
23 prior recommendations for improvement
24 made by the Comptroller General have
25 been implemented or adopted.

1 “(C) FINAL ASSESSMENT.—No later than
2 December 31, 2030, the Comptroller General
3 shall submit to Congress a final report regard-
4 ing the overall success of the Program.

5 “(j) ADDITIONAL AUTHORITIES.—

6 “(1) APPOINTMENT OF PERSONNEL AND CON-
7 TRACTS.—The Secretary may appoint such per-
8 sonnel and enter into such contracts, financial as-
9 sistance agreements, and other agreements as the
10 Secretary considers necessary or appropriate to
11 carry out the Program, including support for re-
12 search and development activities involving a Manu-
13 facturing USA institute.

14 “(2) TRANSFER OF FUNDS.—Of amounts avail-
15 able under the authority provided by subsection (g),
16 the Secretary may transfer to other Federal agencies
17 such sums as the Secretary considers necessary or
18 appropriate to carry out the Program. No funds so
19 transferred may be used to reimburse or otherwise
20 pay for the costs of financial assistance incurred or
21 commitments of financial assistance made prior to
22 December 16, 2014.

23 “(3) AUTHORITY OF OTHER AGENCIES.—In the
24 event that the Secretary exercises the authority to
25 transfer funds to another agency under paragraph

1 (2), such agency may accept such funds to award
2 and administer, under the same conditions and con-
3 straints applicable to the Secretary, all aspects of fi-
4 nancial assistance awards under this section.

5 “(4) USE OF RESOURCES.—In furtherance of
6 the purposes of the Program, the Secretary may use,
7 with the consent of a covered entity and with or
8 without reimbursement, the land, services, equip-
9 ment, personnel, and facilities of such covered entity.

10 “(5) ACCEPTANCE OF RESOURCES.—In addition
11 to amounts appropriated to carry out the Program,
12 the Secretary may accept funds, services, equipment,
13 personnel, and facilities from any covered entity to
14 carry out the Program, subject to the same condi-
15 tions and constraints otherwise applicable to the
16 Secretary under this section and such funds may
17 only be obligated to the extent provided for in ad-
18 vance by appropriations Acts.

19 “(6) COVERED ENTITIES.—For purposes of this
20 subsection, a covered entity is any Federal depart-
21 ment, Federal agency, instrumentality of the United
22 States, State, local government, Tribal government,
23 territory, or possession of the United States, or of
24 any political subdivision thereof, or international or-

1 organization, or any public or private entity or indi-
2 vidual.

3 “(7) COLLABORATIONS WITH OTHER AGEN-
4 CIES.—The Secretary shall collaborate with Federal
5 agencies whose missions contribute to, or are af-
6 fected by, advanced manufacturing to identify and
7 leverage existing resources at such Federal agencies
8 to assist Manufacturing USA institutes in carrying
9 out the purposes of the Program set forth under
10 subsection (b)(2). Such existing resources may in-
11 clude programs—

12 “(A) at the Department of Labor relating
13 to labor and apprenticeships;

14 “(B) at the Economic Development Ad-
15 ministration relating to regional innovation,
16 such as the Regional Innovation Strategies pro-
17 gram;

18 “(C) at the Department of Education re-
19 lating to workforce development, education,
20 training, and retraining;

21 “(D) at the Department of Defense relat-
22 ing to procurement and other authorities of the
23 Department of Defense;

24 “(E) at the Food and Drug Administration
25 relating to biopharmaceutical manufacturing;

1 “(F) at the National Science Foundation,
2 including the Advanced Technological Edu-
3 cation program;

4 “(G) at the National Aeronautics and
5 Space Administration relating to procurement,
6 workforce development, education, training, and
7 retraining;

8 “(H) at the Department of Energy relating
9 to development of clean energy technologies and
10 other authorities of the Department of Energy;

11 “(I) at the Department of Agriculture re-
12 lating to outreach to rural communities;

13 “(J) additional programs that the Sec-
14 retary determines are appropriate to support
15 the activities of existing Manufacturing USA
16 institutes; and

17 “(K) additional programs that the Sec-
18 retary determines are appropriate to support
19 the activities of existing Manufacturing USA
20 institutes.

21 “(k) PATENTS.—Chapter 18 of title 35, United
22 States Code, shall apply to any funding agreement (as de-
23 fined in section 201 of that title) awarded to new or exist-
24 ing Manufacturing USA institutes with respect to which
25 financial assistance is awarded under subsection (e).

1 “(1) REFERENCES TO PRIOR NAMES AND TERMI-
2 NOLOGY.—Any reference in law, regulation, map, docu-
3 ment, paper, or other record of the United States to the
4 ‘Network for Manufacturing Innovation Program’, the
5 ‘Network for Manufacturing Innovation’, ‘National Office
6 of the Network for Manufacturing Innovation Program’,
7 or a ‘center for manufacturing innovation’ shall be consid-
8 ered to be a reference to the Manufacturing USA Pro-
9 gram, the Manufacturing USA Network, the National Of-
10 fice of the Manufacturing USA Network, or a Manufac-
11 turing USA institute, respectively.”.

12 (b) EXPANSION OF MANUFACTURING USA NET-
13 WORK.—Subject to the availability of appropriations, the
14 Secretary of Commerce shall take such actions as may be
15 necessary to increase the number of Manufacturing USA
16 institutes that participate in the Manufacturing USA Net-
17 work.

18 **SEC. 1742. REGIONAL INNOVATION PROGRAM.**

19 Section 27 of the Stevenson-Wydler Technology Inno-
20 vation Act of 1980 (15 U.S.C. 3722) is amended to read
21 as follows:

22 **“SEC. 27. REGIONAL INNOVATION PROGRAM.**

23 “(a) DEFINITIONS.—In this section:

24 “(1) ELIGIBLE RECIPIENT.—The term ‘eligible
25 recipient’ means—

1 “(A) a State;

2 “(B) an Indian tribe;

3 “(C) a city or other political subdivision of
4 a State;

5 “(D) an entity that—

6 “(i) is a nonprofit organization, an in-
7 stitution of higher education, a public-pri-
8 vate partnership, a science or research
9 park, a Federal laboratory, a venture de-
10 velopment organization, or an economic de-
11 velopment organization or similar entity
12 that is focused primarily on improving
13 science, technology, innovation, or entre-
14 preneurship; and

15 “(ii) has an application submitted
16 under subsection (c)(4) that is supported
17 by a State or a political subdivision of a
18 State; or

19 “(E) a consortium of any of the entities
20 described in subparagraphs (A) through (D).

21 “(2) REGIONAL INNOVATION INITIATIVE.—The
22 term ‘regional innovation initiative’ means a geo-
23 graphically-bounded public or nonprofit activity or
24 program to address issues in the local innovation
25 systems in order to—

1 “(A) increase the success of innovation-
2 driven industry;

3 “(B) strengthen the competitiveness of in-
4 dustry through new product innovation and new
5 technology adoption;

6 “(C) improve the pace of market readiness
7 and overall commercialization of innovative re-
8 search;

9 “(D) enhance the overall innovation capac-
10 ity and long-term resilience of the region;

11 “(E) leverage the region’s unique competi-
12 tive strengths to stimulate innovation; and

13 “(F) increase the number of full-time
14 equivalent employment opportunities within in-
15 novation-based business ventures in the geo-
16 graphic region.

17 “(3) STATE.—The term ‘State’ means one of
18 the several States of the United States, the District
19 of Columbia, the Commonwealth of Puerto Rico, the
20 United States Virgin Islands, Guam, American
21 Samoa, the Commonwealth of the Northern Mariana
22 Islands, or any other territory or possession of the
23 United States.

24 “(4) VENTURE DEVELOPMENT ORGANIZA-
25 TION.—The term ‘venture development organization’

1 means a State or nonprofit organization that con-
2 tributes to regional or sector-based economic pros-
3 perity by providing services for the purposes of ac-
4 celerating the commercialization of research.

5 “(b) ESTABLISHMENT.—The Secretary shall estab-
6 lish a regional innovation program to encourage and sup-
7 port the development of regional innovation strategies de-
8 signed to increase innovation-driven economic opportunity
9 within their respective regions.

10 “(c) REGIONAL INNOVATION GRANTS.—

11 “(1) AUTHORIZATION OF GRANTS.—As part of
12 the program established pursuant to subsection (b),
13 the Secretary may award grants, on a competitive
14 basis, to eligible recipients for activities designed to
15 develop and support a regional innovation initiative.

16 “(2) PERMISSIBLE ACTIVITIES.—A grant
17 awarded under this subsection shall be used for mul-
18 tiple activities determined appropriate by the Sec-
19 retary, including—

20 “(A) planning, technical assistance, and
21 communication among participants of a re-
22 gional innovation initiative to improve the con-
23 nectedness and strategic orientation of the re-
24 gional innovation initiative;

1 “(B) attracting additional participants to a
2 regional innovation initiative;

3 “(C) increasing the availability and invest-
4 ment of private and philanthropic financing
5 that supports innovation-based business ven-
6 tures; and

7 “(D) facilitating commercialization of
8 products, processes, and services, including
9 through demonstration, deployment, technology
10 transfer, and entrepreneurial activities.

11 “(3) RESTRICTED ACTIVITIES.—Grants award-
12 ed under this subsection may not be used to pay
13 for—

14 “(A) costs related to the recruitment, in-
15 ducement, or associated financial or tangible in-
16 centives that might be offered to relocate an ex-
17 isting business from a geographic area to an-
18 other geographic area; or

19 “(B) costs associated with offsetting reve-
20 nues forgone by 1 or more taxing authorities
21 through tax incentives, tax increment financing,
22 special improvement districts, tax abatements
23 for private development within designated zones
24 or geographic areas, or other reduction in reve-

1 nues resulting from tax credits affecting the ge-
2 ographic region of the eligible recipients.

3 “(4) APPLICATIONS.—

4 “(A) IN GENERAL.—An eligible recipient
5 shall submit an application to the Secretary at
6 such time, in such manner, and containing such
7 information and assurances as the Secretary
8 may require.

9 “(B) COMPONENTS.—Each application
10 submitted under subparagraph (A) shall—

11 “(i) describe the regional innovation
12 initiative;

13 “(ii) indicate whether the regional in-
14 novation initiative is supported by the pri-
15 vate sector, State and local governments,
16 and other relevant stakeholders;

17 “(iii) identify what activities the re-
18 gional innovation initiative will undertake;

19 “(iv) describe the expected outcomes
20 of the regional innovation initiative and the
21 metrics the eligible recipient will use to as-
22 sess progress toward those outcomes;

23 “(v) indicate whether the participants
24 in the regional innovation initiative have
25 access to, or contribute to, a well-trained

1 workforce and other innovation assets that
2 are critical to the successful outcomes
3 specified in the application;

4 “(vi) indicate whether the participants
5 in the regional innovation initiative are ca-
6 pable of attracting additional funds from
7 non-Federal sources; and

8 “(vii) if appropriate for the activities
9 proposed in the application, analyze the
10 likelihood that the participants in the re-
11 gional innovation initiative will be able to
12 sustain activities after grant funds received
13 under this subsection have been expended.

14 “(C) FEEDBACK.—The Secretary shall
15 provide feedback to program applicants that are
16 not awarded grants to help them improve future
17 applications.

18 “(D) SPECIAL CONSIDERATIONS.—The
19 Secretary shall give special consideration to—

20 “(i) applications proposing to include
21 workforce or training related activities in
22 their regional innovation initiative from eli-
23 gible recipients who agree to collaborate
24 with local workforce investment area
25 boards; and

1 “(ii) applications from regions that
2 contain communities negatively impacted
3 by trade.

4 “(5) COST SHARE.—The Secretary may not
5 provide more than 50 percent of the total cost of
6 any activity funded under this subsection.

7 “(6) OUTREACH TO RURAL COMMUNITIES.—
8 The Secretary shall conduct outreach to public and
9 private sector entities in rural communities to en-
10 courage those entities to participate in regional inno-
11 vation initiatives under this subsection.

12 “(7) GEOGRAPHIC DISTRIBUTION.—In con-
13 ducting a competitive process, the Secretary shall
14 avoid undue geographic concentration among any
15 one category of States based on their predominant
16 rural or urban character as indicated by population
17 density.

18 “(8) FUNDING.—The Secretary may accept
19 funds from other Federal agencies to support grants
20 and activities under this subsection.

21 “(d) REGIONAL INNOVATION RESEARCH AND INFOR-
22 MATION PROGRAM.—

23 “(1) IN GENERAL.—As part of the program es-
24 tablished pursuant to subsection (b), the Secretary

1 shall establish a regional innovation research and in-
2 formation program—

3 “(A) to gather, analyze, and disseminate
4 information on best practices for regional inno-
5 vation initiatives, including information relating
6 to how innovation, productivity, and economic
7 development can be maximized through such
8 strategies;

9 “(B) to provide technical assistance, in-
10 cluding through the development of technical
11 assistance guides, for the development and im-
12 plementation of regional innovation initiatives;

13 “(C) to support the development of rel-
14 evant metrics and measurement standards to
15 evaluate regional innovation initiatives, includ-
16 ing the extent to which such strategies stimu-
17 late innovation, productivity, and economic de-
18 velopment; and

19 “(D) to collect and make available data on
20 regional innovation initiatives in the United
21 States, including data on—

22 “(i) the size, specialization, and com-
23 petitiveness of regional innovation initia-
24 tives;

1 “(ii) the regional domestic product
2 contribution, total jobs and earnings by
3 key occupations, establishment size, nature
4 of specialization, patents, Federal research
5 and development spending, and other rel-
6 evant information for regional innovation
7 initiatives; and

8 “(iii) supply chain product and service
9 flows within and between regional innova-
10 tion initiatives.

11 “(2) RESEARCH GRANTS.—The Secretary may
12 award research grants on a competitive basis to sup-
13 port and further the goals of the program estab-
14 lished under this section.

15 “(3) DISSEMINATION OF INFORMATION.—Data
16 and analysis compiled by the Secretary under the
17 program established in this subsection shall be made
18 available to other Federal agencies, State and local
19 governments, and nonprofit and for-profit entities.

20 “(4) REGIONAL INNOVATION GRANT PRO-
21 GRAM.—The Secretary shall incorporate data and
22 analysis relating to any grant awarded under sub-
23 section (c) into the program established under this
24 subsection.

25 “(e) INTERAGENCY COORDINATION.—

1 “(1) IN GENERAL.—To the maximum extent
2 practicable, the Secretary shall ensure that the ac-
3 tivities carried out under this section are coordinated
4 with, and do not duplicate the efforts of, other pro-
5 grams at the Department of Commerce or at other
6 Federal agencies.

7 “(2) COLLABORATION.—

8 “(A) IN GENERAL.—The Secretary shall
9 explore and pursue collaboration with other
10 Federal agencies, including through multi-agen-
11 cy funding opportunities, on regional innovation
12 strategies.

13 “(B) SMALL BUSINESSES.—The Secretary
14 shall ensure that such collaboration with Fed-
15 eral agencies prioritizes the needs and chal-
16 lenges of small businesses.

17 “(f) EVALUATION.—

18 “(1) IN GENERAL.—Not later than 5 years
19 after Congress first appropriates funds to carry out
20 this section, the Secretary shall competitively award
21 a contract with an independent entity to conduct an
22 evaluation of programs established under this sec-
23 tion.

24 “(2) REQUIREMENTS.—The evaluation con-
25 ducted under paragraph (1) shall include—

1 “(A) an assessment of whether the pro-
2 gram is achieving its goals;

3 “(B) the program’s efficacy in providing
4 awards to geographically diverse entities;

5 “(C) any recommendations for how the
6 program may be improved; and

7 “(D) a recommendation as to whether the
8 program should be continued or terminated.

9 “(g) REPORTING REQUIREMENT.—Not later than 5
10 years after the first grant is awarded under subsection (c),
11 and every 5 years thereafter until 5 years after the last
12 grant recipient completes the regional innovation initiative
13 for which such grant was awarded, the Secretary shall
14 submit a summary report to Congress that describes the
15 outcome of each regional innovation initiative that was
16 completed during the previous 5 years.

17 “(h) FUNDING.—From amounts appropriated by
18 Congress to the Secretary, the Secretary may use up to
19 \$50,000,000 in each of the fiscal years 2020 through 2024
20 to carry out this section.”.

21 **SEC. 1743. AVIATION WORKFORCE DEVELOPMENT.**

22 (a) IN GENERAL.—Section 625(c)(1) of the FAA Re-
23 authorization Act of 2018 (Public Law 115–254) is
24 amended—

1 (1) in subparagraph (C), by striking “or” after
2 the semicolon;

3 (2) in subparagraph (D), by striking the period
4 and inserting “; or”; and

5 (3) by adding at the end the following:

6 “(E) an organization representing aircraft
7 users, aircraft owners, or aircraft pilots.”.

8 (b) **EFFECTIVE DATE.**—The amendments made by
9 subsection (a) shall take effect as if included in the enact-
10 ment of the FAA Reauthorization Act of 2018 (Public
11 Law 115–254).

12 **SEC. 1744. OVERSIGHT OF DEPARTMENT OF DEFENSE EXE-**
13 **CUTE ORDERS.**

14 (a) **REVIEW OF EXECUTE ORDERS.**—Not later than
15 30 days after receiving a written request by the Chairman
16 or Ranking Member of a congressional defense committee,
17 the Secretary of Defense shall provide the committee, in-
18 cluding appropriately designated staff of the committee,
19 with—

20 (1) an execute order approved by the Secretary
21 or the commander of a combatant command for re-
22 view; and

23 (2) a detailed briefing on such execute order.

24 (b) **EXCEPTION.**—

1 (1) IN GENERAL.—In extraordinary cir-
2 cumstances necessary to protect operations security
3 or the sensitivity of the execute order, the Secretary
4 may limit review of an execute order. A determina-
5 tion that extraordinary circumstances exist for pur-
6 poses of this paragraph may only be made by the
7 Secretary and the decision to limit the review of an
8 execute order may not be delegated.

9 (2) SUMMARY AND OTHER INFORMATION.—In
10 extraordinary circumstances described in paragraph
11 (1) with respect to an execute order, within 30 days
12 of receiving a written request under subsection (a),
13 the Secretary shall provide to the committee con-
14 cerned, including appropriately designated staff of
15 the committee—

16 (A) a written explanation of the extraor-
17 dinary circumstances that led to the determina-
18 tion by the Secretary to limit review of the exe-
19 cute order; and

20 (B) a detailed summary of the execute
21 order and other information necessary for the
22 conduct of the oversight duties of the com-
23 mittee.

24 (c) QUARTERLY REPORT.—Not later than 30 days
25 after the date on which the budget of the President is sub-

mitted to Congress under section 1105(a) of title 31,
United States Code, for fiscal year 2021 and every 90
days thereafter, the Secretary of Defense shall submit to
the congressional defense committees a comprehensive re-
port identifying and summarizing all execute orders ap-
proved by the Secretary or the commander of a combatant
command in effect for the Department of Defense as of
the date of the report.

**SEC. 1745. PROCESSES AND PROCEDURES FOR NOTIFICA-
TIONS REGARDING SPECIAL OPERATIONS
FORCES.**

(a) IN GENERAL.—Not later than 180 days after the
date of the enactment of this Act, the Secretary of Defense
shall establish and submit to the congressional defense
committees processes and procedures for providing notifi-
cations to the committees regarding members of special
operations forces, as identified in section 167(j) of title
10, United States Code.

(b) PROCESSES AND PROCEDURES.—The processes
and procedures established under subsection (a) shall—

(1) clarify the roles and responsibilities of the
Secretaries of the military departments, the Assist-
ant Secretary of Defense for Special Operations and
Low Intensity Conflict, and the Commander of
United States Special Operations Command;

1 (2) provide guidance relating to the types of
2 matters that would warrant congressional notifica-
3 tion, including awards, reprimands, incidents, and
4 any other matters the Secretary determines nec-
5 essary;

6 (3) be consistent with the national security of
7 the United States;

8 (4) be designed to protect sensitive information
9 during an ongoing investigation;

10 (5) account for the privacy of members of the
11 Armed Forces; and

12 (6) take in to account existing processes and
13 procedures for notifications to the congressional de-
14 fense committees regarding members of the conven-
15 tional Armed Forces.

16 **SEC. 1746. SECURING AMERICAN SCIENCE AND TECH-**
17 **NOLOGY.**

18 (a) INTERAGENCY WORKING GROUP.—

19 (1) IN GENERAL.—The Director of the Office of
20 Science and Technology Policy, acting through the
21 National Science and Technology Council, in con-
22 sultation with the National Security Advisor, shall
23 establish or designate an interagency working group
24 to coordinate activities to protect federally funded
25 research and development from foreign interference,

1 cyber attacks, theft, or espionage and to develop
2 common definitions and best practices for Federal
3 science agencies and grantees, while accounting for
4 the importance of the open exchange of ideas and
5 international talent required for scientific progress
6 and American leadership in science and technology.

7 (2) MEMBERSHIP.—

8 (A) IN GENERAL.—The working group
9 shall include at least one representative of—

- 10 (i) the National Science Foundation;
11 (ii) the Department of Energy;
12 (iii) the National Aeronautics and
13 Space Administration;
14 (iv) the Department of Commerce;
15 (v) the Department of Health and
16 Human Services;
17 (vi) the Department of Defense;
18 (vii) the Department of Agriculture;
19 (viii) the Department of Education;
20 (ix) the Department of State;
21 (x) the Department of the Treasury;
22 (xi) the Department of Justice;
23 (xii) the Department of Homeland Se-
24 curity;
25 (xiii) the Central Intelligence Agency;

1 (xiv) the Office of the Director of Na-
2 tional Intelligence;

3 (xv) the Office of Management and
4 Budget;

5 (xvi) the National Economic Council;
6 and

7 (xvii) such other Federal department
8 or agency as the President considers ap-
9 propriate.

10 (B) CHAIR.—The working group shall be
11 chaired by the Director of the Office of Science
12 and Technology Policy (or the Director’s des-
13 ignee).

14 (3) RESPONSIBILITIES OF THE WORKING
15 GROUP.—The working group established under para-
16 graph (1) shall—

17 (A) identify known and potential cyber,
18 physical, and human intelligence threats and
19 vulnerabilities within the United States sci-
20 entific and technological enterprise;

21 (B) coordinate efforts among agencies to
22 share and update important information, in-
23 cluding specific examples of foreign inter-
24 ference, cyber attacks, theft, or espionage di-
25 rected at federally funded research and develop-

1 ment or the integrity of the United States sci-
2 entific enterprise;

3 (C) identify and assess existing mecha-
4 nisms for protection of federally funded re-
5 search and development;

6 (D) develop an inventory of—

7 (i) terms and definitions used across
8 Federal science agencies to delineate areas
9 that may require additional protection; and

10 (ii) policies and procedures at Federal
11 science agencies regarding protection of
12 federally funded research; and

13 (E) develop and periodically update unclas-
14 sified recommendations for policy guidance to
15 assist Federal science agencies and grantees in
16 defending against threats to federally funded
17 research and development and the integrity of
18 the United States scientific enterprise that—

19 (i) includes—

20 (I) descriptions of known and po-
21 tential threats to federally funded re-
22 search and development and the integ-
23 rity of the United States scientific en-
24 terprise;

1 (II) common definitions and ter-
2 minology for categorization of re-
3 search and technologies that are pro-
4 tected;

5 (III) identified areas of research
6 or technology that might require addi-
7 tional protection;

8 (IV) recommendations for how
9 control mechanisms can be utilized to
10 protect federally funded research and
11 development from foreign interference,
12 cyber attacks, theft or espionage, in-
13 cluding any recommendations for up-
14 dates to existing control mechanisms;

15 (V) recommendations for best
16 practices for Federal science agencies,
17 universities, and grantees to defend
18 against threats to federally funded re-
19 search and development, including co-
20 ordination and harmonization of any
21 relevant reporting requirements that
22 Federal science agencies implement
23 for grantees, and by providing such
24 best practices with grantees and uni-
25 versities at the time of awarding such

1 grants or entering into research con-
2 tracts;

3 (VI) a remediation plan for
4 grantees and universities to mitigate
5 the risks regarding such threats be-
6 fore research grants or contracts are
7 cancelled because of such threats;

8 (VII) recommendations for pro-
9 viding opportunities and facilities for
10 academic researchers to perform con-
11 trolled and classified research in sup-
12 port of Federal missions;

13 (VIII) assessments of potential
14 consequences that any proposed prac-
15 tices would have on international col-
16 laboration and United States leader-
17 ship in science and technology; and

18 (IX) a classified addendum as
19 necessary to further inform Federal
20 science agency decisionmaking; and

21 (ii) accounts for the range of needs
22 across different sectors of the United
23 States science and technology enterprise.

24 (4) POLICY GUIDANCE.—Not later than 270
25 days after the date of the enactment of this Act, the

1 Director of the Office of Science and Technology
2 Policy, in consultation with the working group estab-
3 lished under paragraph (1), shall—

4 (A) develop and issue policy guidance to
5 Federal science agencies with more than
6 \$100,000,000 in extramural research in fiscal
7 year 2018 to protect against threats to federally
8 funded research and the United States science
9 enterprise, including foreign interference, cyber
10 attacks, theft, or espionage; and

11 (B) encourage consistency in the policies
12 developed by Federal science agencies with
13 more than \$100,000,000 in extramural research
14 in fiscal year 2018, as appropriate, and fac-
15 toring in the potential range of applications
16 across different areas of science and technology.

17 (5) COORDINATION WITH NATIONAL ACADEMIES
18 ROUNDTABLE.—The Director of the Office of
19 Science and Technology Policy shall coordinate with
20 the Academies to ensure that at least one member
21 of the interagency working group is also a member
22 of the roundtable under subsection (b).

23 (6) INTERIM REPORT.—Not later than six
24 months after the date of enactment of this Act, the
25 Director of the Office of Science and Technology

1 Policy shall provide a report to the relevant commit-
2 tees that includes the inventory required under para-
3 graph (3)(D), and an update on progress toward de-
4 veloping the policy guidance required under para-
5 graphs (3)(E) and (4), as well as any additional ac-
6 tivities undertaken by the working group in that
7 time.

8 (7) BIENNIAL REPORTING.—Two years after
9 the date of enactment of this Act, and at least every
10 two years thereafter, the Director of the Office of
11 Science and Technology Policy shall provide a sum-
12 mary report to the relevant committees on the activi-
13 ties of the working group and the most current
14 version of the policy guidance required under para-
15 graph (4).

16 (8) TERMINATION.—The working group estab-
17 lished or designated under paragraph (1) shall ter-
18 minate on the date that is ten years after the date
19 on which such working group is established or des-
20 ignated.

21 (b) NATIONAL ACADEMIES SCIENCE, TECHNOLOGY
22 AND SECURITY ROUNDTABLE.—

23 (1) IN GENERAL.—The National Science Foun-
24 dation, the Department of Energy, and the Depart-
25 ment of Defense, and any other agencies as deter-

1 mined by the Director of the Office of Science and
2 Technology Policy, shall enter into a joint agreement
3 with the Academies to create a new “National
4 Science, Technology, and Security Roundtable”
5 (hereinafter in this subsection referred to as the
6 “roundtable”).

7 (2) PARTICIPANTS.—The roundtable shall in-
8 clude senior representatives and practitioners from
9 Federal science, intelligence, and national security
10 agencies, law enforcement, as well as key stake-
11 holders in the United States scientific enterprise in-
12 cluding institutions of higher education, Federal re-
13 search laboratories, industry, and non-profit re-
14 search organizations.

15 (3) PURPOSE.—The purpose of the roundtable
16 is to facilitate among participants—

17 (A) exploration of critical issues related to
18 protecting United States national and economic
19 security while ensuring the open exchange of
20 ideas and international talent required for sci-
21 entific progress and American leadership in
22 science and technology;

23 (B) identification and consideration of se-
24 curity threats and risks involving federally
25 funded research and development, including for-

1 eign interference, cyber attacks, theft, or espio-
2 nage;

3 (C) identification of effective approaches
4 for communicating the threats and risks identi-
5 fied in subparagraph (b) to the academic and
6 scientific community, including through the
7 sharing of unclassified data and relevant case
8 studies;

9 (D) sharing of best practices for address-
10 ing and mitigating the threats and risks identi-
11 fied in subparagraph (B); and

12 (E) examination of potential near- and
13 long-term responses by the Government and the
14 academic and scientific community to mitigate
15 and address the risks associated with foreign
16 threats.

17 (4) REPORT AND BRIEFING.—The joint agree-
18 ment under paragraph (1) shall specify that—

19 (A) the roundtable shall periodically orga-
20 nize workshops and issue publicly available re-
21 ports on the topics described in paragraph (3)
22 and the activities of the roundtable;

23 (B) not later than March 1, 2020, the
24 Academies shall provide a briefing to the rel-

1 evant committees on the progress and activities
2 of the roundtable; and

3 (C) the Academies shall issue a final report
4 on its activities to the relevant committees be-
5 fore the end of fiscal year 2024.

6 (5) TERMINATION.—The roundtable shall ter-
7 minate on September 30, 2024.

8 (c) DEFINITIONS.—In this section:

9 (1) The term “Academies” means the National
10 Academies of Science, Engineering and Medicine.

11 (2) The term “Federal science agency” means
12 any Federal agency with at least \$100,000,000 in
13 basic and applied research obligations in fiscal year
14 2018.

15 (3) The term “grantee” means an entity that
16 is—

17 (A) a recipient or subrecipient of a Federal
18 grant or cooperative agreement; and

19 (B) an institution of higher education or a
20 non-profit organization.

21 (4) The term “relevant committees” means—

22 (A) the Committee on Science, Space, and
23 Technology of the House of Representatives;

24 (B) the Committee on Commerce, Science,
25 and Transportation of the Senate;

1 (C) the Committee on Armed Services of
2 the House of Representatives;

3 (D) the Committee on Armed Services of
4 the Senate; and

5 (E) the Committee on Homeland Security
6 and Governmental Affairs of the Senate.

7 **SEC. 1747. STANDARDIZED POLICY GUIDANCE FOR CALCULATING AIRCRAFT OPERATION AND SUSTAINMENT COSTS.**

10 Not later than 270 days after the date of the enactment of this Act, the Under Secretary of Defense for Acquisition and Sustainment, in coordination with the Director of Cost Analysis and Program Evaluation and in consultation with the Secretary of each of the military services, shall develop and implement standardized policy guidance for calculating aircraft operation and sustainment costs for the Department of Defense. Such guidance shall provide for a standardized calculation of—

19 (1) aircraft cost per flying hour;

20 (2) aircraft cost per aircraft tail per year;

21 (3) total cost of ownership per flying hour for
22 aircraft systems;

23 (4) average annual operation and sustainment
24 cost per aircraft; and

1 (5) any other cost metrics the Under Secretary
2 of Defense determines appropriate.

3 **SEC. 1748. SPECIAL FEDERAL AVIATION REGULATION**
4 **WORKING GROUP.**

5 (a) IN GENERAL.—Not later than 90 days after the
6 date of the enactment of this Act, the Secretary of De-
7 fense, the Secretary of Transportation, and the Secretary
8 of State, shall jointly establish a Special Federal Aviation
9 Regulation (in this section referred to as the “SFAR”)
10 interagency working group to review the current options
11 for the Department of Defense to use contracted United
12 States civil aviation to provide support for Department of
13 Defense missions in areas where a Federal Aviation Ad-
14 ministration SFAR is in effect.

15 (b) DUTIES.—The working group shall—

16 (1) analyze all options currently available for
17 the Department of Defense to use contracted United
18 States civil aviation to provide support for Depart-
19 ment of Defense missions in areas where a Federal
20 Aviation Administration SFAR is in effect;

21 (2) review existing processes of the Department
22 of Defense, the Federal Aviation Administration,
23 and the Department of State, with respect to the
24 Department of Defense’s use of contracted United

1 States civil aviation in areas where a Federal Avia-
2 tion Administration SFAR is in effect;

3 (3) identify any issues, inefficiencies, or con-
4 cerns with the existing options and processes, includ-
5 ing safety of flight, legal considerations, mission de-
6 livery, and security considerations; and

7 (4) develop recommendations, if any, to improve
8 existing processes or expand the options available for
9 the Department of Defense to use contracted United
10 States civil aviation to provide support to Depart-
11 ment of Defense missions in areas where a Federal
12 Aviation Administration SFAR is in effect.

13 (c) MEMBERS.—

14 (1) APPOINTMENT.—The Secretary of Defense,
15 the Secretary of Transportation, and the Secretary
16 of State shall each appoint not more than 5 mem-
17 bers to the working group with expertise in civil
18 aviation safety, state aircraft operations, the provi-
19 sion of contracted aviation support to the Depart-
20 ment of Defense, and the coordination of such ef-
21 forts between the Department of Defense, the De-
22 partment of State, and the Federal Aviation Admin-
23 istration. The 5 members appointed by the Secretary
24 of Transportation shall include at least 3 members
25 from the Federal Aviation Administration.

1 (2) QUALIFICATIONS.—All working group mem-
2 bers shall be full-time employees of the Federal Gov-
3 ernment with appropriate security clearances to
4 allow discussion of all classified information and ma-
5 terials necessary to fulfill the working group’s duties
6 pursuant to subsection (b).

7 (d) REPORT.—Not later than 1 year after the date
8 it is established, the working group shall submit a report
9 on its findings and any recommendations developed pursu-
10 ant to subsection (b) to the congressional defense commit-
11 tees, the Committee on Commerce, Science, and Transpor-
12 tation of the Senate, and the Committee on Transpor-
13 tation and Infrastructure of the House of Representatives.

14 (e) TERMINATION.—The working group shall termi-
15 nate 90 days after the date the report is submitted under
16 subsection (d).

17 (f) DEFINITIONS.—In this section the following defi-
18 nitions apply:

19 (1) The term “United States civil aviation”
20 means—

21 (A) United States air carriers and United
22 States commercial operators;

23 (B) persons exercising the privileges of an
24 airman certificate issued by the FAA, except

1 such persons operating United States-registered
2 aircraft for a foreign air carrier; and

3 (C) operators of civil aircraft registered in
4 the United States, except where the operator of
5 such aircraft is a foreign air carrier.

6 (2) The term “Federal Aviation Administration
7 SFAR” means the Special Federal Aviation Regula-
8 tion included under subpart M of part 91 of title 14,
9 Code of Federal Regulations.

10 **SEC. 1749. PROHIBITION ON NAMES RELATED TO THE CON-**
11 **FEDERACY.**

12 (a) PROHIBITION ON NAMES RELATED TO THE CON-
13 FEDERACY.—In naming a new asset or renaming an exist-
14 ing asset, the Secretary of Defense or the Secretary of
15 a military department may not give a name to an asset
16 that refers to, or includes a term referring to, the Confed-
17 erate States of America (commonly referred to as the
18 “Confederacy”), including any name referring to—

19 (1) a person who served or held leadership with-
20 in the Confederacy; or

21 (2) a Confederate battlefield victory.

22 (b) ASSET DEFINED.—In this section, the term
23 “asset” includes any base, installation, facility, aircraft,
24 ship, equipment, or any other property owned or controlled
25 by the Department of Defense or a military department.

1 (c) SAVINGS CLAUSE.—Nothing in this section may
2 be construed as requiring a Secretary concerned to initiate
3 a review of previously named assets.

4 **SEC. 1750. SUPPORT FOR NATIONAL MARITIME HERITAGE**
5 **GRANTS PROGRAM.**

6 Of the funds authorized to be appropriated by this
7 Act for fiscal year 2020 for the Department of Defense,
8 the Secretary of Defense may contribute up to \$5,000,000
9 to support the National Maritime Heritage Grants Pro-
10 gram established under section 308703 of title 54, United
11 States Code.

12 **SEC. 1751. SUPPORT FOR WORLD LANGUAGE ADVANCE-**
13 **MENT AND READINESS.**

14 (a) PROGRAM AUTHORITY.—

15 (1) IN GENERAL.—The Secretary of Defense, in
16 consultation with the Director of National Intel-
17 ligence and the Secretary of Education, may carry
18 out a program under which the Secretary may pro-
19 vide support to eligible entities for the establish-
20 ment, improvement, or expansion of world language
21 study for elementary school and secondary school
22 students.

23 (2) SPECIAL REQUIREMENTS FOR LOCAL EDU-
24 CATIONAL AGENCIES.—In providing support under
25 paragraph (1) to an eligible entity that is a local

1 educational agency, the Secretary of Defense shall
2 support programs that—

3 (A) show the promise of being continued
4 after such support is no longer available;

5 (B) demonstrate approaches that can be
6 disseminated to and duplicated in other local
7 educational agencies; and

8 (C) may include a professional develop-
9 ment component.

10 (3) APPLICATIONS.—

11 (A) IN GENERAL.—To be considered for
12 support under paragraph (1), an eligible entity
13 shall submit an application to the Secretary of
14 Defense at such time, in such manner, and con-
15 taining such information and assurances as the
16 Secretary may require.

17 (B) SPECIAL CONSIDERATION.—The Sec-
18 retary of Defense shall give special consider-
19 ation to applications describing programs
20 that—

21 (i) include intensive summer world
22 language programs for professional devel-
23 opment of world language teachers;

1 (ii) link nonnative English speakers in
2 the community with the schools in order to
3 promote two-way language learning;

4 (iii) promote the sequential study of a
5 world language for students, beginning in
6 elementary schools;

7 (iv) make effective use of technology,
8 such as computer-assisted instruction, lan-
9 guage laboratories, or distance learning, to
10 promote world language study;

11 (v) promote innovative activities, such
12 as dual language immersion, partial world
13 language immersion, or content-based in-
14 struction; and

15 (vi) are carried out through a consor-
16 tium comprised of the eligible entity receiv-
17 ing the grant, an elementary school or sec-
18 ondary school, and an institution of higher
19 education (as that term is defined in sec-
20 tion 101 of the Higher Education Act of
21 1965 (20 U.S.C. 1001)).

22 (b) DEFINITIONS.—In this section:

23 (1) ELIGIBLE ENTITY.—The term “eligible enti-
24 ty” means the following:

1 (A) A local educational agency that hosts
2 a unit of the Junior Reserve Officers' Training
3 Corps.

4 (B) A school operated by the Department
5 of Defense Education Activity.

6 (2) ESEA TERMS.—The terms “elementary
7 school”, “local educational agency” and “secondary
8 school” have the meanings given the terms in section
9 8101 of the Elementary and Secondary Education
10 Act of 1965 (20 U.S.C. 7801).

11 (3) WORLD LANGUAGE.—The term “world lan-
12 guage” means—

13 (A) any natural language other than
14 English, including—

15 (i) languages determined by the Sec-
16 retary of Defense to be critical to the na-
17 tional security interests of the United
18 States;

19 (ii) classical languages;

20 (iii) American sign language; and

21 (iv) Native American languages; and

22 (B) any language described in subpara-
23 graph (A) that is taught in combination with
24 English as part of a dual language or immer-
25 sion learning program.

1 **SEC. 1752. DESIGNATION OF DEPARTMENT OF DEFENSE**
2 **STRATEGIC ARCTIC PORTS.**

3 (a) SENSE OF CONGRESS.—It is the sense of Con-
4 gress that—

5 (1) the Arctic is a region of strategic impor-
6 tance to the national security interests of the United
7 States and the Department of Defense must better
8 align its presence, force posture, and capabilities to
9 meet the growing array of challenges in the region;
10 and

11 (2) although much progress has been made to
12 increase awareness of Arctic issues and to promote
13 increased presence in the region, additional meas-
14 ures, including the designation of one or more stra-
15 tegic Arctic ports, are needed to show the commit-
16 ment of the United States to this emerging strategic
17 choke point of future great power competition.

18 (b) REPORT REQUIRED.—

19 (1) IN GENERAL.—Not later than 180 days
20 after the date of the enactment of this Act, the Sec-
21 retary of Defense, in consultation with the Chairman
22 of the Joint Chiefs of Staff, the Commanding Gen-
23 eral of the United States Army Corps of Engineers,
24 the Commandant of the Coast Guard, and the Ad-
25 ministrator of the Maritime Administration, shall
26 submit to the congressional defense committees a re-

1 port evaluating potential sites for one or more stra-
2 tegic ports in the Arctic.

3 (2) ELEMENTS.—Consistent with the updated
4 military strategy for the protection of United States
5 national security interests in the Arctic region set
6 forth in the report required under section 1071 of
7 the National Defense Authorization Act for Fiscal
8 Year 2019 (Public Law 114–92; 129 Stat. 992), the
9 report required under paragraph (1) shall include—

10 (A) an evaluation of the amount of suffi-
11 cient and suitable space needed to create capaci-
12 ty for port and other necessary infrastructure
13 for at least one of each of type of Navy or
14 Coast Guard vessel, including an Arleigh Burke
15 class destroyer of the Navy, a national security
16 cutter, and a heavy polar ice breaker of the
17 Coast Guard;

18 (B) an evaluation of the amount of suffi-
19 cient and suitable space needed to create capaci-
20 ty for equipment and fuel storage, techno-
21 logical infrastructure, and civil infrastructure to
22 support military and civilian operations, includ-
23 ing—

24 (i) aerospace warning;

- 1 (ii) maritime surface and subsurface
2 warning;
- 3 (iii) maritime control and defense;
4 (iv) maritime domain awareness;
5 (v) homeland defense;
6 (vi) defense support to civil authori-
7 ties;
- 8 (vii) humanitarian relief;
9 (viii) search and rescue;
10 (ix) disaster relief;
11 (x) oil spill response;
12 (xi) medical stabilization and evacu-
13 ation; and
- 14 (xii) meteorological measurements and
15 forecasting;
- 16 (C) an identification of proximity and road
17 access required to an airport designated as a
18 commercial service airport by the Federal Avia-
19 tion Administration that is capable of sup-
20 porting military and civilian aircraft for oper-
21 ations designated in subparagraph (B);
- 22 (D) a description of the requirements, to
23 include infrastructure and installations, commu-
24 nications, and logistics necessary to improve re-
25 sponse effectiveness to support military and ci-

1 vilian operations described in subparagraph
2 (B);

3 (E) an identification of the sites that the
4 Secretary recommends as potential sites for
5 designation as Department of Defense Strategic
6 Arctic Ports;

7 (F) the estimated cost of sufficient con-
8 struction necessary to initiate and sustain ex-
9 pected operations at such sites; and

10 (G) such other information as the Sec-
11 retary deems relevant.

12 (c) DESIGNATION OF STRATEGIC ARCTIC PORTS.—

13 Not later than 90 days after the date on which the report
14 required under subsection (b) is submitted, the Secretary
15 of Defense, in consultation with the Chairman of the Joint
16 Chiefs of Staff, the Commanding General of the United
17 States Army Corps of Engineers, the Commandant of the
18 Coast Guard, and the Administrator of the Maritime Ad-
19 ministration, may designate one or more ports as Depart-
20 ment of Defense Strategic Arctic Ports from the sites
21 identified under subsection (b)(2)(E).

22 (d) RULE OF CONSTRUCTION.—Nothing in this sec-
23 tion may be construed to authorize any additional appro-
24 priations for the Department of Defense for the establish-
25 ment of any port designated pursuant to this section.

1 (e) ARCTIC DEFINED.—In this section, the term
2 “Arctic” has the meaning given that term in section 112
3 of the Arctic Research and Policy Act of 1984 (15 U.S.C.
4 4111).

5 **SEC. 1753. INDEPENDENT STUDIES REGARDING POTENTIAL**
6 **COST SAVINGS WITH RESPECT TO THE NU-**
7 **CLEAR SECURITY ENTERPRISE AND FORCE**
8 **STRUCTURE .**

9 (a) REVIEW OF NUCLEAR DETERRENCE POS-
10 TURES.—

11 (1) IN GENERAL.—The Secretary of Defense
12 shall seek to enter into agreements with two feder-
13 ally funded research and development centers for the
14 conduct of independent reviews of alternative de-
15 fense postures that achieve United States national
16 security objectives and could produce cost savings.
17 Each such review shall include—

18 (A) alternative nuclear deterrence postures
19 to achieve national security objectives, including
20 two alternatives with reduced and increased
21 force posture levels;

22 (B) the options for and cost impacts re-
23 sulting from changes to force structure, active
24 and reserve component balance, domestic and
25 overseas basing, and other impacts resulting

1 from potential challenges to foundational plan-
2 ning assumptions to achieve national security
3 objectives;

4 (C) the potential cost savings from alter-
5 ations to the current balance between the mili-
6 tary and civilian workforces; and

7 (D) options for reducing service contracts
8 in the Department of Defense.

9 (2) COST DATA.—A federally funded research
10 and development center that conducts a review pur-
11 suant to paragraph (1) shall standardize cost data
12 through the use of Department of Defense cost esti-
13 mation methodologies and may make reference to
14 appropriate national security policy documents.

15 (3) ACCESS TO CLASSIFIED INFORMATION.—
16 The Secretary of Defense shall provide to such a
17 center classified information on threat capability de-
18 velopments, plans, and intentions of China, Russia,
19 North Korea, Iran, and violent extremist organiza-
20 tions.

21 (b) REPORT AND BRIEFINGS.—

22 (1) BRIEFING ON COST SAVINGS.—Not later
23 than February 1, 2020, the Comptroller General of
24 the United States shall provide to the congressional
25 defense committees a briefing on the recommenda-

1 tions of the Comptroller General with respect to cost
2 savings in the Department of Defense.

3 (2) BRIEFING ON EFFICIENCY INITIATIVES.—
4 Not later than February 1, 2020, the Comptroller
5 General of the United States shall provide to the
6 congressional defense committees a briefing on the
7 recommendations of the Comptroller General with
8 respect to the efficiency initiatives undertaken by the
9 Office of the Chief Management Officer of the De-
10 partment of Defense.

11 (3) REPORT.—Subsequent to providing the
12 briefing under paragraph (2), the Comptroller Gen-
13 eral shall submit to the congressional defense com-
14 mittees a report on the matters covered by the brief-
15 ing.

16 **SEC. 1754. COMPREHENSIVE DEPARTMENT OF DEFENSE**
17 **POLICY ON COLLECTIVE SELF-DEFENSE.**

18 (a) COMPREHENSIVE POLICY REQUIRED.—The Sec-
19 retary of Defense shall prescribe a comprehensive written
20 policy for the Department of Defense on the issuance of
21 authorization for, and the provision by members and units
22 of the United States Armed Forces of, collective self-de-
23 fense to designated foreign nationals, their facilities, and
24 their property.

1 (b) ELEMENTS.—The policy required by subsection
2 (a) shall address the following:

3 (1) Each basis under domestic and inter-
4 national law pursuant to which a member or unit of
5 the United States Armed Forces has been or may be
6 authorized to provide collective self-defense to des-
7 ignated foreign nationals, their facilities, or their
8 property under each circumstance as follows:

9 (A) Inside an area of active hostilities, or
10 in a country or territory in which United States
11 forces are authorized to conduct or support di-
12 rect action operations.

13 (B) Outside an area of active hostilities, or
14 in a country or territory in which United States
15 forces are not authorized to conduct direct ac-
16 tion military operations.

17 (C) When United States personnel, facili-
18 ties, or equipment are not threatened, including
19 both as described in subparagraph (A) and as
20 described in subparagraph (B).

21 (D) When members of the United States
22 Armed Forces are not participating in a mili-
23 tary operation as part of an international coali-
24 tion.

1 (E) Any other circumstance not encom-
2 passed by subparagraphs (A) through (D) in
3 which a member or unit of the United States
4 Armed Forces has been or may be authorized to
5 provide such collective self-defense.

6 (2) A list and explanation of any limitations im-
7 posed by law or policy on the provision of collective
8 self-defense to designated foreign nationals, their fa-
9 cilities, and their property under any of the bases in
10 domestic or international law in the circumstances
11 enumerated in paragraph (1), and the conditions
12 under which any such limitation applies.

13 (3) The procedure by which a proposal that any
14 member or unit of the United States Armed Forces
15 provide collective self-defense in support of des-
16 ignated foreign nationals, their facilities, and their
17 property is to be submitted, processed, and endorsed
18 through offices, officers, and officials of the Depart-
19 ment to the applicable approval authority for final
20 decision, and a list of any information, advice, or
21 opinion to be included with such proposal in order
22 to inform appropriate action on such proposal by
23 such approval authority.

24 (4) The title and duty position of any officers
25 and officials of the Department empowered to render

1 a final decision on a proposal described in paragraph
2 (3), and the conditions applicable to, and limitations
3 on, the exercise of such decisionmaking authority by
4 each such officer or official.

5 (5) A description of the Rules of Engagement
6 applicable to the provision of collective self-defense
7 to designated foreign nationals, their facilities, and
8 their property under any of the bases in domestic or
9 international law in the circumstances enumerated
10 in paragraph (1), and the conditions under which
11 any such Rules of Engagement would be modified.

12 (6) A description of the process through which
13 policy guidance pertaining to the authorization for,
14 and the provision by members of the United States
15 Armed Forces of, collective self-defense to des-
16 ignated foreign nationals, their facilities, and their
17 property is to be disseminated to the level of tactical
18 execution.

19 (7) Such other matters as the Secretary con-
20 siders appropriate.

21 (c) REPORT ON POLICY.—

22 (1) IN GENERAL.—Not later than 60 days after
23 the date of the enactment of this Act, the Secretary
24 shall submit to the congressional defense committees

1 a report setting forth the policy required by sub-
2 section (a).

3 (2) DOD GENERAL COUNSEL STATEMENT.—

4 The Secretary shall include in the report under
5 paragraph (1) a statement by the General Counsel
6 of the Department of Defense as to whether the pol-
7 icy prescribed pursuant to subsection (a) is con-
8 sistent with domestic and international law.

9 (3) FORM.—The report required by paragraph
10 (1) may be submitted in classified form.

11 (d) BRIEFING ON POLICY.—Not later than 30 days
12 after the date of the submittal of the report required by
13 subsection (c), the Secretary shall provide the congres-
14 sional defense committees a classified briefing on the pol-
15 icy prescribed pursuant to subsection (a). The briefing
16 shall make use of vignettes designated to illustrate real
17 world application of the policy in each the circumstances
18 enumerated in subsection (b)(1).

19 **SEC. 1755. POLICY REGARDING THE TRANSITION OF DATA**
20 **AND APPLICATIONS TO THE CLOUD.**

21 (a) POLICY REQUIRED.—Not later than 180 days
22 after the date of the enactment of this Act, the Chief In-
23 formation Officer of the Department of Defense and the
24 Chief Data Officer of the Department shall, in consulta-
25 tion with the J6 of the Joint Staff and the Chief Manage-

1 ment Officer, develop and issue enterprise-wide policy and
2 implementing instructions regarding the transition of data
3 and applications to the cloud under the Department cloud
4 strategy in accordance with subsection (b).

5 (b) DESIGN.—The policy required by subsection (a)
6 shall be designed to dramatically improve support to oper-
7 ational missions and management processes, including by
8 the use of artificial intelligence and machine learning tech-
9 nologies, by—

10 (1) making the data of the Department avail-
11 able to support new types of analyses;

12 (2) preventing, to the maximum extent prac-
13 ticable, the replication in the cloud of data stores
14 that cannot readily be accessed by applications for
15 which the data stores were not originally engineered;

16 (3) ensuring that data sets can be readily dis-
17 covered and combined with others to enable new in-
18 sights and capabilities; and

19 (4) ensuring that data and applications are
20 readily portable and not tightly coupled to a specific
21 cloud infrastructure or platform.

22 **SEC. 1756. INTEGRATED PUBLIC ALERT AND WARNING SYS-**
23 **TEM.**

24 (a) DEFINITIONS.—In this section—

1 (1) the term “Administrator” means the Ad-
2 administrator of the Agency;

3 (2) the term “Agency” means the Federal
4 Emergency Management Agency;

5 (3) the term “appropriate congressional com-
6 mittees” means—

7 (A) the Committee on Homeland Security
8 and Governmental Affairs of the Senate;

9 (B) the Committee on Transportation and
10 Infrastructure of the House of Representatives;
11 and

12 (C) the Committee on Homeland Security
13 of the House of Representatives;

14 (4) the term “public alert and warning system”
15 means the integrated public alert and warning sys-
16 tem of the United States described in section 526 of
17 the Homeland Security Act of 2002 (6 U.S.C.
18 321o);

19 (5) the term “Secretary” means the Secretary
20 of Homeland Security; and

21 (6) the term “State” means any State of the
22 United States, the District of Columbia, the Com-
23 monwealth of Puerto Rico, the Virgin Islands,
24 Guam, American Samoa, the Commonwealth of the

1 Northern Mariana Islands, and any possession of the
2 United States.

3 (b) INTEGRATED PUBLIC ALERT AND WARNING SYS-
4 TEM.—

5 (1) IN GENERAL.—Not later than 1 year after
6 the date of enactment of this Act, the Administrator
7 shall develop minimum requirements for State, Trib-
8 al, and local governments to participate in the public
9 alert and warning system and that are necessary to
10 maintain the integrity of the public alert and warn-
11 ing system, including—

12 (A) guidance on the categories of public
13 emergencies and appropriate circumstances that
14 warrant an alert and warning from State, Trib-
15 al, and local governments using the public alert
16 and warning system;

17 (B) the procedures for State, Tribal, and
18 local government officials to authenticate civil
19 emergencies and initiate, modify, and cancel
20 alerts transmitted through the public alert and
21 warning system, including protocols and tech-
22 nology capabilities for—

23 (i) the initiation, or prohibition on the
24 initiation, of alerts by a single authorized
25 or unauthorized individual;

1 (ii) testing a State, Tribal, or local
2 government incident management and
3 warning tool without accidentally initiating
4 an alert through the public alert and warn-
5 ing system; and

6 (iii) steps a State, Tribal, or local gov-
7 ernment official should take to mitigate
8 the possibility of the issuance of a false
9 alert through the public alert and warning
10 system;

11 (C) the standardization, functionality, and
12 interoperability of incident management and
13 warning tools used by State, Tribal, and local
14 governments to notify the public of an emer-
15 gency through the public alert and warning sys-
16 tem;

17 (D) the annual training and recertification
18 of emergency management personnel on re-
19 quirements for originating and transmitting an
20 alert through the public alert and warning sys-
21 tem;

22 (E) the procedures, protocols, and guid-
23 ance concerning the protective action plans that
24 State, Tribal, and local governments shall issue

1 to the public following an alert issued under the
2 public alert and warning system;

3 (F) the procedures, protocols, and guid-
4 ance concerning the communications that State,
5 Tribal, and local governments shall issue to the
6 public following a false alert issued under the
7 public alert and warning system;

8 (G) a plan by which State, Tribal, and
9 local government officials may, during an emer-
10 gency, contact each other as well as Federal of-
11 ficials and participants in the Emergency Alert
12 System and the Wireless Emergency Alert Sys-
13 tem, when appropriate and necessary, by tele-
14 phone, text message, or other means of commu-
15 nication regarding an alert that has been dis-
16 tributed to the public; and

17 (H) any other procedure the Administrator
18 considers appropriate for maintaining the integ-
19 rity of and providing for public confidence in
20 the public alert and warning system.

21 (2) COORDINATION WITH NATIONAL ADVISORY
22 COUNCIL REPORT.—The Administrator shall ensure
23 that the minimum requirements developed under
24 paragraph (1) do not conflict with recommendations
25 made for improving the public alert and warning

1 system provided in the report submitted by the Na-
2 tional Advisory Council under section 2(b)(7)(B) of
3 the Integrated Public Alert and Warning System
4 Modernization Act of 2015 (Public Law 114–143;
5 130 Stat. 332).

6 (3) PUBLIC CONSULTATION.—In developing the
7 minimum requirements under paragraph (1), the
8 Administrator shall ensure appropriate public con-
9 sultation and, to the extent practicable, coordinate
10 the development of the requirements with stake-
11 holders of the public alert and warning system, in-
12 cluding—

13 (A) appropriate personnel from Federal
14 agencies, including the National Institute of
15 Standards and Technology, the Agency, and the
16 Federal Communications Commission;

17 (B) representatives of State and local gov-
18 ernments and emergency services personnel,
19 who shall be selected from among individuals
20 nominated by national organizations rep-
21 resenting those governments and personnel;

22 (C) representatives of Federally recognized
23 Indian tribes and national Indian organizations;

24 (D) communications service providers;

1 (E) vendors, developers, and manufactur-
2 ers of systems, facilities, equipment, and capa-
3 bilities for the provision of communications
4 services;

5 (F) third-party service bureaus;

6 (G) the national organization representing
7 the licensees and permittees of noncommercial
8 broadcast television stations;

9 (H) technical experts from the broad-
10 casting industry;

11 (I) educators from the Emergency Man-
12 agement Institute; and

13 (J) other individuals with technical exper-
14 tise as the Administrator determines appro-
15 priate.

16 (4) ADVICE TO THE ADMINISTRATOR.—In ac-
17 cordance with the Federal Advisory Committee Act
18 (5 U.S.C. App.), the Administrator may obtain ad-
19 vice from a single individual or non-consensus advice
20 from each of the several members of a group without
21 invoking that Act.

22 (c) INCIDENT MANAGEMENT AND WARNING TOOL
23 VALIDATION.—

24 (1) IN GENERAL.—The Administrator shall es-
25 tablish a process to ensure that an incident manage-

1 ment and warning tool used by a State, Tribal, or
2 local government to originate and transmit an alert
3 through the public alert and warning system meets
4 the requirements developed by the Administrator
5 under subsection (b)(1).

6 (2) REQUIREMENTS.—The process required to
7 be established under paragraph (1) shall include—

8 (A) the ability to test an incident manage-
9 ment and warning tool in the public alert and
10 warning system lab;

11 (B) the ability to certify that an incident
12 management and warning tool complies with
13 the applicable cyber frameworks of the Depart-
14 ment of Homeland Security and the National
15 Institute of Standards and Technology;

16 (C) a process to certify developers of emer-
17 gency management software; and

18 (D) requiring developers to provide the Ad-
19 ministrator with a copy of and rights of use for
20 ongoing testing of each version of incident man-
21 agement and warning tool software before the
22 software is first used by a State, Tribal, or local
23 government.

24 (d) REVIEW AND UPDATE OF MEMORANDA OF UN-
25 DERSTANDING.—The Administrator shall review the

1 memoranda of understanding between the Agency and
2 State, Tribal, and local governments with respect to the
3 public alert and warning system to ensure that all agree-
4 ments ensure compliance with the requirements developed
5 by the Administrator under subsection (b)(1).

6 (e) FUTURE MEMORANDA.—On and after the date
7 that is 60 days after the date on which the Administrator
8 issues the requirements developed under subsection (b)(1),
9 any new memorandum of understanding entered into be-
10 tween the Agency and a State, Tribal, or local government
11 with respect to the public alert and warning system shall
12 comply with those requirements.

13 (f) MISSILE ALERT AND WARNING AUTHORITIES.—

14 (1) IN GENERAL.—

15 (A) AUTHORITY.—On and after the date
16 that is 120 days after the date of enactment of
17 this Act, the authority to originate an alert
18 warning the public of a missile launch directed
19 against a State using the public alert and warn-
20 ing system shall reside primarily with the Fed-
21 eral Government.

22 (B) DELEGATION OF AUTHORITY.—The
23 Secretary may delegate the authority described
24 in subparagraph (A) to a State, Tribal, or local
25 entity if, not later than 180 days after the date

1 of enactment of this Act, the Secretary submits
2 a report to the appropriate congressional com-
3 mittees that—

4 (i) it is not feasible for the Federal
5 Government to alert the public of a missile
6 threat against a State; or

7 (ii) it is not in the national security
8 interest of the United States for the Fed-
9 eral Government to alert the public of a
10 missile threat against a State.

11 (C) ACTIVATION OF SYSTEM.—Upon
12 verification of a missile threat, the President,
13 utilizing established authorities, protocols and
14 procedures, may activate the public alert and
15 warning system.

16 (D) RULE OF CONSTRUCTION.—Nothing in
17 this paragraph shall be construed to change the
18 command and control relationship between enti-
19 ties of the Federal Government with respect to
20 the identification, dissemination, notification, or
21 alerting of information of missile threats
22 against the United States that was in effect on
23 the day before the date of enactment of this
24 Act.

1 (2) REQUIRED PROCESSES.—The Secretary,
2 acting through the Administrator, shall establish a
3 process to promptly notify a State warning point,
4 and any State entities that the Administrator deter-
5 mines appropriate, following the issuance of an alert
6 described in paragraph (1)(A) so the State may take
7 appropriate action to protect the health, safety, and
8 welfare of the residents of the State.

9 (3) GUIDANCE.—The Secretary, acting through
10 the Administrator, shall work with the Governor of
11 a State warning point to develop and implement ap-
12 propriate protective action plans to respond to an
13 alert described in paragraph (1)(A) for that State.

14 (4) STUDY AND REPORT.—Not later than 1
15 year after the date of enactment of this Act, the
16 Secretary shall—

17 (A) examine the feasibility of establishing
18 an alert designation under the public alert and
19 warning system that would be used to alert and
20 warn the public of a missile threat while con-
21 currently alerting a State warning point so that
22 a State may activate related protective action
23 plans; and

24 (B) submit a report of the findings under
25 subparagraph (A), including of the costs and

1 timeline for taking action to implement an alert
2 designation described in subparagraph (A), to—

3 (i) the Subcommittee on Homeland
4 Security of the Committee on Appropria-
5 tions of the Senate;

6 (ii) the Committee on Homeland Se-
7 curity and Governmental Affairs of the
8 Senate;

9 (iii) the Subcommittee on Homeland
10 Security of the Committee on Appropria-
11 tions of the House of Representatives;

12 (iv) the Committee on Transportation
13 and Infrastructure of the House of Rep-
14 resentatives; and

15 (v) the Committee on Homeland Secu-
16 rity of the House of Representatives.

17 (g) USE OF INTEGRATED PUBLIC ALERT AND WARN-
18 ING SYSTEM LAB.—Not later than 1 year after the date
19 of enactment of this Act, the Administrator shall—

20 (1) develop a program to increase the utiliza-
21 tion of the public alert and warning system lab of
22 the Agency by State, Tribal, and local governments
23 to test incident management and warning tools and
24 train emergency management professionals on alert
25 origination protocols and procedures; and

1 (2) submit to the appropriate congressional
2 committees a report describing—

3 (A) the impact on utilization of the public
4 alert and warning system lab by State, Tribal,
5 and local governments, with particular attention
6 given to the impact on utilization in rural areas,
7 resulting from the program developed under
8 paragraph (1); and

9 (B) any further recommendations that the
10 Administrator would make for additional statu-
11 tory or appropriations authority necessary to
12 increase the utilization of the public alert and
13 warning system lab by State, Tribal, and local
14 governments.

15 (h) AWARENESS OF ALERTS AND WARNINGS.—Not
16 later than 1 year after the date of enactment of this Act,
17 the Administrator shall—

18 (1) conduct a review of the National Watch
19 Center and each Regional Watch Center of the
20 Agency; and

21 (2) submit to the appropriate congressional
22 committees a report on the review conducted under
23 paragraph (1), which shall include—

24 (A) an assessment of the technical capa-
25 bility of the National and Regional Watch Cen-

1 ters described in paragraph (1) to be notified of
2 alerts and warnings issued by a State through
3 the public alert and warning system;

4 (B) a determination of which State alerts
5 and warnings the National and Regional Watch
6 Centers described in paragraph (1) should be
7 aware of; and

8 (C) recommendations for improving the
9 ability of the National and Regional Watch
10 Centers described in paragraph (1) to receive
11 any State alerts and warnings that the Admin-
12 istrator determines are appropriate.

13 (i) REPORTING FALSE ALERTS.—Not later than 15
14 days after the date on which a State, Tribal, or local gov-
15 ernment official transmits a false alert under the public
16 alert and warning system, the Administrator shall report
17 to the appropriate congressional committees on—

18 (1) the circumstances surrounding the false
19 alert;

20 (2) the content, cause, and population impacted
21 by the false alert; and

22 (3) any efforts to mitigate any negative impacts
23 of the false alert.

1 (j) REPORTING PARTICIPATION RATES.—The Ad-
2 ministrator shall, on an annual basis, report to the appro-
3 priate congressional committees on—

4 (1) participation rates in the public alert and
5 warning system; and

6 (2) any efforts to expand alert, warning, and
7 interoperable communications to rural and under-
8 served areas.

9 (k) TIMELINE FOR COMPLIANCE.—Each State shall
10 be given a reasonable amount of time to comply with any
11 new rules, regulations, or requirements imposed under this
12 section.

13 **SEC. 1757. IMPROVING QUALITY OF INFORMATION IN**
14 **BACKGROUND INVESTIGATION REQUEST**
15 **PACKAGES.**

16 (a) REPORT ON METRICS AND BEST PRACTICES.—
17 Not later than 180 days after the date of the enactment
18 of this Act, the Director of the Defense Counterintel-
19 ligence and Security Agency, which serves as the primary
20 executive branch service provider for background inves-
21 tigation for eligibility for access to classified information,
22 eligibility to hold a sensitive position, and for suitability
23 and fitness for other matters pursuant to Executive Order
24 13467 (50 U.S.C. 3161 note; relating to reforming proc-
25 esses related to suitability for Government employment,

1 fitness for contractor employees, and eligibility for access
2 to classified national security information), shall, in con-
3 sultation with the Security, Suitability, and Credentialing
4 Performance Accountability Council established under
5 such executive order, submit to Congress a report on—

6 (1) metrics for assessing the completeness and
7 quality of packages for background investigations
8 submitted by agencies requesting background inves-
9 tigations from the Defense Counterintelligence and
10 Security Agency;

11 (2) rejection rates of background investigation
12 submission packages due to incomplete or erroneous
13 data, by agency; and

14 (3) best practices for ensuring full and complete
15 information in background investigation requests.

16 (b) ANNUAL REPORT ON PERFORMANCE.—Not later
17 than 270 days after the date of the enactment of this Act
18 and not less frequently than once each year thereafter, the
19 Security, Suitability, and Credentialing Performance Ac-
20 countability Council shall submit to Congress a report on
21 performance against the metrics and return rates identi-
22 fied in paragraphs (1) and (2) of subsection (a).

23 (c) IMPROVEMENT PLANS.—

24 (1) IDENTIFICATION.—Not later than one year
25 after the date of the enactment of this Act, executive

1 agents under Executive Order 13467 (50 U.S.C.
2 3161 note) shall identify agencies in need of im-
3 provement with respect to the quality of the infor-
4 mation in the background investigation submissions
5 of the agencies as reported in subsection (b).

6 (2) PLANS.—Not later than 90 days after an
7 agency is identified under paragraph (1), the head
8 of the agency shall provide the executive agents re-
9 ferred to in such paragraph with a plan to improve
10 the performance of the agency with respect to the
11 quality of the information in the agency’s back-
12 ground investigation submissions.

13 **SEC. 1758. PAROLE IN PLACE FOR MEMBERS OF THE**
14 **ARMED FORCES AND CERTAIN MILITARY DE-**
15 **PENDENTS.**

16 (a) IN GENERAL.—In evaluating a request from a
17 covered individual for parole in place under section
18 212(d)(5) of the Immigration and Nationality Act (8
19 U.S.C. 1182(d)(5)), the Secretary of Homeland Security
20 shall consider, on a case-by-case basis, whether granting
21 the request would enable military family unity that would
22 constitute a significant public benefit.

23 (b) SENSE OF CONGRESS.—It is the sense of Con-
24 gress that—

1 (1) parole in place reinforces the objective of
2 military family unity;

3 (2) except as required in furtherance of the
4 missions of the Armed Forces, disruption to military
5 family unity should be minimized in order to en-
6 hance military readiness and allow members of the
7 Armed Forces to focus on the faithful execution of
8 their military missions and objectives, with peace of
9 mind regarding the well-being of their family mem-
10 bers; and

11 (3) the importance of the parole in place au-
12 thority of the Secretary of Homeland Security is re-
13 affirmed.

14 (c) COVERED INDIVIDUAL DEFINED.—In this sec-
15 tion, the term “covered individual” means an alien who—

16 (1) is a member of the Armed Forces;

17 (2) is the spouse, son, or daughter of a member
18 of the Armed Forces;

19 (3) is the parent of a member of the Armed
20 Forces who supports the request of such parent for
21 parole in place; or

22 (4) is the widow, widower, parent, son, or
23 daughter of a deceased member of the Armed
24 Forces.

1 **SEC. 1759. REPORT ON REDUCING THE BACKLOG IN LE-**
2 **GALLY REQUIRED HISTORICAL DECLAS-**
3 **SIFICATION OBLIGATIONS OF THE DEPART-**
4 **MENT OF DEFENSE.**

5 (a) REPORT.—Not later than 120 days after the date
6 of the enactment of this Act, the Secretary of Defense
7 shall submit to the Committees on Armed Services of the
8 Senate and the House of Representatives a report detail-
9 ing the progress made by the Secretary toward reducing
10 the backlog in legally required historical declassification
11 obligations of the Department of Defense.

12 (b) ELEMENTS.—The report under subsection (a)
13 shall include, with respect to the Department of Defense,
14 the following:

15 (1) A plan to achieve legally mandated histor-
16 ical declassification requirements and reduce back-
17 logs.

18 (2) A plan to incorporate new technologies,
19 such as artificial intelligence, that would increase
20 productivity and reduce cost in implementing the
21 plan under paragraph (1).

22 (3) A detailed assessment of the documents re-
23 leased in each of the proceeding three years before
24 the date of the report, broken out by program, such
25 as the 25 and 50 year programs.

1 (4) A detailed assessment of the documents
2 awaiting review for release and an estimate of how
3 many documents will be released in each of the next
4 three years.

5 (5) Potential policy, resource, and other options
6 available to the Secretary to reduce backlogs.

7 (6) The progress and objectives of the Secretary
8 with respect to the release of documents for publica-
9 tion in the Foreign Relations of the United States
10 series or to facilitate the public accessibility of such
11 documents at the National Archives, presidential li-
12 braries, or both.

13 (c) **FORM AND AVAILABILITY.**—The report under
14 subsection (a) shall be submitted in unclassified form,
15 which shall be made publicly available, but may include
16 a classified annex.

17 **SEC. 1760. MILITARY TYPE CERTIFICATION FOR LIGHT AT-**
18 **TACK EXPERIMENTATION AIRCRAFT.**

19 The Secretary of the Air Force shall make available
20 and conduct military type certifications for light attack ex-
21 perimentation aircraft as needed, pursuant to the Depart-
22 ment of Defense Directive on Military Type Certificates,
23 5030.61.

1 **DIVISION B—MILITARY CON-**
2 **STRUCTION AUTHORIZA-**
3 **TIONS**

Sec. 2001. Short title.

Sec. 2002. Expiration of authorizations and amounts required to be specified
by law.

Sec. 2003. Effective date.

4 **SEC. 2001. SHORT TITLE.**

5 This division may be cited as the “Military Construc-
6 tion Authorization Act for Fiscal Year 2020”.

7 **SEC. 2002. EXPIRATION OF AUTHORIZATIONS AND**
8 **AMOUNTS REQUIRED TO BE SPECIFIED BY**
9 **LAW.**

10 (a) EXPIRATION OF AUTHORIZATIONS AFTER FIVE
11 YEARS.—Except as provided in subsection (b), all author-
12 izations contained in titles XXI through XXVII and title
13 XXIX for military construction projects, land acquisition,
14 family housing projects and facilities, and contributions to
15 the North Atlantic Treaty Organization Security Invest-
16 ment Program (and authorizations of appropriations
17 therefor) shall expire on the later of—

18 (1) October 1, 2024; or

19 (2) the date of the enactment of an Act author-
20 izing funds for military construction for fiscal year
21 2025.

22 (b) EXCEPTION.—Subsection (a) shall not apply to
23 authorizations for military construction projects, land ac-

1 quision, family housing projects and facilities, and con-
2 tributions to the North Atlantic Treaty Organization Se-
3 curity Investment Program (and authorizations of appro-
4 priations therefor), for which appropriated funds have
5 been obligated before the later of—

6 (1) October 1, 2024; or

7 (2) the date of the enactment of an Act author-
8 izing funds for fiscal year 2025 for military con-
9 struction projects, land acquisition, family housing
10 projects and facilities, or contributions to the North
11 Atlantic Treaty Organization Security Investment
12 Program.

13 **SEC. 2003. EFFECTIVE DATE.**

14 Titles XXI through XXVII and title XXIX shall take
15 effect on the later of—

16 (1) October 1, 2019; or

17 (2) the date of the enactment of this Act.

18 **TITLE XXI—ARMY MILITARY**
19 **CONSTRUCTION**

Sec. 2101. Authorized Army construction and land acquisition projects.

Sec. 2102. Family housing.

Sec. 2103. Authorization of appropriations, Army.

Sec. 2104. Modification of authority to carry out certain fiscal year 2019
projects.

20 **SEC. 2101. AUTHORIZED ARMY CONSTRUCTION AND LAND**
21 **ACQUISITION PROJECTS.**

22 (a) **INSIDE THE UNITED STATES.**—Using amounts
23 appropriated pursuant to the authorization of appropria-

1 tions in section 2103(a) and available for military con-
 2 struction projects inside the United States as specified in
 3 the funding table in section 4601, the Secretary of the
 4 Army may acquire real property and carry out military
 5 construction projects for the installations or locations in-
 6 side the United States, and in the amounts, set forth in
 7 the following table:

Army: Inside the United States

| State | Installation | Amount |
|----------------------|---|---------------|
| Alabama | Redstone Arsenal | \$38,000,000 |
| Colorado | Fort Carson | \$71,000,000 |
| Georgia | Fort Gordon | \$107,000,000 |
| | Hunter Army Airfield | \$62,000,000 |
| Kentucky | Fort Campbell | \$61,300,000 |
| Massachusetts | U.S. Army Natick Soldier Systems Center | \$50,000,000 |
| Michigan | Detroit Arsenal | \$24,000,000 |
| New York | Fort Drum | \$44,000,000 |
| North Carolina | Fort Bragg | \$12,500,000 |
| Oklahoma | Fort Sill | \$73,000,000 |
| Pennsylvania | Carlisle Barracks | \$98,000,000 |
| South Carolina | Fort Jackson | \$88,000,000 |
| Texas | Corpus Christi Army Depot | \$86,000,000 |
| | Fort Hood | \$50,500,000 |
| Virginia | Fort Belvoir | \$60,000,000 |
| | Joint Base Langley-Eustis | \$55,000,000 |
| Washington | Joint Base Lewis-McChord | \$46,000,000 |

8 (b) OUTSIDE THE UNITED STATES.—Using amounts
 9 appropriated pursuant to the authorization of appropria-
 10 tions in section 2103(a) and available for military con-
 11 struction projects outside the United States as specified
 12 in the funding table in section 4601, the Secretary of the
 13 Army may acquire real property and carry out the military
 14 construction projects for the installations or locations out-
 15 side the United States, and in the amounts, set forth in
 16 the following table:

Army: Outside the United States

| Country | Installation | Amount |
|-----------------|--------------------------|---------------|
| Honduras | Soto Cano Air Base | \$34,000,000 |
| Kwajalein | Kwajalein Atoll | \$40,000,000 |

1 (c) STUDY OF NEAR-TERM FACILITY ALTERNATIVES
2 TO HOUSE HIGH VALUE DETAINEES.—

3 (1) STUDY REQUIRED.—The Secretary of De-
4 fense shall conduct a study of alternatives to meet
5 the near-term facility requirements to safely and hu-
6 manely house high value detainees current detained
7 at Naval Station Guantanamo Bay, Cuba. As part
8 of the study, the Secretary shall consider the fol-
9 lowing alternatives:

10 (A) The construction of new facilities.

11 (B) The repair of current facilities.

12 (C) The renovation and repurposing of
13 other facilities at Naval Station Guantanamo
14 Bay, Cuba.

15 (D) Such other alternatives as the Sec-
16 retary considers practicable.

17 (2) SUBMISSION OF RESULTS.—Not later than
18 90 days after the date of the enactment of this Act,
19 the Secretary of Defense shall submit to the con-
20 gressional defense committees a report containing
21 the results of the study conducted under paragraph

1 (1). The report shall be unclassified, but may in-
2 clude a classified annex.

3 **SEC. 2102. FAMILY HOUSING.**

4 (a) CONSTRUCTION AND ACQUISITION.—Using
5 amounts appropriated pursuant to the authorization of ap-
6 propriations in section 2103(a) and available for military
7 family housing functions as specified in the funding table
8 in section 4601, the Secretary of the Army may construct
9 or acquire family housing units (including land acquisition
10 and supporting facilities) at the installation, and in the
11 amount, set forth in the following table:

Army: Family Housing

| State/Country | Installation | Units | Amount |
|--------------------|----------------------------|---|--------------|
| Pennsylvania | Tobyhanna Army Depot | Family Housing Replacement Construction | \$19,000,000 |

12 (b) PLANNING AND DESIGN.—Using amounts appro-
13 priated pursuant to the authorization of appropriations in
14 section 2103(a) and available for military family housing
15 functions as specified in the funding table in section 4601,
16 the Secretary of the Army may carry out architectural and
17 engineering services and construction design activities
18 with respect to the construction or improvement of family
19 housing units in an amount not to exceed \$9,222,000.

20 **SEC. 2103. AUTHORIZATION OF APPROPRIATIONS, ARMY.**

21 (a) AUTHORIZATION OF APPROPRIATIONS.—Funds
22 are hereby authorized to be appropriated for fiscal years

1 beginning after September 30, 2019, for military con-
2 struction, land acquisition, and military family housing
3 functions of the Department of the Army as specified in
4 the funding table in section 4601.

5 (b) **LIMITATION ON TOTAL COST OF CONSTRUCTION**
6 **PROJECTS.**—Notwithstanding the cost variations author-
7 ized by section 2853 of title 10, United States Code, and
8 any other cost variation authorized by law, the total cost
9 of all projects carried out under section 2101 of this Act
10 may not exceed the total amount authorized to be appro-
11 priated under subsection (a), as specified in the funding
12 table in section 4601.

13 **SEC. 2104. MODIFICATION OF AUTHORITY TO CARRY OUT**
14 **CERTAIN FISCAL YEAR 2019 PROJECTS.**

15 (a) **ANNISTON ARMY DEPOT, ALABAMA.**—In the case
16 of the authorization contained in the table in section
17 2101(a) of the National Defense Authorization Act for
18 Fiscal Year 2019 (Public Law 115–232; 132 Stat. 2241)
19 for Anniston Army Depot, Alabama, for construction of
20 a weapon maintenance shop, as specified in the funding
21 table in section 4601 of such Act (132 Stat. 2401), the
22 Secretary of the Army may construct a 21,000-square foot
23 weapon maintenance shop.

24 (b) **UNITED STATES MILITARY ACADEMY, NEW**
25 **YORK.**—The table in section 2101(a) of the National De-

1 fense Authorization Act for Fiscal Year 2019 (Public Law
2 115–232; 132 Stat. 2241) is amended in the item relating
3 to the United States Military Academy, New York, by
4 striking “\$160,000,000” and inserting “\$197,000,000”
5 for construction of a Consolidated Engineering Center and
6 Parking Structure rather than the separate projects speci-
7 fied in the funding table in section 4601 of such Act (132
8 Stat. 2401).

9 **TITLE XXII—NAVY MILITARY**
10 **CONSTRUCTION**

Sec. 2201. Authorized Navy construction and land acquisition projects.

Sec. 2202. Family housing.

Sec. 2203. Improvements to military family housing units.

Sec. 2204. Authorization of appropriations, Navy.

Sec. 2205. Modification of authority to carry out certain fiscal year 2017
project.

11 **SEC. 2201. AUTHORIZED NAVY CONSTRUCTION AND LAND**
12 **ACQUISITION PROJECTS.**

13 (a) **INSIDE THE UNITED STATES.**—Using amounts
14 appropriated pursuant to the authorization of appropria-
15 tions in section 2204(a) and available for military con-
16 struction projects inside the United States as specified in
17 the funding table in section 4601, the Secretary of the
18 Navy may acquire real property and carry out military
19 construction projects for the installations or locations in-
20 side the United States, and in the amounts, set forth in
21 the following table:

Navy: Inside the United States

| State | Installation or Location | Amount |
|----------------------|---|---------------|
| Arizona | Marine Corps Air Station Yuma | \$189,760,000 |
| California | Camp Pendleton | \$185,569,000 |
| | Marine Corps Air Station Miramar | \$37,400,000 |
| | Naval Air Weapons Station China Lake | \$64,500,000 |
| | Navel Base Coronado | \$165,830,000 |
| | Naval Base San Diego | \$9,900,000 |
| | Naval Weapons Station Seal Beach | \$123,310,000 |
| | Travis Air Force Base | \$64,000,000 |
| Connecticut | Naval Submarine Base New London | \$72,260,000 |
| Florida | Blount Island | \$18,700,000 |
| | Naval Air Station Jacksonville | \$32,420,000 |
| Guam | Joint Region Marianas | \$226,000,000 |
| Hawaii | Marine Corps Air Station Kaneohe Bay | \$134,050,000 |
| | Naval Ammunition Depot West Loch | \$53,790,000 |
| Maryland | Saint Inigoes | \$15,000,000 |
| North Carolina | Camp Lejeune | \$229,010,000 |
| | Marine Corps Air Station Cherry Point | \$114,570,000 |
| | Marine Corps Air Station New River | \$11,320,000 |
| Pennsylvania | Philadelphia | \$74,630,000 |
| South Carolina | Parris Island | \$37,200,000 |
| Virginia | Marine Corps Base Quantico | \$143,350,000 |
| | Naval Station Norfolk | \$139,100,000 |
| | Portsmouth Naval Shipyard | \$48,930,000 |
| | Yorktown Naval Weapons Station | \$59,000,000 |
| Washington | Bremerton | \$51,010,000 |
| | Keyport | \$25,050,000 |

1 (b) OUTSIDE THE UNITED STATES.—Using amounts
2 appropriated pursuant to the authorization of appropria-
3 tions in section 2204(a) and available for military con-
4 struction projects outside the United States as specified
5 in the funding table in section 4601, the Secretary of the
6 Navy may acquire real property and carry out military
7 construction projects for the installations or locations out-
8 side the United States, and in the amounts, set forth in
9 the following table:

Navy: Outside the United States

| Country | Installation or Location | Amount |
|-----------------|--|---------------|
| Australia | Darwin | \$211,500,000 |
| Japan | Fleet Activities Yokosuka | \$174,692,000 |
| | Marine Corps Air Station Iwakuni | \$15,870,000 |

1 (c) REPORT REQUIRED AS CONDITION OF AUTHOR-
2 IZATION.—

3 (1) REPORT.—At the same time that the budg-
4 et of the President is submitted to Congress under
5 section 1105(a) of title 31, United States Code, for
6 fiscal year 2021, the Secretary of the Navy shall
7 submit to the congressional defense committees a re-
8 port describing, for each project authorized in the
9 first item in the table in subsection (b) for Darwin
10 that is required to support the full complement of
11 the Marine Rotational Force—Darwin—

12 (A) the required infrastructure investments
13 for the project;

14 (B) the source of funding, including funds
15 provided by the Government of Australia, for
16 the project; and

17 (C) the proposed year for implementation
18 of the project.

19 (2) CONDITION.—The Secretary of the Navy
20 may not commence a project authorized in the first
21 item in the table in subsection (b) for Darwin until
22 the report under paragraph (1) has been submitted.

23 **SEC. 2202. FAMILY HOUSING.**

24 Using amounts appropriated pursuant to the author-
25 ization of appropriations in section 2204(a) and available

1 for military family housing functions as specified in the
2 funding table in section 4601, the Secretary of the Navy
3 may carry out architectural and engineering services and
4 construction design activities with respect to the construc-
5 tion or improvement of family housing units in an amount
6 not to exceed \$5,863,000.

7 **SEC. 2203. IMPROVEMENTS TO MILITARY FAMILY HOUSING**
8 **UNITS.**

9 Subject to section 2825 of title 10, United States
10 Code, and using amounts appropriated pursuant to the
11 authorization of appropriations in section 2204(a) and
12 available for military family housing functions as specified
13 in the funding table in section 4601, the Secretary of the
14 Navy may improve existing military family housing units
15 in an amount not to exceed \$41,798,000.

16 **SEC. 2204. AUTHORIZATION OF APPROPRIATIONS, NAVY.**

17 (a) **AUTHORIZATION OF APPROPRIATIONS.**—Funds
18 are hereby authorized to be appropriated for fiscal years
19 beginning after September 30, 2019, for military con-
20 struction, land acquisition, and military family housing
21 functions of the Department of the Navy, as specified in
22 the funding table in section 4601.

23 (b) **LIMITATION ON TOTAL COST OF CONSTRUCTION**
24 **PROJECTS.**—Notwithstanding the cost variations author-
25 ized by section 2853 of title 10, United States Code, and

1 any other cost variation authorized by law, the total cost
2 of all projects carried out under section 2201 of this Act
3 may not exceed the total amount authorized to be appro-
4 priated under subsection (a), as specified in the funding
5 table in section 4601.

6 **SEC. 2205. MODIFICATION OF AUTHORITY TO CARRY OUT**
7 **CERTAIN FISCAL YEAR 2017 PROJECT.**

8 The table in section 2201(a) of the National Defense
9 Authorization Act for Fiscal Year 2017 (Public Law 114–
10 328; 130 Stat. 2691) is amended in the item relating to
11 Bangor, Washington, by striking “\$113,415,000” and in-
12 serting “\$161,415,000” for construction of a SEAWOLF
13 Class Service Pier, as specified in the funding table in sec-
14 tion 4601 of such Act (130 Stat. 2876).

15 **TITLE XXIII—AIR FORCE**
16 **MILITARY CONSTRUCTION**

- Sec. 2301. Authorized Air Force construction and land acquisition projects.
- Sec. 2302. Family housing.
- Sec. 2303. Improvements to military family housing units.
- Sec. 2304. Authorization of appropriations, Air Force.
- Sec. 2305. Modification of authorities to carry out phased Joint Intelligence Analysis Complex consolidation.
- Sec. 2306. Modification of authority to carry out certain fiscal year 2016 project.
- Sec. 2307. Modification of authority to carry out certain fiscal year 2017 project.
- Sec. 2308. Modification of authority to carry out certain fiscal year 2018 projects.
- Sec. 2309. Modification of authority to carry out certain fiscal year 2019 projects.

1 **SEC. 2301. AUTHORIZED AIR FORCE CONSTRUCTION AND**
 2 **LAND ACQUISITION PROJECTS.**

3 (a) INSIDE THE UNITED STATES.—Using amounts
 4 appropriated pursuant to the authorization of appropria-
 5 tions in section 2304(a) and available for military con-
 6 struction projects inside the United States as specified in
 7 the funding table in section 4601, the Secretary of the
 8 Air Force may acquire real property and carry out mili-
 9 tary construction projects for the installations or locations
 10 inside the United States, and in the amounts, set forth
 11 in the following table:

Air Force: Inside the United States

| State | Installation or Location | Amount |
|-----------------------|--|---------------|
| Alaska | Eielson Air Force Base | \$8,600,000 |
| Arkansas | Little Rock Air Force Base | \$47,000,000 |
| California | Travis Air Force Base | \$43,100,000 |
| Colorado | Peterson Air Force Base | \$54,000,000 |
| | Schriever Air Force Base | \$148,000,000 |
| | United States Air Force Acad- emy | \$49,000,000 |
| Georgia | Moody Air Force Base | \$12,500,000 |
| Guam | Joint Region Marianas | \$65,000,000 |
| Illinois | Scott Air Force Base | \$100,000,000 |
| Mariana Islands | Timian | \$316,000,000 |
| Missouri | Whiteman Air Force Base | \$27,000,000 |
| Montana | Malmstrom Air Force Base | \$235,000,000 |
| Nevada | Nellis Air Force Base | \$65,200,000 |
| New Mexico | Holloman Air Force Base | \$20,000,000 |
| | Kirtland Air Force Base | \$37,900,000 |
| North Dakota | Minot Air Force Base | \$5,500,000 |
| Texas | Joint Base San Antonio | \$243,300,000 |
| Utah | Hill Air Force Base | \$114,500,000 |
| Washington | Fairechild-White Bluff | \$31,000,000 |
| Wyoming | F.E. Warren Air Force Base | \$18,100,000 |

12 (b) OUTSIDE THE UNITED STATES.—Using amounts
 13 appropriated pursuant to the authorization of appropria-
 14 tions in section 2304(a) and available for military con-
 15 struction projects outside the United States as specified

1 in the funding table in section 4601, the Secretary of the
 2 Air Force may acquire real property and carry out mili-
 3 tary construction projects for the installations or locations
 4 outside the United States, and in the amounts, set forth
 5 in the following table:

Air Force: Outside the United States

| Country | Installation or Location | Amount |
|----------------------|--------------------------------|--------------|
| Australia | Tindal | \$70,600,000 |
| Cyprus | Royal Air Force Akrotiri | \$27,000,000 |
| Japan | Yokota Air Base | \$12,400,000 |
| United Kingdom | Royal Air Force Lakenheath .. | \$14,300,000 |

6 SEC. 2302. FAMILY HOUSING.

7 Using amounts appropriated pursuant to the author-
 8 ization of appropriations in section 2304(a) and available
 9 for military family housing functions as specified in the
 10 funding table in section 4601, the Secretary of the Air
 11 Force may carry out architectural and engineering serv-
 12 ices and construction design activities with respect to the
 13 construction or improvement of family housing units in an
 14 amount not to exceed \$3,409,000.

15 SEC. 2303. IMPROVEMENTS TO MILITARY FAMILY HOUSING
16 UNITS.

17 Subject to section 2825 of title 10, United States
 18 Code, and using amounts appropriated pursuant to the
 19 authorization of appropriations in section 2304(a) and
 20 available for military family housing functions as specified
 21 in the funding table in section 4601, the Secretary of the

1 Air Force may improve existing military family housing
2 units in an amount not to exceed \$53,584,000.

3 **SEC. 2304. AUTHORIZATION OF APPROPRIATIONS, AIR**
4 **FORCE.**

5 (a) AUTHORIZATION OF APPROPRIATIONS.—Funds
6 are hereby authorized to be appropriated for fiscal years
7 beginning after September 30, 2019, for military con-
8 struction, land acquisition, and military family housing
9 functions of the Department of the Air Force, as specified
10 in the funding table in section 4601.

11 (b) LIMITATION ON TOTAL COST OF CONSTRUCTION
12 PROJECTS.—Notwithstanding the cost variations author-
13 ized by section 2853 of title 10, United States Code, and
14 any other cost variation authorized by law, the total cost
15 of all projects carried out under section 2301 may not ex-
16 ceed the total amount authorized to be appropriated under
17 subsection (a), as specified in the funding table in section
18 4601.

19 **SEC. 2305. MODIFICATION OF AUTHORITIES TO CARRY OUT**
20 **PHASED JOINT INTELLIGENCE ANALYSIS**
21 **COMPLEX CONSOLIDATION.**

22 (a) FISCAL YEAR 2015 PROJECT AUTHORITY.—In
23 the case of the authorization contained in the table in sec-
24 tion 2301(b) of the National Defense Authorization Act
25 for Fiscal Year 2015 (Public Law 113–291; 128 Stat.

1 3679) for Royal Air Force Croughton, United Kingdom,
2 for Phase 1 of the Joint Intelligence Analysis Complex
3 consolidation, as specified in the funding table in section
4 4601 of such Act (128 Stat. 3973), the Secretary of the
5 Air Force shall carry out the construction at Royal Air
6 Force Molesworth, United Kingdom.

7 (b) FISCAL YEAR 2016 PROJECT AUTHORITY.—In
8 the case of the authorization contained in the table in sec-
9 tion 2301(b) of the National Defense Authorization Act
10 for Fiscal Year 2016 (Public Law 114–92; 129 Stat.
11 1153), for Royal Air Force Croughton, United Kingdom,
12 for Phase 2 of the Joint Intelligence Analysis Complex
13 consolidation, as specified in the funding table in section
14 4601 of such Act (129 Stat. 1294), the Secretary of the
15 Air Force may construct a 5,152-square meter Intelligence
16 Analytic Center, a 5,234-square meter Intelligence Fusion
17 Center, and a 807-square meter Battlefield Information
18 Collection and Exploitation System Center at Royal Air
19 Force Molesworth, United Kingdom.

20 (c) FISCAL YEAR 2017 PROJECT AUTHORITY.—In
21 the case of the authorization contained in the table in sec-
22 tion 2301(b) of the National Defense Authorization Act
23 for Fiscal Year 2017 (Public Law 114–328; 130 Stat.
24 2697), for Royal Air Force Croughton, United Kingdom,
25 for Phase 3 of the Joint Intelligence Analysis Complex

1 consolidation, as specified in the funding table in section
2 4601 of such Act (130 Stat. 2878), the Secretary of the
3 Air Force may construct a 1,562-square meter Regional
4 Joint Intelligence Training Facility and a 4,495-square
5 meter Combatant Command Intelligence Facility at Royal
6 Air Force Molesworth, United Kingdom.

7 (d) CONFORMING REPEAL.—Section 2305 of the Na-
8 tional Defense Authorization Act for Fiscal Year 2019
9 (Public Law 115–232; 132 Stat. 2247) is repealed.

10 **SEC. 2306. MODIFICATION OF AUTHORITY TO CARRY OUT**
11 **CERTAIN FISCAL YEAR 2016 PROJECT.**

12 The table in section 2301(a) of the National Defense
13 Authorization Act for Fiscal Year 2016 (Public Law 114–
14 92; 129 Stat. 1152) is amended in the item relating to
15 Nellis Air Force Base, Nevada, by striking “\$68,950,000”
16 and inserting “\$72,050,000” for construction of F–35A
17 Munitions Maintenance Facilities, as specified in the fund-
18 ing table in section 4601 of such Act (129 Stat. 1293).

19 **SEC. 2307. MODIFICATION OF AUTHORITY TO CARRY OUT**
20 **CERTAIN FISCAL YEAR 2017 PROJECT.**

21 The table in section 2301(a) of the National Defense
22 Authorization Act for Fiscal Year 2017 (Public Law 114–
23 328; 130 Stat. 2696) is amended in the item relating to
24 Fairchild Air Force Base, Washington, by striking
25 “\$27,000,000” and inserting “\$31,800,000” for construc-

1 tion of a SERE School Pipeline Dormitory, as specified
2 in the funding table in section 4601 of such Act (130 Stat.
3 2878).

4 **SEC. 2308. MODIFICATION OF AUTHORITY TO CARRY OUT**
5 **CERTAIN FISCAL YEAR 2018 PROJECTS.**

6 (a) LITTLE ROCK AIR FORCE BASE, ARKANSAS.—
7 The table in section 2301(a) of the National Defense Au-
8 thorization Act for Fiscal Year 2018 (Public Law 115–
9 91; 131 Stat. 1825) is amended in the item relating to
10 Little Rock Air Force Base, Arkansas, by striking
11 “\$20,000,000” and inserting “\$27,000,000” for construc-
12 tion of a dormitory facility, as specified in the funding
13 table in section 4601 of such Act (131 Stat. 2002).

14 (b) JOINT BASE SAN ANTONIO, TEXAS.—In the case
15 of the authorization contained in the table in section
16 2301(a) of the National Defense Authorization Act for
17 Fiscal Year 2018 (Public Law 115–91; 131 Stat. 1826)
18 for Joint Base San Antonio, Texas, the Secretary of the
19 Air Force may construct—

20 (1) a 750-square meter equipment building for
21 construction of a Classrooms/Dining Facility, as
22 specified in the funding table in section 4601 of such
23 Act (131 Stat. 2003); and

24 (2) a 636-square meter air traffic control tower
25 for construction of an Air Traffic Control Tower, as

1 specified in the funding table in section 4601 of such
2 Act (131 Stat. 2003).

3 (c) F.E. WARREN AIR FORCE BASE, WYOMING.—
4 The table in section 2301(a) of the National Defense Au-
5 thorization Act for Fiscal Year 2018 (Public Law 115–
6 91; 131 Stat. 1825) is amended in the item relating to
7 F.E. Warren Air Force Base, Wyoming, by striking
8 “\$62,000,000” and inserting “\$80,100,000” for construc-
9 tion of a Consolidated Helo/TRF Ops/AMU and Alert Fa-
10 cility, as specified in the funding table in section 4601 of
11 such Act (131 Stat. 2004).

12 (d) RYGGE AIR STATION, NORWAY.—In the case of
13 the authorization contained in the table in section 2903
14 of the National Defense Authorization Act for Fiscal Year
15 2018 (Public Law 115–91; 131 Stat. 1876) for Rygge Air
16 Station, Norway, for replacement/expansion of a Quick
17 Reaction Alert Pad, as specified in the funding table in
18 section 4602 of such Act (131 Stat. 2014), the Secretary
19 of the Air Force may construct 1,327 square meters of
20 aircraft shelter and a 404-square meter fire protection
21 support building.

22 (e) INCIRLIK AIR BASE, TURKEY.—In the case of the
23 authorization contained in the table in section 2903 of the
24 National Defense Authorization Act for Fiscal Year 2018
25 (Public Law 115–91; 131 Stat. 1876) for Incirlik Air

1 Base, Turkey, for Relocating Base Main Access Control
2 Point, as specified in the funding table in section 4602
3 of such Act (131 Stat. 2015), the Secretary of the Air
4 Force may construct a 223-square meter pedestrian
5 search building.

6 **SEC. 2309. MODIFICATION OF AUTHORITY TO CARRY OUT**
7 **CERTAIN FISCAL YEAR 2019 PROJECTS.**

8 (a) HANSCOM AIR FORCE BASE, MASSACHUSETTS.—
9 In the case of the authorization contained in the table in
10 section 2301(a) of the National Defense Authorization Act
11 for Fiscal Year 2019 (Public Law 115–232; 132 Stat.
12 2246) for Hanscom Air Force Base, Massachusetts, for
13 the construction of a semi-conductor/microelectronics lab-
14 oratory facility, as specified in the funding table in section
15 4601 of such Act (132 Stat. 2405), the Secretary of the
16 Air Force may construct a 1,000 kilowatt stand-by gener-
17 ator.

18 (b) MINOT AIR FORCE BASE, NORTH DAKOTA.—The
19 table in section 2301(a) of the National Defense Author-
20 ization Act for Fiscal Year 2019 (Public Law 115–232;
21 132 Stat. 2246) is amended in the item relating to Minot
22 Air Force Base, North Dakota, by striking “\$66,000,000”
23 and inserting “\$71,500,000” for construction of a Con-
24 solidated Helo/TRF Ops/AMU and Alert Facility, as spec-

1 ified in the funding table in section 4601 of such Act (132
2 Stat. 2405).

3 (c) ROYAL AIR FORCE LAKENHEATH, UNITED KING-
4 DOM.—In the case of the authorization contained in the
5 table in section 2301(b) of the National Defense Author-
6 ization Act for Fiscal Year 2019 (Public Law 115–232;
7 132 Stat. 2247) for Royal Air Force Lakenheath, United
8 Kingdom, for the construction of an F–35A Dormitory,
9 as specified in the funding table in section 4601 of such
10 Act (132 Stat. 2405), the Secretary of the Air Force may
11 construct a 5,900-square meter dormitory.

12 **TITLE XXIV—DEFENSE AGEN-**
13 **CIES MILITARY CONSTRUC-**
14 **TION**

Sec. 2401. Authorized Defense Agencies construction and land acquisition projects.

Sec. 2402. Authorized Energy Resilience and Conservation Investment Program projects.

Sec. 2403. Authorization of appropriations, Defense Agencies.

15 **SEC. 2401. AUTHORIZED DEFENSE AGENCIES CONSTRUC-**
16 **TION AND LAND ACQUISITION PROJECTS.**

17 (a) INSIDE THE UNITED STATES.—Using amounts
18 appropriated pursuant to the authorization of appropria-
19 tions in section 2403(a) and available for military con-
20 struction projects inside the United States as specified in
21 the funding table in section 4601, the Secretary of De-
22 fense may acquire real property and carry out military
23 construction projects for the installations or locations in-

1 side the United States, and in the amounts, set forth in
 2 the following table:

Defense Agencies: Inside the United States

| State | Installation or Location | Amount |
|------------------------|---|---------------|
| California | Beale Air Force Base | \$33,700,000 |
| | Camp Pendleton | \$17,700,000 |
| Florida | Eglin Air Force Base | \$16,500,000 |
| | Hurlburt Field | \$108,386,000 |
| | Naval Air Station Key West | \$16,000,000 |
| Guam | Joint Region Marianas | \$19,200,000 |
| Hawaii | Joint Base Pearl Harbor-Hickam | \$67,700,000 |
| Maryland | Fort Detrick | \$27,846,000 |
| Mississippi | Columbus Air Force Base | \$16,800,000 |
| North Carolina | Camp Lejeune | \$13,400,000 |
| | Fort Bragg | \$84,103,000 |
| | Tulsa International Airport | \$18,900,000 |
| Rhode Island | Quonset State Airport | \$11,600,000 |
| South Carolina | Joint Base Charleston | \$33,300,000 |
| South Dakota | Ellsworth Air Force Base | \$24,800,000 |
| Virginia | Defense Distribution Depot Richmond ... | \$98,800,000 |
| | Joint Expeditionary Base Little Creek - Fort Story | \$45,604,000 |
| | Pentagon | \$28,802,000 |
| | Training Center Dam Neck | \$12,770,000 |
| | Joint Base Lewis-McChord | \$47,700,000 |
| Washington | General Mitchell International Airport ... | \$25,900,000 |
| Wisconsin | Classified Location | \$82,200,000 |
| CONUS Classified | | |

3 (b) OUTSIDE THE UNITED STATES.—Using amounts
 4 appropriated pursuant to the authorization of appropria-
 5 tions in section 2403(a) and available for military con-
 6 struction projects outside the United States as specified
 7 in the funding table in section 4601, the Secretary of De-
 8 fense may acquire real property and carry out military
 9 construction projects for the installations or locations out-
 10 side the United States, and in the amounts, set forth in
 11 the following table:

Defense Agencies: Outside the United States

| Country | Installation or Location | Amount |
|----------------------------|------------------------------|---------------|
| Germany | Geilenkirchen Air Base | \$30,479,000 |
| Germany | Ramstein | \$66,800,000 |
| Japan | Yokota Air Base | \$136,411,000 |
| Worldwide Classified | Classified Location | \$52,000,000 |

1 **SEC. 2402. AUTHORIZED ENERGY RESILIENCE AND CON-**
 2 **SERVATION INVESTMENT PROGRAM**
 3 **PROJECTS.**

4 (a) **INSIDE THE UNITED STATES.**—Using amounts
 5 appropriated pursuant to the authorization of appropria-
 6 tions in section 2403(a) and available for energy conserva-
 7 tion projects as specified in the funding table in section
 8 4601, the Secretary of Defense may carry out energy con-
 9 servation projects under chapter 173 of title 10, United
 10 States Code, for the installations or locations inside the
 11 United States, and in the amounts, set forth in the fol-
 12 lowing table:

ERCIP Projects: Inside the United States

| State | Installation or Location | Amount |
|------------------|--|---------------|
| California | Mountain View | \$9,700,000 |
| | Naval Air Weapons Station China Lake | \$8,950,000 |
| | Naval Support Activity Monterey | \$10,540,000 |
| Hawaii | Joint Base Pearl Harbor-Hickam | \$4,000,000 |
| Maryland | Naval Support Activity Bethesda | \$13,840,000 |
| | South Potomac | \$18,460,000 |
| New Mexico | White Sands Missile Range | \$5,800,000 |
| Texas | Camp Swift | \$4,500,000 |
| | Fort Hood | \$16,500,000 |
| Virginia | National Reconnaissance Office Head- quarters | \$66,000 |
| Washington | Naval Base Kitsap | \$23,670,000 |

13 (b) **OUTSIDE THE UNITED STATES.**—Using amounts
 14 appropriated pursuant to the authorization of appropria-
 15 tions in section 2403(a) and available for energy conserva-
 16 tion projects as specified in the funding table in section
 17 4601, the Secretary of Defense may carry out energy con-
 18 servation projects under chapter 173 of title 10, United
 19 States Code, for the installations or locations outside the

1 United States, and in the amounts, set forth in the fol-
 2 lowing table:

ERCIP Projects: Outside the United States

| Country | Installation or Location | Amount |
|--------------------------------|---------------------------------------|---------------|
| Guam | Naval Base Guam | \$16,970,000 |
| Unspecified Worldwide | Unspecified Worldwide Locations | \$150,000,000 |

3 **SEC. 2403. AUTHORIZATION OF APPROPRIATIONS, DE-**
 4 **FENSE AGENCIES.**

5 (a) AUTHORIZATION OF APPROPRIATIONS.—Funds
 6 are hereby authorized to be appropriated for fiscal years
 7 beginning after September 30, 2019, for military con-
 8 struction, land acquisition, and military family housing
 9 functions of the Department of Defense (other than the
 10 military departments), as specified in the funding table
 11 in section 4601.

12 (b) LIMITATION ON TOTAL COST OF CONSTRUCTION
 13 PROJECTS.—Notwithstanding the cost variations author-
 14 ized by section 2853 of title 10, United States Code, and
 15 any other cost variation authorized by law, the total cost
 16 of all projects carried out under section 2401 of this Act
 17 may not exceed the total amount authorized to be appro-
 18 priated under subsection (a), as specified in the funding
 19 table in section 4601.

1 **TITLE XXV—INTERNATIONAL**
2 **PROGRAMS**
3 **Subtitle A—North Atlantic Treaty**
4 **Organization Security Invest-**
5 **ment Program**

Subtitle A—North Atlantic Treaty Organization Security Investment Program

Sec. 2501. Authorized NATO construction and land acquisition projects.

Sec. 2502. Authorization of appropriations, NATO.

Subtitle B—Host Country In-kind Contributions

Sec. 2511. Republic of Korea funded construction projects.

6 **SEC. 2501. AUTHORIZED NATO CONSTRUCTION AND LAND**
7 **ACQUISITION PROJECTS.**

8 The Secretary of Defense may make contributions for
9 the North Atlantic Treaty Organization Security Invest-
10 ment Program as provided in section 2806 of title 10,
11 United States Code, in an amount not to exceed the sum
12 of the amount authorized to be appropriated for this pur-
13 pose in section 2502 and the amount collected from the
14 North Atlantic Treaty Organization as a result of con-
15 struction previously financed by the United States.

16 **SEC. 2502. AUTHORIZATION OF APPROPRIATIONS, NATO.**

17 (a) **AUTHORIZATION.**—Funds are hereby authorized
18 to be appropriated for fiscal years beginning after Sep-
19 tember 30, 2019, for contributions by the Secretary of De-
20 fense under section 2806 of title 10, United States Code,
21 for the share of the United States of the cost of projects

1 for the North Atlantic Treaty Organization Security In-
 2 vestment Program authorized by section 2501 as specified
 3 in the funding table in section 4601.

4 (b) AUTHORITY TO RECOGNIZE NATO AUTHORIZA-
 5 TION AMOUNTS AS BUDGETARY RESOURCES FOR
 6 PROJECT EXECUTION.—When the United States is des-
 7 ignated as the Host Nation for the purposes of executing
 8 a project under the NATO Security Investment Program
 9 (NSIP), the Department of Defense construction agent
 10 may recognize the NATO project authorization amounts
 11 as budgetary resources to incur obligations for the pur-
 12 poses of executing the NSIP project.

13 **Subtitle B—Host Country In-kind**
 14 **Contributions**

15 **SEC. 2511. REPUBLIC OF KOREA FUNDED CONSTRUCTION**
 16 **PROJECTS.**

17 Pursuant to agreement with the Republic of Korea
 18 for required in-kind contributions, the Secretary of De-
 19 fense may accept military construction projects for the in-
 20 stallations or locations in the Republic of Korea, and in
 21 the amounts, set forth in the following table:

Republic of Korea Funded Construction Projects

| Component | Installation or Location | Project | Amount |
|------------------|---------------------------------|---|---------------|
| Army | Camp Carroll | Army Prepositioned Stock-4 Wheeled Vehicle Maintenance Facility | \$51,000,000 |
| Army | Camp Humphreys | Unaccompanied Enlisted Personnel Housing, P1 | \$154,000,000 |

Republic of Korea Funded Construction Projects—Continued

| Component | Installation or Location | Project | Amount |
|------------------|---------------------------------|--|---------------|
| Army | Camp Humphreys | Unaccompanied Enlisted Personnel Housing, P2 | \$211,000,000 |
| Army | Camp Humphreys | Satellite Communications Facility | \$32,000,000 |
| Air Force ... | Gwangju Air Base | Hydrant Fuel System | \$35,000,000 |
| Air Force ... | Kunsan Air Base | Upgrade Electrical Distribution System | \$14,200,000 |
| Air Force ... | Kunsan Air Base | Dining Facility | \$21,000,000 |
| Air Force ... | Suwon Air Base | Hydrant Fuel System | \$24,000,000 |

1 **TITLE XXVI—GUARD AND**
2 **RESERVE FORCES FACILITIES**

Sec. 2601. Authorized Army National Guard construction and land acquisition projects.

Sec. 2602. Authorized Army Reserve construction and land acquisition projects.

Sec. 2603. Authorized Navy Reserve and Marine Corps Reserve construction and land acquisition projects.

Sec. 2604. Authorized Air National Guard construction and land acquisition projects.

Sec. 2605. Authorized Air Force Reserve construction and land acquisition projects.

Sec. 2606. Authorization of appropriations, National Guard and Reserve.

3 **SEC. 2601. AUTHORIZED ARMY NATIONAL GUARD CON-**
4 **STRUCTION AND LAND ACQUISITION**
5 **PROJECTS.**

6 Using amounts appropriated pursuant to the author-
7 ization of appropriations in section 2606 and available for
8 the National Guard and Reserve as specified in the fund-
9 ing table in section 4601, the Secretary of the Army may
10 acquire real property and carry out military construction
11 projects for the Army National Guard locations inside the
12 United States, and in the amounts, set forth in the fol-
13 lowing table:

Army National Guard

| State | Location | Amount |
|---------------------|-----------------------------|---------------|
| Alabama | Anniston Army Depot | \$34,000,000 |
| | Foley | \$12,000,000 |
| California | Camp Roberts | \$12,000,000 |
| Idaho | Orchard Training Area | \$29,000,000 |
| Maryland | Havre de Grace | \$12,000,000 |
| Massachusetts | Camp Edwards | \$9,700,000 |
| Minnesota | New Ulm | \$11,200,000 |
| Mississippi | Camp Shelby | \$8,100,000 |
| Missouri | Springfield | \$12,000,000 |
| Nebraska | Bellevue | \$29,000,000 |
| New Hampshire | Concord | \$5,950,000 |
| New York | Jamaica Armory | \$91,000,000 |
| Pennsylvania | Moon Township | \$23,000,000 |
| Vermont | Jericho | \$30,000,000 |
| Washington | Richland | \$11,400,000 |

1 SEC. 2602. AUTHORIZED ARMY RESERVE CONSTRUCTION
2 AND LAND ACQUISITION PROJECTS.

3 Using amounts appropriated pursuant to the author-
 4 ization of appropriations in section 2606 and available for
 5 the National Guard and Reserve as specified in the fund-
 6 ing table in section 4601, the Secretary of the Army may
 7 acquire real property and carry out military construction
 8 projects for the Army Reserve locations inside the United
 9 States, and in the amounts, set forth in the following
 10 table:

Army Reserve

| State | Location | Amount |
|-----------------|----------------------------------|---------------|
| Delaware | Newark Army Reserve Center | \$21,000,000 |
| Wisconsin | Fort McCoy | \$25,000,000 |

1 **SEC. 2603. AUTHORIZED NAVY RESERVE AND MARINE**
 2 **CORPS RESERVE CONSTRUCTION AND LAND**
 3 **ACQUISITION PROJECTS.**

4 Using amounts appropriated pursuant to the author-
 5 ization of appropriations in section 2606 and available for
 6 the National Guard and Reserve as specified in the fund-
 7 ing table in section 4601, the Secretary of the Navy may
 8 acquire real property and carry out the military construc-
 9 tion project for the Navy Reserve and Marine Corps Re-
 10 serve location inside the United States, and in the amount,
 11 set forth in the following table:

Navy Reserve and Marine Corps Reserve

| State | Location | Amount |
|-----------------|-------------------|--------------|
| Louisiana | New Orleans | \$25,260,000 |

12 **SEC. 2604. AUTHORIZED AIR NATIONAL GUARD CONSTRUC-**
 13 **TION AND LAND ACQUISITION PROJECTS.**

14 Using amounts appropriated pursuant to the author-
 15 ization of appropriations in section 2606 and available for
 16 the National Guard and Reserve as specified in the fund-
 17 ing table in section 4601, the Secretary of the Air Force
 18 may acquire real property and carry out military construc-
 19 tion projects for the Air National Guard locations inside
 20 the United States, and in the amounts, set forth in the
 21 following table:

Air National Guard

| State | Location | Amount |
|------------------|--|--------------|
| California | Moffett Air National Guard Base | \$57,000,000 |
| Georgia | Savannah/Hilton Head International Airport | \$24,000,000 |

Air National Guard—Continued

| State | Location | Amount |
|-------------------|--|---------------|
| Missouri | Rosecrans Memorial Airport | \$9,500,000 |
| Puerto Rico | Luis Munoz-Marin International Airport | \$50,000,000 |
| Wisconsin | Truax Field | \$34,000,000 |

1 **SEC. 2605. AUTHORIZED AIR FORCE RESERVE CONSTRUCTION AND LAND ACQUISITION PROJECTS.**

2
3 Using amounts appropriated pursuant to the author-
4 ization of appropriations in section 2606 and available for
5 the National Guard and Reserve as specified in the fund-
6 ing table in section 4601, the Secretary of the Air Force
7 may acquire real property and carry out military construc-
8 tion projects for the Air Force Reserve locations inside
9 the United States, and in the amounts, set forth in the
10 following table:

Air Force Reserve

| State | Location | Amount |
|-----------------|---|---------------|
| Georgia | Robins Air Force Base | \$43,000,000 |
| Maryland | Joint Base Andrews | \$15,000,000 |
| Minnesota | Minneapolis-St. Paul International Airport | \$9,800,000 |

11 **SEC. 2606. AUTHORIZATION OF APPROPRIATIONS, NA-**

12 **TIONAL GUARD AND RESERVE.**

13 Funds are hereby authorized to be appropriated for
14 fiscal years beginning after September 30, 2019, for the
15 costs of acquisition, architectural and engineering services,
16 and construction of facilities for the Guard and Reserve
17 Forces, and for contributions therefor, under chapter
18 1803 of title 10, United States Code (including the cost

1 of acquisition of land for those facilities), as specified in
2 the funding table in section 4601.

3 **TITLE XXVII—BASE REALIGN-**
4 **MENT AND CLOSURE ACTIVI-**
5 **TIES**

Sec. 2701. Authorization of appropriations for base realignment and closure ac-
tivities funded through Department of Defense base closure ac-
count.

Sec. 2702. Prohibition on conducting additional base realignment and closure
(BRAC) round.

6 **SEC. 2701. AUTHORIZATION OF APPROPRIATIONS FOR**
7 **BASE REALIGNMENT AND CLOSURE ACTIVI-**
8 **TIES FUNDED THROUGH DEPARTMENT OF**
9 **DEFENSE BASE CLOSURE ACCOUNT.**

10 Funds are hereby authorized to be appropriated for
11 fiscal years beginning after September 30, 2019, for base
12 realignment and closure activities, including real property
13 acquisition and military construction projects, as author-
14 ized by the Defense Base Closure and Realignment Act
15 of 1990 (part A of title XXIX of Public Law 101–510;
16 10 U.S.C. 2687 note) and funded through the Department
17 of Defense Base Closure Account established by section
18 2906 of such Act (as amended by section 2711 of the Mili-
19 tary Construction Authorization Act for Fiscal Year 2013
20 (division B of Public Law 112–239; 126 Stat. 2140)), as
21 specified in the funding table in section 4601.

1 **SEC. 2702. PROHIBITION ON CONDUCTING ADDITIONAL**
2 **BASE REALIGNMENT AND CLOSURE (BRAC)**
3 **ROUND.**

4 Nothing in this Act shall be construed to authorize
5 an additional Base Realignment and Closure (BRAC)
6 round.

7 **TITLE XXVIII—MILITARY CON-**
8 **STRUCTION GENERAL PROVI-**
9 **SIONS**

Subtitle A—Military Construction Program

- Sec. 2801. Military installation resilience plans and projects.
- Sec. 2802. Improved consultation with tribal governments when proposed military construction projects potentially impact Indian tribes.
- Sec. 2803. Increased authority for use of certain appropriations amounts for restoration or replacement of damaged or destroyed facilities.
- Sec. 2804. Amendment of Unified Facilities Criteria to promote military installation resilience, energy resilience, energy and climate resiliency, and cyber resilience.
- Sec. 2805. Modification to Department of Defense Form 1391 regarding consideration of potential long-term adverse environmental effects.
- Sec. 2806. Improved flood risk disclosure for military construction.
- Sec. 2807. Prioritization of projects in annual report on unfunded requirements for laboratory military construction projects.
- Sec. 2808. Technical corrections and improvements to defense access road resilience.
- Sec. 2809. Military construction projects for child development centers at military installations.
- Sec. 2810. Prohibition on use of funds to reduce air base resiliency or demolish protected aircraft shelters in the European theater without creating a similar protection from attack.
- Sec. 2811. Prohibition on use of funds to close or return certain bases to the host nation.

Subtitle B—Real Property and Facilities Administration

- Sec. 2821. Improved energy security for main operating bases in Europe.
- Sec. 2822. Access to Department of Defense installations for credentialed transportation workers.
- Sec. 2823. Improved recording and maintaining of Department of Defense real property data.

Subtitle C—Land Conveyances

- Sec. 2831. Land conveyance, Hill Air Force Base, Ogden, Utah.

- Sec. 2832. Release of interests retained in Camp Joseph T. Robinson, Arkansas, for use of such land as a veterans cemetery.
- Sec. 2833. Modification of authorized uses of certain property conveyed by the United States in Los Angeles, California.
- Sec. 2834. Transfer of administrative jurisdiction over certain parcels of Federal land in Arlington, Virginia.

Subtitle D—Military Land Withdrawals

- Sec. 2841. Public notice regarding upcoming periods of Secretary of the Navy management of Shared Use Area of the Johnson Valley Off-Highway Vehicle Recreation Area.

Subtitle E—White Sands National Park and White Sands Missile Range

- Sec. 2851. White Sands Missile Range Land Enhancements.

Subtitle F—Other Matters

- Sec. 2861. Installation and maintenance of fire extinguishers in Department of Defense facilities.
- Sec. 2862. Definition of community infrastructure for purposes of military base reuse studies and community planning assistance.
- Sec. 2863. Temporary authority for acceptance and use of contributions for certain design and construction projects mutually beneficial to the Department of Defense and the Republic of Korea.
- Sec. 2864. Black start exercises at military installations.
- Sec. 2865. Pilot program to extend service life of roads and runways under the jurisdiction of the Secretary of Defense.
- Sec. 2866. Restrictions on rehabilitation of Over-the-Horizon Backscatter Radar System receiving station, Modoc County, California.
- Sec. 2867. Designation of Sumpter Smith Joint National Guard Base.
- Sec. 2868. Santa Ynez Band of Chumash Indians land affirmation.
- Sec. 2869. Lands to be taken into trust as part of the reservation of the Lytton Rancheria.
- Sec. 2870. Little Shell Tribe of Chippewa Indians of Montana.
- Sec. 2871. Sense of Congress on restoration of Tyndall Air Force Base.

1 **Subtitle A—Military Construction**
2 **Program**

3 **SEC. 2801. MILITARY INSTALLATION RESILIENCE PLANS**
4 **AND PROJECTS.**

5 (a) INCLUSION OF MILITARY INSTALLATION RESIL-
6 IENCE INFORMATION IN CERTAIN INSTALLATION MASTER
7 PLANS.—

8 (1) REQUIREMENT.—Section 2864 of title 10,
9 United States Code, is amended—

1 (A) in subsection (a)(1), by inserting “mili-
2 tary installation resilience,” after “master plan-
3 ning,”;

4 (B) by redesignating subsections (e) and
5 (d) as subsections (e) and (f), respectively; and

6 (C) by inserting after subsection (b) the
7 following new subsection:

8 “(c) **MILITARY INSTALLATION RESILIENCE COMPO-**
9 **NENT.**—To address military installation resilience under
10 subsection (a)(1), each installation master plan shall dis-
11 cuss the following:

12 “(1) Risks and threats to military installation
13 resilience that exist at the time of the development
14 of the plan and that are projected for the future, in-
15 cluding from extreme weather events, mean sea level
16 fluctuation, wildfires, flooding, and other changes in
17 environmental conditions.

18 “(2) Assets or infrastructure located on the
19 military installation vulnerable to the risks and
20 threats described in paragraph (1), with a special
21 emphasis on assets or infrastructure critical to the
22 mission of the installation and the mission of mem-
23 bers of the armed forces.

24 “(3) Lessons learned from the impacts of ex-
25 treme weather events, including changes made to the

1 military installation to address such impacts, since
2 the prior master plan developed under this section.

3 “(4) Ongoing or planned infrastructure projects
4 or other measures, as of the time of the development
5 of the plan, to mitigate the impacts of the risks and
6 threats described in paragraph (1).

7 “(5) Community infrastructure and resources
8 located outside the installation (such as medical fa-
9 cilities, transportation systems, and energy infra-
10 structure) that are—

11 “(A) necessary to maintain mission capa-
12 bility or that impact the resilience of the mili-
13 tary installation; and

14 “(B) vulnerable to the risks and threats
15 described in paragraph (1).

16 “(6) Agreements in effect or planned, as of the
17 time of the development of the plan, with public or
18 private entities for the purpose of maintaining or en-
19 hancing military installation resilience or resilience
20 of the community infrastructure and resources de-
21 scribed in paragraph (5).

22 “(7) Projections from recognized governmental
23 and scientific entities such as the Census Bureau,
24 the National Academies of Sciences, the United
25 States Geological Survey, and the United States

1 Global Change Research Office (or any similar suc-
2 cessor entities) with respect to future risks and
3 threats (including the risks and threats described in
4 paragraph (1)) to the resilience of any project con-
5 sidered in the installation master plan during the
6 50-year lifespan of the installation.”.

7 (2) REPORT ON MASTER PLANS.—Section 2864
8 of title 10, United States Code, is amended by in-
9 serting after subsection (c), as added by subsection
10 (a), the following new subsection:

11 “(d) REPORT.—Not later than March 1 of each year,
12 the Secretary of Defense shall submit to the congressional
13 defense committees a report listing all master plans com-
14 pleted pursuant to this section in the prior calendar
15 year.”.

16 (b) AUTHORITY TO CARRY OUT MILITARY INSTALLA-
17 TION RESILIENCE PROJECTS.—

18 (1) IN GENERAL.—Subchapter I of chapter 169
19 of title 10, United States Code, is amended by add-
20 ing at the end the following new section:

21 **“§ 2815. Military installation resilience projects**

22 “(a) PROJECTS REQUIRED.—The Secretary of De-
23 fense shall carry out military construction projects for
24 military installation resilience, in accordance with section
25 2802 of this title.

1 “(b) CONGRESSIONAL NOTIFICATION.—(1) When a
2 decision is made to carry out a project under this section,
3 the Secretary of Defense shall notify the congressional de-
4 fense committees of that decision.

5 “(2) The Secretary of Defense shall include in each
6 notification submitted under paragraph (1) the rationale
7 for how the project would—

8 “(A) enhance military installation resilience;

9 “(B) enhance mission assurance;

10 “(C) support mission critical functions; and

11 “(D) address known vulnerabilities.

12 “(c) TIMING OF PROJECTS.—A project may be car-
13 ried out under this section only after the end of the 14-
14 day period beginning on the date that notification with
15 respect to that project under subsection (b) is received by
16 the congressional defense committees in an electronic me-
17 dium pursuant to section 480 of this title.

18 “(d) ANNUAL REPORT.—Not later than 90 days after
19 the end of each fiscal year until December 31, 2025, the
20 Secretary of Defense shall submit to the congressional de-
21 fense committees a report on the status of the planned
22 and active projects carried out under this section (includ-
23 ing completed projects), and shall include in the report
24 with respect to each such project the following informa-
25 tion:

1 “(1) The title, location, a brief description of
2 the scope of work, the original project cost estimate,
3 and the current working cost estimate.

4 “(2) The information provided under subsection
5 (b)(2).

6 “(3) Such other information as the Secretary
7 considers appropriate.”.

8 (2) CLERICAL AMENDMENT.—The table of sec-
9 tions at the beginning of chapter 169 of such title
10 is amended by inserting after the item relating to
11 section 2814 the following new item:

 “2815. Military installation resilience projects.”.

12 **SEC. 2802. IMPROVED CONSULTATION WITH TRIBAL GOV-**
13 **ERNMENTS WHEN PROPOSED MILITARY CON-**
14 **STRUCTION PROJECTS POTENTIALLY IM-**
15 **PACT INDIAN TRIBES.**

16 Section 2802 of title 10, United States Code, is
17 amended by adding at the end the following new sub-
18 section:

19 “(f)(1) In addition to any other applicable consulta-
20 tion requirement pursuant to law or Department of De-
21 fense policy, if a proposed military construction project is
22 likely to significantly impact tribal lands, known sacred
23 sites, or tribal treaty rights, the Secretary concerned shall
24 initiate consultation with the tribal government of each
25 impacted Indian tribe—

1 “(A) to determine the nature and extent of
2 such impact;

3 “(B) to determine whether such impact can be
4 avoided or mitigated in the design and implementa-
5 tion of the project; and

6 “(C) if such impact cannot be avoided, to de-
7 velop feasible measures consistent with applicable
8 law to mitigate the impact and estimate the cost of
9 the mitigation measures.

10 “(2) As part of the Department of Defense Form
11 1391 submitted to the appropriate committees of Congress
12 for a military construction project covered by paragraph
13 (1), the Secretary concerned, to the extent possible at the
14 time of such submission, shall include a description of the
15 current status of the consultation conducted under such
16 paragraph and specifically address each of the items speci-
17 fied in subparagraphs (A), (B), and (C) of such para-
18 graph.

19 “(3) The requirement under paragraph (1) does not
20 affect the obligation of the Secretary concerned to comply
21 with any other applicable consultation requirement pursu-
22 ant to law or Department of Defense policy.

23 “(4) In this subsection:

24 “(A) The term ‘Indian tribe’ has the meaning
25 given that term in section 4 of the Indian Self-De-

1 termination and Education Assistance Act (25
2 U.S.C. 5304).

3 “(B) The term ‘tribal government’ means the
4 recognized governing body of an Indian tribe.

5 “(C) The term ‘sacred site’ has the meaning
6 given that term in Executive Order No. 13007, as
7 in effect on the date of the enactment of the Na-
8 tional Defense Authorization Act for Fiscal Year
9 2020.”.

10 **SEC. 2803. INCREASED AUTHORITY FOR USE OF CERTAIN**
11 **APPROPRIATIONS AMOUNTS FOR RESTORA-**
12 **TION OR REPLACEMENT OF DAMAGED OR DE-**
13 **STROYED FACILITIES.**

14 Section 2854(e)(3) of title 10, United States Code,
15 is amended by striking “\$50,000,000” and inserting
16 “\$100,000,000”.

17 **SEC. 2804. AMENDMENT OF UNIFIED FACILITIES CRITERIA**
18 **TO PROMOTE MILITARY INSTALLATION RE-**
19 **SILIENCE, ENERGY RESILIENCE, ENERGY**
20 **AND CLIMATE RESILIENCY, AND CYBER RE-**
21 **SILIENCE.**

22 (a) AMENDMENT REQUIRED.—

23 (1) IN GENERAL.—Not later than September 1,
24 2020, the Secretary of Defense shall amend the Uni-
25 fied Facility Criteria relating to military construc-

1 tion planning and design, to ensure that building
2 practices and standards of the Department of De-
3 fense promote military installation resilience, energy
4 resilience, energy and climate resiliency, and cyber
5 resilience.

6 (2) CONSIDERATIONS AND CONSULTATION.—In
7 preparing amendments pursuant to paragraph (1),
8 the Secretary of Defense—

9 (A) shall take into account historical data,
10 current conditions, and sea level rise projec-
11 tions; and

12 (B) may consult with the heads of other
13 Federal departments and agencies with exper-
14 tise regarding military installation resilience,
15 energy resilience, energy and climate resiliency,
16 and cyber resilience.

17 (b) CONDITIONAL AVAILABILITY OF FUNDS.—Not
18 more than 25 percent of the funds authorized to be appro-
19 priated for fiscal year 2020 for Department of Defense
20 planning and design accounts relating to military con-
21 struction projects may be obligated until the date on which
22 the Secretary of Defense submits to the Committees on
23 Armed Services of the House of Representatives and the
24 Senate a certification that the Secretary—

1 (1) has initiated the amendment process re-
2 quired by subsection (a)(1); and

3 (2) intends to complete such process by Sep-
4 tember 1, 2020.

5 (c) UPDATE OF UNIFIED FACILITIES CRITERIA TO
6 INCLUDE CHANGING ENVIRONMENTAL CONDITION PRO-
7 JECTIONS.—Section 2805(c) of the Military Construction
8 Authorization Act for Fiscal Year 2019 (division B of
9 Public Law 115–232; 132 Stat. 2262; 10 U.S.C. 2864
10 note) is amended—

11 (1) by striking “Not later than” and inserting
12 the following:

13 “(1) FISCAL YEAR 2019.—Not later than”;

14 (2) in paragraph (1), as designated by para-
15 graph (1), by striking “United Facilities Criteria
16 (UFC) 2-100-01 and UFC 2-100-02” and inserting
17 “Unified Facilities Criteria (UFC) 1-200-01 and
18 UFC 1-200-02”; and

19 (3) by adding at the end the following new
20 paragraph:

21 “(2) FISCAL YEAR 2020.—

22 “(A) AMENDMENTS REQUIRED.—Not later
23 than 30 days after the date of the enactment of
24 the National Defense Authorization Act for Fis-

1 cal Year 2020, the Secretary of Defense shall
2 amend the Unified Facilities Criteria as follows:

3 “(i) To require that installations of
4 the Department of Defense assess the risks
5 from extreme weather and related effects,
6 and develop plans to address such risks.

7 “(ii) To require in the development of
8 such Criteria the use of—

9 “(I) land use change projections
10 through the use of land use and land
11 cover modeling by the United States
12 Geological Survey; and

13 “(II) weather projections—

14 “(aa) from the United
15 States Global Change Research
16 Program, including in the Na-
17 tional Climate Assessment; or

18 “(bb) from the National
19 Oceanic and Atmospheric Admin-
20 istration, if such projections are
21 more up-to-date than projections
22 under item (aa).

23 “(iii) To require the Secretary of De-
24 fense to provide guidance to project design-

1 ers and master planners on how to use
2 weather projections.

3 “(iv) To require the use throughout
4 the Department of the Naval Facilities En-
5 gineering Command Climate Change In-
6 stallation Adaptation and Resilience plan-
7 ning handbook, as amended (or similar
8 publication of the Army Corps of Engi-
9 neers).

10 “(B) NOTIFICATION.—If the Secretary of
11 Defense determines that a projection other than
12 a projection described in subparagraph (A)(ii)
13 is more appropriate for use in amending the
14 Unified Facilities Criteria, the Secretary shall
15 notify the congressional defense committees of
16 such determination, which shall include the ra-
17 tionale underlying such determination and a de-
18 scription of such other projection.”.

19 (d) IMPLEMENTATION OF UNIFIED FACILITIES CRI-
20 TERIA AMENDMENTS.—

21 (1) IMPLEMENTATION.—Any Department of
22 Defense Form 1391 submitted to Congress after
23 September 1, 2020 shall comply with the Unified
24 Facility Criteria, as amended pursuant to this sec-
25 tion.

1 (2) CERTIFICATION.—Not later than March 1,
2 2021, the Secretary of Defense shall certify to the
3 Committees on Armed Services of the House of Rep-
4 resentatives and the Senate the completion and full
5 incorporation into military construction planning
6 and design—

7 (A) amendments made pursuant to sub-
8 section (a); and

9 (B) amendments made pursuant to section
10 2805(c) of the Military Construction Authoriza-
11 tion Act for Fiscal Year 2019 (division B of
12 Public Law 115–232; 132 Stat. 2262; 10
13 U.S.C. 2864 note), as amended by subsection
14 (c).

15 (e) ANNUAL REVIEW.—Beginning with fiscal year
16 2022, and annually thereafter, the Secretary of Defense
17 shall conduct a review comparing the Unified Facility Cri-
18 teria and industry best practices, for the purpose of ensur-
19 ing that military construction building practices and
20 standards of the Department of Defense relating to mili-
21 tary installation resilience, energy resilience, energy and
22 climate resiliency, and cyber resilience remain up-to-date.

23 (f) DEFINITIONS.—In this section:

24 (1) The terms “energy resilience” and “military
25 installation resilience” have the meanings given

1 those terms in section 101(e) of title 10, United
2 States Code.

3 (2) The term “energy and climate resiliency”
4 has the meaning given that term in section 2864 of
5 title 10, United States Code.

6 **SEC. 2805. MODIFICATION TO DEPARTMENT OF DEFENSE**
7 **FORM 1391 REGARDING CONSIDERATION OF**
8 **POTENTIAL LONG-TERM ADVERSE ENVIRON-**
9 **MENTAL EFFECTS.**

10 (a) MODIFICATION.—

11 (1) CERTIFICATION REQUIREMENT.—The Sec-
12 retary of Defense shall modify Department of De-
13 fense Form 1391 to require, with respect to any pro-
14 posed major or minor military construction project
15 requiring congressional notification or approval, the
16 inclusion of a certification by the Secretary of De-
17 fense or the Secretary of the military department
18 concerned that the proposed military construction
19 project takes into consideration—

20 (A) the potential adverse consequences of
21 long-term changes in environmental conditions,
22 such as increasingly frequent extreme weather
23 events, that could affect the military installation
24 resilience of the installation for which the mili-
25 tary construction project is proposed; and

1 (B) building requirements in effect for the
2 locality in which the military construction
3 project is proposed and industry best practices
4 that are developed to withstand extreme weath-
5 er events and other consequences of changes in
6 environmental conditions.

7 (2) ELEMENTS OF CERTIFICATION.—As part of
8 the certification required by paragraph (1) for a pro-
9 posed military construction project, the Secretary
10 concerned shall identify the potential changes in en-
11 vironmental conditions, such as increasingly frequent
12 extreme weather events, considered and addressed
13 under subparagraphs (A) and (B) of paragraph (1).

14 (b) RELATION TO RECENT MODIFICATION REQUIRE-
15 MENT.—The modification of Department of Defense Form
16 1391 required by subsection (a) is in addition to, and ex-
17 pands upon, the modification of Department of Defense
18 Form 1391 with respect to flood risk disclosure for mili-
19 tary construction required by section 2805(a) of the Mili-
20 tary Construction Authorization Act for Fiscal Year 2019
21 (division B of Public Law 115–232; 132 Stat. 2262; 10
22 U.S.C. 2802 note).

23 (c) MILITARY INSTALLATION RESILIENCE DE-
24 FINED.—In this section, the term “military installation re-

1 silience” has the meaning given that term in section
2 101(e)(8) of title 10, United States Code.

3 **SEC. 2806. IMPROVED FLOOD RISK DISCLOSURE FOR MILI-**
4 **TARY CONSTRUCTION.**

5 (a) WHEN DISCLOSURE REQUIRED.—Section
6 2805(a)(1) of the Military Construction Authorization Act
7 for Fiscal Year 2019 (division B of Public Law 115–232;
8 132 Stat. 2262; 10 U.S.C. 2802 note) is amended—

9 (1) in subparagraph (A), by inserting after
10 “hazard data” the following: “, or will be impacted
11 by projected current and future mean sea level fluc-
12 tuations over the lifetime of the project”; and

13 (2) in subparagraph (B), by inserting after
14 “floodplain” the following: “or will be impacted by
15 projected current and future mean sea level fluctua-
16 tions over the lifetime of the project”.

17 (b) REPORTING REQUIREMENTS.—Section
18 2805(a)(3) of the Military Construction Authorization Act
19 for Fiscal Year 2019 (division B of Public Law 115–232;
20 132 Stat. 2262; 10 U.S.C. 2802 note) is amended—

21 (1) in the matter preceding the subparagraphs,
22 by inserting after “floodplain” the following: “or are
23 to be impacted by projected current and future mean
24 sea level fluctuations over the lifetime of the
25 project”; and

1 (2) by adding at the end the following new sub-
2 paragraph:

3 “(D) A description of how the proposed
4 project has taken into account projected current
5 and future mean sea level fluctuations over the
6 lifetime of the project.”.

7 (c) MITIGATION PLAN ASSUMPTIONS.—Section
8 2805(a)(4) of the Military Construction Authorization Act
9 for Fiscal Year 2019 (division B of Public Law 115–232;
10 132 Stat. 2262; 10 U.S.C. 2802 note) is amended—

11 (1) in the matter preceding the subpara-
12 graphs—

13 (A) by inserting after “floodplain” the fol-
14 lowing: “or that will be impacted by projected
15 current and future mean sea level fluctuations
16 over the lifetime of the project”; and

17 (B) by striking “an additional”;

18 (2) in subparagraph (A)—

19 (A) by inserting “an additional” before “2
20 feet”; and

21 (B) by striking “and” at the end of the
22 subparagraph;

23 (3) in subparagraph (B)—

24 (A) by inserting “an additional” before “3
25 feet”; and

1 (B) by striking the period at the end of the
2 subparagraph and inserting “; and”; and

3 (4) by adding at the end the following new sub-
4 paragraph:

5 “(C) any additional flooding that will re-
6 sult from projected current and future mean
7 sea level fluctuations over the lifetime of the
8 project.”.

9 **SEC. 2807. PRIORITIZATION OF PROJECTS IN ANNUAL RE-**
10 **PORT ON UNFUNDED REQUIREMENTS FOR**
11 **LABORATORY MILITARY CONSTRUCTION**
12 **PROJECTS.**

13 Section 2806 of the National Defense Authorization
14 Act for Fiscal Year 2018 (Public Law 115–91; 10 U.S.C.
15 222a note) is amended—

16 (1) by striking “Assistant Secretary of Defense
17 for Energy, Installations, and Environment” and in-
18 sserting “Under Secretary of Defense for Acquisition
19 and Sustainment”;

20 (2) by striking “reporting” and inserting “re-
21 port”; and

22 (3) by inserting “in prioritized order, with spe-
23 cific accounts and program elements identified,”
24 after “evaluation facilities,”.

1 **SEC. 2808. TECHNICAL CORRECTIONS AND IMPROVEMENTS**
2 **TO DEFENSE ACCESS ROAD RESILIENCE.**

3 Section 210 of title 23, United States Code, is
4 amended—

5 (1) in subsection (a), by striking “(a)(1) The
6 Secretary” and all that follows through the end of
7 paragraph (1) and inserting the following:

8 “(a) AUTHORIZATION.—

9 “(1) IN GENERAL.—When defense access roads
10 are certified to the Secretary as important to the na-
11 tional defense by the Secretary of Defense or such
12 other official as the President may designate, the
13 Secretary is authorized, out of the funds appro-
14 priated for defense access roads, to provide for—

15 “(A) the construction and maintenance of
16 defense access roads (including bridges, tubes,
17 tunnels, and culverts or other hydraulic appur-
18 tenances on those roads) to—

19 “(i) military reservations;

20 “(ii) defense industry sites;

21 “(iii) air or sea ports that are nec-
22 essary for or are planned to be used for
23 the deployment or sustainment of members
24 of the Armed Forces, equipment, or sup-
25 plies; or

26 “(iv) sources of raw materials;

1 “(B) the reconstruction or enhancement of,
2 or improvements to, those roads to ensure the
3 continued effective use of the roads, regardless
4 of current or projected increases in mean tides,
5 recurrent flooding, or other weather-related
6 conditions or natural disasters; and

7 “(C) replacing existing highways and high-
8 way connections that are shut off from general
9 public use by necessary closures, closures due to
10 mean sea level fluctuation and flooding, or re-
11 strictions at—

12 “(i) military reservations;

13 “(ii) air or sea ports that are nec-
14 essary for or are planned to be used for
15 the deployment or sustainment of members
16 of the Armed Forces, equipment, or sup-
17 plies; or

18 “(iii) defense industry sites.”;

19 (2) in subsection (b), by striking “the construc-
20 tion and maintenance of” and inserting “construc-
21 tion, reconstruction, resurfacing, restoration, reha-
22 bilitation, and preservation of, or enhancements to,”;

23 (3) in subsection (c)—

24 (A) by striking “him” and inserting “the
25 Secretary”;

1 (B) by striking “construction, mainte-
2 nance, and repair work” and inserting “activi-
3 ties for construction, maintenance, reconstruc-
4 tion, enhancement, improvement, and repair”;

5 (C) by striking “therein” and inserting “in
6 those areas”; and

7 (D) by striking “condition for such train-
8 ing purposes and for repairing the damage
9 caused to such highways by the operations of
10 men and equipment in such training.” and in-
11 serting the following: “condition for—

12 “(1) that training; and

13 “(2) repairing the damage to those highways
14 caused by—

15 “(A) weather-related events, increases in
16 mean high tide levels, recurrent flooding, or
17 natural disasters; or

18 “(B) the operations of men and equipment
19 in such training.”;

20 (4) in subsection (g)—

21 (A) by striking “he” and inserting “the
22 Secretary”;

23 (B) by striking “construction which has
24 been” and inserting “construction and other ac-
25 tivities”; and

1 (C) by striking “upon his demand” and in-
2 serting “upon demand by the Secretary”; and
3 (5) by striking subsection (i) and inserting the
4 following:

5 “(i) REPAIR OF CERTAIN DAMAGES AND INFRA-
6 STRUCTURE.—The funds appropriated to carry out this
7 section may be used to pay the cost of repairing damage
8 caused, or any infrastructure to mitigate a risk posed, to
9 a defense access road by recurrent or projected recurrent
10 flooding, sea level fluctuation, a natural disaster, or any
11 other current or projected change in applicable environ-
12 mental conditions, if the Secretary determines that contin-
13 ued access to a military installation, defense industry site,
14 air or sea port necessary for or planned to be used for
15 the deployment or sustainment of members of the Armed
16 Forces, equipment, or supplies, or to a source of raw mate-
17 rials, has been or is projected to be impacted by those
18 events or conditions.”.

19 **SEC. 2809. MILITARY CONSTRUCTION PROJECTS FOR**
20 **CHILD DEVELOPMENT CENTERS AT MILI-**
21 **TARY INSTALLATIONS.**

22 (a) AUTHORIZATION OF ADDITIONAL PROJECTS.—In
23 addition to any other military construction projects au-
24 thorized under this Act, the Secretary of the military de-
25 partment concerned may carry out military construction

1 projects for child development centers at military installa-
2 tions, as specified in the funding table in section 4601.

3 (b) REQUIRING REPORT AS CONDITION OF AUTHOR-
4 IZATION.—

5 (1) REPORT.—Not later than 90 days after the
6 date of the enactment of this Act, the Secretary con-
7 cerned shall submit to the congressional defense
8 committees a report that describes the location, title,
9 and cost, together with a Department of Defense
10 Form 1391, for each project the Secretary concerned
11 proposes to carry out under this section.

12 (2) TIMING OF AVAILABILITY OF FUNDS.—No
13 funds may be obligated or expended for a project
14 under this section—

15 (A) unless the project is included in the re-
16 port submitted under paragraph (1); and

17 (B) until the expiration of the 30-day pe-
18 riod beginning on the date on which the Sec-
19 retary concerned submits the report under
20 paragraph (1).

21 (c) EXPIRATION OF AUTHORIZATION.—Section 2002
22 shall apply with respect to the authorization of a military
23 construction project under this section in the same man-
24 ner as such section applies to the authorization of a
25 project contained in titles XXI through XXX.

1 **SEC. 2810. PROHIBITION ON USE OF FUNDS TO REDUCE AIR**
2 **BASE RESILIENCY OR DEMOLISH PROTECTED**
3 **AIRCRAFT SHELTERS IN THE EUROPEAN**
4 **THEATER WITHOUT CREATING A SIMILAR**
5 **PROTECTION FROM ATTACK.**

6 No funds authorized to be appropriated by this Act
7 for fiscal year 2020 for the Department of Defense may
8 be obligated or expended to implement any activity that
9 reduces air base resiliency or demolishes protected aircraft
10 shelters in the European theater, and the Department
11 may not otherwise implement any such activity, without
12 creating a similar protection from attack in the European
13 theater until such time as the Secretary of Defense cer-
14 tifies to the congressional defense committees that pro-
15 tected aircraft shelters are not required in the European
16 theater.

17 **SEC. 2811. PROHIBITION ON USE OF FUNDS TO CLOSE OR**
18 **RETURN CERTAIN BASES TO THE HOST NA-**
19 **TION.**

20 No funds authorized to be appropriated by this Act
21 for fiscal year 2020 for the Department of Defense may
22 be obligated or expended to implement any activity that
23 closes or returns to the host nation any existing base
24 under the European Consolidation Initiative, and the De-
25 partment shall not implement any such activity in fiscal
26 year 2020, until the Secretary of Defense certifies that

1 there is no longer a need for a rotational military presence
2 in the European theater.

3 **Subtitle B—Real Property and**
4 **Facilities Administration**

5 **SEC. 2821. IMPROVED ENERGY SECURITY FOR MAIN OPER-**
6 **ATING BASES IN EUROPE.**

7 (a) PROHIBITION ON USE OF CERTAIN ENERGY
8 SOURCE.—The Secretary of Defense shall ensure that
9 each contract for the acquisition of furnished energy for
10 a covered military installation in Europe does not use any
11 energy sourced from inside the Russian Federation as a
12 means of generating the furnished energy for the covered
13 military installation.

14 (b) WAIVER FOR NATIONAL SECURITY INTERESTS.—

15 (1) WAIVER AUTHORITY; CERTIFICATION.—The
16 Secretary of Defense may waive application of sub-
17 section (a) to a specific contract for the acquisition
18 of furnished energy for a covered military installa-
19 tion if the Secretary certifies to the congressional
20 defense committees that—

21 (A) the waiver of such subsection is nec-
22 essary to ensure an adequate supply of fur-
23 nished energy for the covered military installa-
24 tion; and

1 (B) the Secretary has balanced these na-
2 tional security requirements against the poten-
3 tial risk associated with reliance upon the Rus-
4 sian Federation for furnished energy.

5 (2) SUBMISSION OF WAIVER NOTICE.—Not
6 later than 14 days before the execution of any en-
7 ergy contract for which a waiver is granted under
8 paragraph (1), the Secretary of Defense shall submit
9 to the congressional defense committees notice of the
10 waiver. The waiver notice shall include the following:

11 (A) The rationale for the waiver, including
12 the basis for the certifications required by sub-
13 paragraphs (A) and (B) of paragraph (1).

14 (B) An assessment of how the waiver may
15 impact the European energy resiliency strategy.

16 (C) An explanation of the measures the
17 Department of Defense is taking to mitigate
18 the risk of using Russian Federation furnished
19 energy.

20 (c) DEFINITIONS.—In this section:

21 (1) The term “covered military installation”
22 means a military installation in Europe identified by
23 the Department of Defense as a main operating
24 base.

1 (2) The term “furnished energy” means energy
2 furnished to a covered military installation in any
3 form and for any purpose, including heating, cool-
4 ing, and electricity.

5 (d) CONFORMING REPEAL.—Section 2811 of the
6 Military Construction Authorization Act for Fiscal Year
7 2019 (division B of Public Law 115–232; 132 Stat. 2266)
8 is repealed.

9 **SEC. 2822. ACCESS TO DEPARTMENT OF DEFENSE INSTAL-**
10 **LATIONS FOR CREDENTIALLED TRANSPOR-**
11 **TATION WORKERS.**

12 Section 1050(a) of the National Defense Authoriza-
13 tion Act for Fiscal Year 2017 (Public Law 114–328; 10
14 U.S.C. 113 note) is amended to read as follows:

15 “(a) ACCESS TO INSTALLATIONS FOR
16 CREDENTIALLED TRANSPORTATION WORKERS.—The Sec-
17 retary of Defense, to the extent practicable, shall ensure
18 that the Transportation Worker Identification Credential
19 is accepted as a valid credential for unescorted access to
20 Department of Defense installations by transportation
21 workers.”.

1 **SEC. 2823. IMPROVED RECORDING AND MAINTAINING OF**
2 **DEPARTMENT OF DEFENSE REAL PROPERTY**
3 **DATA.**

4 (a) INITIAL REPORT.—Not later than 150 days after
5 the date of the enactment of this Act, the Undersecretary
6 of Defense for Acquisition and Sustainment shall submit
7 to the congressional defense committees a report that eval-
8 uates service-level best practices for recording and main-
9 taining real property data.

10 (b) ISSUANCE OF GUIDANCE.—Not later than 300
11 days after the date of the enactment of this Act, the Un-
12 dersecretary of Defense for Acquisition and Sustainment
13 shall issue service-wide guidance on the recording and col-
14 lection of real property data based on the best practices
15 described in the report.

16 **Subtitle C—Land Conveyances**

17 **SEC. 2831. LAND CONVEYANCE, HILL AIR FORCE BASE,**
18 **OGDEN, UTAH.**

19 (a) CONVEYANCE REQUIRED.—The Secretary of the
20 Air Force may convey, for no monetary consideration, to
21 the State of Utah or a designee of the State of Utah (in
22 this section referred to as the “State”) all right, title, and
23 interest of the United States in and to a parcel of real
24 property, including improvements thereon, consisting of
25 approximately 35 acres located at Hill Air Force Base
26 commonly known as the “Defense Nontactical Generator

1 and Rail Center” and such real property adjacent to the
2 Center as the parties consider to be appropriate, for the
3 purpose of permitting the State to construct a new inter-
4 change for Interstate 15.

5 (b) **CONDITION PRECEDENT.**—The conveyance au-
6 thorized by subsection (a) shall be contingent upon the
7 relocation of the Defense Nontactical Generator and Rail
8 Center.

9 (c) **TERMINATION AND REENTRY.**—If the State does
10 not meet the conditions required under subsection (d) by
11 the date that is five years after the date of the conveyance
12 authorized by subsection (a), or such later date as the Sec-
13 retary of the Air Force and the State may agree is reason-
14 ably necessary due to unexpected circumstances, the Sec-
15 retary of the Air Force may terminate such conveyance
16 and reenter the property.

17 (d) **CONSIDERATION AND CONDITIONS OF CONVEY-**
18 **ANCE.**—In consideration of and as a condition to the con-
19 veyance authorized by subsection (a), the State shall agree
20 to the following:

21 (1) Not later than two years after the convey-
22 ance, the State shall, at no cost to the United States
23 Government—

1 (A) demolish all improvements and associ-
2 ated infrastructure existing on the property;
3 and

4 (B) conduct environmental cleanup and re-
5 mediation of the property, as required by law
6 and approved by the Utah Department of Envi-
7 ronmental Quality, for the planned redevelop-
8 ment and use of the property.

9 (2) Not later than three years after the comple-
10 tion of the cleanup and remediation under para-
11 graph (1)(B), the State, at no cost to the United
12 States Government, shall construct on Hill Air
13 Force Base a new gate for vehicular and pedestrian
14 traffic in and out of Hill Air Force Base in compli-
15 ance with all applicable construction and security re-
16 quirements and such other requirements as the Sec-
17 retary of the Air Force may consider necessary.

18 (3) That the State shall coordinate the demoli-
19 tion, cleanup, remediation, design, redevelopment,
20 and construction activities performed pursuant to
21 the conveyance under subsection (a) with the Sec-
22 retary of the Air Force, the Utah Department of
23 Transportation, and the Utah Department of Envi-
24 ronmental Quality.

1 (e) ENVIRONMENTAL OBLIGATIONS.—The State
2 shall not have any obligation with respect to cleanup and
3 remediation of an environmental condition on the property
4 to be conveyed under subsection (a) unless the condition
5 was in existence and known before the date of the convey-
6 ance or the State exacerbates the condition which then re-
7 quires further remediation.

8 (f) PAYMENT OF COSTS OF CONVEYANCE.—

9 (1) PAYMENT REQUIRED.—The Secretary of
10 the Air Force shall require the State to cover costs
11 to be incurred by the Secretary, or to reimburse the
12 Secretary for such costs incurred, to carry out the
13 conveyance under subsection (a), including survey
14 costs, costs for environmental documentation, and
15 other administrative costs related to the conveyance.
16 If amounts are collected from the State in advance
17 of the Secretary incurring actual costs, and the
18 amount collected exceeds the costs actually incurred
19 by the Secretary to carry out the conveyance, the
20 Secretary shall refund the excess amount to the
21 State.

22 (2) TREATMENT OF AMOUNTS RECEIVED.—
23 Amounts received as reimbursement under para-
24 graph (1) shall be credited to the fund or account
25 that was used to cover the costs incurred by the Sec-

1 sisting of approximately 141.52 acres that lies in a
2 part of section 35, township 3 north, range 12 west,
3 Pulaski County, Arkansas, and comprising a portion
4 of the property conveyed by the United States to the
5 State of Arkansas for training of the National
6 Guard and for other military purposes pursuant to
7 “An Act authorizing the transfer of part of Camp
8 Joseph T. Robinson to the State of Arkansas”, ap-
9 proved June 30, 1950 (64 Stat. 311, chapter 429),
10 the Secretary of the Army may release the terms
11 and conditions imposed, and reversionary interests
12 retained, by the United States under section 2 of
13 such Act, and the right to reenter and use the prop-
14 erty retained by the United States under section 3
15 of such Act.

16 (2) IMPACT ON OTHER RIGHTS OR INTER-
17 ESTS.—The release of terms and conditions and re-
18 tained interests under paragraph (1) with respect to
19 the parcel described in such paragraph shall not be
20 construed to alter the rights or interests retained by
21 the United States with respect to the remainder of
22 the real property conveyed to the State of Arkansas
23 under the Act described in such paragraph.

24 (b) INSTRUMENT OF RELEASE AND DESCRIPTION OF
25 PROPERTY.—

1 (1) IN GENERAL.—The Secretary of the Army
2 may execute and file in the appropriate office a deed
3 of release, amended deed, or other appropriate in-
4 strument reflecting the release of terms and condi-
5 tions and retained interests under subsection (a).

6 (2) LEGAL DESCRIPTION.—The exact acreage
7 and legal description of the property described in
8 subsection (a) shall be determined by a survey satis-
9 factory to the Secretary of the Army.

10 (c) CONDITIONS ON RELEASE AND REVERSIONARY
11 INTEREST.—

12 (1) EXPANSION OF VETERANS CEMETERY AND
13 REVERSIONARY INTEREST.—

14 (A) EXPANSION OF VETERANS CEME-
15 TERY.—The State of Arkansas may use the
16 parcel of land described in subsection (a)(1)
17 only for the expansion of the Arkansas State
18 Veterans Cemetery.

19 (B) REVERSIONARY INTEREST.—If the
20 Secretary of the Army determines at any time
21 that the parcel of land described in subsection
22 (a)(1) is not being used in accordance with the
23 purpose specified in subparagraph (A), all right,
24 title, and interest in and to the land, including
25 any improvements thereto, shall, at the option

1 of the Secretary, revert to and become the prop-
2 erty of the United States, and the United
3 States shall have the right of immediate entry
4 onto such parcel.

5 (2) ADDITIONAL TERMS AND CONDITIONS.—

6 The Secretary of the Army may require in the in-
7 strument of release such additional terms and condi-
8 tions in connection with the release of terms and
9 conditions and retained interests under subsection
10 (a) as the Secretary considers appropriate to protect
11 the interests of the United States.

12 (d) PAYMENT OF ADMINISTRATIVE COSTS.—

13 (1) PAYMENT REQUIRED.—

14 (A) IN GENERAL.—The Secretary of the
15 Army may require the State of Arkansas to
16 cover costs to be incurred by the Secretary, or
17 to reimburse the Secretary for costs incurred by
18 the Secretary, to carry out the release of terms
19 and conditions and retained interests under
20 subsection (a), including survey costs, costs re-
21 lated to environmental documentation, and
22 other administrative costs related to the release.

23 (B) REFUND OF AMOUNTS.—If amounts
24 paid to the Secretary by the State of Arkansas
25 in advance under subparagraph (A) exceed the

1 costs actually incurred by the Secretary to carry
2 out the release, the Secretary shall refund the
3 excess amount to the State.

4 (2) TREATMENT OF AMOUNTS RECEIVED.—
5 Amounts received under paragraph (1) as reim-
6 bursement for costs incurred by the Secretary to
7 carry out the release of terms and conditions and re-
8 tained interests under subsection (a) shall be cred-
9 ited to the fund or account that was used to cover
10 the costs incurred by the Secretary in carrying out
11 the release. Amounts so credited shall be merged
12 with amounts in such fund or account and shall be
13 available for the same purposes, and subject to the
14 same conditions and limitations, as amounts in such
15 fund or account.

16 **SEC. 2833. MODIFICATION OF AUTHORIZED USES OF CER-**
17 **TAIN PROPERTY CONVEYED BY THE UNITED**
18 **STATES IN LOS ANGELES, CALIFORNIA.**

19 (a) IN GENERAL.—Section 2 of Public Law 85–236
20 (71 Stat. 517) is amended in the first sentence by insert-
21 ing after “for other military purposes” the following: “and
22 for purposes of meeting the needs of the homeless (as that
23 term is defined in section 103 of the McKinney-Vento
24 Homeless Assistance Act (42 U.S.C. 11302))”.

25 (b) MODIFICATION OF USE.—

1 (1) APPLICATION.—The State of California
2 shall submit to the Administrator of General Serv-
3 ices an application for use of the property conveyed
4 by section 2 of Public Law 85–236 for purposes of
5 meeting the needs of the homeless in accordance
6 with the amendment made by subsection (a).

7 (2) REVIEW OF APPLICATION.—Not later than
8 60 days after the date of receipt of an application
9 pursuant to paragraph (1), the Administrator and
10 the Secretary of Health and Human Services shall
11 jointly determine whether the use of the property de-
12 scribed in the application is a use for purposes of
13 meeting the needs of the homeless.

14 (3) COMPATIBILITY WITH MILITARY PUR-
15 POSES.—Before executing any instrument of modi-
16 fication of the deed of conveyance, the Administrator
17 and the Secretary shall request a review by the Chief
18 of the National Guard Bureau, in consultation with
19 the Secretary of the Army, to ensure that any modi-
20 fication of the use of the property described in the
21 application is compatible with the current and antici-
22 pated future use of the property for training mem-
23 bers of the National Guard and other military pur-
24 poses.

1 (4) MODIFICATION OF INSTRUMENT OF CON-
2 VEYANCE.—If the Chief of the National Guard Bu-
3 reau determines pursuant to the review under para-
4 graph (3) that the modification of the use of the
5 property described in the application is compatible
6 with the use of the property for training members of
7 the National Guard and other military purposes, the
8 Administrator shall execute and record in the appro-
9 priate office an instrument of modification of the
10 deed of conveyance executed pursuant to Public Law
11 85–236 in order to authorize such use of the prop-
12 erty described in the application. The instrument
13 shall be filed within 60 days of such determination
14 and include such additional terms and conditions as
15 the Administrator considers appropriate to protect
16 the interests of the United States.

17 **SEC. 2834. TRANSFER OF ADMINISTRATIVE JURISDICTION**

18 **OVER CERTAIN PARCELS OF FEDERAL LAND**

19 **IN ARLINGTON, VIRGINIA.**

20 (a) TRANSFER TO THE SECRETARY OF THE ARMY.—

21 (1) TRANSFER.—Administrative jurisdiction
22 over the parcel of Federal land described in para-
23 graph (2) is transferred from the Secretary of the
24 Interior to the Secretary of the Army.

1 (2) DESCRIPTION OF LAND.—The parcel of
2 Federal land referred to in paragraph (1) is the ap-
3 proximately 16.09-acre parcel of land in Arlington,
4 Virginia, as depicted on the map entitled “Arlington
5 National Cemetery, Memorial Ave–NPS Parcel” and
6 dated February 11, 2019.

7 (b) TRANSFER TO THE SECRETARY OF THE INTE-
8 RIOR.—

9 (1) TRANSFER.—Administrative jurisdiction
10 over the parcel of Federal land described in para-
11 graph (2) is transferred from the Secretary of the
12 Army to the Secretary of the Interior.

13 (2) DESCRIPTION OF LAND.—The parcel of
14 Federal land referred to in paragraph (1) is the ap-
15 proximately 1.04-acre parcel of land in Arlington,
16 Virginia, as depicted on the map entitled “Arlington
17 National Cemetery–Chaffee NPS Land Swap” and
18 dated October 31, 2018.

19 (c) LAND SURVEYS.—The exact acreage and legal de-
20 scription of a parcel of Federal land described in sub-
21 section (a)(2) or (b)(2) shall be determined by a survey
22 satisfactory to the Secretary of the Army and the Sec-
23 retary of the Interior.

24 (d) AUTHORITY TO CORRECT ERRORS.—The Sec-
25 retary of the Army and the Secretary of the Interior may

1 correct any clerical or typographical error in a map de-
2 scribed in subsection (a)(2) or (b)(2).

3 (e) TERMS AND CONDITIONS.—

4 (1) NO REIMBURSEMENT OR CONSIDER-
5 ATION.—A transfer by subsection (a)(1) or (b)(1)
6 shall be without reimbursement or consideration.

7 (2) CONTINUED RECREATIONAL ACCESS.—The
8 use of a bicycle trail or recreational access within a
9 parcel of Federal land described in subsection (a)(2)
10 or (b)(2) in which the use or access is authorized be-
11 fore the date of the enactment of this Act shall be
12 allowed to continue after the transfer of the applica-
13 ble parcel of Federal land by subsection (a)(1) or
14 (b)(1).

15 (3) MANAGEMENT OF PARCEL TRANSFERRED
16 TO SECRETARY OF THE ARMY.—

17 (A) IN GENERAL.—The parcel of Federal
18 land transferred to the Secretary of the Army
19 by subsection (a)(1) shall be administered by
20 the Secretary of the Army—

21 (i) as part of Arlington National Cem-
22 etery; and

23 (ii) in accordance with applicable law,
24 including—

25 (I) regulations; and

1 (II) section 2409 of title 38,
2 United States Code.

3 (B) MEMORANDUM OF UNDERSTANDING
4 ON OPERATION OF MAINTENANCE OF MEMO-
5 RIAL.—

6 (i) IN GENERAL.—The Secretary of
7 the Army shall seek to enter into a memo-
8 randum of understanding with the Women
9 in Military Service for America Memorial
10 Foundation, Inc., to define roles and re-
11 sponsibilities for the shared responsibility
12 and resources for operation and mainte-
13 nance of the Women in Military Service for
14 America Memorial and the surrounding
15 grounds.

16 (ii) ALLOCATION OF AMOUNTS.—The
17 Secretary of the Army may, pursuant to
18 the memorandum of understanding de-
19 scribed in clause (i), allocate amounts to
20 the foundation described in that clause to
21 support operation and maintenance of the
22 memorial described in that clause.

23 (4) MANAGEMENT OF PARCEL TRANSFERRED
24 TO SECRETARY OF THE INTERIOR.—The parcel of

1 Federal land transferred to the Secretary of the In-
2 terior by subsection (b)(1) shall be—

3 (A) included within the boundary of Ar-
4 lington House, The Robert E. Lee Memorial;
5 and

6 (B) administered by the Secretary of the
7 Interior—

8 (i) as part of the memorial referred to
9 in subparagraph (A); and

10 (ii) in accordance with applicable law
11 (including regulations).

12 **Subtitle D—Military Land**

13 **Withdrawals**

14 **SEC. 2841. PUBLIC NOTICE REGARDING UPCOMING PERI-**

15 **ODS OF SECRETARY OF THE NAVY MANAGE-**

16 **MENT OF SHARED USE AREA OF THE JOHN-**

17 **SON VALLEY OFF-HIGHWAY VEHICLE RECRE-**

18 **ATION AREA.**

19 (a) PUBLIC NOTICE REQUIRED.—Section 2942(b)(2)
20 of the Military Land Withdrawals Act of 2013 (title XXIX
21 of Public Law 113–66; 127 Stat. 1036) is amended by
22 adding at the end the following new subparagraph:

23 “(D) PUBLIC NOTICE.—Not later than one
24 year before the date on which a 30-day period
25 of Secretary of the Navy management of the

1 Shared Use Area commences, the Secretary of
2 the Navy, acting through the Resource Manage-
3 ment Group established pursuant to section
4 2944, shall notify the public of such date of
5 commencement and the intention of the Armed
6 Forces to use the Shared Use Area for military
7 training purposes. The Secretary of the Navy,
8 upon notice to the Secretary of the Interior,
9 may waive such public notice in the event of an
10 emergent military training requirement.”.

11 (b) APPLICATION OF AMENDMENT.—Subparagraph
12 (D) of section 2942(b)(2) of the Military Land With-
13 draws Act of 2013 (title XXIX of Public Law 113–66;
14 127 Stat. 1036), as added by subsection (a), shall apply
15 to periods of Secretary of the Navy management of the
16 Shared Use Area of the Johnson Valley Off-Highway Ve-
17 hicle Recreation Area under such section that commence
18 on or after January 1, 2021.

19 **Subtitle E—White Sands National**
20 **Park and White Sands Missile**
21 **Range**

22 **SEC. 2851. WHITE SANDS MISSILE RANGE LAND ENHANCE-**
23 **MENTS.**

24 (a) DEFINITIONS.—In this section:

1 (1) MAP.—The term “Map” means the map en-
2 titled “White Sands National Park Proposed Bound-
3 ary Revision & Transfer of Lands Between National
4 Park Service & Department of the Army”, numbered
5 142/136,271, and dated February 14, 2017.

6 (2) MILITARY MUNITIONS.—The term “military
7 munitions” has the meaning given the term in sec-
8 tion 101(e) of title 10, United States Code.

9 (3) MISSILE RANGE.—The term “missile
10 range” means the White Sands Missile Range, New
11 Mexico, administered by the Secretary of the Army.

12 (4) MONUMENT.—The term “Monument”
13 means the White Sands National Monument, New
14 Mexico, established by Presidential Proclamation
15 No. 2025 (54 U.S.C. 320301 note), dated January
16 18, 1933, and administered by the Secretary of the
17 Interior.

18 (5) MUNITIONS DEBRIS.—The term “munitions
19 debris” has the meaning given the term in volume
20 8 of the Department of Defense Manual Number
21 6055.09-M entitled “DoD Ammunitions and Explo-
22 sives Safety Standards” and dated February 29,
23 2008 (as in effect on the date of the enactment of
24 this Act).

1 (6) PARK.—The term “Park” means the White
2 Sands National Park established by subsection
3 (b)(1).

4 (7) PUBLIC LAND ORDER.—The term “Public
5 Land Order” means Public Land Order 833, dated
6 May 21, 1952 (17 Fed. Reg. 4822).

7 (8) STATE.—The term “State” means the State
8 of New Mexico.

9 (b) WHITE SANDS NATIONAL PARK.—

10 (1) ESTABLISHMENT.—To protect, preserve,
11 and restore its scenic, scientific, educational, nat-
12 ural, geological, historical, cultural, archaeological,
13 paleontological, hydrological, fish, wildlife, and rec-
14 reational values and to enhance visitor experiences,
15 there is established in the State the White Sands
16 National Park as a unit of the National Park Sys-
17 tem.

18 (2) ABOLISHMENT OF WHITE SANDS NATIONAL
19 MONUMENT.—

20 (A) ABOLISHMENT.—Due to the establish-
21 ment of the Park, the Monument is abolished.

22 (B) INCORPORATION.—The land and inter-
23 ests in land that comprise the Monument are
24 incorporated in, and shall be considered to be
25 part of, the Park.

1 (3) REFERENCES.—Any reference in a law,
2 map, regulation, document, paper, or other record of
3 the United States to the “White Sands National
4 Monument” shall be considered to be a reference to
5 the “White Sands National Park”.

6 (4) AVAILABILITY OF FUNDS.—Any funds avail-
7 able for the Monument shall be available for the
8 Park.

9 (5) ADMINISTRATION.—The Secretary of the
10 Interior shall administer the Park in accordance
11 with—

12 (A) this subsection; and

13 (B) the laws generally applicable to units
14 of the National Park System, including section
15 100101(a), chapter 1003, sections 100751(a),
16 100752, 100753, and 102101, and chapter
17 3201 of title 54, United States Code.

18 (6) WORLD HERITAGE LIST NOMINATION.—

19 (A) COUNTY CONCURRENCE.—The Sec-
20 retary of the Interior shall not submit a nomi-
21 nation for the Park to be included on the World
22 Heritage List of the United Nations Edu-
23 cational, Scientific and Cultural Organization
24 unless each county in which the Park is located
25 concurs in the nomination.

1 (B) ARMY NOTIFICATION.—Before submit-
2 ting a nomination for the Park to be included
3 on the World Heritage List of the United Na-
4 tions Educational, Scientific and Cultural Orga-
5 nization, the Secretary of the Interior shall no-
6 tify the Secretary of the Army of the intent of
7 the Secretary of the Interior to nominate the
8 Park.

9 (7) EFFECT.—Nothing in this subsection af-
10 fects—

11 (A) valid existing rights (including water
12 rights);

13 (B) permits or contracts issued by the
14 Monument;

15 (C) existing agreements, including agree-
16 ments with the Department of Defense;

17 (D) the jurisdiction of the Department of
18 Defense regarding the restricted airspace above
19 the Park; or

20 (E) the airshed classification of the Park
21 under the Clean Air Act (42 U.S.C. 7401 et
22 seq.).

23 (c) MODIFICATION OF BOUNDARIES OF WHITE
24 SANDS NATIONAL PARK AND WHITE SANDS MISSILE
25 RANGE.—

1 (1) TRANSFERS OF ADMINISTRATIVE JURISDIC-
2 TION.—

3 (A) TRANSFER OF ADMINISTRATIVE JURIS-
4 DICTION TO THE SECRETARY OF THE INTE-
5 RIOR.—

6 (i) IN GENERAL.—Administrative ju-
7 risdiction over the land described in clause
8 (ii) is transferred from the Secretary of the
9 Army to the Secretary of the Interior.

10 (ii) DESCRIPTION OF LAND.—The
11 land referred to in clause (i) is—

12 (I) the approximately 2,826 acres
13 of land identified as “To NPS, lands
14 inside current boundary” on the Map;
15 and

16 (II) the approximately 5,766
17 acres of land identified as “To NPS,
18 new additions” on the Map.

19 (B) TRANSFER OF ADMINISTRATIVE JURIS-
20 DICTION TO THE SECRETARY OF THE ARMY.—

21 (i) IN GENERAL.—Administrative ju-
22 risdiction over the land described in clause
23 (ii) is transferred from the Secretary of the
24 Interior to the Secretary of the Army.

1 (ii) DESCRIPTION OF LAND.—The
2 land referred to in clause (i) is the ap-
3 proximately 3,737 acres of land identified
4 as “To DOA” on the Map.

5 (2) BOUNDARY MODIFICATIONS.—

6 (A) PARK.—

7 (i) IN GENERAL.—The boundary of
8 the Park is revised to reflect the boundary
9 depicted on the Map.

10 (ii) MAP.—

11 (I) IN GENERAL.—The Secretary
12 of the Interior, in coordination with
13 the Secretary of the Army, shall pre-
14 pare and keep on file for public in-
15 spection in the appropriate office of
16 the Secretary of the Interior a map
17 and a legal description of the revised
18 boundary of the Park.

19 (II) EFFECT.—The map and
20 legal description under subclause (I)
21 shall have the same force and effect
22 as if included in this section, except
23 that the Secretary of the Interior may
24 correct clerical and typographical er-
25 rors in the map and legal description.

1 (iii) BOUNDARY SURVEY.—As soon as
2 practicable after the date of the establish-
3 ment of the Park and subject to the avail-
4 ability of funds, the Secretary of the Inte-
5 rior shall complete an official boundary
6 survey of the Park.

7 (B) MISSILE RANGE.—

8 (i) IN GENERAL.—The boundary of
9 the missile range and the Public Land
10 Order are modified to exclude the land
11 transferred to the Secretary of the Interior
12 under paragraph (1)(A) and to include the
13 land transferred to the Secretary of the
14 Army under paragraph (1)(B).

15 (ii) MAP.—The Secretary of the Inte-
16 rior shall prepare a map and legal descrip-
17 tion depicting the revised boundary of the
18 missile range.

19 (C) CONFORMING AMENDMENT.—Section
20 2854 of the National Defense Authorization Act
21 for Fiscal Year 1997 (Public Law 104–201; 54
22 U.S.C. 320301 note) is repealed.

23 (3) ADMINISTRATION.—

24 (A) PARK.—The Secretary of the Interior
25 shall administer the land transferred under

1 paragraph (1)(A) in accordance with laws (in-
2 cluding regulations) applicable to the Park.

3 (B) MISSILE RANGE.—Subject to subpara-
4 graph (C), the Secretary of the Army shall ad-
5 minister the land transferred to the Secretary
6 of the Army under paragraph (1)(B) as part of
7 the missile range.

8 (C) INFRASTRUCTURE; RESOURCE MAN-
9 AGEMENT.—

10 (i) RANGE ROAD 7.—

11 (I) INFRASTRUCTURE MANAGE-
12 MENT.—To the maximum extent prac-
13 ticable, in planning, constructing, and
14 managing infrastructure on the land
15 described in subclause (III), the Sec-
16 retary of the Army shall apply low-im-
17 pact development techniques and
18 strategies to prevent impacts within
19 the missile range and the Park from
20 stormwater runoff from the land de-
21 scribed in that subclause.

22 (II) RESOURCE MANAGEMENT.—
23 The Secretary of the Army shall—

24 (aa) manage the land de-
25 scribed in subclause (III) in a

1 manner consistent with the pro-
2 tection of natural and cultural re-
3 sources within the missile range
4 and the Park and in accordance
5 with section 101(a)(1)(B) of the
6 Sikes Act (16 U.S.C.
7 670a(a)(1)(B)), division A of
8 subtitle III of title 54, United
9 States Code, and the Native
10 American Graves Protection and
11 Repatriation Act (25 U.S.C.
12 3001 et seq.); and

13 (bb) include the land de-
14 scribed in subclause (III) in the
15 integrated natural and cultural
16 resource management plan for
17 the missile range.

18 (III) DESCRIPTION OF LAND.—
19 The land referred to in subclauses (I)
20 and (II) is the land that is transferred
21 to the administrative jurisdiction of
22 the Secretary of the Army under
23 paragraph (1)(B) and located in the
24 area east of Range Road 7 in—

1 (aa) T. 17 S., R. 5 E., sec.
2 31;
3 (bb) T. 18 S., R. 5 E.; and
4 (cc) T. 19 S., R. 5 E., sec.
5 5.

6 (ii) FENCE.—

7 (I) IN GENERAL.—The Secretary
8 of the Army shall continue to allow
9 the Secretary of the Interior to main-
10 tain the fence shown on the Map until
11 such time as the Secretary of the In-
12 terior determines that the fence is un-
13 necessary for the management of the
14 Park.

15 (II) REMOVAL.—If the Secretary
16 of the Interior determines that the
17 fence is unnecessary for the manage-
18 ment of the Park under subclause (I),
19 the Secretary of the Interior shall
20 promptly remove the fence at the ex-
21 pense of the Department of the Inte-
22 rior.

23 (D) RESEARCH.—The Secretary of the
24 Army and the Secretary of the Interior may
25 enter into an agreement to allow the Secretary

1 of the Interior to conduct certain research in
2 the area identified as “Cooperative Use Re-
3 search Area” on the Map.

4 (E) MILITARY MUNITIONS AND MUNITIONS
5 DEBRIS.—

6 (i) RESPONSE ACTION.—With respect
7 to any Federal liability, the Secretary of
8 the Army shall remain responsible for any
9 response action addressing military muni-
10 tions or munitions debris on the land
11 transferred under paragraph (1)(A) to the
12 same extent as on the day before the date
13 of the enactment of this Act.

14 (ii) INVESTIGATION OF MILITARY MU-
15 NITIONS AND MUNITIONS DEBRIS.—

16 (I) IN GENERAL.—The Secretary
17 of the Interior may request that the
18 Secretary of the Army conduct 1 or
19 more investigations of military muni-
20 tions or munitions debris on any land
21 transferred under paragraph (1)(A).

22 (II) ACCESS.—The Secretary of
23 the Interior shall give access to the
24 Secretary of the Army to the land cov-
25 ered by a request under subclause (I)

1 for the purposes of conducting the 1
2 or more investigations under that sub-
3 clause.

4 (III) LIMITATION.—An investiga-
5 tion conducted under this clause shall
6 be subject to available appropriations.

7 (iii) APPLICABLE LAW.—Any activities
8 undertaken under this subparagraph shall
9 be carried out in accordance with—

10 (I) the Comprehensive Environ-
11 mental Response, Compensation, and
12 Liability Act of 1980 (42 U.S.C. 9601
13 et seq.);

14 (II) the purposes for which the
15 Park was established; and

16 (III) any other applicable law.

17 **Subtitle F—Other Matters**

18 **SEC. 2861. INSTALLATION AND MAINTENANCE OF FIRE EX-** 19 **TINGUISHERS IN DEPARTMENT OF DEFENSE** 20 **FACILITIES.**

21 The Secretary of Defense shall ensure that portable
22 fire extinguishers are installed and maintained in all De-
23 partment of Defense facilities, in accordance with require-
24 ments of national model fire codes developed by the Na-
25 tional Fire Protection Association and the International

1 Code Council that require redundancy and extinguishers
2 throughout occupancies regardless of the presence of other
3 suppression systems or alarm systems.

4 **SEC. 2862. DEFINITION OF COMMUNITY INFRASTRUCTURE**
5 **FOR PURPOSES OF MILITARY BASE REUSE**
6 **STUDIES AND COMMUNITY PLANNING AS-**
7 **SISTANCE.**

8 Paragraph (4) of section 2391(e) of title 10, United
9 States Code, is amended to read as follows:

10 “(4)(A) The term ‘community infrastructure’
11 means a project or facility described in subpara-
12 graph (B) that—

13 “(i) is located off of a military installation;

14 and

15 “(ii) is—

16 “(I) owned by a State or local govern-
17 ment; or

18 “(II) a not-for-profit, member-owned
19 utility service.

20 “(B) A project or facility described in this sub-
21 paragraph is any of the following:

22 “(i) Any transportation project.

23 “(ii) A school, hospital, police, fire, emer-
24 gency response, or other community support fa-
25 cility.

1 “(iii) A water, waste-water, telecommuni-
2 cations, electric, gas, or other utility infrastruc-
3 ture project.”.

4 **SEC. 2863. TEMPORARY AUTHORITY FOR ACCEPTANCE AND**
5 **USE OF CONTRIBUTIONS FOR CERTAIN DE-**
6 **SIGN AND CONSTRUCTION PROJECTS MUTU-**
7 **ALLY BENEFICIAL TO THE DEPARTMENT OF**
8 **DEFENSE AND THE REPUBLIC OF KOREA.**

9 (a) ACCEPTANCE OF CONTRIBUTIONS.—

10 (1) IN GENERAL.—The Secretary concerned
11 may accept cash contributions from the Republic of
12 Korea to carry out the following:

13 (A) The design and construction of the
14 Black Hat Intelligence Fusion Center, Camp
15 Humphreys, Republic of Korea.

16 (B) The design of the Korean Air and
17 Space Operations and Intelligence Center, Osan
18 Air Base, Republic of Korea.

19 (2) COST-SHARING AGREEMENT.—In the event
20 the contribution under paragraph (1) is insufficient
21 to cover the entire cost of the activity authorized
22 under that paragraph, the Secretary concerned shall
23 enter into a cost-sharing agreement with the Repub-
24 lic of Korea detailing the portion of the authorized
25 activity that is to be funded with the contribution

1 and identifying sufficient other funds to undertake
2 the entire authorized activity.

3 (b) ESTABLISHMENT OF ACCOUNT.—Contributions
4 accepted under subsection (a) shall be placed in an ac-
5 count established by the Secretary concerned and shall re-
6 main available until expended as provided in such sub-
7 section.

8 (c) NOTICE.—

9 (1) IN GENERAL.—Not later than 14 days be-
10 fore carrying out a project using contributions ac-
11 cepted under subsection (a) for which the estimated
12 cost of the project will exceed the thresholds pre-
13 scribed by section 2805 of title 10, United States
14 Code, the Secretary concerned shall submit to the
15 congressional defense committees, the Committee on
16 Foreign Relations of the Senate, and the Committee
17 on Foreign Affairs of the House of Representa-
18 tives—

19 (A) a written notice of the decision to
20 carry out the project;

21 (B) a justification for the project; and

22 (C) the estimated cost of the project.

23 (2) NOTICE FOR PROJECTS THAT REQUIRE
24 COST SHARING.—Not later than 14 days before car-
25 rying out a project using contributions accepted

1 under subsection (a) for which a cost-sharing agree-
2 ment is entered into under paragraph (2) of such
3 subsection, the Secretary concerned shall submit to
4 the congressional defense committees in an elec-
5 tronic medium pursuant to section 480 of title 10,
6 United States Code—

7 (A) a written notice of the acceptance of
8 the contributions for the project;

9 (B) a copy of the Department of Defense
10 Form 1391 for the project;

11 (C) the estimated cost of the project; and

12 (D) details on the cost-sharing agreement
13 with the Republic of Korea.

14 (d) EXPIRATION OF PROJECT AUTHORITY.—

15 (1) IN GENERAL.—The authority to accept con-
16 tributions and carry out projects under this section
17 expires on September 30, 2030.

18 (2) CONTINUATION OF PROJECTS.—The expira-
19 tion of authority under paragraph (1) does not pre-
20 vent the continuation of any project commenced be-
21 fore the date specified in that paragraph.

22 (e) MUTUALLY BENEFICIAL.—A project described in
23 subsection (a) shall be considered to be mutually beneficial
24 if—

1 any shortcomings in infrastructure, joint operations, joint
2 coordination, and security that would result from a loss
3 of power at the installation.

4 (b) REPORT.—Not later than June 1, 2020, the Sec-
5 retary of Defense shall submit to the congressional defense
6 committees a report that contains a discussion of lessons
7 learned from black start exercises conducted by the Sec-
8 retary of Defense during the period beginning with the
9 first such exercise and ending on December 31, 2019, in-
10 cluding the three most recurring issues identified as a re-
11 sult of such exercises with respect to infrastructure, joint
12 coordination efforts, and security.

13 (c) BLACK START EXERCISE DEFINED.—In this sec-
14 tion, the term “black start exercise” means, with respect
15 to a military installation, an exercise in which commercial
16 utility power at the installation is dropped before backup
17 generation assets start, for the purpose of—

18 (1) testing the ability of the backup systems to
19 start, transfer the load, and carry the load until
20 commercial power is restored;

21 (2) aligning stakeholders on critical energy re-
22 quirements to meet mission requirements;

23 (3) validating mission operation plans, such as
24 continuity of operations plans;

- 1 (4) identifying infrastructure interdependencies;
2 and
3 (5) verifying backup electric power system per-
4 formance.

5 **SEC. 2865. PILOT PROGRAM TO EXTEND SERVICE LIFE OF**
6 **ROADS AND RUNWAYS UNDER THE JURISDIC-**
7 **TION OF THE SECRETARY OF DEFENSE.**

8 (a) PILOT PROGRAM AUTHORIZED.—The Secretary
9 of Defense, in consultation with the Secretary of Trans-
10 portation, may carry out a pilot program to design, build,
11 and test technologies, techniques, and materials in order
12 to extend the service life of roads and runways under the
13 jurisdiction of the Secretary of Defense.

14 (b) SCOPE.—The pilot program under subsection (a)
15 shall include the following:

16 (1) The design, testing, and assembly of tech-
17 nologies and systems suitable for pavement applica-
18 tions.

19 (2) Research, development, and testing of pave-
20 ment materials for use in different geographic areas
21 in the United States.

22 (3) The design and procurement of platforms
23 and equipment to test the performance, cost, feasi-
24 bility, and effectiveness of the technologies, systems,
25 and materials described in paragraphs (1) and (2).

1 (c) AWARD OF CONTRACTS OR GRANTS.—

2 (1) IN GENERAL.—The Secretary of Defense
3 may carry out the pilot program under subsection
4 (a) through the award of contracts or grants for the
5 designing, building, or testing of technologies, tech-
6 niques, and materials under the pilot program.

7 (2) MERIT-BASED SELECTION.—Any award of a
8 contract or grant under the pilot program under
9 subsection (a) shall be made using merit-based selec-
10 tion procedures.

11 (d) REPORT.—

12 (1) IN GENERAL.—Not later than two years
13 after the commencement of the pilot program under
14 subsection (a), the Secretary of Defense shall submit
15 to the congressional defense committees a report on
16 the pilot program.

17 (2) CONTENTS.—The report under paragraph
18 (1) with respect to the pilot program shall include
19 the following:

20 (A) An assessment of the effectiveness of
21 activities under the pilot program in improving
22 the service life of roads and runways under the
23 jurisdiction of the Secretary.

24 (B) An analysis of the potential lifetime
25 cost savings and reduction in energy demands

1 associated with the extended service life of such
2 roads and runways.

3 (e) **TERMINATION OF AUTHORITY.**—The pilot pro-
4 gram under subsection (a) shall terminate on September
5 30, 2024.

6 **SEC. 2866. RESTRICTIONS ON REHABILITATION OF OVER-**
7 **THE-HORIZON BACKSCATTER RADAR SYSTEM**
8 **RECEIVING STATION, MODOC COUNTY, CALI-**
9 **FORNIA.**

10 (a) **RESTRICTIONS.**—Except as provided in sub-
11 section (b), the Secretary of the Air Force may not use
12 any funds or resources of the Department of the Air Force
13 to carry out the rehabilitation of the obsolete Over-the-
14 Horizon Backscatter Radar System receiving station lo-
15 cated in Modoc National Forest in the State of California.

16 (b) **EXCEPTION FOR REMOVAL OF PERIMETER**
17 **FENCE.**—Notwithstanding subsection (a), the Secretary
18 of the Air Force may use funds and resources of the De-
19 partment of the Air Force—

20 (1) to remove the perimeter fence, which was
21 treated with an arsenic-based weatherproof coating,
22 surrounding the Over-the-Horizon Backscatter
23 Radar System receiving station referred to in such
24 subsection; and

1 (2) to carry out the mitigation of soil contami-
2 nation associated with such fence.

3 (c) SUNSET.—The restrictions in subsection (a) shall
4 terminate on the date of the enactment of the National
5 Defense Authorization Act for Fiscal Year 2025.

6 **SEC. 2867. DESIGNATION OF SUMPTER SMITH JOINT NA-**
7 **TIONAL GUARD BASE.**

8 (a) DESIGNATION.—The Sumpter Smith Air Na-
9 tional Guard Base in Birmingham, Alabama, shall after
10 the date of the enactment of this Act be known and des-
11 ignated as the “Sumpter Smith Joint National Guard
12 Base”.

13 (b) REFERENCE.—Any reference in any law, regula-
14 tion, map, document, paper, or other record of the United
15 States to the installation referred to in subsection (a) shall
16 be considered to be a reference to the Sumpter Smith
17 Joint National Guard Base.

18 **SEC. 2868. SANTA YNEZ BAND OF CHUMASH INDIANS LAND**
19 **AFFIRMATION.**

20 (a) SHORT TITLE.—This section may be cited as the
21 “Santa Ynez Band of Chumash Indians Land Affirmation
22 Act of 2019”.

23 (b) FINDINGS.—Congress finds the following:

24 (1) On October 13, 2017, the General Council
25 of the Santa Ynez Band of Chumash Indians voted

1 to approve the Memorandum of Agreement between
2 the County of Santa Barbara and the Santa Ynez
3 Band of Chumash Indians regarding the approxi-
4 mately 1,427.28 acres of land, commonly known as
5 Camp 4, and authorized the Tribal Chairman to sign
6 the Memorandum of Agreement.

7 (2) On October 31, 2017, the Board of Super-
8 visors for the County of Santa Barbara approved the
9 Memorandum of Agreement on Camp 4 and author-
10 ized the Chair to sign the Memorandum of Agree-
11 ment.

12 (3) The Secretary of the Interior approved the
13 Memorandum of Agreement pursuant to section
14 2103 of the Revised Statutes (25 U.S.C. 81).

15 (c) LAND TO BE TAKEN INTO TRUST.—

16 (1) IN GENERAL.—The approximately 1,427.28
17 acres of land in Santa Barbara County, CA de-
18 scribed in paragraph (3), is hereby taken into trust
19 for the benefit of the Tribe, subject to valid existing
20 rights, contracts, and management agreements re-
21 lated to easements and rights-of-way.

22 (2) ADMINISTRATION.—

23 (A) ADMINISTRATION.—The land described
24 in paragraph (3) shall be a part of the Santa
25 Ynez Indian Reservation and administered in

1 accordance with the laws and regulations gen-
2 erally applicable to the land held in trust by the
3 United States for an Indian tribe.

4 (B) EFFECT.—For purposes of certain
5 California State laws (including the California
6 Land Conservation Act of 1965, Government
7 Code Section 51200, et seq.), placing the land
8 described in paragraph (3) into trust shall re-
9 move any restrictions on the property pursuant
10 to California Government Code Section 51295
11 or any other provision of such Act.

12 (3) LEGAL DESCRIPTION OF LANDS TRANS-
13 FERRED.—The lands to be taken into trust for the
14 benefit of the Tribe pursuant to this Act are de-
15 scribed as follows:

16 Legal Land Description/Site Location: Real
17 property in the unincorporated area of the County of
18 Santa Barbara, State of California, described as fol-
19 lows: PARCEL 1: (APN: 141-121-51 AND POR-
20 TION OF APN 141-140-10) LOTS 9 THROUGH
21 18, INCLUSIVE, OF TRACT 18, IN THE COUN-
22 TY OF SANTA BARBARA, STATE OF CALI-
23 FORNIA, AS SHOWN ON THE MAP SHOWING
24 THE SUBDIVISIONS OF THE CANADA DE
25 LOS PINOS OR COLLEGE RANCHO, FILED IN

1 RACK 3, AS MAP 4 IN THE OFFICE OF THE
2 COUNTY RECORDER OF SAID COUNTY. THIS
3 LEGAL IS MADE PURSUANT TO THAT CER-
4 TAIN CERTIFICATE OF COMPLIANCE RE-
5 CORDED DECEMBER 5, 2001 AS INSTRU-
6 MENT NO. 01-105580 OF OFFICIAL
7 RECORDS. PARCEL 2: (PORTION OF APN:
8 141-140-10) LOTS 1 THROUGH 12, INCLU-
9 SIVE, OF TRACT 24, IN THE COUNTY OF
10 SANTA BARBARA, STATE OF CALIFORNIA,
11 AS SHOWN ON THE MAP SHOWING THE
12 SUBDIVISIONS OF THE CANADA DE LOS
13 PINOS OR COLLEGE RANCHO, FILED IN
14 RACK 3, AS MAP 4 IN THE OFFICE OF THE
15 COUNTY RECORDER OF SAID COUNTY. THIS
16 LEGAL IS MADE PURSUANT TO THAT CER-
17 TAIN CERTIFICATE OF COMPLIANCE RE-
18 CORDED DECEMBER 5, 2001 AS INSTRU-
19 MENT NO. 01-105581 OF OFFICIAL
20 RECORDS. PARCEL 3: (PORTIONS OF APNS:
21 141-230-23 AND 141-140-10) LOTS 19 AND 20
22 OF TRACT 18 AND THAT PORTION OF LOTS
23 1, 2, 7, 8, 9, 10, AND 15 THROUGH 20, INCLU-
24 SIVE, OF TRACT 16, IN THE COUNTY OF
25 SANTA BARBARA, STATE OF CALIFORNIA,

1 AS SHOWN ON THE MAP SHOWING THE
2 SUBDIVISIONS OF THE CANADA DE LOS
3 PINOS OR COLLEGE RANCHO, FILED IN
4 RACK 3, AS MAP 4 IN THE OFFICE OF THE
5 COUNTY RECORDER OF SAID COUNTY,
6 THAT LIES NORTHEASTERLY OF THE
7 NORTHEASTERLY LINE OF THE LAND
8 GRANTED TO THE STATE OF CALIFORNIA
9 BY AN EXECUTOR'S DEED RECORDED
10 APRIL 2, 1968 IN BOOK 2227, PAGE 136 OF
11 OFFICIAL RECORDS OF SAID COUNTY. THIS
12 LEGAL IS MADE PURSUANT TO THAT CER-
13 TAIN CERTIFICATE OF COMPLIANCE RE-
14 CORDED DECEMBER 5, 2001 AS INSTRU-
15 MENT NO. 01-105582 OF OFFICIAL
16 RECORDS. PARCEL 4: (APN: 141-240-02 AND
17 PORTION OF APN: 141-140-10) LOTS 1
18 THROUGH 12, INCLUSIVE, OF TRACT 25, IN
19 THE COUNTY OF SANTA BARBARA, STATE
20 OF CALIFORNIA, AS SHOWN ON THE MAP
21 SHOWING THE SUBDIVISIONS OF THE CAN-
22 ADA DE LOS PINOS OR COLLEGE RANCHO,
23 FILED IN RACK 3, AS MAP 4 IN THE OFFICE
24 OF THE COUNTY RECORDER OF SAID
25 COUNTY. THIS LEGAL IS MADE PURSUANT

1 TO THAT CERTAIN CERTIFICATE OF COM-
2 PLIANCE RECORDED DECEMBER 5, 2001 AS
3 INSTRUMENT NO. 01-105583 OF OFFICIAL
4 RECORDS. PARCEL 5: (PORTION OF APN:
5 141-230-23) THAT PORTION OF LOTS 3 AND
6 6 OF TRACT 16, IN THE COUNTY OF SANTA
7 BARBARA, STATE OF CALIFORNIA, AS
8 SHOWN ON THE MAP SHOWING THE SUB-
9 DIVISIONS OF THE CANADA DE LOS PINOS
10 OR COLLEGE RANCHO, FILED IN RACK 3, AS
11 MAP 4 IN THE OFFICE OF THE COUNTY RE-
12 CORDER OF SAID COUNTY, THAT LIES
13 NORTHEASTERLY OF THE NORTHEAST-
14 ERLY LINE OF THE LAND GRANTED TO
15 THE STATE OF CALIFORNIA BY AN EXECU-
16 TOR'S DEED RECORDED APRIL 2, 1968 IN
17 BOOK 2227, PAGE 136 OF OFFICIAL
18 RECORDS OF SAID COUNTY. THIS LEGAL IS
19 MADE PURSUANT TO THAT CERTAIN CER-
20 TIFICATE OF COMPLIANCE RECORDED DE-
21 CEMBER 5, 2001 AS INSTRUMENT NO. 01-
22 105584 OF OFFICIAL RECORDS.

23 (4) RULES OF CONSTRUCTION.—Nothing in
24 this section shall—

1 (A) enlarge, impair, or otherwise affect any
2 right or claim of the Tribe to any land or inter-
3 est in land that is in existence before the date
4 of the enactment of this Act;

5 (B) affect any water right of the Tribe in
6 existence before the date of the enactment of
7 this Act; or

8 (C) terminate or limit any access in any
9 way to any right-of-way or right-of-use issued,
10 granted, or permitted before the date of the en-
11 actment of this Act.

12 (5) RESTRICTED USE OF TRANSFERRED
13 LANDS.—The Tribe may not conduct, on the land
14 described in paragraph (3) taken into trust for the
15 Tribe pursuant to this section, gaming activities—

16 (A) as a matter of claimed inherent au-
17 thority; or

18 (B) under any Federal law, including the
19 Indian Gaming Regulatory Act (25 U.S.C.
20 2701 et seq.) and regulations promulgated by
21 the Secretary or the National Indian Gaming
22 Commission under that Act.

23 (6) DEFINITIONS.—For the purposes of this
24 subsection:

1 (A) SECRETARY.—The term “Secretary”
2 means the Secretary of the Interior.

3 (B) TRIBE.—The term “Tribe” means the
4 Santa Ynez Band of Chumash Mission Indians.

5 **SEC. 2869. LANDS TO BE TAKEN INTO TRUST AS PART OF**
6 **THE RESERVATION OF THE LYTTON**
7 **RANCHERIA.**

8 (a) FINDINGS.—Congress finds the following:

9 (1) The Lytton Rancheria of California is a fed-
10 erally recognized Indian tribe that lost its homeland
11 after its relationship to the United States was un-
12 justly and unlawfully terminated in 1958. The Tribe
13 was restored to Federal recognition in 1991, but the
14 conditions of its restoration have prevented it from
15 regaining a homeland on its original lands.

16 (2) Congress needs to take action to reverse
17 historic injustices that befell the Tribe and that have
18 prevented it from regaining a viable homeland for its
19 people.

20 (3) Prior to European contact there were as
21 many as 350,000 Indians living in what is now the
22 State of California. By the turn of the 19th century,
23 that number had been reduced to approximately
24 15,000 individuals, many of them homeless and liv-
25 ing in scattered bands and communities.

1 (4) The Lytton Rancheria's original homeland
2 was purchased by the United States in 1926 pursu-
3 ant to congressional authority designed to remedy
4 the unique tragedy that befell the Indians of Cali-
5 fornia and provide them with reservations called
6 Rancherias to be held in trust by the United States.

7 (5) After the Lytton Rancheria lands were pur-
8 chased by the United States, the Tribe settled on
9 the land and sustained itself for several decades by
10 farming and ranching.

11 (6) By the mid-1950s, Federal Indian policy
12 had shifted back towards a policy of terminating the
13 Federal relationship with Indian tribes. In 1958,
14 Congress enacted the Rancheria Act of 1958 (72
15 Stat. 619), which slated 41 Rancherias in California,
16 including the Lytton Rancheria, for termination
17 after certain conditions were met.

18 (7) On August 1, 1961, the Federal Govern-
19 ment terminated its relationship with the Lytton
20 Rancheria. This termination was illegal because the
21 conditions for termination under the Rancheria Act
22 had never been met. After termination was imple-
23 mented, the Tribe lost its lands and was left without
24 any means of supporting itself.

1 (8) In 1987, the Tribe joined three other tribes
2 in a lawsuit against the United States challenging
3 the illegal termination of their Rancherias. A Stipu-
4 lated Judgment in the case, *Scotts Valley Band of*
5 *Pomo Indians of the Sugar Bowl Rancheria v. United*
6 *States*, No. C-86-3660 (N.D.Cal. March 22, 1991),
7 restored the Lytton Rancheria to its status as a fed-
8 erally recognized Indian tribe.

9 (9) The Stipulated Judgment provides that the
10 Lytton Rancheria would have the “individual and
11 collective status and rights” which it had prior to its
12 termination and expressly contemplated the acquisi-
13 tion of trust lands for the Lytton Rancheria.

14 (10) The Stipulated Judgment contains provi-
15 sions, included at the request of the local county
16 governments and neighboring landowners, that pro-
17 hibit the Lytton Rancheria from exercising its full
18 Federal rights on its original homeland in the Alex-
19 ander Valley.

20 (11) In 2000, approximately 9.5 acres of land
21 in San Pablo, California, was placed in trust status
22 for the Lytton Rancheria for economic development
23 purposes.

24 (12) The Tribe has since acquired, from willing
25 sellers at fair market value, property in Sonoma

1 County near the Tribe's historic Rancheria. This
2 property, which the Tribe holds in fee status, is suit-
3 able for a new homeland for the Tribe.

4 (13) On a portion of the land to be taken into
5 trust, which portion totals approximately 124.12
6 acres, the Tribe plans to build housing for its mem-
7 bers and governmental and community facilities.

8 (14) A portion of the land to be taken into
9 trust is being used for viticulture, and the Tribe in-
10 tends to develop more of the lands to be taken into
11 trust for viticulture. The Tribe's investment in the
12 ongoing viticulture operation has reinvigorated the
13 vineyards, which are producing high-quality wines.
14 The Tribe is operating its vineyards on a sustainable
15 basis and is working toward certification of sustain-
16 ability.

17 (15) No gaming shall be conducted on the lands
18 to be taken into trust by this section.

19 (16) No gaming shall be conducted on any
20 lands taken into trust on behalf of the Tribe in
21 Sonoma County after the date of the enactment of
22 this Act.

23 (17) By directing that these lands be taken into
24 trust, the United States will ensure that the Lytton
25 Rancheria will finally have a permanently protected

1 homeland on which the Tribe can once again live
2 communally and plan for future generations. This
3 action is necessary to fully restore the Tribe to the
4 status it had before it was wrongfully terminated in
5 1961.

6 (18) The Tribe and County of Sonoma have en-
7 tered into a Memorandum of Agreement as amended
8 in 2018 in which the County agrees to the lands in
9 the County being taken into trust for the benefit of
10 the Tribe in consideration for commitments made by
11 the Tribe.

12 (b) DEFINITIONS.—For the purpose of this section,
13 the following definitions apply:

14 (1) COUNTY.—The term “County” means
15 Sonoma County, California.

16 (2) SECRETARY.—The term “Secretary” means
17 the Secretary of the Interior.

18 (3) TRIBE.—The term “Tribe” means the
19 Lytton Rancheria of California.

20 (c) LANDS TO BE TAKEN INTO TRUST.—

21 (1) IN GENERAL.—The land owned by the
22 Tribe and generally depicted on the map titled
23 “Lytton Fee Owned Property to be Taken into
24 Trust” and dated May 1, 2015, is hereby taken into
25 trust for the benefit of the Tribe, subject to valid ex-

1 isting rights, contracts, and management agreements
2 related to easements and rights-of-way.

3 (2) LANDS TO BE MADE PART OF THE RES-
4 ERVATION.—Lands taken into trust under para-
5 graph (1) shall be part of the Tribe’s reservation
6 and shall be administered in accordance with the
7 laws and regulations generally applicable to property
8 held in trust by the United States for an Indian
9 tribe.

10 (d) GAMING.—

11 (1) LANDS TAKEN INTO TRUST UNDER THIS
12 SECTION.—Lands taken into trust for the benefit of
13 the Tribe under subsection (c) shall not be eligible
14 for gaming under the Indian Gaming Regulatory Act
15 (25 U.S.C. 2701 et seq.).

16 (2) OTHER LANDS TAKEN INTO TRUST.—Lands
17 taken into trust for the benefit of the Tribe in
18 Sonoma County after the date of the enactment of
19 this Act shall not be eligible for gaming under the
20 Indian Gaming Regulatory Act (25 U.S.C. 2701 et
21 seq.).

22 (e) APPLICABILITY OF CERTAIN LAW.—Notwith-
23 standing any other provision of law, the Memorandum of
24 Agreement entered into by the Tribe and the County con-
25 cerning taking land in the County into trust for the benefit

1 of the Tribe, which was approved by the County Board
2 of Supervisors on March 10, 2015, and any addenda and
3 supplement or amendment thereto, is not subject to review
4 or approval of the Secretary in order to be effective, in-
5 cluding review or approval under section 2103 of the Re-
6 vised Statutes (25 U.S.C. 81).

7 **SEC. 2870. LITTLE SHELL TRIBE OF CHIPPEWA INDIANS OF**
8 **MONTANA.**

9 (a) FINDINGS.—Congress finds that—

10 (1) the Little Shell Tribe of Chippewa Indians
11 is a political successor to signatories of the Pembina
12 Treaty of 1863, under which a large area of land in
13 the State of North Dakota was ceded to the United
14 States;

15 (2) the Turtle Mountain Band of Chippewa of
16 North Dakota and the Chippewa-Cree Tribe of the
17 Rocky Boy's Reservation of Montana, which also are
18 political successors to the signatories of the Pembina
19 Treaty of 1863, have been recognized by the Federal
20 Government as distinct Indian tribes;

21 (3) the members of the Little Shell Tribe con-
22 tinue to live in the State of Montana, as their ances-
23 tors have for more than 100 years since ceding land
24 in the State of North Dakota as described in para-
25 graph (1);

1 (4) in the 1930s and 1940s, the Tribe repeat-
2 edly petitioned the Federal Government for reorga-
3 nization under the Act of June 18, 1934 (25 U.S.C.
4 5101 et seq.) (commonly known as the “Indian Re-
5 organization Act”);

6 (5) Federal agents who visited the Tribe and
7 Commissioner of Indian Affairs John Collier at-
8 tested to the responsibility of the Federal Govern-
9 ment for the Tribe and members of the Tribe, con-
10 cluding that members of the Tribe are eligible for,
11 and should be provided with, trust land, making the
12 Tribe eligible for reorganization under the Act of
13 June 18, 1934 (25 U.S.C. 5101 et seq.) (commonly
14 known as the “Indian Reorganization Act”);

15 (6) due to a lack of Federal appropriations dur-
16 ing the Depression, the Bureau of Indian Affairs
17 lacked adequate financial resources to purchase land
18 for the Tribe, and the members of the Tribe were
19 denied the opportunity to reorganize;

20 (7) in spite of the failure of the Federal Gov-
21 ernment to appropriate adequate funding to secure
22 land for the Tribe as required for reorganization
23 under the Act of June 18, 1934 (25 U.S.C. 5101 et
24 seq.) (commonly known as the “Indian Reorganiza-
25 tion Act”), the Tribe continued to exist as a sepa-

1 rate community, with leaders exhibiting clear polit-
2 ical authority;

3 (8) the Tribe, together with the Turtle Moun-
4 tain Band of Chippewa of North Dakota and the
5 Chippewa-Cree Tribe of the Rocky Boy's Reserva-
6 tion of Montana, filed 2 law suits under the Act of
7 August 13, 1946 (60 Stat. 1049) (commonly known
8 as the "Indian Claims Commission Act"), to petition
9 for additional compensation for land ceded to the
10 United States under the Pembina Treaty of 1863
11 and the McCumber Agreement of 1892;

12 (9) in 1971 and 1982, pursuant to Acts of Con-
13 gress, the tribes received awards for the claims de-
14 scribed in paragraph (8);

15 (10) in 1978, the Tribe submitted to the Bu-
16 reau of Indian Affairs a petition for Federal recogni-
17 tion, which is still pending as of the date of enact-
18 ment of this Act; and

19 (11) the Federal Government, the State of
20 Montana, and the other federally recognized Indian
21 tribes of the State have had continuous dealings
22 with the recognized political leaders of the Tribe
23 since the 1930s.

24 (b) DEFINITIONS.—In this section:

1 (1) MEMBER.—The term “member” means an
2 individual who is enrolled in the Tribe pursuant to
3 subsection (f).

4 (2) SECRETARY.—The term “Secretary” means
5 the Secretary of the Interior.

6 (3) TRIBE.—The term “Tribe” means the Lit-
7 tle Shell Tribe of Chippewa Indians of Montana.

8 (c) FEDERAL RECOGNITION.—

9 (1) IN GENERAL.—Federal recognition is ex-
10 tended to the Tribe.

11 (2) EFFECT OF FEDERAL LAWS.—Except as
12 otherwise provided in this section, all Federal laws
13 (including regulations) of general application to In-
14 dians and Indian tribes, including the Act of June
15 18, 1934 (25 U.S.C. 5101 et seq.) (commonly
16 known as the “Indian Reorganization Act”), shall
17 apply to the Tribe and members.

18 (d) FEDERAL SERVICES AND BENEFITS.—

19 (1) IN GENERAL.—Beginning on the date of en-
20 actment of this Act, the Tribe and each member
21 shall be eligible for all services and benefits provided
22 by the United States to Indians and federally recog-
23 nized Indian tribes, without regard to—

24 (A) the existence of a reservation for the
25 Tribe; or

1 (B) the location of the residence of any
2 member on or near an Indian reservation.

3 (2) SERVICE AREA.—For purposes of the deliv-
4 ery of services and benefits to members, the service
5 area of the Tribe shall be considered to be the area
6 comprised of Blaine, Cascade, Glacier, and Hill
7 Counties in the State of Montana.

8 (e) REAFFIRMATION OF RIGHTS.—

9 (1) IN GENERAL.—Nothing in this section di-
10 minishes any right or privilege of the Tribe or any
11 member that existed before the date of enactment of
12 this Act.

13 (2) CLAIMS OF TRIBE.—Except as otherwise
14 provided in this section, nothing in this section al-
15 ters or affects any legal or equitable claim of the
16 Tribe to enforce any right or privilege reserved by,
17 or granted to, the Tribe that was wrongfully denied
18 to, or taken from, the Tribe before the date of enact-
19 ment of this Act.

20 (f) MEMBERSHIP ROLL.—

21 (1) IN GENERAL.—As a condition of receiving
22 recognition, services, and benefits pursuant to this
23 section, the Tribe shall submit to the Secretary, by
24 not later than 18 months after the date of enact-
25 ment of this Act, a membership roll consisting of the

1 name of each individual enrolled as a member of the
2 Tribe.

3 (2) DETERMINATION OF MEMBERSHIP.—The
4 qualifications for inclusion on the membership roll of
5 the Tribe shall be determined in accordance with
6 sections 1 through 3 of article 5 of the constitution
7 of the Tribe dated September 10, 1977 (including
8 amendments to the constitution).

9 (3) MAINTENANCE OF ROLL.—The Tribe shall
10 maintain the membership roll under this subsection.

11 (g) ACQUISITION OF LAND.—

12 (1) HOMELAND.—The Secretary shall acquire,
13 for the benefit of the Tribe, trust title to 200 acres
14 of land within the service area of the Tribe to be
15 used for a tribal land base.

16 (2) ADDITIONAL LAND.—The Secretary may ac-
17 quire additional land for the benefit of the Tribe
18 pursuant to section 5 of the Act of June 18, 1934
19 (25 U.S.C. 5108) (commonly known as the “Indian
20 Reorganization Act”).

21 **SEC. 2871. SENSE OF CONGRESS ON RESTORATION OF TYN-**
22 **DALL AIR FORCE BASE.**

23 It is the sense of Congress that the Secretary of the
24 Air Force should—

1 (1) restore Tyndall Air Force Base to achieve
2 military installation resilience, as defined in section
3 101(e)(8) of title 10, United States Code; and

4 (2) use innovative construction methods, mate-
5 rials, designs, and technologies in carrying out such
6 restoration in order to achieve efficiencies, cost sav-
7 ings, resiliency, and capability, which may include—

8 (A) open architecture design to evolve with
9 the national defense strategy; and

10 (B) efficient ergonomic enterprise for
11 members of the Air Force in the 21st century.

12 **TITLE XXIX—AUTHORIZATION**
13 **OF OVERSEAS CONTINGENCY**
14 **OPERATIONS MILITARY CON-**
15 **STRUCTION AND EMERGENCY**
16 **MILITARY CONSTRUCTION**

Subtitle A—Overseas Contingency Operations Military Construction

- Sec. 2901. Authorized Army construction and land acquisition projects.
- Sec. 2902. Authorized Navy construction and land acquisition projects.
- Sec. 2903. Authorized Air Force construction and land acquisition projects.
- Sec. 2904. Authorized Defense Agencies construction and land acquisition projects.
- Sec. 2905. Authorization of appropriations.

Subtitle B—Emergency Military Construction

- Sec. 2911. Authorization of emergency Navy construction and land acquisition projects.
- Sec. 2912. Authorization of emergency Air Force construction and land acquisition projects.
- Sec. 2913. Authorization of emergency Army National Guard construction and land acquisition projects.
- Sec. 2914. Authorization of emergency Defense Agencies construction and land acquisition projects.
- Sec. 2915. Authorization of emergency supplemental appropriations for military construction projects.

1 **Subtitle A—Overseas Contingency**
 2 **Operations Military Construction**

3 **SEC. 2901. AUTHORIZED ARMY CONSTRUCTION AND LAND**
 4 **ACQUISITION PROJECTS.**

5 (a) AUTHORIZATION.—Subject to subsection (b), the
 6 Secretary of the Army may acquire real property and
 7 carry out the military construction projects for the instal-
 8 lations outside the United States, and in the amounts, set
 9 forth in the following table:

Army: Outside the United States

| Country | Location | Amount |
|--------------------------|--|---------------|
| Cuba | Guantanamo Bay Naval Station | \$33,800,000 |
| Worldwide Unspecified .. | European Deterrence Initiative: Various Loca- tions | \$78,412,000 |

10 (b) REPORT REQUIRED AS CONDITION OF AUTHOR-
 11 IZATION.—Not later than 90 days after the date of the
 12 enactment of this Act, the Secretary of the Army shall
 13 submit to the congressional defense committees a report
 14 containing a plan to carry out each military construction
 15 project authorized in the final item in the table in sub-
 16 section (a) for an unspecified location for the European
 17 Deterrence Initiative. The plan shall include a Department
 18 of Defense Form 1391 for each proposed project. The Sec-
 19 retary may not commence a project until the report has
 20 been submitted.

1 **SEC. 2902. AUTHORIZED NAVY CONSTRUCTION AND LAND**
 2 **ACQUISITION PROJECTS.**

3 (a) AUTHORIZATION.—Subject to subsection (b), the
 4 Secretary of the Navy may acquire real property and carry
 5 out the military construction projects for the installations
 6 outside the United States, and in the amounts, set forth
 7 in the following table:

Navy: Outside the United States

| Country | Location | Amount |
|--------------------------|---|--------------|
| Bahrain | SW Asia | \$53,360,000 |
| Italy | Sigonella | \$77,400,000 |
| Spain | Rota | \$69,570,000 |
| Worldwide Unspecified .. | European Deterrence Initiative: Various Locations | \$36,211,000 |

8 (b) REPORT REQUIRED AS CONDITION OF AUTHOR-
 9 IZATION.—Not later than 90 days after the date of the
 10 enactment of this Act, the Secretary of the Navy shall sub-
 11 mit to the congressional defense committees a report con-
 12 taining a plan to carry out each military construction
 13 project authorized in the final item in the table in sub-
 14 section (a) for an unspecified location for the European
 15 Deterrence Initiative. The plan shall include a Department
 16 of Defense Form 1391 for each proposed project. The Sec-
 17 retary may not commence a project until the report has
 18 been submitted.

19 **SEC. 2903. AUTHORIZED AIR FORCE CONSTRUCTION AND**
 20 **LAND ACQUISITION PROJECTS.**

21 (a) AUTHORIZATION.—Subject to subsection (b), the
 22 Secretary of the Air Force may acquire real property and

1 carry out the military construction projects for the instal-
 2 lations outside the United States, and in the amounts, set
 3 forth in the following table:

Air Force: Outside the United States

| Country | Location | Amount |
|--------------------------|--|---------------|
| Iceland | Keflavik | \$57,000,000 |
| Jordan | Azraq | \$66,000,000 |
| Spain | Moron | \$8,500,000 |
| Worldwide Unspecified .. | European Deterrence Initiative: Various Loca- tions | \$211,211,000 |

4 (b) REPORT REQUIRED AS CONDITION OF AUTHOR-
 5 IZATION.—Not later than 90 days after the date of the
 6 enactment of this Act, the Secretary of the Air Force shall
 7 submit to the congressional defense committees a report
 8 containing a plan to carry out each military construction
 9 project authorized in the final item in the table in sub-
 10 section (a) for an unspecified location for the European
 11 Deterrence Initiative. The plan shall include a Department
 12 of Defense Form 1391 for each proposed project. The Sec-
 13 retary may not commence a project until the report has
 14 been submitted.

15 **SEC. 2904. AUTHORIZED DEFENSE AGENCIES CONSTRUC-**
 16 **TION AND LAND ACQUISITION PROJECTS.**

17 The Secretary of Defense may acquire real property
 18 and carry out the military construction project for the in-
 19 stallation outside the United States, and in the amount,
 20 set forth in the following table:

Defense Agencies: Outside the United States

| Country | Location | Amount |
|----------------|------------------|---------------|
| Germany | Gemersheim | \$46,000,000 |

1 SEC. 2905. AUTHORIZATION OF APPROPRIATIONS.

2 Funds are hereby authorized to be appropriated for
3 fiscal years beginning after September 30, 2019, for the
4 military construction projects outside the United States
5 authorized by this subtitle as specified in the funding table
6 in section 4602.

7 **Subtitle B—Emergency Military**
8 **Construction**

9 **SEC. 2911. AUTHORIZATION OF EMERGENCY NAVY CON-**
10 **STRUCTION AND LAND ACQUISITION**
11 **PROJECTS.**

12 (a) NAVY AUTHORIZATION.—Subject to subsection
13 (b), using amounts appropriated pursuant to the author-
14 ization of appropriations in section 2915 and available for
15 military construction projects inside the United States as
16 specified in the funding table in section 4603, the Sec-
17 retary of the Navy may acquire real property and carry
18 out military construction projects for the installations or
19 locations inside the United States, and in the amounts,
20 set forth in the following table:

Navy Authorization

| State or Location | Installation or Location | Amount |
|--------------------------|---|-----------------|
| California | Naval Air Weapons Station China Lake | \$1,152,680,000 |
| North Carolina | Camp Lejeune | \$627,747,000 |

Navy Authorization—Continued

| State or Location | Installation or Location | Amount |
|-------------------|---|---------------|
| | Marine Corps Air Station Cherry Point | \$66,551,000 |
| | NCAS New River | \$465,822,000 |

1 (b) REPORT REQUIRED AS A CONDITION OF AU-
2 THORIZATION.—Not later than 90 days after the date of
3 the enactment of this Act, the Secretary of the Navy shall
4 submit to the congressional defense committees a report
5 containing a plan to carry out the military construction
6 projects authorized by this section. The plan shall include
7 an explanation of how each military construction project
8 will incorporate mitigation measures that reduce the
9 threat from extreme weather events, mean sea level fluc-
10 tuation, flooding, and any other known environmental
11 threat to resilience, including a list of any areas in which
12 there is a variance from the local building requirements
13 and an explanation of the reason for the variance. The
14 plan shall also include a Department of Defense Form
15 1391 for each proposed project. The Secretary may not
16 commence a project until the report required from the
17 Secretary has been submitted.

18 **SEC. 2912. AUTHORIZATION OF EMERGENCY AIR FORCE**
19 **CONSTRUCTION AND LAND ACQUISITION**
20 **PROJECTS.**

21 (a) AIR FORCE AUTHORIZATION.—Subject to sub-
22 section (b), using amounts appropriated pursuant to the

1 authorization of appropriations in section 2915 and avail-
 2 able for military construction projects inside the United
 3 States as specified in the funding table in section 4603,
 4 the Secretary of the Air Force may acquire real property
 5 and carry out military construction projects for the instal-
 6 lations or locations inside the United States, and in the
 7 amounts, set forth in the following table:

Air Force Authorization

| State | Installation or Location | Amount |
|----------------|---------------------------------|-----------------|
| Florida | Tyndall Air Force Base | \$1,500,200,000 |
| Nebraska | Offutt Air Force Base | \$140,500,000 |
| Virginia | Joint Base Langley-Eustis | \$31,000,000 |

8 (b) REPORT REQUIRED AS CONDITION OF AUTHOR-
 9 IZATION.—Not later than 90 days after the date of the
 10 enactment of this Act, the Secretary of the Air Force shall
 11 submit to the Committees on Armed Services of the House
 12 of Representatives and the Senate a report containing a
 13 plan to carry out the military construction projects author-
 14 ized by this section. The plan shall include an explanation
 15 of how each military construction project will incorporate
 16 mitigation measures that reduce the threat from extreme
 17 weather events, mean sea level fluctuation, flooding, and
 18 any other known environmental threat to resilience, in-
 19 cluding a list of any areas in which there is a variance
 20 from the local building requirements and an explanation
 21 of the reason for the variance. The plan shall also include
 22 a Department of Defense Form 1391 for each proposed

1 project. The Secretary may not commence a project until
 2 the report required from the Secretary has been sub-
 3 mitted.

4 **SEC. 2913. AUTHORIZATION OF EMERGENCY ARMY NA-**
 5 **TIONAL GUARD CONSTRUCTION AND LAND**
 6 **ACQUISITION PROJECTS.**

7 (a) ARMY NATIONAL GUARD AUTHORIZATION.—Sub-
 8 ject to subsection (b), using amounts appropriated pursu-
 9 ant to the authorization of appropriations in section 2915
 10 and available for military construction projects inside the
 11 United States as specified in the funding table in section
 12 4603, the Secretary of the Army may acquire real prop-
 13 erty and carry out military construction projects for the
 14 installations or locations inside the United States, and in
 15 the amounts, set forth in the following table:

Army National Guard Authorization

| State | Location | Amount |
|-----------------|-----------------|---------------|
| Louisiana | Pineville | \$16,500,000 |
| Nebraska | Ashland | \$43,500,000 |

16 (b) REPORT REQUIRED AS CONDITION OF AUTHOR-
 17 IZATION.—Not later than 90 days after the date of the
 18 enactment of this Act, the Secretary of the Army shall
 19 submit to the congressional defense committees a report
 20 containing a plan to carry out the military construction
 21 projects authorized by this section. The plan shall include
 22 an explanation of how each military construction project
 23 will incorporate mitigation measures that reduce the

1 threat from extreme weather events, mean sea level fluctuation, flooding, and any other known environmental threat to resilience, including a list of any areas in which there is a variance from the local building requirements and an explanation of the reason for the variance. The plan shall also include a Department of Defense Form 1391 for each proposed project. The Secretary may not commence a project until the report required from the Secretary has been submitted.

10 **SEC. 2914. AUTHORIZATION OF EMERGENCY DEFENSE**
 11 **AGENCIES CONSTRUCTION AND LAND ACQUISITION PROJECTS.**
 12

13 (a) DEFENSE AGENCIES AUTHORIZATION.—Subject to subsection (b), using amounts appropriated pursuant to the authorization of appropriations in section 2915 and available for military construction projects inside the United States as specified in the funding table in section 4603, the Secretary of Defense may acquire real property and carry out the military construction project for the installation inside the United States, and in the amount, set forth in the following table:

Defense Agencies Authorization

| State or Location | Installation or Location | Amount |
|----------------------|--------------------------|--------------|
| North Carolina | Camp Lejeune | \$75,313,000 |

22 (b) REPORT REQUIRED AS A CONDITION OF AUTHORIZATION.—Not later than 90 days after the date of

1 the enactment of this Act, the Secretary of Defense shall
2 submit to the congressional defense committees a report
3 containing a plan to carry out the military construction
4 project authorized by this section. The plan shall include
5 an explanation of how the military construction project
6 will incorporate mitigation measures that reduce the
7 threat from extreme weather events, mean sea level fluctuation,
8 flooding, and any other known environmental
9 threat to resilience, including a list of any areas in which
10 there is a variance from the local building requirements
11 and an explanation of the reason for the variance. The
12 plan shall also include a Department of Defense Form
13 1391 for the proposed project. The Secretary may not
14 commence the project until the report required from the
15 Secretary has been submitted.

16 **SEC. 2915. AUTHORIZATION OF EMERGENCY SUPPLEMENTAL APPROPRIATIONS FOR MILITARY CONSTRUCTION PROJECTS.**

17
18
19 Funds are hereby authorized to be appropriated for
20 the Department of Defense for the military construction
21 projects authorized by this subtitle as specified in the
22 funding table in section 4603, in such amounts as may
23 be designated as emergency requirements pursuant to section
24 251(b)(2)(A)(i) of the Balanced Budget and Emer-

1 gency Deficit Control Act of 1985 (2 U.S.C.
2 901(b)(2)(A)(i)).

3 **TITLE XXX—MILITARY HOUSING**
4 **PRIVATIZATION REFORM**

Sec. 3001. Definitions.

Subtitle A—Addition of New Reform Subchapter

- Sec. 3011. Improved accountability and oversight of privatized military housing and protections and responsibilities for tenants of privatized military housing.
- Sec. 3012. Designation of Chief Housing Officer for privatized military housing.
- Sec. 3013. Additional requirements relating to contracts for privatized military housing.
- Sec. 3014. Additional requirements relating to management of privatized military housing.
- Sec. 3015. Consideration of contractor history in contracts for privatized military housing.
- Sec. 3016. Additional improvements for management of privatized military housing.
- Sec. 3017. Maintenance work order system for privatized military housing.
- Sec. 3018. Access by tenants of privatized military housing to maintenance work order system.
- Sec. 3019. Access by tenants to historical maintenance information for privatized military housing.
- Sec. 3020. Prohibition on requirement to disclose personally identifiable information in certain requests for maintenance of privatized military housing.
- Sec. 3021. Treatment of incentive fees for landlords of privatized military housing for failure to remedy a health or environmental hazard.
- Sec. 3022. Dispute resolution process for landlord-tenant disputes regarding privatized military housing and requests to withhold payments during dispute resolution process.
- Sec. 3023. Investigation of reports of reprisals relating to privatized military housing and congressional notification.
- Sec. 3024. Prohibition on use of nondisclosure agreements in connection with leases of privatized military housing.

Subtitle B—Other Amendatory Provisions

- Sec. 3031. Installation of carbon monoxide detectors in military family housing.
- Sec. 3032. Authority to furnish certain services in connection with use of alternative authority for acquisition and improvement of military housing.
- Sec. 3033. Treatment of breach of contract for privatized military housing.
- Sec. 3034. Modification to requirements for window fall prevention devices in military family housing units.

- Sec. 3035. Expansion of direct hire authority for Department of Defense for childcare services providers for Department child development centers to include direct hire authority for installation military housing office personnel.
- Sec. 3036. Modification of authority to make payments to lessors of privatized military housing.
- Sec. 3037. Technical correction to definition used to make payments to lessors of privatized military housing.

Subtitle C—One-Time Reporting Requirements

- Sec. 3041. Report on civilian personnel shortages for appropriate oversight of management of military housing constructed or acquired using alternative authority for acquisition and improvement of military housing.
- Sec. 3042. Plans for creation of councils on privatized military housing.
- Sec. 3043. Plan for establishment of Department of Defense jurisdiction over off-base privatized military housing.
- Sec. 3044. Inspector General review of Department of Defense oversight of privatized military housing.
- Sec. 3045. Information on legal services provided to members of the Armed Forces harmed by health or environmental hazards at military housing.

Subtitle D—Development of Housing Reform Standards and Processes

- Sec. 3051. Uniform code of basic standards for privatized military housing and plan to conduct inspections and assessments.
- Sec. 3052. Tool for assessment of hazards in Department of Defense housing.
- Sec. 3053. Process to identify and address environmental health hazards in Department of Defense housing.
- Sec. 3054. Department of Defense policy on lead-based paint testing on military installations.
- Sec. 3055. Standard for minimum credentials for health and environmental inspectors of privatized military housing.
- Sec. 3056. Requirements relating to move-in, move-out, and maintenance of privatized military housing.
- Sec. 3057. Standardized documentation, templates, and forms for privatized military housing.
- Sec. 3058. Satisfaction survey for tenants of military housing.

Subtitle E—Other Housing Reform Matters

- Sec. 3061. Radon testing of privatized military housing.
- Sec. 3062. Mitigation of risks posed by certain items in military family housing units.
- Sec. 3063. Suspension of Resident Energy Conservation Program and related programs for privatized military housing.
- Sec. 3064. Department of the Army pilot program to build and monitor use of single family homes.

1 **SEC. 3001. DEFINITIONS.**

2 (a) **DEFINITIONS GENERALLY.**—In this title:

1 (1) The term “landlord” means an eligible enti-
2 ty that enters into, or has entered into, a contract
3 as a partner with the Secretary concerned for the
4 acquisition or construction of a housing unit under
5 subchapter IV of chapter 169 of title 10, United
6 States Code. The term includes any agent of the eli-
7 gible entity or any subsequent lessor who owns,
8 manages, or is otherwise responsible for a housing
9 unit. The term does not include an entity of the
10 Federal Government.

11 (2) The term “privatized military housing”
12 means military housing provided under subchapter
13 IV of chapter 169 of title 10, United States Code.

14 (3) The term “tenant” means a member of the
15 armed forces, including a reserve component thereof
16 in an active status, or a dependent of a member of
17 the armed forces who resides at a housing unit, is
18 a party to a lease for a housing unit, or is author-
19 ized to act on behalf of the member under sub-
20 chapters IV and V of chapter 169 of title 10, United
21 States Code, in the event of the assignment or de-
22 ployment of a member.

23 (b) NEW AND REVISED TITLE 10 DEFINITIONS.—
24 Section 2871 of title 10, United States Code, is amend-
25 ed—

1 (1) in paragraph (4), by adding at the end the
2 following new sentence: “The fact that an agreement
3 between an eligible entity and the Secretary con-
4 cerned is designated as an agreement rather than a
5 contract shall not be construed to exclude the agree-
6 ment from the term ‘contract’ for purposes of this
7 subchapter and subchapter V.”;

8 (2) by redesignating paragraphs (7) and (8) as
9 paragraphs (11) and (13), respectively;

10 (3) by inserting after paragraph (6) the fol-
11 lowing new paragraphs:

12 “(7) The term ‘housing document’ means a doc-
13 ument developed by the Secretary of Defense under
14 section 2890 of this title and known as the Military
15 Housing Privatization Initiative Tenant Bill of
16 Rights or the Military Housing Privatization Initia-
17 tive Tenant Responsibilities.

18 “(8) The term ‘housing unit’ means a unit of
19 family housing or military unaccompanied housing
20 acquired or constructed under this subchapter.

21 “(9) The term ‘incentive fees’ means any
22 amounts payable to a landlord for meeting or ex-
23 ceeding performance metrics as specified in a con-
24 tract with the Department of Defense.

1 “(10) The term ‘landlord’ means an eligible en-
2 tity that enters into, or has entered into, a contract
3 as a partner with the Secretary concerned for the
4 acquisition or construction of a housing unit under
5 this subchapter. The term includes any agent of the
6 eligible entity or any subsequent lessor who owns,
7 manages, or is otherwise responsible for a housing
8 unit. The term does not include an entity of the
9 Federal Government.”; and

10 (4) by inserting after paragraph (11), as redese-
11 ignated by paragraph (2) of this subsection, the fol-
12 lowing new paragraph:

13 “(12) The term ‘tenant’ means a member of the
14 armed forces, including a reserve component thereof
15 in an active status, or a dependent of a member of
16 the armed forces who resides at a housing unit, is
17 a party to a lease for a housing unit, or is author-
18 ized to act on behalf of the member under this sub-
19 chapter and subchapter V of this chapter in the
20 event of the assignment or deployment of a mem-
21 ber.”.

22 (c) CONFORMING AMENDMENTS TO EXISTING DEFINI-
23 TIONS.—Section 2871 of title 10, United States Code,
24 is further amended in paragraphs (1), (3), and (5) by
25 striking “military” before “housing units”.

1 **Subtitle A—Addition of New**
2 **Reform Subchapter**

3 **SEC. 3011. IMPROVED ACCOUNTABILITY AND OVERSIGHT**
4 **OF PRIVATIZED MILITARY HOUSING AND**
5 **PROTECTIONS AND RESPONSIBILITIES FOR**
6 **TENANTS OF PRIVATIZED MILITARY HOUS-**
7 **ING.**

8 (a) **APPLICABILITY OF DEFINITIONS.**—Section 2871
9 of title 10, United States Code, as amended by section
10 3001, is further amended in the matter preceding the
11 paragraphs by inserting “and subchapter V of this chap-
12 ter” after “this subchapter”.

13 (b) **MILITARY HOUSING PRIVATIZATION REFORMS.**—
14 Chapter 169 of title 10, United States Code, is amended
15 by adding at the end the following new subchapter:

16 **“SUBCHAPTER V—OVERSIGHT OF LANDLORDS**
17 **AND PROTECTIONS AND RESPONSIBILITIES**
18 **FOR TENANTS OF PRIVATIZED MILITARY**
19 **HOUSING**

20 **“§ 2890. Rights and responsibilities of tenants of**
21 **housing units**

22 “(a) **DEVELOPMENT OF TENANT BILL OF RIGHTS**
23 **AND TENANT RESPONSIBILITIES DOCUMENTS.**—(1) The
24 Secretary of Defense shall develop two separate docu-
25 ments, to be known as the Military Housing Privatization

1 Initiative Tenant Bill of Rights and the Military Housing
2 Privatization Initiative Tenant Responsibilities, for ten-
3 ants of housing units.

4 “(2) The Secretary of each military department shall
5 ensure that the housing documents are attached to each
6 lease agreement for a housing unit.

7 “(3) The rights and responsibilities contained in the
8 housing documents are not intended to be exclusive. The
9 omission of a tenant right or responsibility shall not be
10 construed to deny the existence of such a right or responsi-
11 bility for tenants.

12 “(4) Each contract between the Secretary concerned
13 and a landlord shall incorporate the housing documents
14 and guarantee the rights and responsibilities of tenants
15 who reside in housing units covered by the contract.

16 “(5) The Secretary of Defense shall develop the hous-
17 ing documents in coordination with the Secretaries of the
18 military departments.

19 “(b) ELEMENTS OF TENANT BILL OF RIGHTS.—At
20 a minimum, the Military Housing Privatization Initiative
21 Tenant Bill of Rights shall address the following rights
22 of tenants of housing units:

23 “(1) The right to reside in a housing unit and
24 community that meets applicable health and environ-
25 mental standards.

1 “(2) The right to reside in a housing unit that
2 has working fixtures, appliances, and utilities and to
3 reside in a community with well-maintained common
4 areas and amenity spaces.

5 “(3) The right to be provided with a mainte-
6 nance history of the prospective housing unit before
7 signing a lease, as provided in section 2892a of this
8 title.

9 “(4) The right to a written lease with clearly
10 defined rental terms to establish tenancy in a hous-
11 ing unit, including any addendums and other regula-
12 tions imposed by the landlord regarding occupancy
13 of the housing unit and use of common areas.

14 “(5) The right to a plain-language briefing, be-
15 fore signing a lease and 30 days after move-in, by
16 the installation housing office on all rights and re-
17 sponsibilities associated with tenancy of the housing
18 unit, including information regarding the existence
19 of any additional fees authorized by the lease, any
20 utilities payments, the procedures for submitting
21 and tracking work orders, the identity of the mili-
22 tary tenant advocate, and the dispute resolution
23 process.

24 “(6) The right to have sufficient time and op-
25 portunity to prepare and be present for move-in and

1 move-out inspections, including an opportunity to
2 obtain and complete necessary paperwork.

3 “(7) The right to report inadequate housing
4 standards or deficits in habitability of the housing
5 unit to the landlord, the chain of command, and
6 housing management office without fear of reprisal
7 or retaliation, as provided in subsection (e), includ-
8 ing reprisal or retaliation in the following forms:

9 “(A) Unlawful recovery of, or attempt to
10 recover, possession of the housing unit.

11 “(B) Unlawfully increasing the rent, de-
12 creasing services, or increasing the obligations
13 of a tenant.

14 “(C) Interference with a tenant’s right to
15 privacy.

16 “(D) Harassment of a tenant.

17 “(E) Refusal to honor the terms of the
18 lease.

19 “(F) Interference with the career of a ten-
20 ant.

21 “(8) The right of access to a military tenant
22 advocate, as provided in section 2894(b)(4) of this
23 title, through the housing management office of the
24 installation of the Department at which the housing
25 unit is located.

1 “(9) The right to receive property management
2 services provided by a landlord that meet or exceed
3 industry standards and that are performed by pro-
4 fessionally and appropriately trained, responsive,
5 and courteous customer service and maintenance
6 staff.

7 “(10) The right to have multiple, convenient
8 methods to communicate directly with the landlord
9 maintenance staff, and to receive consistently hon-
10 est, accurate, straightforward, and responsive com-
11 munications.

12 “(11) The right to have access to an electronic
13 work order system through which a tenant may re-
14 quest maintenance or repairs of a housing unit and
15 track the progress of the work.

16 “(12) With respect to maintenance and repairs
17 to a housing unit, the right to the following:

18 “(A) Prompt and professional maintenance
19 and repair.

20 “(B) To be informed of the required time
21 frame for maintenance or repairs when a main-
22 tenance request is submitted.

23 “(C) In the case of maintenance or repairs
24 necessary to ensure habitability of a housing
25 unit, to prompt relocation into suitable lodging

1 or other housing at no cost to the tenant until
2 the maintenance or repairs are completed.

3 “(13) The right to receive advice from military
4 legal assistance on procedures involving mechanisms
5 for resolving disputes with the property management
6 company or property manager to include mediation,
7 arbitration, and filing claims against a landlord.

8 “(14) The right to enter into a dispute resolu-
9 tion process, as provided in section 2894 of this
10 title, should all other methods be exhausted and, in
11 which case, a decision in favor of the tenant may in-
12 clude a reduction in rent or an amount to be reim-
13 bursed or credited to the tenant.

14 “(15) The right to have the tenant’s basic al-
15 lowance housing payments segregated and held in
16 escrow, with approval of a designated commander,
17 and not used by the property owner, property man-
18 ager, or landlord pending completion of the dispute
19 resolution process.

20 “(16) The right to have reasonable, advance no-
21 tice of any entrance by a landlord, installation hous-
22 ing staff, or chain of command into the housing
23 unit, except in the case of an emergency or abandon-
24 ment of the housing unit.

1 “(17) The right to not pay non-refundable fees
2 or have application of rent credits arbitrarily held.

3 “(18) The right to expect common documents,
4 forms, and processes for housing units will be the
5 same for all installations of the Department, to the
6 maximum extent applicable without violating local,
7 State, and Federal regulations.

8 “(c) ELEMENTS OF TENANT RESPONSIBILITIES.—At
9 a minimum, the Military Housing Privatization Initiative
10 Tenant Responsibilities shall address the following respon-
11 sibilities of tenants of housing units:

12 “(1) The responsibility to report in a timely
13 manner any apparent environmental, safety, or
14 health hazards of the housing unit to the landlord
15 and any defective, broken, damaged, or malfunc-
16 tioning building systems, fixtures, appliances, or
17 other parts of the housing unit, the common areas,
18 or related facilities.

19 “(2) The responsibility to maintain standard
20 upkeep of the housing unit as instructed by the
21 housing management office.

22 “(3) The responsibility to conduct oneself as a
23 tenant in a manner that will not disturb neighbors,
24 and to assume responsibility for one’s actions and

1 those of a family member or guest in the housing
2 unit or common areas.

3 “(4) The responsibility not to engage in any in-
4 appropriate, unauthorized, or criminal activity in the
5 housing unit or common areas.

6 “(5) The responsibility to allow the landlord
7 reasonable access to the rental home in accordance
8 with the terms of the tenant lease agreement to
9 allow the landlord to make necessary repairs in a
10 timely manner.

11 “(6) The responsibility to read all lease-related
12 materials provided by the landlord and to comply
13 with the terms of the lease agreement, lease ad-
14 denda, and any associated rules and guidelines.

15 “(d) SUBMISSION TO CONGRESS AND PUBLIC AVAIL-
16 ABILITY.—(1) As part of the budget submission for fiscal
17 year 2021, and biennially thereafter, the Secretary of De-
18 fense shall submit the then-current housing documents to
19 the congressional defense committees.

20 “(2) Any change made to a housing document must
21 be submitted to Congress at least 30 days before the
22 change takes effect.

23 “(3) Upon submission of a housing document under
24 paragraph (1) or (2), the Secretary of Defense shall pub-

1 lish the housing document on a publicly available Internet
2 website of the Department of Defense.”.

3 (c) CLERICAL AMENDMENTS.—

4 (1) TABLE OF SECTIONS.—Subchapter V of
5 chapter 169 of title 10, United States Code, as
6 added by subsection (b), is amended by inserting
7 after the subchapter heading the following table of
8 sections:

Sec.

2890. Rights and responsibilities of tenants of housing units.

2890a. Chief Housing Officer.

2891. Requirements relating to contracts for provision of housing units.

2891a. Requirements relating to management of housing units.

2891b. Considerations of eligible entity housing history in contracts for
privatized military housing.

2891c. Financial transparency.

2892. Maintenance work order system for housing units.

2892a. Access by tenants to historical maintenance information.

2892b. Prohibition on requirement to disclose personally identifiable information
in electronic requests for maintenance.

2893. Treatment of incentive fees for landlords of housing units for failure to
remedy health or environmental hazards.

2894. Landlord-tenant dispute resolution process and treatment of certain pay-
ments during process.

2894a. Complaint database.

9 (2) TABLE OF SUBCHAPTERS.—The table of
10 subchapters at the beginning of chapter 169 of title
11 10, United States Code, is amended by inserting
12 after the item relating to subchapter IV the fol-
13 lowing new item:

**“V. Oversight of Landlords and Protections and Respon-
sibilities for Tenants of Privatized Military
Housing 2890.”.**

1 **SEC. 3012. DESIGNATION OF CHIEF HOUSING OFFICER FOR**
2 **PRIVATIZED MILITARY HOUSING.**

3 (a) DESIGNATION REQUIRED.—Subchapter V of
4 chapter 169 of title 10, United States Code, as added by
5 section 3011, is amended by inserting after section 2890
6 of such title, as added by section 3011 and amended by
7 sections 3023 and 3024, the following new section:

8 **“§ 2890a. Chief Housing Officer**

9 “(a) DESIGNATION.—(1) The Secretary of Defense
10 shall designate, from among officials of the Department
11 of Defense who are appointed by the President with the
12 advice and consent of the Senate, a Chief Housing Officer
13 who shall oversee housing units.

14 “(2) The official of the Department of Defense des-
15 ignated as Chief Housing Officer may be assigned duties
16 in addition to the duties as Chief Housing Officer under
17 subsection (b).

18 “(b) PRINCIPAL DUTIES.—(1) The Chief Housing
19 Officer shall oversee all aspects of the provision of housing
20 under subchapter IV and this subchapter, including the
21 following:

22 “(A) Creation and standardization of policies
23 and processes regarding housing units.

24 “(B) Oversight of the administration of any De-
25 partment of Defense-wide policies regarding housing
26 units, to include, in coordination with the Secre-

1 taries of the military departments, the housing docu-
2 ments developed pursuant to section 2890 of this
3 title entitled Military Housing Privatization Initia-
4 tive Tenant Bill of Rights and Military Housing Pri-
5 vatization Initiative Tenant Responsibilities.

6 “(2) The duties specified in paragraph (1) may not
7 be further delegated.”.

8 (b) NOTIFICATION OF DESIGNATION.—Not later
9 than 60 days after the date of the enactment of this Act,
10 the Secretary of Defense shall notify the congressional de-
11 fense committees of the official of the Department of De-
12 fense designated as Chief Housing Officer under section
13 2890a of title 10, United States Code, as added by sub-
14 section (a). Any time the designation of Chief Housing
15 Officer changes, the Secretary of Defense shall update the
16 notification of the congressional defense committees within
17 30 days after the new designation.

18 **SEC. 3013. ADDITIONAL REQUIREMENTS RELATING TO**
19 **CONTRACTS FOR PRIVATIZED MILITARY**
20 **HOUSING.**

21 (a) IN GENERAL.—Subchapter V of chapter 169 of
22 title 10, United States Code, as added by section 3011,
23 is amended by inserting after section 2890a of such title,
24 as added by section 3012, the following new section:

1 **“§ 2891. Requirements relating to contracts for provi-**
2 **sion of housing units**

3 “(a) IN GENERAL.—The requirements of this section
4 condition contracts entered into using the authorities pro-
5 vided to the Secretary concerned under section 2872 of
6 this title and other authorities provided under subchapter
7 IV of this chapter and this subchapter.

8 “(b) EXCLUSION OF CERTAIN EMPLOYEES.—A land-
9 lord providing a housing unit shall prohibit any employee
10 of the landlord who commits work-order fraud under the
11 contract from doing any work under the contract.

12 “(c) DISPUTE RESOLUTION PROCESS.—Any decision
13 the commander renders in favor of the tenant in the for-
14 mal dispute resolution process established pursuant to sec-
15 tion 2894 of this title will be taken into consideration in
16 determining whether to pay or withhold all or part of any
17 incentive fees for which a landlord may otherwise be eligi-
18 ble under the contract.

19 “(d) RESPONSIBILITY FOR CERTAIN MEDICAL
20 COSTS.—

21 “(1) REIMBURSEMENT REQUIRED UNDER CER-
22 TAIN CIRCUMSTANCES.—If the Secretary concerned
23 finds that a landlord fails to maintain safe and sani-
24 tary conditions for a housing unit under the contract
25 and that, subject to paragraph (2), these conditions
26 result in a tenant of the housing unit receiving med-

1 ical evaluations and treatment, the landlord shall be
2 responsible for reimbursing the Department of De-
3 fense for any costs incurred by the Department to
4 provide the medical evaluations and treatment to the
5 tenant, whether such evaluations and treatment are
6 provided in a military medical treatment facility or
7 through the TRICARE provider network.

8 “(2) REVIEW PROCESS.—Before the Secretary
9 concerned may submit a claim under paragraph (1)
10 to a landlord for reimbursement of Department med-
11 ical evaluation and treatment costs—

12 “(A) a military medical professional must
13 determine that the tenant’s medical conditions
14 were caused by unsafe and unsanitary condi-
15 tions of the housing unit; and

16 “(B) the documentation of the medical
17 evaluation showing causation must be sent to
18 the Director of the Defense Health Agency for
19 review and approval.

20 “(3) UNIFORM PROCESSES AND PROCE-
21 DURES.—Not later than 180 days after the date of
22 the enactment of this section, the Director of the
23 Defense Health Agency shall develop and publish
24 uniform processes and procedures to be used by
25 medical providers in military medical treatment fa-

1 facilities to make determinations regarding whether
2 environmental hazards within housing units serve as
3 causative factors for medical conditions being evalu-
4 ated and treated in military medical treatment facili-
5 ties or through the TRICARE provider network.

6 “(e) RESPONSIBILITY FOR RELOCATION COSTS.—

7 “(1) PERMANENT RELOCATION.—A landlord
8 providing a housing unit shall pay reasonable reloca-
9 tion costs associated with the permanent relocation
10 of a tenant from the housing unit to a different
11 housing due to health or environmental hazards—

12 “(A) present in the housing unit being va-
13 cated through no fault of the tenant; and

14 “(B) confirmed by the housing manage-
15 ment office of the installation for which the
16 housing unit is provided as making the unit un-
17 inhabitable or unable to be remediated safely
18 while tenant occupies the housing unit.

19 “(2) TEMPORARY RELOCATION.—The landlord
20 shall pay reasonable relocation costs and actual costs
21 of living, including per diem, associated with the
22 temporary relocation of a tenant to a different hous-
23 ing unit due to health or environmental hazards—

24 “(A) present in the housing unit being va-
25 cated through no fault of the tenant; and

1 “(B) confirmed by the housing manage-
2 ment office of the installation as making the
3 unit uninhabitable or unable to be remediated
4 safely while tenant occupies the housing unit.

5 “(f) MAINTENANCE WORK ORDER SYSTEM.—A land-
6 lord providing a housing unit shall ensure that the mainte-
7 nance work order system of the landlord (hardware and
8 software) is up to date, including—

9 “(1) by providing a reliable mechanism through
10 which a tenant may submit work order requests
11 through an Internet portal and mobile application,
12 which shall incorporate the ability to upload photos,
13 communicate with maintenance personnel, and rate
14 individual service calls;

15 “(2) by allowing real-time access to such system
16 by officials of the Department at the installation,
17 major subordinate command, and service-wide levels;
18 and

19 “(3) by allowing the work order or maintenance
20 ticket to be closed only once the tenant and the head
21 of the housing management office of the installation
22 sign off.

23 “(g) IMPLEMENTATION.—The Secretary concerned
24 shall create such legal documents as may be necessary to
25 carry out this section.”.

1 (b) EFFECTIVE DATE.—The requirements set forth
2 in section 2891 of title 10, United States Code, as added
3 by subsection (a), shall apply to appropriate legal docu-
4 ments entered into or renewed on or after the date of the
5 enactment of this Act between the Secretary of a military
6 department and a landlord regarding privatized military
7 housing.

8 (c) RETROACTIVE LANDLORD AGREEMENTS.—

9 (1) IN GENERAL.—Not later than February 1,
10 2020, the Secretary of Defense shall seek agreement
11 from all landlords to accept the application of the re-
12 quirements set forth in section 2891 of title 10,
13 United States Code, as added by subsection (a), to
14 appropriate legal documents entered into or renewed
15 before the date of the enactment of this Act between
16 the Secretary of a military department and a land-
17 lord regarding privatized military housing

18 (2) SUBMITTAL OF LIST TO CONGRESS.—Not
19 later than March 1, 2020, the Secretary of Defense
20 shall submit to the congressional defense committees
21 a list of any landlords that did not agree under
22 paragraph (1) to accept the requirements set forth
23 in section 2891 of title 10, United States Code, as
24 added by subsection (a).

1 (3) CONSIDERATION OF LACK OF AGREEMENT
2 IN FUTURE CONTRACTS.—The Secretary of Defense
3 and the Secretaries of the military departments shall
4 include any lack of agreement under paragraph (1)
5 as past performance considered under section 2891b
6 of title 10, United States Code, as added by section
7 3015,with respect to entering into or renewing any
8 future contracts regarding privatized military hous-
9 ing.

10 **SEC. 3014. ADDITIONAL REQUIREMENTS RELATING TO**
11 **MANAGEMENT OF PRIVATIZED MILITARY**
12 **HOUSING.**

13 (a) IN GENERAL.—Subchapter V of chapter 169 of
14 title 10, United States Code, as added by section 3011,
15 is amended by inserting after section 2891 of such title,
16 as added by section 3013, the following new section:

17 **“§ 2891a. Requirements relating to management of**
18 **housing units**

19 “(a) IN GENERAL.—The Secretary of Defense shall
20 ensure that each contract between the Secretary concerned
21 and a landlord regarding the management of housing
22 units for an installation of the Department of Defense in-
23 cludes the requirements set forth in this section.

1 “(b) REQUIREMENTS FOR INSTALLATION COM-
2 MANDERS.—(1) The installation commander shall be re-
3 sponsible for—

4 “(A) reviewing, on an annual basis, the mold
5 mitigation plan and pest control plan of each land-
6 lord managing housing units for the installation; and

7 “(B) notifying the landlord and the major sub-
8 ordinate command of any deficiencies found in either
9 plan.

10 “(2) In response to a request by the head of the hous-
11 ing management office of an installation, the installation
12 commander shall use the assigned bio-environmental per-
13 sonnel or contractor equivalent at the installation to test
14 housing units for mold, unsafe water conditions, and other
15 health and safety conditions

16 “(c) REQUIREMENTS FOR HOUSING MANAGEMENT
17 OFFICE.—(1) The head of the housing management office
18 of an installation shall be responsible for—

19 “(A) conducting a physical inspection of, and
20 approving the habitability of, a vacant housing unit
21 for the installation before the landlord managing the
22 housing unit is authorized to offer the housing unit
23 available for occupancy;

24 “(B) conducting a physical inspection of the
25 housing unit upon tenant move-out; and

1 “(C) maintaining all test results relating to the
2 health, environmental, and safety condition of the
3 housing unit and the results of any inspection con-
4 ducted by the housing management office, landlord,
5 or third-party contractor for the life of the contract
6 relating to that housing unit.

7 “(2) The head of the installation housing manage-
8 ment office shall be provided a list of any move-out
9 charges that a landlord seeks to collect from an outgoing
10 tenant.

11 “(3) The head of the installation housing manage-
12 ment office shall initiate contact with a tenant regarding
13 the satisfaction of the tenant with the housing unit of the
14 tenant not later than—

15 “(A) 15 days after move-in; and

16 “(B) 60 days after move-in.

17 “(d) REQUIREMENTS FOR LANDLORDS.—(1) The
18 landlord providing a housing unit shall disclose to the Sec-
19 retary of Defense any bonus structures offered for commu-
20 nity managers and regional executives and any bonus
21 structures relating to maintenance of housing units, in
22 order to minimize the impact of those incentives on the
23 operating budget of the installation for which the housing
24 units are provided.

1 “(2) With respect to test results relating to the health
2 and safety condition of a housing unit, the landlord pro-
3 viding the housing unit shall—

4 “(A) not later than three days after receiving
5 the test results, share the results with the tenant of
6 the housing unit and submit the results to the head
7 of the installation housing management office; and

8 “(B) include with any environmental hazard
9 test results a simple guide explaining those results,
10 preferably citing standards set forth by the Federal
11 Government relating to environmental hazards.

12 “(3) Before a prospective tenant signs a lease to oc-
13 cupy a housing unit, the landlord providing the housing
14 unit shall conduct a walkthrough inspection of the housing
15 unit—

16 “(A) for the prospective tenant; or

17 “(B) if the prospective tenant is not able to be
18 present for the inspection, with an official of the
19 housing management office designated by the pro-
20 spective tenant to conduct the inspection on the ten-
21 ant’s behalf.

22 “(4) In the event that the installation housing man-
23 agement office determines that a housing unit does not
24 meet minimum health, safety, and welfare standards set
25 forth in Federal, State, and local law as a result of a

1 walkthrough inspection or an inspection conducted under
2 subsection (c), the landlord providing the housing unit
3 shall remediate any issues and make any appropriate re-
4 pairs to the satisfaction of the housing management office
5 and subject to another inspection by the housing manage-
6 ment office.

7 “(5) A landlord providing a housing unit may not
8 conduct any promotional events to encourage tenants to
9 fill out maintenance comment cards or satisfaction surveys
10 of any kind, without the approval of the chief of the hous-
11 ing management office.

12 “(6) A landlord providing a housing unit may not
13 award an installation of the Department of Defense or an
14 officer or employee of the Department a ‘Partner of the
15 Year award’ or similar award.

16 “(7) A landlord providing a housing unit may not
17 enter into any form of settlement, nondisclosure, or release
18 of liability agreement with a tenant without—

19 “(A) first notifying the tenant of the tenant’s
20 right to assistance from the legal assistance office at
21 the installation; and

22 “(B) not later than five days before entering
23 into such settlement, nondisclosure, or release of li-
24 ability agreement, providing a copy of the agreement

1 and terms to the Assistant Secretary of Defense for
2 Sustainment.

3 “(8) A landlord providing a housing unit may not
4 change the position of a prospective tenant on a waiting
5 list for a housing unit or remove a prospective tenant from
6 the waiting list in response to the prospective tenant turn-
7 ing down an offer for a housing unit, if the housing unit
8 is determined unsatisfactory by the prospective tenant and
9 the determination is confirmed by the housing manage-
10 ment office and the installation commander.

11 “(9) A landlord providing a housing unit shall allow
12 employees of the housing management office and other of-
13 ficers and employees of the Department to conduct—

14 “(A) with the permission of the tenant of the
15 housing unit as appropriate, physical inspections of
16 the housing unit; and

17 “(B) physical inspections of any common areas
18 maintained by the landlord.

19 “(10) A landlord providing a housing unit shall agree
20 to participate in the dispute resolution and payment-with-
21 holding processes established pursuant to section 2894 of
22 this title.

23 “(11) A landlord providing a housing unit shall en-
24 sure that the needs of enrollees in the Exceptional Family
25 Member Program, or any successor program, are consid-

1 ered in assigning prospective tenants to housing units pro-
2 vided by the landlord.

3 “(12) A landlord providing a housing unit shall main-
4 tain an electronic work order system that enables access
5 by the tenant to view work order history, status, and other
6 relevant information, as required by section 2892 of this
7 title.

8 “(13) A landlord providing a housing unit shall agree
9 to have any agreements or forms to be used by the land-
10 lord approved by the Assistant Secretary of Defense for
11 Sustainment, including the following:

12 “(A) A common lease agreement.

13 “(B) Any disclosure or nondisclosure forms that
14 could be given to a tenant.

15 “(e) PROHIBITION AGAINST COLLECTION OF
16 AMOUNTS IN ADDITION TO RENT.—(1) A landlord pro-
17 viding a housing unit may not impose on a tenant of the
18 housing unit a supplemental payment, such as an out-of-
19 pocket fee, in addition to the amount of rent the landlord
20 charges for a unit of similar size and composition to the
21 housing unit, without regard to whether or not the amount
22 of the any basic allowance for housing under section 403
23 of title 37 the tenant may receive as a member of the
24 armed forces is less than the amount of the rent.

25 “(2) Nothing in paragraph (1) shall be construed—

1 “(A) to prohibit a landlord from imposing an
2 additional payment—

3 “(i) for optional services provided to mili-
4 tary tenants, such as access to a gym or a
5 parking space;

6 “(ii) for non-essential utility services, as
7 determined in accordance with regulations pro-
8 mulgated by the Secretary concerned; or

9 “(iii) to recover damages associated with
10 tenant negligence, consistent with subsection
11 (c)(2); or

12 “(B) to limit or otherwise affect the authority
13 of the Secretary concerned to enter into rental guar-
14 antee agreements under section 2876 of this title or
15 to make differential lease payments under section
16 2877 of this title, so long as such agreements or
17 payments do not require a tenant to pay an out-of-
18 pocket fee or payment in addition to the amount of
19 the any basic allowance for housing under section
20 403 of title 37 the tenant may receive as a member
21 of the armed forces.”.

22 (b) MILITARY DEPARTMENT IMPLEMENTATION
23 PLANS.—Not later than February 1, 2020, the Secretary
24 of each military department shall submit to the congres-
25 sional defense committees a plan for the implementation

1 by that military department of section 2891a of title 10,
2 United States Code, as added by subsection (a).

3 (c) EFFECTIVE DATE.—The requirements set forth
4 in section 2891a of title 10, United States Code, as added
5 by subsection (a), shall apply to appropriate legal docu-
6 ments entered into or renewed on or after the date of the
7 enactment of this Act between the Secretary of a military
8 department and a landlord regarding privatized military
9 housing.

10 (d) REPEAL OF REPLACED PROVISION.—

11 (1) REPEAL.—Section 2886 of title 10, United
12 States Code, is repealed.

13 (2) CLERICAL AMENDMENT.—The table of sec-
14 tions at the beginning of subchapter IV of chapter
15 169 of title 10, United States Code, is amended by
16 striking the item relating to section 2886.

17 (e) RETROACTIVE LANDLORD AGREEMENTS.—

18 (1) IN GENERAL.—Not later than February 1,
19 2020, the Secretary of Defense shall seek agreement
20 from all landlords to accept the application of the re-
21 quirements set forth in section 2891a of title 10,
22 United States Code, as added by subsection (a), to
23 appropriate legal documents entered into or renewed
24 before the date of the enactment of this Act between

1 the Secretary of a military department and a land-
2 lord regarding privatized military housing

3 (2) SUBMITTAL OF LIST TO CONGRESS.—Not
4 later than March 1, 2020, the Secretary of Defense
5 shall submit to the congressional defense committees
6 a list of any landlords that did not agree under
7 paragraph (1) to accept the requirements set forth
8 in section 2891a of title 10, United States Code, as
9 added by subsection (a).

10 (3) CONSIDERATION OF LACK OF AGREEMENT
11 IN FUTURE CONTRACTS.—The Secretary of Defense
12 and the Secretaries of the military departments shall
13 include any lack of agreement under paragraph (1)
14 as past performance considered under section 2891b
15 of title 10, United States Code, as added by section
16 3015, with respect to entering into or renewing any
17 future contracts regarding privatized military hous-
18 ing.

19 **SEC. 3015. CONSIDERATION OF CONTRACTOR HISTORY IN**
20 **CONTRACTS FOR PRIVATIZED MILITARY**
21 **HOUSING.**

22 Subchapter V of chapter 169 of title 10, United
23 States Code, as added by section 3011, is amended by in-
24 serting after section 2891a of such title, as added by sec-
25 tion 3014, the following new section:

1 **“§ 2891b. Considerations of eligible entity housing**
2 **history in contracts for privatized mili-**
3 **tary housing**

4 “(a) CONSIDERATION REQUIRED.—To assist in mak-
5 ing a determination whether to enter into a new contract,
6 or renew an existing contract, with an eligible entity, the
7 Secretary of Defense shall develop a standard process by
8 which the Secretary concerned may evaluate the past per-
9 formance of the eligible entity for purposes of informing
10 future decisions regarding the award of such a contract.

11 “(b) ELEMENTS OF PROCESS.—The process devel-
12 oped under subsection (a) shall include, at a minimum,
13 consideration of the following:

14 “(1) Any history of the eligible entity of pro-
15 viding substandard housing.

16 “(2) The recommendation of the commander of
17 the installation for which housing units will be pro-
18 vided under the contract.

19 “(3) The recommendation of the commander of
20 any other installation for which the eligible entity
21 has provided housing units.”.

22 **SEC. 3016. ADDITIONAL IMPROVEMENTS FOR MANAGE-**
23 **MENT OF PRIVATIZED MILITARY HOUSING.**

24 (a) IMPROVED FINANCIAL TRANSPARENCY.—Sub-
25 chapter V of chapter 169 of title 10, United States Code,
26 as added by section 3011, is amended by inserting after

1 section 2891b of such title, as added by section 3015, the
2 following new section:

3 **“§ 2891c. Financial transparency**

4 “(a) SUBMISSION OF LANDLORD FINANCIAL INFOR-
5 MATION.—(1) Not less frequently than annually, the Sec-
6 retary of Defense shall require that each landlord submit
7 to the Secretary a report providing information regarding
8 all housing units provided by the landlord.

9 “(2) Information provided under paragraph (1) by a
10 landlord shall include the following:

11 “(A) A comprehensive summary of the land-
12 lord’s financial performance.

13 “(B) The amount of base management fees re-
14 lating to all housing units provided by the landlord.

15 “(C) The amount of asset management fees re-
16 lating to such housing units.

17 “(D) The amount of preferred return fees relat-
18 ing to such housing units.

19 “(E) The residual cashflow distributions relat-
20 ing to such housing units.

21 “(F) The amount of deferred fees or other fees
22 relating to such housing units.

23 “(3) In this subsection:

24 “(A) The term ‘base management fees’ means
25 the monthly management fees collected for services

1 associated with accepting and processing rent pay-
2 ments, ensuring tenant rent payments, property in-
3 spections, maintenance management, and emergency
4 maintenance calls.

5 “(B) the term ‘asset management fees’ means
6 fees paid to manage a housing unit for the purpose
7 of ensuring the housing unit is maintained in good
8 condition and making repairs over the lifecycle of
9 the housing unit.

10 “(C) the term ‘preferred return fees’ means
11 fees associated with any claims on profits furnished
12 to preferred investors with an interest in the housing
13 unit.

14 “(D) the term ‘residual cashflow distribution’
15 means the steps a specific housing project takes to
16 restructure after it is determined that the project is
17 in an unacceptable financial condition.

18 “(E) the term ‘deferred fee’ means any fee that
19 was not paid to a person in a calendar year in order
20 to meet other financial obligations of the landlord.

21 “(b) AVAILABILITY OF INFORMATION ON USE OF IN-
22 CENTIVE FEES.—(1) Not less frequently than annually,
23 the Secretary of Defense shall publish, on a publicly acces-
24 sible website, information regarding the use by the Sec-

1 retary concerned of incentive fees to support contracts for
2 the provision or management of housing units.

3 “(2) The information provided under paragraph (1)
4 shall include, with respect to each contract, the following:

5 “(A) The applicable incentive fees.

6 “(B) The metrics used to determine the incen-
7 tive fees.

8 “(C) Whether incentive fees were paid in full,
9 or were withheld in part or in full, during the period
10 covered by the release of information.

11 “(D) If any incentive fees were withheld, the
12 reasons for such withholding.”.

13 (b) ESTABLISHMENT AND AVAILABILITY OF COM-
14 PLAINT DATABASE.—Subchapter V of chapter 169 of title
15 10, United States Code, as added by section 3011, is
16 amended by inserting after section 2894 of such title, as
17 added by section 3022, the following new section:

18 **“§ 2894a. Complaint database**

19 “(a) DATABASE REQUIRED.—The Secretary of De-
20 fense shall establish a database of complaints made re-
21 garding housing units.

22 “(b) PUBLIC AVAILABILITY.—The database shall be
23 available to the public.

24 “(c) INCLUSION OF TENANT COMPLAINTS.—The
25 Secretary of Defense shall permit a tenant of a housing

1 unit to file a complaint regarding the housing unit for in-
2 clusion in the database.

3 “(d) INCLUSION OF CERTAIN INFORMATION.—(1) In-
4 formation accessible in the database regarding a complaint
5 shall include the following:

6 “(A) The name of the installation for which the
7 housing unit is provided.

8 “(B) The name of the landlord responsible for
9 the housing unit.

10 “(C) A description of the nature of the com-
11 plaint.

12 “(2) The Secretary of Defense may not disclose per-
13 sonally identifiable information through the database.

14 “(e) RESPONSE BY LANDLORDS.—(1) The Secretary
15 of Defense shall include in any contract with a landlord
16 responsible for a housing unit a requirement that the land-
17 lord respond in a timely manner to any complaints in-
18 cluded in the database that relate to the housing unit.

19 “(2) The Secretary shall include landlord responses
20 in the database.”.

21 (c) AUDITS OF FINANCIAL VIABILITY OF PRIVATIZED
22 MILITARY HOUSING PARTNERSHIPS.—

23 (1) AUDITS REQUIRED.—The Comptroller Gen-
24 eral of the United States, in accordance with best
25 audit practices, shall conduct an audit of the finan-

1 cial viability of each partnership for the provision of
2 privatized military housing that the Comptroller
3 General determines were impacted by extreme
4 weather events or other natural disasters occurring
5 during the 36-month period immediately preceding
6 the date of the enactment of this Act.

7 (2) REQUIRED INFORMATION.—The audit
8 under paragraph (1) shall assess the following:

9 (A) The appropriateness of existing insur-
10 ance caps contained in contracts for privatized
11 military housing.

12 (B) The structure of the cashflow water-
13 fall, including the impact of expenses relating to
14 disaster recovery.

15 (3) SUBMISSION TO CONGRESS.—Not later than
16 February 1, 2021, the Comptroller General shall
17 submit to the Secretary of Defense and the Commit-
18 tees on Armed Services of the Senate and the House
19 of Representatives a report containing the results of
20 the audit conducted under paragraph (1).

21 (d) ADDITIONAL INFORMATION IN CONGRESSIONAL
22 REPORTS ON PRIVATIZED MILITARY HOUSING.—Section
23 2884(c) of title 10, United States Code, is amended by
24 adding at the end the following new paragraphs:

1 “(7) An assessment of the condition of housing
2 units based on the average age of those units and
3 the estimated time until recapitalization.

4 “(8) An assessment of tenant complaints.

5 “(9) An assessment of maintenance response
6 times and completion of maintenance requests.

7 “(10) An assessment of the dispute resolution
8 process, which shall include a specific analysis of
9 each denied tenant request to withhold rent pay-
10 ments and each instance in which the dispute resolu-
11 tion process resulted in a favorable outcome for the
12 landlord.

13 “(11) An assessment of overall customer service
14 for tenants.

15 “(12) A description of the results of any no-no-
16 tice housing inspections conducted.

17 “(13) The results of any resident surveys con-
18 ducted.

19 “(14) With regard to issues of lead-based paint
20 in housing units, a summary of data relating to the
21 presence of lead-based paint in such housing units,
22 including the following by military department:

23 “(A) The total number of housing units
24 containing lead-based paint.

1 “(B) A description of the reasons for the
2 failure to inspect any housing unit that con-
3 tains lead-based paint.

4 “(C) A description of all abatement or
5 mitigation efforts completed or underway in
6 housing units containing lead-based paint.

7 “(D) A certification as to whether military
8 housing under the jurisdiction of the Secretary
9 concerned complies with requirements relating
10 to lead-based paint, lead-based paint activities,
11 and lead-based paint hazards, as described in
12 section 408 of the Toxic Substances Control
13 Act (15 U.S.C. 2688).”.

14 **SEC. 3017. MAINTENANCE WORK ORDER SYSTEM FOR**
15 **PRIVATIZED MILITARY HOUSING.**

16 Subchapter V of chapter 169 of title 10, United
17 States Code, as added by section 3011, is amended by in-
18 serting after section 2891c of such title, as added by sec-
19 tion 3016(a), the following new section:

20 **“§ 2892. Maintenance work order system for housing**
21 **units**

22 “(a) **ELECTRONIC WORK ORDER SYSTEM RE-**
23 **QUIRED.**—The Secretary of Defense shall require that
24 each landlord of a housing unit have an electronic work

1 order system to track all maintenance requests relating
2 to the housing unit.

3 “(b) ACCESS BY DEPARTMENT PERSONNEL.—The
4 Secretary of Defense shall require each landlord of a hous-
5 ing unit to provide access to the maintenance work order
6 system of the landlord relating to the housing unit to the
7 following persons:

8 “(1) Personnel of the housing management of-
9 fice at the installation for which the housing unit is
10 provided.

11 “(2) Personnel of the installation and engineer
12 command or center of the military department con-
13 cerned.

14 “(3) Such other personnel of the Department of
15 Defense as the Secretary determines necessary.”.

16 **SEC. 3018. ACCESS BY TENANTS OF PRIVATIZED MILITARY**
17 **HOUSING TO MAINTENANCE WORK ORDER**
18 **SYSTEM.**

19 Section 2892 of title 10, United States Code, as
20 added by section 3017, is amended by adding at the end
21 the following new subsection:

22 “(c) ACCESS BY TENANTS.—The Secretary of De-
23 fense shall require each landlord of a housing unit to pro-
24 vide access to the maintenance work order system of the
25 landlord relating to the housing unit to the tenant of the

1 housing unit to permit the tenant, at a minimum, to track
2 the status and progress of work orders for maintenance
3 requests relating to the housing unit.”.

4 **SEC. 3019. ACCESS BY TENANTS TO HISTORICAL MAINTENANCE INFORMATION FOR PRIVATIZED MILITARY HOUSING.**

7 Subchapter V of chapter 169 of title 10, United
8 States Code, as added by section 3011, is amended by in-
9 serting after section 2892, as added by section 3017 and
10 amended by section 3018, the following new section:

11 **“§ 2892a. Access by tenants to historical maintenance information**

13 “The Secretary concerned shall require each eligible
14 entity or subsequent landlord that offers for lease a hous-
15 ing unit to provide to a prospective tenant of the housing
16 unit, before the prospective tenant moves into the housing
17 unit as a tenant, all information regarding maintenance
18 conducted with respect to that housing unit for the pre-
19 vious seven years. In this section, the term ‘maintenance’
20 includes any renovations of the housing unit during such
21 period.”.

1 **SEC. 3020. PROHIBITION ON REQUIREMENT TO DISCLOSE**
2 **PERSONALLY IDENTIFIABLE INFORMATION**
3 **IN CERTAIN REQUESTS FOR MAINTENANCE**
4 **OF PRIVATIZED MILITARY HOUSING.**

5 (a) **IN GENERAL.**—Subchapter V of chapter 169 of
6 title 10, United States Code, as added by section 3011,
7 is amended by inserting after section 2892a of such title,
8 as added by section 3019, the following new section:

9 **“§ 2892b. Prohibition on requirement to disclose per-**
10 **sonally identifiable information in re-**
11 **quests for certain maintenance**

12 “A landlord responsible for a housing unit may not
13 require the disclosure of personally identifiable informa-
14 tion as a part of the submission of a request for mainte-
15 nance regarding a housing unit or common area when the
16 disclosure of personally identifiable information is not
17 needed to identify the location at which such maintenance
18 will be performed.”.

19 (b) **EFFECTIVE DATE.**—The prohibition in section
20 2892b of title 10, United States Code, as added by sub-
21 section (a), shall take effect on the date that is one year
22 after the date of the enactment of this Act.

1 **SEC. 3021. TREATMENT OF INCENTIVE FEES FOR LAND-**
2 **LORDS OF PRIVATIZED MILITARY HOUSING**
3 **FOR FAILURE TO REMEDY A HEALTH OR EN-**
4 **VIRONMENTAL HAZARD.**

5 Subchapter V of chapter 169 of title 10, United
6 States Code, as added by section 3011, is amended by in-
7 serting after section 2892b of such title, as added by sec-
8 tion 3020, the following new section:

9 **“§ 2893. Treatment of incentive fees for landlords of**
10 **housing units for failure to remedy**
11 **health or environmental hazards**

12 “The Secretary concerned shall not approve the pay-
13 ment of incentive fees otherwise authorized to be paid to
14 a landlord that the Secretary determines has dem-
15 onstrated a propensity for failing to remedy, or failing to
16 remedy in a timely manner, a health or environmental haz-
17 ard at a housing unit provided by the landlord.”.

18 **SEC. 3022. DISPUTE RESOLUTION PROCESS FOR LAND-**
19 **LORD-TENANT DISPUTES REGARDING**
20 **PRIVATIZED MILITARY HOUSING AND RE-**
21 **QUESTS TO WITHHOLD PAYMENTS DURING**
22 **DISPUTE RESOLUTION PROCESS.**

23 (a) IN GENERAL.—Subchapter V of chapter 169 of
24 title 10, United States Code, as added by section 3011,
25 is amended by inserting after section 2893 of such title,
26 as added by section 3021, the following new section:

1 **“§ 2894. Landlord-tenant dispute resolution process**
2 **and treatment of certain payments dur-**
3 **ing process**

4 “(a) PROCESS REQUIRED; PURPOSE.—The Secretary
5 concerned shall implement a standardized formal dispute
6 resolution process to ensure the prompt and fair resolution
7 of disputes that arise between landlords providing housing
8 units and tenants residing in housing units concerning
9 maintenance and repairs, damage claims, rental payments,
10 move-out charges, and such other issues relating to hous-
11 ing units as the Secretary determines appropriate.

12 “(b) PROCESS ELEMENTS.—(1) The dispute resolu-
13 tion process shall include the process by which a tenant
14 may request that certain payments otherwise authorized
15 to be paid to a landlord are withheld, as provided in sub-
16 section (e).

17 “(2) The process shall designate the installation or
18 regional commander in charge of oversight of housing
19 units as the deciding authority under the dispute resolu-
20 tion process.

21 “(3) The Secretary concerned shall establish a stand-
22 ardized mechanism and forms by which a tenant of a
23 housing unit may submit, through online or other means,
24 a request for resolution of a landlord-tenant dispute
25 through the dispute resolution process.

1 “(4) The Secretary shall ensure that, in preparing a
2 request described in paragraph (3), a tenant has access
3 to advice and assistance from a military housing advocate
4 employed by the military department concerned or a mili-
5 tary legal assistance attorney under section 1044 of this
6 title.

7 “(5) The Secretary concerned shall minimize costs to
8 tenants for participation in the dispute resolution process.

9 “(c) RESOLUTION PROCESS.—(1) Not later than 24
10 hours after receiving a request from a tenant for resolu-
11 tion of a landlord-tenant dispute through the dispute reso-
12 lution process, the Secretary concerned shall—

13 “(A) notify the tenant that the request has
14 been received;

15 “(B) transmit a copy of the request to the in-
16 stallation or regional commander (as the case may
17 be), housing management office responsible for the
18 housing unit, and the landlord of the housing unit;
19 and

20 “(C) if the request includes a request to with-
21 hold payments under subsection (e), initiate the proc-
22 ess under such subsection.

23 “(2) For purposes of conducting an assessment nec-
24 essary to render a decision under the dispute resolution
25 process, both the landlord and representatives of the in-

1 stallation housing management office may access the
2 housing unit at a time and for a duration mutually agreed
3 upon amongst the parties.

4 “(3) Not later than seven days after the date on
5 which the request was received by the installation housing
6 management office shall complete an investigation that in-
7 cludes a physical inspection and transmit the results of
8 the investigation to the installation or regional commander
9 (as the case may be).

10 “(4) Before making any decision with respect to a
11 dispute under the dispute resolution process, the com-
12 mander shall certify that the commander has solicited rec-
13 ommendations or information relating to the dispute from
14 the following persons:

15 “(A) The chief of the installation housing man-
16 agement office.

17 “(B) A representative of the landlord for the
18 housing unit.

19 “(C) The tenant submitting the request for dis-
20 pute resolution.

21 “(D) A qualified judge advocate or civilian at-
22 torney who is a Federal employee.

23 “(E) If the dispute involves maintenance or an-
24 other facilities-related matter, a civil engineer.

1 “(5)(A) The commander shall make a decision with
2 respect to a request under the dispute resolution process
3 not later than 30 days after the request was submitted.

4 “(B) The commander may take longer than such 30-
5 day period in limited circumstances as determined by the
6 Secretary of Defense, but in no case shall such a decision
7 be made more than 60 days after the request was sub-
8 mitted.

9 “(6) A final decision will be transmitted to the tenant
10 and landlord no later than 30 days from initial receipt
11 by the office of the commander, except as provided in
12 paragraph (5)(B).

13 “(7) The decision shall include instructions for dis-
14 tribution of any funds that were withheld under subsection
15 (e) and such instructions for the landlord for further re-
16 mediation as the commander considers necessary.

17 “(8) The decision by the commander under this sub-
18 section shall be final.

19 “(d) EFFECT OF FAILURE TO COMPLY WITH DECI-
20 SION.—If the landlord responsible for the housing unit
21 does not remediate the issues in a manner consistent with
22 the instructions contained in the decision rendered under
23 subsection (c) and within a reasonable period of time, as
24 provided in the decision, any amounts payable to the land-
25 lord for the housing unit shall be reduced by 10 percent

1 for each period of five days during which the issues remain
2 unremediated.

3 “(e) REQUEST TO WITHHOLD PAYMENTS DURING
4 RESOLUTION PROCESS.—(1) As part of the submission of
5 a request for resolution of a landlord-tenant dispute
6 through the dispute resolution process, the tenant may re-
7 quest that all or part of the payments described in para-
8 graph (2) for lease of the housing unit be withheld from
9 the landlord of the housing unit during the period in
10 which—

11 “(A) the landlord has not met maintenance
12 guidelines and procedures established by the Depart-
13 ment of Defense, either through contract or other-
14 wise; or

15 “(B) the housing unit is uninhabitable accord-
16 ing to State and local law for the jurisdiction in
17 which the housing unit is located.

18 “(2) Paragraph (1) applies to the following:

19 “(A) Any basic allowance for housing payable
20 to the tenant (including for any dependents of the
21 tenant in the tenant’s household) under section 403
22 of title 37.

23 “(B) All or part of any pay of a tenant subject
24 to allotment as described in section 2882(c) of this
25 title.

1 “(3) Upon the submission of a request by a tenant
2 under this subsection and under such procedures as the
3 Secretary of Defense shall establish, the Defense Finance
4 and Accounting Service or such other appropriate office
5 of the Department of Defense as the Secretary shall speci-
6 fy for purposes of such procedures, shall tentatively grant
7 the request and hold any amounts withheld in escrow with
8 notice to the landlord until the conclusion of the dispute
9 resolution process.

10 “(f) DISCLOSURE OF RIGHTS.—(1) Each housing
11 management office of the Department of Defense shall
12 disclose in writing to each new tenant of a housing unit,
13 upon the signing of the lease for the housing unit, the
14 tenant’s rights under this section and the procedures
15 under this section for submitting a request for resolution
16 of a landlord-tenant dispute through the dispute resolution
17 process, including the ability to submit a request to with-
18 hold payments during the resolution process.

19 “(2) The Secretary of Defense shall ensure that each
20 lease entered into with a tenant for a housing unit clearly
21 expresses, in a separate addendum, the dispute resolution
22 procedures.

23 “(g) RULE OF CONSTRUCTION ON USE OF OTHER
24 ADJUDICATIVE BODIES.—Nothing in this section or any
25 other provision of law shall be construed to prohibit a ten-

1 ant of a housing unit from pursuing a claim against a
2 landlord in any adjudicative body with jurisdiction over
3 the housing unit or the claim.”.

4 (b) MODIFICATION OF DEFINITION OF MILITARY
5 LEGAL ASSISTANCE.—Section 1044(d)(3)(B) of title 10,
6 United States Code, is amended by striking “and
7 1565b(a)(1)(A)” and inserting “1565b(a)(1)(A), and
8 2894(b)(4)”.

9 (c) TIMING OF ESTABLISHMENT.—Not later than
10 180 days after the date of the enactment of this Act, the
11 Secretary of Defense shall establish the dispute resolution
12 process required under section 2894 of title 10, United
13 States Code, as added by subsection (a).

14 (d) LANDLORD AGREEMENTS.—

15 (1) IN GENERAL.—Not later than February 1,
16 2020, the Secretary of Defense shall seek agreement
17 from all landlords to participate in the dispute reso-
18 lution and payment-withholding processes required
19 under section 2894 of title 10, United States Code,
20 as added by subsection (a).

21 (2) SUBMITTAL OF LIST TO CONGRESS.—Not
22 later than March 1, 2020, the Secretary of Defense
23 shall submit to the congressional defense committees
24 a list of any landlords that did not agree under

1 paragraph (1) to participate in the dispute resolu-
2 tion and payment-withholding processes.

3 (3) CONSIDERATION OF LACK OF AGREEMENT
4 IN FUTURE CONTRACTS.—The Secretary of Defense
5 and the Secretaries of the military departments shall
6 include any lack of agreement under paragraph (1)
7 as past performance considered under section 2891b
8 of title 10, United States Code, as added by section
9 3015,with respect to entering into or renewing any
10 future contracts regarding privatized military hous-
11 ing.

12 **SEC. 3023. INVESTIGATION OF REPORTS OF REPRISALS RE-**
13 **LATING TO PRIVATIZED MILITARY HOUSING**
14 **AND CONGRESSIONAL NOTIFICATION.**

15 Section 2890 of title 10, United States Code, as
16 added by section 3011, is amended by inserting after sub-
17 section (d) the following new subsection:

18 “(e) INVESTIGATION OF REPORTS OF REPRISALS.—
19 (1) The Assistant Secretary of Defense for Sustainment
20 shall investigate all reports of reprisal against a member
21 of the armed forces for reporting an issue relating to a
22 housing unit.

23 “(2) If the Assistant Secretary of Defense for
24 Sustainment determines under paragraph (1) that land-
25 lord has retaliated against a member of the armed forces

1 for reporting an issue relating to a housing unit, the As-
2 sistant Secretary shall—

3 “(A) provide initial notice to the Committees on
4 Armed Services of the Senate and the House of Rep-
5 resentatives as soon as practicable after making that
6 determination; and

7 “(B) following that initial notice, provide an up-
8 date to such committees every 30 days thereafter
9 until such time as the Assistant Secretary has taken
10 final action with respect to the retaliation.

11 “(3) The Assistant Secretary of Defense for
12 Sustainment shall carry out this subsection in coordina-
13 tion with the Secretary of the military department con-
14 cerned.”.

15 **SEC. 3024. PROHIBITION ON USE OF NONDISCLOSURE**
16 **AGREEMENTS IN CONNECTION WITH LEASES**
17 **OF PRIVATIZED MILITARY HOUSING.**

18 (a) NONDISCLOSURE AGREEMENTS PROHIBITED.—
19 Section 2890 of title 10, United States Code, as added
20 by section 3011, is amended by inserting after subsection
21 (e), as added by section 3023, the following new sub-
22 section:

23 “(f) PROHIBITION ON USE OF NONDISCLOSURE
24 AGREEMENTS.—(1) A tenant or prospective tenant of a
25 housing unit may not be required to sign a nondisclosure

1 agreement in connection with entering into, continuing, or
2 terminating a lease for the housing unit. Any such agree-
3 ment against the interests of the tenant is invalid.

4 “(2) Paragraph (1) shall not apply to a nondisclosure
5 agreement executed as part of the settlement of litiga-
6 tion.”.

7 (b) IMPLEMENTATION.—The Secretary of Defense
8 and the Secretaries of the military departments shall pro-
9 mulgate such regulations as may be necessary to give full
10 force and effect to subsection (f) of section 2890 of title
11 10, United States Code, as added by subsection (a).

12 (c) RETROACTIVE APPLICATION OF AMENDMENT.—
13 Subsection (f) of section 2890 of title 10, United States
14 Code, as added by subsection (a), shall apply with respect
15 to any nondisclosure agreement covered by the terms of
16 such subsection (f) regardless of the date on which the
17 agreement was executed.

18 **Subtitle B—Other Amendatory** 19 **Provisions**

20 **SEC. 3031. INSTALLATION OF CARBON MONOXIDE DETEC-** 21 **TORS IN MILITARY FAMILY HOUSING.**

22 Section 2821 of title 10, United States Code, is
23 amended by adding at the end the following new sub-
24 section:

1 “(e) The Secretary concerned shall provide for the in-
2 stallation and maintenance of an appropriate number of
3 carbon monoxide detectors in each unit of military family
4 housing under the jurisdiction of the Secretary.”.

5 **SEC. 3032. AUTHORITY TO FURNISH CERTAIN SERVICES IN**
6 **CONNECTION WITH USE OF ALTERNATIVE**
7 **AUTHORITY FOR ACQUISITION AND IM-**
8 **PROVEMENT OF MILITARY HOUSING.**

9 Section 2872a(b) of title 10, United States Code, is
10 amended by adding at the end the following new para-
11 graphs:

12 “(13) Street sweeping.

13 “(14) Tree trimming and removal.”.

14 **SEC. 3033. TREATMENT OF BREACH OF CONTRACT FOR**
15 **PRIVATIZED MILITARY HOUSING.**

16 (a) IN GENERAL.—Subchapter IV of chapter 169 of
17 title 10, United States Code, is amended by inserting after
18 section 2872a the following new section:

19 **“§ 2872b. Treatment of breach of contract**

20 “(a) RESPONSE TO MATERIAL BREACH.—In the case
21 of a material breach of contract under this subchapter by
22 a party to the contract, the Secretary concerned shall use
23 the authorities available to the Secretary, including with-
24 holding amounts to be paid under the contract, to encour-
25 age the party to cure the breach.

1 “(b) RESCINDING OF CONTRACT.—If a material
2 breach of the contract is not cured in a timely manner,
3 as determined by the Secretary concerned, the Secretary
4 may—

5 “(1) rescind the contract pursuant to the terms
6 of the contract; and

7 “(2) prohibit the offending party from entering
8 into a new contract or undertaking expansions of
9 other existing contracts, or both, with the Secretary
10 under this subchapter.”.

11 (b) CLERICAL AMENDMENT.—The table of sections
12 at the beginning of subchapter IV of chapter 169 of title
13 10, United States Code, is amended by inserting after the
14 item relating to section 2872a the following new item:

“2872b. Treatment of breach of contract.”.

15 **SEC. 3034. MODIFICATION TO REQUIREMENTS FOR WIN-**
16 **DOW FALL PREVENTION DEVICES IN MILI-**
17 **TARY FAMILY HOUSING UNITS.**

18 (a) FALL PREVENTION DEVICE REQUIREMENTS.—
19 Section 2879(a) of title 10, United States Code, is amend-
20 ed—

21 (1) in paragraph (1), by striking “that protect
22 against unintentional window falls by young children
23 and that are in compliance with applicable Inter-
24 national Building Code (IBC) standards” and insert-
25 ing “described in paragraph (3)”;

1 (2) in paragraph (2)—

2 (A) in subparagraph (A), by striking “De-
3 cember 11, 2017” and inserting “October 1,
4 2019”; and

5 (B) in subparagraph (B), by striking “Sep-
6 tember 1, 2018” and inserting “October 1,
7 2019”; and

8 (3) by adding at the end the following new
9 paragraph:

10 “(3) FALL PREVENTION DEVICE DESCRIBED.—
11 A fall prevention device is a window screen or guard
12 that complies with applicable standards in ASTM
13 standard F2090–13 (or any successor standard).”.

14 (b) MODIFICATION TO WINDOW DESCRIPTION.—Sec-
15 tion 2879(c) of title 10, United States Code, is amended
16 by striking “24” and inserting “42”.

17 (c) CONFORMING AMENDMENT.—Section 2879(b)(1)
18 of title 10, United States Code, is amended by striking
19 “paragraph (1)” and inserting “paragraph (3)”.

1 **SEC. 3035. EXPANSION OF DIRECT HIRE AUTHORITY FOR**
2 **DEPARTMENT OF DEFENSE FOR CHILDCARE**
3 **SERVICES PROVIDERS FOR DEPARTMENT**
4 **CHILD DEVELOPMENT CENTERS TO INCLUDE**
5 **DIRECT HIRE AUTHORITY FOR INSTALLA-**
6 **TION MILITARY HOUSING OFFICE PER-**
7 **SONNEL.**

8 (a) IN GENERAL.—Section 559 of the National De-
9 fense Authorization Act for Fiscal Year 2018 (Public Law
10 115–91; 131 Stat. 1406; 10 U.S.C. 1792 note) is amend-
11 ed—

12 (1) in subsection (a)—

13 (A) in the matter preceding paragraph (1),
14 by inserting “, and individuals to fill vacancies
15 in installation military housing offices,” after
16 “childcare services providers”;

17 (B) in paragraph (1), by inserting “or for
18 employees at installation military housing of-
19 fices” before the semicolon; and

20 (C) in paragraph (2), by inserting “or for
21 installation military housing office employees”
22 before the period;

23 (2) by redesignating subsection (f) as sub-
24 section (g); and

25 (3) by inserting after subsection (e) the fol-
26 lowing new subsection (f):

1 “(f) INSTALLATION MILITARY HOUSING OFFICE DE-
2 FINED.—The term ‘installation military housing office’
3 means any office whose primary function is performing
4 day-to-day supervision of military housing covered by sub-
5 chapter IV of chapter 169 of title 10, United States
6 Code.”.

7 (b) HEADING AND TECHNICAL AMENDMENTS.—

8 (1) HEADING AMENDMENT.—The heading of
9 such section is amended to read as follows:

10 **“SEC. 559. DIRECT HIRE AUTHORITY FOR DEPARTMENT OF**
11 **DEFENSE FOR CHILDCARE SERVICES PRO-**
12 **VIDERS FOR DEPARTMENT CHILD DEVELOP-**
13 **MENT CENTERS AND EMPLOYEES AT INSTAL-**
14 **LATION MILITARY HOUSING OFFICES.”.**

15 (2) TECHNICAL AMENDMENT.—Subsection (d)
16 of such section is amended by striking “Oversight
17 and Government Reform” and inserting “Oversight
18 and Reform”.

19 (c) USE OF EXISTING REGULATIONS.—The Sec-
20 retary of Defense shall use the authority in section 559
21 of the National Defense Authorization Act for Fiscal Year
22 2018 granted by the amendments made by this section
23 in a manner consistent with the regulations prescribed for
24 purposes of such section 559 pursuant to subsection (b)

1 of such section 559, without the need to prescribe separate
2 regulations for the use of such authority.

3 **SEC. 3036. MODIFICATION OF AUTHORITY TO MAKE PAY-**
4 **MENTS TO LESSORS OF PRIVATIZED MILI-**
5 **TARY HOUSING.**

6 (a) MODIFICATION OF PAYMENT AUTHORITY.—Sub-
7 section (a) of section 606 of the John S. McCain National
8 Defense Authorization Act for Fiscal Year 2019 (Public
9 Law 115–232; 132 Stat. 1795; 10 U.S.C. 2871 note) is
10 amended to read as follows:

11 “(a) USE OF FUNDS IN CONNECTION WITH
12 MHPI.—

13 “(1) PAYMENTS TO LESSORS GENERALLY.—

14 “(A) PAYMENT AUTHORITY.—Each month
15 beginning with the first month after the date of
16 the enactment of the National Defense Author-
17 ization Act for Fiscal Year 2020, each Sec-
18 retary of a military department shall use funds,
19 in an amount determined under subparagraph
20 (B), to make payments to lessors of covered
21 housing in the manner provided by this sub-
22 section, as in effect on the day before the date
23 of the enactment of the National Defense Au-
24 thorization Act for Fiscal Year 2020.

1 “(B) CALCULATION OF MONTHLY PAY-
2 MENTS.—For purposes of making payments
3 under subparagraph (A) for a month, the Sec-
4 retary of the military department concerned
5 shall determine the amount equal to 2.5 percent
6 of the aggregate of the amounts calculated
7 under section 403(b)(3)(A)(i) of title 37,
8 United States Code, for covered housing under
9 the jurisdiction of the Secretary for that month.

10 “(2) ADDITIONAL PAYMENTS TO LESSORS RE-
11 SPONSIBLE FOR UNDERFUNDED PROJECTS.—

12 “(A) PAYMENT AUTHORITY.—Each month
13 beginning with the first month after the date of
14 the enactment of the National Defense Author-
15 ization Act for Fiscal Year 2020, each Sec-
16 retary of a military department shall use funds,
17 in an amount determined under subparagraph
18 (B), to make additional payments to certain les-
19 sors responsible for underfunded MHPI housing
20 projects identified pursuant to subparagraph
21 (C) for the purposes of future sustainment, re-
22 capitalization, and financial sustainability of the
23 projects.

24 “(B) CALCULATION OF MONTHLY PAY-
25 MENTS.—For purposes of making payments

1 under subparagraph (A) for a month, the Sec-
2 retary of the military department concerned
3 shall determine the amount equal to 2.5 percent
4 of the aggregate of the amounts calculated
5 under section 403(b)(3)(A)(i) of title 37,
6 United States Code, for covered housing under
7 the jurisdiction of the Secretary for that month.

8 “(C) IDENTIFICATION OF UNDERFUNDED
9 PROJECTS.—The Chief Housing Officer of the
10 Department of Defense, in conjunction with the
11 Secretaries of the military departments, shall
12 assess MHPI housing projects for the purpose
13 of identifying all MHPI housing projects that
14 are underfunded. Once identified, the Chief
15 Housing Officer shall prioritize for payments
16 under subparagraph (A) those MHPI housing
17 projects most in need of funding to rectify such
18 underfunding.

19 “(3) ALTERNATIVE AUTHORITY IN EVENT OF
20 LACK OF UNDERFUNDED PROJECTS.—

21 “(A) IN GENERAL.—Subject to subpara-
22 graph (B), if the Chief Housing Officer deter-
23 mines that no MHPI housing projects for a
24 military department require additional funding
25 under paragraph (2) for a month, the Secretary

1 of the military department concerned, in con-
2 sultation with the Chief Housing Officer, may
3 allocate the funds otherwise available to the
4 Secretary under such paragraph for that month
5 to support improvements designed to enhance
6 the quality of life of members of the uniformed
7 services and their families who reside in MHPI
8 housing.

9 “(B) CONDITIONS.—Before the Secretary
10 of a military department may allocate funds as
11 authorized by subparagraph (A), the Chief
12 Housing Officer shall certify to the Committees
13 on Armed Services of the Senate and the House
14 of Representatives that there are no MHPI
15 housing projects for the military department re-
16 quire additional funding under paragraph (2).
17 The certification shall include sufficient details
18 to show why no projects are determined to need
19 the additional funds.

20 “(4) BRIEFING REQUIRED.—Not later than
21 March 1, 2020, and each year thereafter, the Sec-
22 retary of Defense shall provide a briefing to the
23 Committee on Armed Services of the Senate and the
24 House of Representatives detailing the expenditure
25 of funds under paragraphs (2) and (3), the MHPI

1 housing projects receiving funds under such para-
2 graphs, and any other information the Secretary
3 considers relevant.”.

4 (b) EFFECTIVE DATE.—The amendment made by
5 this section shall take effect on the date of the enactment
6 of this Act and shall apply with respect to months begin-
7 ning after that date.

8 **SEC. 3037. TECHNICAL CORRECTION TO DEFINITION USED**
9 **TO MAKE PAYMENTS TO LESSORS OF**
10 **PRIVATIZED MILITARY HOUSING.**

11 Paragraph (3) of section 606(d) of the John S.
12 McCain National Defense Authorization Act for Fiscal
13 Year 2019 (Public Law 115–232; 132 Stat. 1796; 10
14 U.S.C. 2871 note) is amended to read as follows:

15 “(3) The term ‘MHPI housing’ means housing
16 procured, acquired, constructed, or for which any
17 phase or portion of a project agreement was first fi-
18 nalized and signed, under the alternative authority
19 of subchapter IV of chapter 169 of title 10, United
20 States Code (known as the Military Housing Privat-
21 ization Initiative), on or before September 30,
22 2014.”.

1 **Subtitle C—One-Time Reporting**
2 **Requirements**

3 **SEC. 3041. REPORT ON CIVILIAN PERSONNEL SHORTAGES**
4 **FOR APPROPRIATE OVERSIGHT OF MANAGE-**
5 **MENT OF MILITARY HOUSING CONSTRUCTED**
6 **OR ACQUIRED USING ALTERNATIVE AUTHOR-**
7 **ITY FOR ACQUISITION AND IMPROVEMENT**
8 **OF MILITARY HOUSING.**

9 (a) REPORT.—Not later than six months after the
10 date of the enactment of this Act, the Secretary of De-
11 fense, in coordination with the Secretaries of the military
12 departments, shall submit to the congressional defense
13 committees a report containing the following:

14 (1) An evaluation of the extent to which short-
15 ages in the number of civilian personnel performing
16 oversight functions at Department of Defense hous-
17 ing management offices or assigned to housing-re-
18 lated functions at headquarters levels contribute to
19 problems regarding the management of privatized
20 military housing.

21 (2) Recommendations to address such personnel
22 shortages—

23 (A) to eliminate problems regarding the
24 management of privatized military housing;

1 (B) to ensure oversight of the partner's
2 execution of the housing agreement and the de-
3 livery of all requirements in accordance with
4 implementing guidance provided by the Secre-
5 taries of the military departments;

6 (C) to improve oversight of and expedite
7 the work-order process; and

8 (D) to facilitate a positive experience for
9 members of the Armed Forces and their de-
10 pendents who reside in privatized military hous-
11 ing.

12 (b) PERSONNEL RECOMMENDATIONS.—As part of
13 the recommendations required by subsection (a)(2), the
14 Secretary of Defense shall identify the following:

15 (1) The number of additional personnel who are
16 required, the installation and headquarter locations
17 at which they will be employed, the employment po-
18 sitions they will fill, and the duties they will per-
19 form, including a breakdown of duty requirements
20 by function, such as oversight, home inspectors, and
21 maintenance.

22 (2) The number of such additional personnel al-
23 ready hired as of the date on which the report is
24 submitted and their duty locations and the timeline

1 for employing the remaining required personnel
2 identified under paragraph (1).

3 (3) The estimated cost of employing the addi-
4 tional required personnel identified under paragraph
5 (1).

6 **SEC. 3042. PLANS FOR CREATION OF COUNCILS ON**
7 **PRIVATIZED MILITARY HOUSING.**

8 (a) PLANS REQUIRED.—Not later than February 1,
9 2020, the Assistant Secretary of each military department
10 shall submit to the congressional defense committees a
11 plan for the creation within the military department con-
12 cerned of a council on privatized military housing for the
13 purposes of maintaining adequate oversight of the military
14 housing program and serving as a mechanism to identify
15 and resolve problems regarding privatized military hous-
16 ing.

17 (b) PLAN ELEMENTS.—The plan for a military de-
18 partment shall include—

19 (1) an implementation schedule for the creation
20 the council on privatized military housing;

21 (2) proposed members of the council, which
22 shall include, at a minimum, the Assistant Secretary
23 concerned and a representative from the installation
24 housing offices and the civil engineering community;
25 and

1 (3) the planned frequency of council meetings.

2 **SEC. 3043. PLAN FOR ESTABLISHMENT OF DEPARTMENT OF**
3 **DEFENSE JURISDICTION OVER OFF-BASE**
4 **PRIVATIZED MILITARY HOUSING.**

5 (a) PLAN REQUIRED.—Not later than 180 days after
6 the date of the enactment of this Act, the Secretary of
7 Defense shall submit to the congressional defense commit-
8 tees a plan to establish jurisdiction by the Department of
9 Defense for law enforcement and other specified purposes,
10 concurrently with local community law enforcement, at lo-
11 cations with privatized military housing that is not located
12 on an installation of the Department of Defense.

13 (b) CONSULTATION.—The Secretary of Defense shall
14 prepare the plan in consultation with the Secretaries of
15 the military departments.

16 **SEC. 3044. INSPECTOR GENERAL REVIEW OF DEPARTMENT**
17 **OF DEFENSE OVERSIGHT OF PRIVATIZED**
18 **MILITARY HOUSING.**

19 Not later than one year after the date of the enact-
20 ment of this Act, and annually thereafter until 2022, the
21 Inspector General of the Department of Defense shall—

22 (1) conduct, at not less than three military in-
23 stallations, a review of the oversight by the Sec-
24 retary of Defense of privatized military housing at
25 such installations; and

1 (2) make publicly available on a website of the
2 Department a summary of the results of the review.

3 **SEC. 3045. INFORMATION ON LEGAL SERVICES PROVIDED**
4 **TO MEMBERS OF THE ARMED FORCES**
5 **HARMED BY HEALTH OR ENVIRONMENTAL**
6 **HAZARDS AT MILITARY HOUSING.**

7 (a) REPORT.—Not later than 90 days after the date
8 of the enactment of this Act, the Secretary of Defense
9 shall submit to the congressional defense committees a re-
10 port on the legal services that the Secretary may provide
11 to members of the Armed Forces who have been harmed
12 by a health or environmental hazard while living in mili-
13 tary housing.

14 (b) AVAILABILITY OF INFORMATION.—The Secretary
15 of the military department concerned shall make the infor-
16 mation contained in the report submitted under subsection
17 (a) available to members of the Armed Forces at all instal-
18 lations of the Department of Defense in the United States.

1 **Subtitle D—Development of Hous-**
2 **ing Reform Standards and Proc-**
3 **esses**

4 **SEC. 3051. UNIFORM CODE OF BASIC STANDARDS FOR**
5 **PRIVATIZED MILITARY HOUSING AND PLAN**
6 **TO CONDUCT INSPECTIONS AND ASSESS-**
7 **MENTS.**

8 (a) UNIFORM CODE.—Not later than February 1,
9 2021, the Secretary of Defense shall establish and imple-
10 ment a uniform code of basic housing standards for safety,
11 comfort, and habitability for privatized military housing,
12 which shall meet or exceed requirements informed by a
13 nationally recognized, consensus-based, model property
14 maintenance code.

15 (b) INSPECTION AND ASSESSMENT PLAN.—Not later
16 than February 1, 2020, the Secretary of Defense shall
17 submit to the congressional defense committees a Depart-
18 ment of Defense plan to contract with qualified home in-
19 spectors to conduct a thorough inspection and assessment
20 of the structural integrity and habitability of each unit of
21 privatized military housing. The plan shall include the im-
22 plementation plan for the uniform code to be established
23 under subsection (a).

24 (c) IMPLEMENTATION OF INSPECTIONS AND ASSESS-
25 MENTS.—

1 (1) IMPLEMENTATION.—Not later than Feb-
2 ruary 1, 2021, the Secretary of the military depart-
3 ment concerned shall commence conducting inspec-
4 tions and assessments of units of privatized military
5 housing pursuant to the plan submitted under sub-
6 section (b) to identify issues and ensure compliance
7 with applicable housing codes, including the uniform
8 code established under subsection (a).

9 (2) REPORT.—Not later than March 1, 2021,
10 the Secretary of Defense shall submit to the con-
11 gressional defense committees a report on the find-
12 ings of the inspections and assessments conducted
13 under paragraph (1).

14 (d) QUALIFIED HOME INSPECTORS DESCRIBED.—
15 For purposes of this section, a qualified home inspector
16 must possess the appropriate credentials for the work the
17 inspector will perform, as defined by the respective State
18 in which the work will be performed. A qualified home in-
19 spector may not be an employee or in a fiduciary relation-
20 ship with—

21 (1) the Federal Government; or

22 (2) an individual or entity who owns or man-
23 ages privatized military housing.

1 **SEC. 3052. TOOL FOR ASSESSMENT OF HAZARDS IN DE-**
2 **PARTMENT OF DEFENSE HOUSING.**

3 (a) HAZARD ASSESSMENT TOOL.—

4 (1) DEVELOPMENT REQUIRED.—Not later than
5 180 days after the date of the enactment of this Act,
6 the Secretary of Defense shall develop an assessment
7 tool, such as a rating system or similar mechanism,
8 to identify and measure health and safety hazards in
9 housing under the jurisdiction of the Department of
10 Defense (including privatized military housing).

11 (2) COMPONENTS.—The assessment tool shall
12 provide for the identification and measurement of
13 the following hazards:

14 (A) Physiological hazards, including damp-
15 ness and mold growth, lead-based paint, asbes-
16 tos and manmade fibers, radiation, biocides,
17 carbon monoxide, and volatile organic com-
18 pounds.

19 (B) Psychological hazards, including ease
20 of access by unlawful intruders, and lighting
21 issues.

22 (C) Infection hazards.

23 (D) Safety hazards.

24 (3) PUBLIC FORUMS.—In developing the assess-
25 ment tool, the Secretary of Defense shall provide for
26 multiple public forums at which the Secretary may

1 receive input with respect to such assessment tool
2 from occupants of housing under the jurisdiction of
3 the Department of Defense (including privatized
4 military housing).

5 (4) REPORT.—Not later than 210 days after
6 the date of the enactment of this Act, the Secretary
7 of Defense shall submit to the Committees on Armed
8 Services of the Senate and the House of Representa-
9 tives a report on the assessment tool.

10 (b) HAZARD ASSESSMENTS.—

11 (1) ASSESSMENTS REQUIRED.—Not later than
12 one year after the date of the enactment of this Act,
13 the Secretary of Defense, using the assessment tool
14 developed under subsection (a)(1), shall complete a
15 hazard assessment for each housing facility under
16 the jurisdiction of the Department of Defense (in-
17 cluding privatized military housing).

18 (2) TENANT INFORMATION.—As soon as prac-
19 ticable after the completion of the hazard assess-
20 ment conducted for a housing facility under para-
21 graph (1), the Secretary of Defense shall provide to
22 each individual who leases or is assigned to a hous-
23 ing unit in the facility a summary of the results of
24 the assessment.

1 **SEC. 3053. PROCESS TO IDENTIFY AND ADDRESS ENVIRON-**
2 **MENTAL HEALTH HAZARDS IN DEPARTMENT**
3 **OF DEFENSE HOUSING.**

4 (a) PROCESS REQUIRED.—Not later than 180 days
5 after the date of the enactment of this Act, the Secretary
6 of Defense, in coordination with the Secretaries of the
7 military departments, shall develop a process to identify,
8 record, and resolve environmental health hazards in hous-
9 ing under the jurisdiction of the Department of Defense
10 (including privatized housing) in a timely manner.

11 (b) ELEMENTS OF PROCESS.—The process developed
12 under subsection (a) shall provide for the following with
13 respect to each identified environmental health hazard:

14 (1) Categorization of the hazard.

15 (2) Identification of health risks posed by the
16 hazard.

17 (3) Identification of the number of housing oc-
18 cupants potentially affected by the hazard.

19 (4) Recording and maintenance of information
20 regarding the hazard.

21 (5) Resolution of the hazard, which shall in-
22 clude—

23 (A) the performance by the Secretary of
24 Defense (or in the case of privatized housing,
25 the landlord) of hazard remediation activities at
26 the affected facility; and

1 (B) follow-up by the Secretary of Defense
2 to collect information on medical care related to
3 the hazard sought or received by individuals af-
4 fected by the hazard.

5 (c) COORDINATION.—The Secretary of Defense shall
6 ensure coordination between military treatment facilities,
7 appropriate public health officials, and housing managers
8 at military installations with respect to the development
9 and implementation of the process required by subsection
10 (a).

11 (d) REPORT.—Not later than 210 days after the date
12 of the enactment of this Act, the Secretary of Defense
13 shall submit to the Committees on Armed Services of the
14 Senate and the House of Representatives a report on the
15 process required by subsection (a).

16 **SEC. 3054. DEPARTMENT OF DEFENSE POLICY ON LEAD-**
17 **BASED PAINT TESTING ON MILITARY INSTAL-**
18 **LATIONS.**

19 (a) ACCESS AND TESTING POLICY.—Not later than
20 February 1, 2020, the Secretary of Defense shall establish
21 a policy under which the Secretary of the military depart-
22 ment concerned may permit a qualified individual to ac-
23 cess a military installation for the purpose of conducting
24 testing for the presence of lead-based paint on the installa-
25 tion.

1 (b) TRANSMISSION OF RESULTS.—

2 (1) INSTALLATIONS INSIDE THE UNITED
3 STATES.—In the case of military installations lo-
4 cated inside the United States, the results of any
5 testing for lead-based paint on a military installation
6 shall be transmitted the following:

7 (A) The civil engineer of the installation.

8 (B) The housing management office of the
9 installation.

10 (C) The public health organization on the
11 installation.

12 (D) The major subordinate command of
13 the Armed Force with jurisdiction over the in-
14 stallation.

15 (E) If required by law, any relevant Fed-
16 eral, State, and local agencies.

17 (2) INSTALLATIONS OUTSIDE THE UNITED
18 STATES.—In the case of military installations lo-
19 cated outside the United States, the results of any
20 testing for lead-based paint on a military installation
21 shall be transmitted to the civil engineer or com-
22 mander of the installation who shall transmit those
23 results to the major subordinate command of the
24 Armed Force with jurisdiction over the installation.

25 (c) DEFINITIONS.—In this section:

1 (1) The term “United States” has the meaning
2 given that term in section 101(a)(1) of title 10,
3 United States Code.

4 (2) The term “qualified individual” means an
5 individual who is certified by the Environmental
6 Protection Agency or by a State as—

7 (A) a lead-based paint inspector; or

8 (B) a lead-based paint risk assessor.

9 **SEC. 3055. STANDARD FOR MINIMUM CREDENTIALS FOR**
10 **HEALTH AND ENVIRONMENTAL INSPECTORS**
11 **OF PRIVATIZED MILITARY HOUSING.**

12 (a) DEVELOPMENT AND SUBMISSION OF STAND-
13 ARD.—Not later than February 1, 2020, the Secretary of
14 Defense shall submit to the congressional defense commit-
15 tees a report that contains a standard for minimum cre-
16 dentials to be used throughout the Department of Defense
17 for all inspectors of health and environmental hazards at
18 privatized military housing, including inspectors con-
19 tracted by the Department.

20 (b) INCLUSION OF CATEGORIES FOR SPECIFIC ENVI-
21 RONMENTAL HAZARDS.—The standard submitted under
22 subsection (a) shall include categories for specific environ-
23 mental hazards such as lead, mold, and radon.

1 **SEC. 3056. REQUIREMENTS RELATING TO MOVE-IN, MOVE-**
2 **OUT, AND MAINTENANCE OF PRIVATIZED**
3 **MILITARY HOUSING.**

4 (a) MOVE-IN AND MOVE-OUT CHECKLIST.—

5 (1) CHECKLIST REQUIRED.—The Secretary of
6 Defense shall develop a uniform move-in and move-
7 out checklist for use by landlords providing
8 privatized military housing and by tenants of such
9 housing.

10 (2) REQUIRED MOVE-IN ELEMENT.—A tenant
11 who will occupy a unit of privatized military housing
12 is entitled to be present for an inspection of the
13 housing unit before accepting occupancy of the hous-
14 ing unit to ensure that the unit is habitable and that
15 facilities and common areas of the building are in
16 good repair.

17 (3) REQUIRED MOVE-OUT ELEMENT.—A tenant
18 of a unit of privatized military housing is entitled to
19 be present for the move-out inspection of the hous-
20 ing unit and must be given sufficient time to address
21 any concerns related to the tenant's occupancy of
22 the housing unit.

23 (b) MAINTENANCE CHECKLIST.—The Secretary of
24 Defense shall—

25 (1) develop a uniform checklist to be used by
26 housing management offices to validate the comple-

1 plates, and forms do not conflict with applicable
2 State and local housing regulations.

3 (2) INITIAL GUIDANCE.—Not later than 30
4 days after the date of the enactment of this Act, the
5 Secretary of Defense shall issue guidance for the de-
6 velopment of the following:

7 (A) Policies and standard operating proce-
8 dures of the Department for privatized military
9 housing.

10 (B) A universal lease agreement for
11 privatized military housing that includes—

12 (i) the documents developed pursuant
13 to section 2890 of title 10, United States
14 Code, as added by section 3011, entitled
15 Military Housing Privatization Initiative
16 Tenant Bill of Rights and Military Hous-
17 ing Privatization Initiative Tenant Respon-
18 sibilities; and

19 (ii) any lease addendum required by
20 the law of the State in which the unit of
21 privatized military housing is located.

22 (3) CONSULTATION.—The Secretary of Defense
23 shall carry out this subsection in consultation with
24 the Secretaries of the military departments.

1 (b) MILITARY DEPARTMENT PLANS.—Not later than
2 February 1, 2020, the Secretary of each military depart-
3 ment shall submit to the congressional defense committees
4 a plan for the implementation of this section by that mili-
5 tary department.

6 **SEC. 3058. SATISFACTION SURVEY FOR TENANTS OF MILI-**
7 **TARY HOUSING.**

8 (a) SURVEY REQUIRED.—Not later than March 1,
9 2020, the Secretary of Defense shall require that each in-
10 stallation of the Department of Defense use the same sat-
11 isfaction survey for tenants of military housing, including
12 privatized military housing.

13 (b) FORM OF SURVEY.—The satisfaction survey re-
14 quired by subsection (a) shall be an electronic survey with
15 embedded privacy and security mechanisms.

16 (c) PRIVACY AND SECURITY MECHANISMS.—The pri-
17 vacy and security mechanisms used in the satisfaction sur-
18 vey required by subsection (a)—

19 (1) may include a code unique to the tenant to
20 be surveyed that is sent to the cell phone number of
21 the tenant and required to be entered to access the
22 survey; and

23 (2) in the case of privatized military housing,
24 shall ensure the survey is not shared with the land-
25 lord providing the privatized military housing until

1 the survey is reviewed and the results are tallied by
2 Department of Defense personnel.

3 **Subtitle E—Other Housing Reform**
4 **Matters**

5 **SEC. 3061. RADON TESTING OF PRIVATIZED MILITARY**
6 **HOUSING.**

7 (a) REPORT.—Not later than March 1, 2020, the
8 Secretary of Defense shall submit to the congressional de-
9 fense committees a report identifying the installations of
10 the Department of Defense that have privatized military
11 housing that should be monitored for levels of radon at
12 or above the action level.

13 (b) TESTING PROCEDURES AND STANDARDS.—The
14 Secretaries of the military departments shall ensure that
15 landlords providing privatized military housing at installa-
16 tions identified under subsection (a) establish testing pro-
17 cedures that are consistent with then current national con-
18 sensus standards and are in compliance with applicable
19 Federal, State, and local radon regulations in order to en-
20 sure radon levels are below recommended levels established
21 by the Environmental Protection Agency, whether
22 through—

23 (1) regular testing of privatized military hous-
24 ing by persons who possess certification pursuant to
25 the proficiency program operated under section

1 305(a)(2) of the Toxic Substances Control Act (15
2 U.S.C. 2665(a)(2)); or

3 (2) the installation of monitoring equipment in
4 privatized military housing.

5 (c) NOTIFICATION REGARDING NEED FOR MITIGA-
6 TION.—If, as a result of testing described in subsection
7 (b), a unit of privatized military housing needs radon miti-
8 gation to ensure radon levels are below recommended lev-
9 els, the landlord providing the housing unit shall submit
10 to the Secretary of the military department concerned, not
11 later than seven days after the determination of the need
12 for radon mitigation, the mitigation plan for the housing
13 unit.

14 **SEC. 3062. MITIGATION OF RISKS POSED BY CERTAIN**
15 **ITEMS IN MILITARY FAMILY HOUSING UNITS.**

16 (a) ANCHORING OF ITEMS BY RESIDENTS.—The Sec-
17 retary of Defense shall allow a resident of a military fam-
18 ily housing unit to anchor any furniture, television, or
19 large appliance to the wall of the unit for purposes of pre-
20 venting such item from tipping over without incurring a
21 penalty or obligation to repair the wall upon vacating the
22 unit.

23 (b) ANCHORING OF ITEMS FOR ALL UNITS.—

24 (1) EXISTING UNITS.—Not later than one year
25 after the date of the enactment of this Act, the Sec-

1 retary of Defense shall ensure that all freestanding
2 chests, door chests, armoires, dressers, entertain-
3 ment centers, bookcases taller than 27 inches, tele-
4 visions, and large appliances provided by the Depart-
5 ment of Defense are securely anchored in each fur-
6 nished military family housing unit under the juris-
7 diction of the Department as of the date of the en-
8 actment of this Act.

9 (2) NEW UNITS.—The Secretary of Defense
10 shall ensure that all freestanding chests, door chests,
11 armoires, dressers, entertainment centers, bookcases
12 taller than 27 inches, televisions, and large appli-
13 ances provided by the Department of Defense are se-
14 curely anchored in each furnished military family
15 housing unit made available after the date of the en-
16 actment of this Act.

17 **SEC. 3063. SUSPENSION OF RESIDENT ENERGY CONSERVA-**
18 **TION PROGRAM AND RELATED PROGRAMS**
19 **FOR PRIVATIZED MILITARY HOUSING.**

20 (a) SUSPENSION REQUIRED.—The Secretary of De-
21 fense shall suspend the initiative of the Department of De-
22 fense known as the Resident Energy Conservation Pro-
23 gram and instruct the Secretary of each military depart-
24 ment to suspend any program carried out by such Sec-
25 retary that measures the energy usage for individual units

1 of privatized military housing on installations of the De-
2 partment of Defense.

3 (b) **TERM OF SUSPENSION.**—Subject to subsection
4 (c), the suspension required by subsection (a) shall remain
5 in effect for an installation of the Department of Defense
6 until the Secretary of Defense certifies to the congres-
7 sional defense committees that 100 percent of the
8 privatized military housing on the installation is individ-
9 ually metered to each respective unit of privatized military
10 housing on the installation military housing unit and the
11 meter accurately measures the energy usage of the unit.

12 (c) **TERMINATION.**—If the Secretary of Defense is
13 unable to make the certification required by subsection (b)
14 for an installation of the Department of Defense before
15 the end of the two-year period beginning on the date of
16 the enactment of this Act, each program suspended pursu-
17 ant to subsection (a) at that installation shall terminate
18 at the end of such period.

19 **SEC. 3064. DEPARTMENT OF THE ARMY PILOT PROGRAM**
20 **TO BUILD AND MONITOR USE OF SINGLE**
21 **FAMILY HOMES.**

22 (a) **IN GENERAL.**—The Secretary of the Army shall
23 carry out a pilot program to build and monitor the use
24 of not fewer than five single family homes for members
25 of the Army and their families.

1 (b) LOCATION.—The Secretary of the Army shall
2 carry out the pilot program at no less than two installa-
3 tions of the Army located in different climate regions of
4 the United States as determined by the Secretary.

5 (c) DESIGN.—In building homes under the pilot pro-
6 gram, the Secretary of the Army shall use the All-Amer-
7 ican Abode design from the suburban single-family divi-
8 sion design by the United States Military Academy.

9 **DIVISION C—DEPARTMENT OF**
10 **ENERGY NATIONAL SECURITY**
11 **AUTHORIZATIONS AND**
12 **OTHER AUTHORIZATIONS**

TITLE XXXI—DEPARTMENT OF ENERGY NATIONAL SECURITY
PROGRAMS

Subtitle A—National Security Programs and Authorizations

- Sec. 3101. National Nuclear Security Administration.
- Sec. 3102. Defense environmental cleanup.
- Sec. 3103. Other defense activities.
- Sec. 3104. Nuclear energy.

Subtitle B—Program Authorizations, Restrictions, and Limitations

- Sec. 3111. Personnel matters at National Nuclear Security Administration.
- Sec. 3112. Estimation of costs of meeting defense environmental cleanup milestones required by consent orders.
- Sec. 3113. Office of Cost Estimating and Program Evaluation.
- Sec. 3114. Clarification of certain Stockpile Responsiveness Program objectives.
- Sec. 3115. Elimination of limitation on availability of funds relating to submission of annual reports on unfunded priorities.
- Sec. 3116. Modification to certain requirements relating to plutonium pit production capacity.
- Sec. 3117. Annual certification of shipments to Waste Isolation Pilot Plant.
- Sec. 3118. Extension and modification of pilot program on unavailability for overhead costs of amounts specified for laboratory-directed research and development.
- Sec. 3119. Modification to limitation on availability of funds for acceleration of nuclear weapons dismantlement.
- Sec. 3120. Implementation of common financial reporting system for nuclear security enterprise.
- Sec. 3121. Limitation relating to reclassification of high-level waste.

Sec. 3122. National Laboratory Jobs ACCESS Program.

Subtitle C—Reports and Other Matters

Sec. 3131. Civil penalties for violations of certain whistleblower protections.

Sec. 3132. Repeal of assessments of adequacy of budget requests relating to nuclear weapons stockpile.

Sec. 3133. Repeal of requirement for review relating to enhanced procurement authority.

Sec. 3134. Improvements to Energy Employees Occupational Illness Compensation Program Act of 2000.

Sec. 3135. Replacement of W78 warhead.

Sec. 3136. Independent review of capabilities for detection, verification, and monitoring of nuclear weapons and fissile material.

Sec. 3137. Assessment of high energy density physics.

Sec. 3138. Determination of effect of treaty obligations with respect to producing tritium.

Sec. 3139. Technical corrections to National Nuclear Security Administration Act and Atomic Energy Defense Act.

1 **TITLE XXXI—DEPARTMENT OF**
2 **ENERGY NATIONAL SECURITY**
3 **PROGRAMS**

4 **Subtitle A—National Security**
5 **Programs and Authorizations**

6 **SEC. 3101. NATIONAL NUCLEAR SECURITY ADMINISTRA-**
7 **TION.**

8 (a) **AUTHORIZATION OF APPROPRIATIONS.**—Funds
9 are hereby authorized to be appropriated to the Depart-
10 ment of Energy for fiscal year 2020 for the activities of
11 the National Nuclear Security Administration in carrying
12 out programs as specified in the funding table in section
13 4701.

14 (b) **AUTHORIZATION OF NEW PLANT PROJECTS.**—
15 From funds referred to in subsection (a) that are available
16 for carrying out plant projects, the Secretary of Energy

1 may carry out new plant projects for the National Nuclear
2 Security Administration as follows:

3 Project 20–D–931, KL Fuel Development Lab-
4 oratory, Knolls Atomic Power Laboratory, Schenec-
5 tady, New York, \$23,700,000.

6 General Purpose Project, PF–4 Power and
7 Communications Systems Upgrade, Los Alamos Na-
8 tional Laboratory, Los Alamos, New Mexico,
9 \$16,000,000.

10 **SEC. 3102. DEFENSE ENVIRONMENTAL CLEANUP.**

11 (a) AUTHORIZATION OF APPROPRIATIONS.—Funds
12 are hereby authorized to be appropriated to the Depart-
13 ment of Energy for fiscal year 2020 for defense environ-
14 mental cleanup activities in carrying out programs as
15 specified in the funding table in section 4701.

16 (b) AUTHORIZATION OF NEW PLANT PROJECTS.—
17 From funds referred to in subsection (a) that are available
18 for carrying out plant projects, the Secretary of Energy
19 may carry out, for defense environmental cleanup activi-
20 ties, the following new plant projects:

21 Project 20–D–401, Saltstone Disposal Units
22 numbers 10, 11, and 12, Savannah River Site,
23 Aiken, South Carolina, \$1,000,000.

1 Project 20–D–402, Advanced Manufacturing
2 Collaborative, Savannah River Site, Aiken, South
3 Carolina, \$50,000,000.

4 Project 20–U–401, On-Site Waste Disposal Fa-
5 cility (Cell Lines 2 and 3), Portsmouth Site, Pike
6 County, Ohio, \$10,000,000.

7 **SEC. 3103. OTHER DEFENSE ACTIVITIES.**

8 Funds are hereby authorized to be appropriated to
9 the Department of Energy for fiscal year 2020 for other
10 defense activities in carrying out programs as specified in
11 the funding table in section 4701.

12 **SEC. 3104. NUCLEAR ENERGY.**

13 Funds are hereby authorized to be appropriated to
14 the Department of Energy for fiscal year 2020 for nuclear
15 energy as specified in the funding table in section 4701.

16 **Subtitle B—Program Authoriza-**
17 **tions, Restrictions, and Limita-**
18 **tions**

19 **SEC. 3111. PERSONNEL MATTERS AT NATIONAL NUCLEAR**
20 **SECURITY ADMINISTRATION.**

21 (a) PERSONNEL LEVELS OF THE OFFICE OF THE
22 ADMINISTRATOR FOR NUCLEAR SECURITY.—

23 (1) PERSONNEL LEVELS.—

24 (A) INCREASE.—Subsection (a) of section
25 3241A of the National Nuclear Security Admin-

1 istration Act (50 U.S.C. 2441a) is amended by
2 striking “1,690” both places it appears and in-
3 serting “1,890”.

4 (B) TECHNICAL AMENDMENTS.—Such
5 subsection is further amended—

6 (i) in paragraph (1), by striking “By
7 October 1, 2015, the” and inserting
8 “The”; and

9 (ii) in paragraph (2), by striking
10 “2016” and inserting “2020”.

11 (2) REPORTS ON SERVICE SUPPORT CON-
12 TRACTS.—Subsection (f) of such section is amend-
13 ed—

14 (A) in the matter preceding paragraph (1),
15 by striking “as of the date of the report” and
16 inserting “for the most recent fiscal year for
17 which data are available”; and

18 (B) by striking paragraph (5) and insert-
19 ing the following new paragraphs:

20 “(5) With respect to each contract identified
21 under paragraph (2)—

22 “(A) identification of each appropriations
23 account that supports the contract; and

1 “(B) the amount obligated under the con-
2 tract during the fiscal year, listed by each such
3 account.

4 “(6) With respect to each appropriations ac-
5 count identified under paragraph (5)(A), the total
6 amount obligated for contracts identified under
7 paragraph (2).”.

8 (b) INCREASE IN CONTRACTING, PROGRAM MANAGE-
9 MENT, SCIENTIFIC, ENGINEERING, AND TECHNICAL POSI-
10 TIONS.—Section 3241 of the National Nuclear Security
11 Administration Act (50 U.S.C. 2441) is amended in the
12 first sentence by striking “600” and inserting “800”.

13 **SEC. 3112. ESTIMATION OF COSTS OF MEETING DEFENSE**
14 **ENVIRONMENTAL CLEANUP MILESTONES RE-**
15 **QUIRED BY CONSENT ORDERS.**

16 (a) IN GENERAL.—Subtitle A of title XLIV of the
17 Atomic Energy Defense Act (50 U.S.C. 2581 et seq.) is
18 amended by adding at the end the following new section:

19 **“SEC. 4409. ESTIMATION OF COSTS OF MEETING DEFENSE**
20 **ENVIRONMENTAL CLEANUP MILESTONES RE-**
21 **QUIRED BY CONSENT ORDERS.**

22 “The Secretary of Energy shall include in the budget
23 justification materials submitted to Congress in support
24 of the Department of Energy budget for each fiscal year
25 (as submitted with the budget of the President under sec-

1 tion 1105(a) of title 31, United States Code) a report on
2 the cost, for that fiscal year and the four fiscal years fol-
3 lowing that fiscal year, of meeting milestones required by
4 a consent order at each defense nuclear facility at which
5 defense environmental cleanup activities are occurring.
6 The report shall include, for each such facility—

7 “(1) a specification of the cost of meeting such
8 milestones during that fiscal year; and

9 “(2) an estimate of the cost of meeting such
10 milestones during the four fiscal years following that
11 fiscal year.”.

12 (b) CLERICAL AMENDMENT.—The table of contents
13 for the Atomic Energy Defense Act is amended by insert-
14 ing after the item relating to section 4408 the following
15 new item:

“Sec. 4409. Estimation of costs of meeting defense environmental cleanup mile-
stones required by consent orders.”.

16 **SEC. 3113. OFFICE OF COST ESTIMATING AND PROGRAM**
17 **EVALUATION.**

18 (a) REPORTING.—Section 3221(b)(1) of the National
19 Nuclear Security Administration Act (50 U.S.C.
20 2411(b)(1)) is amended by adding at the end the following
21 new sentence: “The Director shall report directly to the
22 Administrator.”.

23 (b) BRIEFING.—Not later than 180 days after the
24 date of the enactment of this Act, the Administrator for

1 Nuclear Security shall provide to the congressional defense
2 committees a briefing on the plan of the Administrator
3 to fully staff the Office of Cost Estimating and Program
4 Evaluation of the National Nuclear Security Administra-
5 tion pursuant to section 3221(f) of the National Nuclear
6 Security Administration Act (50 U.S.C. 2411(f)).

7 **SEC. 3114. CLARIFICATION OF CERTAIN STOCKPILE RE-**
8 **SPONSIVENESS PROGRAM OBJECTIVES.**

9 Section 4220(c) of the Atomic Energy Defense Act
10 (50 U.S.C. 2538b(c)) is amended—

11 (1) in paragraph (3), by striking “capabilities
12 required, including prototypes” and inserting “capa-
13 bilities as required, such as through the use of pro-
14 totypes”; and

15 (2) in paragraph (6)—

16 (A) by striking “in consultation with the
17 Director of National Intelligence” and inserting
18 “in coordination with the Director of National
19 Intelligence”; and

20 (B) by inserting “if needed to meet intel-
21 ligence requirements” after “foreign countries”.

1 **SEC. 3115. ELIMINATION OF LIMITATION ON AVAILABILITY**
2 **OF FUNDS RELATING TO SUBMISSION OF AN-**
3 **NUAL REPORTS ON UNFUNDED PRIORITIES.**

4 Section 4716 of the Atomic Energy Defense Act (50
5 U.S.C. 2756) is amended—

6 (1) by striking subsection (a) and inserting the
7 following new subsection:

8 “(a) ANNUAL REPORT OR CERTIFICATION.—Not
9 later than 10 days after the date on which the budget of
10 the President for a fiscal year is submitted to Congress
11 pursuant to section 1105(a) of title 31, United States
12 Code, the Administrator shall submit to the Secretary of
13 Energy and the congressional defense committees either—

14 “(1) a report on the unfunded priorities of the
15 Administration; or

16 “(2) if the Administrator determines that there
17 are no unfunded priorities to include in such a re-
18 port, a certification and explanation by the Adminis-
19 trator, without delegation, of the determination.”;

20 (2) in subsection (b), by striking “report re-
21 quired by subsection (a)” both places it appears and
22 inserting “report under subsection (a)(1)”;

23 (3) by striking subsection (c); and

24 (4) by redesignating subsection (d) as sub-
25 section (c).

1 **SEC. 3116. MODIFICATION TO CERTAIN REQUIREMENTS RE-**
2 **LATING TO PLUTONIUM PIT PRODUCTION CA-**
3 **PACITY.**

4 (a) SENSE OF CONGRESS.—It is the sense of Con-
5 gress that—

6 (1) rebuilding a robust plutonium pit produc-
7 tion infrastructure with a capacity of up to 80 pits
8 per year is critical to maintaining the viability of the
9 nuclear weapons stockpile;

10 (2) that effort will require cooperation from ex-
11 perts across the nuclear security enterprise; and

12 (3) any further delay to achieving a plutonium
13 sustainment capability to support the planned stock-
14 pile life extension programs will result in an unac-
15 ceptable capability gap to our deterrent posture.

16 (b) MODIFICATION TO REQUIREMENTS.—Section
17 4219 of the Atomic Energy Defense Act (50 U.S.C.
18 2538a) is amended—

19 (1) in subsection (a), by striking paragraph (5)
20 and inserting the following:

21 “(5) during 2030, produces not less than 80
22 war reserve plutonium pits.”;

23 (2) by striking subsection (b);

24 (3) by redesignating subsections (c) and (d) as
25 subsections (b) and (c), respectively;

1 (4) in subsection (b), as redesignated by para-
2 graph (2), by striking “2027 (or, if the authority
3 under subsection (b) is exercised, 2029)” and insert-
4 ing “2030”; and

5 (5) in subsection (c), as redesignated by para-
6 graph (2), by striking “subsection (c)” and inserting
7 “subsection (b)”.

8 **SEC. 3117. ANNUAL CERTIFICATION OF SHIPMENTS TO**
9 **WASTE ISOLATION PILOT PLANT.**

10 Section 3115(a) of the National Defense Authoriza-
11 tion Act for Fiscal Year 2017 (Public Law 114–328; 130
12 Stat. 2759), as amended by section 3137(b) of the John
13 S. McCain National Defense Authorization Act for Fiscal
14 Year 2019 (Public Law 115–232; 132 Stat. 2303), is fur-
15 ther amended, in the matter preceding paragraph (1), by
16 striking “three-year period” and inserting “10-year pe-
17 riod”.

18 **SEC. 3118. EXTENSION AND MODIFICATION OF PILOT PRO-**
19 **GRAM ON UNAVAILABILITY FOR OVERHEAD**
20 **COSTS OF AMOUNTS SPECIFIED FOR LAB-**
21 **ORATORY-DIRECTED RESEARCH AND DEVEL-**
22 **OPMENT.**

23 Section 3119 of the National Defense Authorization
24 Act for Fiscal Year 2017 (Public Law 114–328; 50 U.S.C.
25 2791 note) is amended—

1 (1) in subsection (c)(2), by striking “three” and
2 inserting “four”; and

3 (2) in subsection (d)—

4 (A) by striking “Before the termination
5 under subsection (c)(2) of the pilot program re-
6 quired by subsection (a)” and inserting “Not
7 later than February 15, 2020”; and

8 (B) by inserting before the end period the
9 following: “, including effects on laboratory-di-
10 rected research and development and other pro-
11 grams”.

12 **SEC. 3119. MODIFICATION TO LIMITATION ON AVAIL-**
13 **ABILITY OF FUNDS FOR ACCELERATION OF**
14 **NUCLEAR WEAPONS DISMANTLEMENT.**

15 Subsection (a) of section 3125 of the National De-
16 fense Authorization Act for Fiscal Year 2017 (Public Law
17 114–328; 130 Stat. 2766), as amended by section 3117
18 of the National Defense Authorization Act for Fiscal Year
19 2018 (Public Law 115–91; 131 Stat. 1890), is amended
20 by striking “\$56,000,000” and inserting “\$87,000,000”.

21 **SEC. 3120. IMPLEMENTATION OF COMMON FINANCIAL RE-**
22 **PORTING SYSTEM FOR NUCLEAR SECURITY**
23 **ENTERPRISE.**

24 Not more than 90 percent of the funds authorized
25 to be appropriated by section 3101 for the National Nu-

1 clear Security Administration for fiscal year 2020 for Fed-
2 eral salaries and expenses and available for travel and
3 transportation may be obligated or expended before the
4 date on which the Administrator for Nuclear Security
5 completes implementation of the common financial report-
6 ing system for the nuclear security enterprise as required
7 by section 3113(a) of the National Defense Authorization
8 Act for Fiscal Year 2017 (Public Law 114–328; 50 U.S.C.
9 2512 note).

10 **SEC. 3121. LIMITATION RELATING TO RECLASSIFICATION**
11 **OF HIGH-LEVEL WASTE.**

12 None of the funds authorized to be appropriated by
13 this Act or otherwise made available for fiscal year 2020
14 for the Department of Energy may be obligated or ex-
15 pended by the Secretary of Energy to apply the interpreta-
16 tion of high-level radioactive waste described in the notice
17 published by the Secretary titled “Supplemental Notice
18 Concerning U.S. Department of Energy Interpretation of
19 High-Level Radioactive Waste” (84 Fed. Reg. 26835), or
20 successor notice, with respect to such waste located in the
21 State of Washington.

22 **SEC. 3122. NATIONAL LABORATORY JOBS ACCESS PRO-**
23 **GRAM.**

24 (a) IN GENERAL.—On or after the date that is 180
25 days after the date of the enactment of this Act, the Sec-

1 retary may establish a program, to be known as the “De-
2 partment of Energy National Lab Jobs ACCESS Pro-
3 gram”, under which the Secretary may award, on a com-
4 petitive basis, 5-year grants to eligible entities described
5 in subsection (c) for the Federal share of the costs of pre-
6 apprenticeship programs and apprenticeship programs de-
7 scribed in subsection (b).

8 (b) PRE-APPRENTICESHIP AND APPRENTICESHIP
9 PROGRAMS DESCRIBED.—A pre-apprenticeship program
10 or apprenticeship program described in this subsection is
11 a pre-apprenticeship program or apprenticeship program
12 that—

13 (1) leads to recognized postsecondary creden-
14 tials for secondary school and postsecondary stu-
15 dents;

16 (2) is focused on skills and qualifications need-
17 ed, as determined by the Secretary in consultation
18 with the directors of the National Laboratories, to
19 meet the immediate and ongoing needs of traditional
20 and emerging technician positions (including ma-
21 chinists and cybersecurity technicians) at the Na-
22 tional Laboratories and covered facilities of the Na-
23 tional Nuclear Security Administration;

1 (3) is established in consultation with a Na-
2 tional Laboratory or covered facility of the National
3 Nuclear Security Administration;

4 (4) is registered with and approved by the Sec-
5 retary of Labor or a State apprenticeship agency;
6 and

7 (5) ensures that participants in the pre-appren-
8 ticeship program or apprenticeship program do not
9 displace paid employees.

10 (c) ELIGIBLE ENTITIES DESCRIBED.—An eligible en-
11 tity described in this subsection is a workforce inter-
12 mediary or an eligible sponsor of a pre-apprenticeship pro-
13 gram or apprenticeship program that—

14 (1) demonstrates experience in implementing
15 and providing career planning and career pathways
16 toward pre-apprenticeship programs or apprentice-
17 ship programs;

18 (2)(A) has a relationship with a National Lab-
19 oratory or covered facility of the National Nuclear
20 Security Administration;

21 (B) has knowledge of the technician workforce
22 needs of the laboratory or facility and the associated
23 security requirements of the laboratory or facility;
24 and

1 (C) is eligible to enter into an agreement with
2 the laboratory or facility that would be paid for in
3 part or entirely from grant funds received under this
4 section;

5 (3) demonstrates the ability to recruit and sup-
6 port individuals who plan to work in relevant techni-
7 cian positions upon the successful completion of the
8 pre-apprenticeship program or apprenticeship pro-
9 gram;

10 (4) provides students who complete the pre-ap-
11 prenticeship program or apprenticeship program
12 with, or prepares such students for obtaining, a rec-
13 ognized postsecondary credential;

14 (5) uses related instruction that is specifically
15 aligned with the needs of the laboratory or facility
16 and utilizes workplace learning advisors and on-the-
17 job training to the greatest extent possible; and

18 (6) demonstrates successful outcomes con-
19 necting graduates of the pre-apprenticeship program
20 or apprenticeship program to careers relevant to the
21 program.

22 (d) APPLICATIONS.—If the Secretary establishes the
23 program described in subsection (a), an eligible entity de-
24 scribed in subsection (c) seeking a grant under the pro-
25 gram shall submit to the Secretary an application at such

1 time, in such manner, and containing such information as
2 the Secretary may require.

3 (e) PRIORITY.—In selecting eligible entities described
4 in subsection (c) to receive grants under this section, the
5 Secretary may prioritize an eligible entity that—

6 (1) is a member of an industry or sector part-
7 nership;

8 (2) provides related instruction for a pre-ap-
9 prenticeship program or apprenticeship program
10 through—

11 (A) a local educational agency, a secondary
12 school, a provider of adult education, an area
13 career and technical education school, or an in-
14 stitution of higher education (such as a commu-
15 nity college) that includes basic science, tech-
16 nology, and mathematics education in the re-
17 lated instruction; or

18 (B) an apprenticeship program that was
19 registered with the Department of Labor or a
20 State apprenticeship agency before the date on
21 which the eligible entity applies for the grant
22 under subsection (d);

23 (3) works with the Secretary of Defense, the
24 Secretary of Veterans Affairs, or veterans organiza-
25 tions to transition members of the Armed Forces

1 and veterans to pre-apprenticeship programs or ap-
2 prenticeship programs in a relevant sector;

3 (4) plans to use the grant to carry out the pre-
4 apprenticeship program or apprenticeship program
5 with an entity that receives State funding or is oper-
6 ated by a State agency; and

7 (5) plans to use the grant to carry out the pre-
8 apprenticeship program or apprenticeship program
9 for—

10 (A) young adults ages 16 to 29, inclusive;

11 or

12 (B) individuals with barriers to employ-
13 ment.

14 (f) ADDITIONAL CONSIDERATION.—In making grants
15 under this section, the Secretary may consider regional di-
16 versity.

17 (g) LIMITATION ON APPLICATIONS.—An eligible enti-
18 ty described in subsection (c) may not submit, either indi-
19 vidually or as part of a joint application, more than one
20 application for a grant under this section during any one
21 fiscal year.

22 (h) LIMITATIONS ON AMOUNT OF GRANT.—The
23 amount of a grant provided under this section may not,
24 for any 24-month period of the 5-year grant period, exceed
25 \$500,000.

1 (i) NON-FEDERAL SHARE.—The non-Federal share
2 of the cost of a pre-apprenticeship program or apprentice-
3 ship program carried out using a grant under this section
4 shall be not less than 25 percent of the total cost of the
5 program.

6 (j) TECHNICAL ASSISTANCE.—The Secretary may
7 provide technical assistance to eligible entities described
8 in subsection (c) to leverage the existing job training and
9 education programs of the Department of Labor and other
10 relevant programs at appropriate Federal agencies.

11 (k) REPORT.—

12 (1) IN GENERAL.—If the Secretary establishes
13 the program described in subsection (a), not less
14 than once every 2 years thereafter, the Secretary
15 shall submit to Congress, and make publicly avail-
16 able on the website of the Department of Energy, a
17 report on the program, including—

18 (A) a description of—

19 (i) any entity that receives a grant
20 under this section;

21 (ii) any activity carried out using a
22 grant under this section; and

23 (iii) best practices used to leverage the
24 investment of the Federal Government
25 under this section; and

1 (B) an assessment of the results achieved
2 by the program, including the rate of employ-
3 ment for participants after completing a pre-ap-
4 prenticeship program or apprenticeship pro-
5 gram carried out using a grant under this sec-
6 tion.

7 (2) PERFORMANCE REPORTS.—Not later than
8 one year after the establishment of a pre-apprentice-
9 ship program or apprenticeship program using a
10 grant awarded under this section, and annually
11 thereafter, the entity carrying out the program shall
12 submit to the Secretary and the Secretary of Labor
13 a report on the effectiveness of the program based
14 on the accountability measures described in clauses
15 (i) and (ii) of section 116(b)(2)(A) of the Workforce
16 Innovation and Opportunity Act (29 U.S.C.
17 3141(b)(2)(A)).

18 (1) DEFINITIONS.—In this section:

19 (1) ESEA TERMS.—The terms “local edu-
20 cational agency” and “secondary school” have the
21 meanings given the terms in section 8101 of the Ele-
22 mentary and Secondary Education Act of 1965 (20
23 U.S.C. 7801).

24 (2) WIOA TERMS.—The terms “career plan-
25 ning”, “community-based organization”, “cus-

1 tomized training”, “economic development agency”,
2 “individual with a barrier to employment”, “indus-
3 try or sector partnership”, “on-the-job training”,
4 “recognized postsecondary credential”, and “work-
5 place learning advisor” have the meanings given
6 such terms in section 3 of the Workforce Innovation
7 and Opportunity Act (29 U.S.C. 3102).

8 (3) APPRENTICESHIP PROGRAM.—The term
9 “apprenticeship program” means a program reg-
10 istered under the Act of August 16, 1937 (commonly
11 known as the “National Apprenticeship Act”; 50
12 Stat. 664, chapter 663; 29 U.S.C. 50 et seq.).

13 (4) AREA CAREER AND TECHNICAL EDUCATION
14 SCHOOL.—The term “area career and technical edu-
15 cation school” has the meaning given the term in
16 section 3 of the Carl D. Perkins Career and Tech-
17 nical Education Act of 2006 (20 U.S.C. 2302).

18 (5) COMMUNITY COLLEGE.—The term “commu-
19 nity college” has the meaning given the term “junior
20 or community college” in section 312(f) of the High-
21 er Education Act of 1965 (20 U.S.C. 1058(f)).

22 (6) COVERED FACILITY OF THE NATIONAL NU-
23 CLEAR SECURITY ADMINISTRATION.—The term
24 “covered facility of the National Nuclear Security
25 Administration” means a national security labora-

1 tory or a nuclear weapons production facility as such
2 terms are defined in section 4002 of the Atomic En-
3 ergy Defense Act (50 U.S.C. 2501).

4 (7) ELIGIBLE SPONSOR.—The term “eligible
5 sponsor” means a public organization or nonprofit
6 organization that—

7 (A) with respect to an apprenticeship pro-
8 gram, administers the program through a part-
9 nership that may include—

10 (i) an industry or sector partnership;

11 (ii) an employer or industry associa-
12 tion;

13 (iii) a labor-management organization;

14 (iv) a local workforce development
15 board or State workforce development
16 board;

17 (v) a 2- or 4-year institution of higher
18 education that offers an educational pro-
19 gram leading to an associate’s or bach-
20 elor’s degree in conjunction with a certifi-
21 cate of completion of apprenticeship;

22 (vi) the Armed Forces (including the
23 National Guard and Reserves);

24 (vii) a community-based organization;

25 or

1 (viii) an economic development agen-
2 cy; and

3 (B) with respect to a pre-apprenticeship
4 program, is a local educational agency, a sec-
5 ondary school, an area career and technical
6 education school, a provider of adult education,
7 a State workforce development board, a local
8 workforce development board, or a community-
9 based organization, that administers the pro-
10 gram with any required coordination and nec-
11 essary approvals from the Secretary of Labor or
12 a State department of labor.

13 (8) INSTITUTION OF HIGHER EDUCATION.—The
14 term “institution of higher education” has the
15 meaning given the term in section 101 of the Higher
16 Education Act of 1965 (20 U.S.C. 1001).

17 (9) LOCAL WORKFORCE DEVELOPMENT
18 BOARD.—The term “local workforce development
19 board” has the meaning given the term “local
20 board” in section 3 of the Workforce Innovation and
21 Opportunity Act (29 U.S.C. 3102).

22 (10) NATIONAL LABORATORY.—The term “Na-
23 tional Laboratory” has the meaning given the term
24 in section 2 of the Energy Policy Act of 2005 (42
25 U.S.C. 15801).

1 (11) NONPROFIT ORGANIZATION.—The term
2 “nonprofit organization” means an organization that
3 is described in section 501(c) of the Internal Rev-
4 enue Code of 1986 and exempt from tax under sec-
5 tion 501(a) of such Code.

6 (12) PRE-APPRENTICESHIP PROGRAM.—The
7 term “pre-apprenticeship program” means a pro-
8 gram—

9 (A) designed to prepare individuals to
10 enter and succeed in an apprenticeship pro-
11 gram; and

12 (B) that has a documented partnership
13 with at least one, if not more, apprenticeship
14 programs.

15 (13) PROVIDER OF ADULT EDUCATION.—The
16 term “provider of adult education” has the meaning
17 given the term “eligible provider” in section 203 of
18 the Adult Education and Family Literacy Act (29
19 U.S.C. 3272).

20 (14) RELATED INSTRUCTION.—The term “re-
21 lated instruction” means an organized and system-
22 atic form of instruction designed to provide an indi-
23 vidual in a pre-apprenticeship program or appren-
24 ticeship program with the knowledge of the technical

1 subjects related to the intended occupation of the in-
2 dividual after completion of the program.

3 (15) SECRETARY.—The term “Secretary”
4 means the Secretary of Energy, in consultation with
5 the Secretary of Labor, except as otherwise specified
6 in this section.

7 (16) SPONSOR.—The term “sponsor” means
8 any person, association, committee, or organization
9 operating a pre-apprenticeship program or appren-
10 ticeship program and in whose name the program is
11 (or is to be) registered or approved.

12 (17) STATE APPRENTICESHIP AGENCY.—The
13 term “State apprenticeship agency” has the meaning
14 given that term in section 29.2 of title 29, Code of
15 Federal Regulations (or any corresponding similar
16 regulation or ruling).

17 (18) STATE WORKFORCE DEVELOPMENT
18 BOARD.—The term “State workforce development
19 board” has the meaning given the term “State
20 board” in section 3 of the Workforce Innovation and
21 Opportunity Act (29 U.S.C. 3102).

22 (19) WORKFORCE INTERMEDIARY.—The term
23 “workforce intermediary”—

24 (A) means a nonprofit organization that—

1 (i) proactively addresses workforce
2 needs using a dual customer approach,
3 which considers the needs of both employ-
4 ees and employers; and

5 (ii) has partnered with a sponsor of a
6 pre-apprenticeship program or apprentice-
7 ship program or is a sponsor of a pre-ap-
8 prenticeship program or apprenticeship
9 program; and

10 (B) may include a community organiza-
11 tion, an employer organization, a community
12 college, a temporary staffing agency, a State
13 workforce development board, a local workforce
14 development board, or a labor or labor-manage-
15 ment organization.

16 **Subtitle C—Reports and Other** 17 **Matters**

18 **SEC. 3131. CIVIL PENALTIES FOR VIOLATIONS OF CERTAIN** 19 **WHISTLEBLOWER PROTECTIONS.**

20 Section 234A of the Atomic Energy Act of 1954 (42
21 U.S.C. 2282a) is amended—

22 (1) in the heading, by inserting “**AND WHIS-**
23 **TLEBLOWER**” after “**SAFETY**”;

24 (2) in subsection a.—

1 (A) by inserting “, or who violates any ap-
2 plicable law, rule, regulation, or order related to
3 nuclear safety whistleblower protections,” be-
4 fore “shall be subject to a civil penalty”; and

5 (B) by adding at the end the following new
6 sentence: “The Secretary of Energy may carry
7 out this section with respect to the National
8 Nuclear Security Administration by acting
9 through the Administrator for Nuclear Secu-
10 rity.”; and

11 (3) by adding at the end the following new sub-
12 section:

13 “e. In this section, the term ‘nuclear safety whistle-
14 blower protections’ means the protections for employees
15 of contractors or subcontractors from reprisals pursuant
16 to section 4712 of title 41, United States Code, section
17 211 of the Energy Reorganization Act of 1974 (42 U.S.C.
18 5851), or other provisions of Federal law (including rules,
19 regulations, or orders) affording such protections, with re-
20 spect to disclosures or other activities covered by such pro-
21 tections that relate to nuclear safety.”.

1 **SEC. 3132. REPEAL OF ASSESSMENTS OF ADEQUACY OF**
2 **BUDGET REQUESTS RELATING TO NUCLEAR**
3 **WEAPONS STOCKPILE.**

4 (a) IN GENERAL.—Section 3255 of the National Nu-
5 clear Security Administration Act (50 U.S.C. 2455) is re-
6 pealed.

7 (b) CLERICAL AMENDMENT.—The table of contents
8 for the National Nuclear Security Administration Act is
9 amended by striking the item relating to section 3255.

10 **SEC. 3133. REPEAL OF REQUIREMENT FOR REVIEW RELAT-**
11 **ING TO ENHANCED PROCUREMENT AUTHOR-**
12 **ITY.**

13 Section 4806 of the Atomic Energy Defense Act (50
14 U.S.C. 2786) is amended—

15 (1) by striking subsection (e); and

16 (2) by redesignating subsections (f) and (g) as
17 subsections (e) and (f), respectively.

18 **SEC. 3134. IMPROVEMENTS TO ENERGY EMPLOYEES OCCU-**
19 **PATIONAL ILLNESS COMPENSATION PRO-**
20 **GRAM ACT OF 2000.**

21 (a) OFFICE OF OMBUDSMAN.—Section 3686 of the
22 Energy Employees Occupational Illness Compensation
23 Program Act of 2000 (42 U.S.C. 7385s–15) is amended—

24 (1) in subsection (c)—

25 (A) by redesignating paragraphs (2) and

26 (3) as paragraphs (3) and (4), respectively; and

1 (B) by inserting after paragraph (1) the
2 following new paragraph:

3 “(2) To provide guidance and assistance to
4 claimants.”; and

5 (2) in subsection (h), by striking “2019” and
6 inserting “2020”.

7 (b) ADVISORY BOARD ON TOXIC SUBSTANCES AND
8 WORKER HEALTH.—Section 3687 of the Energy Employ-
9 ees Occupational Illness Compensation Program Act of
10 2000 (42 U.S.C. 7385s–16) is amended—

11 (1) in subsection (b)(1)—

12 (A) in subparagraph (C), by striking “;
13 and” and inserting a semicolon;

14 (B) in subparagraph (D), by striking “;
15 and” and inserting a semicolon; and

16 (C) by adding after subparagraph (D) the
17 following:

18 “(E) the claims adjudication process gen-
19 erally, including review of procedure manual
20 changes prior to incorporation into the manual
21 and claims for medical benefits; and

22 “(F) such other matters as the Secretary
23 considers appropriate; and”;

24 (2) in subsection (g)—

1 (A) by striking “The Secretary of Energy
2 shall” and inserting “The Secretary of Energy
3 and the Secretary of Labor shall each”; and

4 (B) by adding at the end the following new
5 sentence: “The Secretary of Labor shall make
6 available to the Board the program’s medical
7 director, toxicologist, industrial hygienist and
8 program’s support contractors as requested by
9 the Board.”;

10 (3) by redesignating subsections (h) and (i) as
11 subsections (i) and (j), respectively; and

12 (4) by inserting after subsection (g) the fol-
13 lowing:

14 “(h) RESPONSE TO RECOMMENDATIONS.—Not later
15 than 60 days after submission to the Secretary of Labor
16 of the Board’s recommendations, the Secretary shall re-
17 spond to the Board in writing, and post on the public
18 internet website of the Department of Labor, a response
19 to the recommendations that—

20 “(1) includes a statement of whether the Sec-
21 retary accepts or rejects the Board’s recommenda-
22 tions;

23 “(2) if the Secretary accepts the Board’s rec-
24 ommendations, describes the timeline for when those
25 recommendations will be implemented; and

1 “(3) if the Secretary does not accept the rec-
2 ommendations, describes the reasons the Secretary
3 does not agree and provides all scientific research to
4 the Board supporting that decision.”.

5 **SEC. 3135. REPLACEMENT OF W78 WARHEAD.**

6 (a) REPORT.—

7 (1) IN GENERAL.—Not later than 210 days
8 after the date of the enactment of this Act, the Ad-
9 ministrator for Nuclear Security shall submit to the
10 congressional defense committees a report on replac-
11 ing the W78 warhead.

12 (2) MATTERS INCLUDED.—The report under
13 paragraph (1) shall include the following:

14 (A) A discussion of the alternatives consid-
15 ered with respect to replacing the W78 war-
16 head, including—

17 (i) a description of the technical risks,
18 schedule, and costs for each alternative to
19 replacing the W78 warhead; and

20 (ii) a description of any changes since
21 January 15, 2014, to the requirements for
22 such alternatives.

23 (B) A review of the matters under sub-
24 paragraph (A) by the Director for Cost Esti-

1 mating and Program Evaluation of the Na-
2 tional Nuclear Security Administration.

3 (b) INDEPENDENT STUDY.—

4 (1) IN GENERAL.—The Administrator shall
5 seek to enter into an arrangement with the private
6 scientific advisory group known as JASON to con-
7 duct a study of the plan of the Administrator to re-
8 place the W78 warhead. Such study shall include—

9 (A) an assessment of the risks to certifi-
10 cation; and

11 (B) the need for planned upgrades to such
12 warhead.

13 (2) SUBMISSION.—Not later than 150 days
14 after the date of the enactment of this Act, the Ad-
15 ministrator shall submit to the congressional defense
16 committees the study under paragraph (1), without
17 change.

18 **SEC. 3136. INDEPENDENT REVIEW OF CAPABILITIES FOR**
19 **DETECTION, VERIFICATION, AND MONI-**
20 **TORING OF NUCLEAR WEAPONS AND FISSILE**
21 **MATERIAL.**

22 (a) PLAN.—Not later than 30 days after the date of
23 the enactment of this Act, the Secretary of Energy, in con-
24 sultation with the Secretary of Defense, shall seek to enter
25 into a contract with the National Academy of Sciences to

1 conduct an independent review and assessment of United
2 States capabilities for detection, verification, and moni-
3 toring of nuclear weapons and fissile material.

4 (b) ELEMENTS.—The review and assessment re-
5 quired by subsection (a) shall include the following:

6 (1) An evaluation of the current national re-
7 search enterprise for detection, verification, and
8 monitoring of nuclear weapons and fissile material.

9 (2) Integration of roles, responsibilities, and
10 planning for such detection, verification, and moni-
11 toring within the Federal Government.

12 (3) Opportunities to leverage the national re-
13 search enterprise to further prevent the proliferation
14 of nuclear weapons and fissile material, including
15 with respect to policy, research and development,
16 and testing and evaluation.

17 (4) Opportunities for international engagement
18 for building cooperation and transparency, including
19 bilateral and multilateral efforts, to improve inspec-
20 tions, detection, and monitoring of nuclear weapons
21 and fissile material, and to create incentives for such
22 cooperation and transparency.

23 (5) Opportunities for new or expanded research
24 and development efforts to improve detection and
25 monitoring of, and in-field inspection and analysis

1 capabilities with respect to, nuclear weapons and
2 fissile materials.

3 (6) Opportunities for improved coordination be-
4 tween departments and agencies of the Federal Gov-
5 ernment and the military departments, national lab-
6 oratories, commercial industry, and academia.

7 (7) Opportunities for leveraging commercial ca-
8 pabilities.

9 (c) SUBMISSION TO CONGRESS.—

10 (1) IN GENERAL.—Not later than one year
11 after the date of the enactment of this Act, the Sec-
12 retary of Energy shall submit to the congressional
13 defense committees, without change, the findings of
14 the National Academy resulting from the review and
15 assessment conducted under subsection (a).

16 (2) FORM.—The findings described in para-
17 graph (1) shall be submitted in unclassified form,
18 but may include a classified annex.

19 **SEC. 3137. ASSESSMENT OF HIGH ENERGY DENSITY PHYS-**
20 **ICS.**

21 (a) IN GENERAL.—Not later than 90 days after the
22 date of the enactment of this Act, the Administrator for
23 Nuclear Security shall enter into an arrangement with the
24 National Academies of Sciences, Engineering, and Medi-
25 cine to conduct an assessment of recent advances and the

1 current status of research in the field of high energy den-
2 sity physics.

3 (b) ELEMENTS.—The assessment conducted under
4 subsection (a) shall include the following:

5 (1) Theoretical and computational modeling of
6 high energy density material phases, radiation-mat-
7 ter interactions, plasmas atypical of astrophysical
8 conditions, and conditions unique to the National
9 Nuclear Security Administration.

10 (2) The simulation of such phases, interactions,
11 plasmas, and conditions.

12 (3) Instrumentation and target fabrication.

13 (4) Workforce training.

14 (5) An assessment of advancements made by
15 other countries in high energy density physics.

16 (6) Such others items as are agreed upon by
17 the Administrator and the National Academies.

18 (c) APPLICABILITY OF INTERNAL CONTROLS.—The
19 assessment under subsection (a) shall be conducted in ac-
20 cordance with the internal controls of the National Acad-
21 emies.

22 (d) REPORT TO CONGRESS.—Not later than 18
23 months after entering into the arrangement under sub-
24 section (a), the National Academies of Sciences, Engineer-
25 ing, and Medicine shall submit to the congressional de-

1 fense committees a report on the assessment conducted
2 under that subsection.

3 (e) HIGH ENERGY DENSITY PHYSICS DEFINED.—In
4 this section, the term “high energy density physics” means
5 the physics of matter and radiation at—

6 (1) energy densities exceeding 100,000,000,000
7 joules per cubic meter; and

8 (2) other temperature and pressure ranges
9 within the warm dense matter regime.

10 **SEC. 3138. DETERMINATION OF EFFECT OF TREATY OBLI-**
11 **GATIONS WITH RESPECT TO PRODUCING**
12 **TRITIUM.**

13 Not later than February 15, 2020, the Secretary of
14 Energy shall—

15 (1) determine whether the Agreement for Co-
16 operation on the Uses of Atomic Energy for Mutual
17 Defense Purposes, signed at Washington, July 3,
18 1958 (9 UST 1028), between the United States and
19 the United Kingdom, permits the United States to
20 obtain low-enriched uranium for the purposes of pro-
21 ducing tritium in the United States; and

22 (2) submit to the congressional defense commit-
23 tees a report on that determination.

1 **SEC. 3139. TECHNICAL CORRECTIONS TO NATIONAL NU-**
2 **CLEAR SECURITY ADMINISTRATION ACT AND**
3 **ATOMIC ENERGY DEFENSE ACT.**

4 (a) DEFINITIONS IN NATIONAL NUCLEAR SECURITY
5 ADMINISTRATION ACT.—Section 3281(2)(A) of the Na-
6 tional Nuclear Security Administration Act (50 U.S.C.
7 2471(2)(A)) is amended by striking “Plant” and inserting
8 “National Security Campus”.

9 (b) AMENDMENTS TO ATOMIC ENERGY DEFENSE
10 ACT.—

11 (1) DEFINITIONS.—Section 4002(9)(A) of the
12 Atomic Energy Defense Act (50 U.S.C. 2501(9)(A))
13 is amended striking “Plant” and inserting “National
14 Security Campus”.

15 (2) STOCKPILE STEWARDSHIP, MANAGEMENT,
16 AND RESPONSIVENESS PLAN.—Section 4203 of the
17 Atomic Energy Defense Act (50 U.S.C. 2523) is
18 amended—

19 (A) in subsection (d)(4)(A)(ii), by striking
20 “quadrennial defense review if such strategy
21 has not been submitted” and inserting “na-
22 tional defense strategy”;

23 (B) in subsection (e)(1)(A)(i), by striking
24 “or the most recent quadrennial defense review,
25 as applicable under subsection (d)(4)(A), and
26 the” and inserting “referred to in subsection

1 (d)(4)(A)(i), the most recent the national de-
2 fense strategy, and the most recent”; and

3 (C) in subsection (f)—

4 (i) by striking paragraph (4);

5 (ii) by redesignating paragraph (3) as
6 paragraph (4); and

7 (iii) by inserting after paragraph (2)

8 the following new paragraph (3):

9 “(3) The term ‘national defense strategy’
10 means the review of the defense programs and poli-
11 cies of the United States that is carried out every
12 four years under section 113(g) of title 10, United
13 States Code.”.

14 (3) MANUFACTURING INFRASTRUCTURE FOR
15 NUCLEAR WEAPONS STOCKPILE.—Section 4212 of
16 the Atomic Energy Defense Act (50 U.S.C. 2532) is
17 amended—

18 (A) in subsection (a)(1), in the matter pre-
19 ceding subparagraph (A), by inserting “most
20 recent” before “Nuclear Posture Review”; and

21 (B) in subsection (b)—

22 (i) in paragraph (2), by striking
23 “Plant” and inserting “National Security
24 Complex”; and

1 (ii) in paragraph (4), by striking
2 “Plant” and inserting “National Security
3 Campus, Kansas City, Missouri”.

4 (4) REPORTS ON LIFE EXTENSION PRO-
5 GRAMS.—

6 (A) IN GENERAL.—Section 4216 of the
7 Atomic Energy Defense Act (50 U.S.C. 2536)
8 is amended—

9 (i) in the section heading, by striking
10 “**LIFETIME**” and inserting “**LIFE**”; and

11 (ii) by striking “lifetime” each place it
12 appears and inserting “life”.

13 (B) CLERICAL AMENDMENT.—The table of
14 contents for the Atomic Energy Defense Act is
15 amended by striking the item relating to section
16 4216 and inserting the following new item:

“Sec. 4216. Reports on life extension programs.”.

17 (5) ADVICE ON SAFETY, SECURITY, AND RELI-
18 ABILITY OF NUCLEAR WEAPONS STOCKPILE.—Sec-
19 tion 4218 of the Atomic Energy Defense Act (50
20 U.S.C. 2538) is amended—

21 (A) in subsection (d), by striking “or the
22 Commander of the United States Strategic
23 Command”; and

24 (B) in subsection (e)(1)—

1 (i) by striking “, a member of” and
2 all that follows through “Strategic Com-
3 mand” and inserting “or a member of the
4 Nuclear Weapons Council”; and

5 (ii) by striking “, member, or Com-
6 mander” and inserting “or member”.

7 (6) LIFE-CYCLE COST ESTIMATES.—Section
8 4714(a) of the Atomic Energy Defense Act (50
9 U.S.C. 2754(a)) is amended—

10 (A) by striking “413.3” and inserting
11 “413.3B”; and

12 (B) by inserting “, or a successor order,”
13 after “assets”).

14 (7) UNFUNDED PRIORITIES.—

15 (A) IN GENERAL.—Section 4716 of the
16 Atomic Energy Defense Act (50 U.S.C. 2756)
17 is amended in the section heading by striking
18 “**NATIONAL NUCLEAR SECURITY ADMINIS-**
19 **TRATION**” and inserting “**ADMINISTRA-**
20 **TION**”.

21 (B) CLERICAL AMENDMENT.—The table of
22 contents for the Atomic Energy Defense Act is
23 amended by striking the item relating to section
24 4716 and inserting the following new item:

“Sec. 4716. Unfunded priorities of the Administration.”.

1 (8) REVIEWS OF CAPITAL ASSETS ACQUISITION
2 PROJECTS.—Section 4733(d)(3)(B) of the Atomic
3 Energy Defense Act (50 U.S.C. 2773(d)(3)(B)) is
4 amended by striking “413.3” and inserting
5 “413.3B”.

6 **TITLE XXXII—DEFENSE NU-**
7 **CLEAR FACILITIES SAFETY**
8 **BOARD**

Sec. 3201. Authorization.

Sec. 3202. Improvements to Defense Nuclear Facilities Safety Board.

Sec. 3203. Membership of Defense Nuclear Facilities Safety Board.

9 **SECTION 3201. AUTHORIZATION.**

10 There are authorized to be appropriated for fiscal
11 year 2020, \$29,450,000 for the operation of the Defense
12 Nuclear Facilities Safety Board under chapter 21 of the
13 Atomic Energy Act of 1954 (42 U.S.C. 2286 et seq.).

14 **SEC. 3202. IMPROVEMENTS TO DEFENSE NUCLEAR FACILI-**
15 **TIES SAFETY BOARD.**

16 (a) STAFF.—

17 (1) EXECUTIVE DIRECTOR OF OPERATIONS.—

18 (A) ESTABLISHMENT OF POSITION.—Sub-
19 section (b) of section 313 of the Atomic Energy
20 Act of 1954 (42 U.S.C. 2286b) is amended by
21 adding at the end the following new paragraph:

22 “(3)(A) The Board shall have an Executive Director
23 of Operations who shall be appointed under section
24 311(c)(6).

1 “(B) The Executive Director of Operations shall re-
2 port to the Chairman.

3 “(C) The Executive Director of Operations shall be
4 the senior employee of the Board responsible for—

5 “(i) general administration and technical mat-
6 ters;

7 “(ii) ensuring that the members of the Board
8 are fully and currently informed with respect to mat-
9 ters for which the members are responsible; and

10 “(iii) the functions delegated by the Chairman
11 pursuant to section 311(c)(3)(B).”.

12 (B) DELEGATION OF FUNCTIONS.—Para-
13 graph (3) of section 311(c) of such Act (42
14 U.S.C. 2286(c)) is amended—

15 (i) by striking “The Chairman” and
16 inserting “(A) The Chairman”; and

17 (ii) by adding at the end the following
18 new subparagraph:

19 “(B) In carrying out subparagraph (A), the Chair-
20 man shall delegate to the Executive Director of Operations
21 established under section 313(b)(3) the following func-
22 tions:

23 “(i) Administrative functions of the Board.

24 “(ii) Appointment and supervision of employees
25 of the Board not specified under paragraph (6).

1 “(iii) Distribution of business among the em-
2 ployees and administrative units and offices of the
3 Board.

4 “(iv) Preparation of—

5 “(I) proposals for the reorganization of the
6 administrative units or offices of the Board;

7 “(II) the budget estimate for the Board;
8 and

9 “(III) the proposed distribution of funds
10 according to purposes approved by the Board.”.

11 (2) PROVISION OF INFORMATION TO BOARD.—

12 Such section 311(c), as amended by paragraph
13 (1)(B), is further amended—

14 (A) in paragraph (2), by striking “para-
15 graphs (5), (6), and (7)” and inserting “para-
16 graphs (5) and (6)”;

17 (B) by striking paragraph (6); and

18 (C) by redesignating paragraph (7) as
19 paragraph (6).

20 (3) APPOINTMENT AND REMOVAL POWERS.—

21 Paragraph (6) of such section 311(c), as redesi-
22 gnated by paragraph (2)(C), is amended to read as
23 follows:

24 “(6)(A) The Chairman, subject to the approval of the
25 Board, shall appoint the senior employees described in

1 subparagraph (C). Any member of the Board may propose
2 to the Chairman an individual to be so appointed.

3 “(B) The Chairman, subject to the approval of the
4 Board, may remove a senior employee described in sub-
5 paragraph (C). Any member of the Board may propose
6 to the Chairman an individual to be so removed.

7 “(C) The senior employees described in this subpara-
8 graph are the following senior employees of the Board:

9 “(i) The Executive Director of Operations es-
10 tablished under section 313(b)(3).

11 “(ii) The general counsel.”

12 (4) ORGANIZATION OF STAFF OF BOARD.—Sec-
13 tion 313(b) of such Act, as amended by paragraph
14 (1)(A), is further amended—

15 (A) in paragraph (1)(A), by striking “sec-
16 tion 311(c)(7)” and inserting “section
17 311(c)(6)”; and

18 (B) by adding at the end the following new
19 paragraph:

20 “(4) Subject to the approval of the Board, the Chair-
21 man may organize the staff of the Board as the Chairman
22 considers appropriate to best accomplish the mission of
23 the Board described in section 312(a).”

24 (5) TEMPORARY PERSONNEL LEVELS.—During
25 fiscal year 2020, the Defense Nuclear Facilities

1 Safety Board shall employ not fewer than the equiv-
2 alent of 100 full-time employees.

3 (b) PUBLIC HEALTH AND SAFETY.—Section 312(a)
4 of such Act (42 U.S.C. 2286a(a)) is amended by inserting
5 before the period at the end the following: “, including
6 with respect to the health and safety of employees and
7 contractors at such facilities”.

8 (c) ACCESS TO FACILITIES, PERSONNEL, AND INFOR-
9 MATION.—Section 314 of such Act (42 U.S.C. 2286c) is
10 amended—

11 (1) in subsection (a)—

12 (A) by striking “The Secretary of Energy”
13 and inserting “Except as specifically provided
14 by this section, the Secretary of Energy”;

15 (B) by striking “ready access” both places
16 it appears and inserting “prompt and unfet-
17 tered access”; and

18 (C) by adding at the end the following new
19 sentence: “The access provided to defense nu-
20 clear facilities, personnel, and information
21 under this subsection shall be provided without
22 regard to the hazard or risk category assigned
23 to a facility by the Secretary.”; and

24 (2) by striking subsection (b) and inserting the
25 following new subsections:

1 “(b) AUTHORITY OF SECRETARY TO DENY INFORMA-
2 TION.—(1) The Secretary may deny access to information
3 under subsection (a) only to any person who—

4 “(A) has not been granted an appropriate secu-
5 rity clearance or access authorization by the Sec-
6 retary; or

7 “(B) does not need such access in connection
8 with the duties of such person.

9 “(2) If the Board requests access to information
10 under subsection (a) in written form, and the Secretary
11 denies access to such information pursuant to paragraph
12 (1)—

13 “(A) the Secretary shall provide the Board no-
14 tice of such denial in written form; and

15 “(B) not later than January 1 and July 1 of
16 each year beginning in 2020—

17 “(i) the Board shall submit to the congres-
18 sional defense committees a report identifying
19 each request for access to information under
20 subsection (a) submitted to the Secretary in
21 written form during the preceding six-month
22 period and denied by the Secretary; and

23 “(ii) the Secretary shall submit to the con-
24 gressional defense committees a report identi-
25 fying—

1 “(I) each such request denied by the
2 Secretary during that period; and

3 “(II) the reason for the denial.

4 “(3) In this subsection, the term ‘congressional de-
5 fense committees’ has the meaning given that term in sec-
6 tion 101(a) of title 10, United States Code.

7 “(c) APPLICATION OF NONDISCLOSURE PROTEC-
8 TIONS BY BOARD.—The Board may not publicly disclose
9 information provided under this section if such informa-
10 tion is otherwise protected from disclosure by law, includ-
11 ing deliberative process information.”.

12 **SEC. 3203. MEMBERSHIP OF DEFENSE NUCLEAR FACILI-**
13 **TIES SAFETY BOARD.**

14 (a) LIST OF CANDIDATES FOR NOMINATION.—Sub-
15 section (b) of section 311 of the Atomic Energy Act of
16 1954 (42 U.S.C. 2286) is amended by adding at the end
17 the following new paragraph:

18 “(4) The President shall enter into an arrangement
19 with the National Academy of Sciences under which the
20 National Academy shall maintain a list of individuals who
21 meet the qualifications described in paragraph (1) to as-
22 sist the President in selecting individuals to nominate for
23 positions as members of the Board.”.

24 (b) TERMS OF MEMBERS.—

1 (1) IN GENERAL.—Subsection (d) of such sec-
2 tion is amended—

3 (A) in paragraph (1), by striking the sec-
4 ond sentence and inserting the following new
5 sentences: “A member may be reappointed for
6 a second term only if the member was con-
7 firmed by the Senate more than two years into
8 the member’s first term. A member may not be
9 reappointed for a third term.”; and

10 (B) in paragraph (3)—

11 (i) by striking “Any member” and in-
12 serting “(A) Any member”;

13 (ii) by striking the second sentence;
14 and

15 (iii) by adding at the end the fol-
16 lowing new subparagraph:

17 “(B) A member may not serve after the expiration
18 of the member’s term, unless the departure of the member
19 would result in the loss of a quorum for the Board. If
20 more than one member is serving after the expiration of
21 the member’s term and a new member is appointed to the
22 Board so that one of the members serving after the expira-
23 tion of the member’s term is no longer necessary to main-
24 tain a quorum, the member whose term expired first may
25 no longer serve on the Board.”.

1 (2) EFFECTIVE DATE.—The amendments made
2 by paragraph (1) shall take effect on the date that
3 is one year after the date of the enactment of this
4 Act.

5 (c) FILLING VACANCIES.—Such subsection is further
6 amended by adding at the end the following new para-
7 graph:

8 “(4)(A) Not later than 180 days after the expiration
9 of the term of a member of the Board, the President
10 shall—

11 “(i) submit to the Senate the nomination of an
12 individual to fill the vacancy; or

13 “(ii) submit to the Committee on Armed Serv-
14 ices of the Senate a report that includes—

15 “(I) a description of the reasons the Presi-
16 dent did not submit such a nomination; and

17 “(II) a plan for submitting such a nomina-
18 tion during the 90-day period following the sub-
19 mission of the report.

20 “(B) If the President does not submit to the Senate
21 the nomination of an individual to fill a vacancy during
22 the 90-day period described in subclause (II) of subpara-
23 graph (A)(ii), the President shall submit to the Committee
24 on Armed Services a report described in that subpara-

1 graph not less frequently than every 90 days until the
2 President submits such a nomination.”.

3 **TITLE XXXIV—NAVAL**
4 **PETROLEUM RESERVES**

Sec. 3401. Authorization of appropriations.

5 **SEC. 3401. AUTHORIZATION OF APPROPRIATIONS.**

6 (a) AMOUNT.—There are hereby authorized to be ap-
7 propriated to the Secretary of Energy \$14,000,000 for fis-
8 cal year 2020 for the purpose of carrying out activities
9 under chapter 869 of title 10, United States Code, relating
10 to the naval petroleum reserves.

11 (b) PERIOD OF AVAILABILITY.—Funds appropriated
12 pursuant to the authorization of appropriations in sub-
13 section (a) shall remain available until expended.

14 **TITLE XXXV—MARITIME**
15 **MATTERS**

Subtitle A—Maritime Administration

- Sec. 3501. Authorization of the Maritime Administration.
- Sec. 3502. Reauthorization of Maritime Security Program.
- Sec. 3503. Maritime technical assistance program.
- Sec. 3504. Appointment of candidates attending sponsored preparatory school.
- Sec. 3505. General support program.
- Sec. 3506. Improvements to the maritime guaranteed loan program.
- Sec. 3507. Requirement for small shipyard grantees.
- Sec. 3508. Salvage recoveries of cargoes.
- Sec. 3509. Salvage recoveries for subrogated ownership of vessels and cargoes.
- Sec. 3510. Maritime Occupational Safety and Health Advisory Committee.
- Sec. 3511. Military to mariner.
- Sec. 3512. Department of Transportation Inspector General Report.
- Sec. 3513. Independent study on the United States Merchant Marine Academy.
- Sec. 3514. Port operations, research, and technology.
- Sec. 3515. Assessment and report on strategic seaports.
- Sec. 3516. Technical corrections.
- Sec. 3517. United States Merchant Marine Academy sexual assault prevention and response program.

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- Sec. 3518. Report on vessels for emerging offshore energy infrastructure.
- Sec. 3519. Report on United States flagged fuel tanker vessel capacity.

Subtitle B—Cable Security Fleet

- Sec. 3521. Establishment of Cable Security Fleet.

Subtitle C—Maritime SAFE Act

- Sec. 3531. Short titles.
- Sec. 3532. Definitions.
- Sec. 3533. Purposes.
- Sec. 3534. Statement of policy.

PART I—PROGRAMS TO COMBAT IUU FISHING AND INCREASE MARITIME SECURITY

- Sec. 3541. Coordination with international organizations.
- Sec. 3542. Engagement of diplomatic missions of the United States.
- Sec. 3543. Assistance by Federal agencies to improve law enforcement within priority regions and priority flag states.
- Sec. 3544. Expansion of existing mechanisms to combat IUU fishing.
- Sec. 3545. Improvement of transparency and traceability programs.
- Sec. 3546. Technology programs.
- Sec. 3547. Savings clause.

PART II—ESTABLISHMENT OF INTERAGENCY WORKING GROUP ON IUU FISHING

- Sec. 3551. Interagency Working Group on IUU Fishing.
- Sec. 3552. Strategic plan.
- Sec. 3553. Reports.
- Sec. 3554. Gulf of Mexico IUU Fishing Subworking Group.

PART III—COMBATING HUMAN TRAFFICKING IN CONNECTION WITH THE CATCHING AND PROCESSING OF SEAFOOD PRODUCTS

- Sec. 3561. Finding.
- Sec. 3562. Adding the Secretary of Commerce to the Interagency Task Force to Monitor and Combat Trafficking.
- Sec. 3563. Human trafficking in the seafood supply chain report.

PART IV—AUTHORIZATION OF APPROPRIATIONS

- Sec. 3571. Authorization of appropriations.
- Sec. 3572. Accounting of funds.

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1 **Subtitle A—Maritime**
2 **Administration**

3 **SEC. 3501. AUTHORIZATION OF THE MARITIME ADMINIS-**
4 **TRATION.**

5 (a) IN GENERAL.—There are authorized to be appro-
6 priated to the Department of Transportation for fiscal
7 year 2020, to be available without fiscal year limitation
8 if so provided in appropriations Acts, for programs associ-
9 ated with maintaining the United States Merchant Ma-
10 rine, the following amounts:

11 (1) For expenses necessary for operations of the
12 United States Merchant Marine Academy,
13 \$95,944,000, of which—

14 (A) \$77,944,000 shall remain available
15 until September 30, 2021 for Academy oper-
16 ations; and

17 (B) \$18,000,000 shall remain available
18 until expended for capital asset management at
19 the Academy.

20 (2) For expenses necessary to support the State
21 maritime academies, \$50,280,000, of which—

22 (A) \$2,400,000 shall remain available until
23 September 30, 2021, for the Student Incentive
24 Program;

1 (B) \$6,000,000 shall remain available until
2 expended for direct payments to such acad-
3 emies;

4 (C) \$30,080,000 shall remain available
5 until expended for maintenance and repair of
6 State maritime academy training vessels;

7 (D) \$3,800,000 shall remain available until
8 expended for training ship fuel assistance; and

9 (E) \$8,000,000 shall remain available until
10 expended for offsetting the costs of training
11 ship sharing.

12 (3) For expenses necessary to support the Na-
13 tional Security Multi-Mission Vessel Program,
14 \$600,000,000, which shall remain available until ex-
15 pended.

16 (4) For expenses necessary to support Maritime
17 Administration operations and programs,
18 \$60,442,000, of which \$5,000,000 shall remain
19 available until expended for activities authorized
20 under section 50307 of title 46, United States Code.

21 (5) For expenses necessary to dispose of vessels
22 in the National Defense Reserve Fleet, \$5,000,000,
23 which shall remain available until expended.

24 (6) For expenses necessary to maintain and
25 preserve a United States flag Merchant Marine to

1 serve the national security needs of the United
2 States under chapter 531 of title 46, United States
3 Code, \$300,000,000, which shall remain available
4 until expended.

5 (7) For expenses necessary for the loan guar-
6 antee program authorized under chapter 537 of title
7 46, United States Code, \$33,000,000, of which—

8 (A) \$30,000,000 may be used for the cost
9 (as defined in section 502(5) of the Federal
10 Credit Reform Act of 1990 (2 U.S.C. 661a(5))
11 of loan guarantees under the program, which
12 shall remain available until expended; and

13 (B) \$3,000,000 may be used for adminis-
14 trative expenses relating to loan guarantee com-
15 mitments under the program.

16 (8) For expenses necessary to provide assist-
17 ance to small shipyards and for maritime training
18 programs under section 54101 of title 46, United
19 States Code, \$40,000,000, which shall remain avail-
20 able until expended.

21 (9) For expenses necessary to implement the
22 Port and Intermodal Improvement Program,
23 \$500,000,000, except that no funds shall be used for
24 a grant award to purchase fully automated cargo
25 handling equipment that is remotely operated or re-

1 motely monitored with or without the exercise of
2 human intervention or control, if the Secretary de-
3 termines such equipment would result in a net loss
4 of jobs within a port or port terminal.

5 **SEC. 3502. REAUTHORIZATION OF MARITIME SECURITY**
6 **PROGRAM.**

7 (a) AWARD OF OPERATING AGREEMENTS.—Section
8 53103 of title 46, United States Code, is amended by
9 striking “2025” each place it appears and inserting
10 “2035”.

11 (b) EFFECTIVENESS OF OPERATING AGREE-
12 MENTS.—Section 53104(a) of title 46, United States
13 Code, is amended by striking “2025” and inserting
14 “2035”.

15 (c) PAYMENTS.—Section 53106(a)(1) of title 46,
16 United States Code, is amended—

17 (1) in subparagraph (B), by striking “and”;

18 (2) in subparagraph (C), by striking
19 “\$3,700,000 for each of fiscal years 2022, 2023,
20 2024, and 2025.” and inserting “\$5,300,000 for
21 each of fiscal years 2022, 2023, 2024, and 2025;”;
22 and

23 (3) by adding at the end the following new sub-
24 paragraphs:

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1 “(D) \$5,800,000 for each of fiscal years
2 2026, 2027, and 2028;

3 “(E) \$6,300,000 for each of fiscal years
4 2029, 2030, and 2031; and

5 “(F) \$6,800,000 for each of fiscal years
6 2032, 2033, 2034, and 2035.”.

7 (d) AUTHORIZATION OF APPROPRIATIONS.—Section
8 53111 of title 46, United States Code, is amended—

9 (1) in paragraph (2), by striking “and”;

10 (2) in paragraph (3), by striking
11 “\$222,000,000 for each fiscal year thereafter
12 through fiscal year 2025.” and inserting
13 “\$318,000,000 for each of fiscal years 2022, 2023,
14 2024, and 2025;”; and

15 (3) by adding at the end the following new
16 paragraphs:

17 “(4) \$348,000,000 for each of fiscal years
18 2026, 2027, and 2028;

19 “(5) \$378,000,000 for each of fiscal years
20 2029, 2030, and 2031; and

21 “(6) \$408,000,000 for each of fiscal years
22 2032, 2033, 2034, and 2035.”.

23 **SEC. 3503. MARITIME TECHNICAL ASSISTANCE PROGRAM.**

24 Section 50307 of title 46, United States Code, is
25 amended—

1 (1) in subsection (a), by striking “The Sec-
2 retary of Transportation may engage in the environ-
3 mental study” and inserting “The Secretary of
4 Transportation, acting through the Maritime Admin-
5 istrator, shall engage in the study”;

6 (2) in subsection (b)—

7 (A) by striking “may—” and all that fol-
8 lows through “improvements by—” and insert-
9 ing “shall identify, study, evaluate, test, dem-
10 onstrate, or improve emerging marine tech-
11 nologies and practices to improve—”;

12 (B) by inserting before subparagraph (A)
13 the following:

14 “(1) environmental performance to meet United
15 States Federal and international standards and
16 guidelines, including—”;

17 (C) in subparagraph (C), by striking “spe-
18 cies; and” and all that follows through the end
19 of the subsection and inserting “species; or

20 “(D) reducing propeller cavitation; and

21 “(2) the efficiency and safety of domestic mari-
22 time industries.”.

23 (3) in subsection (c)(2), by striking “benefits”
24 and inserting “or other benefits to domestic mari-
25 time industries”; and

1 (4) by adding at the end the following:

2 “(e) LIMITATIONS ON THE USE OF FUNDS.—Not
3 more than three percent of the funds appropriated to carry
4 out this section may be used for administrative pur-
5 poses.”.

6 **SEC. 3504. APPOINTMENT OF CANDIDATES ATTENDING**
7 **SPONSORED PREPARATORY SCHOOL.**

8 Section 51303 of title 46, United States Code, is
9 amended—

10 (1) by striking “The Secretary” and inserting
11 the following:

12 “(a) IN GENERAL.—The Secretary”; and

13 (2) by adding at the end the following:

14 “(b) APPOINTMENT OF CANDIDATES SELECTED FOR
15 PREPARATORY SCHOOL SPONSORSHIP.—The Secretary of
16 Transportation may appoint each year as cadets at the
17 United States Merchant Marine Academy not more than
18 40 qualified individuals sponsored by the Academy to at-
19 tend preparatory school during the academic year prior
20 to entrance in the Academy, and who have successfully
21 met the terms and conditions of sponsorship set by the
22 Academy.”.

23 **SEC. 3505. GENERAL SUPPORT PROGRAM.**

24 Section 51501 of title 46, United States Code, is
25 amended by adding at the end the following:

1 “(c) AMERICAN MARITIME CENTERS OF EXCEL-
2 LENCE.—The Secretary shall designate each State mari-
3 time academy as an American Maritime Center of Excel-
4 lence.”.

5 **SEC. 3506. IMPROVEMENTS TO THE MARITIME GUARAN-**
6 **TEED LOAN PROGRAM.**

7 (a) DEFINITIONS.—Section 53701 of title 46, United
8 States Code, is amended—

9 (1) by striking paragraph (5);

10 (2) by redesignating paragraphs (6) through
11 (15) as paragraphs (5) through (14), respectively;
12 and

13 (3) by adding at the end the following:

14 “(15) VESSEL OF NATIONAL INTEREST.—The
15 term ‘Vessel of National Interest’ means a vessel
16 deemed to be of national interest that meets charac-
17 teristics determined by the Administrator, in con-
18 sultation with the Secretary of Defense, the Sec-
19 retary of the Department in which the Coast Guard
20 is operating when it is not operating as a service in
21 the Department of the Navy, or the heads of other
22 Federal agencies, as described in section 53703(d).”.

23 (b) PREFERRED LENDER.—Subsection (a) of section
24 53702 of title 46, United States Code, is amended to read
25 as follows:

1 “(a) IN GENERAL.—

2 “(1) GUARANTEE OF PAYMENTS.—The Sec-
3 retary or Administrator, on terms the Secretary or
4 Administrator may prescribe, may guarantee or
5 make a commitment to guarantee the payment of
6 the principal of and interest on an obligation eligible
7 to be guaranteed under this chapter. A guarantee or
8 commitment to guarantee shall cover 100 percent of
9 the principal and interest.

10 “(2) PREFERRED ELIGIBLE LENDER.—The
11 Federal Financing Bank shall be the preferred eligi-
12 ble lender of the principal and interest of the guar-
13 anteed obligations issued under this chapter.”.

14 (c) APPLICATION AND ADMINISTRATION.—Section
15 53703 of title 46, United States Code, is amended—

16 (1) in the section heading, by striking “**proce-**
17 **dures**” and inserting “**and administration**”;
18 and

19 (2) by adding at the end the following:

20 “(c) INDEPENDENT ANALYSIS.—

21 “(1) IN GENERAL.—To assess and mitigate the
22 risks due to factors associated with markets, tech-
23 nology, financial, or legal structures related to an
24 application or guarantee under this chapter, the Sec-

1 retary or Administrator may utilize third party ex-
2 perts, including legal counsel, to—

3 “(A) process and review applications under
4 this chapter, including conducting independent
5 analysis and review of aspects of an application;

6 “(B) represent the Secretary or Adminis-
7 trator in structuring and documenting the obli-
8 gation guarantee;

9 “(C) analyze and review aspects of, struc-
10 ture, and document the obligation guarantee
11 during the term of the guarantee;

12 “(D) recommend financial covenants or fi-
13 nancial ratios to be met by the applicant during
14 the time a guarantee under this chapter is out-
15 standing that are—

16 “(i) based on the financial covenants
17 or financial ratios, if any, that are then ap-
18 plicable to the obligor under private sector
19 credit agreements; and

20 “(ii) in lieu of other financial cov-
21 enants applicable to the obligor under this
22 chapter with respect to requirements re-
23 garding long-term debt-to-equity, minimum
24 working capital, or minimum amount of
25 equity; and

1 “(E) represent the Secretary or Adminis-
2 trator to protect the security interests of the
3 Government relating to an obligation guarantee.

4 “(2) PRIVATE SECTOR EXPERT.—Independent
5 analysis, review, and representation conducted under
6 this subsection shall be performed by a private sec-
7 tor expert in the applicable field who is selected by
8 the Secretary or Administrator.

9 “(d) VESSELS OF NATIONAL INTEREST.—

10 “(1) NOTICE OF FUNDING.—The Secretary or
11 Administrator may post a notice in the Federal Reg-
12 ister regarding the availability of funding for obliga-
13 tion guarantees under this chapter for the construc-
14 tion, reconstruction, or reconditioning of a Vessel of
15 National Interest and include a timeline for the sub-
16 mission of applications for such vessels.

17 “(2) VESSEL CHARACTERISTICS.—

18 “(A) IN GENERAL.—The Secretary or Ad-
19 ministrator, in consultation with the Secretary
20 of Defense, the Secretary of the Department in
21 which the Coast Guard is operating when it is
22 not operating as service in the Department of
23 the Navy, or the heads of other Federal agen-
24 cies, shall develop and publish a list of vessel

1 types that would be considered Vessels of Na-
2 tional Interest.

3 “(B) REVIEW.—Such list shall be reviewed
4 and revised every four years or as necessary, as
5 determined by the Administrator.”.

6 (d) FUNDING LIMITS.—Section 53704 of title 46,
7 United States Code, is amended—

8 (1) in subsection (a)—

9 (A) by striking “that amount” and all the
10 follows through “\$850,000,000” and inserting
11 “that amount, \$850,000,000”; and

12 (B) by striking “facilities” and all that fol-
13 lows through the end of the subsection and in-
14 serting “facilities.”; and

15 (2) in subsection (c)(4)—

16 (A) by striking subparagraph (A); and

17 (B) by redesignating subparagraphs (B)
18 through (K), as subparagraphs (A) through (J),
19 respectively.

20 (e) ELIGIBLE PURPOSES OF OBLIGATIONS.—Section
21 53706 of title 46, United States Code, is amended—

22 (1) in subsection (a)(1)(A)—

23 (A) in the matter preceding clause (i), by
24 striking “(including an eligible export vessel)”;

1 (B) in clause (iv) by inserting “or” after
2 the semicolon;

3 (C) in clause (v), by striking “; or” and in-
4 serting a period; and

5 (D) by striking clause (vi); and

6 (2) in subsection (c)(1)—

7 (A) in subparagraph (A), by striking
8 “and” after the semicolon;

9 (B) in subparagraph (B)(ii), by striking
10 the period at the end and inserting “; and”;
11 and

12 (C) by adding at the end the following:

13 “(C) after applying subparagraphs (A) and
14 (B), Vessels of National Interest.”.

15 (f) AMOUNT OF OBLIGATIONS.—Section 53709(b) of
16 title 46, United States Code, is amended—

17 (1) by striking paragraphs (3) and (6); and

18 (2) by redesignating paragraphs (4) and (5) as
19 paragraphs (3) and (4), respectively.

20 (g) CONTENTS OF OBLIGATIONS.—Section 53710 of
21 title 46, United States Code, is amended—

22 (1) in subsection (a)(4)—

23 (A) in subparagraph (A)—

24 (i) by striking “or, in the case of” and
25 all that follows through “party”; and

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1 (ii) by striking “and” after the semi-
2 colon; and

3 (B) in subparagraph (B), by striking the
4 period at the end and inserting “; and”; and

5 (C) by adding at the end the following:

6 “(C) documented under the laws of the
7 United States for the term of the guarantee of
8 the obligation or until the obligation is paid in
9 full, whichever is sooner.”; and
10 (2) in subsection (c)—

11 (A) in the subsection heading, by inserting
12 “AND PROVIDE FOR THE FINANCIAL STABILITY
13 OF THE OBLIGOR” after “INTERESTS”;

14 (B) by striking “provisions for the protec-
15 tion of” and inserting “provisions, which shall
16 include—

17 “(1) provisions for the protection of”;

18 (C) by striking “, and other matters that
19 the Secretary or Administrator may prescribe.”
20 and inserting, “; and”; and

21 (D) by adding at the end the following:

22 “(2) any other provisions that the Secretary or
23 Administrator may prescribe.”.

24 (h) ADMINISTRATIVE FEES.—Section 53713 of title
25 46, United States Code, is amended—

1 (1) in subsection (a)—

2 (A) in the matter preceding paragraph (1),
3 by striking “reasonable for—” and inserting “
4 reasonable for processing the application and
5 monitoring the loan guarantee, including for—
6 ”;

7 (B) in paragraph (4), by striking “; and”
8 and inserting “or a deposit fund under section
9 53716 of this title;”;

10 (C) in paragraph (5), by striking the pe-
11 riod at the end and inserting “; and”; and

12 (D) by adding at the end the following:

13 “(6) monitoring and providing services related
14 to the obligor’s compliance with any terms related to
15 the obligations, the guarantee, or maintenance of the
16 Secretary or Administrator’s security interests under
17 this chapter.”; and

18 (2) in subsection (c)—

19 (A) in paragraph (1), by striking “under
20 section 53708(d) of this title” and inserting
21 “under section 53703(c) of this title”;

22 (B) by redesignating paragraphs (1)
23 through (3) as subparagraphs (A) through (C),
24 respectively, and adjusting the margins accord-
25 ingly;

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1 (C) by striking “The Secretary” and in-
2 serting the following:

3 “(1) IN GENERAL.—The Secretary”; and

4 (D) by adding at the end the following:

5 “(2) FEE LIMITATION INAPPLICABLE.—Fees
6 collected under this subsection are not subject to the
7 limitation of subsection (b).”.

8 (i) BEST PRACTICES; ELIGIBLE EXPORT VESSELS.—
9 Chapter 537 of title 46, United States Code, is further
10 amended—

11 (1) in subchapter I, by adding at the end the
12 following new section:

13 **“§ 53719. Best practices**

14 “The Secretary or Administrator shall ensure that all
15 standard documents and agreements that relate to loan
16 guarantees made pursuant to this chapter are reviewed
17 and updated every four years to ensure that such docu-
18 ments and agreements meet the current commercial best
19 practices to the extent permitted by law.”; and

20 (2) in subchapter III, by striking section
21 53732.

22 (j) EXPEDITED CONSIDERATION OF LOW-RISK AP-
23 PPLICATIONS.—

24 (1) IN GENERAL.—In accordance with the re-
25 quirements of this subsection, the Administrator

1 shall establish an administrative process and issue
2 guidance for the expedited consideration of low-risk
3 applications submitted under chapter 537 of title 46,
4 United States Code.

5 (2) STAKEHOLDER COMMENT.—Not later than
6 180 days after the date of enactment of this section,
7 the Administrator of the Maritime Administration
8 shall publish in the Federal Register a notice of a
9 45-day public comment period to request stakeholder
10 input and recommendations to establish the adminis-
11 trative process required under this subsection, in-
12 cluding proposals to assist applicants—

13 (A) in the development and submission of
14 initial applications;

15 (B) in meeting requests for supplemental
16 information made by the Administrator; and

17 (C) to comply with other requirements
18 made by the Administrator to ensure the expe-
19 dited consideration of applications.

20 (3) INDUSTRY BEST PRACTICES.—The adminis-
21 trative process established under this subsection
22 shall utilize, to the extent practicable, relevant Fed-
23 eral and industry best practices found in the mari-
24 time and shipbuilding industries.

1 (4) FINAL GUIDANCE.—Not later than 90 days
2 after the conclusion of the public comment period re-
3 quired under paragraph (2), the Administrator shall
4 publish in the Federal Register final guidance to as-
5 sist applicants in the preparation and filing of appli-
6 cations under this subsection.

7 (k) CONGRESSIONAL NOTIFICATION.—

8 (1) NOTIFICATION.—Not less than 60 days be-
9 fore reorganizing or consolidating the activities or
10 personnel covered under chapter 537 of title 46,
11 United States Code, the Secretary of Transportation
12 shall notify, in writing, the Committee on Com-
13 merce, Science, and Transportation of the Senate
14 and the Committee on Transportation and Infra-
15 structure of the House of Representatives of the
16 proposed reorganization or consolidation.

17 (2) CONTENTS.—Each notification under para-
18 graph (1) shall include an evaluation of, and jus-
19 tification for, the reorganization or consolidation.

20 (l) CLERICAL AMENDMENTS.—The table of sections
21 at the beginning of chapter 537 of title 46, United States
22 Code, is amended—

23 (1) by inserting after the item relating to sec-
24 tion 53718 the following new item:

“53719. Best practices.”; and

1 (2) by striking the item relating to section
2 53732.

3 **SEC. 3507. REQUIREMENT FOR SMALL SHIPYARD GRANT-**
4 **EES.**

5 (a) IN GENERAL.—Section 54101(d) of title 46,
6 United States Code, is amended—

7 (1) by striking “Grants awarded” and inserting
8 the following:

9 “(1) IN GENERAL.—Grants awarded”; and

10 (2) by adding at the end the following:

11 “(2) BUY AMERICA.—

12 “(A) IN GENERAL.—Subject to subpara-
13 graph (B), no funds may be obligated by the
14 Administrator of the Maritime Administration
15 under this section, unless each product and ma-
16 terial purchased with those funds (including
17 products and materials purchased by a grant-
18 ee), and including any commercially available
19 off-the-shelf item, is—

20 “(i) an unmanufactured article, mate-
21 rial, or supply that has been mined or pro-
22 duced in the United States; or

23 “(ii) a manufactured article, material,
24 or supply that has been manufactured in
25 the United States substantially all from ar-

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1 articles, materials, or supplies mined, pro-
2 duced, or manufactured in the United
3 States.

4 “(B) EXCEPTIONS.—

5 “(i) IN GENERAL.—Notwithstanding
6 subparagraph (A), the requirements of
7 that subparagraph shall not apply with re-
8 spect to a particular product or material if
9 the Administrator determines—

10 “(I) that the application of those
11 requirements would be inconsistent
12 with the public interest;

13 “(II) that such product or mate-
14 rial is not available in the United
15 States in sufficient and reasonably
16 available quantities, of a satisfactory
17 quality, or on a timely basis; or

18 “(III) that inclusion of a domes-
19 tic product or material will increase
20 the cost of that product or material by
21 more than 25 percent, with respect to
22 a certain contract between a grantee
23 and that grantee’s supplier.

24 “(ii) FEDERAL REGISTER.—A deter-
25 mination made by the Administrator under

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1 this subparagraph shall be published in the
2 Federal Register.

3 “(C) DEFINITIONS.—In this paragraph:

4 “(i) The term ‘commercially available
5 off-the-shelf item’ means—

6 “(I) any item of supply (includ-
7 ing construction material) that is—

8 “(aa) a commercial item, as
9 defined by section 2.101 of title
10 48, Code of Federal Regulations
11 (as in effect on the date of the
12 enactment of the National De-
13 fense Authorization Act for Fis-
14 cal Year 2020); and

15 “(bb) sold in substantial
16 quantities in the commercial
17 marketplace; and

18 “(II) does not include bulk cargo,
19 as defined in section 40102(4) of this
20 title, such as agricultural products
21 and petroleum products.

22 “(ii) The term ‘product or material’
23 means an article, material, or supply
24 brought to the site by the recipient for in-
25 corporation into the building, work, or

1 project. The term also includes an item
2 brought to the site preassembled from arti-
3 cles, materials, or supplies. However, emer-
4 gency life safety systems, such as emer-
5 gency lighting, fire alarm, and audio evac-
6 uation systems, that are discrete systems
7 incorporated into a public building or work
8 and that are produced as complete sys-
9 tems, are evaluated as a single and distinct
10 construction material regardless of when or
11 how the individual parts or components of
12 those systems are delivered to the con-
13 struction site.

14 “(iii) The term ‘United States’ in-
15 cludes the District of Columbia, the Com-
16 monwealth of Puerto Rico, the Northern
17 Mariana Islands, Guam, American Samoa,
18 and the Virgin Islands.”.

19 (b) AUTHORIZATION OF APPROPRIATIONS.—Section
20 54101(i) of title 46, United States Code, is amended—

21 (1) by striking “2018, 2019, and 2020” and in-
22 serting “2020 and 2021”; and

23 (2) by striking “\$35,000,000” and inserting
24 “\$40,000,000”.

1 (c) NOTIFICATION OF COMMITTEES OF CERTAIN
2 PROPOSED OBLIGATIONS.—The first section of Public
3 Law 85-804 (50 U.S.C. 1431) is amended, in the third
4 sentence, by inserting “and in addition, the Committee on
5 Transportation and Infrastructure of the House of Rep-
6 resentatives and the Committee on Commerce, Science,
7 and Transportation of the Senate with respect to con-
8 tracts, or modifications or amendments to contracts, or
9 advance payments proposed to be made under this section
10 by the Secretary of the Department in which the Coast
11 Guard is operating with respect to the acquisition of Coast
12 Guard cutters or aircraft,” after “House of Representa-
13 tives”.

14 **SEC. 3508. SALVAGE RECOVERIES OF CARGOES.**

15 Section 57107 of title 46, United States Code, is
16 amended by adding at the end the following:

17 “(c) SALVAGING CARGOES.—

18 “(1) REIMBURSABLE AGREEMENTS.—The Sec-
19 retary of Transportation, acting through the Admin-
20 istrator of the Maritime Administration, may enter
21 into reimbursable agreements with other Federal en-
22 tities to provide legal services to such entities relat-
23 ing to the salvaging of cargoes for which such enti-
24 ties have custody, or control, or for which for such
25 entities have trustee responsibilities from vessels in

1 the custody or control of the Maritime Administra-
2 tion or its predecessor agencies. The Secretary may
3 receive and retain reimbursement from such entities
4 for all costs incurred related to the provision of such
5 services.

6 “(2) AMOUNTS RECEIVED.—Amounts received
7 as reimbursements under this subsection shall be
8 credited to the fund or account that was used to
9 cover the costs incurred by the Secretary or, if the
10 period of availability of obligations for that appro-
11 priation has expired, to the appropriation of funds
12 that is currently available to the Secretary for sub-
13 stantially the same purpose. Amounts so credited
14 shall be merged with amounts in such fund or ac-
15 count and shall be available for the same purposes,
16 and subject to the same conditions and limitations,
17 as amounts in such fund or account.

18 “(3) ADVANCE PAYMENTS.—Payments made in
19 advance shall be for any part of the estimated cost
20 as determined by the Secretary of Transportation.
21 Adjustments to the amounts paid in advance shall be
22 made as agreed to by the Secretary of Transpor-
23 tation and the head of the ordering agency or unit
24 based on the actual cost of goods or services pro-
25 vided.”.

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1 **SEC. 3509. SALVAGE RECOVERIES FOR SUBROGATED OWN-**
2 **ERSHIP OF VESSELS AND CARGOES.**

3 (a) IN GENERAL.—Chapter 571 of title 46, United
4 States Code, as amended by this title, is further amended
5 by adding at the end the following new section:

6 **“SEC. 57111. SALVAGE RECOVERIES FOR SUBROGATED**
7 **OWNERSHIP OF VESSELS AND CARGOES.**

8 “(a) SALVAGE AGREEMENTS.—The Secretary of
9 Transportation is authorized to enter into marine salvage
10 agreements for the recoveries, sale, and disposal of sunken
11 or damaged vessels, cargoes, or properties owned or in-
12 sured by or on behalf of the Maritime Administration, the
13 United States Shipping Board, the U.S. Shipping Bureau,
14 the United States Maritime Commission, or the War Ship-
15 ping Administration.

16 “(b) MILITARY CRAFT.—The Secretary of Transpor-
17 tation shall consult with the Secretary of the military de-
18 partment concerned prior to engaging in or authorizing
19 any activity under subsection (a) that will disturb sunken
20 military craft, as such term is defined in section 1408(3)
21 of the Ronald W. Reagan National Defense Authorization
22 Act for Fiscal Year 2005 (Public Law 108–375; 10 U.S.C.
23 113 note).

24 “(c) RECOVERIES.—Notwithstanding any other pro-
25 vision of law, the net proceeds from salvage agreements

1 entered into as authorized in subsection (a) shall remain
2 available until expended and be distributed as follows:

3 “(1) Fifty percent shall be available to the Ad-
4 ministrator of the Maritime Administration for the
5 payment or reimbursement of expenses incurred by
6 or on behalf of State maritime academies or the
7 United States Merchant Marine Academy for facility
8 and training ship maintenance, repair, and mod-
9 ernization, and for the purchase of simulators and
10 fuel.

11 “(2) The remainder shall be distributed for
12 maritime heritage preservation to the Department of
13 the Interior for grants as authorized by section
14 308703 of title 54.”.

15 (b) CLERICAL AMENDMENT.—The table of sections
16 at the beginning of such chapter, as amended by this title,
17 is further amended by adding at the end the following new
18 item:

 “57111. Salvage recoveries for subrogated ownership of vessels and cargoes.”.

19 **SEC. 3510. MARITIME OCCUPATIONAL SAFETY AND HEALTH**
20 **ADVISORY COMMITTEE.**

21 Section 7 of the Occupational Safety and Health Act
22 of 1970 (29 U.S.C. 656) is amended by adding at the end
23 the following:

24 “(d) There is established a Maritime Occupational
25 Safety and Health Advisory Committee, which shall be a

1 continuing body and shall provide advice to the Secretary
2 in formulating maritime industry standards and regarding
3 matters pertaining to the administration of this Act re-
4 lated to the maritime industry. The composition of such
5 advisory committee shall be consistent with the advisory
6 committees established under subsection (b). A member
7 of the advisory committee who is otherwise qualified may
8 continue to serve until a successor is appointed. The Sec-
9 retary may promulgate or amend regulations as necessary
10 to implement this subsection.”.

11 **SEC. 3511. MILITARY TO MARINER.**

12 (a) CREDENTIALING SUPPORT.—Not later than one
13 year after the date of enactment of this title, the Secretary
14 of Defense, the Secretary of the Department in which the
15 Coast Guard is operating when it is not operating as a
16 service in the Department of the Navy, the Secretary of
17 Commerce, and the Secretary of Health and Human Serv-
18 ices, with respect to the applicable services in their respec-
19 tive departments, and in coordination with one another
20 and with the United States Committee on the Marine
21 Transportation System, and in consultation with the Mer-
22 chant Marine Personnel Advisory Committee, shall, con-
23 sistent with applicable law, identify all training and experi-
24 ence within the applicable service that may qualify for
25 merchant mariner credentialing and submit a list of all

1 identified training and experience to the United States
2 Coast Guard National Maritime Center for a determina-
3 tion of whether such training and experience counts for
4 credentialing purposes.

5 (b) REVIEW OF APPLICABLE SERVICE.—The United
6 States Coast Guard Commandant shall make a determina-
7 tion of whether training and experience counts for
8 credentialing purposes, as described in subsection (a), not
9 later than 6 months after the date on which the United
10 States Coast Guard National Maritime Center receives a
11 submission under subsection (a) identifying a training or
12 experience and requesting such a determination.

13 (c) FEES AND SERVICES.—The Secretary of Defense,
14 the Secretary of the Department in which the Coast Guard
15 is operating when it is not operating as a service in the
16 Department of the Navy, and the Secretary of Commerce,
17 with respect to the applicable services in their respective
18 departments, shall—

19 (1) take all necessary and appropriate actions
20 to provide for the waiver of fees through the Na-
21 tional Maritime Center license evaluation, issuance,
22 and examination for members of the uniformed serv-
23 ices on active duty, if a waiver is authorized and ap-
24 propriate, and, if a waiver is not granted, take all
25 necessary and appropriate actions to provide for the

1 payment of fees for members of the uniformed serv-
2 ices on active duty by the applicable service to the
3 fullest extent permitted by law;

4 (2) direct the applicable services to take all nec-
5 essary and appropriate actions to provide for Trans-
6 portation Worker Identification Credential cards for
7 members of the uniformed services on active duty
8 pursuing or possessing a mariner credential, such as
9 implementation of an equal exchange process for
10 members of the uniformed services on active duty at
11 no or minimal cost;

12 (3) ensure that members of the applicable serv-
13 ices who are to be discharged or released from active
14 duty and who request certification or verification of
15 sea service be provided such certification or
16 verification no later than one month after discharge
17 or release;

18 (4) ensure the applicable services have devel-
19 oped, or continue to operate, as appropriate, the on-
20 line resource known as Credentialing Opportunities
21 On-Line to support separating members of the uni-
22 formed services who are seeking information and as-
23 sistance on merchant mariner credentialing; and

24 (5) not later than 1 year after the date of en-
25 actment of this section, take all necessary and ap-

1 appropriate actions to review and implement service-re-
2 lated medical certifications to merchant mariner cre-
3 dential requirements.

4 (d) ADVANCING MILITARY TO MARINER WITHIN THE
5 EMPLOYER AGENCIES.—

6 (1) IN GENERAL.—The Secretary of Defense,
7 the Secretary of the Department in which the Coast
8 Guard is operating when it is not operating as a
9 service in the Department of the Navy, and the Sec-
10 retary of Commerce shall have direct hiring author-
11 ity to employ separated members of the uniformed
12 services with valid merchant mariner licenses or sea
13 service experience in support of United States na-
14 tional maritime needs, including the Army Corps of
15 Engineers, U.S. Customs and Border Protection,
16 and the National Oceanic and Atmospheric Adminis-
17 tration.

18 (2) APPOINTMENTS OF RETIRED MEMBERS OF
19 THE ARMED FORCES.—Except in the case of posi-
20 tions in the Senior Executive Service, the require-
21 ments of section 3326(b) of title 5, United States
22 Code, shall not apply with respect to the hiring of
23 a separated member of the uniformed services under
24 paragraph (1).

1 (e) SEPARATED MEMBER OF THE UNIFORMED SERV-
2 ICES.—In this section, the term “separated member of the
3 uniformed services” means an individual who—

4 (1) is retiring or is retired as a member of the
5 uniformed services;

6 (2) is voluntarily separating or voluntarily sepa-
7 rated from the uniformed services at the end of en-
8 listment or service obligation; or

9 (3) is administratively separating or has admin-
10 istratively separated from the uniformed services
11 with an honorable or general discharge characteriza-
12 tion.

13 **SEC. 3512. DEPARTMENT OF TRANSPORTATION INSPECTOR**
14 **GENERAL REPORT.**

15 The Inspector General of the Department of Trans-
16 portation shall—

17 (1) not later than 180 days after the date of
18 enactment of this title, initiate an audit of the Mari-
19 time Administration’s actions to address only those
20 recommendations from Chapter 3 and recommenda-
21 tions 5–1, 5–2, 5–3, 5–4, 5–5, and 5–6 identified by
22 a National Academy of Public Administration panel
23 in the November 2017 report entitled “Maritime Ad-
24 ministration: Defining its Mission, Aligning its Pro-
25 grams, and Meeting its Objectives”; and

1 (2) submit to the Committee on Commerce,
2 Science, and Transportation of the Senate and the
3 Committee on Transportation and Infrastructure of
4 the House of Representatives a report containing the
5 results of that audit once the audit is completed.

6 **SEC. 3513. INDEPENDENT STUDY ON THE UNITED STATES**

7 **MERCHANT MARINE ACADEMY.**

8 (a) **IN GENERAL.**—Not later than 180 days after the
9 date of enactment of this title, the Secretary of Transpor-
10 tation shall seek to enter into an agreement with the Na-
11 tional Academy of Public Administration (referred to in
12 this section as the “Academy”) to carry out the activities
13 described in this section.

14 (b) **STUDY ELEMENTS.**—In accordance with the
15 agreement described in subsection (a), the Academy shall
16 conduct a study of the United States Merchant Marine
17 Academy that consists of the following:

18 (1) A comprehensive assessment of the United
19 States Merchant Marine Academy’s systems, train-
20 ing, facilities, infrastructure, information technology,
21 and stakeholder engagement.

22 (2) Identification of needs and opportunities for
23 modernization to help the United States Merchant
24 Marine Academy keep pace with more modern cam-
25 puses.

1 (3) Development of an action plan for the
2 United States Merchant Marine Academy with spe-
3 cific recommendations for—

4 (A) improvements or updates relating to
5 the opportunities described in paragraph (2);
6 and

7 (B) systemic changes needed to help the
8 United States Merchant Marine Academy
9 achieve its mission of inspiring and educating
10 the next generation of the mariner workforce on
11 a long-term basis.

12 (c) **DEADLINE AND REPORT.**—Not later than 1 year
13 after the date of the agreement described in subsection
14 (a), the Academy shall prepare and submit to the Adminis-
15 trator of the Maritime Administration a report containing
16 the action plan described in subsection (b)(3), including
17 specific findings and recommendations.

18 **SEC. 3514. PORT OPERATIONS, RESEARCH, AND TECH-**
19 **NOLOGY.**

20 (a) **SHORT TITLE.**—This section may be cited as the
21 “Ports Improvement Act”.

22 (b) **PORT AND INTERMODAL IMPROVEMENT PRO-**
23 **GRAM.**—Section 50302 of title 46, United States Code, is
24 amended by striking subsection (c) and inserting the fol-
25 lowing:

1 “(c) PORT AND INTERMODAL IMPROVEMENT PRO-
2 GRAM.—

3 “(1) GENERAL AUTHORITY.—Subject to the
4 availability of appropriations, the Secretary of
5 Transportation shall make grants, on a competitive
6 basis, to eligible applicants to assist in funding eligi-
7 ble projects for the purpose of improving the safety,
8 efficiency, or reliability of the movement of goods
9 through ports and intermodal connections to ports.

10 “(2) ELIGIBLE APPLICANT.—The Secretary
11 may make a grant under this subsection to the fol-
12 lowing:

13 “(A) A State.

14 “(B) A political subdivision of a State, or
15 a local government.

16 “(C) A public agency or publicly chartered
17 authority established by 1 or more States.

18 “(D) A special purpose district with a
19 transportation function.

20 “(E) An Indian Tribe (as defined in sec-
21 tion 4 of the Indian Self-Determination and
22 Education Assistance Act (25 U.S.C. 5304),
23 without regard to capitalization), or a consor-
24 tium of Indian Tribes.

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1 “(F) A multistate or multijurisdictional
2 group of entities described in this paragraph.

3 “(G) A lead entity described in subpara-
4 graph (A), (B), (C), (D), (E), or (F) jointly
5 with a private entity or group of private enti-
6 ties.

7 “(3) ELIGIBLE PROJECTS.—The Secretary may
8 make a grant under this subsection—

9 “(A) for a project, or package of projects,
10 that—

11 “(i) is either—

12 “(I) within the boundary of a
13 port; or

14 “(II) outside the boundary of a
15 port, but is directly related to port op-
16 erations or to an intermodal connec-
17 tion to a port; and

18 “(ii) will be used to improve the safe-
19 ty, efficiency, or reliability of—

20 “(I) the loading and unloading of
21 goods at the port, such as for marine
22 terminal equipment;

23 “(II) the movement of goods
24 into, out of, around, or within a port,
25 such as for highway or rail infrastruc-

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1 ture, intermodal facilities, freight in-
2 telligent transportation systems, and
3 digital infrastructure systems; or

4 “(III) environmental mitigation
5 measures and operational improve-
6 ments directly related to enhancing
7 the efficiency of ports and intermodal
8 connections to ports; or

9 “(B) notwithstanding paragraph (6)(A)(v),
10 to provide financial assistance to 1 or more
11 projects under subparagraph (A) for develop-
12 ment phase activities, including planning, feasi-
13 bility analysis, revenue forecasting, environ-
14 mental review, permitting, and preliminary en-
15 gineering and design work.

16 “(4) PROHIBITED USES.—A grant award under
17 this subsection may not be used—

18 “(A) to finance or refinance the construc-
19 tion, reconstruction, reconditioning, or purchase
20 of a vessel that is eligible for such assistance
21 under chapter 537, unless the Secretary deter-
22 mines such vessel—

23 “(i) is necessary for a project de-
24 scribed in paragraph (3)(A)(ii)(III) of this
25 subsection; and

1 “(ii) is not receiving assistance under
2 chapter 537; or

3 “(B) for any project within a small ship-
4 yard (as defined in section 54101).

5 “(5) APPLICATIONS AND PROCESS.—

6 “(A) APPLICATIONS.—To be eligible for a
7 grant under this subsection, an eligible appli-
8 cant shall submit to the Secretary an applica-
9 tion in such form, at such time, and containing
10 such information as the Secretary considers ap-
11 propriate.

12 “(B) SOLICITATION PROCESS.—Not later
13 than 60 days after the date that amounts are
14 made available for grants under this subsection
15 for a fiscal year, the Secretary shall solicit
16 grant applications for eligible projects in ac-
17 cordance with this subsection.

18 “(6) PROJECT SELECTION CRITERIA.—

19 “(A) IN GENERAL.—The Secretary may se-
20 lect a project described in paragraph (3) for
21 funding under this subsection if the Secretary
22 determines that—

23 “(i) the project improves the safety,
24 efficiency, or reliability of the movement of

1 goods through a port or intermodal con-
2 nection to a port;

3 “(ii) the project is cost effective;

4 “(iii) the eligible applicant has author-
5 ity to carry out the project;

6 “(iv) the eligible applicant has suffi-
7 cient funding available to meet the match-
8 ing requirements under paragraph (8);

9 “(v) the project will be completed
10 without unreasonable delay; and

11 “(vi) the project cannot be easily and
12 efficiently completed without Federal fund-
13 ing or financial assistance available to the
14 project sponsor.

15 “(B) ADDITIONAL CONSIDERATIONS.—In
16 selecting projects described in paragraph (3) for
17 funding under this subsection, the Secretary
18 shall give substantial weight to—

19 “(i) the utilization of non-Federal
20 contributions; and

21 “(ii) the net benefits of the funds
22 awarded under this subsection, considering
23 the cost-benefit analysis of the project, as
24 applicable.

1 “(C) SMALL PROJECTS.—The Secretary
2 may waive the cost-benefit analysis under sub-
3 paragraph (A)(ii), and establish a simplified, al-
4 ternative basis for determining whether a
5 project is cost effective, for a small project de-
6 scribed in paragraph (7)(B).

7 “(7) ALLOCATION OF FUNDS.—

8 “(A) GEOGRAPHIC DISTRIBUTION.—Not
9 more than 25 percent of the amounts made
10 available for grants under this subsection for a
11 fiscal year may be used to make grants for
12 projects in any 1 State.

13 “(B) SMALL PROJECTS.—The Secretary
14 shall reserve 25 percent of the amounts made
15 available for grants under this subsection each
16 fiscal year to make grants for eligible projects
17 described in paragraph (3)(A) that request the
18 lesser of—

19 “(i) 10 percent of the amounts made
20 available for grants under this subsection
21 for a fiscal year; or

22 “(ii) \$10,000,000.

23 “(C) DEVELOPMENT PHASE ACTIVITIES.—
24 Not more than 10 percent of the amounts made
25 available for grants under this subsection for a

1 fiscal year may be used to make grants for de-
2 velopment phase activities under paragraph
3 (3)(B).

4 “(8) FEDERAL SHARE OF TOTAL PROJECT
5 COSTS.—

6 “(A) TOTAL PROJECT COSTS.—To be eligi-
7 ble for a grant under this subsection, an eligible
8 applicant shall submit to the Secretary an esti-
9 mate of the total costs of a project under this
10 subsection based on the best available informa-
11 tion, including any available engineering stud-
12 ies, studies of economic feasibility, environ-
13 mental analyses, and information on the ex-
14 pected use of equipment or facilities.

15 “(B) FEDERAL SHARE.—

16 “(i) IN GENERAL.—Except as pro-
17 vided in clause (ii), the Federal share of
18 the total costs of a project under this sub-
19 section shall not exceed 80 percent.

20 “(ii) RURAL AREAS.—The Secretary
21 may increase the Federal share of costs
22 above 80 percent for a project located in a
23 rural area.

24 “(9) PROCEDURAL SAFEGUARDS.—The Sec-
25 retary shall issue guidelines to establish appropriate

1 accounting, reporting, and review procedures to en-
2 sure that—

3 “(A) grant funds are used for the purposes
4 for which those funds were made available;

5 “(B) each grantee properly accounts for all
6 expenditures of grant funds; and

7 “(C) grant funds not used for such pur-
8 poses and amounts not obligated or expended
9 are returned.

10 “(10) GRANT CONDITIONS.—

11 “(A) IN GENERAL.—The Secretary shall
12 require as a condition of making a grant under
13 this subsection that a grantee—

14 “(i) maintain such records as the Sec-
15 retary considers necessary;

16 “(ii) make the records described in
17 clause (i) available for review and audit by
18 the Secretary; and

19 “(iii) periodically report to the Sec-
20 retary such information as the Secretary
21 considers necessary to assess progress.

22 “(B) ADDITIONAL REQUIREMENT.—The
23 Secretary shall apply the same requirements of
24 section 117(k) of title 23, United States Code,
25 to a port project assisted in whole or in part

1 under this section as the Secretary does a port-
2 related freight project under section 117 of title
3 23, United States Code.

4 “(C) CONSTRUCTION, REPAIR, OR ALTER-
5 ATION OF VESSELS.—With regard to the con-
6 struction, repair, or alteration of vessels, the
7 same requirements of section 117(k) of title 23,
8 United States Code, shall apply regardless of
9 whether the location of contract performance is
10 known when bids for such work are solicited.

11 “(11) ADMINISTRATION.—

12 “(A) ADMINISTRATIVE AND OVERSIGHT
13 COSTS.—The Secretary may retain not more
14 than 2 percent of the amounts appropriated for
15 each fiscal year under this subsection for the
16 administrative and oversight costs incurred by
17 the Secretary to carry out this subsection.

18 “(B) AVAILABILITY.—

19 “(i) IN GENERAL.—Amounts appro-
20 priated for carrying out this subsection
21 shall remain available until expended.

22 “(ii) UNEXPENDED FUNDS.—
23 Amounts awarded as a grant under this
24 subsection that are not expended by the
25 grantee during the 5-year period following

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1 the date of the award shall remain avail-
2 able to the Secretary for use for grants
3 under this subsection in a subsequent fis-
4 cal year.

5 “(12) DEFINITIONS.—In this subsection:

6 “(A) APPROPRIATE COMMITTEES OF CON-
7 GRESS.—The term ‘appropriate committees of
8 Congress’ means—

9 “(i) the Committee on Commerce,
10 Science, and Transportation of the Senate;
11 and

12 “(ii) the Committee on Transportation
13 and Infrastructure of the House of Rep-
14 resentatives.

15 “(B) PORT.—The term ‘port’ includes—

16 “(i) any port on the navigable waters
17 of the United States; and

18 “(ii) any harbor, marine terminal, or
19 other shore side facility used principally for
20 the movement of goods on inland waters.

21 “(C) PROJECT.—The term ‘project’ in-
22 cludes construction, reconstruction, environ-
23 mental rehabilitation, acquisition of property,
24 including land related to the project and im-

1 provements to the land, equipment acquisition,
2 and operational improvements.

3 “(D) RURAL AREA.—The term ‘rural area’
4 means an area that is outside an urbanized
5 area.

6 “(d) ADDITIONAL AUTHORITY OF THE SEC-
7 RETARY.—In carrying out this section, the Secretary
8 may—

9 “(1) coordinate with other Federal agencies to
10 expedite the process established under the National
11 Environmental Policy Act of 1969 (42 U.S.C. 4321
12 et seq.) for the improvement of port facilities to im-
13 prove the efficiency of the transportation system, to
14 increase port security, or to provide greater access
15 to port facilities;

16 “(2) seek to coordinate all reviews or require-
17 ments with appropriate Federal, State, and local
18 agencies; and

19 “(3) in addition to any financial assistance pro-
20 vided under subsection (c), provide such technical
21 assistance to port authorities or commissions or
22 their subdivisions and agents.”.

23 (c) SAVINGS CLAUSE.—A repeal made by subsection
24 (b) of this section shall not affect amounts apportioned
25 or allocated before the effective date of the repeal. Such

1 apportioned or allocated funds shall continue to be subject
2 to the requirements to which the funds were subject
3 under—

4 (1) section 50302(c) of title 46, United States
5 Code, as in effect on the day before the date of en-
6 actment of this title;

7 (2) section 9008 of the SAFETEA-LU Act
8 (Public Law 109–59; 119 Stat. 1926);

9 (3) section 10205 of the SAFETEA-LU Act
10 (Public Law 109–59; 119 Stat. 1934); and

11 (4) section 3512 of the Duncan Hunter Na-
12 tional Defense Authorization Act for Fiscal Year
13 2009 (48 U.S.C. 1421r).

14 (d) REMEDIAL ACTIONS.—Section 533 of the Coast
15 Guard Authorization Act of 2016 (Public Law 114–120;
16 130 Stat. 74) is amended by adding at the end the fol-
17 lowing:

18 “(f) REMEDIAL ACTIONS.—For purposes of the con-
19 veyances under this section, the remedial actions required
20 under section 120(h) of the Comprehensive Environmental
21 Response, Compensation, and Liability Act of 1980 (42
22 U.S.C. 9620(h)) may be completed by the United States
23 Coast Guard after the date of such conveyance and a deed
24 entered into for such conveyance shall include a clause
25 granting the United States Coast Guard access to the

1 property in any case in which remedial action or corrective
2 action is found to be necessary after the date of such con-
3 veyance.”.

4 (e) ENVIRONMENTAL COMPLIANCE.—Section 534(a)
5 of the Coast Guard Authorization Act of 2016 (Public
6 Law 114-120; 42 U.S.C. 9620 note) is amended—

7 (1) by striking “Nothing” and inserting “After
8 the date on which the Secretary of the Interior con-
9 veys land under section 533 of this Act, nothing”;
10 and

11 (2) by inserting “, with respect to contaminants
12 on such land prior to the date on which the land is
13 conveyed” before the period.

14 **SEC. 3515. ASSESSMENT AND REPORT ON STRATEGIC SEA-**
15 **PORTS.**

16 (a) IN GENERAL.—Not later than 90 days after the
17 date of the enactment of this title, the Secretary of De-
18 fense shall submit to the Committee on Armed Services
19 and the Committee on Transportation and Infrastructure
20 of the House of Representatives and the Committee on
21 Armed Services and the Committee on Commerce,
22 Science, and Transportation of the Senate a report on port
23 facilities used for military purposes at ports designated by
24 the Department of Defense as strategic seaports.

1 (b) ELEMENTS.—The report required by subsection
2 (a) shall include, with respect to port facilities included
3 in the report, the following:

4 (1) An assessment of whether there are struc-
5 tural integrity or other deficiencies in such facilities.

6 (2) If there are such deficiencies—

7 (A) an assessment of infrastructure im-
8 provements to such facilities that would be
9 needed to meet, directly or indirectly, national
10 security and readiness requirements;

11 (B) an assessment of the impact on oper-
12 ational readiness of the Armed Forces if such
13 improvements are not undertaken; and

14 (C) an identification of, to the maximum
15 extent practical, all potential funding sources
16 for such improvements from existing authori-
17 ties.

18 (3) An identification of the support that would
19 be appropriate for the Department of Defense to
20 provide in the execution of the responsibilities of the
21 Secretary of Transportation under section 50302 of
22 title 46, United States Code, with respect to such fa-
23 cilities.

24 (4) If additional statutory or administrative au-
25 thorities would be required for the provision of sup-

1 port as described in paragraph (3), recommenda-
2 tions for legislative or administrative action to estab-
3 lish such authorities.

4 (c) CONSULTATION.—The Secretary of Defense shall
5 prepare the report required by subsection (a) in consulta-
6 tion with the Maritime Administrator and the individual
7 responsible for each port facility described in such sub-
8 section.

9 **SEC. 3516. TECHNICAL CORRECTIONS.**

10 (a) OFFICE OF PERSONNEL MANAGEMENT GUID-
11 ANCE.—Not later than 120 days after the date of the en-
12 actment of this title, the Director of the Office of Per-
13 sonnel Management, in consultation with the Adminis-
14 trator of the Maritime Administration, shall identify key
15 skills and competencies necessary to maintain a balance
16 of expertise in merchant marine seagoing service and stra-
17 tegic sealift military service in each of the following posi-
18 tions within the Office of the Commandant of the Mer-
19 chant Marine Academy:

- 20 (1) Commandant.
- 21 (2) Deputy Commandant.
- 22 (3) Tactical company officers.
- 23 (4) Regimental officers.

24 (b) SEA YEAR COMPLIANCE.—Section 3514(a)(1)(A)
25 of the National Defense Authorization Act for Fiscal Year

1 2017 (Public Law 114–328; 46 U.S.C. 51318 note) is
2 amended by inserting “domestic and international” after
3 “criteria that”.

4 **SEC. 3517. UNITED STATES MERCHANT MARINE ACADEMY**
5 **SEXUAL ASSAULT PREVENTION AND RE-**
6 **SPONSE PROGRAM.**

7 (a) IMPLEMENTATION OF RECOMMENDATIONS.—The
8 Secretary of Transportation shall ensure that, not later
9 than 180 days after the date of the enactment of this title,
10 the recommendations in report of the Inspector General
11 of the Department of Transportation on the effectiveness
12 sexual assault prevention and response program of the
13 United States Merchant Marine Academy (mandated
14 under section 3512 of the National Defense Authorization
15 Act for Fiscal Year 2017 (Public Law 114–328; 130 Stat.
16 2786)), are fully implemented.

17 (b) REPORT.—Not later than 180 days after the date
18 of the enactment of this title, the Secretary of Transpor-
19 tation shall submit to Congress a report that includes—

20 (1) confirmation that the recommendations de-
21 scribed in subsection (a) have been fully imple-
22 mented, and explaining how those recommendations
23 have been implemented; or

24 (2) if such recommendations have not been fully
25 implemented as of the date of the report, an expla-

1 nation of why such recommendations have not been
2 fully implemented and a description of the resources
3 that are needed to fully implement such rec-
4 ommendations.

5 **SEC. 3518. REPORT ON VESSELS FOR EMERGING OFFSHORE**
6 **ENERGY INFRASTRUCTURE.**

7 (a) IN GENERAL.—Not later than six months after
8 the date of the enactment of this Act, the Comptroller
9 General of the United States shall submit to the Com-
10 mittee on Commerce, Science, and Transportation of the
11 Senate, the Committee on Energy and Natural Resources
12 of the Senate, and the Committee on Transportation and
13 Infrastructure of the House of Representatives a report
14 on the need for vessels documented under chapter 121 of
15 title 46, United States Code, to install, operate, and main-
16 tain emerging offshore energy infrastructure, including
17 offshore wind energy.

18 (b) CONTENTS.—The report required by subsection

19 (a) shall include—

20 (1) an inventory of vessels documented under
21 chapter 121 of title 46, United States Code, (includ-
22 ing existing vessels and vessels that have the poten-
23 tial to be refurbished) to install, operate, and main-
24 tain such emerging offshore energy infrastructure;

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1 (2) a projection of existing vessels needed to
2 meet such emerging offshore energy needs over the
3 next 10 years;

4 (3) a summary of actions taken or proposed by
5 offshore energy developers and producers, the
6 United States domestic shipbuilding industry, and
7 United States coastwise qualified operators to en-
8 sure sufficient vessel capacity in compliance with
9 United States coastwise laws; and

10 (4) a description of the potential benefits to the
11 United States maritime and shipbuilding industries
12 and to the United States economy associated with
13 the use of United States coastwise qualified vessels
14 to support offshore energy development and produc-
15 tion.

16 **SEC. 3519. REPORT ON UNITED STATES FLAGGED FUEL**
17 **TANKER VESSEL CAPACITY.**

18 (a) **REPORT REQUIRED.**—Concurrent with the budg-
19 et of the President for fiscal year 2021, as submitted to
20 Congress under section 1105 of title 31, United States
21 Code, the Secretary of Defense shall, in consultation with
22 the Secretary of Transportation, submit to the appropriate
23 committees of Congress a report on the capabilities of the
24 United States to maintain adequate United States-flagged

1 fuel tanker vessel capacity to support the full range of an-
2 ticipated military operations over each period as follows:

3 (1) In 2020.

4 (2) Between 2020 and 2025.

5 (3) Between 2020 and 2030.

6 (b) ELEMENTS.—The report required by subsection
7 (a) shall include, for each period specified in that sub-
8 section, the following:

9 (1) A description of current and projected
10 United States-flagged fuel tanker vessel capacity.

11 (2) A description of current and projected
12 United States military needs for United States-
13 flagged fuel tanker vessel capacity, including the
14 most stressing peacetime and wartime requirements.

15 (3) A description and assessment of the number
16 of foreign-flagged tanker vessels required to address
17 United States military needs described pursuant to
18 paragraph (2), including the most stressing peace-
19 time and wartime requirements.

20 (4) An identification and assessment of any
21 gaps in the capacity described pursuant to para-
22 graph (1) to meet the United States military needs
23 described pursuant to paragraph (2), including
24 quantities of tanker vessels, as well as an assessment
25 of the risk to military objectives due to reliance on

1 foreign-flagged tanker vessels described pursuant to
2 paragraph (3).

3 (5) A description and assessment of options to
4 address the gaps identified pursuant to paragraph
5 (4), including the establishment of a program for
6 United States-flagged fuel tanker vessels modeled on
7 the Maritime Security Program.

8 (6) Such recommendations as the Secretary of
9 Defense considers appropriate in light of the matters
10 set forth in the report.

11 (c) FORM.—The report required by subsection (a)
12 shall be submitted in unclassified form, but may include
13 a classified annex.

14 (d) DEFINITIONS.—In this section:

15 (1) The term “appropriate committees of Con-
16 gress” means—

17 (A) the Committee on Commerce, Science,
18 and Transportation and the Committee on
19 Armed Services of the Senate; and

20 (B) the Committee on Transportation and
21 Infrastructure and the Committee on Armed
22 Services of the House of Representatives.

23 (2) The term “Maritime Security Program”
24 means the program in connection with the Maritime

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1 Security Fleet under chapter 531 of title 46, United
2 States Code.

3 **Subtitle B—Cable Security Fleet**

4 **SEC. 3521. ESTABLISHMENT OF CABLE SECURITY FLEET.**

5 (a) IN GENERAL.—Title 46, United States Code, is
6 amended by inserting before chapter 533 the following
7 new chapter:

8 **“CHAPTER 532—CABLE SECURITY FLEET**

“Sec.

“53201. Definitions.

“53202. Establishment of the Cable Security Fleet.

“53203. Award of operating agreements.

“53204. Effectiveness of operating agreements.

“53205. Obligations and rights under operating agreements.

“53206. Payments.

“53207. National security requirements.

“53208. Regulatory relief.

“53209. Authorization of appropriations.

9 **“§ 53201. Definitions**

10 “In this chapter:

11 “(1) CABLE SERVICES.—The term ‘cable serv-
12 ices’ means the installation, maintenance, or repair
13 of submarine cables and related equipment, and re-
14 lated cable vessel operations.

15 “(2) CABLE VESSEL.—The term ‘cable vessel’
16 means a vessel—

17 “(A) classed as a cable ship or cable vessel
18 by, and designed in accordance with the rules
19 of, the American Bureau of Shipping, or an-

2007

1 other classification society accepted by the Sec-
2 retary; and

3 “(B) capable of installing, maintaining,
4 and repairing submarine cables.

5 “(3) CABLE FLEET.—The term ‘Cable Fleet’
6 means the Cable Security Fleet established under
7 section 53202(a).

8 “(4) CONTINGENCY AGREEMENT.—The term
9 ‘Contingency Agreement’ means the agreement re-
10 quired by section 53207.

11 “(5) CONTRACTOR.—The term ‘Contractor’
12 means an owner or operator of a vessel that enters
13 into an Operating Agreement for a cable vessel with
14 the Secretary under section 53203.

15 “(6) FISCAL YEAR.—The term ‘fiscal year’
16 means any annual period beginning on October 1
17 and ending on September 30.

18 “(7) OPERATING AGENCY.—The term ‘Oper-
19 ating Agency’ means that agency or component of
20 the Department of Defense so designated by the
21 Secretary of Defense under this chapter.

22 “(8) OPERATING AGREEMENT OR AGREE-
23 MENT.—The terms ‘Operating Agreement’ or
24 ‘Agreement’ mean the agreement required by section
25 53203.

1 “(9) PERSON.—The term ‘person’ includes cor-
2 porations, partnerships, and associations existing
3 under or authorized by the laws of the United
4 States, or any State, Territory, District, or posses-
5 sion thereof, or of any foreign country.

6 “(10) SECRETARY.—The term ‘Secretary’
7 means the Secretary of Transportation.

8 “(11) UNITED STATES.—The term ‘United
9 States’ includes the States, the District of Columbia,
10 the Commonwealth of Puerto Rico, the Northern
11 Mariana Islands, Guam, American Samoa, and the
12 Virgin Islands.

13 “(12) UNITED STATES CITIZEN TRUST.—

14 “(A) Subject to paragraph (C), the term
15 ‘United States citizen trust’ means a trust that
16 is qualified under this paragraph.

17 “(B) A trust is qualified under this para-
18 graph with respect to a vessel only if—

19 “(i) it was created under the laws of
20 a state of the United States;

21 “(ii) each of the trustees is a citizen
22 of the United States; and

23 “(iii) the application for documenta-
24 tion of the vessel under chapter 121 of this
25 title includes the affidavit of each trustee

2009

1 stating that the trustee is not aware of any
2 reason involving a beneficiary of the trust
3 that is not a citizen of the United States,
4 or involving any other person that is not a
5 citizen of the United States, as a result of
6 which the beneficiary or other person
7 would hold more than 25 percent of the
8 aggregate power to influence, or limit the
9 exercise of the authority of, the trustee
10 with respect to matters involving any own-
11 ership or operation of the vessel that may
12 adversely affect the interests of the United
13 States.

14 “(C) If any person that is not a citizen of
15 the United States has authority to direct, or
16 participate in directing, the trustee for a trust
17 in matters involving any ownership or operation
18 of the vessel that may adversely affect the in-
19 terests of the United States or in removing a
20 trustee for a trust without cause, either directly
21 or indirectly through the control of another per-
22 son, the trust is not qualified under this para-
23 graph unless the trust instrument provides that
24 persons who are not citizens of the United
25 States may not hold more than 25 percent of

1 the aggregate authority to direct or remove a
2 trustee.

3 “(D) This paragraph shall not be consid-
4 ered to prohibit a person who is not a citizen
5 of the United States from holding more than 25
6 percent of the beneficial interest in a trust.

7 **“§ 53202. Establishment of the Cable Security Fleet**

8 “(a) IN GENERAL.—(1) The Secretary, in consulta-
9 tion with the Operating Agency, shall establish a fleet of
10 active, commercially viable, cable vessels to meet national
11 security requirements. The fleet shall consist of privately
12 owned, United States-documented cable vessels for which
13 there are in effect Operating Agreements under this chap-
14 ter, and shall be known as the Cable Security Fleet.

15 “(2) The Fleet described under this section shall in-
16 clude two vessels.

17 “(b) VESSEL ELIGIBILITY.—A cable vessel is eligible
18 to be included in the Fleet if—

19 “(1) the vessel meets the requirements of para-
20 graph (1), (2), (3), or (4) of subsection (c);

21 “(2) the vessel is operated (or in the case of a
22 vessel to be constructed, will be operated) in com-
23 mercial service providing cable services;

24 “(3) the vessel is 40 years of age or less on the
25 date the vessel is included in the Fleet;

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1 “(4) the vessel is—

2 “(A) determined by the Operating Agency
3 to be suitable for engaging in cable services by
4 the United States in the interest of national se-
5 curity; and

6 “(B) determined by the Secretary to be
7 commercially viable, whether independently or
8 taking any payments which are the consequence
9 of participation in the Cable Fleet into account;
10 and

11 “(5) the vessel—

12 “(A) is a United States-documented vessel;
13 or

14 “(B) is not a United States-documented
15 vessel, but—

16 “(i) the owner of the vessel has dem-
17 onstrated an intent to have the vessel doc-
18 umented under chapter 121 of this title if
19 it is included in the Cable Fleet; and

20 “(ii) at the time an Operating Agree-
21 ment is entered into under this chapter,
22 the vessel is eligible for documentation
23 under chapter 121 of this title.

24 “(c) REQUIREMENTS REGARDING CITIZENSHIP OF
25 OWNERS AND OPERATORS.—

1 “(1) VESSELS OWNED AND OPERATED BY SEC-
2 TION 50501 CITIZENS.—A vessel meets the require-
3 ments of this paragraph if, during the period of an
4 Operating Agreement under this chapter that applies
5 to the vessel, the vessel will be owned and operated
6 by one or more persons that are citizens of the
7 United states under section 50501 of this title.

8 “(2) VESSELS OWNED BY A SECTION 50501 CIT-
9 IZEN, OR UNITED STATES CITIZEN TRUST, AND
10 CHARTERED TO A DOCUMENTATION CITIZEN.—A
11 vessel meets the requirements of this paragraph if—

12 “(A) during the period of an Operating
13 Agreement under this chapter that applies to
14 the vessel, the vessel will be—

15 “(i) owned by a person that is a cit-
16 izen of the United States under section
17 50501 of this title or that is a United
18 States citizen trust; and

19 “(ii) demise chartered to and operated
20 by a person—

21 “(I) that is eligible to document
22 the vessel under chapter 121 of this
23 title;

24 “(II) the chairman of the board
25 of directors, chief executive officer,

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1 and a majority of the members of the
2 board of directors of which are citi-
3 zens of the United States under sec-
4 tion 50501 of this title, and are ap-
5 pointed and subject to removal only
6 upon approval by the Secretary; and

7 “(III) that certifies to the Sec-
8 retary that there are no treaties, stat-
9 utes, regulations, or other laws that
10 would prohibit the Contractor for the
11 vessel from performing its obligations
12 under an Operating Agreement under
13 this chapter;

14 “(B) in the case of a vessel that will be de-
15 mise chartered to a person that is owned or
16 controlled by another person that is not a citi-
17 zen of the United States under section 50501
18 of this title, the other person enters into an
19 agreement with the Secretary not to influence
20 the operation of the vessel in a manner that will
21 adversely affect the interests of the United
22 States; and

23 “(C) the Secretary and the Operating
24 Agency notify the Committee on Armed Serv-
25 ices and the Committee on Commerce, Science

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1 and Transportation of the Senate, and the
2 Committee on Armed Services of the House of
3 Representatives that they concur, and have re-
4 viewed the certification required under subpara-
5 graph (A)(ii)(III) and determined that there are
6 no legal, operational, or other impediments that
7 would prohibit the Contractor for the vessel
8 from performing its obligations under an Oper-
9 ating Agreement under this chapter.

10 “(3) VESSEL OWNED AND OPERATED BY A DE-
11 FENSE CONTRACTOR.—A vessel meets the require-
12 ments of this paragraph if—

13 “(A) during the period of an Operating
14 Agreement under this chapter that applies to
15 the vessel, the vessel will be owned and oper-
16 ated by a person that—

17 “(i) is eligible to document a vessel
18 under chapter 121 of this title;

19 “(ii) operates or manages other
20 United States-documented vessels for the
21 Secretary of Defense, or charters other
22 vessels to the Secretary of Defense;

23 “(iii) has entered into a special secu-
24 rity agreement for purposes of this para-
25 graph with the Secretary of Defense;

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1 “(iv) makes the certification described
2 in paragraph (2)(A)(ii)(III); and

3 “(v) in the case of a vessel described
4 in paragraph (2)(B), enters into an agree-
5 ment referred to in that paragraph; and

6 “(B) the Secretary and the Secretary of
7 Defense notify the Committee on Armed Serv-
8 ices and Committee on Commerce, Science, and
9 Transportation of the Senate and the Com-
10 mittee on Armed Services of the House of Rep-
11 resentatives that they have reviewed the certifi-
12 cation required by subparagraph (A)(iv) and de-
13 termined that there are no other legal, oper-
14 ational, or other impediments that would pro-
15 hibit the Contractor for the vessel from per-
16 forming its obligations under an Operating
17 Agreement under this chapter.

18 “(4) VESSEL OWNED BY A DOCUMENTATION
19 CITIZEN AND CHARTERED TO A SECTION 50501 CIT-
20 IZEN.—A vessel meets the requirements of this para-
21 graph if, during the period of an Operating Agree-
22 ment under this chapter that applies to the vessel,
23 the vessel will be—

1 “(A) owned by a person that is eligible to
2 document a vessel under chapter 121 of this
3 title; and

4 “(B) demise chartered to a person that is
5 a citizen of the United States under section
6 50501 of this title.

7 “(d) VESSEL STANDARDS.—

8 “(1) CERTIFICATE OF INSPECTION.—A cable
9 vessel which the Secretary of the Department in
10 which the Coast Guard is operating determines
11 meets the criteria of subsection (b) of this section
12 but which, on the date of enactment of the Act, is
13 not documented under chapter 121 of this title, shall
14 be eligible for a certificate of inspection if that Sec-
15 retary determines that—

16 “(A) the vessel is classed by, and designed
17 in accordance with the rules of, the American
18 Bureau of Shipping, or another classification
19 society accepted by that Secretary;

20 “(B) the vessel complies with applicable
21 international agreements and associated guide-
22 lines, as determined by the country in which the
23 vessel was documented immediately before be-
24 coming documented under chapter 121; and

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1 “(C) that country has not been identified
2 by that Secretary as inadequately enforcing
3 international vessel regulations as to that ves-
4 sel.

5 “(2) CONTINUED ELIGIBILITY FOR CERTIFI-
6 CATE.—Paragraph (1) does not apply to a vessel
7 after any date on which the vessel fails to comply
8 with the applicable international agreements and as-
9 sociated guidelines referred to in paragraph (1)(B).

10 “(3) RELIANCE ON CLASSIFICATION SOCIETY.—

11 “(A) IN GENERAL.—The Secretary of the
12 Department in which the Coast Guard is oper-
13 ating may rely on a certification from the
14 American Bureau of Shipping or, subject to
15 subparagraph (B), another classification society
16 accepted by that Secretary to establish that a
17 vessel is in compliance with the requirements of
18 paragraphs (1) and (2).

19 “(B) FOREIGN CLASSIFICATION SOCI-
20 ETY.—The Secretary of the Department in
21 which the Coast Guard is operating may accept
22 certification from a foreign classification society
23 under subparagraph (A) only—

24 “(i) to the extent that the government
25 of the foreign country in which the society

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1 is headquartered provides access on a re-
2 ciprocal basis to the American Bureau of
3 Shipping; and

4 “(ii) if the foreign classification soci-
5 ety has offices and maintains records in
6 the United States.

7 “(e) WAIVER OF AGE REGISTRATION.—The Sec-
8 retary, in conjunction with the Operating Agency, may
9 waive the application of the age restriction under sub-
10 section (b)(3) if they jointly determine that the waiver—

11 “(1) is in the national interest;

12 “(2) the subject cable vessel and any associated
13 operating network is and will continue to be eco-
14 nomically viable; and

15 “(3) is necessary due to the lack of availability
16 of other vessels and operators that comply with the
17 requirements of this chapter.

18 **“§ 53203. Award of operating agreements**

19 “(a) IN GENERAL.—The Secretary shall require, as
20 a condition of including any vessel in the Cable Fleet, that
21 the person that is the owner or operator of the vessel for
22 purposes of section 53202(c) enter into an Operating
23 Agreement with the Secretary under this section.

24 “(b) PROCEDURE FOR APPLICATIONS.—

1 “(1) ACCEPTANCE OF APPLICATIONS.—Begin-
2 ning no later than 60 days after the effective date
3 of this chapter, the Secretary shall accept applica-
4 tions for enrollment of vessels in the Cable Fleet.

5 “(2) ACTION ON APPLICATIONS.—Within 120
6 days after receipt of an application for enrollment of
7 a vessel in the Cable Fleet, the Secretary shall ap-
8 prove the application in conjunction with the Oper-
9 ating Agency, and shall enter into an Operating
10 Agreement with the applicant, or provide in writing
11 the reason for denial of that application.

12 “(c) PRIORITY FOR AWARDING AGREEMENTS.—Sub-
13 ject to the availability of appropriations, the Secretary
14 shall enter into Operating Agreements with those vessels
15 determined by the Operating Agency, in its sole discretion,
16 to best meet the national security requirements of the
17 United States. After consideration of national security re-
18 quirements, priority shall be given to an applicant that
19 is a United States citizen under section 50501 of this title.

20 **“§ 53204. Effectiveness of operating agreements**

21 “(a) EFFECTIVENESS GENERALLY.—The Secretary
22 may enter into an Operating Agreement under this chap-
23 ter for fiscal year 2021. Except as provided in subsection
24 (d), the agreement shall be effective only for one fiscal

1 year, but shall be renewable, subject to available appropriations, for each subsequent year.

3 “(b) VESSELS UNDER CHARTER TO THE UNITED
4 STATES.—Vessels under charter to the United States are
5 eligible to receive payments pursuant to their Operating
6 Agreements.

7 “(c) TERMINATION.—

8 “(1) TERMINATION BY THE SECRETARY.—If
9 the Contractor with respect to an Operating Agree-
10 ment materially fails to comply with the terms of the
11 Agreement—

12 “(A) the Secretary shall notify the Con-
13 tractor and provide a reasonable opportunity
14 for it to comply with the Operating Agreement;

15 “(B) the Secretary shall terminate the Op-
16 erating Agreement if the Contractor fails to
17 achieve such compliance; and

18 “(C) upon such termination, any funds ob-
19 ligated by the Agreement shall be available to
20 the Secretary to carry out this chapter.

21 “(2) EARLY TERMINATION BY A CON-
22 TRACTOR.—An Operating Agreement under this
23 chapter shall terminate on a date specified by the
24 Contractor if the Contractor notifies the Secretary,
25 not fewer than 60 days prior to the effective date of

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1 the termination, that the Contractor intends to ter-
2 minate the Agreement.

3 “(d) NONRENEWAL FOR LACK OF FUNDS.—If, by the
4 first day of a fiscal year, sufficient funds have not been
5 appropriated under the authority provided by this chapter
6 for that fiscal year for all Operating Agreements, then the
7 Secretary shall notify the Committee on Armed Services
8 and the Committee on Commerce, Science, and Transpor-
9 tation of the Senate and the Committee on Armed Services
10 of the House of Representatives that Operating Agree-
11 ments authorized under this chapter for which sufficient
12 funds are not available will not be renewed for that fiscal
13 year if sufficient funds are not appropriated by the 60th
14 day of that fiscal year. If only partial funding is appro-
15 priated by the 60th day of such fiscal year, then the Sec-
16 retary, in consultation with the Operating Agency, shall
17 select the vessels to retain under Operating Agreements,
18 based on their determinations of which vessels are most
19 useful for national security. In the event that no funds
20 are appropriated, then no Operating Agreements shall be
21 renewed and each Contractor shall be released from its
22 obligations under the Operating Agreement. Final pay-
23 ments under an Operating Agreement that is not renewed
24 shall be made in accordance with section 53206. To the
25 extent that sufficient funds are appropriated in a subse-

2022

1 quent fiscal year, an Operating Agreement that has not
2 been renewed pursuant to this subsection may be rein-
3 stated if mutually acceptable to the Secretary, in consulta-
4 tion with the Operating Agency, and the Contractor, pro-
5 vided the vessel remains eligible for participation pursuant
6 to section 53202, without regard to subsection 53202
7 (b)(3).

8 “(e) RELEASE OF VESSELS FROM OBLIGATIONS.—
9 If funds are not appropriated for payments under an Op-
10 erating Agreement under this chapter for any fiscal year
11 by the 60th day of a fiscal year, and the Secretary, in
12 consultation with the Operating Agency determines to not
13 renew a Contractor’s Operating Agreement for a vessel,
14 then—

15 “(1) each vessel covered by the Operating
16 Agreement that is not renewed is thereby released
17 from any further obligation under the Operating
18 Agreement;

19 “(2) the owner or operator of the vessel whose
20 Operating Agreement was not renewed may transfer
21 and register such vessel under a foreign registry that
22 is acceptable to the Secretary and the Operating
23 Agency, notwithstanding section 56101 of this title;
24 and

1 “(3) if chapter 563 of this title is applicable to
2 such vessel after registration, then the vessel is
3 available to be requisitioned by the Secretary pursu-
4 ant to chapter 563.

5 **“§ 53205. Obligations and rights under operating**
6 **agreements**

7 “(a) OPERATION OF VESSEL.—An Operating Agree-
8 ment under this chapter shall require that, during the pe-
9 riod the vessel is operating under the Agreement, the ves-
10 sel—

11 “(1) shall be operated in the trade for Cable
12 Services, or under a charter to the United States;
13 and

14 “(2) shall be documented under chapter 121 of
15 this title.

16 “(b) ANNUAL PAYMENTS BY THE SECRETARY.—

17 “(1) IN GENERAL.—An Operating Agreement
18 under this chapter shall require, subject to the avail-
19 ability of appropriations, that the Secretary make
20 payment to the Contractor in accordance with sec-
21 tion 53206.

22 “(2) OPERATING AGREEMENT IS AN OBLIGA-
23 TION OF THE UNITED STATES GOVERNMENT.—An
24 Operating Agreement under this chapter constitutes
25 a contractual obligation of the United States Gov-

1 ernment to pay the amounts provided for in the Op-
2 erating Agreement to the extent of actual appropria-
3 tions.

4 “(c) DOCUMENTATION REQUIREMENT.—Each vessel
5 covered by an Operating Agreement (including an Agree-
6 ment terminated under section 53204(c)(2)) shall remain
7 documented under chapter 121 of this title, until the date
8 the Operating Agreement would terminate according to its
9 own terms.

10 “(d) NATIONAL SECURITY REQUIREMENTS.—

11 “(1) IN GENERAL.—A Contractor with respect
12 to an Operating Agreement (including an Agreement
13 terminated under section 53204(c)(2)) shall continue
14 to be bound by the provisions of section 53207 until
15 the date the Operating Agreement would terminate
16 according to its terms.

17 “(2) CONTINGENCY AGREEMENT WITH OPER-
18 ATING AGENCY.—All terms and conditions of a Con-
19 tingency Agreement entered into under section
20 53207 shall remain in effect until a date the Oper-
21 ating Agreement would terminate according to its
22 terms, except that the terms of such Contingency
23 Agreement may be modified by the mutual consent
24 of the Contractor, and the Operating Agency.

1 “(e) TRANSFER OF OPERATING AGREEMENTS.—Op-
2 erating Agreements shall not be transferrable by the Con-
3 tractor.

4 “(f) REPLACEMENT VESSEL.—A Contractor may re-
5 place a vessel under an Operating Agreement with another
6 vessel that is eligible to be included in the Fleet under
7 section 53202(b), if the Secretary and the Operating
8 Agency jointly determine that the replacement vessel
9 meets national security requirements and approve the re-
10 placement.

11 **“§ 53206. Payments**

12 “(a) ANNUAL PAYMENT.—

13 “(1) IN GENERAL.—The Secretary, subject to
14 availability of appropriations and other provisions of
15 this section, shall pay to the Contractor for an oper-
16 ating agreement, for each vessel that is covered by
17 the operating agreement, an amount equal to
18 \$5,000,000 for each fiscal year 2021 through 2035.

19 “(2) TIMING.—This amount shall be paid in
20 equal monthly installments at the end of each
21 month. The amount shall not be reduced except as
22 provided by this section.

23 “(b) CERTIFICATION REQUIRED FOR PAYMENT.—As
24 a condition of receiving payment under this section for a
25 fiscal year for a vessel, the Contractor for the vessel shall

1 certify that the vessel has been and will be operated in
2 accordance with section 53205(a)(1) for 365 days in each
3 fiscal year. Up to thirty (30) days during which the vessel
4 is drydocked, surveyed, inspected, or repaired shall be con-
5 sidered days of operation for purposes of this subsection.

6 “(c) GENERAL LIMITATIONS.—The Secretary shall
7 not make any payment under this chapter for a vessel with
8 respect to any days for which the vessel is—

9 “(1) not operated or maintained in accordance
10 with an Operating Agreement under this chapter; or

11 “(2) more than 40 years of age.

12 “(d) REDUCTIONS IN PAYMENTS.—With respect to
13 payments under this chapter for a vessel covered by an
14 Operating Agreement, the Secretary shall make a pro rata
15 reduction for each day less than 365 in a fiscal year that
16 the vessel is not operated in accordance with section
17 53205(a)(1), with days during which the vessel is
18 drydocked or undergoing survey, inspection or repair to
19 be considered days on which the vessel is operated as pro-
20 vided in subsection (b).

21 **“§ 53207. National security requirements**

22 “(a) CONTINGENCY AGREEMENT REQUIRED.—The
23 Secretary shall include in each Operating Agreement
24 under this chapter a requirement that the Contractor
25 enter into a Contingency Agreement with the Operating

1 Agency. The Operating Agency shall negotiate and enter
2 into a Contingency Agreement with each Contractor as
3 promptly as practicable after the Contractor has entered
4 into an Operating Agreement under this chapter.

5 “(b) TERMS OF CONTINGENCY AGREEMENT.—

6 “(1) IN GENERAL.—A Contingency Agreement
7 under this section shall require that a Contractor for
8 a vessel covered by an Operating Agreement under
9 this chapter make the vessel, including all necessary
10 resources to engage in Cable Services required by
11 the Operating Agency, available upon request by the
12 Operating Agency.

13 “(2) TERMS.—

14 “(A) IN GENERAL.—The basic terms of a
15 Contingency Agreement shall be established
16 (subject to subparagraph (B)) by the Operating
17 Agency.

18 “(B) ADDITIONAL TERMS.—The Operating
19 Agency and a Contractor may agree to addi-
20 tional or modifying terms appropriate to the
21 Contractor’s circumstances.

22 “(c) DEFENSE MEASURES AGAINST UNAUTHORIZED
23 SEIZURES.—(1) The Contingency Agreement shall require
24 that any vessel operating under the direction of the Oper-
25 ating Agency operating in area that is designated by the

1 Coast Guard as an area of high risk of piracy shall be
2 equipped with, at a minimum, appropriate non-lethal de-
3 fense measures to protect the vessel and crew from unau-
4 thorized seizure at sea.

5 “(2) The Secretary of Defense and the Secretary of
6 the department in which the Coast Guard is operating
7 shall jointly prescribe the non-lethal defense measures that
8 are required under this paragraph.

9 “(d) PARTICIPATION AFTER EXPIRATION OF OPER-
10 ATING AGREEMENT.—Except as provided by section
11 53205(d), the Operating Agency may not require, through
12 a Contingency Agreement or an Operating Agreement,
13 that a Contractor continue to participate in a Contingency
14 Agreement after the Operating Agreement with the Con-
15 tractor has expired according to its terms or is otherwise
16 no longer in effect.

17 “(e) RESOURCES MADE AVAILABLE.—The resources
18 to be made available in addition to the vessel under a Con-
19 tingency Agreement shall include all equipment, personnel,
20 supplies, management services, and other related services
21 as the Operating Agency may determine to be necessary
22 to provide the Cable Services required by the Operating
23 Agency.

24 “(f) COMPENSATION.—

1 “(1) IN GENERAL.—The Operating Agency
2 shall include in each Contingency Agreement provi-
3 sions under which the Operating Agency shall pay
4 fair and reasonable compensation for use of the ves-
5 sel and all Cable Services provided pursuant to this
6 section and the Contingency Agreement.

7 “(2) SPECIFIC REQUIREMENTS.—Compensation
8 under this subsection—

9 “(A) shall be at the rate specified in the
10 Contingency Agreement;

11 “(B) shall be provided from the time that
12 a vessel is required by the Operating Agency
13 under the Contingency Agreement until the
14 time it is made available by the Operating
15 Agency available to reenter commercial service;
16 and

17 “(C) shall be in addition to and shall not
18 in any way reflect amounts payable under sec-
19 tion 53206.

20 “(g) LIABILITY OF THE UNITED STATES FOR DAM-
21 AGES.—

22 “(1) LIMITATION ON THE LIABILITY OF THE
23 U.S.—Except as otherwise provided by law, the Gov-
24 ernment shall not be liable for disruption of a Con-
25 tractor’s commercial business or other consequential

1 damages to a Contractor arising from the activation
2 of the Contingency Agreement.

3 “(2) AFFIRMATIVE DEFENSE.—In any action in
4 any Federal or State court for breach of third-party
5 contract, there shall be available as an affirmative
6 defense that the alleged breach of contract was
7 caused predominantly by action taken to carry out
8 a Contingent Agreement. Such defense shall not re-
9 lease the party asserting it from any obligation
10 under applicable law to mitigate damages to the
11 greatest extent possible.

12 **“§ 53208. Regulatory relief**

13 “The telecommunications and other electronic equip-
14 ment on an existing vessel that is redocumented under the
15 laws of the United States for operation under an Oper-
16 ating Agreement under this chapter shall be deemed to
17 satisfy all Federal Communication Commission equipment
18 certification requirements, if—

19 “(1) such equipment complies with all applica-
20 ble international agreements and associated guide-
21 lines as determined by the country in which the ves-
22 sel was documented immediately before becoming
23 documented under the laws of the United States;

24 “(2) that country has not been identified by the
25 Secretary of the Department in which the Coast

1 Guard is operating as inadequately enforcing inter-
2 national regulations as to that vessel; and

3 “(3) at the end of its useful life, such equip-
4 ment shall be replaced with equipment that meets
5 Federal Communication Commission equipment cer-
6 tification standards.

7 **“§ 53209. Authorization of appropriations**

8 “There are authorized to be appropriated for pay-
9 ments under section 53206, \$10,000,000 for each of the
10 fiscal years 2021 through 2035.”.

11 (b) CONFORMING AMENDMENT.—The table of chap-
12 ters at the beginning of subtitle V of title 46, United
13 States Code, is amended by inserting before the item relat-
14 ing to chapter 533 the following new item:

“532. Cable Security Fleet53201”.

15 **Subtitle C—Maritime SAFE Act**

16 **SEC. 3531. SHORT TITLES.**

17 This subtitle may be cited as the “Maritime Security
18 and Fisheries Enforcement Act” or the “Maritime SAFE
19 Act”.

20 **SEC. 3532. DEFINITIONS.**

21 In this subtitle:

22 (1) AIS.—The term “AIS” means Automatic
23 Identification System (as defined in section 164.46
24 of title 33, Code of Federal Regulations, or a similar
25 successor regulation).

1 (2) COMBINED MARITIME FORCES.—The term
2 “Combined Maritime Forces” means the 33-nation
3 naval partnership, originally established in February
4 2002, which promotes security, stability, and pros-
5 perity across approximately 3,200,000 square miles
6 of international waters.

7 (3) EXCLUSIVE ECONOMIC ZONE.—

8 (A) IN GENERAL.—Unless otherwise speci-
9 fied by the President as being in the public in-
10 terest in a writing published in the Federal
11 Register, the term “exclusive economic zone”
12 means—

13 (i) the area within a zone established
14 by a maritime boundary that has been es-
15 tablished by a treaty in force or a treaty
16 that is being provisionally applied by the
17 United States; or

18 (ii) in the absence of a treaty de-
19 scribed in clause (i)—

20 (I) a zone, the outer boundary of
21 which is 200 nautical miles from the
22 baseline from which the breadth of
23 the territorial sea is measured; or

24 (II) if the distance between the
25 United States and another country is

1 less than 400 nautical miles, a zone,
2 the outer boundary of which is rep-
3 resented by a line equidistant between
4 the United States and the other coun-
5 try.

6 (B) INNER BOUNDARY.—Without affecting
7 any Presidential Proclamation with regard to
8 the establishment of the United States terri-
9 torial sea or exclusive economic zone, the inner
10 boundary of the exclusive economic zone is—

11 (i) in the case of coastal States, a line
12 coterminous with the seaward boundary of
13 each such State (as described in section 4
14 of the Submerged Lands Act (43 U.S.C.
15 1312));

16 (ii) in the case of the Commonwealth
17 of Puerto Rico, a line that is 3 marine
18 leagues from the coastline of the Common-
19 wealth of Puerto Rico;

20 (iii) in the case of American Samoa,
21 the United States Virgin Islands, Guam,
22 and the Northern Mariana Islands, a line
23 that is 3 geographic miles from the coast-
24 lines of American Samoa, the United

1 States Virgin Islands, Guam, or the North-
2 ern Mariana Islands, respectively; or

3 (iv) for any possession of the United
4 States not referred to in clause (ii) or (iii),
5 the coastline of such possession.

6 (C) RULE OF CONSTRUCTION.—Nothing in
7 this paragraph may be construed to diminish
8 the authority of the Department of Defense, the
9 Department of the Interior, or any other Fed-
10 eral department or agency.

11 (4) FOOD SECURITY.—The term “food secu-
12 rity” means access to, and availability, utilization,
13 and stability of, sufficient food to meet caloric and
14 nutritional needs for an active and healthy life.

15 (5) GLOBAL RECORD OF FISHING VESSELS, RE-
16 FRIGERATED TRANSPORT VESSELS, AND SUPPLY
17 VESSELS.—The term “global record of fishing ves-
18 sels, refrigerated transport vessels, and supply ves-
19 sels” means the Food and Agriculture Organization
20 of the United Nations’ initiative to rapidly make
21 available certified data from state authorities about
22 vessels and vessel related activities.

23 (6) IUU FISHING.—The term “IUU fishing”
24 means illegal fishing, unreported fishing, or unregu-
25 lated fishing (as such terms are defined in para-

1 graph 3 of the International Plan of Action to Pre-
2 vent, Deter, and Eliminate Illegal, Unreported and
3 Unregulated Fishing, adopted at the 24th Session of
4 the Committee on Fisheries in Rome on March 2,
5 2001).

6 (7) PORT STATE MEASURES AGREEMENT.—The
7 term “Port State Measures Agreement” means the
8 Agreement on Port State Measures to Prevent,
9 Deter, and Eliminate Illegal, Unreported, and Un-
10 regulated Fishing set forth by the Food and Agri-
11 culture Organization of the United Nations, done at
12 Rome, Italy November 22, 2009, and entered into
13 force June 5, 2016, which offers standards for re-
14 porting and inspecting fishing activities of foreign-
15 flagged fishing vessels at port.

16 (8) PRIORITY FLAG STATE.—The term “priority
17 flag state” means a country selected in accordance
18 with section 3552 (b)(3)—

19 (A) whereby the flagged vessels of which
20 actively engage in, knowingly profit from, or are
21 complicit in IUU fishing; and

22 (B) that is willing, but lacks the capacity,
23 to monitor or take effective enforcement action
24 against its fleet.

1 (9) PRIORITY REGION.—The term “priority re-
2 gion” means a region selected in accordance with
3 section 3552 (b)(2)—

4 (A) that is at high risk for IUU fishing ac-
5 tivity or the entry of illegally caught seafood
6 into the markets of countries in the region; and

7 (B) in which countries lack the capacity to
8 fully address the illegal activity described in
9 subparagraph (A).

10 (10) REGIONAL FISHERIES MANAGEMENT OR-
11 GANIZATION.—The term “Regional Fisheries Man-
12 agement Organization” means an intergovernmental
13 fisheries organization or arrangement, as appro-
14 priate, that has the competence to establish con-
15 servation and management measures.

16 (11) SEAFOOD.—The term “seafood”—

17 (A) means marine finfish, mollusks, crus-
18 taceans, and all other forms of marine animal
19 and plant life, including those grown, produced,
20 or reared through marine aquaculture oper-
21 ations or techniques; and

22 (B) does not include marine mammals,
23 turtles, or birds.

24 (12) TRANSNATIONAL ORGANIZED ILLEGAL AC-
25 TIVITY.—The term “transnational organized illegal

1 activity” means criminal activity conducted by self-
2 perpetuating associations of individuals who operate
3 transnationally for the purpose of obtaining power,
4 influence, or monetary or commercial gains, wholly
5 or in part by illegal means, while protecting their ac-
6 tivities through a pattern of corruption or violence
7 or through a transnational organizational structure
8 and the exploitation of transnational commerce or
9 communication mechanisms.

10 (13) TRANSSHIPMENT.—The term “trans-
11 shipment” means the use of refrigerated vessels
12 that—

13 (A) collect catch from multiple fishing
14 boats;

15 (B) carry the accumulated catches back to
16 port; and

17 (C) deliver supplies to fishing boats, which
18 allows fishing vessels to remain at sea for ex-
19 tended periods without coming into port.

20 **SEC. 3533. PURPOSES.**

21 The purposes of this subtitle are—

22 (1) to support a whole-of-government approach
23 across the Federal Government to counter IUU fish-
24 ing and related threats to maritime security;

1 (2) to improve data sharing that enhances sur-
2 veillance, enforcement, and prosecution against IUU
3 fishing and related activities at a global level;

4 (3) to support coordination and collaboration to
5 counter IUU fishing within priority regions;

6 (4) to increase and improve global transparency
7 and traceability across the seafood supply chain as—

8 (A) a deterrent to IUU fishing; and

9 (B) a tool for strengthening fisheries man-
10 agement and food security;

11 (5) to improve global enforcement operations
12 against IUU fishing through a whole-of-government
13 approach by the United States; and

14 (6) to prevent the use of IUU fishing as a fi-
15 nancing source for transnational organized groups
16 that undermine United States and global security in-
17 terests.

18 **SEC. 3534. STATEMENT OF POLICY.**

19 It is the policy of the United States__

20 (1) to take action to curtail the global trade in
21 seafood and seafood products derived from IUU
22 fishing, including its links to forced labor and
23 transnational organized illegal activity;

1 (2) to develop holistic diplomatic, military, law
2 enforcement, economic, and capacity-building tools
3 to counter IUU fishing;

4 (3) to provide technical assistance to countries
5 in priority regions and priority flag states to combat
6 IUU fishing, including assistance—

7 (A) to increase local, national, and regional
8 level capacities to counter IUU fishing through
9 the engagement of law enforcement and secu-
10 rity forces;

11 (B) to enhance port capacity and security,
12 including by supporting other countries in
13 working toward the adoption and implementa-
14 tion of the Port State Measures Agreement;

15 (C) to combat corruption and increase
16 transparency and traceability in fisheries man-
17 agement and trade;

18 (D) to enhance information sharing within
19 and across governments and multilateral orga-
20 nizations through the development and use of
21 agreed standards for information sharing; and

22 (E) to support effective, science-based fish-
23 eries management regimes that promote legal
24 and safe fisheries and act as a deterrent to
25 IUU fishing;

1 (4) to promote global maritime security through
2 improved capacity and technological assistance to
3 support improved maritime domain awareness;

4 (5) to engage with priority flag states to en-
5 courage the use of high quality vessel tracking tech-
6 nologies where existing enforcement tools are lack-
7 ing;

8 (6) to engage with multilateral organizations
9 working on fisheries issues, including Regional Fish-
10 eries Management Organizations and the Food and
11 Agriculture Organization of the United Nations, to
12 combat and deter IUU fishing;

13 (7) to advance information sharing across gov-
14 ernments and multilateral organizations in areas
15 that cross multiple jurisdictions, through the devel-
16 opment and use of an agreed standard for informa-
17 tion sharing;

18 (8) to continue to use existing and future trade
19 agreements to combat IUU fishing;

20 (9) to employ appropriate assets and resources
21 of the United States Government in a coordinated
22 manner to disrupt the illicit networks involved in
23 IUU fishing;

24 (10) to continue to declassify and make avail-
25 able, as appropriate and practicable, technologies de-

1 developed by the United States Government that can
2 be used to help counter IUU fishing;

3 (11) to recognize the ties of IUU fishing to
4 transnational organized illegal activity, including
5 human trafficking and illegal trade in narcotics and
6 arms, and as applicable, to focus on illicit activity in
7 a coordinated, cross-cutting manner;

8 (12) to recognize and respond to poor working
9 conditions, labor abuses, and other violent crimes in
10 the fishing industry;

11 (13) to increase and improve global trans-
12 parency and traceability along the seafood supply
13 chain as—

14 (A) a deterrent to IUU fishing; and

15 (B) an approach for strengthening fish-
16 eries management and food security; and

17 (14) to promote technological investment and
18 innovation to combat IUU fishing.

19 **PART I—PROGRAMS TO COMBAT IUU FISHING**
20 **AND INCREASE MARITIME SECURITY**

21 **SEC. 3541. COORDINATION WITH INTERNATIONAL ORGANI-**
22 **ZATIONS.**

23 The Secretary of State, in consultation with the Sec-
24 retary of Commerce, shall coordinate with Regional Fish-
25 eries Management Organizations and the Food and Agri-

1 culture Organization of the United Nations, and may co-
2 ordinate with other relevant international governmental or
3 nongovernmental organizations, or the private sector, as
4 appropriate, to enhance regional responses to IUU fishing
5 and related transnational organized illegal activities.

6 **SEC. 3542. ENGAGEMENT OF DIPLOMATIC MISSIONS OF**
7 **THE UNITED STATES.**

8 Not later than 1 year after the date of the enactment
9 of this title, each chief of mission (as defined in section
10 102 of the Foreign Service Act of 1980 (22 U.S.C. 3902))
11 to a relevant country in a priority region or to a priority
12 flag state may, if the Secretary of State determines such
13 action is appropriate—

14 (1) convene a working group, led by Depart-
15 ment of State officials, to examine IUU fishing,
16 which may include stakeholders such as—

17 (A) United States officials from relevant
18 agencies participating in the interagency Work-
19 ing Group identified in section 3551, foreign of-
20 ficials, nongovernmental organizations, the pri-
21 vate sector, and representatives of local fisher-
22 men in the region; and

23 (B) experts on IUU fishing, law enforce-
24 ment, criminal justice, transnational organized
25 illegal activity, defense, intelligence, vessel

1 movement monitoring, and international devel-
2 opment operating in or with knowledge of the
3 region; and

4 (2) designate a counter-IUU Fishing Coordi-
5 nator from among existing personnel at the mission
6 if the chief of mission determines such action is ap-
7 propriate.

8 **SEC. 3543. ASSISTANCE BY FEDERAL AGENCIES TO IM-**
9 **PROVE LAW ENFORCEMENT WITHIN PRI-**
10 **ORITY REGIONS AND PRIORITY FLAG STATES.**

11 (a) IN GENERAL.—The Secretary of State, in con-
12 sultation with the Secretary of Commerce and the Com-
13 mandant of the Coast Guard when the Coast Guard is
14 not operating as a service in the Department of the Navy,
15 as well as any other relevant department or agency, shall
16 provide assistance, as appropriate, in accordance with this
17 section.

18 (b) LAW ENFORCEMENT TRAINING AND COORDINA-
19 TION ACTIVITIES.—The officials referred to in subsection
20 (a) shall evaluate opportunities to provide assistance, as
21 appropriate, to countries in priority regions and priority
22 flag states to improve the effectiveness of IUU fishing en-
23 forcement, with clear and measurable targets and indica-
24 tors of success, including—

1 (1) by assessing and using existing resources,
2 enforcement tools, and legal authorities to coordi-
3 nate efforts to combat IUU fishing with efforts to
4 combat other illegal trade, including weapons, drugs,
5 and human trafficking;

6 (2) by expanding existing IUU fishing enforce-
7 ment training;

8 (3) by providing targeted, country- and region-
9 specific training on combating IUU fishing, includ-
10 ing in those countries that have not adopted the
11 Port State Measures Agreement;

12 (4) by supporting increased effectiveness and
13 transparency of the fisheries enforcement sectors of
14 the governments of such countries; and

15 (5) by supporting increased outreach to stake-
16 holders in the affected communities as key partners
17 in combating and prosecuting IUU fishing.

18 (c) IMPLEMENTATION OF PORT STATE MEASURES.—

19 The officials referred to in subsection (a) shall evaluate
20 opportunities to provide assistance, as appropriate, to
21 countries in priority regions and priority flag states to help
22 those states implement programs related to port security
23 and capacity for the purposes of preventing IUU fishing
24 products from entering the global seafood market, includ-
25 ing by supporting other countries in working toward the

1 adoption and implementation of the Port State Measures
2 Agreement.

3 (d) CAPACITY BUILDING FOR INVESTIGATIONS AND
4 PROSECUTIONS.—The officials referred to in subsection
5 (a), in collaboration with the governments of countries in
6 priority regions and of priority flag states, shall evaluate
7 opportunities to assist those countries in designing and
8 implementing programs in such countries, as appropriate,
9 to increase the capacity of IUU fishing enforcement and
10 customs and border security officers to improve their abil-
11 ity—

12 (1) to conduct effective investigations, including
13 using law enforcement techniques such as under-
14 cover investigations and the development of informer
15 networks and actionable intelligence;

16 (2) to conduct vessel boardings and inspections
17 at sea and associated enforcement actions;

18 (3) to exercise existing shiprider agreements
19 and to enter into and implement new shiprider
20 agreements, as appropriate, including in those coun-
21 tries that have not adopted the Port State Measures
22 Agreement;

23 (4) to conduct vessel inspections at port and as-
24 sociated enforcement actions;

1 (5) to assess technology needs and promote the
2 use of technology to improve monitoring, enforce-
3 ment, and prosecution of IUU fishing;

4 (6) to conduct DNA-based and forensic identi-
5 fication of seafood used in trade;

6 (7) to conduct training on techniques, such as
7 collecting electronic evidence and using computer
8 forensics, for law enforcement personnel involved in
9 complex investigations related to international mat-
10 ters, financial issues, and government corruption
11 that include IUU fishing;

12 (8) to assess financial flows and the use of fi-
13 nancial institutions to launder profits related to IUU
14 fishing;

15 (9) to conduct training on the legal mechanisms
16 that can be used to prosecute those identified in the
17 investigations as alleged perpetrators of IUU fishing
18 and other associated crimes such as trafficking and
19 forced labor; and

20 (10) to conduct training to raise awareness of
21 the use of whistleblower information and ways to
22 incentivize whistleblowers to come forward with
23 original information related to IUU fishing.

24 (e) CAPACITY BUILDING FOR INFORMATION SHAR-
25 ING.—The officials referred to in subsection (a) shall

1 evaluate opportunities to provide assistance, as appro-
2 priate, to key countries in priority regions and priority flag
3 states in the form of training, equipment, and systems de-
4 velopment to build capacity for information sharing re-
5 lated to maritime enforcement and port security.

6 (f) COORDINATION WITH OTHER RELEVANT AGEN-
7 CIES.—The Secretary of State shall coordinate, as appro-
8 priate, with the Secretary of Commerce, the Commandant
9 of the Coast Guard when the Coast Guard is not operating
10 as a service in the Department of the Navy, and with other
11 relevant Federal agencies in accordance with this section.

12 **SEC. 3544. EXPANSION OF EXISTING MECHANISMS TO COM-**
13 **BAT IUU FISHING.**

14 (a) MECHANISMS TO COMBAT IUU FISHING.—The
15 Secretary of State, the Administrator of the United States
16 Agency for International Development, the Secretary of
17 the Department in which the Coast Guard is operating
18 when it is not operating as a service in the Department
19 of the Navy, the Secretary of Defense, the Secretary of
20 Commerce, the Attorney General, and the heads of other
21 appropriate Federal agencies shall assess opportunities to
22 combat IUU fishing by expanding, as appropriate, the use
23 of the following mechanisms:

1 (1) Including counter-IUU fishing in existing
2 shiprider agreements in which the United States is
3 a party.

4 (2) Entering into shiprider agreements that in-
5 clude counter-IUU fishing with priority flag states
6 and countries in priority regions with which the
7 United States does not already have such an agree-
8 ment.

9 (3) Including counter-IUU fishing as part of
10 the mission of the Combined Maritime Forces.

11 (4) Including counter-IUU fishing exercises in
12 the annual at-sea exercises conducted by the Depart-
13 ment of Defense, in coordination with the United
14 States Coast Guard.

15 (5) Creating partnerships similar to the Oce-
16 ania Maritime Security Initiative and the Africa
17 Maritime Law Enforcement Partnership in other
18 priority regions.

19 (b) INFORMATION SHARING.—The Director of Na-
20 tional Intelligence, in conjunction with other agencies, as
21 appropriate, shall develop an enterprise approach to ap-
22 propriately share information and data within the United
23 States Government or with other countries or nongovern-
24 mental organizations, or the private sector, as appropriate,
25 on IUU fishing and other connected transnational orga-

1 nized illegal activity occurring in priority regions and else-
2 where, including big data analytics and machine learning.

3 **SEC. 3545. IMPROVEMENT OF TRANSPARENCY AND**
4 **TRACEABILITY PROGRAMS.**

5 The Secretary of State, the Administrator of the
6 United States Agency for International Development, the
7 Secretary of the Department in which the Coast Guard
8 is operating when it is not operating as a service in the
9 Department of the Navy, the Secretary of Commerce, and
10 the heads of other Federal agencies, if merited, shall work,
11 as appropriate, with priority flag states and key countries
12 in priority regions—

13 (1) to increase knowledge within such countries
14 about the United States transparency and
15 traceability standards for imports of seafood and
16 seafood products;

17 (2) to improve the capacity of seafood indus-
18 tries within such countries through information
19 sharing and training to meet the requirements of
20 transparency and traceability standards for seafood
21 and seafood product imports, including catch docu-
22 mentation and trade tracking programs adopted by
23 relevant regional fisheries management organiza-
24 tions; and

1 (3) to improve the capacities of government, in-
2 dustry, and civil society groups to develop and imple-
3 ment comprehensive traceability systems that—

4 (A) deter IUU fishing;

5 (B) strengthen fisheries management; and

6 (C) enhance maritime domain awareness.

7 **SEC. 3546. TECHNOLOGY PROGRAMS.**

8 The Secretary of State, the Administrator of the
9 United States Agency for International Development, the
10 Secretary of the Department in which the Coast Guard
11 is operating when it is not operating as a service in the
12 Department of the Navy, the Secretary of Defense, the
13 Secretary of Commerce, and the heads of other Federal
14 agencies, if merited, shall pursue programs, as appro-
15 priate, to expand the role of technology for combating IUU
16 fishing, including by—

17 (1) promoting the use of technology to combat
18 IUU fishing;

19 (2) assessing the technology needs, including
20 vessel tracking technologies and data sharing, in pri-
21 ority regions and priority flag states;

22 (3) engaging with priority flag states to encour-
23 age the mandated use of vessel tracking tech-
24 nologies, including vessel monitoring systems, AIS,
25 or other vessel movement monitoring technologies on

1 fishing vessels and transshipment vessels at all
2 times, as appropriate, while at sea as a means to
3 identify IUU fishing activities and the shipment of
4 illegally caught fish products; and

5 (4) building partnerships with the private sec-
6 tor, including universities, nonprofit research organi-
7 zations, the seafood industry, and the technology,
8 transportation and logistics sectors, to leverage new
9 and existing technologies and data analytics to ad-
10 dress IUU fishing.

11 **SEC. 3547. SAVINGS CLAUSE.**

12 No provision of section 3532 or of this part shall im-
13 pose, or be interpreted to impose, any duty, responsibility,
14 requirement, or obligation on the Department of Defense,
15 the Department of the Navy, the United States Coast
16 Guard when operating as a service in the Department of
17 Homeland Security, or any official or component of either.

18 **PART II—ESTABLISHMENT OF INTERAGENCY**

19 **WORKING GROUP ON IUU FISHING**

20 **SEC. 3551. INTERAGENCY WORKING GROUP ON IUU FISH-**
21 **ING.**

22 (a) IN GENERAL.—There is established a collabo-
23 rative interagency working group on maritime security
24 and IUU fishing (referred to in this subtitle as the “Work-
25 ing Group”).

1 (b) MEMBERS.—The members of the Working Group
2 shall be composed of—

3 (1) 1 chair, who shall rotate between the Sec-
4 retary of the Department in which the Coast Guard
5 is operating, acting through the Commandant of the
6 Coast Guard, the Secretary of State, and the Na-
7 tional Oceanographic and Atmospheric Administra-
8 tion, acting through the Administrator, on a 3-year
9 term;

10 (2) 2 deputy chairs, who shall be appointed by
11 their respective agency heads and shall be from a
12 different Department than that of the chair, from—

13 (A) the Coast Guard;

14 (B) the Department of State; and

15 (C) the National Oceanic and Atmospheric
16 Administration;

17 (3) 12 members, who shall be appointed by
18 their respective agency heads, from—

19 (A) the Department of Defense;

20 (B) the United States Navy;

21 (C) the United States Agency for Inter-
22 national Development;

23 (D) the United States Fish and Wildlife
24 Service;

25 (E) the Department of Justice;

- 1 (F) the Department of the Treasury;
- 2 (G) U.S. Customs and Border Protection;
- 3 (H) U.S. Immigration and Customs En-
- 4 forcement;
- 5 (I) the Federal Trade Commission;
- 6 (J) the Department of Agriculture;
- 7 (K) the Food and Drug Administration;
- 8 and
- 9 (L) the Department of Labor;
- 10 (4) 1 or more members from the intelligence
- 11 community (as defined in section 3 of the National
- 12 Security Act of 1947 (50 U.S.C. 3003)), who shall
- 13 be appointed by the Director of National Intel-
- 14 ligence; and
- 15 (5) 5 members, who shall be appointed by the
- 16 President, from—
- 17 (A) the National Security Council;
- 18 (B) the Council on Environmental Quality;
- 19 (C) the Office of Management and Budget;
- 20 (D) the Office of Science and Technology
- 21 Policy; and
- 22 (E) the Office of the United States Trade
- 23 Representative.

1 (c) RESPONSIBILITIES.—The Working Group shall
2 ensure an integrated, Federal Government-wide response
3 to IUU fishing globally, including by—

4 (1) improving the coordination of Federal agen-
5 cies to identify, interdict, investigate, prosecute, and
6 dismantle IUU fishing operations and organizations
7 perpetrating and knowingly benefitting from IUU
8 fishing;

9 (2) assessing areas for increased interagency in-
10 formation sharing on matters related to IUU fishing
11 and related crimes;

12 (3) establishing standards for information shar-
13 ing related to maritime enforcement;

14 (4) developing a strategy to determine how mili-
15 tary assets and intelligence can contribute to en-
16 forcement strategies to combat IUU fishing;

17 (5) increasing maritime domain awareness re-
18 lating to IUU fishing and related crimes and devel-
19 oping a strategy to leverage awareness for enhanced
20 enforcement and prosecution actions against IUU
21 fishing;

22 (6) supporting the adoption and implementation
23 of the Port State Measures Agreement in relevant
24 countries and assessing the capacity and training
25 needs in such countries;

1 (7) outlining a strategy to coordinate, increase,
2 and use shiprider agreements between the Depart-
3 ment of Defense or the Coast Guard and relevant
4 countries;

5 (8) enhancing cooperation with partner govern-
6 ments to combat IUU fishing;

7 (9) identifying opportunities for increased infor-
8 mation sharing between Federal agencies and part-
9 ner governments working to combat IUU fishing;

10 (10) consulting and coordinating with the sea-
11 food industry and nongovernmental stakeholders
12 that work to combat IUU fishing;

13 (11) supporting the work of collaborative inter-
14 national initiatives to make available certified data
15 from state authorities about vessel and vessel-related
16 activities related to IUU fishing;

17 (12) supporting the identification and certifi-
18 cation procedures to address IUU fishing in accord-
19 ance with the High Seas Driftnet Fishing Morato-
20 rium Protection Act (16 U.S.C. 1826d et seq.); and

21 (13) publishing annual reports summarizing
22 nonsensitive information about the Working Group's
23 efforts to investigate, enforce, and prosecute groups
24 and individuals engaging in IUU fishing.

1 **SEC. 3552. STRATEGIC PLAN.**

2 (a) STRATEGIC PLAN.—Not later than 2 years after
3 the date of the enactment of this title, the Working Group,
4 after consultation with the relevant stakeholders, shall
5 submit to the Committee on Commerce, Science, and
6 Transportation of the Senate, the Committee on Foreign
7 Relations of the Senate, the Committee on Appropriations
8 of the Senate, the Committee on Transportation and In-
9 frastructure of the House of Representatives, the Com-
10 mittee on Natural Resources of the House of Representa-
11 tives, the Committee on Foreign Affairs of the House of
12 Representatives, and the Committee on Appropriations of
13 the House of Representatives a 5-year integrated strategic
14 plan on combating IUU fishing and enhancing maritime
15 security, including specific strategies with monitoring
16 benchmarks for addressing IUU fishing in priority re-
17 gions.

18 (b) IDENTIFICATION OF PRIORITY REGIONS AND
19 PRIORITY FLAG STATES.—

20 (1) IN GENERAL.—The strategic plan submitted
21 under subsection (a) shall identify priority regions
22 and priority flag states to be the focus of assistance
23 coordinated by the Working Group under section
24 3551.

1 (2) PRIORITY REGION SELECTION CRITERIA.—

2 In selecting priority regions under paragraph (1),
3 the Working Group shall select regions that—

4 (A) are at high risk for IUU fishing activ-
5 ity or the entry of illegally caught seafood into
6 their markets; and

7 (B) lack the capacity to fully address the
8 issues described in subparagraph (A).

9 (3) PRIORITY FLAG STATES SELECTION CRI-
10 TERIA.—In selecting priority flag states under para-
11 graph (1), the Working Group shall select coun-
12 tries—

13 (A) the flagged vessels of which actively
14 engage in, knowingly profit from, or are
15 complicit in IUU fishing; and

16 (B) that lack the capacity to police their
17 fleet.

18 **SEC. 3553. REPORTS.**

19 Not later than 5 years after the submission of the
20 5-year integrated strategic plan under section 3552, and
21 5 years after, the Working Group shall submit a report
22 to the Committee on Commerce, Science, and Transpor-
23 tation of the Senate, the Committee on Foreign Relations
24 of the Senate, the Committee on Appropriations of the
25 Senate, the Committee on the Judiciary of the Senate, the

1 Select Committee on Intelligence of the Senate, the Com-
2 mittee on Agriculture, Nutrition, and Forestry of the Sen-
3 ate, the Committee on Transportation and Infrastructure
4 of the House of Representatives, the Committee on Nat-
5 ural Resources of the House of Representatives, the Com-
6 mittee on Foreign Affairs of the House of Representatives,
7 and the Committee on Appropriations of the House of
8 Representatives that contains—

9 (1) a summary of global and regional trends in
10 IUU fishing;

11 (2) an assessment of the extent of the conver-
12 gence between transnational organized illegal activ-
13 ity, including human trafficking and forced labor,
14 and IUU fishing;

15 (3) an assessment of the topics, data sources,
16 and strategies that would benefit from increased in-
17 formation sharing and recommendations regarding
18 harmonization of data collection and sharing;

19 (4) an assessment of assets, including military
20 assets and intelligence, which can be used for either
21 enforcement operations or strategies to combat IUU
22 fishing;

23 (5) summaries of the situational threats with
24 respect to IUU fishing in priority regions and an as-

1 assessment of the capacity of countries within such re-
2 gions to respond to those threats;

3 (6) an assessment of the progress of countries
4 in priority regions in responding to those threats as
5 a result of assistance by the United States pursuant
6 to the strategic plan developed under section 3552,
7 including—

8 (A) the identification of—

9 (i) relevant supply routes, ports of
10 call, methods of landing and entering ille-
11 gally caught product into legal supply
12 chains, and financial institutions used in
13 each country by participants engaging in
14 IUU fishing; and

15 (ii) indicators of IUU fishing that are
16 related to money laundering;

17 (B) an assessment of the adherence to, or
18 progress toward adoption of, international trea-
19 ties related to IUU fishing, including the Port
20 State Measures Agreement, by countries in pri-
21 ority regions;

22 (C) an assessment of the implementation
23 by countries in priority regions of seafood
24 traceability or capacity to apply traceability to

1 verify the legality of catch and strengthen fish-
2 eries management;

3 (D) an assessment of the capacity of coun-
4 tries in priority regions to implement shiprider
5 agreements;

6 (E) an assessment of the capacity of coun-
7 tries in priority regions to increase maritime
8 domain awareness; and

9 (F) an assessment of the capacity of gov-
10 ernments of relevant countries in priority re-
11 gions to sustain the programs for which the
12 United States has provided assistance under
13 this subtitle;

14 (7) an assessment of the capacity of priority
15 flag states to track the movement of and police their
16 fleet, prevent their flagged vessels from engaging in
17 IUU fishing, and enforce applicable laws and regula-
18 tions; and

19 (8) an assessment of the extent of involvement
20 in IUU fishing of organizations designated as for-
21 eign terrorist organizations under section 219 of the
22 Immigration and Nationality Act (8 U.S.C. 1189).

1 **SEC. 3554. GULF OF MEXICO IUU FISHING SUBWORKING**
2 **GROUP.**

3 (a) IN GENERAL.—Not later than 90 days after the
4 date of the enactment of this title, the Administrator of
5 the National Oceanic and Atmospheric Administration, in
6 coordination with the Commandant of the Coast Guard
7 and the Secretary of State, shall establish a subworking
8 group to address IUU fishing in the exclusive economic
9 zone of the United States in the Gulf of Mexico.

10 (b) FUNCTIONS.—The subworking group established
11 under subsection (a) shall identify—

12 (1) Federal actions taken and policies estab-
13 lished during the 5-year period immediately pre-
14 ceding the date of the enactment of this title with
15 respect to IUU fishing in the exclusive economic
16 zone of the United States in the Gulf of Mexico, in-
17 cluding such actions and policies related to—

18 (A) the surveillance, interdiction, and pros-
19 ecution of any foreign nationals engaged in
20 such fishing; and

21 (B) the application of the provisions of the
22 High Seas Driftnet Fishing Moratorium Protec-
23 tion Act (16 U.S.C. 1826d et seq.) to any rel-
24 evant nation, including the status of any past
25 or ongoing consultations and certification proce-
26 dures;

1 (2) actions and policies, in addition to the ac-
2 tions and policies described in paragraph (1), each
3 of the Federal agencies described in subsection (a)
4 can take, using existing resources, to combat IUU
5 fishing in the exclusive economic zone of the United
6 States in the Gulf of Mexico; and

7 (3) any additional authorities that could assist
8 each such agency in more effectively addressing such
9 IUU fishing.

10 (c) REPORT.—Not later than 1 year after the IUU
11 Fishing Subworking Group is established under subsection
12 (a), the group shall submit a report to the Committee on
13 Commerce, Science, and Transportation of the Senate, the
14 Committee on Transportation and Infrastructure of the
15 House of Representatives, and the Committee on Natural
16 Resources of the House of Representatives that contains—

17 (1) the findings identified pursuant to sub-
18 section (b); and

19 (2) a timeline for each of the Federal agencies
20 described in subsection (a) to implement each action
21 or policy identified pursuant to subsection (b)(2).

1 **PART III—COMBATING HUMAN TRAFFICKING IN**
2 **CONNECTION WITH THE CATCHING AND**
3 **PROCESSING OF SEAFOOD PRODUCTS**

4 **SEC. 3561. FINDING.**

5 Congress finds that human trafficking, including
6 forced labor, is a pervasive problem in the catching and
7 processing of certain seafood products imported into the
8 United States, particularly seafood products obtained
9 through illegal, unreported, and unregulated fishing.

10 **SEC. 3562. ADDING THE SECRETARY OF COMMERCE TO THE**
11 **INTERAGENCY TASK FORCE TO MONITOR**
12 **AND COMBAT TRAFFICKING.**

13 Section 105(b) of the Victims of Trafficking and Vio-
14 lence Protection Act of 2000 (22 U.S.C. 7103(b)) is
15 amended by inserting “the Secretary of Commerce,” after
16 “the Secretary of Education,”.

17 **SEC. 3563. HUMAN TRAFFICKING IN THE SEAFOOD SUPPLY**
18 **CHAIN REPORT.**

19 (a) IN GENERAL.—Not later than 1 year after the
20 date of the enactment of this title, the Secretary of State
21 and the Administrator of the National Oceanic and At-
22 mospheric Administration shall jointly submit a report to
23 the Committee on Commerce, Science, and Transportation
24 of the Senate, the Committee on Foreign Relations of the
25 Senate, the Committee on Appropriations of the Senate,
26 the Committee on Natural Resources of the House of Rep-

1 representatives, the Committee on Foreign Affairs of the
2 House of Representatives, and the Committee on Appro-
3 priations of the House of Representatives that describes
4 the existence of human trafficking, including forced labor,
5 in the supply chains of seafood products imported into the
6 United States.

7 (b) REPORT ELEMENTS.—The report required under
8 subsection (a) shall include—

9 (1) a list of the countries at risk for human
10 trafficking, including forced labor, in their seafood
11 catching and processing industries, and an assess-
12 ment of such risk for each listed country;

13 (2) a description of the quantity and economic
14 value of seafood products imported into the United
15 States from the countries on the list compiled pursu-
16 ant to paragraph (1);

17 (3) a description and assessment of the meth-
18 ods, if any, in the countries on the list compiled pur-
19 suant to paragraph (1) to trace and account for the
20 manner in which seafood is caught;

21 (4) a description of domestic and international
22 enforcement mechanisms to deter illegal practices in
23 the catching of seafood in the countries on the list
24 compiled pursuant to paragraph (1); and

1 (5) such recommendations as the Secretary of
2 State and the Administrator of the National Oceanic
3 and Atmospheric Administration jointly consider ap-
4 propriate for administrative action to enhance and
5 improve actions against human trafficking, including
6 forced labor, in the catching and processing of sea-
7 food products outside of United States waters.

8 **PART IV—AUTHORIZATION OF APPROPRIATIONS**

9 **SEC. 3571. AUTHORIZATION OF APPROPRIATIONS.**

10 (a) **FUNDING.**—Amounts made available to carry out
11 this subtitle shall be derived from amounts appropriated
12 to the relevant agencies and departments.

13 (b) **NO INCREASE IN CONTRIBUTIONS.**—Nothing in
14 this subtitle shall be construed to authorize an increase
15 in required or voluntary contributions paid by the United
16 States to any multilateral or international organization.

17 **SEC. 3572. ACCOUNTING OF FUNDS.**

18 By not later than 180 days after the date of enact-
19 ment of this title, the head of each Federal agency receiv-
20 ing or allocating funds to carry out activities under this
21 subtitle shall, to the greatest extent practicable, prepare
22 and submit to Congress a report that provides an account-
23 ing of all funds made available under this subtitle to the
24 Federal agency.

1 **DIVISION D—FUNDING TABLES**

Sec. 4001. Authorization of amounts in funding tables.

TITLE XLI—PROCUREMENT

Sec. 4101. Procurement.

Sec. 4102. Procurement for overseas contingency operations.

Sec. 4103. Procurement for emergency requirements.

TITLE XLII—RESEARCH, DEVELOPMENT, TEST, AND EVALUATION

Sec. 4201. Research, development, test, and evaluation.

Sec. 4202. Research, development, test, and evaluation for overseas contingency operations.

Sec. 4203. Research, development, test, and evaluation for emergency requirements.

TITLE XLIII—OPERATION AND MAINTENANCE

Sec. 4301. Operation and maintenance.

Sec. 4302. Operation and maintenance for overseas contingency operations.

Sec. 4303. Operation and maintenance for emergency requirements.

TITLE XLIV—MILITARY PERSONNEL

Sec. 4401. Military personnel.

Sec. 4402. Military personnel for overseas contingency operations.

TITLE XLV—OTHER AUTHORIZATIONS

Sec. 4501. Other authorizations.

Sec. 4502. Other authorizations for overseas contingency operations.

TITLE XLVI—MILITARY CONSTRUCTION

Sec. 4601. Military construction.

Sec. 4602. Military construction for overseas contingency operations.

Sec. 4603. Military construction for emergency requirements.

TITLE XLVII—DEPARTMENT OF ENERGY NATIONAL SECURITY PROGRAMS

Sec. 4701. Department of energy national security programs.

2 **SEC. 4001. AUTHORIZATION OF AMOUNTS IN FUNDING TA-** 3 **BLES.**

4 (a) IN GENERAL.—Whenever a funding table in this
5 division specifies a dollar amount authorized for a project,
6 program, or activity, the obligation and expenditure of the
7 specified dollar amount for the project, program, or activ-

1 ity is hereby authorized, subject to the availability of ap-
2 propriations.

3 (b) MERIT-BASED DECISIONS.—A decision to com-
4 mit, obligate, or expend funds with or to a specific entity
5 on the basis of a dollar amount authorized pursuant to
6 subsection (a) shall—

7 (1) be based on merit-based selection proce-
8 dures in accordance with the requirements of sec-
9 tions 2304(k) and 2374 of title 10, United States
10 Code, or on competitive procedures; and

11 (2) comply with other applicable provisions of
12 law.

13 (c) RELATIONSHIP TO TRANSFER AND PROGRAM-
14 MING AUTHORITY.—An amount specified in the funding
15 tables in this division may be transferred or repro-
16 grammed under a transfer or reprogramming authority
17 provided by another provision of this Act or by other law.
18 The transfer or reprogramming of an amount specified in
19 such funding tables shall not count against a ceiling on
20 such transfers or reprogrammings under section 1001 or
21 section 1522 of this Act or any other provision of law,
22 unless such transfer or reprogramming would move funds
23 between appropriation accounts.

1 (d) APPLICABILITY TO CLASSIFIED ANNEX.—This
 2 section applies to any classified annex that accompanies
 3 this Act.

4 (e) ORAL WRITTEN COMMUNICATIONS.—No oral or
 5 written communication concerning any amount specified
 6 in the funding tables in this division shall supersede the
 7 requirements of this section.

8 **TITLE XLI—PROCUREMENT**

Sec. 4101. Procurement.
 Sec. 4102. Procurement for overseas contingency operations.
 Sec. 4103. Procurement for emergency requirements.

9 **SEC. 4101. PROCUREMENT.**

| SEC. 4101. PROCUREMENT (In Thousands of Dollars) | | | |
|--|---|--------------------|--------------------------|
| Line | Item | FY 2020 Request | Conference Authorized |
| AIRCRAFT PROCUREMENT, ARMY | | | |
| FIXED WING | | | |
| 002 | UTILITY F/W AIRCRAFT | 16,000 | 0 |
| | Early to need | | [-16,000] |
| 004 | RQ-11 (RAVEN) | 23,510 | 21,420 |
| | Unit cost growth | | [-2,090] |
| ROTARY | | | |
| 005 | TACTICAL UNMANNED AIRCRAFT SYSTEM (TUAS) | 12,100 | 6,100 |
| | Program reduction | | [-6,000] |
| 007 | HELICOPTER, LIGHT UTILITY (LUH) | | 11,000 |
| | Program increase for sustainment improvements | | [11,000] |
| 008 | AH-64 APACHE BLOCK IIIA REMAN | 806,849 | 798,785 |
| | Unjustified cost growth | | [-8,064] |
| 009 | AH-64 APACHE BLOCK IIIA REMAN | 190,870 | 190,870 |
| 012 | UH-60 BLACKHAWK M MODEL (MYP) | 1,411,540 | 1,397,740 |
| | Unit cost growth | | [-13,800] |
| 013 | UH-60 BLACKHAWK M MODEL (MYP) | 79,572 | 79,572 |
| 014 | UH-60 BLACK HAWK L AND V MODELS | 169,290 | 169,290 |
| 015 | CH-47 HELICOPTER | 140,290 | 131,290 |
| | Unit cost growth | | [-9,000] |
| 016 | CH-47 HELICOPTER | 18,186 | 46,186 |
| | Advance procurement for CH-47F Block II | | [28,000] |
| MODIFICATION OF AIRCRAFT | | | |
| 019 | UNIVERSAL GROUND CONTROL EQUIPMENT (UAS) | 2,090 | 2,090 |
| 020 | GRAY EAGLE MODS2 | 14,699 | 14,699 |
| 021 | MULTI SENSOR ABN RECON (MIP) | 35,189 | 35,189 |
| 022 | AH-64 MODS | 58,172 | 58,172 |
| 023 | CH-47 CARGO HELICOPTER MODS (MYP) | 11,785 | 11,785 |
| 024 | GRCS SEMA MODS (MIP) | 5,677 | 5,677 |
| 025 | ARL SEMA MODS (MIP) | 6,566 | 6,566 |
| 026 | EMARSS SEMA MODS (MIP) | 3,859 | 3,859 |
| 027 | UTILITY/CARGO AIRPLANE MODS | 15,476 | 13,476 |
| | Unit cost discrepancy | | [-2,000] |
| 028 | UTILITY HELICOPTER MODS | 6,744 | 6,744 |
| 029 | NETWORK AND MISSION PLAN | 105,442 | 98,442 |
| | Cost growth | | [-7,000] |
| 030 | COMMS, NAV SURVEILLANCE | 164,315 | 164,315 |
| 032 | GATM ROLLUP | 30,966 | 30,966 |
| 033 | RQ-7 UAV MODS | 8,983 | 8,983 |
| 034 | UAS MODS | 10,205 | 10,205 |
| GROUND SUPPORT AVIONICS | | | |
| 035 | AIRCRAFT SURVIVABILITY EQUIPMENT | 52,297 | 52,297 |
| 036 | SURVIVABILITY CM | 8,388 | 8,388 |
| 037 | CMWS | 13,999 | 13,999 |

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| SEC. 4101. PROCUREMENT (In Thousands of Dollars) | | | |
|--|--|--------------------|--------------------------|
| Line | Item | FY 2020 Request | Conference Authorized |
| 038 | COMMON INFRARED COUNTERMEASURES (CIRCM) | 168,784 | 168,784 |
| | OTHER SUPPORT | | |
| 039 | AVIONICS SUPPORT EQUIPMENT | 1,777 | 1,777 |
| 040 | COMMON GROUND EQUIPMENT | 18,624 | 18,624 |
| 041 | AIRCREW INTEGRATED SYSTEMS | 48,255 | 48,255 |
| 042 | AIR TRAFFIC CONTROL | 32,738 | 32,738 |
| 044 | LAUNCHER, 2.75 ROCKET | 2,201 | 2,201 |
| 045 | LAUNCHER GUIDED MISSILE: LONGBOW HELLFIRE XM2 | 991 | 991 |
| | TOTAL AIRCRAFT PROCUREMENT, ARMY | 3,696,429 | 3,671,475 |
| | MISSILE PROCUREMENT, ARMY | | |
| | SURFACE-TO-AIR MISSILE SYSTEM | | |
| 001 | SYSTEM INTEGRATION AND TEST PROCUREMENT | 113,857 | 113,857 |
| 002 | M-SHORAD—PROCUREMENT | 103,800 | 71,800 |
| | Early to need | | [-32,000] |
| 003 | MSE MISSILE | 698,603 | 698,603 |
| 004 | INDIRECT FIRE PROTECTION CAPABILITY INC 2-I | 9,337 | 9,337 |
| | AIR-TO-SURFACE MISSILE SYSTEM | | |
| 006 | HELLFIRE SYS SUMMARY | 193,284 | 186,084 |
| | Unit cost growth | | [-7,200] |
| 007 | JOINT AIR-TO-GROUND MSLs (JAGM) | 233,353 | 199,295 |
| | Contract and schedule delays | | [-34,058] |
| | ANTI-TANK/ASSAULT MISSILE SYS | | |
| 008 | JAVELIN (AAWS-M) SYSTEM SUMMARY | 138,405 | 138,405 |
| 009 | TOW 2 SYSTEM SUMMARY | 114,340 | 107,958 |
| | Unit cost growth | | [-6,382] |
| 010 | TOW 2 SYSTEM SUMMARY | 10,500 | 10,500 |
| 011 | GUIDED MLRS ROCKET (GMLRS) | 797,213 | 767,213 |
| | Program adjustment | | [-30,000] |
| 012 | MLRS REDUCED RANGE PRACTICE ROCKETS (RRPR) | 27,555 | 27,555 |
| 014 | ARMY TACTICAL MSL SYS (ATACMS)—SYS SUM | 209,842 | 170,013 |
| | Excess to need | | [-39,829] |
| | MODIFICATIONS | | |
| 016 | PATRIOT MODS | 279,464 | 279,464 |
| 017 | ATACMS MODS | 85,320 | 80,320 |
| | Unit cost growth | | [-5,000] |
| 018 | GMLRS MOD | 5,094 | 5,094 |
| 019 | STINGER MODS | 81,615 | 81,615 |
| 020 | AVENGER MODS | 14,107 | 14,107 |
| 021 | ITAS/TOW MODS | 3,469 | 3,469 |
| 022 | MLRS MODS | 39,019 | 39,019 |
| 023 | HIMARS MODIFICATIONS | 12,483 | 12,483 |
| | SPARES AND REPAIR PARTS | | |
| 024 | SPARES AND REPAIR PARTS | 26,444 | 26,444 |
| | SUPPORT EQUIPMENT & FACILITIES | | |
| 025 | AIR DEFENSE TARGETS | 10,593 | 10,593 |
| | TOTAL MISSILE PROCUREMENT, ARMY | 3,207,697 | 3,053,228 |
| | PROCUREMENT OF W&TCV, ARMY | | |
| | TRACKED COMBAT VEHICLES | | |
| 002 | ARMORED MULTI PURPOSE VEHICLE (AMPV) | 264,040 | 230,307 |
| | Program reduction | | [-33,733] |
| | MODIFICATION OF TRACKED COMBAT VEHICLES | | |
| 003 | STRYKER (MOD) | 144,387 | 393,587 |
| | Accelerate Stryker medium caliber weapon system—Army unfunded priority ... | | [249,200] |
| 004 | STRYKER UPGRADE | 550,000 | 522,962 |
| | Unit cost growth | | [-27,038] |
| 005 | BRADLEY PROGRAM (MOD) | 638,781 | 573,781 |
| | Program decrease | | [-65,000] |
| 006 | M109 FOV MODIFICATIONS | 25,756 | 25,756 |
| 007 | PALADIN INTEGRATED MANAGEMENT (PIM) | 553,425 | 553,425 |
| 009 | ASSAULT BRIDGE (MOD) | 2,821 | 2,821 |
| 010 | ASSAULT BREACHER VEHICLE | 31,697 | 31,697 |
| 011 | M88 FOV MODS | 4,500 | 4,500 |
| 012 | JOINT ASSAULT BRIDGE | 205,517 | 205,517 |
| 013 | M1 ABRAMS TANK (MOD) | 348,800 | 401,800 |
| | Test support excess to need | | [-7,000] |
| | Vehicle protection system for one armored brigade | | [60,000] |
| 014 | ABRAMS UPGRADE PROGRAM | 1,752,784 | 1,752,784 |
| | WEAPONS & OTHER COMBAT VEHICLES | | |
| 016 | MULTI-ROLE ANTI-ARMOR ANTI-PERSONNEL WEAPONS | 19,420 | 19,420 |
| 017 | GUN AUTOMATIC 30MM M230 | 20,000 | 5,042 |
| | Program reduction | | [-14,958] |
| 019 | MORTAR SYSTEMS | 14,907 | 14,907 |
| 020 | XM320 GRENADE LAUNCHER MODULE (GLM) | 191 | 191 |
| 021 | PRECISION SNIPER RIFLE | 7,977 | 7,977 |
| 022 | COMPACT SEMI-AUTOMATIC SNIPER SYSTEM | 9,860 | 9,860 |
| 023 | CARBINE | 30,331 | 30,331 |

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| SEC. 4101. PROCUREMENT (In Thousands of Dollars) | | | |
|---|--|------------------------|------------------------------|
| Line | Item | FY 2020 Request | Conference Authorized |
| 024 | SMALL ARMS—FIRE CONTROL | 8,060 | 0 |
| | Late contract award | | [-8,060] |
| 025 | COMMON REMOTELY OPERATED WEAPONS STATION | 24,007 | 24,007 |
| 026 | HANDGUN | 6,174 | 6,174 |
| | MOD OF WEAPONS AND OTHER COMBAT VEH | | |
| 028 | MK-19 GRENADE MACHINE GUN MODS | 3,737 | 3,737 |
| 029 | M777 MODS | 2,367 | 2,367 |
| 030 | M4 CARBINE MODS | 17,595 | 17,595 |
| 033 | M240 MEDIUM MACHINE GUN MODS | 8,000 | 8,000 |
| 034 | SNIPER RIFLES MODIFICATIONS | 2,426 | 2,426 |
| 035 | M119 MODIFICATIONS | 6,269 | 6,269 |
| 036 | MORTAR MODIFICATION | 1,693 | 1,693 |
| 037 | MODIFICATIONS LESS THAN \$5.0M (WOCV-WTCV) | 4,327 | 4,327 |
| | SUPPORT EQUIPMENT & FACILITIES | | |
| 038 | ITEMS LESS THAN \$5.0M (WOCV-WTCV) | 3,066 | 3,066 |
| 039 | PRODUCTION BASE SUPPORT (WOCV-WTCV) | 2,651 | 2,651 |
| | TOTAL PROCUREMENT OF W&TCV, ARMY | 4,715,566 | 4,868,977 |
| | PROCUREMENT OF AMMUNITION, ARMY | | |
| | SMALL/MEDIUM CAL AMMUNITION | | |
| 001 | CTG, 5.56MM, ALL TYPES | 68,949 | 65,520 |
| | Prior-year carryover | | [-3,429] |
| 002 | CTG, 7.62MM, ALL TYPES | 114,228 | 112,228 |
| | Prior-year carryover | | [-2,000] |
| 003 | CTG, HANDGUN, ALL TYPES | 17,807 | 17,807 |
| 004 | CTG, .50 CAL, ALL TYPES | 63,966 | 63,966 |
| 005 | CTG, 20MM, ALL TYPES | 35,920 | 27,920 |
| | Unit cost growth | | [-8,000] |
| 006 | CTG, 25MM, ALL TYPES | 8,990 | 8,990 |
| 007 | CTG, 30MM, ALL TYPES | 68,813 | 65,337 |
| | Prior-year carry over | | [-1,134] |
| | Program adjustment | | [-2,342] |
| 008 | CTG, 40MM, ALL TYPES | 103,952 | 103,952 |
| | MORTAR AMMUNITION | | |
| 009 | 60MM MORTAR, ALL TYPES | 50,580 | 49,580 |
| | Unit cost discrepancy | | [-1,000] |
| 010 | 81MM MORTAR, ALL TYPES | 59,373 | 44,673 |
| | Contract delays | | [-14,700] |
| 011 | 120MM MORTAR, ALL TYPES | 125,452 | 123,452 |
| | Unit cost growth | | [-2,000] |
| | TANK AMMUNITION | | |
| 012 | CARTRIDGES, TANK, 105MM AND 120MM, ALL TYPES | 171,284 | 120,464 |
| | Unit cost growth | | [-50,820] |
| | ARTILLERY AMMUNITION | | |
| 013 | ARTILLERY CARTRIDGES, 75MM & 105MM, ALL TYPES | 44,675 | 44,675 |
| 014 | ARTILLERY PROJECTILE, 155MM, ALL TYPES | 266,037 | 266,037 |
| 015 | PROJ 155MM EXTENDED RANGE M982 | 57,434 | 57,434 |
| 016 | ARTILLERY PROPELLANTS, FUZES AND PRIMERS, ALL | 271,602 | 268,022 |
| | Cost growth and unjustified product improvements | | [-3,580] |
| | MINES | | |
| 017 | MINES & CLEARING CHARGES, ALL TYPES | 55,433 | 39,239 |
| | Contract delay | | [-16,194] |
| | ROCKETS | | |
| 018 | SHOULDER LAUNCHED MUNITIONS, ALL TYPES | 74,878 | 74,878 |
| 019 | ROCKET, HYDRA 70, ALL TYPES | 175,994 | 165,994 |
| | Excess support costs | | [-10,000] |
| | OTHER AMMUNITION | | |
| 020 | CAD/PAD, ALL TYPES | 7,595 | 7,595 |
| 021 | DEMOLITION MUNITIONS, ALL TYPES | 51,651 | 51,651 |
| 022 | GRENADES, ALL TYPES | 40,592 | 40,592 |
| 023 | SIGNALS, ALL TYPES | 18,609 | 18,609 |
| 024 | SIMULATORS, ALL TYPES | 16,054 | 16,054 |
| | MISCELLANEOUS | | |
| 025 | AMMO COMPONENTS, ALL TYPES | 5,261 | 5,261 |
| 026 | NON-LETHAL AMMUNITION, ALL TYPES | 715 | 715 |
| 027 | ITEMS LESS THAN \$5 MILLION (AMMO) | 9,213 | 9,213 |
| 028 | AMMUNITION PECULIAR EQUIPMENT | 10,044 | 10,044 |
| 029 | FIRST DESTINATION TRANSPORTATION (AMMO) | 18,492 | 18,492 |
| 030 | CLOSEOUT LIABILITIES | 99 | 99 |
| | PRODUCTION BASE SUPPORT | | |
| 031 | INDUSTRIAL FACILITIES | 474,511 | 474,511 |
| 032 | CONVENTIONAL MUNITIONS DEMILITARIZATION | 202,512 | 202,512 |
| 033 | ARMS INITIATIVE | 3,833 | 3,833 |
| | TOTAL PROCUREMENT OF AMMUNITION, ARMY | 2,694,548 | 2,579,349 |
| | OTHER PROCUREMENT, ARMY | | |
| | TACTICAL VEHICLES | | |
| 001 | TACTICAL TRAILERS/DOLLY SETS | 12,993 | 12,993 |

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| SEC. 4101. PROCUREMENT (In Thousands of Dollars) | | | |
|---|---|------------------------|------------------------------|
| Line | Item | FY 2020 Request | Conference Authorized |
| 002 | SEMITRAILERS, FLATBED: | 102,386 | 102,386 |
| 003 | AMBULANCE, 4 LITTER, 5/4 TON, 4X4 | 127,271 | 127,271 |
| 004 | GROUND MOBILITY VEHICLES (GMV) | 37,038 | 35,038 |
| | Unit cost growth | | [-2,000] |
| 006 | JOINT LIGHT TACTICAL VEHICLE | 996,007 | 976,507 |
| | Army requested transfer to RDTE, A line 169 | | [-4,500] |
| | Simulator delay | | [-15,000] |
| 007 | TRUCK, DUMP, 20T (CCE) | 10,838 | 10,838 |
| 008 | FAMILY OF MEDIUM TACTICAL VEH (FMTV) | 72,057 | 138,057 |
| | Program increase | | [66,000] |
| 009 | FIRETRUCKS & ASSOCIATED FIREFIGHTING EQUIP | 28,048 | 28,048 |
| 010 | FAMILY OF HEAVY TACTICAL VEHICLES (FHTV) | 9,969 | 9,969 |
| 011 | PLS ESP | 6,280 | 6,280 |
| 012 | HVY EXPANDED MOBILE TACTICAL TRUCK EXT SERV | 30,841 | 95,185 |
| | Program increase | | [64,344] |
| 013 | HMMWV RECAPITALIZATION PROGRAM | 5,734 | 5,734 |
| 014 | TACTICAL WHEELED VEHICLE PROTECTION KITS | 45,113 | 45,113 |
| 015 | MODIFICATION OF IN SVC EQUIP | 58,946 | 58,946 |
| | NON-TACTICAL VEHICLES | | |
| 017 | HEAVY ARMORED VEHICLE | 791 | 791 |
| 018 | PASSENGER CARRYING VEHICLES | 1,416 | 1,416 |
| 019 | NONTACTICAL VEHICLES, OTHER | 29,891 | 29,891 |
| | COMM—JOINT COMMUNICATIONS | | |
| 021 | SIGNAL MODERNIZATION PROGRAM | 153,933 | 143,933 |
| | Excess funding for spares | | [-10,000] |
| 022 | TACTICAL NETWORK TECHNOLOGY MOD IN SVC | 387,439 | 411,439 |
| | ITN-M for one armored brigade combat team | | [24,000] |
| 023 | SITUATION INFORMATION TRANSPORT | 46,693 | 46,693 |
| 025 | JCSE EQUIPMENT (USRDECOM) | 5,075 | 5,075 |
| | COMM—SATELLITE COMMUNICATIONS | | |
| 028 | DEFENSE ENTERPRISE WIDEBAND SATCOM SYSTEMS | 101,189 | 101,189 |
| 029 | TRANSPORTABLE TACTICAL COMMAND COMMUNICATIONS | 77,141 | 77,141 |
| 030 | SHF TERM | 16,054 | 16,054 |
| 031 | ASSURED POSITIONING, NAVIGATION AND TIMING | 41,074 | 33,674 |
| | Program cancellation | | [-7,400] |
| 032 | SMART-T (SPACE) | 10,515 | 10,515 |
| 033 | GLOBAL BRDCST SVC—GBS | 11,800 | 11,800 |
| 034 | ENROUTE MISSION COMMAND (EMC) | 8,609 | 8,609 |
| | COMM—C3 SYSTEM | | |
| 038 | COE TACTICAL SERVER INFRASTRUCTURE (TSD) | 77,533 | 57,533 |
| | Program reduction | | [-20,000] |
| | COMM—COMBAT COMMUNICATIONS | | |
| 039 | HANDHELD MANPACK SMALL FORM FIT (HMS) | 468,026 | 488,026 |
| | SFAB technology refresh | | [20,000] |
| 040 | RADIO TERMINAL SET, MIDS LVT(2) | 23,778 | 23,778 |
| 044 | SPIDER FAMILY OF NETWORKED MUNITIONS INCR | 10,930 | 10,930 |
| 046 | UNIFIED COMMAND SUITE | 9,291 | 9,291 |
| 047 | COTS COMMUNICATIONS EQUIPMENT | 55,630 | 55,630 |
| 048 | FAMILY OF MED COMM FOR COMBAT CASUALTY CARE | 16,590 | 16,590 |
| 049 | ARMY COMMUNICATIONS & ELECTRONICS | 43,457 | 43,457 |
| | COMM—INTELLIGENCE COMM | | |
| 051 | CI AUTOMATION ARCHITECTURE (MIP) | 10,470 | 10,470 |
| 052 | DEFENSE MILITARY DECEPTION INITIATIVE | 3,704 | 3,704 |
| | INFORMATION SECURITY | | |
| 053 | FAMILY OF BIOMETRICS | 1,000 | 1,000 |
| 054 | INFORMATION SYSTEM SECURITY PROGRAM-ISSP | 3,600 | 3,600 |
| 055 | COMMUNICATIONS SECURITY (COMSEC) | 160,899 | 147,097 |
| | Unit cost growth | | [-13,802] |
| 056 | DEFENSIVE CYBER OPERATIONS | 61,962 | 61,962 |
| 057 | INSIDER THREAT PROGRAM—UNIT ACTIVITY MONITO | 756 | 756 |
| 058 | PERSISTENT CYBER TRAINING ENVIRONMENT | 3,000 | 3,000 |
| | COMM—LONG HAUL COMMUNICATIONS | | |
| 059 | BASE SUPPORT COMMUNICATIONS | 31,770 | 31,770 |
| | COMM—BASE COMMUNICATIONS | | |
| 060 | INFORMATION SYSTEMS | 159,009 | 159,009 |
| 061 | EMERGENCY MANAGEMENT MODERNIZATION PROGRAM | 4,854 | 4,854 |
| 062 | HOME STATION MISSION COMMAND CENTERS (HSMCC) | 47,174 | 47,174 |
| 063 | INSTALLATION INFO INFRASTRUCTURE MOD PROGRAM | 297,994 | 265,494 |
| | Insufficient budget justification | | [-32,500] |
| | ELECT EQUIP—TACT INT REL ACT (TIARA) | | |
| 066 | JTT/CIBS-M (MIP) | 7,686 | 7,686 |
| 068 | DCGS-A (MIP) | 180,350 | 180,350 |
| 070 | TROJAN (MIP) | 17,368 | 17,368 |
| 071 | MOD OF IN-SVC EQUIP (INTEL SPT) (MIP) | 59,052 | 59,052 |
| | ELECT EQUIP—ELECTRONIC WARFARE (EW) | | |
| 077 | LIGHTWEIGHT COUNTER MORTAR RADAR | 5,400 | 5,400 |
| 078 | EW PLANNING & MANAGEMENT TOOLS (EWPMT) | 7,568 | 7,568 |
| 079 | AIR VIGILANCE (AV) (MIP) | 8,953 | 8,953 |

| SEC. 4101. PROCUREMENT (In Thousands of Dollars) | | | |
|---|--|------------------------|------------------------------|
| Line | Item | FY 2020 Request | Conference Authorized |
| 081 | MULTI-FUNCTION ELECTRONIC WARFARE (MFEW) SYST | 6,420 | 3,220 |
| | Program reduction | | [-3,200] |
| 083 | COUNTERINTELLIGENCE/SECURITY COUNTERMEASURES | 501 | 501 |
| 084 | CI MODERNIZATION (MIP) | 121 | 121 |
| | ELECT EQUIP—TACTICAL SURV. (TAC SURV) | | |
| 085 | SENTINEL MODS | 115,210 | 114,210 |
| | Excess support costs | | [-1,000] |
| 086 | NIGHT VISION DEVICES | 236,604 | 160,379 |
| | Insufficient justification (IVAS) | | [-76,225] |
| 088 | SMALL TACTICAL OPTICAL RIFLE MOUNTED MLRF | 22,623 | 22,623 |
| 090 | INDIRECT FIRE PROTECTION FAMILY OF SYSTEMS | 29,127 | 29,127 |
| 091 | FAMILY OF WEAPON SIGHTS (FWS) | 120,883 | 81,541 |
| | Excess unit cost growth | | [-39,342] |
| 094 | JOINT BATTLE COMMAND—PLATFORM (JBC-P) | 265,667 | 256,567 |
| | Program adjustment | | [-9,100] |
| 095 | JOINT EFFECTS TARGETING SYSTEM (JETS) | 69,720 | 44,720 |
| | Program delay | | [-25,000] |
| 096 | MOD OF IN-SVC EQUIP (LLDR) | 6,044 | 6,044 |
| 097 | COMPUTER BALLISTICS: LHMCB XM32 | 3,268 | 3,268 |
| 098 | MORTAR FIRE CONTROL SYSTEM | 13,199 | 13,199 |
| 099 | MORTAR FIRE CONTROL SYSTEMS MODIFICATIONS | 10,000 | 10,000 |
| 100 | COUNTERFIRE RADARS | 16,416 | 16,416 |
| | ELECT EQUIP—TACTICAL C2 SYSTEMS | | |
| 102 | FIRE SUPPORT C2 FAMILY | 13,197 | 13,197 |
| 103 | AIR & MSL DEFENSE PLANNING & CONTROL SYS | 24,730 | 24,730 |
| 104 | LAMD BATTLE COMMAND SYSTEM | 29,629 | 29,629 |
| 105 | LIFE CYCLE SOFTWARE SUPPORT (LCSS) | 6,774 | 6,774 |
| 106 | NETWORK MANAGEMENT INITIALIZATION AND SERVICE | 24,448 | 24,448 |
| 107 | MANEUVER CONTROL SYSTEM (MCS) | 260 | 260 |
| 108 | GLOBAL COMBAT SUPPORT SYSTEM-ARMY (GCSS-A) | 17,962 | 17,962 |
| 109 | INTEGRATED PERSONNEL AND PAY SYSTEM-ARMY (IPP) | 18,674 | 8,674 |
| | Poor business process reengineering | | [-10,000] |
| 110 | RECONNAISSANCE AND SURVEYING INSTRUMENT SET | 11,000 | 11,000 |
| 111 | MOD OF IN-SVC EQUIPMENT (ENFIRE) | 7,317 | 15,317 |
| | Program increase—land surveying systems | | [8,000] |
| | ELECT EQUIP—AUTOMATION | | |
| 112 | ARMY TRAINING MODERNIZATION | 14,578 | 14,578 |
| 113 | AUTOMATED DATA PROCESSING EQUIP | 139,342 | 129,342 |
| | Program decrease | | [-5,000] |
| | Unjustified growth | | [-5,000] |
| 114 | GENERAL FUND ENTERPRISE BUSINESS SYSTEMS FAM | 15,802 | 15,802 |
| 115 | HIGH PERF COMPUTING MOD PGM (HPCMP) | 67,610 | 67,610 |
| 116 | CONTRACT WRITING SYSTEM | 15,000 | 6,000 |
| | Program duplication | | [-9,000] |
| 117 | CSS COMMUNICATIONS | 24,700 | 24,700 |
| 118 | RESERVE COMPONENT AUTOMATION SYS (RCAS) | 27,879 | 27,879 |
| | ELECT EQUIP—AUDIO VISUAL SYS (A/V) | | |
| 120 | ITEMS LESS THAN \$5M (SURVEYING EQUIPMENT) | 5,000 | 5,000 |
| | ELECT EQUIP—SUPPORT | | |
| 122 | BCT EMERGING TECHNOLOGIES | 22,302 | 10,302 |
| | Program reduction | | [-12,000] |
| | CLASSIFIED PROGRAMS | | |
| 122A | CLASSIFIED PROGRAMS | 11,910 | 11,910 |
| | CHEMICAL DEFENSIVE EQUIPMENT | | |
| 126 | CBRN DEFENSE | 25,828 | 25,828 |
| 127 | SMOKE & OBSCURANT FAMILY: SOF (NON AAO ITEM) | 5,050 | 5,050 |
| | BRIDGING EQUIPMENT | | |
| 128 | TACTICAL BRIDGING | 59,821 | 57,821 |
| | Contract delays | | [-2,000] |
| 129 | TACTICAL BRIDGE, FLOAT-RIBBON | 57,661 | 57,661 |
| 130 | BRIDGE SUPPLEMENTAL SET | 17,966 | 17,966 |
| 131 | COMMON BRIDGE TRANSPORTER (CBT) RECAP | 43,155 | 43,155 |
| | ENGINEER (NON-CONSTRUCTION) EQUIPMENT | | |
| 132 | HANDHELD STANDOFF MINEFIELD DETECTION SYS-HST | 7,570 | 7,570 |
| 133 | GRND STANDOFF MINE DETECT'N SYSM (GSTAMIDS) | 37,025 | 37,025 |
| 135 | HUSKY MOUNTED DETECTION SYSTEM (HMDS) | 83,082 | 47,899 |
| | Unjustified unit cost growth | | [-35,183] |
| 136 | ROBOTIC COMBAT SUPPORT SYSTEM (RCSS) | 2,000 | 2,000 |
| 137 | EOD ROBOTICS SYSTEMS RECAPITALIZATION | 23,115 | 23,115 |
| 138 | ROBOTICS AND APPLIQUE SYSTEMS | 101,056 | 101,056 |
| 140 | RENDER SAFE SETS KITS OUTFITS | 18,684 | 18,684 |
| 142 | FAMILY OF BOATS AND MOTORS | 8,245 | 6,245 |
| | Unit cost growth | | [-2,000] |
| | COMBAT SERVICE SUPPORT EQUIPMENT | | |
| 143 | HEATERS AND ECU'S | 7,336 | 7,336 |
| 145 | PERSONNEL RECOVERY SUPPORT SYSTEM (PRSS) | 4,281 | 4,281 |
| 146 | GROUND SOLDIER SYSTEM | 111,955 | 111,955 |
| 147 | MOBILE SOLDIER POWER | 31,364 | 29,943 |

| SEC. 4101. PROCUREMENT (In Thousands of Dollars) | | | |
|---|---|------------------|-----------------------|
| Line | Item | FY 2020 Request | Conference Authorized |
| | Unit cost growth | | [-1,421] |
| 149 | FIELD FEEDING EQUIPMENT | 1,673 | 1,673 |
| 150 | CARGO AERIAL DEL & PERSONNEL PARACHUTE SYSTEM | 43,622 | 43,622 |
| 151 | FAMILY OF ENGR COMBAT AND CONSTRUCTION SETS | 11,451 | 11,451 |
| 152 | ITEMS LESS THAN \$5M (ENG SPT) | 5,167 | 5,167 |
| | PETROLEUM EQUIPMENT | | |
| 154 | DISTRIBUTION SYSTEMS, PETROLEUM & WATER | 74,867 | 74,867 |
| | MEDICAL EQUIPMENT | | |
| 155 | COMBAT SUPPORT MEDICAL | 68,225 | 68,225 |
| | MAINTENANCE EQUIPMENT | | |
| 156 | MOBILE MAINTENANCE EQUIPMENT SYSTEMS | 55,053 | 55,053 |
| 157 | ITEMS LESS THAN \$5.0M (MAINT EQ) | 5,608 | 5,608 |
| | CONSTRUCTION EQUIPMENT | | |
| 161 | HYDRAULIC EXCAVATOR | 500 | 500 |
| 162 | TRACTOR, FULL TRACKED | 4,835 | 4,835 |
| 163 | ALL TERRAIN CRANES | 23,936 | 23,936 |
| 164 | HIGH MOBILITY ENGINEER EXCAVATOR (HMEE) | 27,188 | 27,188 |
| 166 | CONST EQUIP ESP | 34,790 | 34,790 |
| 167 | ITEMS LESS THAN \$5.0M (CONST EQUIP) | 4,381 | 4,381 |
| | RAIL FLOAT CONTAINERIZATION EQUIPMENT | | |
| 168 | ARMY WATERCRAFT ESP | 35,194 | 35,194 |
| 169 | MANEUVER SUPPORT VESSEL (MSV) | 14,185 | 14,185 |
| 170 | ITEMS LESS THAN \$5.0M (FLOAT/RAIL) | 6,920 | 6,920 |
| | GENERATORS | | |
| 171 | GENERATORS AND ASSOCIATED EQUIP | 58,566 | 58,566 |
| 172 | TACTICAL ELECTRIC POWER RECAPITALIZATION | 14,814 | 14,814 |
| | MATERIAL HANDLING EQUIPMENT | | |
| 173 | FAMILY OF FORKLIFTS | 14,864 | 14,864 |
| | TRAINING EQUIPMENT | | |
| 174 | COMBAT TRAINING CENTERS SUPPORT | 123,411 | 123,411 |
| 175 | TRAINING DEVICES, NONSYSTEM | 220,707 | 220,707 |
| 176 | SYNTHETIC TRAINING ENVIRONMENT (STE) | 20,749 | 15,749 |
| | Program adjustment | | [-5,000] |
| 178 | AVIATION COMBINED ARMS TACTICAL TRAINER | 4,840 | 4,840 |
| 179 | GAMING TECHNOLOGY IN SUPPORT OF ARMY TRAINING | 15,463 | 15,463 |
| | TEST MEASURE AND DIG EQUIPMENT (TMD) | | |
| 180 | CALIBRATION SETS EQUIPMENT | 3,030 | 3,030 |
| 181 | INTEGRATED FAMILY OF TEST EQUIPMENT (IFTE) | 76,980 | 76,980 |
| 182 | TEST EQUIPMENT MODERNIZATION (TEMOD) | 16,415 | 13,415 |
| | Historical underexecution | | [-3,000] |
| | OTHER SUPPORT EQUIPMENT | | |
| 184 | RAPID EQUIPPING SOLDIER SUPPORT EQUIPMENT | 9,877 | 9,877 |
| 185 | PHYSICAL SECURITY SYSTEMS (OPA3) | 82,158 | 82,158 |
| 186 | BASE LEVEL COMMON EQUIPMENT | 15,340 | 15,340 |
| 187 | MODIFICATION OF IN-SVC EQUIPMENT (OPA-3) | 50,458 | 50,458 |
| 189 | BUILDING, PRE-FAB, RELOCATABLE | 14,400 | 14,400 |
| 190 | SPECIAL EQUIPMENT FOR USER TESTING | 9,821 | 9,821 |
| | OPA2 | | |
| 192 | INITIAL SPARES—C&E | 9,757 | 9,757 |
| | TOTAL OTHER PROCUREMENT, ARMY | 7,451,301 | 7,284,972 |
| | AIRCRAFT PROCUREMENT, NAVY | | |
| | COMBAT AIRCRAFT | | |
| 001 | F/A-18E/F (FIGHTER) HORNET | 1,748,934 | 1,730,360 |
| | ECO and ancillary equipment excess growth | | [-18,574] |
| 002 | F/A-18E/F (FIGHTER) HORNET | 55,128 | 51,180 |
| | Excess engine cost growth | | [-3,948] |
| 003 | JOINT STRIKE FIGHTER CV | 2,272,301 | 2,217,821 |
| | Target cost savings | | [-54,480] |
| 004 | JOINT STRIKE FIGHTER CV | 339,053 | 339,053 |
| 005 | JSF STOVL | 1,342,035 | 1,266,301 |
| | Target cost savings | | [-75,734] |
| 006 | JSF STOVL | 291,804 | 291,804 |
| 007 | CH-53K (HEAVY LIFT) | 807,876 | 807,876 |
| 008 | CH-53K (HEAVY LIFT) | 215,014 | 215,014 |
| 009 | V-22 (MEDIUM LIFT) | 966,666 | 1,214,766 |
| | Program increase | | [248,100] |
| 010 | V-22 (MEDIUM LIFT) | 27,104 | 27,104 |
| 011 | H-1 UPGRADES (UH-1Y/AH-1Z) | 62,003 | 53,003 |
| | Production line shutdown excess to need | | [-9,000] |
| 013 | MH-60R (MYP) | 894 | 894 |
| 014 | P-8A POSEIDON | 1,206,701 | 1,680,601 |
| | Line shutdown costs early to need | | [-67,300] |
| | Navy unfunded priority | | [541,200] |
| 016 | E-2D ADV HAWKEYE | 744,484 | 900,284 |
| | Navy unfunded priority | | [173,000] |
| | NRE excess cost growth | | [-17,200] |
| 017 | E-2D ADV HAWKEYE | 190,204 | 190,204 |

| SEC. 4101. PROCUREMENT (In Thousands of Dollars) | | | |
|---|---|------------------------|------------------------------|
| Line | Item | FY 2020 Request | Conference Authorized |
| | TRAINER AIRCRAFT | | |
| 019 | ADVANCED HELICOPTER TRAINING SYSTEM | 261,160 | 261,160 |
| | OTHER AIRCRAFT | | |
| 020 | KC-130J | 240,840 | 221,904 |
| | Unit cost growth | | [-18,936] |
| 021 | KC-130J | 66,061 | 66,061 |
| 022 | F-5 | 39,676 | 39,676 |
| 023 | MQ-4 TRITON | 473,134 | 448,134 |
| | PGSE excess cost growth | | [-25,000] |
| 024 | MQ-4 TRITON | 20,139 | 20,139 |
| 025 | MQ-8 UAV | 44,957 | 44,957 |
| 026 | STUASLO UAV | 43,819 | 43,819 |
| 028 | VH-92A EXECUTIVE HELO | 658,067 | 647,351 |
| | Program reduction | | [-10,716] |
| | MODIFICATION OF AIRCRAFT | | |
| 029 | AEA SYSTEMS | 44,470 | 39,170 |
| | Program reduction | | [-5,300] |
| 030 | AV-8 SERIES | 39,472 | 39,472 |
| 031 | ADVERSARY | 3,415 | 3,415 |
| 032 | F-18 SERIES | 1,207,089 | 1,128,089 |
| | Early to need | | [-79,000] |
| 033 | H-53 SERIES | 68,385 | 68,385 |
| 034 | MH-60 SERIES | 149,797 | 147,297 |
| | NRE prior year carryover (OSIP 018-12) | | [-2,500] |
| 035 | H-1 SERIES | 114,059 | 114,059 |
| 036 | EP-3 SERIES | 8,655 | 8,655 |
| 038 | E-2 SERIES | 117,059 | 117,059 |
| 039 | TRAINER A/C SERIES | 5,616 | 5,616 |
| 040 | C-2A | 15,747 | 15,747 |
| 041 | C-130 SERIES | 122,671 | 116,786 |
| | B kit cost growth (OSIP 019-14) | | [-3,009] |
| | GFE excess growth (OSIP 019-14) | | [-2,876] |
| 042 | FEWSG | 509 | 509 |
| 043 | CARGO/TRANSPORT A/C SERIES | 8,767 | 8,767 |
| 044 | E-6 SERIES | 169,827 | 167,216 |
| | Program reduction | | [-2,611] |
| 045 | EXECUTIVE HELICOPTERS SERIES | 8,933 | 8,933 |
| 047 | T-45 SERIES | 186,022 | 184,314 |
| | NRE previously funded | | [-1,708] |
| 048 | POWER PLANT CHANGES | 16,136 | 16,136 |
| 049 | JPATS SERIES | 21,824 | 21,824 |
| 050 | AVIATION LIFE SUPPORT MODS | 39,762 | 39,762 |
| 051 | COMMON ECM EQUIPMENT | 162,839 | 152,839 |
| | Program decrease | | [-10,000] |
| 052 | COMMON AVIONICS CHANGES | 102,107 | 75,107 |
| | Computing and displays concurrency and equipment growth early to need | | [-27,000] |
| 053 | COMMON DEFENSIVE WEAPON SYSTEM | 2,100 | 2,100 |
| 054 | ID SYSTEMS | 41,437 | 41,437 |
| 055 | P-8 SERIES | 107,539 | 96,563 |
| | Increment 3 ECP 6 early to need (OSIP 006-18) | | [-10,976] |
| 056 | MAGTF EW FOR AVIATION | 26,536 | 26,536 |
| 057 | MQ-8 SERIES | 34,686 | 34,686 |
| 058 | V-22 (TILT/ROTOR ACFT) OSPREY | 325,367 | 325,367 |
| 059 | NEXT GENERATION JAMMER (NGJ) | 6,223 | 3,111 |
| | Program reduction | | [-3,112] |
| 060 | F-35 STOVL SERIES | 65,585 | 65,585 |
| 061 | F-35 CV SERIES | 15,358 | 15,358 |
| 062 | QRC | 165,016 | 146,558 |
| | Program decrease | | [-18,458] |
| 063 | MQ-4 SERIES | 27,994 | 27,994 |
| 064 | RQ-21 SERIES | 66,282 | 61,032 |
| | EO/IR turret upgrades unit cost growth (OSIP 004-20) | | [-5,250] |
| | AIRCRAFT SPARES AND REPAIR PARTS | | |
| 067 | SPARES AND REPAIR PARTS | 2,166,788 | 2,146,788 |
| | MQ-4 Triton spares excess growth | | [-20,000] |
| | AIRCRAFT SUPPORT EQUIP & FACILITIES | | |
| 068 | COMMON GROUND EQUIPMENT | 491,025 | 470,025 |
| | Other flight training previously funded | | [-21,000] |
| 069 | AIRCRAFT INDUSTRIAL FACILITIES | 71,335 | 71,335 |
| 070 | WAR CONSUMABLES | 41,086 | 32,086 |
| | BRU-61 previously funded | | [-9,000] |
| 072 | SPECIAL SUPPORT EQUIPMENT | 135,740 | 135,740 |
| 073 | FIRST DESTINATION TRANSPORTATION | 892 | 892 |
| | TOTAL AIRCRAFT PROCUREMENT, NAVY | 18,522,204 | 18,961,816 |
| | WEAPONS PROCUREMENT, NAVY | | |
| | MODIFICATION OF MISSILES | | |
| 001 | TRIDENT II MODS | 1,177,251 | 1,177,251 |

| SEC. 4101. PROCUREMENT (In Thousands of Dollars) | | | |
|---|--|--------------------|--------------------------|
| Line | Item | FY 2020 Request | Conference Authorized |
| SUPPORT EQUIPMENT & FACILITIES | | | |
| 002 | MISSILE INDUSTRIAL FACILITIES | 7,142 | 7,142 |
| STRATEGIC MISSILES | | | |
| 003 | TOMAHAWK | 386,730 | 344,648 |
| | Unjustified tooling and facilitization costs | | [-42,082] |
| TACTICAL MISSILES | | | |
| 004 | AMRAAM | 224,502 | 201,502 |
| | Unit cost growth | | [-23,000] |
| 005 | SIDEWINDER | 119,456 | 117,404 |
| | Program reduction | | [-2,052] |
| 007 | STANDARD MISSILE | 404,523 | 404,523 |
| 008 | STANDARD MISSILE | 96,085 | 96,085 |
| 009 | SMALL DIAMETER BOMB II | 118,466 | 115,828 |
| | Program reduction | | [-2,638] |
| 010 | RAM | 106,765 | 106,765 |
| 012 | HELLFIRE | 1,525 | 1,525 |
| 015 | AERIAL TARGETS | 145,880 | 145,880 |
| 016 | DRONES AND DECOYS | 20,000 | 18,521 |
| | Excess to need | | [-1,479] |
| 017 | OTHER MISSILE SUPPORT | 3,388 | 3,388 |
| 018 | LRASM | 143,200 | 143,200 |
| 019 | LCS OTH MISSILE | 38,137 | 38,137 |
| MODIFICATION OF MISSILES | | | |
| 020 | ESSM | 128,059 | 110,059 |
| | Production support excess to need | | [-18,000] |
| 021 | HARPOON MODS | 25,447 | 25,447 |
| 022 | HARM MODS | 183,740 | 183,740 |
| 023 | STANDARD MISSILES MODS | 22,500 | 2,500 |
| | Early to need | | [-20,000] |
| SUPPORT EQUIPMENT & FACILITIES | | | |
| 024 | WEAPONS INDUSTRIAL FACILITIES | 1,958 | 1,958 |
| 025 | FLEET SATELLITE COMM FOLLOW-ON | 67,380 | 67,380 |
| ORDNANCE SUPPORT EQUIPMENT | | | |
| 027 | ORDNANCE SUPPORT EQUIPMENT | 109,427 | 85,717 |
| | Insufficient budget justification | | [-23,710] |
| TORPEDOES AND RELATED EQUIP | | | |
| 028 | SSTD | 5,561 | 5,561 |
| 029 | MK-48 TORPEDO | 114,000 | 130,000 |
| | Program increase | | [16,000] |
| 030 | ASW TARGETS | 15,095 | 15,095 |
| MOD OF TORPEDOES AND RELATED EQUIP | | | |
| 031 | MK-54 TORPEDO MODS | 119,453 | 112,013 |
| | HAAWC cost growth | | [-7,440] |
| 032 | MK-48 TORPEDO ADCAP MODS | 39,508 | 39,508 |
| 033 | QUICKSTRIKE MINE | 5,183 | 5,183 |
| SUPPORT EQUIPMENT | | | |
| 034 | TORPEDO SUPPORT EQUIPMENT | 79,028 | 79,028 |
| 035 | ASW RANGE SUPPORT | 3,890 | 3,890 |
| DESTINATION TRANSPORTATION | | | |
| 036 | FIRST DESTINATION TRANSPORTATION | 3,803 | 3,803 |
| GUNS AND GUN MOUNTS | | | |
| 037 | SMALL ARMS AND WEAPONS | 14,797 | 13,607 |
| | Program reduction | | [-1,190] |
| MODIFICATION OF GUNS AND GUN MOUNTS | | | |
| 038 | CIWS MODS | 44,126 | 44,126 |
| 039 | COAST GUARD WEAPONS | 44,980 | 44,980 |
| 040 | GUN MOUNT MODS | 66,376 | 66,376 |
| 041 | LCS MODULE WEAPONS | 14,585 | 14,585 |
| 043 | AIRBORNE MINE NEUTRALIZATION SYSTEMS | 7,160 | 7,160 |
| SPARES AND REPAIR PARTS | | | |
| UNDISTRIBUTED | | | |
| 045 | SPARES AND REPAIR PARTS | 126,138 | 124,390 |
| | Program reduction | | [-1,748] |
| | TOTAL WEAPONS PROCUREMENT, NAVY | 4,235,244 | 4,107,905 |
| PROCUREMENT OF AMMO, NAVY & MC | | | |
| NAVY AMMUNITION | | | |
| 001 | GENERAL PURPOSE BOMBS | 36,028 | 34,997 |
| | Fuze contract delay and unit cost growth | | [-1,031] |
| 002 | JDAM | 70,413 | 70,413 |
| 003 | AIRBORNE ROCKETS, ALL TYPES | 31,756 | 27,707 |
| | Unit cost growth | | [-4,049] |
| 004 | MACHINE GUN AMMUNITION | 4,793 | 4,793 |
| 005 | PRACTICE BOMBS | 34,708 | 27,208 |
| | Q1300 LGTR unit cost growth | | [-7,500] |
| 006 | CARTRIDGES & CART ACTUATED DEVICES | 45,738 | 38,738 |
| | Contract and schedule delays | | [-7,000] |
| 007 | AIR EXPENDABLE COUNTERMEASURES | 77,301 | 67,854 |

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| SEC. 4101. PROCUREMENT (In Thousands of Dollars) | | | |
|---|---|------------------------|------------------------------|
| Line | Item | FY 2020 Request | Conference Authorized |
| | Unit cost growth | | [-9,447] |
| 008 | JATOS | 7,262 | 7,262 |
| 009 | 5 INCH/54 GUN AMMUNITION | 22,594 | 21,166 |
| | MK187 mod 0 projectile unit cost growth | | [-1,428] |
| 010 | INTERMEDIATE CALIBER GUN AMMUNITION | 37,193 | 37,193 |
| 011 | OTHER SHIP GUN AMMUNITION | 39,491 | 39,291 |
| | CART 20MM contract award delay | | [-200] |
| 012 | SMALL ARMS & LANDING PARTY AMMO | 47,896 | 47,896 |
| 013 | PYROTECHNIC AND DEMOLITION | 10,621 | 10,621 |
| 015 | AMMUNITION LESS THAN \$5 MILLION | 2,386 | 2,386 |
| | MARINE CORPS AMMUNITION | | |
| 016 | MORTARS | 55,543 | 50,543 |
| | Prior year underexecution | | [-5,000] |
| 017 | DIRECT SUPPORT MUNITIONS | 131,765 | 131,765 |
| 018 | INFANTRY WEAPONS AMMUNITION | 78,056 | 52,088 |
| | Underexecution and schedule delays | | [-25,968] |
| 019 | COMBAT SUPPORT MUNITIONS | 40,048 | 34,048 |
| | Unit cost growth | | [-6,000] |
| 020 | AMMO MODERNIZATION | 14,325 | 14,325 |
| 021 | ARTILLERY MUNITIONS | 188,876 | 167,476 |
| | DA 54 contract delay | | [-21,400] |
| 022 | ITEMS LESS THAN \$5 MILLION | 4,521 | 4,521 |
| | TOTAL PROCUREMENT OF AMMO, NAVY & MC | 981,314 | 892,291 |
| | SHIPBUILDING AND CONVERSION, NAVY | | |
| | FLEET BALLISTIC MISSILE SHIPS | | |
| 001 | OHIO REPLACEMENT SUBMARINE | 1,698,907 | 1,821,907 |
| | Submarine supplier development | | [123,000] |
| | OTHER WARSHIPS | | |
| 002 | CARRIER REPLACEMENT PROGRAM | 2,347,000 | 1,042,000 |
| | Basic construction/conversion excess cost growth | | [-20,000] |
| | Restoring acquisition accountability: Transfer CVN-81 only to line 2X | | [-1,285,000] |
| 002A | CARRIER REPLACEMENT PROGRAM | | 1,285,000 |
| | For CVN-81 only | | [1,285,000] |
| 003 | VIRGINIA CLASS SUBMARINE | 7,155,946 | 5,445,946 |
| | Block V program increase | | [1,490,000] |
| | SSN-812 program decrease | | [-3,200,000] |
| 004 | VIRGINIA CLASS SUBMARINE ADVANCE PROCUREMENT | 2,769,552 | 2,969,552 |
| | Advance Procurement in support of a 10th multi-year procurement contract ship only. | | [200,000] |
| 005 | CVN REFUELING OVERHAULS | 647,926 | 631,926 |
| | CVN-74 RCOH unjustified cost growth | | [-16,000] |
| 006 | CVN REFUELING OVERHAULS ADVANCE PROCUREMENT | | 16,900 |
| | Restore CVN-75 RCOH | | [16,900] |
| 007 | DDG 1000 | 155,944 | 155,944 |
| 008 | DDG-51 | 5,099,295 | 5,033,295 |
| | Basic Construction excess growth | | [-66,000] |
| 009 | DDG-51 ADVANCE PROCUREMENT | 224,028 | 484,028 |
| | Accelerate LLTM for FY21 Flight III destroyers | | [260,000] |
| 011 | FFG-FRIGATE | 1,281,177 | 1,281,177 |
| | AMPHIBIOUS SHIPS | | |
| 012 | LPD FLIGHT II | | 525,000 |
| | LPD-31 program increase | | [277,900] |
| | Transfer from line 13 | | [247,100] |
| 013 | LPD FLIGHT II ADVANCE PROCUREMENT | 247,100 | 0 |
| | Transfer to line 12 | | [-247,100] |
| 015 | LHA REPLACEMENT | | 650,000 |
| | LHA-9 program increase | | [650,000] |
| | AUXILIARIES, CRAFT AND PRIOR YR PROGRAM COST | | |
| 018 | TAO FLEET OILER | 981,215 | 981,215 |
| 019 | TAO FLEET OILER ADVANCE PROCUREMENT | 73,000 | 73,000 |
| 020 | TOWING, SALVAGE, AND RESCUE SHIP (ATS) | 150,282 | 150,282 |
| 022 | LCU 1700 | 85,670 | 85,670 |
| 023 | OUTFITTING | 754,679 | 705,721 |
| | Excess cost growth | | [-40,000] |
| | Virginia class outfitting excess growth | | [-8,958] |
| 024 | SHIP TO SHORE CONNECTOR | | 65,000 |
| | Program increase | | [65,000] |
| 025 | SERVICE CRAFT | 56,289 | 81,789 |
| | Accelerate YP-703 Flight II | | [25,500] |
| 028 | COMPLETION OF PY SHIPBUILDING PROGRAMS | 55,700 | 104,700 |
| | UPL EPF-14 conversion | | [49,000] |
| | TOTAL SHIPBUILDING AND CONVERSION, NAVY | 23,783,710 | 23,590,052 |
| | OTHER PROCUREMENT, NAVY | | |
| | SHIP PROPULSION EQUIPMENT | | |
| 001 | SURFACE POWER EQUIPMENT | 14,490 | 14,490 |
| | GENERATORS | | |

| SEC. 4101. PROCUREMENT (In Thousands of Dollars) | | | |
|---|---|------------------------|------------------------------|
| Line | Item | FY 2020 Request | Conference Authorized |
| 002 | SURFACE COMBATANT HM&E | 31,583 | 31,561 |
| | Twisted rudder installation early to need | | [-22] |
| | NAVIGATION EQUIPMENT | | |
| 003 | OTHER NAVIGATION EQUIPMENT | 77,404 | 77,404 |
| | OTHER SHIPBOARD EQUIPMENT | | |
| 004 | SUB PERISCOPE, IMAGING AND SUPT EQUIP PROG | 160,803 | 160,803 |
| 005 | DDG MOD | 566,140 | 553,490 |
| | Aegis modernization testing excess to need | | [-5,000] |
| | Combat system ship qualification trials excess to need | | [-7,650] |
| 006 | FIREFIGHTING EQUIPMENT | 18,223 | 18,223 |
| 007 | COMMAND AND CONTROL SWITCHBOARD | 2,086 | 2,086 |
| 008 | LHA/LHD MIDLIFE | 95,651 | 79,563 |
| | Excess cost growth | | [-16,088] |
| 009 | POLLUTION CONTROL EQUIPMENT | 23,910 | 23,910 |
| 010 | SUBMARINE SUPPORT EQUIPMENT | 44,895 | 44,895 |
| 011 | VIRGINIA CLASS SUPPORT EQUIPMENT | 28,465 | 28,465 |
| 012 | LCS CLASS SUPPORT EQUIPMENT | 19,426 | 19,426 |
| 013 | SUBMARINE BATTERIES | 26,290 | 25,297 |
| | Virginia class unit cost growth | | [-993] |
| 014 | LPD CLASS SUPPORT EQUIPMENT | 46,945 | 46,945 |
| 015 | DDG 1000 CLASS SUPPORT EQUIPMENT | 9,930 | 9,930 |
| 016 | STRATEGIC PLATFORM SUPPORT EQUIP | 14,331 | 14,331 |
| 017 | DSSP EQUIPMENT | 2,909 | 2,909 |
| 018 | CG MODERNIZATION | 193,990 | 193,990 |
| 019 | LCAC | 3,392 | 3,392 |
| 020 | UNDERWATER EOD PROGRAMS | 71,240 | 71,240 |
| 021 | ITEMS LESS THAN \$5 MILLION | 102,543 | 102,543 |
| 022 | CHEMICAL WARFARE DETECTORS | 2,961 | 2,961 |
| 023 | SUBMARINE LIFE SUPPORT SYSTEM | 6,635 | 6,635 |
| | REACTOR PLANT EQUIPMENT | | |
| 024 | REACTOR POWER UNITS | 5,340 | 5,340 |
| 025 | REACTOR COMPONENTS | 465,726 | 462,749 |
| | Program decrease—unit cost growth | | [-2,977] |
| | OCEAN ENGINEERING | | |
| 026 | DIVING AND SALVAGE EQUIPMENT | 11,854 | 11,854 |
| | SMALL BOATS | | |
| 027 | STANDARD BOATS | 79,102 | 79,102 |
| | PRODUCTION FACILITIES EQUIPMENT | | |
| 028 | OPERATING FORCES IPE | 202,238 | 202,238 |
| | OTHER SHIP SUPPORT | | |
| 029 | LCS COMMON MISSION MODULES EQUIPMENT | 51,553 | 51,553 |
| 030 | LCS MCM MISSION MODULES | 197,129 | 134,157 |
| | Excess cost growth | | [-62,972] |
| 031 | LCS ASW MISSION MODULES | 27,754 | 27,754 |
| 032 | LCS SUW MISSION MODULES | 26,566 | 26,566 |
| 033 | LCS IN-SERVICE MODERNIZATION | 84,972 | 82,000 |
| | Habitability mod (Freedom variant) unit cost growth | | [-2,972] |
| 034 | SMALL & MEDIUM UVV | 40,547 | 10,647 |
| | Knifefish early to need | | [-29,900] |
| | LOGISTIC SUPPORT | | |
| 035 | LSD MIDLIFE & MODERNIZATION | 40,269 | 40,269 |
| | SHIP SONARS | | |
| 036 | SPQ-9B RADAR | 26,195 | 26,195 |
| 037 | AN/SQQ-89 SURF ASW COMBAT SYSTEM | 125,237 | 125,237 |
| 038 | SSN ACOUSTIC EQUIPMENT | 366,968 | 356,953 |
| | Low cost conformal array contract delay | | [-10,015] |
| 039 | UNDERSEA WARFARE SUPPORT EQUIPMENT | 8,967 | 8,967 |
| | ASW ELECTRONIC EQUIPMENT | | |
| 040 | SUBMARINE ACOUSTIC WARFARE SYSTEM | 23,545 | 23,545 |
| 041 | SSTD | 12,439 | 12,439 |
| 042 | FIXED SURVEILLANCE SYSTEM | 128,441 | 128,441 |
| 043 | SURTASS | 21,923 | 21,923 |
| | ELECTRONIC WARFARE EQUIPMENT | | |
| 044 | AN/SLQ-32 | 420,154 | 350,686 |
| | Block 3 kit early to need | | [-65,758] |
| | FMP block 1B3 for SLQ-32(V) 6 previously funded | | [-2,300] |
| | SEWIP block 1B2 for USCG ship forward fit contract delays | | [-1,410] |
| | RECONNAISSANCE EQUIPMENT | | |
| 045 | SHIPBOARD IW EXPLOIT | 194,758 | 193,440 |
| | SSEE modifications kits unit cost growth | | [-1,318] |
| 046 | AUTOMATED IDENTIFICATION SYSTEM (AIS) | 5,368 | 5,368 |
| | OTHER SHIP ELECTRONIC EQUIPMENT | | |
| 047 | COOPERATIVE ENGAGEMENT CAPABILITY | 35,128 | 35,128 |
| 048 | NAVAL TACTICAL COMMAND SUPPORT SYSTEM (NTCSS) | 15,154 | 15,154 |
| 049 | ATDLS | 52,753 | 52,753 |
| 050 | NAVY COMMAND AND CONTROL SYSTEM (NCCS) | 3,390 | 3,390 |
| 051 | MINESWEEPING SYSTEM REPLACEMENT | 19,448 | 19,448 |
| 052 | SHALLOW WATER MCM | 8,730 | 8,730 |

| SEC. 4101. PROCUREMENT (In Thousands of Dollars) | | | |
|---|---|-----------------|-----------------------|
| Line | Item | FY 2020 Request | Conference Authorized |
| 053 | NAVSTAR GPS RECEIVERS (SPACE) | 32,674 | 32,674 |
| 054 | AMERICAN FORCES RADIO AND TV SERVICE | 2,617 | 2,617 |
| 055 | STRATEGIC PLATFORM SUPPORT EQUIP | 7,973 | 7,973 |
| | AVIATION ELECTRONIC EQUIPMENT | | |
| 056 | ASHORE ATC EQUIPMENT | 72,406 | 72,406 |
| 057 | AFLOAT ATC EQUIPMENT | 67,410 | 65,779 |
| | ACLS mod kits installations cost growth | | [-1,631] |
| 058 | ID SYSTEMS | 26,059 | 26,059 |
| 059 | JOINT PRECISION APPROACH AND LANDING SYSTEM (..... | 92,695 | 78,195 |
| | Early to need | | [-14,500] |
| 060 | NAVAL MISSION PLANNING SYSTEMS | 15,296 | 15,296 |
| | OTHER SHORE ELECTRONIC EQUIPMENT | | |
| 061 | TACTICAL/MOBILE C4I SYSTEMS | 36,226 | 36,226 |
| 062 | DCGS-N | 21,788 | 21,427 |
| | DCGS-N increment 2 kit unit cost discrepancy | | [-361] |
| 063 | CANES | 426,654 | 395,154 |
| | Program decrease | | [-31,500] |
| 064 | RADLAC | 6,450 | 6,450 |
| 065 | CANES-INTELL | 52,713 | 52,713 |
| 066 | GPETE | 13,028 | 13,028 |
| 067 | MASF | 5,193 | 5,193 |
| 068 | INTEG COMBAT SYSTEM TEST FACILITY | 6,028 | 6,028 |
| 069 | EMI CONTROL INSTRUMENTATION | 4,209 | 4,209 |
| 070 | ITEMS LESS THAN \$5 MILLION | 168,436 | 144,636 |
| | NGSSR early to need | | [-23,800] |
| | SHIPBOARD COMMUNICATIONS | | |
| 071 | SHIPBOARD TACTICAL COMMUNICATIONS | 55,853 | 50,053 |
| | DMR IW and MUOS system procurement afloat previously funded | | [-5,800] |
| 072 | SHIP COMMUNICATIONS AUTOMATION | 137,861 | 122,380 |
| | STACC cost growth | | [-15,481] |
| 073 | COMMUNICATIONS ITEMS UNDER \$5M | 35,093 | 31,493 |
| | Improving funds management: prior year carryover | | [-3,600] |
| | SUBMARINE COMMUNICATIONS | | |
| 074 | SUBMARINE BROADCAST SUPPORT | 50,833 | 50,833 |
| 075 | SUBMARINE COMMUNICATION EQUIPMENT | 69,643 | 60,794 |
| | Buoy shape improvement unjustified request | | [-8,849] |
| | SATELLITE COMMUNICATIONS | | |
| 076 | SATELLITE COMMUNICATIONS SYSTEMS | 45,841 | 45,841 |
| 077 | NAVY MULTIBAND TERMINAL (NMT) | 88,021 | 82,148 |
| | Afloat ship kit cost growth | | [-4,055] |
| | Assured C2 modems installation cost excess growth | | [-1,818] |
| | SHORE COMMUNICATIONS | | |
| 078 | JOINT COMMUNICATIONS SUPPORT ELEMENT (JCSE) | 4,293 | 4,293 |
| | CRYPTOGRAPHIC EQUIPMENT | | |
| 079 | INFO SYSTEMS SECURITY PROGRAM (ISSP) | 166,540 | 166,540 |
| 080 | MIO INTEL EXPLOITATION TEAM | 968 | 968 |
| | CRYPTOLOGIC EQUIPMENT | | |
| 081 | CRYPTOLOGIC COMMUNICATIONS EQUIP | 13,090 | 13,090 |
| | OTHER ELECTRONIC SUPPORT | | |
| 083 | COAST GUARD EQUIPMENT | 61,370 | 61,370 |
| | SONOBUOYS | | |
| 085 | SONOBUOYS—ALL TYPES | 260,644 | 310,644 |
| | UPL sonobuoy increase | | [50,000] |
| | AIRCRAFT SUPPORT EQUIPMENT | | |
| 086 | MINOTAUR | 5,000 | 5,000 |
| 087 | WEAPONS RANGE SUPPORT EQUIPMENT | 101,843 | 101,843 |
| 088 | AIRCRAFT SUPPORT EQUIPMENT | 145,601 | 135,211 |
| | Excess cost growth | | [-10,390] |
| 089 | ADVANCED ARRESTING GEAR (AAG) | 4,725 | 4,725 |
| 090 | METEOROLOGICAL EQUIPMENT | 14,687 | 12,407 |
| | ASOS upgrades unit cost growth | | [-2,280] |
| 092 | LEGACY AIRBORNE MCM | 19,250 | 18,918 |
| | Modifications unjustified growth | | [-332] |
| 093 | LAMPS EQUIPMENT | 792 | 792 |
| 094 | AVIATION SUPPORT EQUIPMENT | 55,415 | 52,415 |
| | Contract delay | | [-3,000] |
| 095 | UMCS-UNMAN CARRIER AVIATION(UCA)MISSION CNTRL | 32,668 | 32,668 |
| | SHIP GUN SYSTEM EQUIPMENT | | |
| 096 | SHIP GUN SYSTEMS EQUIPMENT | 5,451 | 5,451 |
| | SHIP MISSILE SYSTEMS EQUIPMENT | | |
| 097 | HARPOON SUPPORT EQUIPMENT | 1,100 | 1,100 |
| 098 | SHIP MISSILE SUPPORT EQUIPMENT | 228,104 | 268,304 |
| | Program increase | | [40,200] |
| 099 | TOMAHAWK SUPPORT EQUIPMENT | 78,593 | 78,593 |
| | FBM SUPPORT EQUIPMENT | | |
| 100 | STRATEGIC MISSILE SYSTEMS EQUIP | 280,510 | 280,510 |
| | ASW SUPPORT EQUIPMENT | | |
| 101 | SSN COMBAT CONTROL SYSTEMS | 148,547 | 143,678 |

| SEC. 4101. PROCUREMENT (In Thousands of Dollars) | | | |
|--|---|------------------|-----------------------|
| Line | Item | FY 2020 Request | Conference Authorized |
| | Excess cost growth | | [-4,869] |
| 102 | ASW SUPPORT EQUIPMENT | 21,130 | 21,130 |
| | OTHER ORDNANCE SUPPORT EQUIPMENT | | |
| 103 | EXPLOSIVE ORDNANCE DISPOSAL EQUIP | 15,244 | 15,244 |
| 104 | ITEMS LESS THAN \$5 MILLION | 5,071 | 5,071 |
| | OTHER EXPENDABLE ORDNANCE | | |
| 105 | ANTI-SHIP MISSILE DECOY SYSTEM | 41,962 | 41,962 |
| 106 | SUBMARINE TRAINING DEVICE MODS | 75,057 | 75,057 |
| 107 | SURFACE TRAINING EQUIPMENT | 233,175 | 222,647 |
| | BFFT ship sets excess to need | | [-1,515] |
| | LCS trainer equipment early to need | | [-9,013] |
| | CIVIL ENGINEERING SUPPORT EQUIPMENT | | |
| 108 | PASSENGER CARRYING VEHICLES | 4,562 | 4,562 |
| 109 | GENERAL PURPOSE TRUCKS | 10,974 | 10,974 |
| 110 | CONSTRUCTION & MAINTENANCE EQUIP | 43,191 | 43,191 |
| 111 | FIRE FIGHTING EQUIPMENT | 21,142 | 11,642 |
| | Contract delays | | [-9,500] |
| 112 | TACTICAL VEHICLES | 33,432 | 33,432 |
| 114 | POLLUTION CONTROL EQUIPMENT | 2,633 | 2,633 |
| 115 | ITEMS UNDER \$5 MILLION | 53,467 | 53,467 |
| 116 | PHYSICAL SECURITY VEHICLES | 1,173 | 1,173 |
| | SUPPLY SUPPORT EQUIPMENT | | |
| 117 | SUPPLY EQUIPMENT | 16,730 | 16,730 |
| 118 | FIRST DESTINATION TRANSPORTATION | 5,389 | 5,389 |
| 119 | SPECIAL PURPOSE SUPPLY SYSTEMS | 634,674 | 617,522 |
| | Insufficient budget justification | | [-37,152] |
| | TRAINING DEVICES | | |
| 120 | TRAINING SUPPORT EQUIPMENT | 3,633 | 3,633 |
| 121 | TRAINING AND EDUCATION EQUIPMENT | 97,636 | 94,536 |
| | Excess growth | | [-3,100] |
| | COMMAND SUPPORT EQUIPMENT | | |
| 122 | COMMAND SUPPORT EQUIPMENT | 66,102 | 50,434 |
| | Prior year underexecution | | [-15,668] |
| 123 | MEDICAL SUPPORT EQUIPMENT | 3,633 | 3,633 |
| 125 | NAVAL MIP SUPPORT EQUIPMENT | 6,097 | 6,097 |
| 126 | OPERATING FORCES SUPPORT EQUIPMENT | 16,905 | 16,905 |
| 127 | CHSR EQUIPMENT | 30,146 | 30,146 |
| 128 | ENVIRONMENTAL SUPPORT EQUIPMENT | 21,986 | 21,986 |
| 129 | PHYSICAL SECURITY EQUIPMENT | 160,046 | 160,046 |
| 130 | ENTERPRISE INFORMATION TECHNOLOGY | 56,899 | 56,899 |
| | OTHER | | |
| 133 | NEXT GENERATION ENTERPRISE SERVICE | 122,832 | 122,832 |
| | CLASSIFIED PROGRAMS | | |
| 133A | CLASSIFIED PROGRAMS | 16,346 | 16,346 |
| | SPARES AND REPAIR PARTS | | |
| 134 | SPARES AND REPAIR PARTS | 375,608 | 352,140 |
| | JPALS spares early to need | | [-8,137] |
| | LCS spares early to need | | [-15,331] |
| | TOTAL OTHER PROCUREMENT, NAVY | 9,652,956 | 9,302,099 |
| | PROCUREMENT, MARINE CORPS | | |
| | TRACKED COMBAT VEHICLES | | |
| 001 | AAV7A1 PIP | 39,495 | 39,495 |
| 002 | AMPHIBIOUS COMBAT VEHICLE 1.1 | 317,935 | 313,131 |
| | Excess engineering change orders | | [-4,804] |
| 003 | LAV PIP | 60,734 | 60,734 |
| | ARTILLERY AND OTHER WEAPONS | | |
| 004 | 155MM LIGHTWEIGHT TOWED HOWITZER | 25,065 | 25,065 |
| 005 | ARTILLERY WEAPONS SYSTEM | 100,002 | 90,002 |
| | Equipment previously funded and cost growth | | [-10,000] |
| 006 | WEAPONS AND COMBAT VEHICLES UNDER \$5 MILLION | 31,945 | 31,945 |
| | OTHER SUPPORT | | |
| 007 | MODIFICATION KITS | 22,760 | 22,760 |
| | GUIDED MISSILES | | |
| 008 | GROUND BASED AIR DEFENSE | 175,998 | 175,998 |
| 009 | ANTI-ARMOR MISSILE-JAVELIN | 20,207 | 20,207 |
| 010 | FAMILY ANTI-ARMOR WEAPON SYSTEMS (FOAAWS) | 21,913 | 21,913 |
| 011 | ANTI-ARMOR MISSILE-TOW | 60,501 | 60,501 |
| 012 | GUIDED MLRS ROCKET (GMLRS) | 29,062 | 28,062 |
| | Unit cost discrepancy | | [-1,000] |
| | COMMAND AND CONTROL SYSTEMS | | |
| 013 | COMMON AVIATION COMMAND AND CONTROL SYSTEM (C | 37,203 | 32,203 |
| | AN/MRQ-13 communications subsystems upgrades unjustified growth | | [-5,000] |
| | REPAIR AND TEST EQUIPMENT | | |
| 014 | REPAIR AND TEST EQUIPMENT | 55,156 | 55,156 |
| | OTHER SUPPORT (TEL) | | |
| 015 | MODIFICATION KITS | 4,945 | 4,945 |
| | COMMAND AND CONTROL SYSTEM (NON-TEL) | | |

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| SEC. 4101. PROCUREMENT (In Thousands of Dollars) | | | |
|---|---|------------------------|------------------------------|
| Line | Item | FY 2020 Request | Conference Authorized |
| 016 | ITEMS UNDER \$5 MILLION (COMM & ELEC) | 112,124 | 82,424 |
| | Unit cost growth | | [-29,700] |
| 017 | AIR OPERATIONS C2 SYSTEMS | 17,408 | 17,408 |
| | RADAR + EQUIPMENT (NON-TEL) | | |
| 018 | RADAR SYSTEMS | 329 | 329 |
| 019 | GROUND/AIR TASK ORIENTED RADAR (G/ATOR) | 273,022 | 273,022 |
| | INTELL/COMM EQUIPMENT (NON-TEL) | | |
| 021 | GCSS-MC | 4,484 | 4,484 |
| 022 | FIRE SUPPORT SYSTEM | 35,488 | 35,488 |
| 023 | INTELLIGENCE SUPPORT EQUIPMENT | 56,896 | 54,396 |
| | Unjustified growth | | [-2,500] |
| 025 | UNMANNED AIR SYSTEMS (INTEL) | 34,711 | 34,711 |
| 026 | DCGS-MC | 32,562 | 32,562 |
| | OTHER SUPPORT (NON-TEL) | | |
| 030 | NEXT GENERATION ENTERPRISE NETWORK (NGEN) | 114,901 | 114,901 |
| 031 | COMMON COMPUTER RESOURCES | 51,094 | 51,094 |
| 032 | COMMAND POST SYSTEMS | 108,897 | 108,897 |
| 033 | RADIO SYSTEMS | 227,320 | 212,320 |
| | Cost growth and early to need | | [-15,000] |
| 034 | COMM SWITCHING & CONTROL SYSTEMS | 31,685 | 23,781 |
| | ECP small form factor previously funded | | [-7,904] |
| 035 | COMM & ELEC INFRASTRUCTURE SUPPORT | 21,140 | 21,140 |
| 036 | CYBERSPACE ACTIVITIES | 27,632 | 27,632 |
| | CLASSIFIED PROGRAMS | | |
| 036A | CLASSIFIED PROGRAMS | 5,535 | 5,535 |
| | ADMINISTRATIVE VEHICLES | | |
| 037 | COMMERCIAL CARGO VEHICLES | 28,913 | 28,913 |
| | TACTICAL VEHICLES | | |
| 038 | MOTOR TRANSPORT MODIFICATIONS | 19,234 | 19,234 |
| 039 | JOINT LIGHT TACTICAL VEHICLE | 558,107 | 556,107 |
| | ECP previously funded | | [-2,000] |
| 040 | FAMILY OF TACTICAL TRAILERS | 2,693 | 2,693 |
| | ENGINEER AND OTHER EQUIPMENT | | |
| 041 | ENVIRONMENTAL CONTROL EQUIP ASSORT | 495 | 495 |
| 042 | TACTICAL FUEL SYSTEMS | 52 | 52 |
| 043 | POWER EQUIPMENT ASSORTED | 22,441 | 22,441 |
| 044 | AMPHIBIOUS SUPPORT EQUIPMENT | 7,101 | 7,101 |
| 045 | EOD SYSTEMS | 44,700 | 44,700 |
| | MATERIALS HANDLING EQUIPMENT | | |
| 046 | PHYSICAL SECURITY EQUIPMENT | 15,404 | 15,404 |
| | GENERAL PROPERTY | | |
| 047 | FIELD MEDICAL EQUIPMENT | 2,898 | 2,898 |
| 048 | TRAINING DEVICES | 149,567 | 126,567 |
| | ODS unjustified request | | [-23,000] |
| 049 | FAMILY OF CONSTRUCTION EQUIPMENT | 35,622 | 35,622 |
| 050 | ULTRA-LIGHT TACTICAL VEHICLE (ULTV) | 647 | 647 |
| | OTHER SUPPORT | | |
| 051 | ITEMS LESS THAN \$5 MILLION | 10,956 | 10,956 |
| | SPARES AND REPAIR PARTS | | |
| 052 | SPARES AND REPAIR PARTS | 33,470 | 33,470 |
| | TOTAL PROCUREMENT, MARINE CORPS | 3,090,449 | 2,989,541 |
| | AIRCRAFT PROCUREMENT, AIR FORCE | | |
| | TACTICAL FORCES | | |
| 001 | F-35 | 4,274,359 | 5,566,409 |
| | Program increase | | [1,042,800] |
| | Program increase: Turkish F-35A Reallocation Initiative | | [440,000] |
| | Target cost savings | | [-190,750] |
| 002 | F-35 | 655,500 | 811,500 |
| | UPL Increase | | [156,000] |
| 003 | F-15E | 1,050,000 | 985,500 |
| | Unjustified non-recurring engineering | | [-64,500] |
| | TACTICAL AIRLIFT | | |
| 005 | KC-46A MDAP | 2,234,529 | 2,198,529 |
| | Excess to need | | [-36,000] |
| | OTHER AIRLIFT | | |
| 006 | C-130J | 12,156 | 404,156 |
| | Program increase | | [392,000] |
| 008 | MC-130J | 871,207 | 857,607 |
| | Excess to need | | [-13,600] |
| 009 | MC-130J | 40,000 | 40,000 |
| | HELICOPTERS | | |
| 010 | COMBAT RESCUE HELICOPTER | 884,235 | 876,035 |
| | Excess to need | | [-8,200] |
| | MISSION SUPPORT AIRCRAFT | | |
| 011 | C-37A | 161,000 | 147,500 |
| | Unit cost growth | | [-13,500] |
| 012 | CIVIL AIR PATROL A/C | 2,767 | 2,767 |

| SEC. 4101. PROCUREMENT (In Thousands of Dollars) | | | |
|---|--|------------------------|------------------------------|
| Line | Item | FY 2020 Request | Conference Authorized |
| OTHER AIRCRAFT | | | |
| 014 | TARGET DRONES | 130,837 | 130,837 |
| 015 | COMPASS CALL | 114,095 | 114,095 |
| 017 | MQ-9 | 189,205 | 175,205 |
| | Unit cost growth | | [-14,000] |
| STRATEGIC AIRCRAFT | | | |
| 019 | B-2A | 9,582 | 9,582 |
| 020 | B-1B | 22,111 | 13,111 |
| | ADS-B ahead of need | | [-9,000] |
| 021 | B-52 | 69,648 | 69,648 |
| 022 | LARGE AIRCRAFT INFRARED COUNTERMEASURES | 43,758 | 43,758 |
| TACTICAL AIRCRAFT | | | |
| 023 | A-10 | 132,069 | 132,069 |
| 024 | E-11 BACN/HAG | 70,027 | 70,027 |
| 025 | F-15 | 481,073 | 467,767 |
| | ADCP unnecessary due to F-15X | | [-13,306] |
| 026 | F-16 | 234,782 | 309,782 |
| | Additional radars | | [75,000] |
| 028 | F-22A | 323,597 | 323,597 |
| 030 | F-35 MODIFICATIONS | 343,590 | 343,590 |
| 031 | F-15 EPAW | 149,047 | 125,417 |
| | Not required because of F-15X | | [-23,630] |
| 032 | INCREMENT 3.2B | 20,213 | 20,213 |
| 033 | KC-46A MDAP | 10,213 | 5,213 |
| | Funding ahead of need | | [-5,000] |
| AIRLIFT AIRCRAFT | | | |
| 034 | C-5 | 73,550 | 73,550 |
| 036 | C-17A | 60,244 | 60,244 |
| 037 | C-21 | 216 | 216 |
| 038 | C-32A | 11,511 | 11,511 |
| 039 | C-37A | 435 | 435 |
| TRAINER AIRCRAFT | | | |
| 040 | GLIDER MODS | 138 | 138 |
| 041 | T-6 | 11,826 | 11,826 |
| 042 | T-1 | 26,787 | 26,787 |
| 043 | T-38 | 37,341 | 37,341 |
| OTHER AIRCRAFT | | | |
| 044 | U-2 MODS | 86,896 | 106,896 |
| | Increase for U-2 enhancements | | [20,000] |
| 045 | KC-10A (ATCA) | 2,108 | 2,108 |
| 046 | C-12 | 3,021 | 3,021 |
| 047 | VC-25A MOD | 48,624 | 48,624 |
| 048 | C-40 | 256 | 256 |
| 049 | C-130 | 52,066 | 186,066 |
| | 3.5 Engine Enhancement Package | | [79,000] |
| | NP-2000 prop blade upgrades | | [55,000] |
| 050 | C-130J MODS | 141,686 | 141,686 |
| 051 | C-135 | 124,491 | 122,616 |
| | Low cost mods slow execution | | [-1,000] |
| | RPI installs | | [-875] |
| 053 | COMPASS CALL | 110,754 | 110,754 |
| 054 | COMBAT FLIGHT INSPECTION—CFIN | 508 | 508 |
| 055 | RC-135 | 227,673 | 227,673 |
| 056 | E-3 | 216,299 | 128,992 |
| | NATO AWACS—Air Force requested transfer to line 88 | | [-87,307] |
| 057 | E-4 | 58,477 | 58,477 |
| 058 | E-8 | 28,778 | 48,778 |
| | Increase for re-engining | | [20,000] |
| 059 | AIRBORNE WARNING AND CNTRL SYS (AWACS) 40/45 | 36,000 | 36,000 |
| 060 | FAMILY OF BEYOND LINE-OF-SIGHT TERMINALS | 7,910 | 7,910 |
| 061 | H-1 | 3,817 | 3,817 |
| 062 | H-60 | 20,879 | 20,879 |
| 063 | RQ-4 MODS | 1,704 | 1,704 |
| 064 | HC/MC-130 MODIFICATIONS | 51,482 | 51,482 |
| 065 | OTHER AIRCRAFT | 50,098 | 50,098 |
| 066 | MQ-9 MODS | 383,594 | 251,594 |
| | Production rate adjustment of DAS-4 sensor | | [-132,000] |
| 068 | CV-22 MODS | 65,348 | 65,348 |
| AIRCRAFT SPARES AND REPAIR PARTS | | | |
| 069 | INITIAL SPARES/REPAIR PARTS | 708,230 | 799,230 |
| | F-35 spares | | [96,000] |
| | Program decrease | | [-30,000] |
| | RQ-4 | | [25,000] |
| COMMON SUPPORT EQUIPMENT | | | |
| 072 | AIRCRAFT REPLACEMENT SUPPORT EQUIP | 84,938 | 84,938 |
| POST PRODUCTION SUPPORT | | | |
| 073 | B-2A | 1,403 | 1,403 |
| 074 | B-2B | 42,234 | 42,234 |

| SEC. 4101. PROCUREMENT (In Thousands of Dollars) | | | |
|---|--|------------------------|------------------------------|
| Line | Item | FY 2020 Request | Conference Authorized |
| 075 | B-52 | 4,641 | 4,641 |
| 076 | C-17A | 124,805 | 124,805 |
| 079 | F-15 | 2,589 | 2,589 |
| 081 | F-16 | 15,348 | 15,348 |
| 084 | RQ-4 POST PRODUCTION CHARGES | 47,246 | 47,246 |
| INDUSTRIAL PREPAREDNESS | | | |
| 086 | INDUSTRIAL RESPONSIVENESS | 17,705 | 17,705 |
| WAR CONSUMABLES | | | |
| 087 | WAR CONSUMABLES | 32,102 | 32,102 |
| OTHER PRODUCTION CHARGES | | | |
| 088 | OTHER PRODUCTION CHARGES | 1,194,728 | 1,222,035 |
| | F-22 NGEN lab excess | | [-60,000] |
| | NATO AWACS—Air Force requested transfer from line 56 | | [87,307] |
| CLASSIFIED PROGRAMS | | | |
| 090A | CLASSIFIED PROGRAMS | 34,193 | 34,193 |
| | TOTAL AIRCRAFT PROCUREMENT, AIR FORCE | 16,784,279 | 18,569,718 |
| MISSILE PROCUREMENT, AIR FORCE | | | |
| MISSILE REPLACEMENT EQUIPMENT—BALLISTIC | | | |
| 001 | MISSILE REPLACEMENT EQ-BALLISTIC | 55,888 | 55,888 |
| TACTICAL | | | |
| 002 | REPLAC EQUIP & WAR CONSUMABLES | 9,100 | 9,100 |
| 003 | JOINT AIR-TO-GROUND MUNITION | 15,000 | 7,500 |
| | Unjustified requirement (JAGM-F) | | [-7,500] |
| 004 | JOINT AIR-SURFACE STANDOFF MISSILE | 482,525 | 482,525 |
| 006 | SIDEWINDER (AIM-9X) | 160,408 | 160,408 |
| 007 | AMRAAM | 332,250 | 332,250 |
| 008 | PREDATOR HELLFIRE MISSILE | 118,860 | 118,860 |
| 009 | SMALL DIAMETER BOMB | 275,438 | 275,438 |
| 010 | SMALL DIAMETER BOMB II | 212,434 | 200,684 |
| | Unit cost growth | | [-11,750] |
| INDUSTRIAL FACILITIES | | | |
| 011 | INDUSTRIAL PREPAREDNS/POL PREVENTION | 801 | 801 |
| CLASS IV | | | |
| 012 | ICBM FUZE MOD | 5,000 | 5,000 |
| 013 | ICBM FUZE MOD | 14,497 | 14,497 |
| 014 | MM III MODIFICATIONS | 50,831 | 59,705 |
| | Air Force requested transfer | | [8,874] |
| 015 | AGM-65D MAVERICK | 294 | 294 |
| 016 | AIR LAUNCH CRUISE MISSILE (ALCM) | 77,387 | 68,513 |
| | Air Force requested transfer | | [-8,874] |
| MISSILE SPARES AND REPAIR PARTS | | | |
| 018 | MSL SPRS/REPAIR PARTS (INITIAL) | 1,910 | 1,910 |
| 019 | REPLEN SPARES/REPAIR PARTS | 82,490 | 82,490 |
| SPECIAL PROGRAMS | | | |
| 023 | SPECIAL UPDATE PROGRAMS | 144,553 | 144,553 |
| CLASSIFIED PROGRAMS | | | |
| 023A | CLASSIFIED PROGRAMS | 849,521 | 849,521 |
| | TOTAL MISSILE PROCUREMENT, AIR FORCE | 2,889,187 | 2,869,937 |
| SPACE PROCUREMENT, AIR FORCE | | | |
| SPACE PROGRAMS | | | |
| 001 | ADVANCED EHF | 31,894 | 31,894 |
| 002 | AF SATELLITE COMM SYSTEM | 56,298 | 56,298 |
| 004 | COUNTERSPACE SYSTEMS | 5,700 | 5,700 |
| 005 | FAMILY OF BEYOND LINE-OF-SIGHT TERMINALS | 34,020 | 29,020 |
| | Unjustified growth | | [-5,000] |
| 007 | GENERAL INFORMATION TECH—SPACE | 3,244 | 3,244 |
| 008 | GPSIII FOLLOW ON | 414,625 | 414,625 |
| 009 | GPS III SPACE SEGMENT | 31,466 | 31,466 |
| 012 | SPACEBORNE EQUIP (COMSEC) | 32,031 | 32,031 |
| 013 | MILSATCOM | 11,096 | 11,096 |
| 015 | EVOLVED EXPENDABLE LAUNCH VEH(SPACE) | 1,237,635 | 1,237,635 |
| 016 | SBIR HIGH (SPACE) | 233,952 | 233,952 |
| 017 | NUDET DETECTION SYSTEM | 7,432 | 7,432 |
| 018 | ROCKET SYSTEMS LAUNCH PROGRAM | 11,473 | 11,473 |
| 019 | SPACE FENCE | 71,784 | 71,784 |
| 020 | SPACE MODS | 106,330 | 106,330 |
| 021 | SPACELIFT RANGE SYSTEM SPACE | 118,140 | 118,140 |
| SPACE PROCUREMENT, AIR FORCE SPARES | | | |
| 022 | SPARES AND REPAIR PARTS | 7,263 | 7,263 |
| | TOTAL SPACE PROCUREMENT, AIR FORCE | 2,414,383 | 2,409,383 |
| PROCUREMENT OF AMMUNITION, AIR FORCE | | | |
| ROCKETS | | | |
| 001 | ROCKETS | 133,268 | 115,068 |
| | APKWS Mk 66 rocket motor price adjustment | | [-18,200] |

| SEC. 4101. PROCUREMENT (In Thousands of Dollars) | | | |
|--|---|------------------|-----------------------|
| Line | Item | FY 2020 Request | Conference Authorized |
| | CARTRIDGES | | |
| 002 | CARTRIDGES | 140,449 | 140,449 |
| | BOMBS | | |
| 003 | PRACTICE BOMBS | 29,313 | 29,313 |
| 004 | GENERAL PURPOSE BOMBS | 85,885 | 85,885 |
| 006 | JOINT DIRECT ATTACK MUNITION | 1,066,224 | 1,034,224 |
| | Tailkit unit cost adjustment | | [-32,000] |
| 007 | B61 | 80,773 | 80,773 |
| | OTHER ITEMS | | |
| 009 | CAD/PAD | 47,069 | 47,069 |
| 010 | EXPLOSIVE ORDNANCE DISPOSAL (EOD) | 6,133 | 6,133 |
| 011 | SPARES AND REPAIR PARTS | 533 | 533 |
| 012 | MODIFICATIONS | 1,291 | 1,291 |
| 013 | ITEMS LESS THAN \$5,000,000 | 1,677 | 1,677 |
| | FLARES | | |
| 015 | FLARES | 36,116 | 36,116 |
| | FUZES | | |
| 016 | FUZES | 1,734 | 1,734 |
| | SMALL ARMS | | |
| 017 | SMALL ARMS | 37,496 | 37,496 |
| | TOTAL PROCUREMENT OF AMMUNITION, AIR FORCE | 1,667,961 | 1,617,761 |
| | OTHER PROCUREMENT, AIR FORCE | | |
| | PASSENGER CARRYING VEHICLES | | |
| 001 | PASSENGER CARRYING VEHICLES | 15,238 | 15,238 |
| | CARGO AND UTILITY VEHICLES | | |
| 002 | MEDIUM TACTICAL VEHICLE | 34,616 | 34,616 |
| 003 | CAP VEHICLES | 1,040 | 3,567 |
| | Program increase—communications | | [1,867] |
| | Program increase—vehicles | | [660] |
| 004 | CARGO AND UTILITY VEHICLES | 23,133 | 23,133 |
| | SPECIAL PURPOSE VEHICLES | | |
| 005 | JOINT LIGHT TACTICAL VEHICLE | 32,027 | 32,027 |
| 006 | SECURITY AND TACTICAL VEHICLES | 1,315 | 1,315 |
| 007 | SPECIAL PURPOSE VEHICLES | 14,593 | 14,593 |
| | FIRE FIGHTING EQUIPMENT | | |
| 008 | FIRE FIGHTING/CRASH RESCUE VEHICLES | 28,604 | 28,604 |
| | MATERIALS HANDLING EQUIPMENT | | |
| 009 | MATERIALS HANDLING VEHICLES | 21,848 | 21,848 |
| | BASE MAINTENANCE SUPPORT | | |
| 010 | RUNWAY SNOW REMOV AND CLEANING EQU | 2,925 | 2,925 |
| 011 | BASE MAINTENANCE SUPPORT VEHICLES | 55,776 | 55,776 |
| | COMM SECURITY EQUIPMENT(COMSEC) | | |
| 013 | COMSEC EQUIPMENT | 91,461 | 91,461 |
| | INTELLIGENCE PROGRAMS | | |
| 014 | INTERNATIONAL INTEL TECH & ARCHITECTURES | 11,386 | 11,386 |
| 015 | INTELLIGENCE TRAINING EQUIPMENT | 7,619 | 7,619 |
| 016 | INTELLIGENCE COMM EQUIPMENT | 35,558 | 32,058 |
| | IMAD unjustified procurement | | [-3,500] |
| | ELECTRONICS PROGRAMS | | |
| 017 | AIR TRAFFIC CONTROL & LANDING SYS | 17,939 | 17,939 |
| 019 | BATTLE CONTROL SYSTEM—FIXED | 3,063 | 3,063 |
| 021 | WEATHER OBSERVATION FORECAST | 31,447 | 31,447 |
| 022 | STRATEGIC COMMAND AND CONTROL | 5,090 | 5,090 |
| 023 | CHEYENNE MOUNTAIN COMPLEX | 10,145 | 10,145 |
| 024 | MISSION PLANNING SYSTEMS | 14,508 | 14,508 |
| 026 | INTEGRATED STRAT PLAN & ANALY NETWORK (ISPAN) | 9,901 | 9,901 |
| | SPCL COMM-ELECTRONICS PROJECTS | | |
| 027 | GENERAL INFORMATION TECHNOLOGY | 26,933 | 26,933 |
| 028 | AF GLOBAL COMMAND & CONTROL SYS | 2,756 | 2,756 |
| 029 | BATTLEFIELD AIRBORNE CONTROL NODE (BACN) | 48,478 | 48,478 |
| 030 | MOBILITY COMMAND AND CONTROL | 21,186 | 21,186 |
| 031 | AIR FORCE PHYSICAL SECURITY SYSTEM | 178,361 | 178,361 |
| 032 | COMBAT TRAINING RANGES | 233,993 | 261,993 |
| | Joint threat emitters | | [28,000] |
| 033 | MINIMUM ESSENTIAL EMERGENCY COMM N | 132,648 | 132,648 |
| 034 | WIDE AREA SURVEILLANCE (WAS) | 80,818 | 42,118 |
| | Program decrease | | [-38,700] |
| 035 | C3 COUNTERMEASURES | 25,036 | 25,036 |
| 036 | INTEGRATED PERSONNEL AND PAY SYSTEM | 20,900 | 0 |
| | Poor agile implementation | | [-20,900] |
| 037 | GCSS-AF FOS | 11,226 | 11,226 |
| 038 | DEFENSE ENTERPRISE ACCOUNTING & MGT SYS | 1,905 | 1,905 |
| 039 | MAINTENANCE REPAIR & OVERHAUL INITIATIVE | 1,912 | 1,912 |
| 040 | THEATER BATTLE MGT C2 SYSTEM | 6,337 | 6,337 |
| 041 | AIR & SPACE OPERATIONS CENTER (AOC) | 33,243 | 33,243 |
| | AIR FORCE COMMUNICATIONS | | |
| 043 | BASE INFORMATION TRANSPRT INFRASTR (BITI) WIRED | 69,530 | 62,280 |

| SEC. 4101. PROCUREMENT (In Thousands of Dollars) | | | |
|---|---|------------------------|------------------------------|
| Line | Item | FY 2020 Request | Conference Authorized |
| | Restoring acquisition accountability | | [-7,250] |
| 044 | AFNET | 147,063 | 147,063 |
| 045 | JOINT COMMUNICATIONS SUPPORT ELEMENT (JCSE) | 6,505 | 6,505 |
| 046 | USCENTCOM | 20,190 | 20,190 |
| 047 | USSTRATCOM | 11,244 | 11,244 |
| | ORGANIZATION AND BASE | | |
| 048 | TACTICAL C-E EQUIPMENT | 143,757 | 143,757 |
| 050 | RADIO EQUIPMENT | 15,402 | 15,402 |
| 051 | CCTV/AUDIOVISUAL EQUIPMENT | 3,211 | 3,211 |
| 052 | BASE COMM INFRASTRUCTURE | 43,123 | 43,123 |
| | MODIFICATIONS | | |
| 053 | COMM ELECT MODS | 14,500 | 14,500 |
| | PERSONAL SAFETY & RESCUE EQUIP | | |
| 054 | PERSONAL SAFETY AND RESCUE EQUIPMENT | 50,634 | 50,634 |
| | DEPOT PLANT+MTRLS HANDLING EQ | | |
| 055 | POWER CONDITIONING EQUIPMENT | 11,000 | 11,000 |
| 056 | MECHANIZED MATERIAL HANDLING EQUIP | 11,901 | 11,901 |
| | BASE SUPPORT EQUIPMENT | | |
| 057 | BASE PROCURED EQUIPMENT | 23,963 | 23,963 |
| 058 | ENGINEERING AND EOD EQUIPMENT | 34,124 | 34,124 |
| 059 | MOBILITY EQUIPMENT | 26,439 | 26,439 |
| 060 | FUELS SUPPORT EQUIPMENT (FSE) | 24,255 | 24,255 |
| 061 | BASE MAINTENANCE AND SUPPORT EQUIPMENT | 38,986 | 38,986 |
| | SPECIAL SUPPORT PROJECTS | | |
| 063 | DARP RC135 | 26,716 | 26,716 |
| 064 | DCGS-AF | 116,055 | 116,055 |
| 066 | SPECIAL UPDATE PROGRAM | 835,148 | 835,148 |
| | CLASSIFIED PROGRAMS | | |
| 066A | CLASSIFIED PROGRAMS | 18,292,807 | 18,292,807 |
| | SPARES AND REPAIR PARTS | | |
| 067 | SPARES AND REPAIR PARTS | 81,340 | 81,340 |
| | TOTAL OTHER PROCUREMENT, AIR FORCE | 21,342,857 | 21,303,034 |
| | PROCUREMENT, DEFENSE-WIDE | | |
| | MAJOR EQUIPMENT, OSD | | |
| 022 | MAJOR EQUIPMENT, DPAA | 1,504 | 1,504 |
| 045 | MAJOR EQUIPMENT, OSD | 43,705 | 43,705 |
| | MAJOR EQUIPMENT, NSA | | |
| 044 | INFORMATION SYSTEMS SECURITY PROGRAM (ISSP) | 1,533 | 133 |
| | Realignment to DISA for Sharkseer | | [-1,400] |
| | MAJOR EQUIPMENT, WHS | | |
| 049 | MAJOR EQUIPMENT, WHS | 507 | 507 |
| | MAJOR EQUIPMENT, DISA | | |
| 008 | INFORMATION SYSTEMS SECURITY | 3,318 | 4,718 |
| | Realignment for Sharkseer | | [1,400] |
| 009 | TELEPORT PROGRAM | 25,103 | 25,103 |
| 010 | ITEMS LESS THAN \$5 MILLION | 26,416 | 26,416 |
| 012 | DEFENSE INFORMATION SYSTEM NETWORK | 17,574 | 17,574 |
| 014 | WHITE HOUSE COMMUNICATION AGENCY | 45,079 | 45,079 |
| 015 | SENIOR LEADERSHIP ENTERPRISE | 78,669 | 78,669 |
| 016 | JOINT REGIONAL SECURITY STACKS (JRSS) | 88,000 | 88,000 |
| 017 | JOINT SERVICE PROVIDER | 107,907 | 107,907 |
| | MAJOR EQUIPMENT, DLA | | |
| 019 | MAJOR EQUIPMENT | 8,122 | 8,122 |
| | MAJOR EQUIPMENT, DSS | | |
| 023 | MAJOR EQUIPMENT | 496 | 496 |
| | MAJOR EQUIPMENT, TJS | | |
| 046 | MAJOR EQUIPMENT, TJS | 6,905 | 6,905 |
| 047 | MAJOR EQUIPMENT—TJS CYBER | 1,458 | 1,458 |
| | MAJOR EQUIPMENT, MISSILE DEFENSE AGENCY | | |
| 028 | THAAD | 425,863 | 388,543 |
| | Unit cost savings | | [-37,320] |
| 029 | GROUND BASED MIDCOURSE | 9,471 | 9,471 |
| 031 | AEGIS BMD | 600,773 | 565,374 |
| | SM-3 Block IB multiyear unit cost savings | | [-35,399] |
| 032 | AEGIS BMD | 96,995 | 96,995 |
| 033 | BMDs AN/TPY-2 RADARS | 10,046 | 10,046 |
| 034 | ARROW 3 UPPER TIER SYSTEMS | 55,000 | 55,000 |
| 035 | SHORT RANGE BALLISTIC MISSILE DEFENSE (SRBMD) | 50,000 | 50,000 |
| 036 | AEGIS ASHORE PHASE III | 25,659 | 25,659 |
| 037 | IRON DOME | 95,000 | 95,000 |
| 038 | AEGIS BMD HARDWARE AND SOFTWARE | 124,986 | 124,986 |
| | MAJOR EQUIPMENT, DHRA | | |
| 003 | PERSONNEL ADMINISTRATION | 5,030 | 5,030 |
| | MAJOR EQUIPMENT, DEFENSE THREAT REDUCTION AGENCY | | |
| 025 | VEHICLES | 211 | 211 |
| 026 | OTHER MAJOR EQUIPMENT | 11,521 | 11,521 |
| | MAJOR EQUIPMENT, DODEA | | |

2085

| SEC. 4101. PROCUREMENT (In Thousands of Dollars) | | | |
|--|--|------------------------|------------------------------|
| Line | Item | FY 2020 Request | Conference Authorized |
| 021 | AUTOMATION/EDUCATIONAL SUPPORT & LOGISTICS | 1,320 | 1,320 |
| | MAJOR EQUIPMENT, DCMA | | |
| 002 | MAJOR EQUIPMENT | 2,432 | 2,432 |
| | MAJOR EQUIPMENT, DMACT | | |
| 020 | MAJOR EQUIPMENT | 10,961 | 10,961 |
| | CLASSIFIED PROGRAMS | | |
| 049A | CLASSIFIED PROGRAMS | 589,366 | 589,366 |
| | AVIATION PROGRAMS | | |
| 053 | ROTARY WING UPGRADES AND SUSTAINMENT | 172,020 | 172,020 |
| 054 | UNMANNED ISR | 15,208 | 15,208 |
| 055 | NON-STANDARD AVIATION | 32,310 | 32,310 |
| 056 | U-28 | 10,898 | 10,898 |
| 057 | MH-47 CHINOOK | 173,812 | 173,812 |
| 058 | CV-22 MODIFICATION | 17,256 | 17,256 |
| 059 | MQ-9 UNMANNED AERIAL VEHICLE | 5,338 | 5,338 |
| 060 | PRECISION STRIKE PACKAGE | 232,930 | 232,930 |
| 061 | AC/MC-130J | 173,419 | 165,019 |
| | RFCM realignment to RDAF FVL | | [-8,400] |
| 062 | C-130 MODIFICATIONS | 15,582 | 15,582 |
| | SHIPBUILDING | | |
| 063 | UNDERWATER SYSTEMS | 58,991 | 58,991 |
| | AMMUNITION PROGRAMS | | |
| 064 | ORDNANCE ITEMS <\$5M | 279,992 | 279,992 |
| | OTHER PROCUREMENT PROGRAMS | | |
| 065 | INTELLIGENCE SYSTEMS | 100,641 | 100,641 |
| 066 | DISTRIBUTED COMMON GROUND/SURFACE SYSTEMS | 12,522 | 12,522 |
| 067 | OTHER ITEMS <\$5M | 103,910 | 103,910 |
| 068 | COMBATANT CRAFT SYSTEMS | 33,088 | 33,088 |
| 069 | SPECIAL PROGRAMS | 63,467 | 63,467 |
| 070 | TACTICAL VEHICLES | 77,832 | 77,832 |
| 071 | WARRIOR SYSTEMS <\$5M | 298,480 | 298,480 |
| 072 | COMBAT MISSION REQUIREMENTS | 19,702 | 19,702 |
| 073 | GLOBAL VIDEO SURVEILLANCE ACTIVITIES | 4,787 | 4,787 |
| 074 | OPERATIONAL ENHANCEMENTS INTELLIGENCE | 8,175 | 8,175 |
| 075 | OPERATIONAL ENHANCEMENTS | 282,532 | 282,532 |
| | CBDP | | |
| 076 | CHEMICAL BIOLOGICAL SITUATIONAL AWARENESS | 162,406 | 162,406 |
| 077 | CB PROTECTION & HAZARD MITIGATION | 188,188 | 183,618 |
| | Unjustified growth | | [-4,570] |
| | TOTAL PROCUREMENT, DEFENSE-WIDE | 5,114,416 | 5,028,727 |
| | JOINT URGENT OPERATIONAL NEEDS FUND | | |
| | JOINT URGENT OPERATIONAL NEEDS FUND | | |
| 001 | JOINT URGENT OPERATIONAL NEEDS FUND | 99,200 | 0 |
| | Program decrease | | [-99,200] |
| | TOTAL JOINT URGENT OPERATIONAL NEEDS FUND | 99,200 | 0 |
| | TOTAL PROCUREMENT | 132,343,701 | 133,100,265 |

1 **SEC. 4102. PROCUREMENT FOR OVERSEAS CONTINGENCY**

2 **OPERATIONS.**

| SEC. 4102. PROCUREMENT FOR OVERSEAS CONTINGENCY OPERATIONS (In Thousands of Dollars) | | | |
|--|---|------------------------|------------------------------|
| Line | Item | FY 2020 Request | Conference Authorized |
| | AIRCRAFT PROCUREMENT, ARMY | | |
| | FIXED WING | | |
| 003 | MQ-1 UAV | 54,000 | 54,000 |
| | ROTARY | | |
| 015 | CH-47 HELICOPTER | 25,000 | 25,000 |
| | MODIFICATION OF AIRCRAFT | | |
| 021 | MULTI SENSOR ABN RECON (MIP) | 80,260 | 80,260 |
| 024 | GRCS SEMA MODS (MIP) | 750 | 750 |
| 026 | EMARSS SEMA MODS (MIP) | 22,180 | 22,180 |
| 027 | UTILITY/CARGO AIRPLANE MODS | 8,362 | 8,362 |
| 029 | NETWORK AND MISSION PLAN | 10 | 10 |
| 031 | DEGRADED VISUAL ENVIRONMENT | 49,450 | 49,450 |
| | GROUND SUPPORT AVIONICS | | |
| 037 | CMWS | 130,219 | 130,219 |
| 038 | COMMON INFRARED COUNTERMEASURES (CIRCM) | 9,310 | 9,310 |
| | OTHER SUPPORT | | |
| 045 | LAUNCHER GUIDED MISSILE: LONGBOW HELLFIRE XM2 | 2,000 | 2,000 |

| SEC. 4102. PROCUREMENT FOR OVERSEAS CONTINGENCY OPERATIONS | | | |
|---|--|------------------------|------------------------------|
| (In Thousands of Dollars) | | | |
| Line | Item | FY 2020 Request | Conference Authorized |
| | TOTAL AIRCRAFT PROCUREMENT, ARMY | 381,541 | 381,541 |
| | MISSILE PROCUREMENT, ARMY | | |
| | SURFACE-TO-AIR MISSILE SYSTEM | | |
| 002 | M-SHORAD—PROCUREMENT | 158,300 | 158,300 |
| 003 | MSE MISSILE | 37,938 | 37,938 |
| | AIR-TO-SURFACE MISSILE SYSTEM | | |
| 006 | HELLFIRE SYS SUMMARY | 236,265 | 236,265 |
| | ANTI-TANK/ASSAULT MISSILE SYS | | |
| 008 | JAVELIN (AAWS-M) SYSTEM SUMMARY | 4,389 | 4,389 |
| 011 | GUIDED MLRS ROCKET (GMLRS) | 431,596 | 431,596 |
| 014 | ARMY TACTICAL MSL SYS (ATACMS)—SYS SUM | 130,770 | 130,770 |
| 015 | LETHAL MINIATURE AERIAL MISSILE SYSTEM (LMAMS) | 83,300 | 83,300 |
| | MODIFICATIONS | | |
| 019 | STINGER MODS | 7,500 | 7,500 |
| 022 | MLRS MODS | 348,000 | 336,500 |
| | Excess to need | | [-11,500] |
| | TOTAL MISSILE PROCUREMENT, ARMY | 1,438,058 | 1,426,558 |
| | PROCUREMENT OF W&TCV, ARMY | | |
| | TRACKED COMBAT VEHICLES | | |
| 002 | ARMORED MULTI PURPOSE VEHICLE (AMPV) | 221,638 | 221,638 |
| | MODIFICATION OF TRACKED COMBAT VEHICLES | | |
| 003 | STRYKER (MOD) | 4,100 | 4,100 |
| 008 | IMPROVED RECOVERY VEHICLE (M88A2 HERCULES) | 80,146 | 80,146 |
| 013 | M1 ABRAMS TANK (MOD) | 13,100 | 13,100 |
| | WEAPONS & OTHER COMBAT VEHICLES | | |
| 015 | M240 MEDIUM MACHINE GUN (7.62MM) | 900 | 900 |
| 016 | MULTI-ROLE ANTI-ARMOR ANTI-PERSONNEL WEAPONS | 2,400 | 2,400 |
| 019 | MORTAR SYSTEMS | 18,941 | 18,941 |
| 020 | XM320 GRENADE LAUNCHER MODULE (GLM) | 526 | 526 |
| 023 | CARBINE | 1,183 | 1,183 |
| 025 | COMMON REMOTELY OPERATED WEAPONS STATION | 4,182 | 4,182 |
| 026 | HANDGUN | 248 | 248 |
| | MOD OF WEAPONS AND OTHER COMBAT VEH | | |
| 031 | M2 50 CAL MACHINE GUN MODS | 6,090 | 6,090 |
| | TOTAL PROCUREMENT OF W&TCV, ARMY | 353,454 | 353,454 |
| | PROCUREMENT OF AMMUNITION, ARMY | | |
| | SMALL/MEDIUM CAL AMMUNITION | | |
| 001 | CTG, 5.56MM, ALL TYPES | 567 | 567 |
| 002 | CTG, 7.62MM, ALL TYPES | 40 | 40 |
| 003 | CTG, HANDGUN, ALL TYPES | 17 | 17 |
| 004 | CTG, .50 CAL, ALL TYPES | 189 | 189 |
| 007 | CTG, 30MM, ALL TYPES | 24,900 | 24,900 |
| | ARTILLERY AMMUNITION | | |
| 015 | PROJ 155MM EXTENDED RANGE M982 | 36,052 | 36,052 |
| 016 | ARTILLERY PROPELLANTS, FUZES AND PRIMERS, ALL | 7,271 | 7,271 |
| | ROCKETS | | |
| 018 | SHOULDER LAUNCHED MUNITIONS, ALL TYPES | 176 | 176 |
| 019 | ROCKET, HYDRA 70, ALL TYPES | 79,459 | 79,459 |
| | MISCELLANEOUS | | |
| 027 | ITEMS LESS THAN \$5 MILLION (AMMO) | 11 | 11 |
| | TOTAL PROCUREMENT OF AMMUNITION, ARMY | 148,682 | 148,682 |
| | OTHER PROCUREMENT, ARMY | | |
| | TACTICAL VEHICLES | | |
| 010 | FAMILY OF HEAVY TACTICAL VEHICLES (FHTV) | 26,917 | 26,917 |
| 011 | PLS ESP | 16,941 | 16,941 |
| 012 | HVY EXPANDED MOBILE TACTICAL TRUCK EXT SERV | 62,734 | 62,734 |
| 014 | TACTICAL WHEELED VEHICLE PROTECTION KITS | 50,000 | 50,000 |
| 015 | MODIFICATION OF IN SVC EQUIP | 28,000 | 28,000 |
| | COMM—JOINT COMMUNICATIONS | | |
| 022 | TACTICAL NETWORK TECHNOLOGY MOD IN SVC | 40,000 | 40,000 |
| | COMM—SATELLITE COMMUNICATIONS | | |
| 029 | TRANSPORTABLE TACTICAL COMMAND COMMUNICATIONS | 6,930 | 6,930 |
| 031 | ASSURED POSITIONING, NAVIGATION AND TIMING | 11,778 | 11,778 |
| 032 | SMART-T (SPACE) | 825 | 825 |
| | COMM—COMBAT COMMUNICATIONS | | |
| 040 | RADIO TERMINAL SET, MIDS LVT(2) | 350 | 350 |
| 047 | COTS COMMUNICATIONS EQUIPMENT | 20,400 | 20,400 |
| 048 | FAMILY OF MED COMM FOR COMBAT CASUALTY CARE | 1,231 | 1,231 |
| | COMM—INTELLIGENCE COMM | | |
| 051 | CI AUTOMATION ARCHITECTURE (MIP) | 6,200 | 6,200 |
| | COMM—LONG HAUL COMMUNICATIONS | | |
| 059 | BASE SUPPORT COMMUNICATIONS | 20,482 | 20,482 |
| | COMM—BASE COMMUNICATIONS | | |
| 060 | INFORMATION SYSTEMS | 55,800 | 55,800 |

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| SEC. 4102. PROCUREMENT FOR OVERSEAS CONTINGENCY OPERATIONS | | | |
|---|---|------------------------|------------------------------|
| (In Thousands of Dollars) | | | |
| Line | Item | FY 2020 Request | Conference Authorized |
| 063 | INSTALLATION INFO INFRASTRUCTURE MOD PROGRAM | 75,820 | 75,820 |
| | ELECT EQUIP—TACT INT REL ACT (TIARA) | | |
| 068 | DCGS-A (MIP) | 38,613 | 38,613 |
| 070 | TROJAN (MIP) | 1,337 | 1,337 |
| 071 | MOD OF IN-SVC EQUIP (INTEL SPT) (MIP) | 2,051 | 2,051 |
| 075 | BIOMETRIC TACTICAL COLLECTION DEVICES (MIP) | 1,800 | 1,800 |
| | ELECT EQUIP—ELECTRONIC WARFARE (EW) | | |
| 082 | FAMILY OF PERSISTENT SURVEILLANCE CAP. (MIP) | 71,493 | 31,493 |
| | Unjustified growth | | [-40,000] |
| 083 | COUNTERINTELLIGENCE/SECURITY COUNTERMEASURES | 6,917 | 6,917 |
| | ELECT EQUIP—TACTICAL SURV. (TAC SURV) | | |
| 085 | SENTINEL MODS | 20,000 | 20,000 |
| 086 | NIGHT VISION DEVICES | 3,676 | 3,676 |
| 094 | JOINT BATTLE COMMAND—PLATFORM (JBC-P) | 25,568 | 25,568 |
| 097 | COMPUTER BALLISTICS: LHMCB XM32 | 570 | 570 |
| 098 | MORTAR FIRE CONTROL SYSTEM | 15,975 | 15,975 |
| | ELECT EQUIP—TACTICAL C2 SYSTEMS | | |
| 103 | AIR & MSL DEFENSE PLANNING & CONTROL SYS | 14,331 | 14,331 |
| | ELECT EQUIP—AUTOMATION | | |
| 112 | ARMY TRAINING MODERNIZATION | 6,014 | 6,014 |
| 113 | AUTOMATED DATA PROCESSING EQUIP | 32,700 | 32,700 |
| | CHEMICAL DEFENSIVE EQUIPMENT | | |
| 124 | FAMILY OF NON-LETHAL EQUIPMENT (FNLE) | 25,480 | 25,480 |
| 125 | BASE DEFENSE SYSTEMS (BDS) | 47,110 | 39,984 |
| | Unjustified growth | | [-7,126] |
| 126 | CBRN DEFENSE | 18,711 | 17,461 |
| | Unit cost discrepancies | | [-1,250] |
| | BRIDGING EQUIPMENT | | |
| 128 | TACTICAL BRIDGING | 4,884 | 4,884 |
| | ENGINEER (NON-CONSTRUCTION) EQUIPMENT | | |
| 133 | GRND STANDOFF MINE DETECTN SYSM (GSTAMIDS) | 4,500 | 3,655 |
| | Program reduction | | [-845] |
| 135 | HUSKY MOUNTED DETECTION SYSTEM (HMDS) | 34,253 | 28,071 |
| | Program reduction | | [-6,182] |
| 136 | ROBOTIC COMBAT SUPPORT SYSTEM (RCSS) | 3,300 | 3,300 |
| 140 | RENDER SAFE SETS KITS OUTFITS | 84,000 | 84,000 |
| | COMBAT SERVICE SUPPORT EQUIPMENT | | |
| 143 | HEATERS AND ECU'S | 8 | 8 |
| 145 | PERSONNEL RECOVERY SUPPORT SYSTEM (PRSS) | 5,101 | 5,101 |
| 146 | GROUND SOLDIER SYSTEM | 1,760 | 1,760 |
| 148 | FORCE PROVIDER | 56,400 | 56,400 |
| 150 | CARGO AERIAL DEL & PERSONNEL PARACHUTE SYSTEM | 2,040 | 2,040 |
| | PETROLEUM EQUIPMENT | | |
| 154 | DISTRIBUTION SYSTEMS, PETROLEUM & WATER | 13,986 | 13,986 |
| | MEDICAL EQUIPMENT | | |
| 155 | COMBAT SUPPORT MEDICAL | 2,735 | 2,735 |
| | CONSTRUCTION EQUIPMENT | | |
| 159 | SCRAPERS, EARTHMOVING | 4,669 | 4,669 |
| 160 | LOADERS | 380 | 380 |
| 162 | TRACTOR, FULL TRACKED | 8,225 | 8,225 |
| 164 | HIGH MOBILITY ENGINEER EXCAVATOR (HMEE) | 3,000 | 3,000 |
| 166 | CONST EQUIP ESP | 3,870 | 3,870 |
| 167 | ITEMS LESS THAN \$5.0M (CONST EQUIP) | 350 | 350 |
| | GENERATORS | | |
| 171 | GENERATORS AND ASSOCIATED EQUIP | 2,436 | 2,436 |
| | MATERIAL HANDLING EQUIPMENT | | |
| 173 | FAMILY OF FORKLIFTS | 5,152 | 5,152 |
| | TRAINING EQUIPMENT | | |
| 175 | TRAINING DEVICES, NONSYSTEM | 2,106 | 2,106 |
| | TEST MEASURE AND DIG EQUIPMENT (TMD) | | |
| 181 | INTEGRATED FAMILY OF TEST EQUIPMENT (IFTE) | 1,395 | 1,395 |
| | OTHER SUPPORT EQUIPMENT | | |
| 184 | RAPID EQUIPPING SOLDIER SUPPORT EQUIPMENT | 24,122 | 24,122 |
| 185 | PHYSICAL SECURITY SYSTEMS (OPA3) | 10,016 | 10,016 |
| 187 | MODIFICATION OF IN-SVC EQUIPMENT (OPA-3) | 33,354 | 33,354 |
| 189 | BUILDING, PRE-FAB, RELOCATABLE | 62,654 | 62,654 |
| | TOTAL OTHER PROCUREMENT, ARMY | 1,131,450 | 1,076,047 |
| | AIRCRAFT PROCUREMENT, NAVY | | |
| | OTHER AIRCRAFT | | |
| 026 | STUASLO UAV | 7,921 | 7,921 |
| 027 | MQ-9A REAPER | 77,000 | 77,000 |
| | MODIFICATION OF AIRCRAFT | | |
| 036 | EP-3 SERIES | 5,488 | 5,488 |
| 046 | SPECIAL PROJECT AIRCRAFT | 3,498 | 3,498 |
| 051 | COMMON ECM EQUIPMENT | 3,406 | 3,406 |
| 053 | COMMON DEFENSIVE WEAPON SYSTEM | 3,274 | 3,274 |
| 062 | QRC | 18,458 | 18,458 |

| SEC. 4102. PROCUREMENT FOR OVERSEAS CONTINGENCY OPERATIONS (In Thousands of Dollars) | | | |
|---|---|-----------------|-----------------------|
| Line | Item | FY 2020 Request | Conference Authorized |
| | TOTAL AIRCRAFT PROCUREMENT, NAVY | 119,045 | 119,045 |
| | WEAPONS PROCUREMENT, NAVY | | |
| | TACTICAL MISSILES | | |
| 011 | JOINT AIR GROUND MISSILE (JAGM) | 90,966 | 90,966 |
| 015 | AERIAL TARGETS | 6,500 | 6,500 |
| | TOTAL WEAPONS PROCUREMENT, NAVY | 97,466 | 97,466 |
| | PROCUREMENT OF AMMO, NAVY & MC | | |
| | NAVY AMMUNITION | | |
| 001 | GENERAL PURPOSE BOMBS | 26,978 | 26,978 |
| 002 | JDAM | 12,263 | 12,263 |
| 003 | AIRBORNE ROCKETS, ALL TYPES | 45,020 | 45,020 |
| 004 | MACHINE GUN AMMUNITION | 33,577 | 33,577 |
| 005 | PRACTICE BOMBS | 11,903 | 11,903 |
| 006 | CARTRIDGES & CART ACTUATED DEVICES | 15,081 | 15,081 |
| 007 | AIR EXPENDABLE COUNTERMEASURES | 16,911 | 16,911 |
| 011 | OTHER SHIP GUN AMMUNITION | 3,262 | 3,262 |
| 012 | SMALL ARMS & LANDING PARTY AMMO | 1,010 | 1,010 |
| 013 | PYROTECHNIC AND DEMOLITION | 537 | 537 |
| | MARINE CORPS AMMUNITION | | |
| 016 | MORTARS | 1,930 | 1,930 |
| 017 | DIRECT SUPPORT MUNITIONS | 1,172 | 1,172 |
| 018 | INFANTRY WEAPONS AMMUNITION | 2,158 | 2,158 |
| 019 | COMBAT SUPPORT MUNITIONS | 965 | 965 |
| 021 | ARTILLERY MUNITIONS | 32,047 | 32,047 |
| | TOTAL PROCUREMENT OF AMMO, NAVY & MC | 204,814 | 204,814 |
| | OTHER PROCUREMENT, NAVY | | |
| | OTHER SHIPBOARD EQUIPMENT | | |
| 020 | UNDERWATER EOD PROGRAMS | 5,800 | 5,800 |
| | ASW ELECTRONIC EQUIPMENT | | |
| 042 | FIXED SURVEILLANCE SYSTEM | 310,503 | 310,503 |
| | SONOBUOYS | | |
| 085 | SONOBUOYS—ALL TYPES | 2,910 | 2,910 |
| | AIRCRAFT SUPPORT EQUIPMENT | | |
| 088 | AIRCRAFT SUPPORT EQUIPMENT | 13,420 | 13,420 |
| 094 | AVIATION SUPPORT EQUIPMENT | 500 | 500 |
| | OTHER ORDNANCE SUPPORT EQUIPMENT | | |
| 103 | EXPLOSIVE ORDNANCE DISPOSAL EQUIP | 15,307 | 15,307 |
| | CIVIL ENGINEERING SUPPORT EQUIPMENT | | |
| 108 | PASSENGER CARRYING VEHICLES | 173 | 173 |
| 109 | GENERAL PURPOSE TRUCKS | 408 | 408 |
| 111 | FIRE FIGHTING EQUIPMENT | 785 | 785 |
| | SUPPLY SUPPORT EQUIPMENT | | |
| 117 | SUPPLY EQUIPMENT | 100 | 100 |
| 118 | FIRST DESTINATION TRANSPORTATION | 510 | 510 |
| | COMMAND SUPPORT EQUIPMENT | | |
| 122 | COMMAND SUPPORT EQUIPMENT | 2,800 | 2,800 |
| 123 | MEDICAL SUPPORT EQUIPMENT | 1,794 | 1,794 |
| 126 | OPERATING FORCES SUPPORT EQUIPMENT | 1,090 | 1,090 |
| 128 | ENVIRONMENTAL SUPPORT EQUIPMENT | 200 | 200 |
| 129 | PHYSICAL SECURITY EQUIPMENT | 1,300 | 1,300 |
| | TOTAL OTHER PROCUREMENT, NAVY | 357,600 | 357,600 |
| | PROCUREMENT, MARINE CORPS | | |
| | GUIDED MISSILES | | |
| 012 | GUIDED MLRS ROCKET (GMLRS) | 16,919 | 16,919 |
| | ENGINEER AND OTHER EQUIPMENT | | |
| 045 | EOD SYSTEMS | 3,670 | 3,670 |
| | TOTAL PROCUREMENT, MARINE CORPS | 20,589 | 20,589 |
| | AIRCRAFT PROCUREMENT, AIR FORCE | | |
| | OTHER AIRCRAFT | | |
| 017 | MQ-9 | 172,240 | 172,240 |
| 018 | RQ-20B PUMA | 12,150 | 12,150 |
| | STRATEGIC AIRCRAFT | | |
| 022 | LARGE AIRCRAFT INFRARED COUNTERMEASURES | 53,335 | 53,335 |
| | OTHER AIRCRAFT | | |
| 067 | MQ-9 UAS PAYLOADS | 19,800 | 19,800 |
| | AIRCRAFT SPARES AND REPAIR PARTS | | |
| 069 | INITIAL SPARES/REPAIR PARTS | 44,560 | 44,560 |
| | COMMON SUPPORT EQUIPMENT | | |
| 072 | AIRCRAFT REPLACEMENT SUPPORT EQUIP | 7,025 | 7,025 |
| | TOTAL AIRCRAFT PROCUREMENT, AIR FORCE | 309,110 | 309,110 |
| | MISSILE PROCUREMENT, AIR FORCE | | |
| | TACTICAL | | |

| SEC. 4102. PROCUREMENT FOR OVERSEAS CONTINGENCY OPERATIONS | | | |
|---|---|------------------------|------------------------------|
| (In Thousands of Dollars) | | | |
| Line | Item | FY 2020 Request | Conference Authorized |
| 004 | JOINT AIR-SURFACE STANDOFF MISSILE | 20,900 | 20,900 |
| 008 | PREDATOR HELLFIRE MISSILE | 180,771 | 180,771 |
| | TOTAL MISSILE PROCUREMENT, AIR FORCE | 201,671 | 201,671 |
| | PROCUREMENT OF AMMUNITION, AIR FORCE | | |
| | ROCKETS | | |
| 001 | ROCKETS | 84,960 | 84,960 |
| | CARTRIDGES | | |
| 002 | CARTRIDGES | 52,642 | 52,642 |
| | BOMBS | | |
| 004 | GENERAL PURPOSE BOMBS | 545,309 | 545,309 |
| | FLARES | | |
| 015 | FLARES | 93,272 | 93,272 |
| | FUZES | | |
| 016 | FUZES | 157,155 | 157,155 |
| | SMALL ARMS | | |
| 017 | SMALL ARMS | 6,095 | 6,095 |
| | TOTAL PROCUREMENT OF AMMUNITION, AIR FORCE | 939,433 | 939,433 |
| | OTHER PROCUREMENT, AIR FORCE | | |
| | PASSENGER CARRYING VEHICLES | | |
| 001 | PASSENGER CARRYING VEHICLES | 1,276 | 1,276 |
| | CARGO AND UTILITY VEHICLES | | |
| 004 | CARGO AND UTILITY VEHICLES | 9,702 | 9,702 |
| | SPECIAL PURPOSE VEHICLES | | |
| 005 | JOINT LIGHT TACTICAL VEHICLE | 40,999 | 40,999 |
| 007 | SPECIAL PURPOSE VEHICLES | 52,502 | 52,502 |
| | FIRE FIGHTING EQUIPMENT | | |
| 008 | FIRE FIGHTING/CRASH RESCUE VEHICLES | 16,652 | 16,652 |
| | MATERIALS HANDLING EQUIPMENT | | |
| 009 | MATERIALS HANDLING VEHICLES | 2,944 | 2,944 |
| | BASE MAINTENANCE SUPPORT | | |
| 010 | RUNWAY SNOW REMOV AND CLEANING EQU | 3,753 | 3,753 |
| 011 | BASE MAINTENANCE SUPPORT VEHICLES | 11,837 | 11,837 |
| | SPCL COMM-ELECTRONICS PROJECTS | | |
| 027 | GENERAL INFORMATION TECHNOLOGY | 5,000 | 5,000 |
| 031 | AIR FORCE PHYSICAL SECURITY SYSTEM | 106,919 | 106,919 |
| | ORGANIZATION AND BASE | | |
| 048 | TACTICAL C-E EQUIPMENT | 306 | 306 |
| 052 | BASE COMM INFRASTRUCTURE | 4,300 | 4,300 |
| | PERSONAL SAFETY & RESCUE EQUIP | | |
| 054 | PERSONAL SAFETY AND RESCUE EQUIPMENT | 22,200 | 22,200 |
| | BASE SUPPORT EQUIPMENT | | |
| 059 | MOBILITY EQUIPMENT | 26,535 | 26,535 |
| 060 | FUELS SUPPORT EQUIPMENT (FSE) | 4,040 | 4,040 |
| 061 | BASE MAINTENANCE AND SUPPORT EQUIPMENT | 20,067 | 20,067 |
| | CLASSIFIED PROGRAMS | | |
| 066A | CLASSIFIED PROGRAMS | 3,209,066 | 3,209,066 |
| | TOTAL OTHER PROCUREMENT, AIR FORCE | 3,538,098 | 3,538,098 |
| | PROCUREMENT, DEFENSE-WIDE | | |
| | MAJOR EQUIPMENT, DISA | | |
| 009 | TELEPORT PROGRAM | 3,800 | 3,800 |
| 012 | DEFENSE INFORMATION SYSTEM NETWORK | 12,000 | 12,000 |
| | MAJOR EQUIPMENT, DEFENSE THREAT REDUCTION AGENCY | | |
| 027 | COUNTER IED & IMPROVISED THREAT TECHNOLOGIES | 4,590 | 4,590 |
| | CLASSIFIED PROGRAMS | | |
| 049A | CLASSIFIED PROGRAMS | 51,380 | 46,380 |
| | Program decrease | | [-5,000] |
| | AVIATION PROGRAMS | | |
| 050 | MANNED ISR | 5,000 | 5,000 |
| 051 | MC-12 | 5,000 | 5,000 |
| 052 | MH-60 BLACKHAWK | 28,100 | 28,100 |
| 054 | UNMANNED ISR | 8,207 | 8,207 |
| 056 | U-28 | 31,500 | 31,500 |
| 057 | MH-47 CHINOOK | 37,500 | 37,500 |
| 059 | MQ-9 UNMANNED AERIAL VEHICLE | 1,900 | 1,900 |
| | AMMUNITION PROGRAMS | | |
| 064 | ORDNANCE ITEMS <\$5M | 138,252 | 138,252 |
| | OTHER PROCUREMENT PROGRAMS | | |
| 065 | INTELLIGENCE SYSTEMS | 16,500 | 16,500 |
| 067 | OTHER ITEMS <\$5M | 28 | 28 |
| 070 | TACTICAL VEHICLES | 2,990 | 2,990 |
| 071 | WARRIOR SYSTEMS <\$5M | 37,512 | 37,512 |
| 072 | COMBAT MISSION REQUIREMENTS | 10,000 | 10,000 |
| 074 | OPERATIONAL ENHANCEMENTS INTELLIGENCE | 7,594 | 7,594 |
| 075 | OPERATIONAL ENHANCEMENTS | 45,194 | 45,194 |
| | TOTAL PROCUREMENT, DEFENSE-WIDE | 447,047 | 442,047 |

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| SEC. 4102. PROCUREMENT FOR OVERSEAS CONTINGENCY OPERATIONS (In Thousands of Dollars) | | | |
|--|---|------------------------|------------------------------|
| Line | Item | FY 2020 Request | Conference Authorized |
| NATIONAL GUARD AND RESERVE EQUIPMENT | | | |
| UNDISTRIBUTED | | | |
| 007 | UNDISTRIBUTED | | 265,000 |
| | Program increase | | [265,000] |
| | TOTAL NATIONAL GUARD AND RESERVE EQUIPMENT | | 265,000 |
| | TOTAL PROCUREMENT | 9,688,058 | 9,881,155 |

1 **SEC. 4103. PROCUREMENT FOR EMERGENCY REQUIRE-**
2 **MENTS.**

| SEC. 4103. PROCUREMENT FOR EMERGENCY REQUIREMENTS (In Thousands of Dollars) | | | |
|---|--|------------------------|------------------------------|
| Line | Item | FY 2020 Request | Conference Authorized |
| OTHER PROCUREMENT, NAVY | | | |
| COMMAND SUPPORT EQUIPMENT | | | |
| 122 | COMMAND SUPPORT EQUIPMENT | 0 | 233,000 |
| | Earthquake damage recovery | | [233,000] |
| | TOTAL PROCUREMENT, NAVY | | 233,000 |
| AIRCRAFT PROCUREMENT, AIR FORCE | | | |
| TACTICAL FORCES | | | |
| OTHER AIRCRAFT | | | |
| 055 | RC-135 | 0 | 204,448 |
| | Equipment replacement | | [204,448] |
| COMMON SUPPORT EQUIPMENT | | | |
| 072 | AIRCRAFT REPLACEMENT SUPPORT EQUIP | | 46,000 |
| | Equipment replacement | | [46,000] |
| | TOTAL AIRCRAFT PROCUREMENT, AIR FORCE | 0 | 250,448 |
| OTHER PROCUREMENT, AIR FORCE | | | |
| PASSENGER CARRYING VEHICLES | | | |
| 001 | PASSENGER CARRYING VEHICLES | 0 | 994 |
| | Equipment replacement | | [994] |
| CARGO AND UTILITY VEHICLES | | | |
| 004 | CARGO AND UTILITY VEHICLES | 0 | 126 |
| | Equipment replacement | | [126] |
| SPECIAL PURPOSE VEHICLES | | | |
| 007 | SPECIAL PURPOSE VEHICLES | 0 | 306 |
| | Equipment replacement | | [306] |
| FIRE FIGHTING EQUIPMENT | | | |
| 009 | MATERIALS HANDLING VEHICLES | 0 | 276 |
| | Equipment replacement | | [994] |
| BASE MAINTENANCE SUPPORT | | | |
| 011 | BASE MAINTENANCE SUPPORT VEHICLES | 0 | 2,400 |
| | Equipment replacement | | [994] |
| BASE SUPPORT EQUIPMENT | | | |
| 057 | BASE PROCURED EQUIPMENT | 0 | 49,434 |
| | Equipment replacement | | [49,434] |
| SPECIAL SUPPORT PROJECTS | | | |
| 063 | DARP RC135 | 0 | 29,438 |
| | Equipment replacement | | [29,438] |
| | TOTAL OTHER PROCUREMENT, AIR FORCE | 0 | 82,974 |
| | TOTAL PROCUREMENT | 0 | 566,422 |

3 **TITLE XLII—RESEARCH, DEVEL-**
4 **OPMENT, TEST, AND EVALUA-**
5 **TION**

Sec. 4201. Research, development, test, and evaluation.

2091

Sec. 4202. Research, development, test, and evaluation for overseas contingency operations.
 Sec. 4203. Research, development, test, and evaluation for emergency requirements.

1 SEC. 4201. RESEARCH, DEVELOPMENT, TEST, AND EVALUA-
2 TION.

| SEC. 4201. RESEARCH, DEVELOPMENT, TEST, AND EVALUATION (In Thousands of Dollars) | | | | |
|--|------------------------|--|------------------------|------------------------------|
| Line | Program Element | Item | FY 2020 Request | Conference Authorized |
| RESEARCH, DEVELOPMENT, TEST & EVAL, ARMY | | | | |
| BASIC RESEARCH | | | | |
| 002 | 0601102A | DEFENSE RESEARCH SCIENCES | 297,976 | 307,976 |
| | | Counter UAS University Research | | [5,000] |
| | | Cyber basic research | | [5,000] |
| 003 | 0601103A | UNIVERSITY RESEARCH INITIATIVES | 65,858 | 75,858 |
| | | Program increase | | [10,000] |
| 004 | 0601104A | UNIVERSITY AND INDUSTRY RESEARCH CENTERS | 86,164 | 95,164 |
| | | Program increase—artificial intelligence | | [5,000] |
| | | University and industry biotechnology research | | [4,000] |
| 005 | 0601121A | CYBER COLLABORATIVE RESEARCH ALLIANCE | 4,982 | 4,982 |
| | | SUBTOTAL BASIC RESEARCH | 454,980 | 483,980 |
| APPLIED RESEARCH | | | | |
| 010 | 0602141A | LETHALITY TECHNOLOGY | 26,961 | 31,961 |
| | | Program increase—next generation air-breathing propulsion technology | | [5,000] |
| 011 | 0602142A | ARMY APPLIED RESEARCH | 25,319 | 25,319 |
| 012 | 0602143A | SOLDIER LETHALITY TECHNOLOGY | 115,274 | 128,274 |
| | | Expeditionary mobile base camp technology | | [5,000] |
| | | HEROES program | | [5,000] |
| | | UPL MDTF for INDOPACOM | | [3,000] |
| 013 | 0602144A | GROUND TECHNOLOGY | 35,199 | 54,199 |
| | | Advanced materials manufacturing process | | [2,000] |
| | | Biopolymer structural materials | | [2,000] |
| | | Cellulose structural materials | | [5,000] |
| | | High performance polymers research | | [5,000] |
| | | Manufacturing research technology | | [5,000] |
| 014 | 0602145A | NEXT GENERATION COMBAT VEHICLE TECHNOLOGY | 219,047 | 225,047 |
| | | Structural thermoplastics | | [6,000] |
| 015 | 0602146A | NETWORK C3I TECHNOLOGY | 114,516 | 117,016 |
| | | Next generation SAR small sat | | [2,500] |
| 016 | 0602147A | LONG RANGE PRECISION FIRES TECHNOLOGY | 74,327 | 86,327 |
| | | Composite tube and propulsion technology | | [10,000] |
| | | Novel printed armament components | | [2,000] |
| 017 | 0602148A | FUTURE VERTICLE LIFT TECHNOLOGY | 93,601 | 96,601 |
| | | Program increase | | [3,000] |
| 018 | 0602150A | AIR AND MISSILE DEFENSE TECHNOLOGY | 50,771 | 50,771 |
| 020 | 0602213A | C3I APPLIED CYBER | 18,947 | 18,947 |
| 038 | 0602785A | MANPOWER/PERSONNEL/TRAINING TECHNOLOGY | 20,873 | 20,873 |
| 040 | 0602787A | MEDICAL TECHNOLOGY | 99,155 | 108,955 |
| | | Female warfighter performance research | | [2,000] |
| | | Musculoskeletal injury risk mitigation | | [4,800] |
| | | Program increase | | [3,000] |
| | | SUBTOTAL APPLIED RESEARCH | 893,990 | 964,290 |
| ADVANCED TECHNOLOGY DEVELOPMENT | | | | |
| 042 | 0603002A | MEDICAL ADVANCED TECHNOLOGY | 42,030 | 42,030 |
| 047 | 0603007A | MANPOWER, PERSONNEL AND TRAINING ADVANCED TECHNOLOGY | 11,038 | 11,038 |
| 050 | 0603117A | ARMY ADVANCED TECHNOLOGY DEVELOPMENT | 63,338 | 63,338 |
| 051 | 0603118A | SOLDIER LETHALITY ADVANCED TECHNOLOGY | 118,468 | 128,468 |
| | | Improvement of combat helmet suspension systems | | [5,000] |
| | | Thermal mitigation technologies | | [5,000] |
| 052 | 0603119A | GROUND ADVANCED TECHNOLOGY | 12,593 | 35,593 |
| | | 100 hour battery | | [10,000] |
| | | Ground advanced technology for cold regions | | [5,000] |
| | | Lightweight protective and hardening materials | | [3,000] |
| | | Robotic construction research | | [5,000] |
| 059 | 0603457A | C3I CYBER ADVANCED DEVELOPMENT | 13,769 | 13,769 |
| 060 | 0603461A | HIGH PERFORMANCE COMPUTING MODERNIZATION PROGRAM | 184,755 | 224,755 |
| | | Program increase | | [40,000] |
| 061 | 0603462A | NEXT GENERATION COMBAT VEHICLE ADVANCED TECHNOLOGY | 160,035 | 174,035 |

SEC. 4201. RESEARCH, DEVELOPMENT, TEST, AND EVALUATION
(In Thousands of Dollars)

| Line | Program Element | Item | FY 2020 Request | Conference Authorized |
|------|-----------------|--|------------------|-----------------------|
| | | Ground vehicle sustainment research | | [4,000] |
| | | Program increase—hydrogen fuel cells | | [10,000] |
| 062 | 0603463A | NETWORK C3I ADVANCED TECHNOLOGY | 106,899 | 103,899 |
| | | Underexecution | | [-3,000] |
| 063 | 0603464A | LONG RANGE PRECISION FIRES ADVANCED TECHNOLOGY | 174,386 | 183,386 |
| | | Hypersonics research | | [4,000] |
| | | Program increase missile demonstrations | | [5,000] |
| 064 | 0603465A | FUTURE VERTICAL LIFT ADVANCED TECHNOLOGY | 151,640 | 151,640 |
| 065 | 0603466A | AIR AND MISSILE DEFENSE ADVANCED TECHNOLOGY | 60,613 | 60,613 |
| | | SUBTOTAL ADVANCED TECHNOLOGY DEVELOPMENT. | 1,099,564 | 1,192,564 |
| | | ADVANCED COMPONENT DEVELOPMENT & PROTOTYPES | | |
| 073 | 0603305A | ARMY MISSILE DEFENSE SYSTEMS INTEGRATION | 10,987 | 18,987 |
| | | Conventional mission capabilities | | [8,000] |
| 074 | 0603327A | AIR AND MISSILE DEFENSE SYSTEMS ENGINEERING | 15,148 | 15,148 |
| 075 | 0603619A | LANDMINE WARFARE AND BARRIER—ADV DEV | 92,915 | 92,915 |
| 077 | 0603639A | TANK AND MEDIUM CALIBER AMMUNITION | 82,146 | 82,146 |
| 078 | 0603645A | ARMORED SYSTEM MODERNIZATION—ADV DEV | 157,656 | 157,656 |
| 079 | 0603747A | SOLDIER SUPPORT AND SURVIVABILITY | 6,514 | 6,514 |
| 080 | 0603766A | TACTICAL ELECTRONIC SURVEILLANCE SYSTEM—ADV DEV. | 34,890 | 34,890 |
| 081 | 0603774A | NIGHT VISION SYSTEMS ADVANCED DEVELOPMENT | 251,011 | 222,791 |
| | | IVAS insufficient justification | | [-28,220] |
| 082 | 0603779A | ENVIRONMENTAL QUALITY TECHNOLOGY—DEM/VAL | 15,132 | 15,132 |
| 083 | 0603790A | NATO RESEARCH AND DEVELOPMENT | 5,406 | 5,406 |
| 084 | 0603801A | AVIATION—ADV DEV | 459,290 | 534,890 |
| | | Program increase: Future long-range assault aircraft | | [75,600] |
| 085 | 0603804A | LOGISTICS AND ENGINEER EQUIPMENT—ADV DEV | 6,254 | 6,254 |
| 086 | 0603807A | MEDICAL SYSTEMS—ADV DEV | 31,175 | 31,175 |
| 087 | 0603827A | SOLDIER SYSTEMS—ADVANCED DEVELOPMENT | 22,113 | 22,113 |
| 088 | 0604017A | ROBOTICS DEVELOPMENT | 115,222 | 88,222 |
| | | Early to need | | [-27,000] |
| 090 | 0604021A | ELECTRONIC WARFARE TECHNOLOGY MATURATION (MIP) | 18,043 | 18,043 |
| 091 | 0604100A | ANALYSIS OF ALTERNATIVES | 10,023 | 10,023 |
| 092 | 0604113A | FUTURE TACTICAL UNMANNED AIRCRAFT SYSTEM (FTUAS). | 40,745 | 35,745 |
| | | Program adjustment | | [-5,000] |
| 093 | 0604114A | LOWER TIER AIR MISSILE DEFENSE (LTAMD) SENSOR | 427,772 | 379,772 |
| | | Rapid prototyping excess funding | | [-48,000] |
| 094 | 0604115A | TECHNOLOGY MATURATION INITIATIVES | 196,676 | 161,676 |
| | | Insufficient schedule detail | | [-35,000] |
| 095 | 0604117A | MANEUVER—SHORT RANGE AIR DEFENSE (M-SHORAD) | 33,100 | 29,400 |
| | | Excess testing cost | | [-3,700] |
| 097 | 0604119A | ARMY ADVANCED COMPONENT DEVELOPMENT & PROTOTYPING. | 115,116 | 103,331 |
| | | Early to need | | [-11,785] |
| 099 | 0604121A | SYNTHETIC TRAINING ENVIRONMENT REFINEMENT & PROTOTYPING. | 136,761 | 111,761 |
| | | Early to need (IVAS) | | [-25,000] |
| 100 | 0604182A | HYPERSONICS | 228,000 | 389,610 |
| | | Transfer from RDTE Defense-Wide, line 124 | | [31,000] |
| | | UPL accelerate Hypersonic Weapons System | | [130,610] |
| 102 | 0604403A | FUTURE INTERCEPTOR | 8,000 | 0 |
| | | Early to need | | [-8,000] |
| 103 | 0604541A | UNIFIED NETWORK TRANSPORT | 39,600 | 29,700 |
| | | Early to need | | [-9,900] |
| 104 | 0604644A | MOBILE MEDIUM RANGE MISSILE | 20,000 | 10,000 |
| | | Program decrease | | [-10,000] |
| 106 | 0305251A | CYBERSPACE OPERATIONS FORCES AND FORCE SUPPORT | 52,102 | 52,102 |
| 107 | 1206120A | ASSURED POSITIONING, NAVIGATION AND TIMING (PNT) .. | 192,562 | 150,062 |
| | | Project cancellation | | [-42,500] |
| 108 | 1206308A | ARMY SPACE SYSTEMS INTEGRATION | 104,996 | 104,996 |
| | | SUBTOTAL ADVANCED COMPONENT DEVELOPMENT & PROTOTYPES. | 2,929,355 | 2,920,460 |
| | | SYSTEM DEVELOPMENT & DEMONSTRATION | | |
| 109 | 0604201A | AIRCRAFT AVIONICS | 29,164 | 29,164 |
| 110 | 0604270A | ELECTRONIC WARFARE DEVELOPMENT | 70,539 | 70,539 |
| 113 | 0604601A | INFANTRY SUPPORT WEAPONS | 106,121 | 106,121 |
| 114 | 0604604A | MEDIUM TACTICAL VEHICLES | 2,152 | 2,152 |
| 115 | 0604611A | JAVELIN | 17,897 | 16,055 |
| | | Qualification testing early to need | | [-1,842] |
| 116 | 0604622A | FAMILY OF HEAVY TACTICAL VEHICLES | 16,745 | 16,745 |
| 117 | 0604633A | AIR TRAFFIC CONTROL | 6,989 | 6,989 |
| 118 | 0604642A | LIGHT TACTICAL WHEELED VEHICLES | 10,465 | 2,965 |
| | | Program reduction | | [-7,500] |

SEC. 4201. RESEARCH, DEVELOPMENT, TEST, AND EVALUATION
(In Thousands of Dollars)

| Line | Program Element | Item | FY 2020 Request | Conference Authorized |
|------|-----------------|---|-----------------|-----------------------|
| 119 | 0604645A | ARMORED SYSTEMS MODERNIZATION (ASM)—ENG DEV | 310,152 | 293,964 |
| | | Program delay | | [-16,188] |
| 120 | 0604710A | NIGHT VISION SYSTEMS—ENG DEV | 181,732 | 166,732 |
| | | Insufficient justification (IVAS) | | [-15,000] |
| 121 | 0604713A | COMBAT FEEDING, CLOTHING, AND EQUIPMENT | 2,393 | 2,393 |
| 122 | 0604715A | NON-SYSTEM TRAINING DEVICES—ENG DEV | 27,412 | 27,412 |
| 123 | 0604741A | AIR DEFENSE COMMAND, CONTROL AND INTEL- LIGENCE—ENG DEV. | 43,502 | 43,502 |
| 124 | 0604742A | CONSTRUCTIVE SIMULATION SYSTEMS DEVELOPMENT | 11,636 | 11,636 |
| 125 | 0604746A | AUTOMATIC TEST EQUIPMENT DEVELOPMENT | 10,915 | 10,915 |
| 126 | 0604760A | DISTRIBUTIVE INTERACTIVE SIMULATIONS (DIS)—ENG DEV. | 7,801 | 7,801 |
| 127 | 0604768A | BRILLIANT ANTI-ARMOR SUBMUNITION (BAT) | 25,000 | 20,000 |
| | | PPAL excess | | [-5,000] |
| 128 | 0604780A | COMBINED ARMS TACTICAL TRAINER (CATT) CORE | 9,241 | 9,241 |
| 129 | 0604798A | BRIGADE ANALYSIS, INTEGRATION AND EVALUATION | 42,634 | 38,303 |
| | | RCO support excess | | [-4,331] |
| 130 | 0604802A | WEAPONS AND MUNITIONS—ENG DEV | 181,023 | 181,023 |
| 131 | 0604804A | LOGISTICS AND ENGINEER EQUIPMENT—ENG DEV | 103,226 | 103,226 |
| 132 | 0604805A | COMMAND, CONTROL, COMMUNICATIONS SYSTEMS—ENG DEV. | 12,595 | 12,595 |
| 133 | 0604807A | MEDICAL MATERIEL/MEDICAL BIOLOGICAL DEFENSE EQUIPMENT—ENG DEV. | 48,264 | 48,264 |
| 134 | 0604808A | LANDMINE WARFARE/BARRIER—ENG DEV | 39,208 | 39,208 |
| 135 | 0604818A | ARMY TACTICAL COMMAND & CONTROL HARDWARE & SOFTWARE. | 140,637 | 138,137 |
| | | CPI2 testing previously funded | | [-2,500] |
| 136 | 0604820A | RADAR DEVELOPMENT | 105,243 | 105,243 |
| 137 | 0604822A | GENERAL FUND ENTERPRISE BUSINESS SYSTEM (GFEBS) | 46,683 | 46,683 |
| 138 | 0604823A | FIREFINDER | 17,294 | 17,294 |
| 139 | 0604827A | SOLDIER SYSTEMS—WARRIOR DEM/VAL | 5,803 | 5,803 |
| 140 | 0604852A | SUITE OF SURVIVABILITY ENHANCEMENT SYSTEMS— EMD. | 98,698 | 118,698 |
| | | Program increase for vehicle active protection system evaluation | | [30,000] |
| | | Program reduction | | [-10,000] |
| 141 | 0604854A | ARTILLERY SYSTEMS—EMD | 15,832 | 15,832 |
| 142 | 0605013A | INFORMATION TECHNOLOGY DEVELOPMENT | 126,537 | 71,537 |
| | | Historical underexecution | | [-10,000] |
| | | Program decrease | | [-45,000] |
| 143 | 0605018A | INTEGRATED PERSONNEL AND PAY SYSTEM-ARMY (IPPS- A). | 142,773 | 92,073 |
| | | Poor business process reengineering | | [-50,700] |
| 144 | 0605028A | ARMORED MULTI-PURPOSE VEHICLE (AMPV) | 96,730 | 92,130 |
| | | Program reduction | | [-4,600] |
| 145 | 0605029A | INTEGRATED GROUND SECURITY SURVEILLANCE RE- SPONSE CAPABILITY (IGSSR-C). | 6,699 | 6,699 |
| 146 | 0605030A | JOINT TACTICAL NETWORK CENTER (JTNC) | 15,882 | 15,882 |
| 147 | 0605031A | JOINT TACTICAL NETWORK (JTN) | 40,808 | 40,808 |
| 149 | 0605033A | GROUND-BASED OPERATIONAL SURVEILLANCE SYSTEM— EXPEDITIONARY (GBOSS-E). | 3,847 | 3,847 |
| 150 | 0605034A | TACTICAL SECURITY SYSTEM (TSS) | 6,928 | 6,928 |
| 151 | 0605035A | COMMON INFRARED COUNTERMEASURES (CIRCM) | 34,488 | 34,488 |
| 152 | 0605036A | COMBATING WEAPONS OF MASS DESTRUCTION (CWMD) | 10,000 | 10,000 |
| 154 | 0605038A | NUCLEAR BIOLOGICAL CHEMICAL RECONNAISSANCE VE- HICLE (NBCRV) SENSOR SUITE. | 6,054 | 6,054 |
| 155 | 0605041A | DEFENSIVE CYBER TOOL DEVELOPMENT | 62,262 | 45,662 |
| | | Contract delays | | [-10,000] |
| | | Excess growth | | [-6,600] |
| 156 | 0605042A | TACTICAL NETWORK RADIO SYSTEMS (LOW-TIER) | 35,654 | 29,254 |
| | | Excess growth | | [-6,400] |
| 157 | 0605047A | CONTRACT WRITING SYSTEM | 19,682 | 19,682 |
| 158 | 0605049A | MISSILE WARNING SYSTEM MODERNIZATION (MWSM) | 1,539 | 1,539 |
| 159 | 0605051A | AIRCRAFT SURVIVABILITY DEVELOPMENT | 64,557 | 64,557 |
| 160 | 0605052A | INDIRECT FIRE PROTECTION CAPABILITY INC 2—BLOCK 1. | 243,228 | 236,428 |
| | | EMAM development ahead of need | | [-6,800] |
| 161 | 0605053A | GROUND ROBOTICS | 41,308 | 28,508 |
| | | Excess to requirement | | [-12,800] |
| 162 | 0605054A | EMERGING TECHNOLOGY INITIATIVES | 45,896 | 31,616 |
| | | Testing and evaluation excess growth | | [-4,280] |
| | | Unjustified request | | [-10,000] |
| 163 | 0605203A | ARMY SYSTEM DEVELOPMENT & DEMONSTRATION | 164,883 | 164,883 |
| 165 | 0605450A | JOINT AIR-TO-GROUND MISSILE (JAGM) | 9,500 | 9,500 |
| 166 | 0605457A | ARMY INTEGRATED AIR AND MISSILE DEFENSE (AIAMD) | 208,938 | 193,938 |
| | | Testing and evaluation excess growth | | [-15,000] |
| 167 | 0605625A | MANNED GROUND VEHICLE | 378,400 | 228,400 |
| | | Program decrease | | [-150,000] |
| 168 | 0605766A | NATIONAL CAPABILITIES INTEGRATION (MIP) | 7,835 | 7,835 |

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| Line | Program Element | Item | FY 2020 Request | Conference Authorized |
|------|-----------------|--|------------------|-----------------------|
| 169 | 0605812A | JOINT LIGHT TACTICAL VEHICLE (JLTV) ENGINEERING AND MANUFACTURING DEVELOPMENT PH. Army requested realignment from OPA 7 | 2,732 | 7,232 [4,500] |
| 170 | 0605830A | AVIATION GROUND SUPPORT EQUIPMENT | 1,664 | 1,664 |
| 172 | 0303032A | TROJAN—RH12 | 3,936 | 3,936 |
| 174 | 0304270A | ELECTRONIC WARFARE DEVELOPMENT | 19,675 | 19,675 |
| | | SUBTOTAL SYSTEM DEVELOPMENT & DEMONSTRATION. | 3,549,431 | 3,189,390 |
| | | RDT&E MANAGEMENT SUPPORT | | |
| 176 | 0604256A | THREAT SIMULATOR DEVELOPMENT | 14,117 | 16,117 [2,000] |
| | | Cybersecurity threat simulation | | |
| 177 | 0604258A | TARGET SYSTEMS DEVELOPMENT | 8,327 | 8,327 |
| 178 | 0604759A | MAJOR T&E INVESTMENT | 136,565 | 136,565 |
| 179 | 0605103A | RAND ARROYO CENTER | 13,113 | 13,113 |
| 180 | 0605301A | ARMY KWAJALEIN ATOLL | 238,691 | 238,691 |
| 181 | 0605326A | CONCEPTS EXPERIMENTATION PROGRAM | 42,922 | 36,922 [−6,000] |
| | | Program reduction | | |
| 183 | 0605601A | ARMY TEST RANGES AND FACILITIES | 334,468 | 334,468 |
| 184 | 0605602A | ARMY TECHNICAL TEST INSTRUMENTATION AND TARGETS. Program increase—space and missile cybersecurity | 46,974 | 51,974 [5,000] |
| 185 | 0605604A | SURVIVABILITY/LETHALITY ANALYSIS | 35,075 | 35,075 |
| 186 | 0605606A | AIRCRAFT CERTIFICATION | 3,461 | 3,461 |
| 187 | 0605702A | METEOROLOGICAL SUPPORT TO RDT&E ACTIVITIES | 6,233 | 6,233 |
| 188 | 0605706A | MATERIEL SYSTEMS ANALYSIS | 21,342 | 21,342 |
| 189 | 0605709A | EXPLOITATION OF FOREIGN ITEMS | 11,168 | 11,168 |
| 190 | 0605712A | SUPPORT OF OPERATIONAL TESTING | 52,723 | 52,723 |
| 191 | 0605716A | ARMY EVALUATION CENTER | 60,815 | 60,815 |
| 192 | 0605718A | ARMY MODELING & SIM X-CMD COLLABORATION & INTEG | 2,527 | 2,527 |
| 193 | 0605801A | PROGRAMWIDE ACTIVITIES | 58,175 | 58,175 |
| 194 | 0605803A | TECHNICAL INFORMATION ACTIVITIES | 25,060 | 25,060 |
| 195 | 0605805A | MUNITIONS STANDARDIZATION, EFFECTIVENESS AND SAFETY. | 44,458 | 44,458 |
| 196 | 0605857A | ENVIRONMENTAL QUALITY TECHNOLOGY MGMT SUPPORT. | 4,681 | 4,681 |
| 197 | 0605898A | ARMY DIRECT REPORT HEADQUARTERS—R&D - MHA | 53,820 | 53,820 |
| 198 | 0606001A | MILITARY GROUND-BASED CREW TECHNOLOGY | 4,291 | 4,291 |
| 199 | 0606002A | RONALD REAGAN BALLISTIC MISSILE DEFENSE TEST SITE. | 62,069 | 62,069 |
| 200 | 0606003A | COUNTERINTEL AND HUMAN INTEL MODERNIZATION | 1,050 | 1,050 |
| 201 | 0606942A | ASSESSMENTS AND EVALUATIONS CYBER VULNERABILITIES. | 4,500 | 4,500 |
| | | SUBTOTAL RDT&E MANAGEMENT SUPPORT | 1,286,625 | 1,287,625 |
| | | OPERATIONAL SYSTEMS DEVELOPMENT UNDISTRIBUTED | | |
| 204 | 0603778A | MLRS PRODUCT IMPROVEMENT PROGRAM | 22,877 | 19,877 [−3,000] |
| | | HIMARS excess growth | | |
| 206 | 0605024A | ANTI-TAMPER TECHNOLOGY SUPPORT | 8,491 | 8,491 |
| 207 | 0607131A | WEAPONS AND MUNITIONS PRODUCT IMPROVEMENT PROGRAMS. | 15,645 | 15,645 |
| 209 | 0607134A | LONG RANGE PRECISION FIRES (LRPF) | 164,182 | 164,182 |
| 211 | 0607136A | BLACKHAWK PRODUCT IMPROVEMENT PROGRAM | 13,039 | 13,039 |
| 212 | 0607137A | CHINOOK PRODUCT IMPROVEMENT PROGRAM | 174,371 | 168,371 [−6,000] |
| | | Program reduction | | |
| 213 | 0607138A | FIXED WING PRODUCT IMPROVEMENT PROGRAM | 4,545 | 0 [−4,545] |
| | | Program reduction | | |
| 214 | 0607139A | IMPROVED TURBINE ENGINE PROGRAM | 206,434 | 206,434 |
| 216 | 0607142A | AVIATION ROCKET SYSTEM PRODUCT IMPROVEMENT AND DEVELOPMENT. Integrated munitions launcher early to need | 24,221 | 21,130 [−3,091] |
| 217 | 0607143A | UNMANNED AIRCRAFT SYSTEM UNIVERSAL PRODUCTS | 32,016 | 25,516 [−6,500] |
| | | Program reduction | | |
| 218 | 0607145A | APACHE FUTURE DEVELOPMENT | 5,448 | 448 [−5,000] |
| | | Unjustified request | | |
| 219 | 0607312A | ARMY OPERATIONAL SYSTEMS DEVELOPMENT | 49,526 | 49,526 |
| 220 | 0607665A | FAMILY OF BIOMETRICS | 1,702 | 1,702 |
| 221 | 0607865A | PATRIOT PRODUCT IMPROVEMENT | 96,430 | 63,630 [−32,800] |
| | | Excess growth | | |
| 222 | 0203728A | JOINT AUTOMATED DEEP OPERATION COORDINATION SYSTEM (JADOCs). | 47,398 | 47,398 |
| 223 | 0203735A | COMBAT VEHICLE IMPROVEMENT PROGRAMS | 334,463 | 290,545 [−41,918] |
| | | Early to need | | |
| | | Program support excess growth | | |
| 225 | 0203743A | 155MM SELF-PROPELLED HOWITZER IMPROVEMENTS | 214,246 | 192,746 [−21,500] |
| | | Program reduction | | |
| 226 | 0203744A | AIRCRAFT MODIFICATIONS/PRODUCT IMPROVEMENT PROGRAMS. | 16,486 | 13,778 |

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(In Thousands of Dollars)

| Line | Program Element | Item | FY 2020 Request | Conference Authorized |
|------|-----------------|--|-------------------|-----------------------|
| | | Excess to need | | [-2,708] |
| 227 | 0203752A | AIRCRAFT ENGINE COMPONENT IMPROVEMENT PROGRAM | 144 | 144 |
| 228 | 0203758A | DIGITIZATION | 5,270 | 5,270 |
| 229 | 0203801A | MISSILE/AIR DEFENSE PRODUCT IMPROVEMENT PROGRAM | 1,287 | 1,287 |
| 234 | 0205412A | ENVIRONMENTAL QUALITY TECHNOLOGY—OPERATIONAL SYSTEM DEV. | 732 | 732 |
| 235 | 0205456A | LOWER TIER AIR AND MISSILE DEFENSE (AMD) SYSTEM .. | 107,746 | 99,746 |
| | | Testing excess to need | | [-8,000] |
| 236 | 0205778A | GUIDED MULTIPLE-LAUNCH ROCKET SYSTEM (GMLRS) | 138,594 | 128,594 |
| | | Testing excess to need | | [-10,000] |
| 238 | 0303028A | SECURITY AND INTELLIGENCE ACTIVITIES | 13,845 | 13,845 |
| 239 | 0303140A | INFORMATION SYSTEMS SECURITY PROGRAM | 29,185 | 29,185 |
| 240 | 0303141A | GLOBAL COMBAT SUPPORT SYSTEM | 68,976 | 48,376 |
| | | Program decrease | | [-20,600] |
| 241 | 0303150A | WWMCCS/GLOBAL COMMAND AND CONTROL SYSTEM | 2,073 | 2,073 |
| 245 | 0305179A | INTEGRATED BROADCAST SERVICE (IBS) | 459 | 459 |
| 246 | 0305204A | TACTICAL UNMANNED AERIAL VEHICLES | 5,097 | 5,097 |
| 247 | 0305206A | AIRBORNE RECONNAISSANCE SYSTEMS | 11,177 | 11,177 |
| 248 | 0305208A | DISTRIBUTED COMMON GROUND/SURFACE SYSTEMS | 38,121 | 38,121 |
| 250 | 0305232A | RQ-11 UAV | 3,218 | 3,218 |
| 251 | 0305233A | RQ-7 UAV | 7,817 | 7,817 |
| 252 | 0307665A | BIOMETRICS ENABLED INTELLIGENCE | 2,000 | 2,000 |
| 253 | 0708045A | END ITEM INDUSTRIAL PREPAREDNESS ACTIVITIES | 59,848 | 67,848 |
| | | Nanoscale materials manufacturing | | [3,000] |
| | | Program increase—additive manufacturing technology insertion | | [5,000] |
| 254 | 1203142A | SATCOM GROUND ENVIRONMENT (SPACE) | 34,169 | 34,169 |
| 255 | 1208053A | JOINT TACTICAL GROUND SYSTEM | 10,275 | 10,275 |
| 255A | 9999999999 | CLASSIFIED PROGRAMS | 7,273 | 7,273 |
| | | SUBTOTAL OPERATIONAL SYSTEMS DEVELOPMENT | 1,978,826 | 1,819,164 |
| | | SUBTOTAL UNDISTRIBUTED | | -159,662 |
| | | TOTAL RESEARCH, DEVELOPMENT, TEST & EVAL, ARMY. | 12,192,771 | 11,857,473 |
| | | RESEARCH, DEVELOPMENT, TEST & EVAL, NAVY | | |
| | | BASIC RESEARCH | | |
| 001 | 0601103N | UNIVERSITY RESEARCH INITIATIVES | 116,850 | 146,850 |
| | | Advanced radar research | | [5,000] |
| | | Cyber basic research | | [10,000] |
| | | Defense University research initiatives | | [5,000] |
| | | Program increase | | [10,000] |
| 002 | 0601152N | IN-HOUSE LABORATORY INDEPENDENT RESEARCH | 19,121 | 19,121 |
| 003 | 0601153N | DEFENSE RESEARCH SCIENCES | 470,007 | 470,007 |
| | | SUBTOTAL BASIC RESEARCH | 605,978 | 635,978 |
| | | APPLIED RESEARCH | | |
| 004 | 0602114N | POWER PROJECTION APPLIED RESEARCH | 18,546 | 25,546 |
| | | Hypersonic testing facilities | | [7,000] |
| 005 | 0602123N | FORCE PROTECTION APPLIED RESEARCH | 119,517 | 166,017 |
| | | Carbon capture | | [8,000] |
| | | Electric propulsion research | | [2,500] |
| | | Energy resilience | | [5,000] |
| | | Energy resilience research | | [3,000] |
| | | Hybrid composite struct. res. enhanced mobility | | [5,000] |
| | | Navy power and energy systems technology | | [5,000] |
| | | Program increase | | [10,000] |
| | | Test bed for autonomous ship systems | | [8,000] |
| 006 | 0602131M | MARINE CORPS LANDING FORCE TECHNOLOGY | 56,604 | 61,604 |
| | | Interdisciplinary expeditionary cybersecurity research | | [5,000] |
| 007 | 0602235N | COMMON PICTURE APPLIED RESEARCH | 49,297 | 44,297 |
| | | Coordinate space activities | | [-5,000] |
| 008 | 0602236N | WARFIGHTER SUSTAINMENT APPLIED RESEARCH | 63,825 | 63,825 |
| 009 | 0602271N | ELECTROMAGNETIC SYSTEMS APPLIED RESEARCH | 83,497 | 83,497 |
| 010 | 0602435N | OCEAN WARFIGHTING ENVIRONMENT APPLIED RESEARCH. | 63,894 | 63,894 |
| 011 | 0602651M | JOINT NON-LETHAL WEAPONS APPLIED RESEARCH | 6,346 | 6,346 |
| 012 | 0602747N | UNDERSEA WARFARE APPLIED RESEARCH | 57,075 | 74,075 |
| | | Academic partnerships for undersea vehicle research | | [10,000] |
| | | Resident autonomous undersea robotics | | [7,000] |
| 013 | 0602750N | FUTURE NAVAL CAPABILITIES APPLIED RESEARCH | 154,755 | 154,755 |
| 014 | 0602782N | MINE AND EXPEDITIONARY WARFARE APPLIED RESEARCH. | 36,074 | 36,074 |
| 015 | 0602792N | INNOVATIVE NAVAL PROTOTYPES (INP) APPLIED RESEARCH. | 153,062 | 153,062 |
| 016 | 0602861N | SCIENCE AND TECHNOLOGY MANAGEMENT—ONR FIELD ACTIVITIES. | 73,961 | 73,961 |

SEC. 4201. RESEARCH, DEVELOPMENT, TEST, AND EVALUATION
(In Thousands of Dollars)

| Line | Program Element | Item | FY 2020 Request | Conference Authorized |
|--|-----------------|--|-----------------|-----------------------|
| SUBTOTAL APPLIED RESEARCH | | | 936,453 | 1,006,953 |
| ADVANCED TECHNOLOGY DEVELOPMENT | | | | |
| 017 | 0603123N | FORCE PROTECTION ADVANCED TECHNOLOGY | 35,286 | 35,286 |
| 018 | 0603271N | ELECTROMAGNETIC SYSTEMS ADVANCED TECHNOLOGY .. | 9,499 | 9,499 |
| 019 | 0603640M | USMC ADVANCED TECHNOLOGY DEMONSTRATION (ATD) .. | 172,847 | 177,847 |
| | | Program increase—modular advanced armed robotic system | | [5,000] |
| 020 | 0603651M | JOINT NON-LETHAL WEAPONS TECHNOLOGY DEVELOP- MENT. | 13,307 | 13,307 |
| 021 | 0603673N | FUTURE NAVAL CAPABILITIES ADVANCED TECHNOLOGY DEVELOPMENT. | 231,907 | 231,907 |
| 022 | 0603680N | MANUFACTURING TECHNOLOGY PROGRAM | 60,138 | 65,138 |
| | | Program increase | | [5,000] |
| 023 | 0603729N | WARFIGHTER PROTECTION ADVANCED TECHNOLOGY | 4,849 | 4,849 |
| 025 | 0603758N | NAVY WARFIGHTING EXPERIMENTS AND DEMONSTRATIONS. | 67,739 | 67,739 |
| 026 | 0603782N | MINE AND EXPEDITIONARY WARFARE ADVANCED TECHNOLOGY. | 13,335 | 13,335 |
| 027 | 0603801N | INNOVATIVE NAVAL PROTOTYPES (INP) ADVANCED TECHNOLOGY DEVELOPMENT. | 133,303 | 150,330 |
| | | Electromagnetic railgun | | [10,000] |
| | | Funds excess to requirements | | [-7,973] |
| | | Program increase | | [15,000] |
| SUBTOTAL ADVANCED TECHNOLOGY DEVELOPMENT. | | | 742,210 | 769,237 |
| ADVANCED COMPONENT DEVELOPMENT & PROTOTYPES | | | | |
| 028 | 0603207N | AIR/OCEAN TACTICAL APPLICATIONS | 32,643 | 38,643 |
| | | Program increase for 1 REMUS 600 vehicle | | [6,000] |
| 029 | 0603216N | AVIATION SURVIVABILITY | 11,919 | 11,919 |
| 030 | 0603251N | AIRCRAFT SYSTEMS | 1,473 | 1,473 |
| 031 | 0603254N | ASW SYSTEMS DEVELOPMENT | 7,172 | 7,172 |
| 032 | 0603261N | TACTICAL AIRBORNE RECONNAISSANCE | 3,419 | 3,419 |
| 033 | 0603382N | ADVANCED COMBAT SYSTEMS TECHNOLOGY | 64,694 | 64,694 |
| 034 | 0603502N | SURFACE AND SHALLOW WATER MINE COUNTERMEASURES. | 507,000 | 310,500 |
| | | Reduce one LUSV | | [-86,500] |
| | | VLS concept design and LLTM early to need | | [-110,000] |
| 035 | 0603506N | SURFACE SHIP TORPEDO DEFENSE | 15,800 | 7,242 |
| | | Excess sundown costs | | [-8,558] |
| 036 | 0603512N | CARRIER SYSTEMS DEVELOPMENT | 4,997 | 4,997 |
| 037 | 0603525N | PILOT FISH | 291,148 | 186,328 |
| | | Program adjustment | | [-104,820] |
| 038 | 0603527N | RETRACT LARCH | 11,980 | 11,980 |
| 039 | 0603536N | RETRACT JUNIPER | 129,163 | 129,163 |
| 040 | 0603542N | RADIOLOGICAL CONTROL | 689 | 689 |
| 041 | 0603553N | SURFACE ASW | 1,137 | 1,137 |
| 042 | 0603561N | ADVANCED SUBMARINE SYSTEM DEVELOPMENT | 148,756 | 120,046 |
| | | Program decrease | | [-19,000] |
| | | Project 9710: Unjustified new start | | [-9,710] |
| 043 | 0603562N | SUBMARINE TACTICAL WARFARE SYSTEMS | 11,192 | 11,192 |
| 044 | 0603563N | SHIP CONCEPT ADVANCED DESIGN | 81,846 | 57,846 |
| | | Future surface combatant concept development | | [-24,000] |
| 045 | 0603564N | SHIP PRELIMINARY DESIGN & FEASIBILITY STUDIES | 69,084 | 22,584 |
| | | Early to need | | [-46,500] |
| 046 | 0603570N | ADVANCED NUCLEAR POWER SYSTEMS | 181,652 | 181,652 |
| 047 | 0603573N | ADVANCED SURFACE MACHINERY SYSTEMS | 25,408 | 155,408 |
| | | Program increase | | [5,000] |
| | | Surface combatant component-level prototyping | | [125,000] |
| 048 | 0603576N | CHALK EAGLE | 64,877 | 64,877 |
| 049 | 0603581N | LITTORAL COMBAT SHIP (LCS) | 9,934 | 9,934 |
| 050 | 0603582N | COMBAT SYSTEM INTEGRATION | 17,251 | 17,251 |
| 051 | 0603595N | OHIO REPLACEMENT | 419,051 | 434,051 |
| | | Accelerate advanced propulsor development | | [15,000] |
| 052 | 0603596N | LCS MISSION MODULES | 108,505 | 105,595 |
| | | Available prior year funds due to SUW MP testing delay | | [-2,910] |
| 053 | 0603597N | AUTOMATED TEST AND ANALYSIS | 7,653 | 7,653 |
| 054 | 0603599N | FRIGATE DEVELOPMENT | 59,007 | 59,007 |
| 055 | 0603609N | CONVENTIONAL MUNITIONS | 9,988 | 9,988 |
| 056 | 0603635M | MARINE CORPS GROUND COMBAT/SUPPORT SYSTEM | 86,464 | 16,477 |
| | | Insufficient justification and contract delay | | [-69,987] |
| 057 | 0603654N | JOINT SERVICE EXPLOSIVE ORDNANCE DEVELOPMENT ... | 33,478 | 33,478 |
| 058 | 0603713N | OCEAN ENGINEERING TECHNOLOGY DEVELOPMENT | 5,619 | 5,619 |
| 059 | 0603721N | ENVIRONMENTAL PROTECTION | 20,564 | 20,564 |
| 060 | 0603724N | NAVY ENERGY PROGRAM | 26,514 | 49,514 |
| | | Battery development and safety enterprise | | [13,000] |
| | | Marine energy systems for sensors and microgrids | | [10,000] |

SEC. 4201. RESEARCH, DEVELOPMENT, TEST, AND EVALUATION
(In Thousands of Dollars)

| Line | Program Element | Item | FY 2020 Request | Conference Authorized |
|------|-----------------|--|------------------|-----------------------|
| 061 | 0603725N | FACILITIES IMPROVEMENT | 3,440 | 3,440 |
| 062 | 0603734N | CHALK CORAL | 346,800 | 310,400 |
| | | Insufficient budget justification | | [-36,400] |
| 063 | 0603739N | NAVY LOGISTIC PRODUCTIVITY | 3,857 | 3,857 |
| 064 | 0603746N | RETRACT MAPLE | 258,519 | 258,519 |
| 065 | 0603748N | LINK PLUMERIA | 403,909 | 396,509 |
| | | Insufficient budget justification | | [-7,400] |
| 066 | 0603751N | RETRACT ELM | 63,434 | 63,434 |
| 067 | 0603764N | LINK EVERGREEN | 184,110 | 184,110 |
| 068 | 0603790N | NATO RESEARCH AND DEVELOPMENT | 7,697 | 7,697 |
| 069 | 0603795N | LAND ATTACK TECHNOLOGY | 9,086 | 9,086 |
| 070 | 0603851M | JOINT NON-LETHAL WEAPONS TESTING | 28,466 | 28,466 |
| 071 | 0603860N | JOINT PRECISION APPROACH AND LANDING SYSTEMS— DEM/VAL | 51,341 | 51,341 |
| 072 | 0603925N | DIRECTED ENERGY AND ELECTRIC WEAPON SYSTEMS | 118,169 | 118,169 |
| 073 | 0604014N | F/A -18 INFRARED SEARCH AND TRACK (IRST) | 113,456 | 112,456 |
| | | Program delay | | [-1,000] |
| 074 | 0604027N | DIGITAL WARFARE OFFICE | 50,120 | 25,120 |
| | | Artificial intelligence development operations unjustified growth | | [-10,000] |
| | | Program decrease | | [-15,000] |
| 075 | 0604028N | SMALL AND MEDIUM UNMANNED UNDERSEA VEHICLES .. | 32,527 | 32,527 |
| 076 | 0604029N | UNMANNED UNDERSEA VEHICLE CORE TECHNOLOGIES .. | 54,376 | 54,376 |
| 077 | 0604030N | RAPID PROTOTYPING, EXPERIMENTATION AND DEM- ONSTRATION.. | 36,197 | 36,197 |
| 078 | 0604031N | LARGE UNMANNED UNDERSEA VEHICLES | 68,310 | 68,310 |
| 079 | 0604112N | GERALD R. FORD CLASS NUCLEAR AIRCRAFT CARRIER (CVN 78—80) | 121,310 | 112,310 |
| | | Integrated digital shipbuilding insufficient budget justification ... | | [-9,000] |
| 080 | 0604126N | LITTORAL AIRBORNE MCM | 17,248 | 17,248 |
| 081 | 0604127N | SURFACE MINE COUNTERMEASURES | 18,735 | 18,735 |
| 082 | 0604272N | TACTICAL AIR DIRECTIONAL INFRARED COUNTER- MEASURES (TADIRCM) | 68,346 | 58,449 |
| | | Excess to need | | [-9,897] |
| 084 | 0604289M | NEXT GENERATION LOGISTICS | 4,420 | 13,420 |
| | | Additive manufacturing logistics software pilot | | [9,000] |
| 085 | 0604320M | RAPID TECHNOLOGY CAPABILITY PROTOTYPE | 4,558 | 4,558 |
| 086 | 0604454N | LX (R) | 12,500 | 12,500 |
| 087 | 0604536N | ADVANCED UNDERSEA PROTOTYPING | 181,967 | 181,967 |
| 088 | 0604636N | COUNTER UNMANNED AIRCRAFT SYSTEMS (C-UAS) | 5,500 | 5,500 |
| 089 | 0604659N | PRECISION STRIKE WEAPONS DEVELOPMENT PROGRAM .. | 718,148 | 688,148 |
| | | Excess growth | | [-30,000] |
| 090 | 0604707N | SPACE AND ELECTRONIC WARFARE (SEW) ARCHITEC- TURE/ENGINEERING SUPPORT | 5,263 | 5,263 |
| 091 | 0604786N | OFFENSIVE ANTI-SURFACE WARFARE WEAPON DEVELOP- MENT | 65,419 | 65,419 |
| 092 | 0303354N | ASW SYSTEMS DEVELOPMENT—MIP | 9,991 | 9,991 |
| 093 | 0304240M | ADVANCED TACTICAL UNMANNED AIRCRAFT SYSTEM | 21,157 | 39,657 |
| | | KMAX Large Unmanned Logistics System USMC unfunded pri- ority | | [18,500] |
| 095 | 0304270N | ELECTRONIC WARFARE DEVELOPMENT—MIP | 609 | 609 |
| | | SUBTOTAL ADVANCED COMPONENT DEVELOP- MENT & PROTOTYPES | 5,559,062 | 5,159,880 |
| | | SYSTEM DEVELOPMENT & DEMONSTRATION | | |
| 096 | 0603208N | TRAINING SYSTEM AIRCRAFT | 15,514 | 15,514 |
| 097 | 0604212N | OTHER HELO DEVELOPMENT | 28,835 | 28,835 |
| 098 | 0604214M | AV-8B AIRCRAFT—ENG DEV | 27,441 | 27,441 |
| 100 | 0604215N | STANDARDS DEVELOPMENT | 3,642 | 3,642 |
| 101 | 0604216N | MULTI-MISSION HELICOPTER UPGRADE DEVELOPMENT ... | 19,196 | 19,196 |
| 104 | 0604230N | WARFARE SUPPORT SYSTEM | 8,601 | 8,601 |
| 105 | 0604231N | TACTICAL COMMAND SYSTEM | 77,232 | 77,232 |
| 106 | 0604234N | ADVANCED HAWKEYE | 232,752 | 232,752 |
| 107 | 0604245M | H-1 UPGRADES | 65,359 | 65,359 |
| 109 | 0604261N | ACOUSTIC SEARCH SENSORS | 47,013 | 47,013 |
| 110 | 0604262N | V-22A | 185,105 | 190,105 |
| | | Increase reliability and reduce vibrations of V-22 nacelles | | [5,000] |
| 111 | 0604264N | AIR CREW SYSTEMS DEVELOPMENT | 21,172 | 21,172 |
| 112 | 0604269N | EA-18 | 143,585 | 133,585 |
| | | Unjustified cost growth | | [-10,000] |
| 113 | 0604270N | ELECTRONIC WARFARE DEVELOPMENT | 116,811 | 109,651 |
| | | Unjustified request | | [-7,160] |
| 114 | 0604273M | EXECUTIVE HELO DEVELOPMENT | 187,436 | 187,436 |
| 116 | 0604274N | NEXT GENERATION JAMMER (NGJ) | 524,261 | 448,261 |
| | | Underexecution | | [-76,000] |
| 117 | 0604280N | JOINT TACTICAL RADIO SYSTEM—NAVY (JTRS-NAVY) | 192,345 | 190,845 |
| | | Early to need | | [-1,500] |
| 118 | 0604282N | NEXT GENERATION JAMMER (NGJ) INCREMENT II | 111,068 | 90,922 |
| | | Program reduction | | [-20,146] |

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SEC. 4201. RESEARCH, DEVELOPMENT, TEST, AND EVALUATION
(In Thousands of Dollars)

| Line | Program Element | Item | FY 2020 Request | Conference Authorized |
|------|-----------------|--|------------------|-----------------------|
| 119 | 0604307N | SURFACE COMBATANT COMBAT SYSTEM ENGINEERING Aegis development support studies and analysis early to need | 415,625 | 413,684 [-1,941] |
| 120 | 0604311N | LPD-17 CLASS SYSTEMS INTEGRATION | 640 | 640 |
| 121 | 0604329N | SMALL DIAMETER BOMB (SDB) | 50,096 | 50,096 |
| 122 | 0604366N | STANDARD MISSILE IMPROVEMENTS | 232,391 | 232,391 |
| 123 | 0604373N | AIRBORNE MCM | 10,916 | 10,916 |
| 124 | 0604378N | NAVAL INTEGRATED FIRE CONTROL—COUNTER AIR SYSTEMS ENGINEERING | 33,379 | 33,379 |
| 125 | 0604501N | ADVANCED ABOVE WATER SENSORS | 34,554 | 34,554 |
| 126 | 0604503N | SSN-688 AND TRIDENT MODERNIZATION | 84,663 | 84,663 |
| 127 | 0604504N | AIR CONTROL | 44,923 | 44,923 |
| 128 | 0604512N | SHIPBOARD AVIATION SYSTEMS | 10,632 | 10,632 |
| 129 | 0604518N | COMBAT INFORMATION CENTER CONVERSION | 16,094 | 16,094 |
| 130 | 0604522N | AIR AND MISSILE DEFENSE RADAR (AMDR) SYSTEM | 55,349 | 52,349 |
| | | Engineering changes testing and evaluation early to need | | [-3,000] |
| 131 | 0604530N | ADVANCED ARRESTING GEAR (AAG) | 123,490 | 123,490 |
| 132 | 0604558N | NEW DESIGN SSN | 121,010 | 221,010 |
| | | Accelerate capability development | | [100,000] |
| 133 | 0604562N | SUBMARINE TACTICAL WARFARE SYSTEM | 62,426 | 62,426 |
| 134 | 0604567N | SHIP CONTRACT DESIGN/ LIVE FIRE T&E | 46,809 | 46,809 |
| 135 | 0604574N | NAVY TACTICAL COMPUTER RESOURCES | 3,692 | 3,692 |
| 137 | 0604601N | MINE DEVELOPMENT | 28,964 | 28,964 |
| 138 | 0604610N | LIGHTWEIGHT TORPEDO DEVELOPMENT | 148,349 | 115,541 |
| | | Excess to need | | [-32,808] |
| 139 | 0604654N | JOINT SERVICE EXPLOSIVE ORDNANCE DEVELOPMENT ... | 8,237 | 8,237 |
| 140 | 0604657M | USMC GROUND COMBAT/SUPPORTING ARMS SYSTEMS— ENG DEV. | 22,000 | 22,000 |
| 141 | 0604703N | PERSONNEL, TRAINING, SIMULATION, AND HUMAN FACTORS | 5,500 | 5,500 |
| 142 | 0604727N | JOINT STANDOFF WEAPON SYSTEMS | 18,725 | 16,225 |
| | | Excess to need | | [-2,500] |
| 143 | 0604755N | SHIP SELF DEFENSE (DETECT & CONTROL) | 192,603 | 180,085 |
| | | Project 2178 prior year carryover | | [-12,518] |
| 144 | 0604756N | SHIP SELF DEFENSE (ENGAGE: HARD KILL) | 137,268 | 121,630 |
| | | Project 2070 excess test assets | | [-15,638] |
| 145 | 0604757N | SHIP SELF DEFENSE (ENGAGE: SOFT KILL/EW) | 97,363 | 97,363 |
| 146 | 0604761N | INTELLIGENCE ENGINEERING | 26,710 | 26,710 |
| 147 | 0604771N | MEDICAL DEVELOPMENT | 8,181 | 8,181 |
| 148 | 0604777N | NAVIGATION/ID SYSTEM | 40,755 | 40,755 |
| 149 | 0604800M | JOINT STRIKE FIGHTER (JSF)—EMD | 1,710 | 1,710 |
| 150 | 0604800N | JOINT STRIKE FIGHTER (JSF)—EMD | 1,490 | 1,490 |
| 153 | 0605013M | INFORMATION TECHNOLOGY DEVELOPMENT | 1,494 | 1,494 |
| 154 | 0605013N | INFORMATION TECHNOLOGY DEVELOPMENT | 384,162 | 268,364 |
| | | Program decrease | | [-36,000] |
| | | Unjustified growth over FY19 projection | | [-79,798] |
| 155 | 0605024N | ANTI-TAMPER TECHNOLOGY SUPPORT | 4,882 | 4,882 |
| 156 | 0605212M | CH-53K RDTE | 516,955 | 516,955 |
| 158 | 0605215N | MISSION PLANNING | 75,886 | 75,886 |
| 159 | 0605217N | COMMON AVIONICS | 43,187 | 43,187 |
| 160 | 0605220N | SHIP TO SHORE CONNECTOR (SSC) | 4,909 | 19,909 |
| | | Expand development and use of composite materials | | [15,000] |
| 161 | 0605327N | T-AO 205 CLASS | 1,682 | 1,682 |
| 162 | 0605414N | UNMANNED CARRIER AVIATION (UCA) | 671,258 | 657,098 |
| | | UMCS excess to need | | [-14,160] |
| 163 | 0605450M | JOINT AIR-TO-GROUND MISSILE (JAGM) | 18,393 | 18,393 |
| 165 | 0605500N | MULTI-MISSION MARITIME AIRCRAFT (MMA) | 21,472 | 21,472 |
| 166 | 0605504N | MULTI-MISSION MARITIME (MMA) INCREMENT III | 177,234 | 177,234 |
| 167 | 0605611M | MARINE CORPS ASSAULT VEHICLES SYSTEM DEVELOPMENT & DEMONSTRATION | 77,322 | 69,121 |
| | | Early to need | | [-2,201] |
| | | Excess growth | | [-6,000] |
| 168 | 0605813M | JOINT LIGHT TACTICAL VEHICLE (JLTV) SYSTEM DEVELOPMENT & DEMONSTRATION | 2,105 | 2,105 |
| 169 | 0204202N | DDG-1000 | 111,435 | 111,435 |
| 172 | 0304785N | TACTICAL CRYPTOLOGIC SYSTEMS | 101,339 | 101,339 |
| 173 | 0306250M | CYBER OPERATIONS TECHNOLOGY DEVELOPMENT | 26,406 | 26,406 |
| | | SUBTOTAL SYSTEM DEVELOPMENT & DEMONSTRATION. | 6,332,033 | 6,130,663 |
| | | MANAGEMENT SUPPORT | | |
| 174 | 0604256N | THREAT SIMULATOR DEVELOPMENT | 66,678 | 66,678 |
| 175 | 0604258N | TARGET SYSTEMS DEVELOPMENT | 12,027 | 12,027 |
| 176 | 0604759N | MAJOR T&E INVESTMENT | 85,348 | 85,348 |
| 178 | 0605152N | STUDIES AND ANALYSIS SUPPORT—NAVY | 3,908 | 3,908 |
| 179 | 0605154N | CENTER FOR NAVAL ANALYSES | 47,669 | 47,669 |
| 180 | 0605285N | NEXT GENERATION FIGHTER | 20,698 | 20,698 |
| 182 | 0605804N | TECHNICAL INFORMATION SERVICES | 988 | 988 |
| 183 | 0605853N | MANAGEMENT, TECHNICAL & INTERNATIONAL SUPPORT | 102,401 | 102,401 |

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SEC. 4201. RESEARCH, DEVELOPMENT, TEST, AND EVALUATION
(In Thousands of Dollars)

| Line | Program Element | Item | FY 2020 Request | Conference Authorized |
|------|-----------------|---|-----------------|-----------------------|
| 184 | 0605856N | STRATEGIC TECHNICAL SUPPORT | 3,742 | 3,742 |
| 186 | 0605863N | RD&E SHIP AND AIRCRAFT SUPPORT | 93,872 | 93,872 |
| 187 | 0605864N | TEST AND EVALUATION SUPPORT | 394,020 | 394,020 |
| 188 | 0605865N | OPERATIONAL TEST AND EVALUATION CAPABILITY | 25,145 | 25,145 |
| 189 | 0605866N | NAVY SPACE AND ELECTRONIC WARFARE (SEW) SUPPORT | 15,773 | 15,773 |
| 190 | 0605867N | SEW SURVEILLANCE/RECONNAISSANCE SUPPORT | 8,402 | 8,402 |
| 191 | 0605873M | MARINE CORPS PROGRAM WIDE SUPPORT | 37,265 | 29,265 |
| | | Unjustified growth | | [-8,000] |
| 192 | 0605898N | MANAGEMENT HQ—R&D | 39,673 | 39,673 |
| 193 | 0606355N | WARFARE INNOVATION MANAGEMENT | 28,750 | 28,750 |
| 196 | 0305327N | INSIDER THREAT | 2,645 | 2,645 |
| 197 | 0902498N | MANAGEMENT HEADQUARTERS (DEPARTMENTAL SUP- PORT ACTIVITIES). | 1,460 | 1,460 |
| | | SUBTOTAL MANAGEMENT SUPPORT | 990,464 | 982,464 |
| | | OPERATIONAL SYSTEMS DEVELOPMENT UNDISTRIBUTED | | |
| 202 | 0604227N | HARPOON MODIFICATIONS | 2,302 | 2,302 |
| 203 | 0604840M | F-35 C2D2 | 422,881 | 422,881 |
| 204 | 0604840N | F-35 C2D2 | 383,741 | 383,741 |
| 205 | 0607658N | COOPERATIVE ENGAGEMENT CAPABILITY (CEC) | 127,924 | 127,924 |
| 207 | 0101221N | STRATEGIC SUB & WEAPONS SYSTEM SUPPORT | 157,676 | 113,492 |
| | | D5LE2 unjustified request | | [-44,184] |
| 208 | 0101224N | SSBN SECURITY TECHNOLOGY PROGRAM | 43,354 | 43,354 |
| 209 | 0101226N | SUBMARINE ACOUSTIC WARFARE DEVELOPMENT | 6,815 | 6,815 |
| 210 | 0101402N | NAVY STRATEGIC COMMUNICATIONS | 31,174 | 31,174 |
| 211 | 0204136N | F/A-18 SQUADRONS | 213,715 | 208,215 |
| | | Block III support prior year carryover | | [-7,500] |
| | | Jet noise reduction research | | [2,000] |
| 213 | 0204228N | SURFACE SUPPORT | 36,389 | 36,389 |
| 214 | 0204229N | TOMAHAWK AND TOMAHAWK MISSION PLANNING CEN- TER (TMPC). | 320,134 | 286,799 |
| | | JMEWS schedule delays | | [-12,098] |
| | | Maritime strike schedule delays | | [-21,237] |
| 215 | 0204311N | INTEGRATED SURVEILLANCE SYSTEM | 88,382 | 103,382 |
| | | Additional TRAPS units | | [15,000] |
| 216 | 0204313N | SHIP-TOWED ARRAY SURVEILLANCE SYSTEMS | 14,449 | 14,449 |
| 217 | 0204413N | AMPHIBIOUS TACTICAL SUPPORT UNITS (DISPLACEMENT CRAFT). | 6,931 | 6,931 |
| 218 | 0204460M | GROUND/AIR TASK ORIENTED RADAR (G/ATOR) | 23,891 | 23,891 |
| 219 | 0204571N | CONSOLIDATED TRAINING SYSTEMS DEVELOPMENT | 129,873 | 129,873 |
| 221 | 0204575N | ELECTRONIC WARFARE (EW) READINESS SUPPORT | 82,325 | 62,434 |
| | | Prior year carryover | | [-19,891] |
| 222 | 0205601N | HARM IMPROVEMENT | 138,431 | 132,371 |
| | | AARGM ER test schedule discrepancy | | [-6,060] |
| 224 | 0205620N | SURFACE ASW COMBAT SYSTEM INTEGRATION | 29,572 | 29,572 |
| 225 | 0205632N | MK-48 ADCAP | 85,973 | 85,973 |
| 226 | 0205633N | AVIATION IMPROVEMENTS | 125,461 | 125,461 |
| 227 | 0205675N | OPERATIONAL NUCLEAR POWER SYSTEMS | 106,192 | 106,192 |
| 228 | 0206313M | MARINE CORPS COMMUNICATIONS SYSTEMS | 143,317 | 134,317 |
| | | Program delay | | [-9,000] |
| 229 | 0206335M | COMMON AVIATION COMMAND AND CONTROL SYSTEM (CAC2S). | 4,489 | 4,489 |
| 230 | 0206623M | MARINE CORPS GROUND COMBAT/SUPPORTING ARMS SYS- TEMS. | 51,788 | 51,788 |
| 231 | 0206624M | MARINE CORPS COMBAT SERVICES SUPPORT | 37,761 | 42,761 |
| | | Airborne Power Generation Tech Development | | [5,000] |
| 232 | 0206625M | USMC INTELLIGENCE/ELECTRONIC WARFARE SYSTEMS (MIP). | 21,458 | 21,458 |
| 233 | 0206629M | AMPHIBIOUS ASSAULT VEHICLE | 5,476 | 5,476 |
| 234 | 0207161N | TACTICAL AIM MISSILES | 19,488 | 19,488 |
| 235 | 0207163N | ADVANCED MEDIUM RANGE AIR-TO-AIR MISSILE (AMRAAM). | 39,029 | 39,029 |
| 239 | 0303109N | SATELLITE COMMUNICATIONS (SPACE) | 34,344 | 34,344 |
| 240 | 0303138N | CONSOLIDATED AFLOAT NETWORK ENTERPRISE SERV- ICES (CANES). | 22,873 | 22,873 |
| 241 | 0303140N | INFORMATION SYSTEMS SECURITY PROGRAM | 41,853 | 41,853 |
| 243 | 0305192N | MILITARY INTELLIGENCE PROGRAM (MIP) ACTIVITIES | 8,913 | 8,913 |
| 244 | 0305204N | TACTICAL UNMANNED AERIAL VEHICLES | 9,451 | 9,451 |
| 245 | 0305205N | UAS INTEGRATION AND INTEROPERABILITY | 42,315 | 42,315 |
| 246 | 0305208M | DISTRIBUTED COMMON GROUND/SURFACE SYSTEMS | 22,042 | 22,042 |
| 248 | 0305220N | MQ-4C TRITON | 11,784 | 11,784 |
| 249 | 0305231N | MQ-8 UAV | 29,618 | 29,618 |
| 250 | 0305232M | RQ-11 UAV | 509 | 509 |
| 251 | 0305234N | SMALL (LEVEL 0) TACTICAL UAS (STUASL0) | 11,545 | 11,545 |
| 252 | 0305239M | RQ-21A | 10,914 | 10,914 |
| 253 | 0305241N | MULTI-INTELLIGENCE SENSOR DEVELOPMENT | 70,612 | 70,612 |
| 254 | 0305242M | UNMANNED AERIAL SYSTEMS (UAS) PAYLOADS (MIP) | 3,704 | 3,704 |

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| SEC. 4201. RESEARCH, DEVELOPMENT, TEST, AND EVALUATION (In Thousands of Dollars) | | | | |
|---|-----------------|---|-------------------|-----------------------|
| Line | Program Element | Item | FY 2020 Request | Conference Authorized |
| 255 | 0305421N | RQ-4 MODERNIZATION | 202,346 | 185,446 |
| | | IFC 5.0 concurrency | | [-16,900] |
| 256 | 0308601N | MODELING AND SIMULATION SUPPORT | 7,119 | 7,119 |
| 257 | 0702207N | DEPOT MAINTENANCE (NON-IF) | 38,182 | 38,182 |
| 258 | 0708730N | MARITIME TECHNOLOGY (MARITECH) | 6,779 | 6,779 |
| 259 | 1203109N | SATELLITE COMMUNICATIONS (SPACE) | 15,868 | 15,868 |
| 259A | 999999999 | CLASSIFIED PROGRAMS | 1,613,137 | 1,613,137 |
| | | SUBTOTAL OPERATIONAL SYSTEMS DEVELOPMENT | 5,104,299 | 4,989,429 |
| | | SUBTOTAL UNDISTRIBUTED | | -114,870 |
| | | TOTAL RESEARCH, DEVELOPMENT, TEST & EVAL, NAVY. | 20,270,499 | 19,674,604 |
| | | RESEARCH, DEVELOPMENT, TEST & EVAL, AF | | |
| | | BASIC RESEARCH | | |
| 001 | 0601102F | DEFENSE RESEARCH SCIENCES | 356,107 | 356,107 |
| 002 | 0601103F | UNIVERSITY RESEARCH INITIATIVES | 158,859 | 163,859 |
| | | Program increase | | [5,000] |
| 003 | 0601108F | HIGH ENERGY LASER RESEARCH INITIATIVES | 14,795 | 14,795 |
| | | SUBTOTAL BASIC RESEARCH | 529,761 | 534,761 |
| | | APPLIED RESEARCH | | |
| 004 | 0602102F | MATERIALS | 128,851 | 152,851 |
| | | Advanced materials high energy x-ray | | [4,000] |
| | | Advanced materials manufacturing flexible biosensors | | [5,000] |
| | | Advanced thermal protection systems | | [5,000] |
| | | Program increase | | [10,000] |
| 005 | 0602201F | AEROSPACE VEHICLE TECHNOLOGIES | 147,724 | 147,724 |
| 006 | 0602202F | HUMAN EFFECTIVENESS APPLIED RESEARCH | 131,795 | 131,795 |
| 007 | 0602203F | AEROSPACE PROPULSION | 198,775 | 208,775 |
| | | Educational partnership agreements for next generation liquid propulsion. | | [5,000] |
| | | Electrical power/thermal management systems | | [5,000] |
| 008 | 0602204F | AEROSPACE SENSORS | 202,912 | 202,912 |
| 010 | 0602298F | SCIENCE AND TECHNOLOGY MANAGEMENT— MAJOR HEADQUARTERS ACTIVITIES. | 7,968 | 7,968 |
| 012 | 0602602F | CONVENTIONAL MUNITIONS | 142,772 | 142,772 |
| 013 | 0602605F | DIRECTED ENERGY TECHNOLOGY | 124,379 | 124,379 |
| 014 | 0602788F | DOMINANT INFORMATION SCIENCES AND METHODS | 181,562 | 199,562 |
| | | Detection and countering of adversarial UAS | | [5,000] |
| | | Quantum Information Science Innovation Center | | [8,000] |
| | | Quantum science | | [5,000] |
| 015 | 0602890F | HIGH ENERGY LASER RESEARCH | 44,221 | 44,221 |
| 016 | 1206601F | SPACE TECHNOLOGY | 124,667 | 124,667 |
| | | SUBTOTAL APPLIED RESEARCH | 1,435,626 | 1,487,626 |
| | | ADVANCED TECHNOLOGY DEVELOPMENT | | |
| 017 | 0603112F | ADVANCED MATERIALS FOR WEAPON SYSTEMS | 36,586 | 41,586 |
| | | Metals affordability initiative | | [5,000] |
| 018 | 0603199F | SUSTAINMENT SCIENCE AND TECHNOLOGY (S&T) | 16,249 | 16,249 |
| 019 | 0603203F | ADVANCED AEROSPACE SENSORS | 38,292 | 38,292 |
| 020 | 0603211F | AEROSPACE TECHNOLOGY DEV/DEMO | 102,949 | 202,949 |
| | | Low cost attritable aircraft technology | | [100,000] |
| 021 | 0603216F | AEROSPACE PROPULSION AND POWER TECHNOLOGY | 113,973 | 128,973 |
| | | Advanced turbine engine gas generator | | [10,000] |
| | | Electrical power systems | | [5,000] |
| 022 | 0603270F | ELECTRONIC COMBAT TECHNOLOGY | 48,408 | 48,408 |
| 023 | 0603401F | ADVANCED SPACECRAFT TECHNOLOGY | 70,525 | 73,525 |
| | | Strategic radiation hardened microelectronic processors | | [3,000] |
| 024 | 0603444F | MAUI SPACE SURVEILLANCE SYSTEM (MSSS) | 11,878 | 11,878 |
| 025 | 0603456F | HUMAN EFFECTIVENESS ADVANCED TECHNOLOGY DEVELOPMENT. | 37,542 | 37,542 |
| 026 | 0603601F | CONVENTIONAL WEAPONS TECHNOLOGY | 225,817 | 225,817 |
| 027 | 0603605F | ADVANCED WEAPONS TECHNOLOGY | 37,404 | 37,404 |
| 028 | 0603680F | MANUFACTURING TECHNOLOGY PROGRAM | 43,116 | 66,116 |
| | | Advanced materials and materials manufacturing | | [7,000] |
| | | Aerospace composites manufacturing | | [10,000] |
| | | Program increase | | [6,000] |
| 029 | 0603788F | BATTLESPACE KNOWLEDGE DEVELOPMENT AND DEMONSTRATION. | 56,414 | 56,414 |
| | | SUBTOTAL ADVANCED TECHNOLOGY DEVELOPMENT. | 839,153 | 985,153 |
| | | ADVANCED COMPONENT DEVELOPMENT & PROTOTYPES | | |
| 031 | 0603260F | INTELLIGENCE ADVANCED DEVELOPMENT | 5,672 | 5,672 |
| 032 | 0603742F | COMBAT IDENTIFICATION TECHNOLOGY | 27,085 | 27,085 |

SEC. 4201. RESEARCH, DEVELOPMENT, TEST, AND EVALUATION
(In Thousands of Dollars)

| Line | Program Element | Item | FY 2020 Request | Conference Authorized |
|------|-----------------|--|------------------|-----------------------|
| 033 | 0603790F | NATO RESEARCH AND DEVELOPMENT | 4,955 | 4,955 |
| 034 | 0603851F | INTERCONTINENTAL BALLISTIC MISSILE—DEM/VAL | 44,109 | 44,109 |
| 036 | 0604002F | AIR FORCE WEATHER SERVICES RESEARCH | 772 | 772 |
| 037 | 0604004F | ADVANCED ENGINE DEVELOPMENT | 878,442 | 878,442 |
| 038 | 0604015F | LONG RANGE STRIKE—BOMBER | 3,003,899 | 3,003,899 |
| 039 | 0604032F | DIRECTED ENERGY PROTOTYPING | 10,000 | 20,000 |
| | | High-value airborne asset protection | | [10,000] |
| 040 | 0604033F | HYPERSONICS PROTOTYPING | 576,000 | 576,000 |
| 041 | 0604201F | PNT RESILIENCY, MODS, AND IMPROVEMENTS | 92,600 | 124,600 |
| | | Program increase | | [32,000] |
| 042 | 0604257F | ADVANCED TECHNOLOGY AND SENSORS | 23,145 | 23,145 |
| 043 | 0604288F | NATIONAL AIRBORNE OPS CENTER (NAOC) RECAP | 16,669 | 16,669 |
| 044 | 0604317F | TECHNOLOGY TRANSFER | 23,614 | 23,614 |
| 045 | 0604327F | HARD AND DEEPLY BURIED TARGET DEFEAT SYSTEM (HDBTDS) PROGRAM | 113,121 | 113,121 |
| 046 | 0604414F | CYBER RESILIENCY OF WEAPON SYSTEMS-ACS | 56,325 | 56,325 |
| 047 | 0604776F | DEPLOYMENT & DISTRIBUTION ENTERPRISE R&D | 28,034 | 28,034 |
| 048 | 0604858F | TECH TRANSITION PROGRAM | 128,476 | 134,476 |
| | | Rapid repair | | [6,000] |
| 049 | 0605230F | GROUND BASED STRATEGIC DETERRENT | 570,373 | 552,395 |
| | | Program reduction | | [-40,000] |
| | | Technical adjustment for NC3 | | [22,022] |
| 050 | 0207100F | LIGHT ATTACK ARMED RECONNAISSANCE (LAAR) SQUAD- RONS | 35,000 | 35,000 |
| 051 | 0207110F | NEXT GENERATION AIR DOMINANCE | 1,000,000 | 955,000 |
| | | Cost-risk associated with development profile | | [-45,000] |
| 052 | 0207455F | THREE DIMENSIONAL LONG-RANGE RADAR (3DELRR) | 37,290 | 37,290 |
| 053 | 0208099F | UNIFIED PLATFORM (UP) | 10,000 | 10,000 |
| 054 | 0305236F | COMMON DATA LINK EXECUTIVE AGENT (CDL EA) | 36,910 | 36,910 |
| 055 | 0305251F | CYBERSPACE OPERATIONS FORCES AND FORCE SUPPORT | 35,000 | 35,000 |
| 056 | 0305601F | MISSION PARTNER ENVIRONMENTS | 8,550 | 8,550 |
| 057 | 0306250F | CYBER OPERATIONS TECHNOLOGY DEVELOPMENT | 198,864 | 240,064 |
| | | Accelerate development of Cyber National Mission Force capa- bilities | | [13,600] |
| | | ETERNALDARKNESS | | [7,100] |
| | | Joint Common Access Platform | | [20,500] |
| 058 | 0306415F | ENABLED CYBER ACTIVITIES | 16,632 | 16,632 |
| 060 | 0901410F | CONTRACTING INFORMATION TECHNOLOGY SYSTEM | 20,830 | 20,830 |
| 061 | 1203164F | NAVSTAR GLOBAL POSITIONING SYSTEM (USER EQUIP- MENT) (SPACE) | 329,948 | 329,948 |
| 062 | 1203710F | EO/IR WEATHER SYSTEMS | 101,222 | 101,222 |
| 063 | 1206422F | WEATHER SYSTEM FOLLOW-ON | 225,660 | 205,660 |
| | | Unjustified growth | | [-20,000] |
| 064 | 1206425F | SPACE SITUATION AWARENESS SYSTEMS | 29,776 | 29,776 |
| 065 | 1206427F | SPACE SYSTEMS PROTOTYPE TRANSITIONS (SSPT) | 142,045 | 142,045 |
| 067 | 1206438F | SPACE CONTROL TECHNOLOGY | 64,231 | 59,231 |
| | | Unjustified growth | | [-5,000] |
| 068 | 1206730F | SPACE SECURITY AND DEFENSE PROGRAM | 56,385 | 56,385 |
| 069 | 1206760F | PROTECTED TACTICAL ENTERPRISE SERVICE (PTES) | 105,003 | 105,003 |
| 070 | 1206761F | PROTECTED TACTICAL SERVICE (PTS) | 173,694 | 163,694 |
| | | Unjustified growth | | [-10,000] |
| 071 | 1206855F | EVOLVED STRATEGIC SATCOM (ESS) | 172,206 | 172,206 |
| 072 | 1206857F | SPACE RAPID CAPABILITIES OFFICE | 33,742 | 23,742 |
| | | Program decrease | | [-10,000] |
| | | SUBTOTAL ADVANCED COMPONENT DEVELOP- MENT & PROTOTYPES. | 8,436,279 | 8,417,501 |
| | | SYSTEM DEVELOPMENT & DEMONSTRATION | | |
| 073 | 0604200F | FUTURE ADVANCED WEAPON ANALYSIS & PROGRAMS | 246,200 | 0 |
| | | Excess to need | | [-246,200] |
| 074 | 0604201F | PNT RESILIENCY, MODS, AND IMPROVEMENTS | 67,782 | 148,782 |
| | | UPL M-Code Acceleration | | [81,000] |
| 075 | 0604222F | NUCLEAR WEAPONS SUPPORT | 4,406 | 4,406 |
| 076 | 0604270F | ELECTRONIC WARFARE DEVELOPMENT | 2,066 | 2,066 |
| 077 | 0604281F | TACTICAL DATA NETWORKS ENTERPRISE | 229,631 | 210,331 |
| | | Prior-year carryover | | [-19,300] |
| 078 | 0604287F | PHYSICAL SECURITY EQUIPMENT | 9,700 | 9,700 |
| 079 | 0604329F | SMALL DIAMETER BOMB (SDB)—EMD | 31,241 | 41,241 |
| | | Program efficiency initiative | | [10,000] |
| 080 | 0604429F | AIRBORNE ELECTRONIC ATTACK | 2 | 2 |
| 081 | 0604602F | ARMAMENT/ORDNANCE DEVELOPMENT | 28,043 | 28,043 |
| 082 | 0604604F | SUBMUNITIONS | 3,045 | 3,045 |
| 083 | 0604617F | AGILE COMBAT SUPPORT | 19,944 | 19,944 |
| 084 | 0604706F | LIFE SUPPORT SYSTEMS | 8,624 | 8,624 |
| 085 | 0604735F | COMBAT TRAINING RANGES | 37,365 | 37,365 |
| 086 | 0604800F | F-35—EMD | 7,628 | 7,628 |
| 087 | 0604932F | LONG RANGE STANDOFF WEAPON | 712,539 | 712,539 |
| 088 | 0604933F | ICBM FUZE MODERNIZATION | 161,199 | 161,199 |

SEC. 4201. RESEARCH, DEVELOPMENT, TEST, AND EVALUATION
(In Thousands of Dollars)

| Line | Program Element | Item | FY 2020 Request | Conference Authorized |
|------|-----------------|---|------------------|-----------------------|
| 089 | 0605030F | JOINT TACTICAL NETWORK CENTER (JTNC) | 2,414 | 2,414 |
| 091 | 0605056F | OPEN ARCHITECTURE MANAGEMENT | 30,000 | 30,000 |
| 093 | 0605221F | KC-46 | 59,561 | 59,561 |
| 094 | 0605223F | ADVANCED PILOT TRAINING | 348,473 | 348,473 |
| 095 | 0605229F | COMBAT RESCUE HELICOPTER | 247,047 | 247,047 |
| 098 | 0605931F | B-2 DEFENSIVE MANAGEMENT SYSTEM | 294,400 | 294,400 |
| 099 | 0101125F | NUCLEAR WEAPONS MODERNIZATION | 27,564 | 27,564 |
| 100 | 0101213F | MINUTEMAN SQUADRONS | 1 | 1 |
| 101 | 0207171F | F-15 EPAWSS | 47,322 | 47,322 |
| 102 | 0207328F | STAND IN ATTACK WEAPON | 162,840 | 162,840 |
| 103 | 0207701F | FULL COMBAT MISSION TRAINING | 9,797 | 9,797 |
| 106 | 0401310F | C-32 EXECUTIVE TRANSPORT RECAPITALIZATION | 9,930 | 9,930 |
| 107 | 0401319F | VC-25B | 757,923 | 757,923 |
| 108 | 0701212F | AUTOMATED TEST SYSTEMS | 2,787 | 2,787 |
| 109 | 1203176F | COMBAT SURVIVOR EVADER LOCATOR | 2,000 | 2,000 |
| 110 | 1203269F | GPS III FOLLOW-ON (GPS IIIF) | 462,875 | 452,875 |
| | | Unjustified growth | | [-10,000] |
| 111 | 1203940F | SPACE SITUATION AWARENESS OPERATIONS | 76,829 | 56,829 |
| | | GBOSS unjustified growth | | [-20,000] |
| 112 | 1206421F | COUNTERSPACE SYSTEMS | 29,037 | 29,037 |
| 113 | 1206422F | WEATHER SYSTEM FOLLOW-ON | 2,237 | 2,237 |
| 114 | 1206425F | SPACE SITUATION AWARENESS SYSTEMS | 412,894 | 412,894 |
| 116 | 1206431F | ADVANCED EHF MILSATCOM (SPACE) | 117,290 | 117,290 |
| 117 | 1206432F | POLAR MILSATCOM (SPACE) | 427,400 | 401,400 |
| | | Prior year carryover | | [-26,000] |
| 118 | 1206433F | WIDEBAND GLOBAL SATCOM (SPACE) | 1,920 | 1,920 |
| 119 | 1206441F | SPACE BASED INFRARED SYSTEM (SBIRS) HIGH EMD | 1 | 1 |
| 120 | 1206442F | NEXT GENERATION OPIR | 1,395,278 | 1,395,278 |
| 121 | 1206445F | COMMERCIAL SATCOM (COMSATCOM) INTEGRATION | | 5,000 |
| | | Accelerate integration of COMSATCOM capabilities | | [5,000] |
| 122 | 1206853F | NATIONAL SECURITY SPACE LAUNCH PROGRAM (SPACE)—EMD | 432,009 | 432,009 |
| | | SUBTOTAL SYSTEM DEVELOPMENT & DEMONSTRATION. | 6,929,244 | 6,703,744 |
| | | MANAGEMENT SUPPORT | | |
| 123 | 0604256F | THREAT SIMULATOR DEVELOPMENT | 59,693 | 59,693 |
| 124 | 0604759F | MAJOR T&E INVESTMENT | 181,663 | 219,663 |
| | | Telemetry extension SATCOM relay | | [2,000] |
| | | UPL M-Code Acceleration | | [36,000] |
| 125 | 0605101F | RAND PROJECT AIR FORCE | 35,258 | 35,258 |
| 127 | 0605712F | INITIAL OPERATIONAL TEST & EVALUATION | 13,793 | 13,793 |
| 128 | 0605807F | TEST AND EVALUATION SUPPORT | 717,895 | 717,895 |
| 129 | 0605826F | ACQ WORKFORCE- GLOBAL POWER | 258,667 | 258,667 |
| 130 | 0605827F | ACQ WORKFORCE- GLOBAL VIG & COMBAT SYS | 251,992 | 251,992 |
| 131 | 0605828F | ACQ WORKFORCE- GLOBAL REACH | 149,191 | 149,191 |
| 132 | 0605829F | ACQ WORKFORCE- CYBER, NETWORK, & BUS SYS | 235,360 | 235,360 |
| 133 | 0605830F | ACQ WORKFORCE- GLOBAL BATTLE MGMT | 160,196 | 160,196 |
| 134 | 0605831F | ACQ WORKFORCE- CAPABILITY INTEGRATION | 220,255 | 220,255 |
| 135 | 0605832F | ACQ WORKFORCE- ADVANCED PRGM TECHNOLOGY | 42,392 | 42,392 |
| 136 | 0605833F | ACQ WORKFORCE- NUCLEAR SYSTEMS | 133,231 | 133,231 |
| 137 | 0605898F | MANAGEMENT HQ—R&D | 5,590 | 5,590 |
| 138 | 0605976F | FACILITIES RESTORATION AND MODERNIZATION—TEST AND EVALUATION SUPPORT | 88,445 | 88,445 |
| 139 | 0605978F | FACILITIES SUSTAINMENT—TEST AND EVALUATION SUPPORT | 29,424 | 29,424 |
| 140 | 0606017F | REQUIREMENTS ANALYSIS AND MATURATION | 62,715 | 62,715 |
| 141 | 0606398F | MANAGEMENT HQ—T&E | 5,013 | 5,013 |
| 142 | 0308602F | ENTERPRISE INFORMATION SERVICES (EIS) | 17,128 | 17,128 |
| 143 | 0702806F | ACQUISITION AND MANAGEMENT SUPPORT | 5,913 | 5,913 |
| 144 | 0804731F | GENERAL SKILL TRAINING | 1,475 | 1,475 |
| 146 | 1001004F | INTERNATIONAL ACTIVITIES | 4,071 | 4,071 |
| 147 | 1206116F | SPACE TEST AND TRAINING RANGE DEVELOPMENT | 19,942 | 19,942 |
| 148 | 1206392F | SPACE AND MISSILE CENTER (SMC) CIVILIAN WORKFORCE | 167,810 | 167,810 |
| 149 | 1206398F | SPACE & MISSILE SYSTEMS CENTER—MHA | 10,170 | 10,170 |
| 150 | 1206860F | ROCKET SYSTEMS LAUNCH PROGRAM (SPACE) | 13,192 | 13,192 |
| 151 | 1206864F | SPACE TEST PROGRAM (STP) | 26,097 | 26,097 |
| | | SUBTOTAL MANAGEMENT SUPPORT | 2,916,571 | 2,954,571 |
| | | OPERATIONAL SYSTEMS DEVELOPMENT UNDISTRIBUTED | | |
| 152 | 0604003F | ADVANCED BATTLE MANAGEMENT SYSTEM (ABMS) | 35,611 | 33,611 |
| | | Program increase—sensor fusion and artificial intelligence technology | | [8,000] |
| | | Unjustified request | | [-10,000] |
| 154 | 0604233F | SPECIALIZED UNDERGRADUATE FLIGHT TRAINING | 2,584 | 2,584 |
| 156 | 0604776F | DEPLOYMENT & DISTRIBUTION ENTERPRISE R&D | 903 | 903 |

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(In Thousands of Dollars)

| Line | Program Element | Item | FY 2020 Request | Conference Authorized |
|------|-----------------|---|-----------------|-----------------------|
| 157 | 0604840F | F-35 C2D2 | 694,455 | 694,455 |
| 158 | 0605018F | AF INTEGRATED PERSONNEL AND PAY SYSTEM (AF-IPPS) | 40,567 | 40,567 |
| 159 | 0605024F | ANTI-TAMPER TECHNOLOGY EXECUTIVE AGENCY | 47,193 | 47,193 |
| 160 | 0605117F | FOREIGN MATERIEL ACQUISITION AND EXPLOITATION | 70,083 | 70,083 |
| 161 | 0605278F | HC/MC-130 RECAP RDT&E | 17,218 | 17,218 |
| 162 | 0606018F | NC3 INTEGRATION | 25,917 | 25,917 |
| 164 | 0101113F | B-52 SQUADRONS | 325,974 | 325,974 |
| 165 | 0101122F | AIR-LAUNCHED CRUISE MISSILE (ALCM) | 10,217 | 10,217 |
| 166 | 0101126F | B-1B SQUADRONS | 1,000 | 1,000 |
| 167 | 0101127F | B-2 SQUADRONS | 97,276 | 97,276 |
| 168 | 0101213F | MINUTEMAN SQUADRONS | 128,961 | 128,961 |
| 170 | 0101316F | WORLDWIDE JOINT STRATEGIC COMMUNICATIONS | 18,177 | 18,177 |
| 171 | 0101324F | INTEGRATED STRATEGIC PLANNING & ANALYSIS NET- WORK | 24,261 | 24,261 |
| 172 | 0101328F | ICBM REENTRY VEHICLES | 75,571 | 41,271 |
| | | Program delay | | [-34,300] |
| 174 | 0102110F | UH-1N REPLACEMENT PROGRAM | 170,975 | 170,975 |
| 176 | 0205219F | MQ-9 UAV | 154,996 | 127,296 |
| | | Program reduction | | [-27,700] |
| 178 | 0207131F | A-10 SQUADRONS | 36,816 | 36,816 |
| 179 | 0207133F | F-16 SQUADRONS | 193,013 | 193,013 |
| 180 | 0207134F | F-15E SQUADRONS | 336,079 | 319,829 |
| | | Unjustified F-15C requirements | | [-16,250] |
| 181 | 0207136F | MANNED DESTRUCTIVE SUPPRESSION | 15,521 | 15,521 |
| 182 | 0207138F | F-22A SQUADRONS | 496,298 | 496,298 |
| 183 | 0207142F | F-35 SQUADRONS | 99,943 | 99,943 |
| 184 | 0207161F | TACTICAL AIM MISSILES | 10,314 | 10,314 |
| 185 | 0207163F | ADVANCED MEDIUM RANGE AIR-TO-AIR MISSILE (AMRAAM) | 55,384 | 55,384 |
| 186 | 0207227F | COMBAT RESCUE—PARARESCUE | 281 | 281 |
| 187 | 0207247F | AF TENCAP | 21,365 | 21,365 |
| 188 | 0207249F | PRECISION ATTACK SYSTEMS PROCUREMENT | 10,696 | 10,696 |
| 189 | 0207253F | COMPASS CALL | 15,888 | 15,888 |
| 190 | 0207268F | AIRCRAFT ENGINE COMPONENT IMPROVEMENT PRO- GRAM | 112,505 | 112,505 |
| 191 | 0207325F | JOINT AIR-TO-SURFACE STANDOFF MISSILE (JASSM) | 78,498 | 78,498 |
| 192 | 0207410F | AIR & SPACE OPERATIONS CENTER (AOC) | 114,864 | 114,864 |
| 193 | 0207412F | CONTROL AND REPORTING CENTER (CRC) | 8,109 | 8,109 |
| 194 | 0207417F | AIRBORNE WARNING AND CONTROL SYSTEM (AWACS) | 67,996 | 67,996 |
| 195 | 0207418F | TACTICAL AIRBORNE CONTROL SYSTEMS | 2,462 | 2,462 |
| 197 | 0207431F | COMBAT AIR INTELLIGENCE SYSTEM ACTIVITIES | 13,668 | 13,668 |
| 198 | 0207444F | TACTICAL AIR CONTROL PARTY-MOD | 6,217 | 6,217 |
| 200 | 0207452F | DCAPES | 19,910 | 19,910 |
| 201 | 0207573F | NATIONAL TECHNICAL NUCLEAR FORENSICS | 1,788 | 1,788 |
| 202 | 0207590F | SEEK EAGLE | 28,237 | 28,237 |
| 203 | 0207601F | USAF MODELING AND SIMULATION | 15,725 | 15,725 |
| 204 | 0207605F | WARGAMING AND SIMULATION CENTERS | 4,316 | 4,316 |
| 205 | 0207610F | BATTLEFIELD ABN COMM NODE (BACN) | 26,946 | 26,946 |
| 206 | 0207697F | DISTRIBUTED TRAINING AND EXERCISES | 4,303 | 4,303 |
| 207 | 0208006F | MISSION PLANNING SYSTEMS | 71,465 | 71,465 |
| 208 | 0208007F | TACTICAL DECEPTION | 7,446 | 7,446 |
| 209 | 0208064F | OPERATIONAL HQ—CYBER | 7,602 | 7,602 |
| 210 | 0208087F | DISTRIBUTED CYBER WARFARE OPERATIONS | 35,178 | 35,178 |
| 211 | 0208088F | AF DEFENSIVE CYBERSPACE OPERATIONS | 16,609 | 16,609 |
| 212 | 0208097F | JOINT CYBER COMMAND AND CONTROL (JCC2) | 11,603 | 11,603 |
| 213 | 0208099F | UNIFIED PLATFORM (UP) | 84,702 | 84,702 |
| 219 | 0301025F | GEOBASE | 2,723 | 2,723 |
| 220 | 0301112F | NUCLEAR PLANNING AND EXECUTION SYSTEM (NPES) | 44,190 | 44,190 |
| 226 | 0301401F | AIR FORCE SPACE AND CYBER NON-TRADITIONAL ISR FOR BATTLESPACE AWARENESS | 3,575 | 3,575 |
| 227 | 0302015F | E-4B NATIONAL AIRBORNE OPERATIONS CENTER (NAOC) Unclear acquisition strategy | 70,173 | 42,623 |
| | | | | [-27,550] |
| 228 | 0303131F | MINIMUM ESSENTIAL EMERGENCY COMMUNICATIONS NETWORK (MEECN) | 13,543 | 13,543 |
| 229 | 0303133F | HIGH FREQUENCY RADIO SYSTEMS | 15,881 | 15,881 |
| 230 | 0303140F | INFORMATION SYSTEMS SECURITY PROGRAM | 27,726 | 27,726 |
| 232 | 0303142F | GLOBAL FORCE MANAGEMENT—DATA INITIATIVE | 2,210 | 2,210 |
| 234 | 0304115F | MULTI DOMAIN COMMAND AND CONTROL (MDC2) | 150,880 | 150,880 |
| 235 | 0304260F | AIRBORNE SIGINT ENTERPRISE | 102,667 | 85,167 |
| | | Common development ahead of need | | [-8,500] |
| | | Program reduction | | [-9,000] |
| 236 | 0304310F | COMMERCIAL ECONOMIC ANALYSIS | 3,431 | 3,431 |
| 239 | 0305015F | C2 AIR OPERATIONS SUITE—C2 INFO SERVICES | 9,313 | 9,313 |
| 240 | 0305020F | CCMD INTELLIGENCE INFORMATION TECHNOLOGY | 1,121 | 1,121 |
| 241 | 0305022F | ISR MODERNIZATION & AUTOMATION DVMT (IMAD) | 19,000 | 3,000 |
| | | Unjustified request | | [-16,000] |
| 242 | 0305099F | GLOBAL AIR TRAFFIC MANAGEMENT (GATM) | 4,544 | 4,544 |
| 243 | 0305111F | WEATHER SERVICE | 25,461 | 27,461 |

SEC. 4201. RESEARCH, DEVELOPMENT, TEST, AND EVALUATION
(In Thousands of Dollars)

| Line | Program Element | Item | FY 2020 Request | Conference Authorized |
|------|-----------------|--|-------------------|-----------------------|
| | | Commercial weather data pilot | | [2,000] |
| 244 | 0305114F | AIR TRAFFIC CONTROL, APPROACH, AND LANDING SYSTEM (ATCALS) | 5,651 | 5,651 |
| 245 | 0305116F | AERIAL TARGETS | 7,448 | 7,448 |
| 248 | 0305128F | SECURITY AND INVESTIGATIVE ACTIVITIES | 425 | 425 |
| 249 | 0305145F | ARMS CONTROL IMPLEMENTATION | 54,546 | 54,546 |
| 250 | 0305146F | DEFENSE JOINT COUNTERINTELLIGENCE ACTIVITIES | 6,858 | 6,858 |
| 252 | 0305179F | INTEGRATED BROADCAST SERVICE (IBS) | 8,728 | 8,728 |
| 253 | 0305202F | DRAGON U-2 | 38,939 | 38,939 |
| 255 | 0305206F | AIRBORNE RECONNAISSANCE SYSTEMS | 122,909 | 132,909 |
| | | Program increase for Gorgon Stare sensor enhancements | | [10,000] |
| 256 | 0305207F | MANNED RECONNAISSANCE SYSTEMS | 11,787 | 11,787 |
| 257 | 0305208F | DISTRIBUTED COMMON GROUND/SURFACE SYSTEMS | 25,009 | 25,009 |
| 258 | 0305220F | RQ-4 UAV | 191,733 | 191,733 |
| 259 | 0305221F | NETWORK-CENTRIC COLLABORATIVE TARGETING | 10,757 | 10,757 |
| 260 | 0305238F | NATO AGS | 32,567 | 32,567 |
| 261 | 0305240F | SUPPORT TO DCGS ENTERPRISE | 37,774 | 37,774 |
| 262 | 0305600F | INTERNATIONAL INTELLIGENCE TECHNOLOGY AND ARCHITECTURES | 13,515 | 13,515 |
| 263 | 0305881F | RAPID CYBER ACQUISITION | 4,383 | 4,383 |
| 264 | 0305984F | PERSONNEL RECOVERY COMMAND & CTRL (PRC2) | 2,133 | 2,133 |
| 265 | 0307577F | INTELLIGENCE MISSION DATA (IMD) | 8,614 | 8,614 |
| 266 | 0401115F | C-130 AIRLIFT SQUADRON | 140,425 | 101,425 |
| | | Contract award savings | | [-39,000] |
| 267 | 0401119F | C-5 AIRLIFT SQUADRONS (IF) | 10,223 | 10,223 |
| 268 | 0401130F | C-17 AIRCRAFT (IF) | 25,101 | 25,101 |
| 269 | 0401132F | C-130J PROGRAM | 8,640 | 8,640 |
| 270 | 0401134F | LARGE AIRCRAFT IR COUNTERMEASURES (LAIRCM) | 5,424 | 5,424 |
| 272 | 0401219F | KC-10S | 20 | 20 |
| 274 | 0401318F | CV-22 | 17,906 | 17,906 |
| 276 | 0408011F | SPECIAL TACTICS / COMBAT CONTROL | 3,629 | 3,629 |
| 277 | 0702207F | DEPOT MAINTENANCE (NON-IF) | 1,890 | 1,890 |
| 278 | 0708055F | MAINTENANCE, REPAIR & OVERHAUL SYSTEM | 10,311 | 10,311 |
| 279 | 0708610F | LOGISTICS INFORMATION TECHNOLOGY (LOGIT) | 16,065 | 16,065 |
| 280 | 0708611F | SUPPORT SYSTEMS DEVELOPMENT | 539 | 539 |
| 281 | 0804743F | OTHER FLIGHT TRAINING | 2,057 | 2,057 |
| 282 | 0808716F | OTHER PERSONNEL ACTIVITIES | 10 | 10 |
| 283 | 0901202F | JOINT PERSONNEL RECOVERY AGENCY | 2,060 | 2,060 |
| 284 | 0901218F | CIVILIAN COMPENSATION PROGRAM | 3,809 | 3,809 |
| 285 | 0901220F | PERSONNEL ADMINISTRATION | 6,476 | 6,476 |
| 286 | 0901226F | AIR FORCE STUDIES AND ANALYSIS AGENCY | 1,443 | 1,443 |
| 287 | 0901538F | FINANCIAL MANAGEMENT INFORMATION SYSTEMS DEVELOPMENT | 9,323 | 9,323 |
| 288 | 0901554F | DEFENSE ENTERPRISE ACNTNG AND MGT SYS (DEAMS) ... | 46,789 | 46,789 |
| 289 | 1201017F | GLOBAL SENSOR INTEGRATED ON NETWORK (GSIN) | 3,647 | 3,647 |
| 290 | 1201921F | SERVICE SUPPORT TO STRATCOM—SPACE ACTIVITIES | 988 | 988 |
| 291 | 1202140F | SERVICE SUPPORT TO SPACECOM ACTIVITIES | 11,863 | 11,863 |
| 293 | 1203001F | FAMILY OF ADVANCED BLOS TERMINALS (FAB-T) | 197,388 | 177,388 |
| | | FET schedule slip | | [-15,000] |
| | | Unjustified growth | | [-5,000] |
| 294 | 1203110F | SATELLITE CONTROL NETWORK (SPACE) | 61,891 | 61,891 |
| 297 | 1203173F | SPACE AND MISSILE TEST AND EVALUATION CENTER | 4,566 | 4,566 |
| 298 | 1203174F | SPACE INNOVATION, INTEGRATION AND RAPID TECHNOLOGY DEVELOPMENT | 43,292 | 43,292 |
| 300 | 1203182F | SPACELIFT RANGE SYSTEM (SPACE) | 10,837 | 10,837 |
| 301 | 1203265F | GPS III SPACE SEGMENT | 42,440 | 42,440 |
| 302 | 1203400F | SPACE SUPERIORITY INTELLIGENCE | 14,428 | 14,428 |
| 303 | 1203614F | JSPOC MISSION SYSTEM | 72,762 | 72,762 |
| 304 | 1203620F | NATIONAL SPACE DEFENSE CENTER | 2,653 | 2,653 |
| 306 | 1203873F | BALLISTIC MISSILE DEFENSE RADARS | 15,881 | 15,881 |
| 308 | 1203913F | NUDET DETECTION SYSTEM (SPACE) | 49,300 | 49,300 |
| 309 | 1203940F | SPACE SITUATION AWARENESS OPERATIONS | 17,834 | 17,834 |
| 310 | 1206423F | GLOBAL POSITIONING SYSTEM III—OPERATIONAL CONTROL SEGMENT | 445,302 | 445,302 |
| 311 | 1206770F | ENTERPRISE GROUND SERVICES | 138,870 | 99,070 |
| | | Contract award delay | | [-39,800] |
| 311A | 9999999999 | CLASSIFIED PROGRAMS | 18,351,506 | 18,229,506 |
| | | Classified reduction | | [-122,000] |
| | | SUBTOTAL OPERATIONAL SYSTEMS DEVELOPMENT. | 24,851,488 | 24,501,388 |
| | | SUBTOTAL UNDISTRIBUTED | | -350,100 |
| | | TOTAL RESEARCH, DEVELOPMENT, TEST & EVAL, AF. | 45,938,122 | 45,584,744 |
| | | RESEARCH, DEVELOPMENT, TEST & EVAL, DW BASIC RESEARCH | | |
| 001 | 0601000BR | DTRA BASIC RESEARCH | 26,000 | 26,000 |

SEC. 4201. RESEARCH, DEVELOPMENT, TEST, AND EVALUATION
(In Thousands of Dollars)

| Line | Program Element | Item | FY 2020 Request | Conference Authorized |
|------|-----------------|---|------------------|-----------------------|
| 002 | 0601101E | DEFENSE RESEARCH SCIENCES | 432,284 | 432,284 |
| 003 | 0601110D8Z | BASIC RESEARCH INITIATIVES | 48,874 | 68,874 |
| | | DEPSCOR | | [10,000] |
| | | Program increase | | [10,000] |
| 004 | 0601117E | BASIC OPERATIONAL MEDICAL RESEARCH SCIENCE | 54,122 | 54,122 |
| 005 | 0601120D8Z | NATIONAL DEFENSE EDUCATION PROGRAM | 92,074 | 102,074 |
| | | Civics education grant program | | [2,000] |
| | | Submarine industrial base workforce training and education | | [8,000] |
| 006 | 0601228D8Z | HISTORICALLY BLACK COLLEGES AND UNIVERSITIES/MINORITY INSTITUTIONS. Aerospace research and education | 30,708 | 46,708 |
| | | Program increase | | [2,000] |
| | | Program increase | | [14,000] |
| 007 | 0601384BP | CHEMICAL AND BIOLOGICAL DEFENSE PROGRAM | 45,238 | 45,238 |
| | | SUBTOTAL BASIC RESEARCH | 729,300 | 775,300 |
| | | APPLIED RESEARCH | | |
| 008 | 0602000D8Z | JOINT MUNITIONS TECHNOLOGY | 19,306 | 19,306 |
| 009 | 0602115E | BIOMEDICAL TECHNOLOGY | 97,771 | 97,771 |
| 011 | 0602234D8Z | LINCOLN LABORATORY RESEARCH PROGRAM | 52,317 | 52,317 |
| 012 | 0602251D8Z | APPLIED RESEARCH FOR THE ADVANCEMENT OF S&T PRIORITIES. Computer modeling of PFAS | 62,200 | 55,400 |
| | | Excess growth | | [2,000] |
| | | Excess growth | | [-8,800] |
| 013 | 0602303E | INFORMATION & COMMUNICATIONS TECHNOLOGY | 442,556 | 437,556 |
| | | Unjustified growth | | [-5,000] |
| 014 | 0602383E | BIOLOGICAL WARFARE DEFENSE | 34,588 | 34,588 |
| 015 | 0602384BP | CHEMICAL AND BIOLOGICAL DEFENSE PROGRAM | 202,587 | 215,087 |
| | | Program increase | | [12,500] |
| 016 | 0602668D8Z | CYBER SECURITY RESEARCH | 15,118 | 25,118 |
| | | Academic cyber institutes | | [10,000] |
| 017 | 0602702E | TACTICAL TECHNOLOGY | 337,602 | 337,602 |
| 018 | 0602715E | MATERIALS AND BIOLOGICAL TECHNOLOGY | 223,976 | 223,976 |
| 019 | 0602716E | ELECTRONICS TECHNOLOGY | 332,192 | 326,192 |
| | | Unjustified growth | | [-6,000] |
| 020 | 0602718BR | COUNTER WEAPONS OF MASS DESTRUCTION APPLIED RESEARCH. Unjustified growth | 179,096 | 174,096 |
| | | Unjustified growth | | [-5,000] |
| 021 | 0602751D8Z | SOFTWARE ENGINEERING INSTITUTE (SEI) APPLIED RESEARCH. | 9,580 | 9,580 |
| 022 | 1160401BB | SOF TECHNOLOGY DEVELOPMENT | 40,569 | 40,569 |
| | | SUBTOTAL APPLIED RESEARCH | 2,049,458 | 2,049,158 |
| | | ADVANCED TECHNOLOGY DEVELOPMENT | | |
| 023 | 0603000D8Z | JOINT MUNITIONS ADVANCED TECHNOLOGY | 25,779 | 25,779 |
| 024 | 0603121D8Z | SO/LIC ADVANCED DEVELOPMENT | 5,000 | 5,000 |
| 025 | 0603122D8Z | COMBATING TERRORISM TECHNOLOGY SUPPORT | 70,517 | 75,517 |
| | | Program increase | | [5,000] |
| 026 | 0603133D8Z | FOREIGN COMPARATIVE TESTING | 24,970 | 24,970 |
| 028 | 0603160BR | COUNTER WEAPONS OF MASS DESTRUCTION ADVANCED TECHNOLOGY DEVELOPMENT. Excess growth | 340,065 | 338,575 |
| | | Excess growth | | [-1,490] |
| 029 | 0603176C | ADVANCED CONCEPTS AND PERFORMANCE ASSESSMENT | 14,208 | 14,208 |
| 030 | 0603178C | WEAPONS TECHNOLOGY | 10,000 | 0 |
| | | MD72 program termination | | [-10,000] |
| 031 | 0603180C | ADVANCED RESEARCH | 20,674 | 27,674 |
| | | Advanced carbon-carbon composites manufacturing | | [7,000] |
| 032 | 0603225D8Z | JOINT DOD-DOE MUNITIONS TECHNOLOGY DEVELOPMENT. | 18,773 | 18,773 |
| 033 | 0603286E | ADVANCED AEROSPACE SYSTEMS | 279,741 | 279,741 |
| 034 | 0603287E | SPACE PROGRAMS AND TECHNOLOGY | 202,606 | 172,606 |
| | | RSGS program delays | | [-30,000] |
| 035 | 0603288D8Z | ANALYTIC ASSESSMENTS | 19,429 | 19,429 |
| 036 | 0603289D8Z | ADVANCED INNOVATIVE ANALYSIS AND CONCEPTS | 37,645 | 37,645 |
| 037 | 0603291D8Z | ADVANCED INNOVATIVE ANALYSIS AND CONCEPTS—MHA | 14,668 | 14,668 |
| 038 | 0603294C | COMMON KILL VEHICLE TECHNOLOGY | 13,600 | 13,600 |
| 040 | 0603342D8Z | DEFENSE INNOVATION UNIT (DIU) | 29,398 | 29,398 |
| 041 | 0603375D8Z | TECHNOLOGY INNOVATION | 60,000 | 30,000 |
| | | Insufficient justification | | [-30,000] |
| 042 | 0603384BP | CHEMICAL AND BIOLOGICAL DEFENSE PROGRAM—ADVANCED DEVELOPMENT. | 172,486 | 172,486 |
| 043 | 0603527D8Z | RETRACT LARCH | 159,688 | 159,688 |
| 044 | 0603618D8Z | JOINT ELECTRONIC ADVANCED TECHNOLOGY | 12,063 | 12,063 |
| 045 | 0603648D8Z | JOINT CAPABILITY TECHNOLOGY DEMONSTRATIONS | 107,359 | 89,859 |
| | | Program reduction | | [-17,500] |
| 046 | 0603662D8Z | NETWORKED COMMUNICATIONS CAPABILITIES | 2,858 | 2,858 |
| 047 | 0603680D8Z | DEFENSE-WIDE MANUFACTURING SCIENCE AND TECHNOLOGY PROGRAM. Additive manufacturing | 96,397 | 116,397 |
| | | Additive manufacturing | | [10,000] |

SEC. 4201. RESEARCH, DEVELOPMENT, TEST, AND EVALUATION
(In Thousands of Dollars)

| Line | Program Element | Item | FY 2020 Request | Conference Authorized |
|------|-----------------|--|------------------|-----------------------|
| | | Integrated silicon based lasers | | [5,000] |
| | | Program increase | | [5,000] |
| 048 | 0603680S | MANUFACTURING TECHNOLOGY PROGRAM | 42,834 | 42,834 |
| 049 | 0603699D8Z | EMERGING CAPABILITIES TECHNOLOGY DEVELOPMENT .. | 80,911 | 80,911 |
| 050 | 0603712S | GENERIC LOGISTICS R&D TECHNOLOGY DEMONSTRATIONS. | 10,817 | 10,817 |
| 051 | 0603716D8Z | STRATEGIC ENVIRONMENTAL RESEARCH PROGRAM | 66,157 | 66,157 |
| 052 | 0603720S | MICROELECTRONICS TECHNOLOGY DEVELOPMENT AND SUPPORT. | 171,771 | 171,771 |
| 053 | 0603727D8Z | JOINT WARFIGHTING PROGRAM | 4,846 | 4,846 |
| 054 | 0603739E | ADVANCED ELECTRONICS TECHNOLOGIES | 128,616 | 128,616 |
| 055 | 0603760E | COMMAND, CONTROL AND COMMUNICATIONS SYSTEMS ... | 232,134 | 232,134 |
| 056 | 0603766E | NETWORK-CENTRIC WARFARE TECHNOLOGY | 512,424 | 507,424 |
| | | Unjustified increase | | [-5,000] |
| 057 | 0603767E | SENSOR TECHNOLOGY | 163,903 | 163,903 |
| 058 | 0603769D8Z | DISTRIBUTED LEARNING ADVANCED TECHNOLOGY DEVELOPMENT. | 13,723 | 13,723 |
| 059 | 0603781D8Z | SOFTWARE ENGINEERING INSTITUTE | 15,111 | 15,111 |
| 060 | 0603826D8Z | QUICK REACTION SPECIAL PROJECTS | 47,147 | 47,147 |
| 061 | 0603833D8Z | ENGINEERING SCIENCE & TECHNOLOGY | 19,376 | 19,376 |
| 062 | 0603924D8Z | HIGH ENERGY LASER ADVANCED TECHNOLOGY PROGRAM. | 85,223 | 85,223 |
| 063 | 0603941D8Z | TEST & EVALUATION SCIENCE & TECHNOLOGY | 175,574 | 185,574 |
| | | Program increase to support NDS technologies | | [10,000] |
| 064 | 0603950D8Z | NATIONAL SECURITY INNOVATION NETWORK | 25,000 | 25,000 |
| 065 | 0604055D8Z | OPERATIONAL ENERGY CAPABILITY IMPROVEMENT | 70,536 | 53,900 |
| | | Excess growth | | [-16,636] |
| 066 | 0303310D8Z | CWMD SYSTEMS | 28,907 | 28,907 |
| 068 | 1160402BB | SOF ADVANCED TECHNOLOGY DEVELOPMENT | 89,154 | 89,154 |
| 069 | 1206310SDA | SPACE SCIENCE AND TECHNOLOGY RESEARCH AND DEVELOPMENT. | 20,000 | 20,000 |
| | | SUBTOTAL ADVANCED TECHNOLOGY DEVELOPMENT. | 3,742,088 | 3,673,462 |
| | | ADVANCED COMPONENT DEVELOPMENT AND PROTOTYPES | | |
| 070 | 0603161D8Z | NUCLEAR AND CONVENTIONAL PHYSICAL SECURITY EQUIPMENT RDT&E ADC&P. | 42,695 | 42,695 |
| 071 | 0603600D8Z | WALKOFF | 92,791 | 92,791 |
| 072 | 0603821D8Z | ACQUISITION ENTERPRISE DATA & INFORMATION SERVICES. | 5,659 | 5,659 |
| 073 | 0603851D8Z | ENVIRONMENTAL SECURITY TECHNICAL CERTIFICATION PROGRAM. | 66,572 | 68,572 |
| | | ESTCP | | [2,000] |
| 074 | 0603881C | BALLISTIC MISSILE DEFENSE TERMINAL DEFENSE SEGMENT. | 302,761 | 302,761 |
| 075 | 0603882C | BALLISTIC MISSILE DEFENSE MIDCOURSE DEFENSE SEGMENT. | 1,156,506 | 1,237,606 |
| | | Common booster engineering early to need | | [-15,000] |
| | | Homeland Defense Radar-Hawaii delay | | [-30,400] |
| | | RKV cancellation—on demand communications | | [-13,500] |
| | | RKV Program Termination—Transfer from RD,DW 109 for SLEP program. | | [140,000] |
| 076 | 0603884BP | CHEMICAL AND BIOLOGICAL DEFENSE PROGRAM—DE/VAL. | 83,662 | 83,662 |
| 077 | 0603884C | BALLISTIC MISSILE DEFENSE SENSORS | 283,487 | 283,487 |
| 078 | 0603890C | BMD ENABLING PROGRAMS | 571,507 | 571,507 |
| 079 | 0603891C | SPECIAL PROGRAMS—MDA | 377,098 | 512,098 |
| | | Classified unfunded priority | | [135,000] |
| 080 | 0603892C | AEGIS BMD | 727,479 | 699,479 |
| | | Unjustified growth | | [-28,000] |
| 081 | 0603896C | BALLISTIC MISSILE DEFENSE COMMAND AND CONTROL, BATTLE MANAGEMENT AND COMMUNICATIONS. | 564,206 | 562,706 |
| | | IBCS integration delays | | [-1,500] |
| 082 | 0603898C | BALLISTIC MISSILE DEFENSE JOINT WARFIGHTER SUPPORT. | 51,532 | 51,532 |
| 083 | 0603904C | MISSILE DEFENSE INTEGRATION & OPERATIONS CENTER (MDIOC). | 56,161 | 56,161 |
| 084 | 0603906C | REGARDING TRENCH | 22,424 | 22,424 |
| 085 | 0603907C | SEA BASED X-BAND RADAR (SBX) | 128,156 | 128,156 |
| 086 | 0603913C | ISRAELI COOPERATIVE PROGRAMS | 300,000 | 300,000 |
| 087 | 0603914C | BALLISTIC MISSILE DEFENSE TEST | 395,924 | 395,924 |
| 088 | 0603915C | BALLISTIC MISSILE DEFENSE TARGETS | 554,171 | 554,171 |
| 089 | 0603920D8Z | HUMANITARIAN DEMINING | 10,820 | 14,700 |
| | | Program increase | | [3,880] |
| 090 | 0603923D8Z | COALITION WARFARE | 11,316 | 11,316 |
| 091 | 0604016D8Z | DEPARTMENT OF DEFENSE CORROSION PROGRAM | 3,365 | 3,365 |
| 092 | 0604115C | TECHNOLOGY MATURATION INITIATIVES | 303,458 | 269,458 |

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| Line | Program Element | Item | FY 2020 Request | Conference Authorized |
|------|-----------------|--|------------------|-----------------------|
| | | Cancel Neutral Particle Beam | | [-34,000] |
| 093 | 0604132D8Z | MISSILE DEFEAT PROJECT | 17,816 | 10,000 |
| | | Unjustified budget request—program transitioned to services | | [-7,816] |
| 095 | 0604181C | HYPERSONIC DEFENSE | 157,425 | 157,425 |
| 096 | 0604250D8Z | ADVANCED INNOVATIVE TECHNOLOGIES | 1,312,735 | 1,312,735 |
| | | Hypervelocity Gun Weapon System | | [80,000] |
| | | Insufficient justification | | [-80,000] |
| 097 | 0604294D8Z | TRUSTED & ASSURED MICROELECTRONICS | 542,421 | 547,421 |
| | | Trusted and assured microelectronics research | | [5,000] |
| 098 | 0604331D8Z | RAPID PROTOTYPING PROGRAM | 100,957 | 50,957 |
| | | Uncoordinated prototyping efforts | | [-50,000] |
| 099 | 0604341D8Z | DEFENSE INNOVATION UNIT (DIU) PROTOTYPING | 92,000 | 92,000 |
| 100 | 0604400D8Z | DEPARTMENT OF DEFENSE (DOD) UNMANNED SYSTEM COMMON DEVELOPMENT. | 3,021 | 3,021 |
| 102 | 0604672C | HOMELAND DEFENSE RADAR—HAWAII (HDR-H) | 274,714 | 173,598 |
| | | Funding acceleration early to need | | [-60,000] |
| | | Radar foundation and thermal control system early to need | | [-41,116] |
| 103 | 0604673C | PACIFIC DISCRIMINATING RADAR | 6,711 | 6,711 |
| 104 | 0604682D8Z | WARGAMING AND SUPPORT FOR STRATEGIC ANALYSIS (SSA). | 3,751 | 3,751 |
| 105 | 0604775BR | DEFENSE RAPID INNOVATION PROGRAM | 14,021 | 14,021 |
| 107 | 0604826J | JOINT C5 CAPABILITY DEVELOPMENT, INTEGRATION AND INTEROPERABILITY ASSESSMENTS. | 20,062 | 20,062 |
| 108 | 0604873C | LONG RANGE DISCRIMINATION RADAR (LRDR) | 136,423 | 136,423 |
| 109 | 0604874C | IMPROVED HOMELAND DEFENSE INTERCEPTORS | 412,363 | 272,363 |
| | | RKV Termination – transfer to RD,DW 075 for SLEP program | | [-140,000] |
| 110 | 0604876C | BALLISTIC MISSILE DEFENSE TERMINAL DEFENSE SEGMENT TEST. | 25,137 | 25,137 |
| 111 | 0604878C | AEGIS BMD TEST | 169,822 | 169,822 |
| 112 | 0604879C | BALLISTIC MISSILE DEFENSE SENSOR TEST | 105,530 | 105,530 |
| 113 | 0604880C | LAND-BASED SM-3 (LBSM3) | 38,352 | 38,352 |
| 115 | 0604887C | BALLISTIC MISSILE DEFENSE MIDCOURSE SEGMENT TEST. | 98,139 | 98,139 |
| 117 | 0300206R | ENTERPRISE INFORMATION TECHNOLOGY SYSTEMS | 1,600 | 1,600 |
| 118 | 0303191D8Z | JOINT ELECTROMAGNETIC TECHNOLOGY (JET) PROGRAM | 3,191 | 3,191 |
| 119 | 0305103C | CYBER SECURITY INITIATIVE | 1,138 | 1,138 |
| 120 | 1206410SDA | SPACE TECHNOLOGY DEVELOPMENT AND PROTOTYPING | 85,000 | 55,000 |
| | | Missile defense studies realignment | | [-30,000] |
| 121 | 1206893C | SPACE TRACKING & SURVEILLANCE SYSTEM | 35,849 | 35,849 |
| 122 | 1206895C | BALLISTIC MISSILE DEFENSE SYSTEM SPACE PROGRAMS | 27,565 | 135,565 |
| | | Hypersonic and Ballistic Tracking Space Sensor | | [108,000] |
| 122A | 0604011D8Z | NEXT GENERATION INFORMATION COMMUNICATIONS TECHNOLOGY (5G). | | 275,000 |
| | | NTTR and additional AF installation 5G network | | [100,000] |
| | | Program increase | | [175,000] |
| | | SUBTOTAL ADVANCED COMPONENT DEVELOPMENT AND PROTOTYPES. | 9,797,493 | 10,015,041 |
| | | SYSTEM DEVELOPMENT AND DEMONSTRATION | | |
| 123 | 0604161D8Z | NUCLEAR AND CONVENTIONAL PHYSICAL SECURITY EQUIPMENT RDT&E SDD. | 11,276 | 11,276 |
| 124 | 0604165D8Z | PROMPT GLOBAL STRIKE CAPABILITY DEVELOPMENT | 107,000 | 76,000 |
| | | Transfer to RDTE, Army Line 100 | | [-31,000] |
| 125 | 0604384BP | CHEMICAL AND BIOLOGICAL DEFENSE PROGRAM—EMD .. | 384,047 | 374,047 |
| | | Excess growth | | [-10,000] |
| 126 | 0604771D8Z | JOINT TACTICAL INFORMATION DISTRIBUTION SYSTEM (JTIDS). | 40,102 | 40,102 |
| 127 | 0605000BR | COUNTER WEAPONS OF MASS DESTRUCTION SYSTEMS DEVELOPMENT. | 13,100 | 13,100 |
| 128 | 0605013BL | INFORMATION TECHNOLOGY DEVELOPMENT | 3,070 | 3,070 |
| 129 | 0605021SE | HOMELAND PERSONNEL SECURITY INITIATIVE | 7,295 | 7,295 |
| 130 | 0605022D8Z | DEFENSE EXPORTABILITY PROGRAM | 17,615 | 17,615 |
| 131 | 0605027D8Z | OUSD(C) IT DEVELOPMENT INITIATIVES | 15,653 | 15,653 |
| 132 | 0605070S | DOD ENTERPRISE SYSTEMS DEVELOPMENT AND DEMONSTRATION. | 2,378 | 2,378 |
| 133 | 0605075D8Z | CMO POLICY AND INTEGRATION | 1,618 | 1,618 |
| 134 | 0605080S | DEFENSE AGENCY INITIATIVES (DAI)—FINANCIAL SYSTEM. | 27,944 | 27,944 |
| 135 | 0605090S | DEFENSE RETIRED AND ANNUITANT PAY SYSTEM (DRAS) | 6,609 | 6,609 |
| 136 | 0605210D8Z | DEFENSE-WIDE ELECTRONIC PROCUREMENT CAPABILITIES. | 9,619 | 9,619 |
| 137 | 0605294D8Z | TRUSTED & ASSURED MICROELECTRONICS | 175,032 | 175,032 |
| 138 | 0303140BL | INFORMATION SYSTEMS SECURITY PROGRAM | 425 | 425 |
| 139 | 0303141K | GLOBAL COMBAT SUPPORT SYSTEM | 1,578 | 1,578 |
| 140 | 0305304D8Z | DOD ENTERPRISE ENERGY INFORMATION MANAGEMENT (EEIM). | 4,373 | 4,373 |
| 141 | 0305310D8Z | CWMD SYSTEMS: SYSTEM DEVELOPMENT AND DEMONSTRATION. | 12,854 | 12,854 |

SEC. 4201. RESEARCH, DEVELOPMENT, TEST, AND EVALUATION
(In Thousands of Dollars)

| Line | Program Element | Item | FY 2020 Request | Conference Authorized |
|---|-----------------|---|------------------|-----------------------|
| SUBTOTAL SYSTEM DEVELOPMENT AND DEMONSTRATION. | | | 841,588 | 800,588 |
| MANAGEMENT SUPPORT | | | | |
| 142 | 0603829J | JOINT CAPABILITY EXPERIMENTATION | 13,000 | 13,000 |
| 143 | 0604774D8Z | DEFENSE READINESS REPORTING SYSTEM (DRRS) | 9,724 | 9,724 |
| 144 | 0604875D8Z | JOINT SYSTEMS ARCHITECTURE DEVELOPMENT | 9,593 | 9,593 |
| 145 | 0604940D8Z | CENTRAL TEST AND EVALUATION INVESTMENT DEVELOPMENT (CTEIP). | 260,267 | 260,267 |
| 146 | 0604942D8Z | ASSESSMENTS AND EVALUATIONS | 30,834 | 30,834 |
| 147 | 0605001E | MISSION SUPPORT | 68,498 | 68,498 |
| 148 | 0605100D8Z | JOINT MISSION ENVIRONMENT TEST CAPABILITY (JMETS). | 83,091 | 89,091 |
| | | Cyber range development | | [6,000] |
| 149 | 0605104D8Z | TECHNICAL STUDIES, SUPPORT AND ANALYSIS | 18,079 | 18,079 |
| 150 | 0605126J | JOINT INTEGRATED AIR AND MISSILE DEFENSE ORGANIZATION (JIAMDO). | 70,038 | 70,038 |
| 152 | 0605142D8Z | SYSTEMS ENGINEERING | 37,140 | 37,140 |
| 153 | 0605151D8Z | STUDIES AND ANALYSIS SUPPORT—OSD | 4,759 | 4,759 |
| 154 | 0605161D8Z | NUCLEAR MATTERS-PHYSICAL SECURITY | 8,307 | 8,307 |
| 155 | 0605170D8Z | SUPPORT TO NETWORKS AND INFORMATION INTEGRATION. | 9,441 | 9,441 |
| 156 | 0605200D8Z | GENERAL SUPPORT TO USD (INTELLIGENCE) | 1,700 | 1,700 |
| 157 | 0605384BP | CHEMICAL AND BIOLOGICAL DEFENSE PROGRAM | 110,363 | 110,363 |
| 166 | 0605790D8Z | SMALL BUSINESS INNOVATION RESEARCH (SBIR)/ SMALL BUSINESS TECHNOLOGY TRANSFER. | 3,568 | 3,568 |
| 167 | 0605797D8Z | MAINTAINING TECHNOLOGY ADVANTAGE | 19,936 | 19,936 |
| 168 | 0605798D8Z | DEFENSE TECHNOLOGY ANALYSIS | 16,875 | 19,875 |
| | | National Science, Technology, and Security Roundtable with Academia. | | [3,000] |
| 169 | 0605801KA | DEFENSE TECHNICAL INFORMATION CENTER (DTIC) | 57,716 | 57,716 |
| 170 | 0605803SE | R&D IN SUPPORT OF DOD ENLISTMENT, TESTING AND EVALUATION. | 34,448 | 34,448 |
| 171 | 0605804D8Z | DEVELOPMENT TEST AND EVALUATION | 22,203 | 22,203 |
| 172 | 0605898E | MANAGEMENT HQ—R&D | 13,208 | 13,208 |
| 173 | 0605998KA | MANAGEMENT HQ—DEFENSE TECHNICAL INFORMATION CENTER (DTIC). | 3,027 | 3,027 |
| 174 | 0606100D8Z | BUDGET AND PROGRAM ASSESSMENTS | 8,017 | 8,017 |
| 175 | 0606225D8Z | ODNA TECHNOLOGY AND RESOURCE ANALYSIS | 3,194 | 3,194 |
| 176 | 0606589D8W | DEFENSE DIGITAL SERVICE (DDS) DEVELOPMENT SUPPORT. | 1,000 | 1,000 |
| 179 | 0203345D8Z | DEFENSE OPERATIONS SECURITY INITIATIVE (DOSI) | 3,037 | 3,037 |
| 180 | 0204571J | JOINT STAFF ANALYTICAL SUPPORT | 9,216 | 9,216 |
| 183 | 0303166J | SUPPORT TO INFORMATION OPERATIONS (IO) CAPABILITIES. | 553 | 553 |
| 184 | 0303260D8Z | DEFENSE MILITARY DECEPTION PROGRAM OFFICE (DMDPO). | 1,014 | 1,014 |
| 185 | 0305172K | COMBINED ADVANCED APPLICATIONS | 58,667 | 48,667 |
| | | Unjustified growth | | [-10,000] |
| 187 | 0305245D8Z | INTELLIGENCE CAPABILITIES AND INNOVATION INVESTMENTS. | 21,081 | 21,081 |
| 189 | 0307588D8Z | ALGORITHMIC WARFARE CROSS FUNCTIONAL TEAMS | 221,235 | 221,235 |
| 191 | 0804768J | COCOM EXERCISE ENGAGEMENT AND TRAINING TRANSFORMATION (CE2T2)—NON-MHA. | 40,073 | 40,073 |
| 192 | 0808709SE | DEFENSE EQUAL OPPORTUNITY MANAGEMENT INSTITUTE (DEOMI). | 100 | 100 |
| 193 | 0901598C | MANAGEMENT HQ—MDA | 27,065 | 27,065 |
| 194 | 0903235K | JOINT SERVICE PROVIDER (JSP) | 3,090 | 3,090 |
| 194A | 9999999999 | CLASSIFIED PROGRAMS | 51,471 | 51,471 |
| SUBTOTAL MANAGEMENT SUPPORT | | | 1,354,628 | 1,353,628 |
| OPERATIONAL SYSTEM DEVELOPMENT UNDISTRIBUTED | | | | |
| 195 | 0604130V | ENTERPRISE SECURITY SYSTEM (ESS) | 7,945 | 7,945 |
| 196 | 0604532K | JOINT ARTIFICIAL INTELLIGENCE | 208,834 | 208,834 |
| 197 | 0605127T | REGIONAL INTERNATIONAL OUTREACH (RIO) AND PARTNERSHIP FOR PEACE INFORMATION MANA. | 1,947 | 1,947 |
| 198 | 0605147T | OVERSEAS HUMANITARIAN ASSISTANCE SHARED INFORMATION SYSTEM (OHASIS). | 310 | 310 |
| 199 | 0607210D8Z | INDUSTRIAL BASE ANALYSIS AND SUSTAINMENT SUPPORT. | 10,051 | 18,551 |
| | | Advanced systems manufacturing | | [5,000] |
| | | Rare earth element production | | [3,500] |
| 200 | 0607310D8Z | CWMD SYSTEMS: OPERATIONAL SYSTEMS DEVELOPMENT | 12,734 | 12,734 |
| 201 | 0607327T | GLOBAL THEATER SECURITY COOPERATION MANAGEMENT INFORMATION SYSTEMS (G-TSCMIS). | 14,800 | 10,350 |
| | | Excess growth | | [-4,450] |
| 202 | 0607384BP | CHEMICAL AND BIOLOGICAL DEFENSE (OPERATIONAL SYSTEMS DEVELOPMENT). | 54,023 | 54,023 |

| SEC. 4201. RESEARCH, DEVELOPMENT, TEST, AND EVALUATION (In Thousands of Dollars) | | | | |
|--|-----------------|--|--------------------|-----------------------|
| Line | Program Element | Item | FY 2020 Request | Conference Authorized |
| 203 | 0208043J | PLANNING AND DECISION AID SYSTEM (PDAS) | 4,537 | 4,537 |
| 204 | 0208045K | C4I INTEROPERABILITY | 64,122 | 64,122 |
| 210 | 0302019K | DEFENSE INFO INFRASTRUCTURE ENGINEERING AND INTEGRATION. | 15,798 | 15,798 |
| 211 | 0303126K | LONG-HAUL COMMUNICATIONS—DCS | 11,166 | 11,166 |
| 212 | 0303131K | MINIMUM ESSENTIAL EMERGENCY COMMUNICATIONS NETWORK (MEECN). | 17,383 | 17,383 |
| 214 | 0303136G | KEY MANAGEMENT INFRASTRUCTURE (KMI) | 54,516 | 54,516 |
| 215 | 0303140D8Z | INFORMATION SYSTEMS SECURITY PROGRAM | 67,631 | 92,631 |
| | | AI and Cyber Center of Excellence | | [25,000] |
| 216 | 0303140G | INFORMATION SYSTEMS SECURITY PROGRAM | 289,080 | 287,198 |
| | | Realignment to DISA for Sharkseer | | [-1,882] |
| 217 | 0303140K | INFORMATION SYSTEMS SECURITY PROGRAM | 42,796 | 44,678 |
| | | Realignment for Sharkseer | | [1,882] |
| 218 | 0303150K | GLOBAL COMMAND AND CONTROL SYSTEM | 25,218 | 25,218 |
| 219 | 0303153K | DEFENSE SPECTRUM ORGANIZATION | 21,698 | 21,698 |
| 220 | 0303228K | JOINT REGIONAL SECURITY STACKS (JRSS) | 18,077 | 18,077 |
| 222 | 0303430K | FEDERAL INVESTIGATIVE SERVICES INFORMATION TECHNOLOGY. | 44,001 | 44,001 |
| 228 | 0305128V | SECURITY AND INVESTIGATIVE ACTIVITIES | 2,400 | 2,400 |
| 232 | 0305186D8Z | POLICY R&D PROGRAMS | 6,301 | 6,301 |
| 233 | 0305199D8Z | NET CENTRICITY | 21,384 | 21,384 |
| 235 | 0305208BB | DISTRIBUTED COMMON GROUND/SURFACE SYSTEMS | 6,359 | 6,359 |
| 238 | 0305208K | DISTRIBUTED COMMON GROUND/SURFACE SYSTEMS | 2,981 | 2,981 |
| 241 | 0305327V | INSIDER THREAT | 1,964 | 1,964 |
| 242 | 0305387D8Z | HOMELAND DEFENSE TECHNOLOGY TRANSFER PROGRAM. | 2,221 | 2,221 |
| 250 | 0708012K | LOGISTICS SUPPORT ACTIVITIES | 1,361 | 1,361 |
| 251 | 0708012S | PACIFIC DISASTER CENTERS | 1,770 | 1,770 |
| 252 | 0708047S | DEFENSE PROPERTY ACCOUNTABILITY SYSTEM | 3,679 | 3,679 |
| 254 | 1105219BB | MQ-9 UAV | 20,697 | 20,697 |
| 256 | 1160403BB | AVIATION SYSTEMS | 245,795 | 262,995 |
| | | Program increase—Future Vertical Lift | | [8,800] |
| | | UPL FVL realignment from RFCM | | [8,400] |
| 257 | 1160405BB | INTELLIGENCE SYSTEMS DEVELOPMENT | 15,484 | 15,484 |
| 258 | 1160408BB | OPERATIONAL ENHANCEMENTS | 166,922 | 166,922 |
| 259 | 1160431BB | WARRIOR SYSTEMS | 62,332 | 62,332 |
| 260 | 1160432BB | SPECIAL PROGRAMS | 21,805 | 21,805 |
| 261 | 1160434BB | UNMANNED ISR | 37,377 | 37,377 |
| 262 | 1160480BB | SOF TACTICAL VEHICLES | 11,150 | 11,150 |
| 263 | 1160483BB | MARITIME SYSTEMS | 72,626 | 72,626 |
| 264 | 1160489BB | GLOBAL VIDEO SURVEILLANCE ACTIVITIES | 5,363 | 5,363 |
| 265 | 1160490BB | OPERATIONAL ENHANCEMENTS INTELLIGENCE | 12,962 | 12,962 |
| 266 | 1203610K | TELEPORT PROGRAM | 6,158 | 6,158 |
| 266A | 9999999999 | CLASSIFIED PROGRAMS | 4,542,640 | 4,542,640 |
| | | SUBTOTAL OPERATIONAL SYSTEM DEVELOPMENT. | 6,258,398 | 6,304,648 |
| | | SUBTOTAL UNDISTRIBUTED | | 46,250 |
| | | TOTAL RESEARCH, DEVELOPMENT, TEST & EVAL, DW. | 24,772,953 | 24,971,825 |
| | | OPERATIONAL TEST & EVAL, DEFENSE MANAGEMENT SUPPORT | | |
| 001 | 0605118OTE | OPERATIONAL TEST AND EVALUATION | 93,291 | 93,291 |
| 002 | 0605131OTE | LIVE FIRE TEST AND EVALUATION | 69,172 | 69,172 |
| 003 | 0605814OTE | OPERATIONAL TEST ACTIVITIES AND ANALYSES | 58,737 | 58,737 |
| | | SUBTOTAL MANAGEMENT SUPPORT | 221,200 | 221,200 |
| | | TOTAL OPERATIONAL TEST & EVAL, DEFENSE | 221,200 | 221,200 |
| | | TOTAL RDT&E | 103,395,545 | 102,309,846 |

1 **SEC. 4202. RESEARCH, DEVELOPMENT, TEST, AND EVALUA-**
 2 **TION FOR OVERSEAS CONTINGENCY OPER-**
 3 **ATIONS.**

SEC. 4202. RESEARCH, DEVELOPMENT, TEST, AND EVALUATION FOR OVERSEAS CONTINGENCY OP-
ERATIONS
 (In Thousands of Dollars)

| Line | Program Element | Item | FY 2020 Request | Conference Authorized |
|---|-----------------|--|-----------------|-----------------------|
| RESEARCH, DEVELOPMENT, TEST & EVAL, ARMY | | | | |
| ADVANCED COMPONENT DEVELOPMENT & PROTO- | | | | |
| TYPES | | | | |
| 074 | 0603327A | AIR AND MISSILE DEFENSE SYSTEMS ENGINEERING | 500 | 500 |
| 079 | 0603747A | SOLDIER SUPPORT AND SURVIVABILITY | 3,000 | 3,000 |
| 085 | 0603804A | LOGISTICS AND ENGINEER EQUIPMENT—ADV DEV | 1,085 | 1,085 |
| 095 | 0604117A | MANEUVER—SHORT RANGE AIR DEFENSE (M-SHORAD) | 6,000 | 0 |
| | | Unjustified request | | [-6,000] |
| 097 | 0604119A | ARMY ADVANCED COMPONENT DEVELOPMENT & PROTO- | 4,529 | 4,529 |
| | | TYPING. | | |
| 105 | 0604785A | INTEGRATED BASE DEFENSE (BUDGET ACTIVITY 4) | 2,000 | 2,000 |
| SUBTOTAL ADVANCED COMPONENT DEVELOPMENT & | | | 17,114 | 17,114 |
| PROTOTYPES. | | | | |
| SYSTEM DEVELOPMENT & DEMONSTRATION | | | | |
| 151 | 0605035A | COMMON INFRARED COUNTERMEASURES (CIRCUM) | 11,770 | 11,770 |
| 159 | 0605051A | AIRCRAFT SURVIVABILITY DEVELOPMENT | 77,420 | 77,420 |
| 163 | 0605203A | ARMY SYSTEM DEVELOPMENT & DEMONSTRATION | 19,527 | 19,527 |
| 174 | 0304270A | ELECTRONIC WARFARE DEVELOPMENT | 3,200 | 3,200 |
| SUBTOTAL SYSTEM DEVELOPMENT & DEMONSTRATION. | | | 111,917 | 111,917 |
| RD&E MANAGEMENT SUPPORT | | | | |
| 200 | 0606003A | COUNTERINTEL AND HUMAN INTEL MODERNIZATION | 1,875 | 1,875 |
| SUBTOTAL RD&E MANAGEMENT SUPPORT | | | 1,875 | 1,875 |
| OPERATIONAL SYSTEMS DEVELOPMENT | | | | |
| UNDISTRIBUTED | | | | |
| 238 | 0303028A | SECURITY AND INTELLIGENCE ACTIVITIES | 22,904 | 22,904 |
| 246 | 0305204A | TACTICAL UNMANNED AERIAL VEHICLES | 34,100 | 34,100 |
| 247 | 0305206A | AIRBORNE RECONNAISSANCE SYSTEMS | 14,000 | 14,000 |
| 252 | 0307665A | BIOMETRICS ENABLED INTELLIGENCE | 2,214 | 2,214 |
| SUBTOTAL OPERATIONAL SYSTEMS DEVELOPMENT | | | 73,218 | 73,218 |
| TOTAL RESEARCH, DEVELOPMENT, TEST & EVAL, | | | 204,124 | 198,124 |
| ARMY. | | | | |
| RESEARCH, DEVELOPMENT, TEST & EVAL, NAVY | | | | |
| ADVANCED COMPONENT DEVELOPMENT & PROTO- | | | | |
| TYPES | | | | |
| 028 | 0603207N | AIR/OCEAN TACTICAL APPLICATIONS | 2,400 | 2,400 |
| 038 | 0603527N | RETRACT LARCH | 22,000 | 22,000 |
| 057 | 0603654N | JOINT SERVICE EXPLOSIVE ORDNANCE DEVELOPMENT | 14,178 | 14,178 |
| 069 | 0603795N | LAND ATTACK TECHNOLOGY | 1,428 | 1,428 |
| SUBTOTAL ADVANCED COMPONENT DEVELOPMENT & | | | 40,006 | 40,006 |
| PROTOTYPES. | | | | |
| SYSTEM DEVELOPMENT & DEMONSTRATION | | | | |
| 143 | 0604755N | SHIP SELF DEFENSE (DETECT & CONTROL) | 1,122 | 1,122 |
| SUBTOTAL SYSTEM DEVELOPMENT & DEMONSTRATION. | | | 1,122 | 1,122 |
| OPERATIONAL SYSTEMS DEVELOPMENT | | | | |
| UNDISTRIBUTED | | | | |
| 228 | 0206313M | MARINE CORPS COMMUNICATIONS SYSTEMS | 15,000 | 15,000 |
| 259A | 9999999999 | CLASSIFIED PROGRAMS | 108,282 | 108,282 |
| SUBTOTAL OPERATIONAL SYSTEMS DEVELOPMENT | | | 123,282 | 123,282 |
| TOTAL RESEARCH, DEVELOPMENT, TEST & EVAL, | | | 164,410 | 164,410 |
| NAVY. | | | | |
| RESEARCH, DEVELOPMENT, TEST & EVAL, AF | | | | |
| ADVANCED COMPONENT DEVELOPMENT & PROTO- | | | | |
| TYPES | | | | |
| 048 | 0604858F | TECH TRANSITION PROGRAM | 26,450 | 26,450 |
| 072 | 1206857F | SPACE RAPID CAPABILITIES OFFICE | 17,885 | 17,885 |
| SUBTOTAL ADVANCED COMPONENT DEVELOPMENT & | | | 44,335 | 44,335 |
| PROTOTYPES. | | | | |

SEC. 4202. RESEARCH, DEVELOPMENT, TEST, AND EVALUATION FOR OVERSEAS CONTINGENCY OPERATIONS
(In Thousands of Dollars)

| Line | Program Element | Item | FY 2020 Request | Conference Authorized |
|--|-----------------|---|-----------------|-----------------------|
| OPERATIONAL SYSTEMS DEVELOPMENT | | | | |
| UNDISTRIBUTED | | | | |
| 177 | 0205671F | JOINT COUNTER RCIED ELECTRONIC WARFARE | 4,000 | 4,000 |
| 217 | 0208288F | INTEL DATA APPLICATIONS | 1,200 | 1,200 |
| 311A | 9999999999 | CLASSIFIED PROGRAMS | 78,713 | 78,713 |
| SUBTOTAL OPERATIONAL SYSTEMS DEVELOPMENT | | | 83,913 | 83,913 |
| TOTAL RESEARCH, DEVELOPMENT, TEST & EVAL, AF ... | | | 128,248 | 128,248 |
| RESEARCH, DEVELOPMENT, TEST & EVAL, DW | | | | |
| APPLIED RESEARCH | | | | |
| 010 | 0602134BR | COUNTER IMPROVISED-THREAT ADVANCED STUDIES | 1,677 | 1,677 |
| SUBTOTAL APPLIED RESEARCH | | | 1,677 | 1,677 |
| ADVANCED TECHNOLOGY DEVELOPMENT | | | | |
| 025 | 0603122D8Z | COMBATING TERRORISM TECHNOLOGY SUPPORT | 25,230 | 25,230 |
| 027 | 0603134BR | COUNTER IMPROVISED-THREAT SIMULATION | 49,528 | 49,528 |
| SUBTOTAL ADVANCED TECHNOLOGY DEVELOPMENT ... | | | 74,758 | 74,758 |
| ADVANCED COMPONENT DEVELOPMENT AND PROTO-TYPES | | | | |
| 094 | 0604134BR | COUNTER IMPROVISED-THREAT DEMONSTRATION, PROTO-TYPE DEVELOPMENT, AND TESTING. | 113,590 | 113,590 |
| SUBTOTAL ADVANCED COMPONENT DEVELOPMENT AND PROTOTYPES. | | | 113,590 | 113,590 |
| OPERATIONAL SYSTEM DEVELOPMENT | | | | |
| UNDISTRIBUTED | | | | |
| 258 | 1160408BB | OPERATIONAL ENHANCEMENTS | 726 | 726 |
| 259 | 1160431BB | WARRIOR SYSTEMS | 6,000 | 6,000 |
| 261 | 1160434BB | UNMANNED ISR | 5,000 | 5,000 |
| 266A | 9999999999 | CLASSIFIED PROGRAMS | 200,199 | 200,199 |
| SUBTOTAL OPERATIONAL SYSTEM DEVELOPMENT | | | 211,925 | 211,925 |
| TOTAL RESEARCH, DEVELOPMENT, TEST & EVAL, DW ... | | | 401,950 | 401,950 |
| TOTAL RDT&E | | | 898,732 | 892,732 |

1 SEC. 4203. RESEARCH, DEVELOPMENT, TEST, AND EVALUA-
2 TION FOR EMERGENCY REQUIREMENTS.

SEC. 4203. RESEARCH, DEVELOPMENT, TEST, AND EVALUATION FOR EMERGENCY REQUIREMENTS
(In Thousands of Dollars)

| Line | Program Element | Item | FY 2020 Request | Conference Authorized |
|---|-----------------|---|-----------------|-----------------------|
| RESEARCH, DEVELOPMENT, TEST & EVAL, NAVY | | | | |
| MANAGEMENT SUPPORT | | | | |
| 187 | 0605864N | TEST AND EVALUATION SUPPORT | 0 | 129,000 |
| Earthquake damage recovery | | | | [129,000] |
| TOTAL RESEARCH, DEVELOPMENT, TEST & EVAL, NAVY. | | | 0 | 129,000 |
| RESEARCH, DEVELOPMENT, TEST & EVAL, AF | | | | |
| MANAGEMENT SUPPORT | | | | |
| 128 | 0605807F | TEST AND EVALUATION SUPPORT | 0 | 14,436 |
| Earthquake damage recovery | | | | [14,436] |
| 138 | 0605976F | FACILITIES RESTORATION AND MODERNIZATION—TEST AND EVALUATION SUPPORT. | 0 | 1,060 |
| Earthquake damage recovery | | | | [1,060] |
| TOTAL RESEARCH, DEVELOPMENT, TEST & EVAL, AF ... | | | 0 | 15,496 |
| TOTAL RDT&E | | | 0 | 144,496 |

3 TITLE XLIII—OPERATION AND
4 MAINTENANCE

Sec. 4301. Operation and maintenance.

Sec. 4302. Operation and maintenance for overseas contingency operations.

Sec. 4303. Operation and maintenance for emergency requirements.

1 SEC. 4301. OPERATION AND MAINTENANCE.

| SEC. 4301. OPERATION AND MAINTENANCE (In Thousands of Dollars) | | | |
|---|--|--------------------|--------------------------|
| Line | Item | FY 2020 Request | Conference Authorized |
| OPERATION & MAINTENANCE, ARMY | | | |
| OPERATING FORCES | | | |
| 010 | MANEUVER UNITS | 1,735,922 | 1,398,674 |
| | Realignment to OCO | | [-260,548] |
| | Unjustified growth | | [-76,700] |
| 020 | MODULAR SUPPORT BRIGADES | 127,815 | 124,665 |
| | Unjustified growth | | [-3,150] |
| 030 | ECHELONS ABOVE BRIGADE | 716,356 | 709,356 |
| | Unjustified growth | | [-7,000] |
| 040 | THEATER LEVEL ASSETS | 890,891 | 878,891 |
| | Unjustified growth | | [-12,000] |
| 050 | LAND FORCES OPERATIONS SUPPORT | 1,232,477 | 1,222,977 |
| | Unjustified growth | | [-9,500] |
| 060 | AVIATION ASSETS | 1,355,606 | 1,269,106 |
| | Excess to need | | [-86,500] |
| 070 | FORCE READINESS OPERATIONS SUPPORT | 3,882,315 | 2,664,315 |
| | Female personal protective equipment | | [2,000] |
| | Realignment to OCO | | [-1,100,000] |
| | Unjustified growth | | [-120,000] |
| 080 | LAND FORCES SYSTEMS READINESS | 417,069 | 446,269 |
| | UPL MDTF INDOPACOM | | [29,200] |
| 090 | LAND FORCES DEPOT MAINTENANCE | 1,633,327 | 1,608,327 |
| | Unjustified growth | | [-25,000] |
| 100 | BASE OPERATIONS SUPPORT | 8,047,933 | 8,002,933 |
| | Unjustified growth | | [-45,000] |
| 110 | FACILITIES SUSTAINMENT, RESTORATION & MODERNIZA- TION | 4,326,840 | 4,326,840 |
| 120 | MANAGEMENT AND OPERATIONAL HEADQUARTERS | 405,612 | 405,612 |
| 160 | US AFRICA COMMAND | 251,511 | 243,011 |
| | Unjustified growth | | [-8,500] |
| 170 | US EUROPEAN COMMAND | 146,358 | 146,358 |
| 180 | US SOUTHERN COMMAND | 191,840 | 209,840 |
| | Multi-Mission Support Vessel | | [18,000] |
| 190 | US FORCES KOREA | 57,603 | 57,603 |
| 200 | CYBERSPACE ACTIVITIES—CYBERSPACE OPERATIONS | 423,156 | 423,156 |
| 210 | CYBERSPACE ACTIVITIES—CYBERSECURITY | 551,185 | 551,185 |
| | SUBTOTAL OPERATING FORCES | 26,393,816 | 24,689,118 |
| MOBILIZATION | | | |
| 220 | STRATEGIC MOBILITY | 380,577 | 380,577 |
| 230 | ARMY PREPOSITIONED STOCKS | 362,942 | 362,942 |
| 240 | INDUSTRIAL PREPAREDNESS | 4,637 | 5,637 |
| | Advanced Manufacturing COE Tech Roadmapping | | [1,000] |
| | SUBTOTAL MOBILIZATION | 748,156 | 749,156 |
| TRAINING AND RECRUITING | | | |
| 250 | OFFICER ACQUISITION | 157,175 | 157,175 |
| 260 | RECRUIT TRAINING | 55,739 | 55,739 |
| 270 | ONE STATION UNIT TRAINING | 62,300 | 62,300 |
| 280 | SENIOR RESERVE OFFICERS TRAINING CORPS | 538,357 | 538,357 |
| 290 | SPECIALIZED SKILL TRAINING | 969,813 | 969,813 |
| 300 | FLIGHT TRAINING | 1,234,049 | 1,234,049 |
| 310 | PROFESSIONAL DEVELOPMENT EDUCATION | 218,338 | 218,338 |
| 320 | TRAINING SUPPORT | 554,659 | 552,659 |
| | Excess travel request | | [-2,000] |
| 330 | RECRUITING AND ADVERTISING | 716,056 | 706,056 |
| | Unjustified growth for recruiting | | [-10,000] |
| 340 | EXAMINING | 185,034 | 185,034 |
| 350 | OFF-DUTY AND VOLUNTARY EDUCATION | 214,275 | 214,275 |
| 360 | CIVILIAN EDUCATION AND TRAINING | 147,647 | 147,647 |
| 370 | JUNIOR RESERVE OFFICER TRAINING CORPS | 173,812 | 173,812 |
| | SUBTOTAL TRAINING AND RECRUITING | 5,227,254 | 5,215,254 |

| SEC. 4301. OPERATION AND MAINTENANCE (In Thousands of Dollars) | | | |
|---|--|--------------------|--------------------------|
| Line | Item | FY 2020 Request | Conference Authorized |
| ADMIN & SRVWIDE ACTIVITIES | | | |
| 390 | SERVICEWIDE TRANSPORTATION | 559,229 | 559,229 |
| 400 | CENTRAL SUPPLY ACTIVITIES | 929,944 | 928,944 |
| | Excess personnel | | [-1,000] |
| 410 | LOGISTIC SUPPORT ACTIVITIES | 629,981 | 629,981 |
| 420 | AMMUNITION MANAGEMENT | 458,771 | 451,771 |
| | Unjustified growth | | [-7,000] |
| 430 | ADMINISTRATION | 428,768 | 418,768 |
| | Unjustified growth | | [-10,000] |
| 440 | SERVICEWIDE COMMUNICATIONS | 1,512,736 | 1,472,736 |
| | Program decrease unaccounted for | | [-40,000] |
| 450 | MANPOWER MANAGEMENT | 272,738 | 272,738 |
| 460 | OTHER PERSONNEL SUPPORT | 391,869 | 361,869 |
| | Unjustified growth | | [-30,000] |
| 470 | OTHER SERVICE SUPPORT | 1,901,165 | 1,881,165 |
| | Unjustified headquarters growth | | [-20,000] |
| 480 | ARMY CLAIMS ACTIVITIES | 198,765 | 191,265 |
| | Historical underexecution | | [-7,500] |
| 490 | REAL ESTATE MANAGEMENT | 226,248 | 226,248 |
| 500 | FINANCIAL MANAGEMENT AND AUDIT READINESS | 315,489 | 292,489 |
| | Program decrease unaccounted for | | [-23,000] |
| 510 | INTERNATIONAL MILITARY HEADQUARTERS | 427,254 | 427,254 |
| 520 | MISC. SUPPORT OF OTHER NATIONS | 43,248 | 43,248 |
| 565 | CLASSIFIED PROGRAMS | 1,347,053 | 1,347,053 |
| | SUBTOTAL ADMIN & SRVWIDE ACTIVITIES | 9,643,258 | 9,504,758 |
| | TOTAL OPERATION & MAINTENANCE, ARMY | 42,012,484 | 40,158,286 |
| OPERATION & MAINTENANCE, ARMY RES | | | |
| OPERATING FORCES | | | |
| 010 | MODULAR SUPPORT BRIGADES | 11,927 | 11,927 |
| 020 | ECHELONS ABOVE BRIGADE | 533,015 | 533,015 |
| 030 | THEATER LEVEL ASSETS | 119,517 | 118,101 |
| | Insufficient justification | | [-1,416] |
| 040 | LAND FORCES OPERATIONS SUPPORT | 550,468 | 543,468 |
| | Insufficient justification | | [-7,000] |
| 050 | AVIATION ASSETS | 86,670 | 85,170 |
| | Unjustified growth | | [-1,500] |
| 060 | FORCE READINESS OPERATIONS SUPPORT | 390,061 | 388,661 |
| | Excess civilian increase | | [-1,400] |
| 070 | LAND FORCES SYSTEMS READINESS | 101,890 | 101,890 |
| 080 | LAND FORCES DEPOT MAINTENANCE | 48,503 | 48,503 |
| 090 | BASE OPERATIONS SUPPORT | 598,907 | 594,707 |
| | Insufficient justification | | [-4,200] |
| 100 | FACILITIES SUSTAINMENT, RESTORATION & MODERNIZA- TION | 444,376 | 444,376 |
| 110 | MANAGEMENT AND OPERATIONAL HEADQUARTERS | 22,095 | 22,095 |
| 120 | CYBERSPACE ACTIVITIES—CYBERSPACE OPERATIONS | 3,288 | 3,288 |
| 130 | CYBERSPACE ACTIVITIES—CYBERSECURITY | 7,655 | 7,655 |
| | SUBTOTAL OPERATING FORCES | 2,918,372 | 2,902,856 |
| ADMIN & SRVWD ACTIVITIES | | | |
| UNDISTRIBUTED | | | |
| 140 | SERVICEWIDE TRANSPORTATION | 14,533 | 14,533 |
| 150 | ADMINISTRATION | 17,231 | 17,231 |
| 160 | SERVICEWIDE COMMUNICATIONS | 14,304 | 14,304 |
| 170 | MANPOWER MANAGEMENT | 6,129 | 6,129 |
| 180 | RECRUITING AND ADVERTISING | 58,541 | 58,541 |
| | SUBTOTAL ADMIN & SRVWD ACTIVITIES | 110,738 | 110,738 |
| 200 | UNDISTRIBUTED | | -25,000 |
| | Overestimation of civilian FTE targets | | [-25,000] |
| | SUBTOTAL UNDISTRIBUTED | | -25,000 |
| | TOTAL OPERATION & MAINTENANCE, ARMY RES | 3,029,110 | 2,988,594 |
| OPERATION & MAINTENANCE, ARNG | | | |
| UNDISTRIBUTED | | | |
| 010 | MANEUVER UNITS | 805,671 | 775,671 |
| | Excess growth | | [-30,000] |

| SEC. 4301. OPERATION AND MAINTENANCE | | | |
|---|---|------------------------|------------------------------|
| (In Thousands of Dollars) | | | |
| Line | Item | FY 2020 Request | Conference Authorized |
| 020 | MODULAR SUPPORT BRIGADES | 195,334 | 193,334 |
| | Excess growth | | [-2,000] |
| 030 | ECHELONS ABOVE BRIGADE | 771,048 | 770,548 |
| | Excess growth | | [-500] |
| 040 | THEATER LEVEL ASSETS | 94,726 | 94,226 |
| | Excess growth | | [-500] |
| 050 | LAND FORCES OPERATIONS SUPPORT | 33,696 | 35,185 |
| | Program increase—advanced trauma training program | | [1,489] |
| 060 | AVIATION ASSETS | 981,819 | 973,819 |
| | Insufficient justification | | [-8,000] |
| 070 | FORCE READINESS OPERATIONS SUPPORT | 743,206 | 743,206 |
| 080 | LAND FORCES SYSTEMS READINESS | 50,963 | 50,963 |
| 090 | LAND FORCES DEPOT MAINTENANCE | 258,278 | 254,028 |
| | Insufficient justification | | [-4,250] |
| 100 | BASE OPERATIONS SUPPORT | 1,153,076 | 1,133,076 |
| | Insufficient justification | | [-20,000] |
| 110 | FACILITIES SUSTAINMENT, RESTORATION & MODERNIZATION | 1,113,475 | 1,113,475 |
| 120 | MANAGEMENT AND OPERATIONAL HEADQUARTERS | 1,001,042 | 987,042 |
| | Insufficient justification | | [-14,000] |
| 130 | CYBERSPACE ACTIVITIES—CYBERSPACE OPERATIONS | 8,448 | 8,448 |
| 140 | CYBERSPACE ACTIVITIES—CYBERSECURITY | 7,768 | 7,768 |
| | SUBTOTAL OPERATING FORCES | 7,218,550 | 7,140,789 |
| 210 | UNDISTRIBUTED | | -20,000 |
| | Overestimation of civilian FTE targets | | [-20,000] |
| | SUBTOTAL UNDISTRIBUTED | | -20,000 |
| ADMIN & SRVWD ACTIVITIES | | | |
| 150 | SERVICEWIDE TRANSPORTATION | 9,890 | 9,890 |
| 160 | ADMINISTRATION | 71,070 | 71,070 |
| 170 | SERVICEWIDE COMMUNICATIONS | 68,213 | 62,213 |
| | Program decrease unaccounted for | | [-6,000] |
| 180 | MANPOWER MANAGEMENT | 8,628 | 8,628 |
| 190 | OTHER PERSONNEL SUPPORT | 250,376 | 250,376 |
| 200 | REAL ESTATE MANAGEMENT | 2,676 | 2,676 |
| | SUBTOTAL ADMIN & SRVWD ACTIVITIES | 410,853 | 404,853 |
| | TOTAL OPERATION & MAINTENANCE, ARNG | 7,629,403 | 7,525,642 |
| OPERATION & MAINTENANCE, NAVY | | | |
| OPERATING FORCES | | | |
| 010 | MISSION AND OTHER FLIGHT OPERATIONS | 5,309,109 | 4,659,109 |
| | Projected underexecution | | [-50,000] |
| | Realignment to OCO | | [-600,000] |
| 020 | FLEET AIR TRAINING | 2,284,828 | 2,249,828 |
| | Projected underexecution | | [-35,000] |
| 030 | AVIATION TECHNICAL DATA & ENGINEERING SERVICES | 59,299 | 59,299 |
| 040 | AIR OPERATIONS AND SAFETY SUPPORT | 155,896 | 155,896 |
| 050 | AIR SYSTEMS SUPPORT | 719,107 | 719,107 |
| 060 | AIRCRAFT DEPOT MAINTENANCE | 1,154,181 | 1,154,181 |
| 070 | AIRCRAFT DEPOT OPERATIONS SUPPORT | 60,402 | 59,202 |
| | Excess growth | | [-1,200] |
| 080 | AVIATION LOGISTICS | 1,241,421 | 1,219,421 |
| | Projected underexecution | | [-22,000] |
| 090 | MISSION AND OTHER SHIP OPERATIONS | 4,097,262 | 3,547,262 |
| | Realignment to OCO | | [-450,000] |
| | Unjustified growth | | [-100,000] |
| 100 | SHIP OPERATIONS SUPPORT & TRAINING | 1,031,792 | 1,029,792 |
| | Excess civilian growth | | [-2,000] |
| 110 | SHIP DEPOT MAINTENANCE | 8,061,298 | 8,714,298 |
| | Program increase | | [653,000] |
| 120 | SHIP DEPOT OPERATIONS SUPPORT | 2,073,641 | 2,066,141 |
| | Insufficient justification | | [-7,500] |
| 130 | COMBAT COMMUNICATIONS AND ELECTRONIC WARFARE .. | 1,378,856 | 1,364,856 |
| | Unjustified growth | | [-14,000] |
| 140 | SPACE SYSTEMS AND SURVEILLANCE | 276,245 | 273,745 |
| | Unjustified growth | | [-2,500] |
| 150 | WARFARE TACTICS | 675,209 | 675,209 |
| 160 | OPERATIONAL METEOROLOGY AND OCEANOGRAPHY | 389,516 | 389,516 |
| 170 | COMBAT SUPPORT FORCES | 1,536,310 | 1,126,310 |

| SEC. 4301. OPERATION AND MAINTENANCE | | | |
|---|--|------------------------|------------------------------|
| (In Thousands of Dollars) | | | |
| Line | Item | FY 2020 Request | Conference Authorized |
| | Realignment to OCO | | [-400,000] |
| | Unjustified growth | | [-10,000] |
| 180 | EQUIPMENT MAINTENANCE AND DEPOT OPERATIONS SUPPORT | 161,579 | 161,579 |
| 190 | COMBATANT COMMANDERS CORE OPERATIONS | 59,521 | 59,521 |
| 200 | COMBATANT COMMANDERS DIRECT MISSION SUPPORT | 93,978 | 98,978 |
| | Posture site assessments INDOPACOM | | [5,000] |
| 210 | MILITARY INFORMATION SUPPORT OPERATIONS | 8,641 | 8,641 |
| 220 | CYBERSPACE ACTIVITIES | 496,385 | 496,385 |
| 230 | FLEET BALLISTIC MISSILE | 1,423,339 | 1,423,339 |
| 240 | WEAPONS MAINTENANCE | 924,069 | 895,032 |
| | Insufficient justification | | [-29,037] |
| 250 | OTHER WEAPON SYSTEMS SUPPORT | 540,210 | 540,210 |
| 260 | ENTERPRISE INFORMATION | 1,131,627 | 1,111,627 |
| | Unjustified growth | | [-20,000] |
| 270 | SUSTAINMENT, RESTORATION AND MODERNIZATION | 3,029,634 | 3,029,634 |
| 280 | BASE OPERATING SUPPORT | 4,414,943 | 4,414,943 |
| | SUBTOTAL OPERATING FORCES | 42,788,298 | 41,703,061 |
| MOBILIZATION | | | |
| 290 | SHIP PREPOSITIONING AND SURGE | 942,902 | 942,902 |
| 300 | READY RESERVE FORCE | 352,044 | 352,044 |
| 310 | SHIP ACTIVATIONS/INACTIVATIONS | 427,555 | 427,555 |
| 320 | EXPEDITIONARY HEALTH SERVICES SYSTEMS | 137,597 | 137,597 |
| 330 | COAST GUARD SUPPORT | 24,604 | 24,604 |
| | SUBTOTAL MOBILIZATION | 1,884,702 | 1,884,702 |
| TRAINING AND RECRUITING | | | |
| 340 | OFFICER ACQUISITION | 150,765 | 150,765 |
| 350 | RECRUIT TRAINING | 11,584 | 11,584 |
| 360 | RESERVE OFFICERS TRAINING CORPS | 159,133 | 159,133 |
| 370 | SPECIALIZED SKILL TRAINING | 911,316 | 891,316 |
| | Insufficient justification | | [-20,000] |
| 380 | PROFESSIONAL DEVELOPMENT EDUCATION | 185,211 | 186,261 |
| | Program increase: Sea Cadets | | [1,050] |
| 390 | TRAINING SUPPORT | 267,224 | 267,224 |
| 400 | RECRUITING AND ADVERTISING | 209,252 | 204,252 |
| | Insufficient justification | | [-5,000] |
| 410 | OFF-DUTY AND VOLUNTARY EDUCATION | 88,902 | 88,902 |
| 420 | CIVILIAN EDUCATION AND TRAINING | 67,492 | 67,492 |
| 430 | JUNIOR ROTC | 55,164 | 55,164 |
| | SUBTOTAL TRAINING AND RECRUITING | 2,106,043 | 2,082,093 |
| ADMIN & SRVWD ACTIVITIES | | | |
| 440 | ADMINISTRATION | 1,143,358 | 1,103,358 |
| | Unjustified growth | | [-40,000] |
| 450 | CIVILIAN MANPOWER AND PERSONNEL MANAGEMENT | 178,342 | 175,342 |
| | Excess civilian growth | | [-3,000] |
| 460 | MILITARY MANPOWER AND PERSONNEL MANAGEMENT | 418,413 | 418,413 |
| 490 | SERVICEWIDE TRANSPORTATION | 157,465 | 157,465 |
| 510 | PLANNING, ENGINEERING, AND PROGRAM SUPPORT | 485,397 | 490,397 |
| | REPO | | [5,000] |
| 520 | ACQUISITION, LOGISTICS, AND OVERSIGHT | 654,137 | 647,137 |
| | Unjustified growth | | [-7,000] |
| 530 | INVESTIGATIVE AND SECURITY SERVICES | 718,061 | 718,061 |
| 645 | CLASSIFIED PROGRAMS | 591,535 | 591,535 |
| | SUBTOTAL ADMIN & SRVWD ACTIVITIES | 4,346,708 | 4,301,708 |
| UNDISTRIBUTED | | | |
| 650 | UNDISTRIBUTED | | -20,000 |
| | Overestimation of civilian FTE targets | | [-20,000] |
| | SUBTOTAL UNDISTRIBUTED | | -20,000 |
| | TOTAL OPERATION & MAINTENANCE, NAVY | 51,125,751 | 49,951,564 |
| OPERATION & MAINTENANCE, MARINE CORPS OPERATING FORCES | | | |
| 010 | OPERATIONAL FORCES | 968,224 | 727,224 |
| | Excess civilian growth | | [-1,000] |
| | Realignment to OCO | | [-200,000] |

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| SEC. 4301. OPERATION AND MAINTENANCE (In Thousands of Dollars) | | | |
|---|--|--------------------|--------------------------|
| Line | Item | FY 2020 Request | Conference Authorized |
| | Unjustified growth | | [-40,000] |
| 020 | FIELD LOGISTICS | 1,278,533 | 1,064,533 |
| | Realignment to OCO | | [-200,000] |
| | Unjustified growth | | [-14,000] |
| 030 | DEPOT MAINTENANCE | 232,991 | 232,991 |
| 040 | MARITIME PREPOSITIONING | 100,396 | 100,396 |
| 050 | CYBERSPACE ACTIVITIES | 203,580 | 203,580 |
| 060 | SUSTAINMENT, RESTORATION & MODERNIZATION | 1,559,034 | 1,559,034 |
| 070 | BASE OPERATING SUPPORT | 2,253,776 | 2,223,776 |
| | Unjustified growth | | [-30,000] |
| | SUBTOTAL OPERATING FORCES | 6,596,534 | 6,111,534 |
| TRAINING AND RECRUITING | | | |
| 080 | RECRUIT TRAINING | 21,240 | 21,240 |
| 090 | OFFICER ACQUISITION | 1,168 | 1,168 |
| 100 | SPECIALIZED SKILL TRAINING | 106,601 | 106,601 |
| 110 | PROFESSIONAL DEVELOPMENT EDUCATION | 49,095 | 49,095 |
| 120 | TRAINING SUPPORT | 407,315 | 407,315 |
| 130 | RECRUITING AND ADVERTISING | 210,475 | 210,475 |
| 140 | OFF-DUTY AND VOLUNTARY EDUCATION | 42,810 | 42,810 |
| 150 | JUNIOR ROTC | 25,183 | 25,183 |
| | SUBTOTAL TRAINING AND RECRUITING | 863,887 | 863,887 |
| ADMIN & SRVWD ACTIVITIES | | | |
| 160 | SERVICEWIDE TRANSPORTATION | 29,894 | 29,894 |
| 170 | ADMINISTRATION | 384,352 | 384,352 |
| 225 | CLASSIFIED PROGRAMS | 52,057 | 52,057 |
| | SUBTOTAL ADMIN & SRVWD ACTIVITIES | 466,303 | 466,303 |
| TOTAL OPERATION & MAINTENANCE, MARINE CORPS | | 7,926,724 | 7,441,724 |
| OPERATION & MAINTENANCE, NAVY RES OPERATING FORCES | | | |
| 010 | MISSION AND OTHER FLIGHT OPERATIONS | 654,220 | 629,220 |
| | Unjustified growth | | [-25,000] |
| 020 | INTERMEDIATE MAINTENANCE | 8,767 | 8,767 |
| 030 | AIRCRAFT DEPOT MAINTENANCE | 108,236 | 108,236 |
| 040 | AIRCRAFT DEPOT OPERATIONS SUPPORT | 463 | 463 |
| 050 | AVIATION LOGISTICS | 26,014 | 26,014 |
| 060 | SHIP OPERATIONS SUPPORT & TRAINING | 583 | 583 |
| 070 | COMBAT COMMUNICATIONS | 17,883 | 17,883 |
| 080 | COMBAT SUPPORT FORCES | 128,079 | 128,079 |
| 090 | CYBERSPACE ACTIVITIES | 356 | 356 |
| 100 | ENTERPRISE INFORMATION | 26,133 | 26,133 |
| 110 | SUSTAINMENT, RESTORATION AND MODERNIZATION | 35,397 | 35,397 |
| 120 | BASE OPERATING SUPPORT | 101,376 | 101,376 |
| | SUBTOTAL OPERATING FORCES | 1,107,507 | 1,082,507 |
| ADMIN & SRVWD ACTIVITIES | | | |
| 130 | ADMINISTRATION | 1,888 | 1,888 |
| 140 | MILITARY MANPOWER AND PERSONNEL MANAGEMENT | 12,778 | 12,778 |
| 150 | ACQUISITION AND PROGRAM MANAGEMENT | 2,943 | 2,943 |
| | SUBTOTAL ADMIN & SRVWD ACTIVITIES | 17,609 | 17,609 |
| TOTAL OPERATION & MAINTENANCE, NAVY RES | | 1,125,116 | 1,100,116 |
| OPERATION & MAINTENANCE, MC RESERVE OPERATING FORCES | | | |
| 010 | OPERATING FORCES | 106,484 | 106,484 |
| 020 | DEPOT MAINTENANCE | 18,429 | 18,429 |
| 030 | SUSTAINMENT, RESTORATION AND MODERNIZATION | 47,516 | 47,516 |
| 040 | BASE OPERATING SUPPORT | 106,073 | 106,073 |
| | SUBTOTAL OPERATING FORCES | 278,502 | 278,502 |
| ADMIN & SRVWD ACTIVITIES | | | |
| 050 | ADMINISTRATION | 13,574 | 13,574 |
| | SUBTOTAL ADMIN & SRVWD ACTIVITIES | 13,574 | 13,574 |

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| SEC. 4301. OPERATION AND MAINTENANCE (In Thousands of Dollars) | | | |
|---|---|--------------------|--------------------------|
| Line | Item | FY 2020 Request | Conference Authorized |
| TOTAL OPERATION & MAINTENANCE, MC RE-SERVE | | 292,076 | 292,076 |
| OPERATION & MAINTENANCE, AIR FORCE OPERATING FORCES | | | |
| 010 | PRIMARY COMBAT FORCES | 729,127 | 729,127 |
| 020 | COMBAT ENHANCEMENT FORCES | 1,318,770 | 918,770 |
| | Realignment to OCO | | [-400,000] |
| 030 | AIR OPERATIONS TRAINING (OJT, MAINTAIN SKILLS) | 1,486,790 | 1,446,790 |
| | Unjustified growth | | [-40,000] |
| 040 | DEPOT PURCHASE EQUIPMENT MAINTENANCE | 3,334,792 | 3,299,792 |
| | Unjustified growth | | [-35,000] |
| 050 | FACILITIES SUSTAINMENT, RESTORATION & MODERNIZATION | 4,142,435 | 4,142,435 |
| 060 | CYBERSPACE SUSTAINMENT | 228,811 | 228,811 |
| 070 | CONTRACTOR LOGISTICS SUPPORT AND SYSTEM SUPPORT | 8,329,364 | 8,347,364 |
| | Expansion of Conditions Based Maintenance Plus (CBM+) | | [18,000] |
| 080 | FLYING HOUR PROGRAM | 4,048,773 | 3,418,773 |
| | Realignment to OCO | | [-550,000] |
| | Unjustified growth | | [-80,000] |
| 090 | BASE OPERATIONS SUPPORT | 7,223,982 | 6,933,982 |
| | Insufficient justification | | [-90,000] |
| | Realignment to OCO | | [-200,000] |
| 100 | GLOBAL C3I AND EARLY WARNING | 964,553 | 964,553 |
| 110 | OTHER COMBAT OPS SPT PROGRAMS | 1,032,307 | 1,026,161 |
| | Unjustified growth | | [-6,146] |
| 120 | CYBERSPACE ACTIVITIES | 670,076 | 670,076 |
| 140 | LAUNCH FACILITIES | 179,980 | 179,980 |
| 150 | SPACE CONTROL SYSTEMS | 467,990 | 464,390 |
| | Insufficient justification | | [-3,600] |
| 160 | US NORTHCOM/NORAD | 184,655 | 184,655 |
| 170 | US STRATCOM | 478,357 | 478,357 |
| 180 | US CYBERCOM | 323,121 | 347,921 |
| | Accelerate development of Cyber National Mission Force capabilities | | [1,500] |
| | Cyber National Mission Force mobile & modular hunt forward kit | | [5,300] |
| | ETERNALDARKNESS | | [18,000] |
| 190 | US CENTCOM | 160,989 | 160,989 |
| 200 | US SOCOM | 6,225 | 6,225 |
| 210 | US TRANSCOM | 544 | 544 |
| 220 | CENTCOM CYBERSPACE SUSTAINMENT | 2,073 | 2,073 |
| 230 | USSPACECOM | 70,588 | 70,588 |
| 235 | CLASSIFIED PROGRAMS | 1,322,944 | 1,316,694 |
| | Unjustified increase | | [-6,250] |
| SUBTOTAL OPERATING FORCES | | 36,707,246 | 35,339,050 |
| MOBILIZATION | | | |
| 240 | AIRLIFT OPERATIONS | 1,158,142 | 1,158,142 |
| 250 | MOBILIZATION PREPAREDNESS | 138,672 | 130,172 |
| | Unjustified growth | | [-8,500] |
| SUBTOTAL MOBILIZATION | | 1,296,814 | 1,288,314 |
| TRAINING AND RECRUITING | | | |
| 260 | OFFICER ACQUISITION | 130,835 | 130,835 |
| 270 | RECRUIT TRAINING | 26,021 | 26,021 |
| 280 | RESERVE OFFICERS TRAINING CORPS (ROTC) | 121,391 | 121,391 |
| 290 | SPECIALIZED SKILL TRAINING | 454,539 | 414,539 |
| | Unjustified growth | | [-40,000] |
| 300 | FLIGHT TRAINING | 600,565 | 600,565 |
| 310 | PROFESSIONAL DEVELOPMENT EDUCATION | 282,788 | 282,788 |
| 320 | TRAINING SUPPORT | 123,988 | 113,988 |
| | Unjustified growth | | [-10,000] |
| 330 | RECRUITING AND ADVERTISING | 167,731 | 162,731 |
| | Unjustified growth | | [-5,000] |
| 340 | EXAMINING | 4,576 | 4,576 |
| 350 | OFF-DUTY AND VOLUNTARY EDUCATION | 211,911 | 211,911 |
| 360 | CIVILIAN EDUCATION AND TRAINING | 219,021 | 219,021 |
| 370 | JUNIOR ROTC | 62,092 | 62,092 |
| SUBTOTAL TRAINING AND RECRUITING | | 2,405,458 | 2,350,458 |

| SEC. 4301. OPERATION AND MAINTENANCE (In Thousands of Dollars) | | | |
|--|---|--------------------|--------------------------|
| Line | Item | FY 2020 Request | Conference Authorized |
| ADMIN & SRVWD ACTIVITIES | | | |
| UNDISTRIBUTED | | | |
| 380 | LOGISTICS OPERATIONS | 664,926 | 664,926 |
| 390 | TECHNICAL SUPPORT ACTIVITIES | 101,483 | 101,483 |
| 400 | ADMINISTRATION | 892,480 | 892,480 |
| 410 | SERVICEWIDE COMMUNICATIONS | 152,532 | 122,532 |
| | Insufficient justification | | [-30,000] |
| 420 | OTHER SERVICEWIDE ACTIVITIES | 1,254,089 | 1,204,089 |
| | Program decrease unaccounted for | | [-20,000] |
| | Remove one-time fiscal year 2019 increase | | [-30,000] |
| 430 | CIVIL AIR PATROL | 30,070 | 37,200 |
| | Improved emergency crew readiness | | [7,130] |
| 460 | INTERNATIONAL SUPPORT | 136,110 | 136,110 |
| 465 | CLASSIFIED PROGRAMS | 1,269,624 | 1,269,624 |
| | SUBTOTAL ADMIN & SRVWD ACTIVITIES | 4,501,314 | 4,428,444 |
| TOTAL OPERATION & MAINTENANCE, AIR FORCE | | | |
| | | 44,910,832 | 43,406,266 |
| OPERATION & MAINTENANCE, SPACE FORCE | | | |
| UNDISTRIBUTED | | | |
| 010 | BASE SUPPORT | 72,436 | 72,436 |
| | SUBTOTAL OPERATING FORCES | 72,436 | 72,436 |
| TOTAL OPERATION & MAINTENANCE, SPACE FORCE | | | |
| | | 72,436 | 72,436 |
| OPERATION & MAINTENANCE, AF RESERVE OPERATING FORCES | | | |
| 010 | PRIMARY COMBAT FORCES | 1,781,413 | 1,756,413 |
| | Delay in KC-46 aircraft delivery | | [-25,000] |
| 020 | MISSION SUPPORT OPERATIONS | 209,650 | 204,150 |
| | Unjustified growth | | [-5,500] |
| 030 | DEPOT PURCHASE EQUIPMENT MAINTENANCE | 494,235 | 484,235 |
| | Excess growth | | [-10,000] |
| 040 | FACILITIES SUSTAINMENT, RESTORATION & MODERNIZATION | 128,746 | 128,746 |
| 050 | CONTRACTOR LOGISTICS SUPPORT AND SYSTEM SUPPORT | 256,512 | 256,512 |
| 060 | BASE SUPPORT | 414,626 | 414,626 |
| 070 | CYBERSPACE ACTIVITIES | 1,673 | 1,673 |
| | SUBTOTAL OPERATING FORCES | 3,286,855 | 3,246,355 |
| ADMINISTRATION AND SERVICEWIDE ACTIVITIES | | | |
| UNDISTRIBUTED | | | |
| 080 | ADMINISTRATION | 69,436 | 69,436 |
| 090 | RECRUITING AND ADVERTISING | 22,124 | 22,124 |
| 100 | MILITARY MANPOWER AND PERS MGMT (ARPC) | 10,946 | 10,946 |
| 110 | OTHER PERS SUPPORT (DISABILITY COMP) | 7,009 | 7,009 |
| 120 | AUDIOVISUAL | 448 | 448 |
| | SUBTOTAL ADMINISTRATION AND SERVICEWIDE ACTIVITIES | 109,963 | 109,963 |
| TOTAL OPERATION & MAINTENANCE, AF RESERVE | | | |
| | | 3,396,818 | 3,356,318 |
| OPERATION & MAINTENANCE, ANG OPERATING FORCES | | | |
| 010 | AIRCRAFT OPERATIONS | 2,497,967 | 2,472,967 |
| | Delay in KC-46 aircraft delivery | | [-25,000] |
| 020 | MISSION SUPPORT OPERATIONS | 600,377 | 585,377 |
| | Insufficient justification | | [-15,000] |
| 030 | DEPOT PURCHASE EQUIPMENT MAINTENANCE | 879,467 | 879,467 |
| 040 | FACILITIES SUSTAINMENT, RESTORATION & MODERNIZATION | 400,734 | 400,734 |
| 050 | CONTRACTOR LOGISTICS SUPPORT AND SYSTEM SUPPORT | 1,299,089 | 1,299,089 |
| 060 | BASE SUPPORT | 911,775 | 911,775 |
| 070 | CYBERSPACE SUSTAINMENT | 24,742 | 24,742 |
| 080 | CYBERSPACE ACTIVITIES | 25,507 | 25,507 |
| | SUBTOTAL OPERATING FORCES | 6,639,658 | 6,599,658 |

| SEC. 4301. OPERATION AND MAINTENANCE (In Thousands of Dollars) | | | |
|--|---|--------------------|--------------------------|
| Line | Item | FY 2020 Request | Conference Authorized |
| ADMINISTRATION AND SERVICE-WIDE ACTIVITIES | | | |
| UNDISTRIBUTED | | | |
| 090 | ADMINISTRATION | 47,215 | 47,215 |
| 100 | RECRUITING AND ADVERTISING | 40,356 | 40,356 |
| SUBTOTAL ADMINISTRATION AND SERVICE- | | | |
| WIDE ACTIVITIES | | 87,571 | 87,571 |
| 110 | UNDISTRIBUTED | | -30,000 |
| | Maintain program affordability: Overestimation of civilian FTE targets | | [-30,000] |
| SUBTOTAL UNDISTRIBUTED | | | -30,000 |
| TOTAL OPERATION & MAINTENANCE, ANG | | 6,727,229 | 6,657,229 |
| OPERATION AND MAINTENANCE, DEFENSE-WIDE | | | |
| OPERATING FORCES | | | |
| 010 | JOINT CHIEFS OF STAFF | 409,542 | 392,542 |
| | Program decrease unaccounted for | | [-12,000] |
| | Remove one-time fiscal year 2019 costs | | [-5,000] |
| 020 | JOINT CHIEFS OF STAFF—CE2T2 | 579,179 | 579,179 |
| 030 | JOINT CHIEFS OF STAFF—CYBER | 24,598 | 24,598 |
| 040 | SPECIAL OPERATIONS COMMAND COMBAT DEVELOPMENT ACTIVITIES | 1,075,762 | 1,070,262 |
| | Classified adjustment | | [-5,500] |
| 050 | SPECIAL OPERATIONS COMMAND CYBERSPACE ACTIVI- TIES | 14,409 | 14,409 |
| 060 | SPECIAL OPERATIONS COMMAND INTELLIGENCE | 501,747 | 486,953 |
| | DCGS—SOF - excess to need | | [-5,794] |
| | Program decrease—SOCRATES | | [-9,000] |
| 070 | SPECIAL OPERATIONS COMMAND MAINTENANCE | 559,300 | 544,300 |
| | Projected underexecution | | [-15,000] |
| 080 | SPECIAL OPERATIONS COMMAND MANAGEMENT/OPER- ATIONAL HEADQUARTERS | 177,928 | 177,928 |
| 090 | SPECIAL OPERATIONS COMMAND OPERATIONAL SUPPORT Base support underexecution | 925,262 | 899,762 |
| | Operational support underexecution | | [-5,900] |
| | Unjustified growth—CHAS Saas | | [-9,600] |
| | Unjustified growth—CHAS Saas | | [-10,000] |
| 100 | SPECIAL OPERATIONS COMMAND THEATER FORCES | 2,764,738 | 2,250,038 |
| | Program decrease | | [-14,700] |
| | Realignment to OCO | | [-500,000] |
| SUBTOTAL OPERATING FORCES | | 7,032,465 | 6,439,971 |
| TRAINING AND RECRUITING | | | |
| 120 | DEFENSE ACQUISITION UNIVERSITY | 180,250 | 180,250 |
| 130 | JOINT CHIEFS OF STAFF | 100,610 | 100,610 |
| 140 | PROFESSIONAL DEVELOPMENT EDUCATION | 33,967 | 33,967 |
| SUBTOTAL TRAINING AND RECRUITING | | 314,827 | 314,827 |
| ADMIN & SRVWIDE ACTIVITIES | | | |
| 160 | CIVIL MILITARY PROGRAMS | 165,707 | 260,007 |
| | IRT Increase | | [14,300] |
| | National Guard Youth Challenge Program support | | [50,000] |
| | Program increase—STARBASE | | [30,000] |
| 180 | DEFENSE CONTRACT AUDIT AGENCY | 627,467 | 627,467 |
| 190 | DEFENSE CONTRACT AUDIT AGENCY—CYBER | 3,362 | 3,362 |
| 200 | DEFENSE CONTRACT MANAGEMENT AGENCY | 1,438,068 | 1,418,068 |
| | Program decrease | | [-20,000] |
| 210 | DEFENSE CONTRACT MANAGEMENT AGENCY—CYBER | 24,391 | 24,391 |
| 220 | DEFENSE HUMAN RESOURCES ACTIVITY | 892,438 | 882,438 |
| | Defense Manpower Data Center—Excess Growth | | [-5,000] |
| | Enterprise Operations Center—Excess Growth | | [-5,000] |
| 230 | DEFENSE INFORMATION SYSTEMS AGENCY | 2,012,885 | 1,992,885 |
| | Unjustified growth | | [-20,000] |
| 240 | DEFENSE INFORMATION SYSTEMS AGENCY—CYBER | 601,223 | 636,360 |
| | Sharkseer transfer | | [35,137] |
| 270 | DEFENSE LEGAL SERVICES AGENCY | 34,632 | 34,632 |
| 280 | DEFENSE LOGISTICS AGENCY | 415,699 | 435,199 |
| | Program increase—PTAP | | [19,500] |
| 290 | DEFENSE MEDIA ACTIVITY | 202,792 | 202,792 |
| 300 | DEFENSE PERSONNEL ACCOUNTING AGENCY | 144,881 | 144,881 |

| SEC. 4301. OPERATION AND MAINTENANCE | | | |
|---|---|------------------------|------------------------------|
| (In Thousands of Dollars) | | | |
| Line | Item | FY 2020 Request | Conference Authorized |
| 310 | DEFENSE SECURITY COOPERATION AGENCY | 696,884 | 666,884 |
| | Assessment, monitoring, and evaluation | | [11,000] |
| | Security cooperation account | | [-11,000] |
| | Unjustified growth | | [-30,000] |
| 320 | DEFENSE SECURITY SERVICE | 889,664 | 889,664 |
| 340 | DEFENSE SECURITY SERVICE—CYBER | 9,220 | 9,220 |
| 360 | DEFENSE TECHNICAL INFORMATION CENTER | 3,000 | 3,000 |
| 370 | DEFENSE TECHNOLOGY SECURITY ADMINISTRATION | 35,626 | 35,626 |
| 380 | DEFENSE THREAT REDUCTION AGENCY | 568,133 | 568,133 |
| 400 | DEFENSE THREAT REDUCTION AGENCY—CYBER | 13,339 | 13,339 |
| 410 | DEPARTMENT OF DEFENSE EDUCATION ACTIVITY | 2,932,226 | 2,912,226 |
| | Remove one-time fiscal year 2019 increase | | [-50,000] |
| | Overestimation of civilian FTE targets | | [-20,000] |
| | Program increase—impact aid for children with severe disabilities | | [10,000] |
| | Program increase—impact aid to schools with military dependents | | [40,000] |
| 420 | MISSILE DEFENSE AGENCY | 522,529 | 509,859 |
| | THAAD prior year under-execution | | [-12,670] |
| 450 | OFFICE OF ECONOMIC ADJUSTMENT | 59,513 | 134,513 |
| | Defense Community Infrastructure Program (DCIP) | | [75,000] |
| 460 | OFFICE OF THE SECRETARY OF DEFENSE | 1,604,738 | 1,625,738 |
| | Bien Hoa dioxin cleanup | | [15,000] |
| | CDC study | | [10,000] |
| | Emerging contaminants | | [1,000] |
| | Excess growth | | [-37,000] |
| | Interstate compacts for licensure and credentialing | | [4,000] |
| | Military aviation safety commission | | [3,000] |
| | Readiness and Environmental Protection Initiative increase | | [25,000] |
| 470 | OFFICE OF THE SECRETARY OF DEFENSE—CYBER | 48,783 | 48,783 |
| 480 | SPACE DEVELOPMENT AGENCY | 44,750 | 34,750 |
| | Insufficient justification | | [-10,000] |
| 500 | WASHINGTON HEADQUARTERS SERVICES | 324,001 | 296,201 |
| | Insufficient justification | | [-27,800] |
| 505 | CLASSIFIED PROGRAMS | 15,816,598 | 15,757,457 |
| | Classified adjustment | | [-24,004] |
| | Realignment to DISA for Sharkseer | | [-35,137] |
| | SUBTOTAL ADMIN & SRVWIDE ACTIVITIES | 30,132,549 | 30,167,875 |
| | TOTAL OPERATION AND MAINTENANCE, DEFENSE-WIDE | 37,479,841 | 36,922,673 |
| | TOTAL OPERATION & MAINTENANCE, DEFENSE-WIDE | | -557,168 |
| | US COURT OF APPEALS FOR ARMED FORCES, DEF ADMINISTRATION AND ASSOCIATED ACTIVITIES | | |
| 010 | US COURT OF APPEALS FOR THE ARMED FORCES, DEFENSE | 14,771 | 14,771 |
| | SUBTOTAL ADMINISTRATION AND ASSOCIATED ACTIVITIES | 14,771 | 14,771 |
| | TOTAL US COURT OF APPEALS FOR ARMED FORCES, DEF | 14,771 | 14,771 |
| | DOD ACQUISITION WORKFORCE DEVELOPMENT FUND | | |
| | ACQUISITION WORKFORCE DEVELOPMENT | | |
| 010 | ACQ WORKFORCE DEV FD | 400,000 | 400,000 |
| | SUBTOTAL ACQUISITION WORKFORCE DEVELOPMENT | 400,000 | 400,000 |
| | TOTAL DOD ACQUISITION WORKFORCE DEVELOPMENT FUND | 400,000 | 400,000 |
| | OVERSEAS HUMANITARIAN, DISASTER, AND CIVIC AID | | |
| | HUMANITARIAN ASSISTANCE | | |
| 010 | OVERSEAS HUMANITARIAN, DISASTER AND CIVIC AID | 108,600 | 117,663 |
| | Increase for foreign disaster relief | | [6,822] |
| | Increase for humanitarian mine action program | | [2,241] |

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| SEC. 4301. OPERATION AND MAINTENANCE (In Thousands of Dollars) | | | |
|---|--|--------------------|-----------------------|
| Line | Item | FY 2020 Request | Conference Authorized |
| | SUBTOTAL HUMANITARIAN ASSISTANCE | 108,600 | 117,663 |
| | TOTAL OVERSEAS HUMANITARIAN, DISASTER, AND CIVIC AID | 108,600 | 117,663 |
| | COOPERATIVE THREAT REDUCTION ACCOUNT COOPERATIVE THREAT REDUCTION | | |
| 010 | COOPERATIVE THREAT REDUCTION | 338,700 | 358,700 |
| | Cooperative biological engagement | | [20,000] |
| | SUBTOTAL COOPERATIVE THREAT REDUCTION | 338,700 | 358,700 |
| | TOTAL COOPERATIVE THREAT REDUCTION ACCOUNT | 338,700 | 358,700 |
| | ENVIRONMENTAL RESTORATION, ARMY DEPARTMENT OF THE ARMY | | |
| 050 | ENVIRONMENTAL RESTORATION, ARMY | 207,518 | 212,518 |
| | Perfluorinated chemicals | | [5,000] |
| | SUBTOTAL DEPARTMENT OF THE ARMY | 207,518 | 212,518 |
| | TOTAL ENVIRONMENTAL RESTORATION, ARMY | 207,518 | 290,582 |
| | ENVIRONMENTAL RESTORATION, NAVY DEPARTMENT OF THE NAVY | | |
| 060 | ENVIRONMENTAL RESTORATION, NAVY | 335,932 | 350,932 |
| | Perfluorinated chemicals | | [5,000] |
| | Unexploded ordnance remediation | | [10,000] |
| | SUBTOTAL DEPARTMENT OF THE NAVY | 335,932 | 350,932 |
| | TOTAL ENVIRONMENTAL RESTORATION, NAVY | 335,932 | 418,996 |
| | ENVIRONMENTAL RESTORATION, AIR FORCE DEPARTMENT OF THE AIR FORCE | | |
| 070 | ENVIRONMENTAL RESTORATION, AIR FORCE | 302,744 | 365,808 |
| | Perfluorinated chemicals | | [63,064] |
| | SUBTOTAL DEPARTMENT OF THE AIR FORCE | 302,744 | 365,808 |
| | TOTAL ENVIRONMENTAL RESTORATION, AIR FORCE | 302,744 | 385,808 |
| | ENVIRONMENTAL RESTORATION, DEFENSE-WIDE | | |
| 080 | ENVIRONMENTAL RESTORATION, DEFENSE-WIDE | 9,105 | 9,105 |
| | SUBTOTAL DEFENSE-WIDE | 9,105 | 9,105 |
| | TOTAL ENVIRONMENTAL RESTORATION, DE- FENSE-WIDE | 9,105 | 92,169 |
| | ENVIRONMENTAL RESTORATION FORMERLY USED SITES DEFENSE-WIDE | | |
| 090 | ENVIRONMENTAL RESTORATION FORMERLY USED SITES | 216,499 | 216,499 |
| | SUBTOTAL DEFENSE-WIDE | 216,499 | 216,499 |
| | TOTAL ENVIRONMENTAL RESTORATION FOR- MERLY USED SITES | 216,499 | 216,499 |
| | TOTAL OPERATION & MAINTENANCE | 207,661,689 | 201,610,944 |

1 SEC. 4302. OPERATION AND MAINTENANCE FOR OVERSEAS

2 CONTINGENCY OPERATIONS.

| SEC. 4302. OPERATION AND MAINTENANCE FOR OVERSEAS CONTINGENCY OPERATIONS (In Thousands of Dollars) | | | |
|---|--|-----------------|-----------------------|
| Line | Item | FY 2020 Request | Conference Authorized |
| | OPERATION & MAINTENANCE, ARMY | | |

| SEC. 4302. OPERATION AND MAINTENANCE FOR OVERSEAS CONTINGENCY OPERATIONS | | | |
|---|---|------------------------|------------------------------|
| (In Thousands of Dollars) | | | |
| Line | Item | FY 2020 Request | Conference Authorized |
| OPERATING FORCES | | | |
| 010 | MANEUVER UNITS | 1,410,874 | 1,671,422 |
| | Realignment from base | | [260,548] |
| 030 | ECHELONS ABOVE BRIGADE | 26,502 | 26,502 |
| 040 | THEATER LEVEL ASSETS | 2,274,490 | 2,259,490 |
| | Unjustified growth | | [-15,000] |
| 050 | LAND FORCES OPERATIONS SUPPORT | 136,288 | 136,288 |
| 060 | AVIATION ASSETS | 300,240 | 300,240 |
| 070 | FORCE READINESS OPERATIONS SUPPORT | 3,415,009 | 4,510,009 |
| | Insufficient justification | | [-5,000] |
| | Realignment from base | | [1,100,000] |
| 080 | LAND FORCES SYSTEMS READINESS | 29,985 | 29,985 |
| 090 | LAND FORCES DEPOT MAINTENANCE | 86,931 | 86,931 |
| 100 | BASE OPERATIONS SUPPORT | 115,706 | 115,706 |
| 110 | FACILITIES SUSTAINMENT, RESTORATION & MODERNIZATION | 72,657 | 72,657 |
| 130 | ADDITIONAL ACTIVITIES | 6,397,586 | 6,385,586 |
| | Insufficient justification | | [-12,000] |
| 140 | COMMANDER'S EMERGENCY RESPONSE PROGRAM | 5,000 | 2,500 |
| | Insufficient justification | | [-2,500] |
| 150 | RESET | 1,048,896 | 1,048,896 |
| 160 | US AFRICA COMMAND | 203,174 | 203,174 |
| 170 | US EUROPEAN COMMAND | 173,676 | 173,676 |
| 200 | CYBERSPACE ACTIVITIES—CYBERSPACE OPERATIONS | 188,529 | 188,529 |
| 210 | CYBERSPACE ACTIVITIES—CYBERSECURITY | 5,682 | 5,682 |
| | SUBTOTAL OPERATING FORCES | 15,891,225 | 17,217,273 |
| MOBILIZATION | | | |
| 230 | ARMY PREPOSITIONED STOCKS | 131,954 | 131,954 |
| | SUBTOTAL MOBILIZATION | 131,954 | 131,954 |
| ADMIN & SRVWIDE ACTIVITIES | | | |
| 390 | SERVICEWIDE TRANSPORTATION | 721,014 | 721,014 |
| 400 | CENTRAL SUPPLY ACTIVITIES | 66,845 | 66,845 |
| 410 | LOGISTIC SUPPORT ACTIVITIES | 9,309 | 9,309 |
| 420 | AMMUNITION MANAGEMENT | 23,653 | 23,653 |
| 460 | OTHER PERSONNEL SUPPORT | 109,019 | 109,019 |
| 490 | REAL ESTATE MANAGEMENT | 251,355 | 251,355 |
| 565 | CLASSIFIED PROGRAMS | 1,568,564 | 1,568,564 |
| | SUBTOTAL ADMIN & SRVWIDE ACTIVITIES | 2,749,759 | 2,749,759 |
| | TOTAL OPERATION & MAINTENANCE, ARMY | 18,772,938 | 20,098,986 |
| OPERATION & MAINTENANCE, ARMY RES | | | |
| OPERATING FORCES | | | |
| 020 | ECHELONS ABOVE BRIGADE | 20,440 | 20,440 |
| 060 | FORCE READINESS OPERATIONS SUPPORT | 689 | 689 |
| 090 | BASE OPERATIONS SUPPORT | 16,463 | 16,463 |
| | SUBTOTAL OPERATING FORCES | 37,592 | 37,592 |
| | TOTAL OPERATION & MAINTENANCE, ARMY RES | 37,592 | 37,592 |
| OPERATION & MAINTENANCE, ARNG | | | |
| UNDISTRIBUTED | | | |
| 010 | MANEUVER UNITS | 45,896 | 45,896 |
| 020 | MODULAR SUPPORT BRIGADES | 180 | 180 |
| 030 | ECHELONS ABOVE BRIGADE | 2,982 | 2,982 |
| 040 | THEATER LEVEL ASSETS | 548 | 548 |
| 060 | AVIATION ASSETS | 9,229 | 9,229 |
| 070 | FORCE READINESS OPERATIONS SUPPORT | 1,584 | 1,584 |
| 100 | BASE OPERATIONS SUPPORT | 22,063 | 22,063 |
| 120 | MANAGEMENT AND OPERATIONAL HEADQUARTERS | 606 | 606 |
| | SUBTOTAL OPERATING FORCES | 83,088 | 83,088 |
| ADMIN & SRVWD ACTIVITIES | | | |
| 170 | SERVICEWIDE COMMUNICATIONS | 203 | 203 |
| | SUBTOTAL ADMIN & SRVWD ACTIVITIES | 203 | 203 |
| | TOTAL OPERATION & MAINTENANCE, ARNG | 83,291 | 83,291 |

| SEC. 4302. OPERATION AND MAINTENANCE FOR OVERSEAS CONTINGENCY OPERATIONS (In Thousands of Dollars) | | | |
|---|--|--------------------|--------------------------|
| Line | Item | FY 2020 Request | Conference Authorized |
| AFGHANISTAN SECURITY FORCES FUND | | | |
| AFGHAN NATIONAL ARMY | | | |
| 090 | SUSTAINMENT | 1,313,047 | 1,313,047 |
| 100 | INFRASTRUCTURE | 37,152 | 37,152 |
| 110 | EQUIPMENT AND TRANSPORTATION | 120,868 | 120,868 |
| 120 | TRAINING AND OPERATIONS | 118,591 | 118,591 |
| | SUBTOTAL AFGHAN NATIONAL ARMY | 1,589,658 | 1,589,658 |
| AFGHAN NATIONAL POLICE | | | |
| 130 | SUSTAINMENT | 422,806 | 422,806 |
| 140 | INFRASTRUCTURE | 2,358 | 2,358 |
| 150 | EQUIPMENT AND TRANSPORTATION | 127,081 | 127,081 |
| 160 | TRAINING AND OPERATIONS | 108,112 | 108,112 |
| | SUBTOTAL AFGHAN NATIONAL POLICE | 660,357 | 660,357 |
| AFGHAN AIR FORCE | | | |
| 170 | SUSTAINMENT | 893,829 | 893,829 |
| 180 | INFRASTRUCTURE | 8,611 | 8,611 |
| 190 | EQUIPMENT AND TRANSPORTATION | 566,967 | 566,967 |
| 200 | TRAINING AND OPERATIONS | 356,108 | 356,108 |
| | SUBTOTAL AFGHAN AIR FORCE | 1,825,515 | 1,825,515 |
| AFGHAN SPECIAL SECURITY FORCES | | | |
| 210 | SUSTAINMENT | 437,909 | 437,909 |
| 220 | INFRASTRUCTURE | 21,131 | 21,131 |
| 230 | EQUIPMENT AND TRANSPORTATION | 153,806 | 153,806 |
| 240 | TRAINING AND OPERATIONS | 115,602 | 115,602 |
| | SUBTOTAL AFGHAN SPECIAL SECURITY FORCES | 728,448 | 728,448 |
| UNDISTRIBUTED | | | |
| 245 | UNDISTRIBUTED | | -300,000 |
| | Unjustified request | | [-300,000] |
| | SUBTOTAL UNDISTRIBUTED | | -300,000 |
| | TOTAL AFGHANISTAN SECURITY FORCES FUND | 4,803,978 | 4,503,978 |
| COUNTER ISIS TRAIN AND EQUIP FUND (CTEF) | | | |
| COUNTER ISIS TRAIN AND EQUIP FUND (CTEF) | | | |
| 010 | IRAQ | 745,000 | 545,000 |
| | Program decrease | | [-100,000] |
| | Transfer to DSCA Security Cooperation | | [-100,000] |
| 020 | SYRIA | 300,000 | 300,000 |
| | SUBTOTAL COUNTER ISIS TRAIN AND EQUIP FUND (CTEF) | 1,045,000 | 845,000 |
| | TOTAL COUNTER ISIS TRAIN AND EQUIP FUND (CTEF) | 1,045,000 | 845,000 |
| OPERATION & MAINTENANCE, NAVY | | | |
| OPERATING FORCES | | | |
| 010 | MISSION AND OTHER FLIGHT OPERATIONS | 373,047 | 973,047 |
| | Realignment from base | | [600,000] |
| 030 | AVIATION TECHNICAL DATA & ENGINEERING SERVICES | 816 | 816 |
| 040 | AIR OPERATIONS AND SAFETY SUPPORT | 9,582 | 9,582 |
| 050 | AIR SYSTEMS SUPPORT | 197,262 | 197,262 |
| 060 | AIRCRAFT DEPOT MAINTENANCE | 168,246 | 168,246 |
| 070 | AIRCRAFT DEPOT OPERATIONS SUPPORT | 3,594 | 3,594 |
| 080 | AVIATION LOGISTICS | 10,618 | 10,618 |
| 090 | MISSION AND OTHER SHIP OPERATIONS | 1,485,108 | 1,935,108 |
| | Realignment from base | | [450,000] |
| 100 | SHIP OPERATIONS SUPPORT & TRAINING | 20,334 | 20,334 |
| 110 | SHIP DEPOT MAINTENANCE | 2,365,615 | 2,365,615 |
| 130 | COMBAT COMMUNICATIONS AND ELECTRONIC WARFARE | 58,092 | 58,092 |
| 140 | SPACE SYSTEMS AND SURVEILLANCE | 18,000 | 18,000 |
| 150 | WARFARE TACTICS | 16,984 | 16,984 |
| 160 | OPERATIONAL METEOROLOGY AND OCEANOGRAPHY | 29,382 | 29,382 |
| 170 | COMBAT SUPPORT FORCES | 608,870 | 1,008,870 |
| | Realignment from base | | [400,000] |

| SEC. 4302. OPERATION AND MAINTENANCE FOR OVERSEAS CONTINGENCY OPERATIONS | | | |
|---|--|------------------------|------------------------------|
| (In Thousands of Dollars) | | | |
| Line | Item | FY 2020 Request | Conference Authorized |
| 180 | EQUIPMENT MAINTENANCE AND DEPOT OPERATIONS SUPPORT | 7,799 | 7,799 |
| 200 | COMBATANT COMMANDERS DIRECT MISSION SUPPORT | 24,800 | 24,800 |
| 220 | CYBERSPACE ACTIVITIES | 363 | 363 |
| 240 | WEAPONS MAINTENANCE | 486,188 | 486,188 |
| 250 | OTHER WEAPON SYSTEMS SUPPORT | 12,189 | 12,189 |
| 270 | SUSTAINMENT, RESTORATION AND MODERNIZATION | 68,667 | 68,667 |
| 280 | BASE OPERATING SUPPORT | 219,099 | 219,099 |
| | SUBTOTAL OPERATING FORCES | 6,184,655 | 7,634,655 |
| MOBILIZATION | | | |
| 320 | EXPEDITIONARY HEALTH SERVICES SYSTEMS | 17,580 | 17,580 |
| 330 | COAST GUARD SUPPORT | 190,000 | 190,000 |
| | SUBTOTAL MOBILIZATION | 207,580 | 207,580 |
| TRAINING AND RECRUITING | | | |
| 370 | SPECIALIZED SKILL TRAINING | 52,161 | 52,161 |
| | SUBTOTAL TRAINING AND RECRUITING | 52,161 | 52,161 |
| ADMIN & SRVWD ACTIVITIES | | | |
| 440 | ADMINISTRATION | 8,475 | 8,475 |
| 460 | MILITARY MANPOWER AND PERSONNEL MANAGEMENT | 7,653 | 7,653 |
| 490 | SERVICEMAN TRANSPORTATION | 70,683 | 70,683 |
| 520 | ACQUISITION, LOGISTICS, AND OVERSIGHT | 11,130 | 11,130 |
| 530 | INVESTIGATIVE AND SECURITY SERVICES | 1,559 | 1,559 |
| 645 | CLASSIFIED PROGRAMS | 17,754 | 17,754 |
| | SUBTOTAL ADMIN & SRVWD ACTIVITIES | 117,254 | 117,254 |
| | TOTAL OPERATION & MAINTENANCE, NAVY | 6,561,650 | 8,011,650 |
| OPERATION & MAINTENANCE, MARINE CORPS OPERATING FORCES | | | |
| 010 | OPERATIONAL FORCES | 714,653 | 914,653 |
| | Realignment from base | | [200,000] |
| 020 | FIELD LOGISTICS | 232,508 | 432,508 |
| | Realignment from base | | [200,000] |
| 030 | DEPOT MAINTENANCE | 54,101 | 54,101 |
| 050 | CYBERSPACE ACTIVITIES | 2,000 | 2,000 |
| 070 | BASE OPERATING SUPPORT | 24,570 | 24,570 |
| | SUBTOTAL OPERATING FORCES | 1,027,832 | 1,427,832 |
| TRAINING AND RECRUITING | | | |
| 120 | TRAINING SUPPORT | 30,459 | 30,459 |
| | SUBTOTAL TRAINING AND RECRUITING | 30,459 | 30,459 |
| ADMIN & SRVWD ACTIVITIES | | | |
| 160 | SERVICEMAN TRANSPORTATION | 61,400 | 61,400 |
| 225 | CLASSIFIED PROGRAMS | 5,100 | 5,100 |
| | SUBTOTAL ADMIN & SRVWD ACTIVITIES | 66,500 | 66,500 |
| | TOTAL OPERATION & MAINTENANCE, MARINE CORPS | 1,124,791 | 1,524,791 |
| OPERATION & MAINTENANCE, NAVY RES OPERATING FORCES | | | |
| 020 | INTERMEDIATE MAINTENANCE | 510 | 510 |
| 030 | AIRCRAFT DEPOT MAINTENANCE | 11,628 | 11,628 |
| 080 | COMBAT SUPPORT FORCES | 10,898 | 10,898 |
| | SUBTOTAL OPERATING FORCES | 23,036 | 23,036 |
| | TOTAL OPERATION & MAINTENANCE, NAVY RES | 23,036 | 23,036 |
| OPERATION & MAINTENANCE, MC RESERVE OPERATING FORCES | | | |
| 010 | OPERATING FORCES | 7,627 | 7,627 |
| 040 | BASE OPERATING SUPPORT | 1,080 | 1,080 |
| | SUBTOTAL OPERATING FORCES | 8,707 | 8,707 |
| | TOTAL OPERATION & MAINTENANCE, MC RESERVE | 8,707 | 8,707 |

| SEC. 4302. OPERATION AND MAINTENANCE FOR OVERSEAS CONTINGENCY OPERATIONS | | | |
|---|--|----------------------------|----------------------------------|
| (In Thousands of Dollars) | | | |
| Line | Item | FY 2020 Request | Conference Authorized |
| OPERATION & MAINTENANCE, AIR FORCE | | | |
| OPERATING FORCES | | | |
| 010 | PRIMARY COMBAT FORCES | 163,632 | 163,632 |
| 020 | COMBAT ENHANCEMENT FORCES | 1,049,170 | 1,449,170 |
| | Realignment from base | | [400,000] |
| 030 | AIR OPERATIONS TRAINING (OJT, MAINTAIN SKILLS) | 111,808 | 111,808 |
| 040 | DEPOT PURCHASE EQUIPMENT MAINTENANCE | 408,699 | 408,699 |
| 050 | FACILITIES SUSTAINMENT, RESTORATION & MODERNIZA- TION | 147,264 | 147,264 |
| 060 | CYBERSPACE SUSTAINMENT | 10,061 | 10,061 |
| 070 | CONTRACTOR LOGISTICS SUPPORT AND SYSTEM SUPPORT .. | 953,594 | 953,594 |
| 080 | FLYING HOUR PROGRAM | 2,495,266 | 3,045,266 |
| | Realignment from base | | [550,000] |
| 090 | BASE OPERATIONS SUPPORT | 1,538,120 | 1,738,120 |
| | Realignment from base | | [200,000] |
| 100 | GLOBAL C3I AND EARLY WARNING | 13,863 | 13,863 |
| 110 | OTHER COMBAT OPS SPT PROGRAMS | 272,020 | 272,020 |
| 120 | CYBERSPACE ACTIVITIES | 17,657 | 17,657 |
| 130 | TACTICAL INTEL AND OTHER SPECIAL ACTIVITIES | 36,098 | 36,098 |
| 140 | LAUNCH FACILITIES | 391 | 391 |
| 150 | SPACE CONTROL SYSTEMS | 39,990 | 39,990 |
| 160 | US NORTHCOM/NORAD | 725 | 725 |
| 170 | US STRATCOM | 926 | 926 |
| 180 | US CYBERCOM | 35,189 | 35,189 |
| 190 | US CENTCOM | 163,015 | 163,015 |
| 200 | US SOCOM | 19,000 | 19,000 |
| | SUBTOTAL OPERATING FORCES | 7,476,488 | 8,626,488 |
| MOBILIZATION | | | |
| 240 | AIRLIFT OPERATIONS | 1,271,439 | 1,271,439 |
| 250 | MOBILIZATION PREPAREDNESS | 109,682 | 109,682 |
| | SUBTOTAL MOBILIZATION | 1,381,121 | 1,381,121 |
| TRAINING AND RECRUITING | | | |
| 260 | OFFICER ACQUISITION | 200 | 200 |
| 270 | RECRUIT TRAINING | 352 | 352 |
| 290 | SPECIALIZED SKILL TRAINING | 26,802 | 26,802 |
| 300 | FLIGHT TRAINING | 844 | 844 |
| 310 | PROFESSIONAL DEVELOPMENT EDUCATION | 1,199 | 1,199 |
| 320 | TRAINING SUPPORT | 1,320 | 1,320 |
| | SUBTOTAL TRAINING AND RECRUITING | 30,717 | 30,717 |
| ADMIN & SRVWD ACTIVITIES | | | |
| UNDISTRIBUTED | | | |
| 380 | LOGISTICS OPERATIONS | 164,701 | 164,701 |
| 390 | TECHNICAL SUPPORT ACTIVITIES | 11,608 | 11,608 |
| 400 | ADMINISTRATION | 4,814 | 4,814 |
| 410 | SERVICEWIDE COMMUNICATIONS | 145,204 | 145,204 |
| 420 | OTHER SERVICEWIDE ACTIVITIES | 98,841 | 98,841 |
| 460 | INTERNATIONAL SUPPORT | 29,890 | 29,890 |
| 465 | CLASSIFIED PROGRAMS | 52,995 | 52,995 |
| | SUBTOTAL ADMIN & SRVWD ACTIVITIES | 508,053 | 508,053 |
| | TOTAL OPERATION & MAINTENANCE, AIR FORCE | 9,396,379 | 10,546,379 |
| OPERATION & MAINTENANCE, AF RESERVE | | | |
| OPERATING FORCES | | | |
| 030 | DEPOT PURCHASE EQUIPMENT MAINTENANCE | 24,188 | 24,188 |
| 060 | BASE SUPPORT | 5,570 | 5,570 |
| | SUBTOTAL OPERATING FORCES | 29,758 | 29,758 |
| | TOTAL OPERATION & MAINTENANCE, AF RE- SERVE | 29,758 | 29,758 |
| OPERATION & MAINTENANCE, ANG | | | |
| OPERATING FORCES | | | |
| 020 | MISSION SUPPORT OPERATIONS | 3,666 | 3,666 |
| 030 | DEPOT PURCHASE EQUIPMENT MAINTENANCE | 66,944 | 66,944 |

| SEC. 4302. OPERATION AND MAINTENANCE FOR OVERSEAS CONTINGENCY OPERATIONS (In Thousands of Dollars) | | | |
|---|---|-------------------|-----------------------|
| Line | Item | FY 2020 Request | Conference Authorized |
| 050 | CONTRACTOR LOGISTICS SUPPORT AND SYSTEM SUPPORT .. | 93,620 | 93,620 |
| 060 | BASE SUPPORT | 12,679 | 12,679 |
| | SUBTOTAL OPERATING FORCES | 176,909 | 176,909 |
| | TOTAL OPERATION & MAINTENANCE, ANG | 176,909 | 176,909 |
| | OPERATION AND MAINTENANCE, DEFENSE-WIDE OPERATING FORCES | | |
| 010 | JOINT CHIEFS OF STAFF | 21,866 | 21,866 |
| 020 | JOINT CHIEFS OF STAFF—CE2T2 | 6,634 | 6,634 |
| 040 | SPECIAL OPERATIONS COMMAND COMBAT DEVELOPMENT ACTIVITIES | 1,121,580 | 1,111,580 |
| | Classified adjustment | | [-10,000] |
| 060 | SPECIAL OPERATIONS COMMAND INTELLIGENCE | 1,328,201 | 1,328,201 |
| 070 | SPECIAL OPERATIONS COMMAND MAINTENANCE | 399,845 | 399,845 |
| 090 | SPECIAL OPERATIONS COMMAND OPERATIONAL SUPPORT .. | 138,458 | 103,458 |
| | Projected underexecution—communications | | [-35,000] |
| 100 | SPECIAL OPERATIONS COMMAND THEATER FORCES | 808,729 | 1,308,729 |
| | Realignment from base | | [500,000] |
| | SUBTOTAL OPERATING FORCES | 3,825,313 | 4,280,313 |
| | ADMIN & SRVWIDE ACTIVITIES | | |
| 180 | DEFENSE CONTRACT AUDIT AGENCY | 1,810 | 1,810 |
| 200 | DEFENSE CONTRACT MANAGEMENT AGENCY | 21,723 | 21,723 |
| 230 | DEFENSE INFORMATION SYSTEMS AGENCY | 81,133 | 81,133 |
| 240 | DEFENSE INFORMATION SYSTEMS AGENCY—CYBER | 3,455 | 3,455 |
| 270 | DEFENSE LEGAL SERVICES AGENCY | 196,124 | 196,124 |
| 290 | DEFENSE MEDIA ACTIVITY | 14,377 | 14,377 |
| 310 | DEFENSE SECURITY COOPERATION AGENCY | 1,927,217 | 1,677,217 |
| | Security cooperation account, unjustified growth | | [-37,030] |
| | Transfer from CTEF Iraq | | [100,000] |
| | Transfer of funds to Ukraine Security Assistance Initiative | | [-250,000] |
| | Unjustified growth | | [-62,970] |
| 380 | DEFENSE THREAT REDUCTION AGENCY | 317,558 | 317,558 |
| 410 | DEPARTMENT OF DEFENSE EDUCATION ACTIVITY | 31,620 | 31,620 |
| 460 | OFFICE OF THE SECRETARY OF DEFENSE | 16,666 | 16,666 |
| 500 | WASHINGTON HEADQUARTERS SERVICES | 6,331 | 6,331 |
| 505 | CLASSIFIED PROGRAMS | 1,924,785 | 1,924,785 |
| | SUBTOTAL ADMIN & SRVWIDE ACTIVITIES | 4,542,799 | 4,292,799 |
| | TOTAL OPERATION AND MAINTENANCE, DEFENSE-WIDE | 8,368,112 | 8,573,112 |
| | TOTAL OPERATION & MAINTENANCE, DEFENSE-WIDE | | 205,000 |
| | UKRAINE SECURITY ASSISTANCE | | |
| | UKRAINE SECURITY ASSISTANCE | | |
| 010 | UKRAINE SECURITY ASSISTANCE INITIATIVE | | 300,000 |
| | Program increase | | [50,000] |
| | Transfer of funds from Defense Security Cooperation Agency | | [250,000] |
| | SUBTOTAL UKRAINE SECURITY ASSISTANCE | | 300,000 |
| | TOTAL UKRAINE SECURITY ASSISTANCE | | 300,000 |
| | TOTAL OPERATION & MAINTENANCE | 50,432,141 | 54,968,189 |

1 SEC. 4303. OPERATION AND MAINTENANCE FOR EMER-
2 GENCY REQUIREMENTS.

| SEC. 4303. OPERATION AND MAINTENANCE FOR EMERGENCY REQUIREMENTS (In Thousands of Dollars) | | | |
|--|---|-----------------|-----------------------|
| Line | Item | FY 2020 Request | Conference Authorized |
| | OPERATION & MAINTENANCE, NAVY OPERATING FORCES | | |

| SEC. 4303. OPERATION AND MAINTENANCE FOR EMERGENCY REQUIREMENTS (In Thousands of Dollars) | | | |
|---|---|------------------------|------------------------------|
| Line | Item | FY 2020 Request | Conference Authorized |
| 270 | SUSTAINMENT, RESTORATION AND MODERNIZATION | 0 | 462,000 |
| | Earthquake damage repair | | [370,000] |
| | Navy Working Capital Fund earthquake recovery losses | | [92,000] |
| 280 | BASE OPERATING SUPPORT | 0 | 9,000 |
| | Earthquake damage recovery | | [9,000] |
| | TOTAL OPERATION & MAINTENANCE, NAVY | 0 | 471,000 |
| | OPERATION & MAINTENANCE, MARINE CORPS OPERATING FORCES | | |
| 060 | SUSTAINMENT, RESTORATION & MODERNIZATION | 0 | 6,000 |
| | Earthquake damage repair | | [6,000] |
| | TOTAL OPERATION & MAINTENANCE, MARINE CORPS | 0 | 6,000 |
| | OPERATION & MAINTENANCE, ANG OPERATING FORCES | | |
| 040 | FACILITIES SUSTAINMENT, RESTORATION & MODERNIZATION | 0 | 58,900 |
| | Hurricane recovery | | [58,900] |
| | TOTAL OPERATION & MAINTENANCE, ANG | 0 | 58,900 |
| | TOTAL OPERATION & MAINTENANCE | 0 | 535,900 |

1 **TITLE XLIV—MILITARY**
2 **PERSONNEL**

Sec. 4401. Military personnel.

Sec. 4402. Military personnel for overseas contingency operations.

3 **SEC. 4401. MILITARY PERSONNEL.**

| SEC. 4401. MILITARY PERSONNEL (In Thousands of Dollars) | | |
|---|------------------------|------------------------------|
| Item | FY 2020 Request | Conference Authorized |
| Military Personnel Appropriations | 143,476,503 | 142,676,503 |
| Historical unobligated balances | | [-800,000] |
| Medicare-Eligible Retiree Health Fund Contributions | 7,816,815 | 7,816,815 |

4 **SEC. 4402. MILITARY PERSONNEL FOR OVERSEAS CONTIN-**
5 **GENCY OPERATIONS.**

| SEC. 4402. MILITARY PERSONNEL FOR OVERSEAS CONTINGENCY OPERATIONS (In Thousands of Dollars) | | |
|---|------------------------|------------------------------|
| Item | FY 2020 Request | Conference Authorized |
| Military Personnel Appropriations | 4,485,808 | 4,485,808 |
| Total, Military Personnel Appropriations | 4,485,808 | 4,485,808 |

6 **TITLE XLV—OTHER**
7 **AUTHORIZATIONS**

Sec. 4501. Other authorizations.

Sec. 4502. Other authorizations for overseas contingency operations.

1 SEC. 4501. OTHER AUTHORIZATIONS.

| SEC. 4501. OTHER AUTHORIZATIONS (In Thousands of Dollars) | | |
|---|------------------------|------------------------------|
| Program Title | FY 2020 Request | Conference Authorized |
| WORKING CAPITAL FUND, ARMY | | |
| INDUSTRIAL OPERATIONS | 57,467 | 57,467 |
| SUPPLY MANAGEMENT—ARMY | 32,130 | 32,130 |
| TOTAL WORKING CAPITAL FUND, ARMY | 89,597 | 89,597 |
| WORKING CAPITAL FUND, AIR FORCE | | |
| TRANSPORTATION | | |
| SUPPLIES AND MATERIALS | 92,499 | 92,499 |
| TOTAL WORKING CAPITAL FUND, AIR FORCE | 92,499 | 92,499 |
| WORKING CAPITAL FUND, DEFENSE-WIDE | | |
| SUPPLY CHAIN MANAGEMENT—DEF | 49,085 | 49,085 |
| TOTAL WORKING CAPITAL FUND, DEFENSE-WIDE | 49,085 | 49,085 |
| WORKING CAPITAL FUND, DECA | | |
| WORKING CAPITAL FUND, DECA | 995,030 | 995,030 |
| TOTAL WORKING CAPITAL FUND, DECA | 995,030 | 995,030 |
| WCF, DEF COUNTERINTELLIGENCE & SECURITY AGENCY | | |
| DEFENSE COUNTERINTELLIGENCE AND SECURITY AGENCY | 200,000 | 200,000 |
| TOTAL WCF, DEF COUNTERINTELLIGENCE & SECURITY AGENCY | 200,000 | 200,000 |
| CHEM AGENTS & MUNITIONS DESTRUCTION | | |
| OPERATION & MAINTENANCE | 107,351 | 107,351 |
| RDT&E | 875,930 | 875,930 |
| PROCUREMENT | 2,218 | 2,218 |
| TOTAL CHEM AGENTS & MUNITIONS DESTRUCTION | 985,499 | 985,499 |
| DRUG INTERDICTION & CTR-DRUG ACTIVITIES, DEF | | |
| COUNTER-NARCOTICS SUPPORT | 581,739 | 532,818 |
| Realignment of National Guard Bureau funding | | [-30,921] |
| Unjustified growth | | [-18,000] |
| DRUG DEMAND REDUCTION PROGRAM | 120,922 | 120,922 |
| NATIONAL GUARD COUNTER-DRUG PROGRAM | 91,370 | 122,291 |
| Realignment of National Guard Bureau funding | | [30,921] |
| NATIONAL GUARD COUNTER-DRUG SCHOOLS | 5,371 | 5,371 |
| TOTAL DRUG INTERDICTION & CTR-DRUG ACTIVITIES, DEF | 799,402 | 781,402 |
| OFFICE OF THE INSPECTOR GENERAL | | |
| OFFICE OF THE INSPECTOR GENERAL | 359,022 | 359,022 |
| OFFICE OF THE INSPECTOR GENERAL—CYBER | 1,179 | 1,179 |
| OFFICE OF THE INSPECTOR GENERAL | 2,965 | 2,965 |
| OFFICE OF THE INSPECTOR GENERAL | 333 | 333 |
| TOTAL OFFICE OF THE INSPECTOR GENERAL | 363,499 | 363,499 |
| DEFENSE HEALTH PROGRAM | | |
| IN-HOUSE CARE | 9,570,615 | 9,320,615 |
| Unjustified growth | | [-250,000] |
| PRIVATE SECTOR CARE | 15,041,006 | 15,002,506 |
| Historical underexecution | | [-38,500] |
| CONSOLIDATED HEALTH SUPPORT | 1,975,536 | 1,986,536 |
| Wounded Warrior Service Dog program | | [11,000] |
| INFORMATION MANAGEMENT | 2,004,588 | 1,998,938 |
| Historical underexecution | | [-5,650] |
| MANAGEMENT ACTIVITIES | 333,246 | 333,246 |
| EDUCATION AND TRAINING | 793,810 | 793,310 |
| Other costs excess growth | | [-3,000] |
| Program increase—specialized medical pilot program | | [2,500] |
| BASE OPERATIONS/COMMUNICATIONS | 2,093,289 | 2,093,289 |
| R&D RESEARCH | 12,621 | 12,621 |
| R&D EXPLORATORY DEVELOPMENT | 84,266 | 84,266 |
| R&D ADVANCED DEVELOPMENT | 279,766 | 279,766 |
| R&D DEMONSTRATION/VALIDATION | 128,055 | 128,055 |
| R&D ENGINEERING DEVELOPMENT | 143,527 | 143,527 |
| R&D MANAGEMENT AND SUPPORT | 67,219 | 67,219 |
| R&D CAPABILITIES ENHANCEMENT | 16,819 | 16,819 |

| SEC. 4501. OTHER AUTHORIZATIONS (In Thousands of Dollars) | | |
|--|-------------------|-----------------------|
| Program Title | FY 2020 Request | Conference Authorized |
| PROC INITIAL OUTFITTING | 26,135 | 26,135 |
| PROC REPLACEMENT & MODERNIZATION | 225,774 | 225,774 |
| PROC JOINT OPERATIONAL MEDICINE INFORMATION SYSTEM | 314 | 314 |
| PROC MILITARY HEALTH SYSTEM—DESKTOP TO DATACENTER | 73,010 | 73,010 |
| PROC DOD HEALTHCARE MANAGEMENT SYSTEM MODERNIZA- TION | 129,091 | 129,091 |
| TOTAL DEFENSE HEALTH PROGRAM | 32,998,687 | 32,715,037 |
| TOTAL OTHER AUTHORIZATIONS | 36,573,298 | 36,271,648 |

1 **SEC. 4502. OTHER AUTHORIZATIONS FOR OVERSEAS CON-**
 2 **TINGENCY OPERATIONS.**

| SEC. 4502. OTHER AUTHORIZATIONS FOR OVERSEAS CONTINGENCY OPERATIONS (In Thousands of Dollars) | | |
|--|-----------------|-----------------------|
| Program Title | FY 2020 Request | Conference Authorized |
| WORKING CAPITAL FUND, ARMY | | |
| INDUSTRIAL OPERATIONS | | |
| SUPPLY MANAGEMENT—ARMY | 20,100 | 20,100 |
| TOTAL WORKING CAPITAL FUND, ARMY | 20,100 | 20,100 |
| DRUG INTERDICTION & CTR-DRUG ACTIVITIES, DEF | | |
| COUNTER-NARCOTICS SUPPORT | 163,596 | 163,596 |
| TOTAL DRUG INTERDICTION & CTR-DRUG ACTIVITIES, DEF | 163,596 | 163,596 |
| OFFICE OF THE INSPECTOR GENERAL | | |
| OFFICE OF THE INSPECTOR GENERAL | 24,254 | 24,254 |
| TOTAL OFFICE OF THE INSPECTOR GENERAL | 24,254 | 24,254 |
| DEFENSE HEALTH PROGRAM | | |
| IN-HOUSE CARE | 57,459 | 57,459 |
| PRIVATE SECTOR CARE | 287,487 | 287,487 |
| CONSOLIDATED HEALTH SUPPORT | 2,800 | 2,800 |
| TOTAL DEFENSE HEALTH PROGRAM | 347,746 | 347,746 |
| TOTAL OTHER AUTHORIZATIONS | 555,696 | 555,696 |

3 **TITLE XLVI—MILITARY**
 4 **CONSTRUCTION**

Sec. 4601. Military construction.
 Sec. 4602. Military construction for overseas contingency operations.
 Sec. 4603. Military construction for emergency requirements.

5 **SEC. 4601. MILITARY CONSTRUCTION.**

| SEC. 4601. MILITARY CONSTRUCTION (In Thousands of Dollars) | | | | |
|---|--------------------------------|---|-----------------|-----------------------|
| Account | State/Country and Installation | Project Title | FY 2020 Request | Conference Authorized |
| Army | Alabama Redstone Arsenal | Aircraft and Flight Equipment Building | 38,000 | 38,000 |
| | Colorado Fort Carson | Company Operations Facility | 71,000 | 71,000 |
| Army | Georgia Fort Gordon | Cyber Instructional Fac (Admin/Command) | 107,000 | 67,000 |
| | Hunter Army Airfield | Aircraft Maintenance Hangar | 62,000 | 62,000 |
| Army | Hawaii | | | |

SEC. 4601. MILITARY CONSTRUCTION
(In Thousands of Dollars)

| Account | State/Country and Installation | Project Title | FY 2020 Request | Conference Authorized |
|---------|---|---|------------------|-----------------------|
| Army | Fort Shafter Honduras | Command and Control Facility, Iner 5 | 60,000 | 60,000 |
| Army | Soto Cano Air Base Kentucky | Aircraft Maintenance Hangar | 34,000 | 34,000 |
| Army | Fort Campbell | Automated Infantry Platoon Battle Course | 7,100 | 7,100 |
| Army | Fort Campbell | Easements | 3,200 | 3,200 |
| Army | Fort Campbell | General Purpose Maintenance Shop | 51,000 | 51,000 |
| | Kwajalein | | | |
| Army | Kwajalein Atoll | Air Traffic Control Tower and Terminal | 0 | 40,000 |
| | Massachusetts | | | |
| Army | U.S. Army Natick Soldier Systems Center Michigan | Human Engineering Lab | 50,000 | 50,000 |
| | Detroit Arsenal | Substation | 24,000 | 24,000 |
| | New York | | | |
| Army | Fort Drum | Railhead | 0 | 21,000 |
| Army | Fort Drum | Unmanned Aerial Vehicle Hangar | 23,000 | 23,000 |
| | North Carolina | | | |
| Army | Fort Bragg | Dining Facility | 12,500 | 12,500 |
| | Oklahoma | | | |
| Army | Fort Sill | Adv Individual Training Barracks Cplx, Ph2 | 73,000 | 73,000 |
| | Pennsylvania | | | |
| Army | Carlisle Barracks | General Instruction Building | 98,000 | 60,000 |
| | South Carolina | | | |
| Army | Fort Jackson | Reception Complex, Ph2 | 54,000 | 54,000 |
| | Texas | | | |
| Army | Corpus Christi Army Depot | Powertrain Facility (Machine Shop) | 86,000 | 86,000 |
| Army | Fort Hood | Barracks | 32,000 | 32,000 |
| Army | Fort Hood | Vehicle Bridge | 0 | 18,500 |
| | Virginia | | | |
| Army | Fort Belvoir | Secure Operations and Admin Facility | 60,000 | 60,000 |
| Army | Joint Base Langley-Eustis Washington | Adv Individual Training Barracks Cplx, Ph4 | 55,000 | 55,000 |
| | Joint Base Lewis-McChord | Information Systems Facility | 46,000 | 46,000 |
| | Worldwide Unspecified | | | |
| Army | Unspecified Worldwide Locations | Child Development Centers | 0 | 27,000 |
| Army | Unspecified Worldwide Locations | Host Nation Support | 31,000 | 31,000 |
| Army | Unspecified Worldwide Locations | Planning and Design | 94,099 | 94,099 |
| Army | Unspecified Worldwide Locations | Unspecified Minor Construction | 70,600 | 70,600 |
| Army | Unspecified Worldwide Locations | Unspecified Worldwide Construction | 211,000 | 0 |
| | Military Construction, Army Total | | 1,453,499 | 1,270,999 |
| | Arizona | | | |
| Navy | Marine Corps Air Station Yuma | Bachelor Enlisted Quarters | 0 | 99,600 |
| Navy | Marine Corps Air Station Yuma | Hangar 95 Renovation & Addition | 90,160 | 90,160 |
| | Australia | | | |
| Navy | Darwin | Aircraft Parking Apron | 0 | 50,000 |
| | Bahrain Island | | | |
| Navy | SW Asia | Electrical System Upgrade | 53,360 | 0 |
| | California | | | |
| Navy | Camp Pendleton | 62 Area Mess Hall and Consolidated Warehouse | 71,700 | 71,700 |
| Navy | Camp Pendleton | I MEF Consolidated Information Center | 113,869 | 38,869 |
| Navy | Marine Corps Air Station Miramar | Child Development Center | 0 | 37,400 |
| Navy | Naval Air Weapons Station China Lake | Runway & Taxiway Extension | 64,500 | 64,500 |
| Navy | Naval Air Weapons Station China Lake | Unspecified Military Construction—Earthquake Damage Recovery. | 0 | 0 |
| Navy | Naval Base Coronado | Aircraft Paint Complex | 0 | 79,000 |
| Navy | Naval Base Coronado | Navy V-22 Hangar | 86,830 | 86,830 |
| Navy | Naval Base San Diego | Pier 8 Replacement (Inc) | 59,353 | 59,353 |
| Navy | Naval Base San Diego | PMO Facility Repair | 0 | 9,900 |
| Navy | Naval Weapons Station Seal Beach | Ammunition Pier | 95,310 | 60,310 |
| Navy | Naval Weapons Station Seal Beach | Missile Magazine | 0 | 28,000 |
| Navy | Travis Air Force Base | Alert Force Complex | 64,000 | 64,000 |

SEC. 4601. MILITARY CONSTRUCTION
(In Thousands of Dollars)

| Account | State/Country and Installation | Project Title | FY 2020 Request | Conference Authorized |
|---------|--|--|------------------|-----------------------|
| | Connecticut | | | |
| Navy | Naval Submarine Base New London | SSN Berthing Pier 32 | 72,260 | 72,260 |
| | District of Columbia | | | |
| Navy | Naval Observatory | Master Time Clocks & Operations Fac (Inc) | 75,600 | 20,000 |
| | Florida | | | |
| Navy | Blount Island | Police Station and EOC Facility | 0 | 18,700 |
| Navy | Naval Air Station Jacksonville | Targeting & Surveillance Syst Prod Supp Fac | 32,420 | 32,420 |
| | Guam | | | |
| Navy | Joint Region Marianas | Bachelor Enlisted Quarters II | 164,100 | 34,100 |
| Navy | Joint Region Marianas | EOD Compound Facilities | 61,900 | 61,900 |
| Navy | Joint Region Marianas | Machine Gun Range (Inc) | 91,287 | 91,287 |
| | Hawaii | | | |
| Navy | Marine Corps Air Sta- tion Kaneohe Bay | Bachelor Enlisted Quarters | 13,4050 | 65,490 |
| Navy | Naval Ammunition Depot West Loch | Magazine Consolidation, Phase 1 | 53,790 | 53,790 |
| | Italy | | | |
| Navy | Naval Air Station Sigonella | Communications Station | 77,400 | 0 |
| | Japan | | | |
| Navy | Fleet Activities Yokosuka | Pier 5 (Berths 2 and 3) | 17,4692 | 100,000 |
| Navy | Marine Corps Air Sta- tion Iwakuni | VTOL Pad—South | 15,870 | 15,870 |
| | Maryland | | | |
| Navy | Saint Inigoes | Air Traffic Control Tower | 0 | 15,000 |
| | North Carolina | | | |
| Navy | Camp Lejeune | 10th Marines Himars Complex | 35,110 | 35,110 |
| Navy | Camp Lejeune | 2nd MARDIV/2nd MLG Ops Center Replacement .. | 60,130 | 60,130 |
| Navy | Camp Lejeune | 2nd Radio BN Complex, Phase 2 (Inc) | 25,650 | 25,650 |
| Navy | Camp Lejeune | ACV-AAV Maintenance Facility Upgrades | 11,570 | 11,570 |
| Navy | Camp Lejeune | II MEF Operations Center Replacement | 12,2200 | 92,200 |
| Navy | Marine Corps Air Sta- tion Cherry Point | Aircraft Maintenance Hangar (Inc) | 73,970 | 73,970 |
| Navy | Marine Corps Air Sta- tion Cherry Point | ATC Tower & Airfield Operations | 61,340 | 61,340 |
| Navy | Marine Corps Air Sta- tion Cherry Point | F-35 Training and Simulator Facility | 53,230 | 53,230 |
| Navy | Marine Corps Air Sta- tion Cherry Point | Flightline Utility Modernization (Inc) | 51,860 | 51,860 |
| Navy | Marine Corps Air Sta- tion New River | CH-53K Cargo Loading Trainer | 11,320 | 11,320 |
| | Pennsylvania | | | |
| Navy | Philadelphia | Machinery Control Development Center | 0 | 74,630 |
| | South Carolina | | | |
| Navy | Parris Island | Range Improvements & Modernization Phase 3 | 0 | 37,200 |
| | Utah | | | |
| Navy | Hill Air Force Base | D5 Missile Motor Receipt/Storage Fac (Inc) | 50,520 | 50,520 |
| | Virginia | | | |
| Navy | Marine Corps Base Quantico | Wargaming Center | 143,350 | 33,350 |
| Navy | Naval Station Norfolk | Mariner Skills Training Center | 79,100 | 79,100 |
| Navy | Naval Station Norfolk | MH-60 & CMV-22B Corrosion Control and Paint Facility. | 0 | 60,000 |
| Navy | Portsmouth Naval Shipyard | Dry Dock Flood Protection Improvements | 48,930 | 48,930 |
| Navy | Yorktown Naval Weap- ons Station | NMC Ordnance Facilities Recapitalization Phase 1 | 0 | 59,000 |
| | Washington | | | |
| Navy | Bremerton | Dry Dock 4 & Pier 3 Modernization | 51,010 | 51,010 |
| Navy | Keyport | Undersea Vehicle Maintenance Facility | 25,050 | 25,050 |
| Navy | Naval Base Kitsap | Seawolf Service Pier Cost-to-Complete | 0 | 48,000 |
| | Worldwide Unspecified | | | |
| Navy | Unspecified Worldwide Locations | Child Development Centers | 0 | 62,400 |
| Navy | Unspecified Worldwide Locations | Planning and Design | 167,715 | 167,715 |
| Navy | Unspecified Worldwide Locations | Unspecified Minor Construction | 81,237 | 81,237 |
| | Military Construction, Navy Total | | 2,805,743 | 2,774,961 |
| | Alaska | | | |
| AF | Eielson Air Force Base | F-35 AME Storage Facility | 8,600 | 8,600 |
| | Arkansas | | | |
| AF | Little Rock Air Force Base | C-130H/J Fuselage Trainer Facility | 47,000 | 47,000 |

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| SEC. 4601. MILITARY CONSTRUCTION (In Thousands of Dollars) | | | | |
|---|---------------------------------|---|-----------------|-----------------------|
| Account | State/Country and Installation | Project Title | FY 2020 Request | Conference Authorized |
| AF | Little Rock Air Force Base | Dormitory Cost-to-Complete | 0 | 7,000 |
| | Australia | | | |
| AF | Tindal | APR—RAAF Tindal/Earth Covered Magazine | 11,600 | 11,600 |
| AF | Tindal | APR-RAAF Tindal/Bulk Storage Tanks | 59,000 | 59,000 |
| | California | | | |
| AF | Travis Air Force Base | ADAL Aerial Port Squadron Materiel Warehouse ... | 0 | 17,000 |
| AF | Travis Air Force Base | KC-46A Alter B181/B185/B187 Squad Ops/AMU | 6,600 | 6,600 |
| AF | Travis Air Force Base | KC-46A Regional Maintenance Training Facility ... | 19,500 | 19,500 |
| | Colorado | | | |
| AF | Peterson Air Force Base | SOCNORTH Theater Operational Support Facility | 0 | 54,000 |
| AF | Schriever Air Force Base | Consolidated Space Operations Facility | 148,000 | 73,449 |
| AF | United States Air Force Academy | Consolidate Cadet Prep School Dormitory | 0 | 49,000 |
| | Cyprus | | | |
| AF | Royal Air Force Akrotiri | New Dormitory for 1 ERS | 27,000 | 27,000 |
| | Georgia | | | |
| AF | Moody Air Force Base | 41 RQS HH-60W Apron | 0 | 12,500 |
| | Guam | | | |
| AF | Joint Region Marianas | Munitions Storage Igloos III | 65,000 | 65,000 |
| | Illinois | | | |
| AF | Scott Air Force Base | Joint Operations & Mission Planning Center | 100,000 | 100,000 |
| | Japan | | | |
| AF | Yokota Air Base | Fuel Receipt & Distribution Upgrade | 12,400 | 12,400 |
| | Jordan | | | |
| AF | Azraq | Air Traffic Control Tower | 24,000 | 0 |
| AF | Azraq | Munitions Storage Area | 42,000 | 0 |
| | Mariana Islands | | | |
| AF | Timian | Airfield Development Phase 1 | 109,000 | 10,000 |
| AF | Timian | Fuel Tanks W/ Pipeline/Hydrant System | 109,000 | 10,000 |
| AF | Timian | Parking Apron | 98,000 | 25,000 |
| | Maryland | | | |
| AF | Joint Base Andrews | Presidential Aircraft Recap Complex Inc 3 | 86,000 | 86,000 |
| | Massachusetts | | | |
| AF | Hanscom Air Force Base | MIT-Lincoln Lab (West Lab CSL/MIF) Inc 2 | 135,000 | 80,000 |
| | Missouri | | | |
| AF | Whiteman Air Force Base | Consolidated Vehicle Ops and MX Facility | 0 | 27,000 |
| | Montana | | | |
| AF | Malmstrom Air Force Base | Weapons Storage and Maintenance Facility | 235,000 | 59,000 |
| | Nevada | | | |
| AF | Nellis Air Force Base | 365th ISR Group Facility | 57,000 | 57,000 |
| AF | Nellis Air Force Base | F-35 Munitions Maintenance Facilities Cost-to-Complete. | 0 | 3,100 |
| AF | Nellis Air Force Base | F-35A Munitions Assembly Conveyor Facility | 8,200 | 8,200 |
| | New Mexico | | | |
| AF | Holloman Air Force Base | NC3 Support WRM Storage/Shipping Facility | 0 | 20,000 |
| AF | Kirtland Air Force Base | Combat Rescue Helicopter Simulator (CRH) ADAL | 15,500 | 15,500 |
| AF | Kirtland Air Force Base | UH-1 Replacement Facility | 22,400 | 22,400 |
| | North Dakota | | | |
| AF | Minot Air Force Base | Helo/Trfops/AMU Facility | 5,500 | 5,500 |
| | Ohio | | | |
| AF | Wright-Patterson Air Force Base | ADAL Intelligence Prod. Complex (NASIC) Inc 2 .. | 120,900 | 120,900 |
| | Texas | | | |
| AF | Joint Base San Antonio | AFPC B-Wing | 0 | 36,000 |
| AF | Joint Base San Antonio | Aquatics Tank | 69,000 | 69,000 |
| AF | Joint Base San Antonio | BMT Recruit Dormitory 8 | 110,000 | 110,000 |
| AF | Joint Base San Antonio | T-X ADAL Ground Based Trng Sys (GBTS) Sim .. | 9,300 | 9,300 |
| AF | Joint Base San Antonio | T-X MX Trng Sys Centralized Trng Fac | 19,000 | 19,000 |
| | United Kingdom | | | |
| AF | Royal Air Force Lakenheath | F-35A PGM Facility | 14,300 | 14,300 |
| | Utah | | | |
| AF | Hill Air Force Base | GBSD Mission Integration Facility | 108,000 | 33,000 |

SEC. 4601. MILITARY CONSTRUCTION
(In Thousands of Dollars)

| Account | State/Country and Installation | Project Title | FY 2020 Request | Conference Authorized |
|---|--|---|------------------|-----------------------|
| AF | Hill Air Force Base Washington | Joint Advanced Tactical Missile Storage Fac | 6,500 | 6,500 |
| AF | Fairchild Air Force Base | Consolidated TFI Base Operations | 31,000 | 31,000 |
| AF | Fairchild Air Force Base | SERE Pipeline Dormitory Cost-to-Complete | 0 | 4,800 |
| AF | Worldwide Unspecified Unspecified Worldwide Locations | Child Development Centers | 0 | 31,500 |
| AF | Various Worldwide Locations | Planning and Design | 142,148 | 142,148 |
| AF | Various Worldwide Locations | Unspecified Minor Construction | 79,682 | 79,682 |
| AF | Wyoming F. E. Warren Air Force Base | Consolidated Helo/TRF Ops/AMU and Alert Fac ... | 18,100 | 18,100 |
| Military Construction, Air Force Total | | | 2,179,230 | 1,723,579 |
| California | | | | |
| Def-Wide | Beale Air Force Base | Hydrant Fuel System Replacement | 33,700 | 33,700 |
| Def-Wide | Camp Pendleton | Ambul Care Center/Dental Clinic Replacement | 17,700 | 17,700 |
| Def-Wide | Mountain View—63 RSC | Install Microgrid Controller, 750 Kw PV, and 750 Kwh Battery Storage. | 0 | 9,700 |
| Def-Wide | Naval Air Weapons Station China Lake | Energy Storage System | 0 | 8,950 |
| Def-Wide | NSA Monterey CONUS Classified | Cogeneration Plant at B236 | 0 | 10,540 |
| Def-Wide | Classified Location Florida | Battalion Complex, Ph 3 | 82,200 | 82,200 |
| Def-Wide | Eglin Air Force Base | SOF Combined Squadron Ops Facility | 16,500 | 16,500 |
| Def-Wide | Hurlburt Field | SOF AMU & Weapons Hangar | 72,923 | 72,923 |
| Def-Wide | Hurlburt Field | SOF Combined Squadron Operations Facility | 16,513 | 16,513 |
| Def-Wide | Hurlburt Field | SOF Maintenance Training Facility | 18,950 | 18,950 |
| Def-Wide | Naval Air Station Key West | SOF Watercraft Maintenance Facility | 16,000 | 16,000 |
| Germany | | | | |
| Def-Wide | Geilenkirchen Air Base | Ambulatory Care Center/Dental Clinic | 30,479 | 30,479 |
| Def-Wide | Ramstein | Landstuhl Elementary School | 0 | 66,800 |
| Guam | | | | |
| Def-Wide | Joint Region Marianas | Xray Wharf Refueling Facility | 19,200 | 19,200 |
| Def-Wide | Naval Base Guam | NSA Anderson Smart Grid and ICS Infrastructure | 0 | 16,970 |
| Hawaii | | | | |
| Def-Wide | Joint Base Pearl Har- bor-Hickam | Install 500kw Covered Parking PV System & Elec- tric Vehicle Charging Stations B479. | 0 | 4,000 |
| Def-Wide | Joint Base Pearl Har- bor-Hickam | SOF Undersea Operational Training Facility | 67,700 | 67,700 |
| Japan | | | | |
| Def-Wide | Yokosuka | Kinnick High School Inc 2 | 130,386 | 0 |
| Def-Wide | Yokota Air Base | Bulk Storage Tanks PH1 | 116,305 | 20,000 |
| Def-Wide | Yokota Air Base | Pacific East District Superintendent's Office | 20,106 | 20,106 |
| Maryland | | | | |
| Def-Wide | Bethesda Naval Hos- pital | MEDCEN Addition/Alteration Iner 3 | 96,900 | 33,000 |
| Def-Wide | Fort Detrick | Medical Research Acquisition Building | 27,846 | 27,846 |
| Def-Wide | Fort Meade | NSAW Recapitalize Building #3 Inc 2 | 426,000 | 426,000 |
| Def-Wide | NSA Bethesda | Chiller 3-9 Replacement | 0 | 13,840 |
| Def-Wide | South Potomac | IH Water Project—CBIRF/IHEODTD/Housing | 0 | 18,460 |
| Mississippi | | | | |
| Def-Wide | Columbus Air Force Base | Fuel Facilities Replacement | 16,800 | 16,800 |
| Missouri | | | | |
| Def-Wide | Fort Leonard Wood | Hospital Replacement Iner 2 | 50,000 | 50,000 |
| Def-Wide | St. Louis | Next NGA West (N2W) Complex Phase 2 Inc. 2 | 218,800 | 118,800 |
| New Mexico | | | | |
| Def-Wide | White Sands Missile Range | Install Microgrid, 700kw PV, 150 Kw Generator, and Batteries. | 0 | 5,800 |
| North Carolina | | | | |
| Def-Wide | Camp Lejeune | SOF Marine Raider Regiment HQ | 13,400 | 13,400 |
| Def-Wide | Fort Bragg | SOF Assessment and Selection Training Complex .. | 12,103 | 12,103 |
| Def-Wide | Fort Bragg | SOF Human Platform-Force Generation Facility ... | 43,000 | 43,000 |
| Def-Wide | Fort Bragg | SOF Operations Support Bldg | 29,000 | 29,000 |
| Oklahoma | | | | |
| Def-Wide | Tulsa IAP | Fuels Storage Complex | 18,900 | 18,900 |
| Rhode Island | | | | |
| Def-Wide | Quonset State Airport | Fuels Storage Complex Replacement | 11,600 | 11,600 |
| South Carolina | | | | |
| Def-Wide | Joint Base Charleston | Medical Consolidated Storage & Distrib Center | 33,300 | 33,300 |

SEC. 4601. MILITARY CONSTRUCTION
(In Thousands of Dollars)

| Account | State/Country and Installation | Project Title | FY 2020 Request | Conference Authorized |
|----------|---|--|------------------|-----------------------|
| Def-Wide | South Dakota Ellsworth Air Force Base | Hydrant Fuel System Replacement | 24,800 | 24,800 |
| Def-Wide | Texas Camp Swift | Install Microgrid, 650KW OV, & 500 KW Generator. | 0 | 4,500 |
| Def-Wide | Fort Hood | Install a Central Energy Plant | 0 | 16,500 |
| Def-Wide | Virginia Defense Distribution Depot Richmond | Operations Center Phase 2 | 98,800 | 33,000 |
| Def-Wide | Joint Expeditionary Base Little Creek—Fort Story | SOF NSWG-10 Operations Support Facility | 32,600 | 32,600 |
| Def-Wide | Joint Expeditionary Base Little Creek—Fort Story | SOF NSWG2 JSOTF Ops Training Facility | 13,004 | 13,004 |
| Def-Wide | NRO Headquarters | Intergration System Upgrades | 0 | 66 |
| Def-Wide | Pentagon | Backup Generator | 8,670 | 8,670 |
| Def-Wide | Pentagon | Control Tower & Fire Day Station | 20,132 | 20,132 |
| Def-Wide | Training Center Dam Neck | SOF Demolition Training Compound Expansion | 12,770 | 12,770 |
| Def-Wide | Washington Joint Base Lewis-McChord | SOF 22 STS Operations Facility | 47,700 | 47,700 |
| Def-Wide | Naval Base Kitsap | Keypoint Main Substation Replacement | 0 | 23,670 |
| Def-Wide | Wisconsin Gen Mitchell IAP | POL Facilities Replacement | 25,900 | 25,900 |
| Def-Wide | Worldwide Classified Classified Location | Mission Support Compound | 52,000 | 52,000 |
| Def-Wide | Worldwide Unspecified Unspecified Worldwide Locations | Contingency Construction | 10,000 | 0 |
| Def-Wide | Unspecified Worldwide Locations | Energy Resilience and Conserv. Invest. Prog. | 150,000 | 150,000 |
| Def-Wide | Unspecified Worldwide Locations | ERCIP Design | 10,000 | 10,000 |
| Def-Wide | Unspecified Worldwide Locations | Exercise Related Minor Construction | 11,770 | 11,770 |
| Def-Wide | Unspecified Worldwide Locations | Planning and Design | 15,000 | 15,000 |
| Def-Wide | Unspecified Worldwide Locations | Planning and Design | 29,679 | 29,679 |
| Def-Wide | Unspecified Worldwide Locations | Planning and Design | 35,472 | 35,472 |
| Def-Wide | Unspecified Worldwide Locations | Planning and Design | 4,890 | 4,890 |
| Def-Wide | Unspecified Worldwide Locations | Planning and Design | 14,400 | 14,400 |
| Def-Wide | Unspecified Worldwide Locations | Unspecified Minor Construction | 3,000 | 3,000 |
| Def-Wide | Unspecified Worldwide Locations | Unspecified Minor Construction | 31,464 | 31,464 |
| Def-Wide | Unspecified Worldwide Locations | Unspecified Minor Construction | 3,228 | 3,228 |
| Def-Wide | Unspecified Worldwide Locations | Unspecified Minor Construction | 10,000 | 10,000 |
| Def-Wide | Unspecified Worldwide Locations | Unspecified Minor Construction | 8,000 | 8,000 |
| Def-Wide | Unspecified Worldwide Locations | Unspecified Minor Construction | 4,950 | 4,950 |
| Def-Wide | Various Worldwide Locations | Planning and Design | 52,532 | 52,532 |
| Def-Wide | Various Worldwide Locations | Planning and Design | 63,382 | 63,382 |
| Def-Wide | Various Worldwide Locations | Planning and Design | 27,000 | 27,000 |
| Def-Wide | Various Worldwide Locations | Planning and Design: Military Installation Resiliency. | 0 | 30,000 |
| Def-Wide | Various Worldwide Locations | Unspecified Minor Construction | 10,000 | 10,000 |
| Def-Wide | Various Worldwide Locations | Unspecified Minor Construction | 16,736 | 16,736 |
| | Military Construction, Defense-Wide Total | | 2,504,190 | 2,267,595 |
| NATO | Worldwide Unspecified NATO Security Investment Program | NATO Security Investment Program | 144,040 | 144,040 |

SEC. 4601. MILITARY CONSTRUCTION
(In Thousands of Dollars)

| Account | State/Country and Installation | Project Title | FY 2020 Request | Conference Authorized |
|---|---------------------------------|---|-----------------|-----------------------|
| NATO Security Investment Program Total | | | 144,040 | 144,040 |
| | Alabama | | | |
| Army NG | Anniston Army Depot | Enlisted Transient Barracks | 0 | 34,000 |
| Army NG | Foley | National Guard Readiness Center | 12,000 | 12,000 |
| | California | | | |
| Army NG | Camp Roberts | Automated Multipurpose Machine Gun Range | 12,000 | 12,000 |
| | Idaho | | | |
| Army NG | Orchard Combat Training Center | Railroad Tracks | 29,000 | 29,000 |
| | Maryland | | | |
| Army NG | Havre de Grace | Combined Support Maintenance Shop | 12,000 | 12,000 |
| | Massachusetts | | | |
| Army NG | Camp Edwards | Automated Multipurpose Machine Gun Range | 9,700 | 9,700 |
| | Minnesota | | | |
| Army NG | New Ulm | National Guard Vehicle Maintenance Shop | 11,200 | 11,200 |
| | Mississippi | | | |
| Army NG | Camp Shelby | Automated Multipurpose Machine Gun Range | 8,100 | 8,100 |
| | Missouri | | | |
| Army NG | Springfield | National Guard Readiness Center | 12,000 | 12,000 |
| | Nebraska | | | |
| Army NG | Bellevue | National Guard Readiness Center | 29,000 | 29,000 |
| | New Hampshire | | | |
| Army NG | Concord | National Guard Readiness Center | 5,950 | 5,950 |
| | New York | | | |
| Army NG | Jamaica Armory | National Guard Readiness Center | 0 | 91,000 |
| | Pennsylvania | | | |
| Army NG | Moon Township | Combined Support Maintenance Shop | 23,000 | 23,000 |
| | Vermont | | | |
| Army NG | Jericho | General Instruction Building | 0 | 30,000 |
| | Washington | | | |
| Army NG | Richland | National Guard Readiness Center | 11,400 | 11,400 |
| | Worldwide Unspecified | | | |
| Army NG | Unspecified Worldwide Locations | Planning and Design | 20,469 | 20,469 |
| Army NG | Unspecified Worldwide Locations | Unspecified Minor Construction | 15,000 | 15,000 |
| Military Construction, Army National Guard Total | | | 210,819 | 365,819 |
| | Delaware | | | |
| Army Res | Newark | Army Reserve Center/BMA | 21,000 | 21,000 |
| | Wisconsin | | | |
| Army Res | Fort McCoy | Transient Training Barracks | 25,000 | 25,000 |
| | Worldwide Unspecified | | | |
| Army Res | Unspecified Worldwide Locations | Planning and Design | 6,000 | 6,000 |
| Army Res | Unspecified Worldwide Locations | Unspecified Minor Construction | 8,928 | 8,928 |
| Military Construction, Army Reserve Total | | | 60,928 | 60,928 |
| | Louisiana | | | |
| N/MC Res | New Orleans | Entry Control Facility Upgrades | 25,260 | 25,260 |
| | Worldwide Unspecified | | | |
| N/MC Res | Unspecified Worldwide Locations | Planning and Design | 4,780 | 4,780 |
| N/MC Res | Unspecified Worldwide Locations | Unspecified Minor Construction | 24,915 | 24,915 |
| Military Construction, Naval Reserve Total | | | 54,955 | 54,955 |
| | California | | | |
| Air NG | Moffett Air National Guard Base | Fuels/Corrosion Control Hanger and Shops | 0 | 57,000 |
| | Georgia | | | |
| Air NG | Savannah/Hilton Head IAP | Consolidated Joint Air Dominance Hangar/Shops | 24,000 | 24,000 |
| | Missouri | | | |
| Air NG | Rosecrans Memorial Airport | C-130 Flight Simulator Facility | 9,500 | 9,500 |
| | Puerto Rico | | | |
| Air NG | Luis Munoz-Marin IAP | Communications Facility | 12,500 | 12,500 |
| Air NG | Luis Munoz-Marin IAP | Maintenance Hangar | 37,500 | 36,000 |
| | Wisconsin | | | |
| Air NG | Truax Field | F-35 Simulator Facility | 14,000 | 14,000 |
| Air NG | Truax Field | Fighter Alert Shelters | 20,000 | 20,000 |

| SEC. 4601. MILITARY CONSTRUCTION (In Thousands of Dollars) | | | | |
|---|--|---|-----------------|-----------------------|
| Account | State/Country and Installation | Project Title | FY 2020 Request | Conference Authorized |
| Air NG | Worldwide Unspecified Unspecified Worldwide Locations | Unspecified Minor Construction | 31,471 | 31,471 |
| Air NG | Various Worldwide Locations | Planning and Design | 17,000 | 17,000 |
| Military Construction, Air National Guard Total | | | 165,971 | 221,471 |
| AF Res | Georgia Robins Air Force Base | Consolidated Misssion Complex Phase 3 | 43,000 | 43,000 |
| AF Res | Maryland Joint Base Andrews | AES Training Admin Facility | 0 | 15,000 |
| AF Res | Minnesota Minneapolis-St.paul IAP | Aerial Port Facility | 0 | 9,800 |
| AF Res | Worldwide Unspecified Unspecified Worldwide Locations | Planning and Design | 4,604 | 4,604 |
| AF Res | Unspecified Worldwide Locations | Unspecified Minor Construction | 12,146 | 12,146 |
| Military Construction, Air Force Reserve Total | | | 59,750 | 84,550 |
| FH Con Army | Germany Baumholder | Family Housing Improvements | 29,983 | 29,983 |
| FH Con Army | Korea Camp Humphreys | Family Housing New Construction Iner 4 | 83,167 | 83,167 |
| FH Con Army | Pennsylvania Tobyhanna Army Depot | Family Housing Replacement Construction | 19,000 | 19,000 |
| FH Con Army | Worldwide Unspecified Unspecified Worldwide Locations | Family Housing P & D | 9,222 | 14,222 |
| Family Housing Construction, Army Total | | | 141,372 | 146,372 |
| FH Ops Army | Worldwide Unspecified Unspecified Worldwide Locations | Furnishings | 24,027 | 24,027 |
| FH Ops Army | Unspecified Worldwide Locations | Housing Privatization Support | 18,627 | 63,627 |
| FH Ops Army | Unspecified Worldwide Locations | Leasing | 128,938 | 128,938 |
| FH Ops Army | Unspecified Worldwide Locations | Maintenance | 81,065 | 135,798 |
| FH Ops Army | Unspecified Worldwide Locations | Management | 38,898 | 38,898 |
| FH Ops Army | Unspecified Worldwide Locations | Miscellaneous | 484 | 484 |
| FH Ops Army | Unspecified Worldwide Locations | Services | 10,156 | 10,156 |
| FH Ops Army | Unspecified Worldwide Locations | Utilities | 55712 | 55712 |
| Family Housing Operation And Maintenance, Army Total | | | 357,907 | 457,640 |
| FH Con Navy | Worldwide Unspecified Unspecified Worldwide Locations | Construction Improvements | 41,798 | 41,798 |
| FH Con Navy | Unspecified Worldwide Locations | Planning & Design | 3,863 | 3,863 |
| FH Con Navy | Unspecified Worldwide Locations | USMC DPRI/Guam Planning and Design | 2,000 | 2,000 |
| Family Housing Construction, Navy And Marine Corps Total | | | 47,661 | 47,661 |
| FH Ops Navy | Worldwide Unspecified Unspecified Worldwide Locations | Furnishings | 19,009 | 19,009 |
| FH Ops Navy | Unspecified Worldwide Locations | Housing Privatization Support | 21,975 | 81,575 |
| FH Ops Navy | Unspecified Worldwide Locations | Leasing | 64,126 | 64,126 |
| FH Ops Navy | Unspecified Worldwide Locations | Maintenance | 82,611 | 137,344 |
| FH Ops Navy | Unspecified Worldwide Locations | Management | 50,122 | 50,122 |
| FH Ops Navy | Unspecified Worldwide Locations | Miscellaneous | 151 | 151 |

| SEC. 4601. MILITARY CONSTRUCTION (In Thousands of Dollars) | | | | |
|---|--|---|-----------------|-----------------------|
| Account | State/Country and Installation | Project Title | FY 2020 Request | Conference Authorized |
| FH Ops Navy | Unspecified Worldwide Locations | Services | 16,647 | 16,647 |
| FH Ops Navy | Unspecified Worldwide Locations | Utilities | 63,229 | 63,229 |
| Family Housing Operation And Maintenance, Navy And Marine Corps Total. | | | 317,870 | 432,203 |
| FH Con AF | Germany Spangdahlem Air Base Worldwide Unspecified | Construct Deficit Military Family Housing | 53,584 | 53,584 |
| FH Con AF | Unspecified Worldwide Locations | Construction Improvements | 46,638 | 46,638 |
| FH Con AF | Unspecified Worldwide Locations | Planning & Design | 3,409 | 3,409 |
| Family Housing Construction, Air Force Total | | | 103,631 | 103,631 |
| FH Ops AF | Worldwide Unspecified Unspecified Worldwide Locations | Furnishings | 30,283 | 30,283 |
| FH Ops AF | Unspecified Worldwide Locations | Housing Privatization | 22,593 | 53,793 |
| FH Ops AF | Unspecified Worldwide Locations | Leasing | 15,768 | 15,768 |
| FH Ops AF | Unspecified Worldwide Locations | Maintenance | 117,704 | 172,437 |
| FH Ops AF | Unspecified Worldwide Locations | Management | 56,022 | 56,022 |
| FH Ops AF | Unspecified Worldwide Locations | Miscellaneous | 2,144 | 2,144 |
| FH Ops AF | Unspecified Worldwide Locations | Services | 7,770 | 7,770 |
| FH Ops AF | Unspecified Worldwide Locations | Utilities | 42,732 | 42,732 |
| Family Housing Operation And Maintenance, Air Force Total | | | 295,016 | 380,949 |
| FH Ops DW | Worldwide Unspecified Unspecified Worldwide Locations | Furnishings | 82 | 82 |
| FH Ops DW | Unspecified Worldwide Locations | Furnishings | 645 | 645 |
| FH Ops DW | Unspecified Worldwide Locations | Leasing | 12,906 | 12,906 |
| FH Ops DW | Unspecified Worldwide Locations | Leasing | 39,222 | 39,222 |
| FH Ops DW | Unspecified Worldwide Locations | Maintenance | 32 | 32 |
| FH Ops DW | Unspecified Worldwide Locations | Utilities | 13 | 13 |
| FH Ops DW | Unspecified Worldwide Locations | Utilities | 4,100 | 4,100 |
| Family Housing Operation And Maintenance, Defense-Wide Total | | | 57,000 | 57,000 |
| FHIF | Worldwide Unspecified Unspecified Worldwide Locations | Administrative Expenses—FHIF | 3,045 | 3,045 |
| DOD Family Housing Improvement Fund Total | | | 3,045 | 3,045 |
| UHIF | Worldwide Unspecified Unspecified Worldwide Locations | Administrative Expenses—UHIF | 500 | 500 |
| Unaccompanied Housing Improvement Fund Total | | | 500 | 500 |
| BRAC | Worldwide Unspecified Worldwide Unspecified Locations | Base Realignment and Closure | 66,111 | 94,111 |
| Base Realignment and Closure—Army Total | | | 66,111 | 94,111 |
| BRAC | Worldwide Unspecified Unspecified Worldwide Locations | Base Realignment & Closure | 158,349 | 216,349 |

| SEC. 4601. MILITARY CONSTRUCTION (In Thousands of Dollars) | | | | |
|---|---|-------------------------------|-------------------|-----------------------|
| Account | State/Country and Installation | Project Title | FY 2020 Request | Conference Authorized |
| Base Realignment and Closure—Navy Total | | | 158,349 | 216,349 |
| BRAC | Worldwide Unspecified Unspecified Worldwide Locations | Dod BRAC Activities—Air Force | 54,066 | 82,066 |
| Base Realignment and Closure—Air Force Total | | | 54,066 | 82,066 |
| PYS | Prior Year Savings Prior Year Savings | Prior Year Savings | 0 | -64685 |
| Prior Year Savings Total | | | 0 | -64,685 |
| Total, Military Construction | | | 11,241,653 | 10,925,739 |

1 **SEC. 4602. MILITARY CONSTRUCTION FOR OVERSEAS CON-**
 2 **TINGENCY OPERATIONS.**

| SEC. 4602. MILITARY CONSTRUCTION FOR OVERSEAS CONTINGENCY OPERATIONS (In Thousands of Dollars) | | | | |
|---|---|--|-----------------|-----------------------|
| Service | State/Country and Installation | Project | FY 2020 Request | Conference Authorized |
| Army | Guantanamo Bay, Cuba Guantanamo Bay Naval Station | OCO: Communications Facility | 22,000 | 22,000 |
| Army | Guantanamo Bay Naval Station | OCO: Detention Legal Office and Comms Ctr | 11,800 | 11,800 |
| Army | Guantanamo Bay Naval Station | OCO: High Value Detention Facility | 88,500 | 0 |
| Army | Worldwide Unspecified Unspecified Worldwide Locations | EDI/OCO Planning and Design | 19,498 | 19,498 |
| Army | Unspecified Worldwide Locations | EDI: Bulk Fuel Storage | 36,000 | 36,000 |
| Army | Unspecified Worldwide Locations | EDI: Information Systems Facility | 6,200 | 6,200 |
| Army | Unspecified Worldwide Locations | EDI: Minor Construction | 5,220 | 5,220 |
| Army | Unspecified Worldwide Locations | Unspecified Worldwide Construction | 9,200,000 | 0 |
| Army | Various Worldwide Loca- tions | EDI: Various Worldwide Locations Europe | 0 | 36,212 |
| Military Construction, Army Total | | | 9,389,218 | 136,930 |
| Navy | Bahrain SW Asia | Electrical System Upgrade | 0 | 53,360 |
| Navy | Italy Sigonella | Communications Station | 0 | 77,400 |
| Navy | Spain Rota | EDI: In-Transit Munitions Facility | 9,960 | 9,960 |
| Navy | Rota | EDI: Joint Mobility Center | 46,840 | 46,840 |
| Navy | Rota | EDI: Small Craft Berthing Facility | 12,770 | 12,770 |
| Navy | Worldwide Unspecified Unspecified Worldwide Locations | Planning and Design | 25,000 | 25,000 |
| Navy | Various Worldwide Loca- tions | EDI: Various Worldwide Locations Europe | 0 | 36,211 |
| Military Construction, Navy Total | | | 94,570 | 261,541 |
| AF | Iceland Keflavik | EDI: Airfield Upgrades—Dangerous Cargo Pad | 18,000 | 18,000 |
| AF | Keflavik | EDI: Beddown Site Prep | 7,000 | 7,000 |
| AF | Keflavik | EDI: Expand Parking Apron | 32,000 | 32,000 |
| AF | Jordan Azraq | Air Traffic Control Tower | 0 | 24,000 |
| AF | Azraq | Munitions Storage Area | 0 | 42,000 |
| AF | Spain Moron | EDI: Hot Cargo Pad | 8,500 | 8,500 |
| AF | Worldwide Unspecified Unspecified | Planning & Design | 0 | 60,000 |

SEC. 4602. MILITARY CONSTRUCTION FOR OVERSEAS CONTINGENCY OPERATIONS
(In Thousands of Dollars)

| Service | State/Country and Installation | Project | FY 2020 Request | Conference Authorized |
|---|---------------------------------|--|------------------|-----------------------|
| AF | Unspecified Worldwide Locations | EDI: ECAOS DABS/FEV EMEDS Storage | 107,000 | 107,000 |
| AF | Unspecified Worldwide Locations | EDI: Hot Cargo Pad | 29,000 | 29,000 |
| AF | Unspecified Worldwide Locations | EDI: Munitions Storage Area | 39,000 | 39,000 |
| AF | Various Worldwide Locations | EDI: Various Worldwide Locations Europe | 0 | 36,211 |
| AF | Various Worldwide Locations | EDI: P&D | 61,438 | 61,438 |
| AF | Various Worldwide Locations | EDI: UMMC | 12,800 | 12,800 |
| Military Construction, Air Force Total | | | 314,738 | 476,949 |
| Germany | | | | |
| Def-Wide | Gemersheim | EDI: Logistics Distribution Center Annex | 46,000 | 46,000 |
| Military Construction, Defense-Wide Total | | | 46,000 | 46,000 |
| Total, Military Construction | | | 9,844,526 | 921,420 |

1 SEC. 4603. MILITARY CONSTRUCTION FOR EMERGENCY RE-
2 QUIREMENTS.

SEC. 4603. MILITARY CONSTRUCTION FOR EMERGENCY REQUIREMENTS
(In Thousands of Dollars)

| Service | State/Country and Installation | Project | FY 2020 Request | Conference Authorized |
|---|--------------------------------------|---|-----------------|-----------------------|
| California | | | | |
| Navy | Naval Air Weapons Station China Lake | Planning and Design | 0 | 89,320 |
| Navy | Naval Air Weapons Station China Lake | Hanger 3 Replacement, Apron, Taxiway & Utilities for RDT&E. | 0 | 514,600 |
| Navy | Naval Air Weapons Station China Lake | Aircraft Parking Apron in Support of Hanger 2 Replacement. | 0 | 50,800 |
| Navy | Naval Air Weapons Station China Lake | Michelson Mission Systems Intergration Laboratory | 0 | 202,340 |
| Navy | Naval Air Weapons Station China Lake | Magazines & Inert Storage Facility | 0 | 138,930 |
| Navy | Naval Air Weapons Station China Lake | Air Operations Facility & Air Traffic Control Tower | 0 | 70,900 |
| Navy | Naval Air Weapons Station China Lake | Community Support Facilities | 0 | 85,790 |
| North Carolina | | | | |
| Navy | Camp Lejeune | Courthouse Bay Fire Station Replacement | 0 | 21,336 |
| Navy | Camp Lejeune | Hadnot Point Fire Station Replacement | 0 | 21,931 |
| Navy | Camp Lejeune | Hadnot Point Mess Hall Replacement | 0 | 66,023 |
| Navy | Camp Lejeune | II MEF Simulation/Training Center Replacement | 0 | 74,487 |
| Navy | Camp Lejeune | LOGCOM CSP Warehouse Replacement | 0 | 35,874 |
| Navy | Camp Lejeune | LSSS Facility Replacement | 0 | 26,815 |
| Navy | Camp Lejeune | MC Advisor Battalion HQS Replacement | 0 | 30,109 |
| Navy | Camp Lejeune | MCCSSS Log Ops School | 0 | 179,617 |
| Navy | Camp Lejeune | MCES Applied Instruction Facility Replacement | 0 | 95,599 |
| Navy | Camp Lejeune | NCIS Facilities Replacement | 0 | 22,594 |
| Navy | Camp Lejeune | PMO Facility Replacement | 0 | 34,718 |
| Navy | Camp Lejeune | WTBN Headquarters Replacement | 0 | 18,644 |
| Navy | MCAS Cherry Point | Physical Security Compliance | 0 | 52,300 |
| Navy | MCAS Cherry Point | BT-11 Range Operations Center Replacement | 0 | 14,251 |
| Navy | MCAS New River | C-12W Aircraft Maintenance Hangar Replacement | 0 | 36,295 |
| Navy | MCAS New River | Bachelor Enlisted Quarters Replacement | 0 | 62,104 |
| Navy | MCAS New River | CNATT Classroom Building Replacement | 0 | 114,706 |
| Navy | MCAS New River | CH-53K Maintenance Hangar Replacement | 0 | 252,717 |
| Military Construction, Navy Total | | | 0 | 2,312,800 |
| Florida | | | | |
| AF | Tyndall Air Force Base | 325th Fighting Wing HQ Facility | 0 | 38,000 |
| AF | Tyndall Air Force Base | Aerospace & Operational Physiology Facility | 0 | 12,000 |
| AF | Tyndall Air Force Base | Aircraft MX Fuel Cell Hangar | 0 | 37,000 |
| AF | Tyndall Air Force Base | Aircraft Wash Rack | 0 | 9,100 |
| AF | Tyndall Air Force Base | Airfield Drainage | 0 | 144,000 |
| AF | Tyndall Air Force Base | Auxiliary Ground Equipment Facility | 0 | 22,000 |

| SEC. 4603. MILITARY CONSTRUCTION FOR EMERGENCY REQUIREMENTS (In Thousands of Dollars) | | | | |
|---|--|--|------------------------|------------------------------|
| Service | State/Country and Installation | Project | FY 2020 Request | Conference Authorized |
| AF | Tyndall Air Force Base | Chapel | 0 | 26,000 |
| AF | Tyndall Air Force Base | Community Commons Facility | 0 | 64,000 |
| AF | Tyndall Air Force Base | Deployment Center/Flight Line Dining/AAFES | 0 | 43,000 |
| AF | Tyndall Air Force Base | Dorm Complex Phase 1 | 0 | 145,000 |
| AF | Tyndall Air Force Base | Dorm Complex Phase 2 | 0 | 131,000 |
| AF | Tyndall Air Force Base | Emergency Management, EOC, Alt CP | 0 | 20,000 |
| AF | Tyndall Air Force Base | Flightline—Muns Storage, 7000 Area | 0 | 36,000 |
| AF | Tyndall Air Force Base | Lodging Facilities Phase 1 | 0 | 90,000 |
| AF | Tyndall Air Force Base | Lodging Facilities Phase 2 | 0 | 89,000 |
| AF | Tyndall Air Force Base | Operations Group/Maintenance Group HQ | 0 | 24,000 |
| AF | Tyndall Air Force Base | Ops/Aircraft Maintenance Unit/Hangar #2 | 0 | 74,000 |
| AF | Tyndall Air Force Base | Ops/Aircraft Maintenance Unit/Hangar #3 | 0 | 75,000 |
| AF | Tyndall Air Force Base | OSS/Radar Approach Control Facility | 0 | 37,000 |
| AF | Tyndall Air Force Base | Planning and Design | 0 | 52,400 |
| AF | Tyndall Air Force Base | Security Forces Mobility Storage Facility | 0 | 6,700 |
| AF | Tyndall Air Force Base | Simulator Facility | 0 | 38,000 |
| AF | Tyndall Air Force Base | Site Development, Utilities & Demo Phase 2 | 0 | 141,000 |
| AF | Tyndall Air Force Base | Small Arms Range | 0 | 26,000 |
| AF | Tyndall Air Force Base | Special Purpose Vehicle Maintenance | 0 | 20,000 |
| AF | Tyndall Air Force Base | Tyndall AFB Gate Complexes | 0 | 75,000 |
| AF | Tyndall Air Force Base | Weapons Load Training Hangar | 0 | 25,000 |
| | Nebraska | | | |
| AF | Offutt Air Force Base | Emergency Power Microgrid | 0 | 43,000 |
| AF | Offutt Air Force Base | Flightline Hangars Campus | 0 | 10,000 |
| AF | Offutt Air Force Base | Lake Campus | 0 | 6,000 |
| AF | Offutt Air Force Base | Logistics Readiness Squadron Campus | 0 | 18,500 |
| AF | Offutt Air Force Base | Security Campus | 0 | 63,000 |
| | Virginia | | | |
| AF | Joint Base Langley-Eustis | Dormitory | 0 | 31,000 |
| | Military Construction, Air Force Total | | 0 | 1,671,700 |
| | North Carolina | | | |
| Def-Wide | Camp Lejeune | Ambulatory Care Center (Camp Geiger) | 0 | 17,821 |
| Def-Wide | Camp Lejeune | Ambulatory Care Center (Camp Johnson) | 0 | 27,492 |
| Def-Wide | Camp Lejeune | MARSOC ITC Team Facility Replacement | 0 | 30,000 |
| | Military Construction, Defense-Wide Total | | 0 | 75,313 |
| | Louisiana | | | |
| Army NG | Pineville | National Guard Readiness Center | 0 | 16,500 |
| | Nebraska | | | |
| Army NG | Ashland | Training Site, Various Facilities | 0 | 35,000 |
| Army NG | Ashland | Flood Control Levee/Floodwall | 0 | 8,500 |
| | Military Construction, Army National Guard Total | | 0 | 60,000 |
| | Total, Military Construction | | 0 | 4,119,813 |

1 **TITLE XLVII—DEPARTMENT OF**
 2 **ENERGY NATIONAL SECURITY**
 3 **PROGRAMS**

Sec. 4701. Department of Energy national security programs.

4 **SEC. 4701. DEPARTMENT OF ENERGY NATIONAL SECURITY**
 5 **PROGRAMS.**

| SEC. 4701. DEPARTMENT OF ENERGY NATIONAL SECURITY PROGRAMS (In Thousands of Dollars) | | |
|--|------------------------|------------------------------|
| Program | FY 2020 Request | Conference Authorized |

Discretionary Summary By Appropriation
Energy And Water Development, And Related Agencies
Appropriation Summary:

| SEC. 4701. DEPARTMENT OF ENERGY NATIONAL SECURITY PROGRAMS (In Thousands of Dollars) | | |
|---|--------------------|--------------------------|
| Program | FY 2020 Request | Conference Authorized |
| Energy Programs | | |
| Nuclear Energy | 137,808 | 137,808 |
| Atomic Energy Defense Activities | | |
| National nuclear security administration: | | |
| Weapons activities | 12,408,603 | 12,444,780 |
| Defense nuclear nonproliferation | 1,993,302 | 2,020,814 |
| Naval reactors | 1,648,396 | 1,633,396 |
| Federal salaries and expenses | 434,699 | 434,699 |
| Total, National nuclear security administration | 16,485,000 | 16,533,689 |
| Environmental and other defense activities: | | |
| Defense environmental cleanup | 5,506,501 | 5,527,732 |
| Other defense activities | 1,035,339 | 885,839 |
| Defense nuclear waste disposal | 26,000 | 0 |
| Total, Environmental & other defense activities | 6,567,840 | 6,413,571 |
| Total, Atomic Energy Defense Activities | 23,052,840 | 22,947,260 |
| Total, Discretionary Funding | 23,190,648 | 23,085,068 |
| Nuclear Energy | | |
| Idaho sitewide safeguards and security | 137,808 | 137,808 |
| Total, Nuclear Energy | 137,808 | 137,808 |
| Weapons Activities | | |
| Directed stockpile work | | |
| Life extension programs and major alterations | | |
| B61-12 Life extension program | 792,611 | 792,611 |
| W76-2 Modification program | 10,000 | 10,000 |
| W88 Alt 370 | 304,186 | 304,186 |
| W80-4 Life extension program | 898,551 | 898,551 |
| W87-1 Modification Program (formerly IW1) | 112,011 | 112,011 |
| Total, Life extension programs and major alterations | 2,117,359 | 2,117,359 |
| Stockpile systems | | |
| B61 Stockpile systems | 71,232 | 71,232 |
| W76 Stockpile systems | 89,804 | 89,804 |
| W78 Stockpile systems | 81,299 | 81,299 |
| W80 Stockpile systems | 85,811 | 85,811 |
| B83 Stockpile systems | 51,543 | 51,543 |
| W87 Stockpile systems | 98,262 | 98,262 |
| W88 Stockpile systems | 157,815 | 157,815 |
| Total, Stockpile systems | 635,766 | 635,766 |
| Weapons dismantlement and disposition | | |
| Operations and maintenance | 47,500 | 47,500 |
| Program increase | | |
| Stockpile services | | |
| Production support | 543,964 | 543,964 |
| Research and development support | 39,339 | 39,339 |
| R&D certification and safety | 236,235 | 236,235 |
| Management, technology, and production | 305,000 | 305,000 |
| Total, Stockpile services | 1,124,538 | 1,124,538 |
| Strategic materials | | |
| Uranium sustainment | 94,146 | 94,146 |
| Plutonium sustainment | 712,440 | 712,440 |
| Tritium sustainment | 269,000 | 269,000 |
| Lithium sustainment | 28,800 | 28,800 |
| Domestic uranium enrichment | 140,000 | 140,000 |
| Strategic materials sustainment | 256,808 | 256,808 |
| Total, Strategic materials | 1,501,194 | 1,501,194 |
| Total, Directed stockpile work | 5,426,357 | 5,426,357 |
| Research, development, test and evaluation (RDT&E) | | |
| Science | | |
| Advanced certification | 57,710 | 57,710 |
| Primary assessment technologies | 95,169 | 95,169 |
| Dynamic materials properties | 133,800 | 133,800 |
| Advanced radiography | 32,544 | 32,544 |

| SEC. 4701. DEPARTMENT OF ENERGY NATIONAL SECURITY PROGRAMS (In Thousands of Dollars) | | |
|--|----------------------------|----------------------------------|
| Program | FY 2020 Request | Conference Authorized |
| Secondary assessment technologies | 77,553 | 77,553 |
| Academic alliances and partnerships | 44,625 | 44,625 |
| Enhanced Capabilities for Subcritical Experiments | 145,160 | 145,160 |
| Total, Science | 586,561 | 586,561 |
| Engineering | | |
| Enhanced surety | 46,500 | 46,500 |
| Delivery Environments (formerly Weapons Systems Engineering Assessment Technology) | 35,945 | 35,945 |
| Nuclear survivability | 53,932 | 53,932 |
| Enhanced surveillance | 57,747 | 57,747 |
| Stockpile Responsiveness | 39,830 | 80,630 |
| Program expansion | | [40,800] |
| Total, Engineering | 233,954 | 274,754 |
| Inertial confinement fusion ignition and high yield | | |
| Ignition and Other Stockpile Programs | 55,649 | 55,649 |
| Diagnostics, cryogenics and experimental support | 66,128 | 66,128 |
| Pulsed power inertial confinement fusion | 8,571 | 8,571 |
| Joint program in high energy density laboratory plasmas | 12,000 | 12,000 |
| Facility operations and target production | 338,247 | 343,247 |
| Program increase | | [5,000] |
| Total, Inertial confinement fusion and high yield | 480,595 | 485,595 |
| Advanced simulation and computing | | |
| Advanced simulation and computing | 789,849 | 789,849 |
| Construction: | | |
| 18-D-620, Exascale Computing Facility Modernization Project, LLNL | 50,000 | 50,000 |
| Total, Construction | 50,000 | 50,000 |
| Total, Advanced simulation and computing | 839,849 | 839,849 |
| Advanced manufacturing | | |
| Additive manufacturing | 18,500 | 18,500 |
| Component manufacturing development | 48,410 | 52,000 |
| UFR list—technology maturation | | [3,590] |
| Process technology development | 69,998 | 69,998 |
| Total, Advanced manufacturing | 136,908 | 140,498 |
| Total, RDT&E | 2,277,867 | 2,327,257 |
| Infrastructure and operations | | |
| Operations of facilities | 905,000 | 905,000 |
| Safety and environmental operations | 119,000 | 119,000 |
| Maintenance and repair of facilities | 456,000 | 456,000 |
| Recapitalization: | | |
| Infrastructure and safety | 447,657 | 447,657 |
| Capability based investments | 135,341 | 135,341 |
| Total, Recapitalization | 582,998 | 582,998 |
| Construction: | | |
| 19-D-670, 138kV Power Transmission System Replacement, NNSS | 6,000 | 6,000 |
| 18-D-690, Lithium Processing Facility, Y-12 (formerly Lithium Production Capability, Y-12) | 32,000 | 32,000 |
| 18-D-650, Tritium Finishing Facility, SRS | 27,000 | 27,000 |
| 17-D-640, U1a Complex Enhancements Project, NNSS | 35,000 | 35,000 |
| 15-D-612, Emergency Operations Center, LLNL | 5,000 | 5,000 |
| 15-D-611, Emergency Operations Center, SNL | 4,000 | 4,000 |
| 15-D-301, HE Science & Engineering Facility, PX | 123,000 | 123,000 |
| 06-D-141 Uranium processing facility Y-12, Oak Ridge, TN | 745,000 | 745,000 |
| 04-D-125, Chemistry and Metallurgy Research Replacement Project, LANL | 168,444 | 168,444 |
| Total, Construction | 1,145,444 | 1,145,444 |
| Total, Infrastructure and operations | 3,208,442 | 3,208,442 |
| Secure transportation asset | | |
| Operations and equipment | 209,502 | 209,502 |
| Program direction | 107,660 | 107,660 |
| Total, Secure transportation asset | 317,162 | 317,162 |
| Defense nuclear security | | |

| SEC. 4701. DEPARTMENT OF ENERGY NATIONAL SECURITY PROGRAMS | | |
|--|------------------------|------------------------------|
| (In Thousands of Dollars) | | |
| Program | FY 2020 Request | Conference Authorized |
| Operations and maintenance | 778,213 | 765,000 |
| Excess to need | | [-13,213] |
| Total, Defense nuclear security | 778,213 | 765,000 |
| Information technology and cybersecurity | 309,362 | 309,362 |
| Legacy contractor pensions | 91,200 | 91,200 |
| Total, Weapons Activities | 12,408,603 | 12,444,780 |
| Defense Nuclear Nonproliferation | | |
| Defense Nuclear Nonproliferation Programs | | |
| Global material security | | |
| International nuclear security | 48,839 | 48,839 |
| Domestic radiological security | 90,513 | 90,513 |
| International radiological security | 60,827 | 78,907 |
| Secure additional radiologic materials | | [18,080] |
| Nuclear smuggling detection and deterrence | 142,171 | 142,171 |
| Total, Global material security | 342,350 | 360,430 |
| Material management and minimization | | |
| HEU reactor conversion | 114,000 | 99,000 |
| Program decrease | | [-15,000] |
| Nuclear material removal | 32,925 | 32,925 |
| Material disposition | 186,608 | 186,608 |
| Total, Material management & minimization | 333,533 | 318,533 |
| Nonproliferation and arms control | 137,267 | 137,267 |
| Defense nuclear nonproliferation R&D | 495,357 | 499,789 |
| Additional verification and detection effort | | [4,432] |
| Nonproliferation Construction: | | |
| 18-D-150 Surplus Plutonium Disposition Project | 79,000 | 79,000 |
| 99-D-143 Mixed Oxide (MOX) Fuel Fabrication Facility, SRS | 220,000 | 220,000 |
| Low-enriched uranium research and development | 0 | 20,000 |
| Program increase | | [20,000] |
| Total, Nonproliferation construction | 299,000 | 299,000 |
| Total, Defense Nuclear Nonproliferation Programs | 1,607,507 | 1,635,019 |
| Legacy contractor pensions | 13,700 | 13,700 |
| Nuclear counterterrorism and incident response program | 372,095 | 372,095 |
| DPRK phased denuclearization long-term monitoring and verification | 0 | |
| Total, Defense Nuclear Nonproliferation | 1,993,302 | 2,020,814 |
| Naval Reactors | | |
| Naval reactors development | 531,205 | 516,205 |
| Unjustified growth | | [-15,000] |
| Columbia-Class reactor systems development | 75,500 | 75,500 |
| S8G Prototype refueling | 155,000 | 155,000 |
| Naval reactors operations and infrastructure | 553,591 | 553,591 |
| Construction: | | |
| 20-D-931, KL Fuel Development Laboratory | 23,700 | 23,700 |
| 19-D-930, KS Overhead Piping | 20,900 | 20,900 |
| 14-D-901 Spent fuel handling recapitalization project, NRF | 238,000 | 238,000 |
| Total, Construction | 282,600 | 282,600 |
| Program direction | 50,500 | 50,500 |
| Total, Naval Reactors | 1,648,396 | 1,633,396 |
| Federal Salaries And Expenses | | |
| Program direction | 434,699 | 434,699 |
| Total, Office Of The Administrator | 434,699 | 434,699 |
| Defense Environmental Cleanup | | |
| Closure sites: | | |
| Closure sites administration | 4,987 | 4,987 |
| Richland: | | |
| River corridor and other cleanup operations | 139,750 | 139,750 |

| SEC. 4701. DEPARTMENT OF ENERGY NATIONAL SECURITY PROGRAMS (In Thousands of Dollars) | | |
|--|--------------------|--------------------------|
| Program | FY 2020 Request | Conference Authorized |
| Central plateau remediation | 472,949 | 522,949 |
| Program increase | | [50,000] |
| Richland community and regulatory support | 5,121 | 5,121 |
| Construction: | | |
| 18-D-404 WESF Modifications and Capsule Storage | 11,000 | 11,000 |
| Total, Construction | 11,000 | 11,000 |
| Total, Hanford site | 628,820 | 678,820 |
| Office of River Protection: | | |
| Waste Treatment Immobilization Plant Commissioning | 15,000 | 15,000 |
| Rad liquid tank waste stabilization and disposition | 677,460 | 705,460 |
| Program increase | | [28,000] |
| Construction: | | |
| 18-D-16 Waste treatment and immobilization plant—LBL/Direct feed LAW | 640,000 | 640,000 |
| 01-D-16 D, High-level waste facility | 30,000 | 25,000 |
| Program decrease | | [-5,000] |
| 01-D-16 E—Pretreatment Facility | 20,000 | 15,000 |
| Program decrease | | [-5,000] |
| Total, Construction | 690,000 | 680,000 |
| ORP Low-level waste offsite disposal | 10,000 | 10,000 |
| Total, Office of River Protection | 1,392,460 | 1,410,460 |
| Idaho National Laboratory: | | |
| Idaho cleanup and waste disposition | 331,354 | 331,354 |
| Idaho community and regulatory support | 3,500 | 3,500 |
| Total, Idaho National Laboratory | 334,854 | 334,854 |
| NNSA sites and Nevada off-sites | | |
| Lawrence Livermore National Laboratory | 1,727 | 1,727 |
| LLNL Excess facilities D&D | 128,000 | 55,000 |
| Program decrease | | [-73,000] |
| Nuclear facility D & D | | |
| Separations Process Research Unit | 15,300 | 15,300 |
| Nevada | 60,737 | 60,737 |
| Sandia National Laboratories | 2,652 | 2,652 |
| Los Alamos National Laboratory | 195,462 | 195,462 |
| Total, NNSA sites and Nevada off-sites | 403,878 | 330,878 |
| Oak Ridge Reservation: | | |
| OR Nuclear facility D & D | 93,693 | 93,693 |
| Total, OR Nuclear facility D & D | 93,693 | 93,693 |
| U233 Disposition Program | 45,000 | 45,000 |
| OR cleanup and waste disposition | | |
| OR cleanup and disposition | 82,000 | 82,000 |
| Construction: | | |
| 17-D-401 On-site waste disposal facility | 15,269 | 10,000 |
| Program decrease | | [-5,269] |
| 14-D-403 Outfall 200 Mercury Treatment Facility | 49,000 | 49,000 |
| Total, Construction | 64,269 | 59,000 |
| Total, OR cleanup and waste disposition | 146,269 | 141,000 |
| OR community & regulatory support | 4,819 | 4,819 |
| OR technology development and deployment | 3,000 | 3,000 |
| Total, Oak Ridge Reservation | 292,781 | 287,512 |
| Savannah River Sites: | | |
| Savannah River risk management operations | | |
| Savannah River risk management operations | 490,613 | 515,613 |
| Construction: | | |
| 18-D-402, Emergency Operations Center | 6,792 | 6,792 |
| Total, risk management operations | 497,405 | 522,405 |
| SR community and regulatory support | 4,749 | 11,249 |
| Radioactive liquid tank waste stabilization and disposition | 797,706 | 797,706 |
| Construction: | | |

2145

| SEC. 4701. DEPARTMENT OF ENERGY NATIONAL SECURITY PROGRAMS (In Thousands of Dollars) | | |
|---|--------------------|--------------------------|
| Program | FY 2020 Request | Conference Authorized |
| 20-D-402 Advanced Manufacturing Collaborative Facility (AMC) | 50,000 | 50,000 |
| 20-D-401 Saltstone Disposal Unit #10, 11, 12 | 500 | 500 |
| 19-D-701 SR Security sytem replacement | 0 | |
| 18-D-402 Saltstone Disposal Unit #8/9 | 51,750 | 51,750 |
| 17-D-402 Saltstone Disposal Unit #7 | 40,034 | 40,034 |
| 05-D-405 Salt waste processing facility, Savannah River Site | 20,988 | 20,988 |
| Total, Construction | 163,272 | 163,272 |
| Total, Savannah River site | 1,463,132 | 1,494,632 |
| Waste Isolation Pilot Plant | | |
| Waste Isolation Pilot Plant | 299,088 | 299,088 |
| Construction: | | |
| 15-D-411 Safety significant confinement ventilation system, WIPP | 58,054 | 58,054 |
| 15-D-412 Exhaust shaft, WIPP | 34,500 | 34,500 |
| Total, Construction | 92,554 | 92,554 |
| Total, Waste Isolation Pilot Plant | 391,642 | 391,642 |
| Program direction | 278,908 | 278,908 |
| Program support | 12,979 | 12,979 |
| Safeguards and Security | | |
| Safeguards and Security | 317,622 | 317,622 |
| Total, Safeguards and Security | 317,622 | 317,622 |
| Use of prior year balances | -15,562 | -15,562 |
| Total, Defense Environmental Cleanup | 5,506,501 | 5,527,732 |
| Other Defense Activities | | |
| Environment, health, safety and security | | |
| Environment, health, safety and security | 139,628 | 139,628 |
| Program direction | 72,881 | 72,881 |
| Total, Environment, Health, Safety and Security | 212,509 | 212,509 |
| Independent enterprise assessments | | |
| Independent enterprise assessments | 24,068 | 24,068 |
| Program direction | 57,211 | 54,711 |
| Non-defense function realignment | | [-2,500] |
| Total, Independent enterprise assessments | 81,279 | 78,779 |
| Specialized security activities | 254,578 | 254,578 |
| Office of Legacy Management | | |
| Legacy management | 283,767 | 142,767 |
| Program decrease | | [-141,000] |
| Program direction | 19,262 | 19,262 |
| Total, Office of Legacy Management | 303,029 | 162,029 |
| Defense related administrative support | | |
| Chief financial officer | 54,538 | 54,538 |
| Chief information officer | 124,554 | 118,554 |
| Program decrease | | [-6,000] |
| Total, Defense related administrative support | 179,092 | 173,092 |
| Office of Hearings and Appeals | 4,852 | 4,852 |
| Subtotal, Other Defense Activities | 1,035,339 | 885,839 |
| Total, Other Defense Activities | 1,035,339 | 885,839 |
| Defense Nuclear Waste Disposal | | |
| Yucca Mountain and interim storage | 26,000 | 0 |
| Program cut | 0 | [-26,000] |
| Total, Defense Nuclear Waste Disposal | 26,000 | 0 |

1 **DIVISION E—INTELLIGENCE AU-**
2 **THORIZATIONS FOR FISCAL**
3 **YEARS 2018, 2019, AND 2020**

4 **SECTION 5001. SHORT TITLE.**

5 This division may be cited as the “Damon Paul Nel-
6 son and Matthew Young Pollard Intelligence Authoriza-
7 tion Act for Fiscal Years 2018, 2019, and 2020”.

8 **SEC. 5002. SUBDIVISIONS AND TABLE OF CONTENTS.**

9 (a) **DIVISIONS.**—This division is organized into two
10 subdivisions as follows:

11 (1) Subdivision 1—Intelligence Authorizations
12 for Fiscal Year 2020.

13 (2) Subdivision 2—Intelligence Authorizations
14 for Fiscal Years 2018 and 2019.

15 (b) **TABLE OF CONTENTS.**—The table of contents for
16 this division is as follows:

DIVISION E—INTELLIGENCE AUTHORIZATIONS FOR FISCAL
YEARS 2018, 2019, AND 2020

Sec. 5001. Short title.
Sec. 5002. Subdivisions and table of contents.
Sec. 5003. Definitions.

SUBDIVISION 1—INTELLIGENCE AUTHORIZATIONS FOR FISCAL YEAR 2020

Sec. 5100. Table of contents.

TITLE LI—INTELLIGENCE ACTIVITIES

Sec. 5101. Authorization of appropriations.
Sec. 5102. Classified schedule of authorizations.
Sec. 5103. Intelligence community management account.

TITLE LII—CENTRAL INTELLIGENCE AGENCY RETIREMENT AND
DISABILITY SYSTEM

Sec. 5201. Authorization of appropriations.

TITLE LIII—INTELLIGENCE COMMUNITY MATTERS

Subtitle A—General Intelligence Community Matters

- Sec. 5301. Restriction on conduct of intelligence activities.
- Sec. 5302. Increase in employee compensation and benefits authorized by law.
- Sec. 5303. Expansion of scope of protections for identities of covert agents.
- Sec. 5304. Required counterintelligence assessments, briefings, notifications, and reports.
- Sec. 5305. Inclusion of security risks in program management plans required for acquisition of major systems in National Intelligence Program.
- Sec. 5306. Intelligence community public-private talent exchange.
- Sec. 5307. Assessment of contracting practices to identify certain security and counterintelligence concerns.

Subtitle B—Office of the Director of National Intelligence

- Sec. 5321. Establishment of Climate Security Advisory Council.
- Sec. 5322. Foreign Malign Influence Response Center.
- Sec. 5323. Encouragement of cooperative actions to detect and counter foreign influence operations.
- Sec. 5324. Transfer of National Intelligence University to the Office of the Director of National Intelligence.

Subtitle C—Inspector General of the Intelligence Community

- Sec. 5331. Definitions.
- Sec. 5332. Inspector General external review panel.
- Sec. 5333. Harmonization of whistleblower processes and procedures.
- Sec. 5334. Oversight by Inspector General of the Intelligence Community over intelligence community whistleblower matters.
- Sec. 5335. Report on cleared whistleblower attorneys.

Subtitle D—Central Intelligence Agency

- Sec. 5341. Clarification of certain authority of the Central Intelligence Agency.

TITLE LIV—SECURITY CLEARANCES

- Sec. 5401. Improving visibility into the security clearance process.
- Sec. 5402. Making certain policies and execution plans relating to personnel clearances available to industry partners.

TITLE LV—MATTERS RELATING TO FOREIGN COUNTRIES

Subtitle A—Matters Relating to Russia

- Sec. 5501. Annual reports on influence operations and campaigns in the United States by the Russian Federation.
- Sec. 5502. Assessment of legitimate and illegitimate financial and other assets of Vladimir Putin.
- Sec. 5503. Assessments of intentions of political leadership of the Russian Federation.

Subtitle B—Matters Relating to China

- Sec. 5511. Annual reports on influence operations and campaigns in the United States by the Communist Party of China.

- Sec. 5512. Report on repression of ethnic Muslim minorities in the Xinjiang region of the People's Republic of China.
- Sec. 5513. Report on efforts by People's Republic of China to influence election in Taiwan.

Subtitle C—Matters Relating to Other Countries

- Sec. 5521. Sense of Congress and report on Iranian efforts in Syria and Lebanon.
- Sec. 5522. Assessments regarding the Northern Triangle and Mexico.

TITLE LVI—FEDERAL EFFORTS AGAINST DOMESTIC TERRORISM

- Sec. 5601. Definitions.
- Sec. 5602. Strategic intelligence assessment of and reports on domestic terrorism.

TITLE LVII—REPORTS AND OTHER MATTERS

Subtitle A—Reports and Briefings

- Sec. 5701. Modification of requirements for submission to Congress of certain reports.
- Sec. 5702. Increased transparency regarding counterterrorism budget of the United States.
- Sec. 5703. Study on role of retired and former personnel of intelligence community with respect to certain foreign intelligence operations.
- Sec. 5704. Collection, analysis, and dissemination of workforce data.
- Sec. 5705. Plan for strengthening the supply chain intelligence function.
- Sec. 5706. Comprehensive economic assessment of investment in key United States technologies by companies or organizations linked to China.
- Sec. 5707. Report by Director of National Intelligence on fifth-generation wireless network technology.
- Sec. 5708. Report on use by intelligence community of facial recognition technology.
- Sec. 5709. Report on deepfake technology, foreign weaponization of deepfakes, and related notifications.
- Sec. 5710. Annual report by Comptroller General of the United States on cybersecurity and surveillance threats to Congress.
- Sec. 5711. Analysis of and periodic briefings on major initiatives of intelligence community in artificial intelligence and machine learning.
- Sec. 5712. Report on best practices to protect privacy and civil liberties of Chinese Americans.
- Sec. 5713. Oversight of foreign influence in academia.
- Sec. 5714. Report on death of Jamal Khashoggi.
- Sec. 5715. Report on terrorist screening database.
- Sec. 5716. Report containing threat assessment on terrorist use of conventional and advanced conventional weapons.
- Sec. 5717. Assessment of homeland security vulnerabilities associated with certain retired and former personnel of the intelligence community.
- Sec. 5718. Study on feasibility and advisability of establishing Geospatial-Intelligence Museum and learning center.

Subtitle B—Other Matters

- Sec. 5721. Whistleblower disclosures to Congress and committees of Congress.
- Sec. 5722. Task force on illicit financing of espionage and foreign influence operations.
- Sec. 5723. Establishment of fifth-generation technology prize competition.
- Sec. 5724. Establishment of deepfakes prize competition.
- Sec. 5725. Identification of and countermeasures against certain International Mobile Subscriber Identity-catchers.
- Sec. 5726. Securing energy infrastructure.

SUBDIVISION 2—INTELLIGENCE AUTHORIZATIONS FOR FISCAL YEARS 2018
AND 2019

- Sec. 6100. Table of contents.

TITLE LXI—INTELLIGENCE ACTIVITIES

- Sec. 6101. Authorization of appropriations.
- Sec. 6102. Intelligence Community Management Account.

TITLE LXII—CENTRAL INTELLIGENCE AGENCY RETIREMENT
AND DISABILITY SYSTEM

- Sec. 6201. Authorization of appropriations.
- Sec. 6202. Computation of annuities for employees of the Central Intelligence Agency.

TITLE LXIII—GENERAL INTELLIGENCE COMMUNITY MATTERS

- Sec. 6301. Restriction on conduct of intelligence activities.
- Sec. 6302. Increase in employee compensation and benefits authorized by law.
- Sec. 6303. Modification of special pay authority for science, technology, engineering, or mathematics positions and addition of special pay authority for cyber positions.
- Sec. 6304. Modification of appointment of Chief Information Officer of the Intelligence Community.
- Sec. 6305. Director of National Intelligence review of placement of positions within the intelligence community on the Executive Schedule.
- Sec. 6306. Supply Chain and Counterintelligence Risk Management Task Force.
- Sec. 6307. Consideration of adversarial telecommunications and cybersecurity infrastructure when sharing intelligence with foreign governments and entities.
- Sec. 6308. Cyber protection support for the personnel of the intelligence community in positions highly vulnerable to cyber attack.
- Sec. 6309. Elimination of sunset of authority relating to management of supply-chain risk.
- Sec. 6310. Limitations on determinations regarding certain security classifications.
- Sec. 6311. Joint Intelligence Community Council.
- Sec. 6312. Intelligence community information technology environment.
- Sec. 6313. Report on development of secure mobile voice solution for intelligence community.
- Sec. 6314. Policy on minimum insider threat standards.
- Sec. 6315. Submission of intelligence community policies.
- Sec. 6316. Expansion of intelligence community recruitment efforts.

TITLE LXIV—MATTERS RELATING TO ELEMENTS OF THE
INTELLIGENCE COMMUNITY

Subtitle A—Office of the Director of National Intelligence

- Sec. 6401. Authority for protection of current and former employees of the Office of the Director of National Intelligence.
- Sec. 6402. Designation of the program manager-information-sharing environment.
- Sec. 6403. Technical modification to the executive schedule.
- Sec. 6404. Chief Financial Officer of the Intelligence Community.
- Sec. 6405. Chief Information Officer of the Intelligence Community.

Subtitle B—Central Intelligence Agency

- Sec. 6411. Central Intelligence Agency subsistence for personnel assigned to austere locations.
- Sec. 6412. Special rules for certain monthly workers' compensation payments and other payments for Central Intelligence Agency personnel.
- Sec. 6413. Expansion of security protective service jurisdiction of the Central Intelligence Agency.
- Sec. 6414. Repeal of foreign language proficiency requirement for certain senior level positions in the Central Intelligence Agency.

Subtitle C—Office of Intelligence and Counterintelligence of Department of
Energy

- Sec. 6421. Consolidation of Department of Energy Offices of Intelligence and Counterintelligence.
- Sec. 6422. Repeal of Department of Energy Intelligence Executive Committee and budget reporting requirement.

Subtitle D—Other Elements

- Sec. 6431. Plan for designation of counterintelligence component of Defense Security Service as an element of intelligence community.
- Sec. 6432. Notice not required for private entities.
- Sec. 6433. Establishment of advisory board for National Reconnaissance Office.
- Sec. 6434. Collocation of certain Department of Homeland Security personnel at field locations.

TITLE LXV—ELECTION MATTERS

- Sec. 6501. Report on cyber attacks by foreign governments against United States election infrastructure.
- Sec. 6502. Review of intelligence community's posture to collect against and analyze Russian efforts to influence the Presidential election.
- Sec. 6503. Assessment of foreign intelligence threats to Federal elections.
- Sec. 6504. Strategy for countering Russian cyber threats to United States elections.
- Sec. 6505. Assessment of significant Russian influence campaigns directed at foreign elections and referenda.
- Sec. 6506. Information sharing with State election officials.
- Sec. 6507. Notification of significant foreign cyber intrusions and active measures campaigns directed at elections for Federal offices.
- Sec. 6508. Designation of counterintelligence officer to lead election security matters.

TITLE LXVI—SECURITY CLEARANCES

- Sec. 6601. Definitions.
- Sec. 6602. Reports and plans relating to security clearances and background investigations.
- Sec. 6603. Improving the process for security clearances.
- Sec. 6604. Goals for promptness of determinations regarding security clearances.
- Sec. 6605. Security Executive Agent.
- Sec. 6606. Report on unified, simplified, Governmentwide standards for positions of trust and security clearances.
- Sec. 6607. Report on clearance in person concept.
- Sec. 6608. Reports on reciprocity for security clearances inside of departments and agencies.
- Sec. 6609. Intelligence community reports on security clearances.
- Sec. 6610. Periodic report on positions in the intelligence community that can be conducted without access to classified information, networks, or facilities.
- Sec. 6611. Information-sharing program for positions of trust and security clearances.
- Sec. 6612. Report on protections for confidentiality of whistleblower-related communications.
- Sec. 6613. Reports on costs of security clearance background investigations.

TITLE LXVII—REPORTS AND OTHER MATTERS

Subtitle A—Matters Relating to Russia and Other Foreign Powers

- Sec. 6701. Limitation relating to establishment or support of cybersecurity unit with the Russian Federation.
- Sec. 6702. Assessment of threat finance relating to Russia.
- Sec. 6703. Notification of an active measures campaign.
- Sec. 6704. Notification of travel by accredited diplomatic and consular personnel of the Russian Federation in the United States.
- Sec. 6705. Report and annual briefing on Iranian expenditures supporting foreign military and terrorist activities.
- Sec. 6706. Expansion of scope of committee to counter active measures.

Subtitle B—Reports

- Sec. 6711. Technical correction to Inspector General study.
- Sec. 6712. Reports on authorities of the Chief Intelligence Officer of the Department of Homeland Security.
- Sec. 6713. Review of intelligence community whistleblower matters.
- Sec. 6714. Report on role of Director of National Intelligence with respect to certain foreign investments.
- Sec. 6715. Report on surveillance by foreign governments against United States telecommunications networks.
- Sec. 6716. Biennial report on foreign investment risks.
- Sec. 6717. Modification of certain reporting requirement on travel of foreign diplomats.
- Sec. 6718. Semiannual reports on investigations of unauthorized disclosures of classified information.
- Sec. 6719. Congressional notification of designation of covered intelligence officer as persona non grata.

- Sec. 6720. Reports on intelligence community participation in vulnerabilities equities process of Federal Government.
- Sec. 6721. Inspectors General reports on classification.
- Sec. 6722. Reports and briefings on national security effects of global water insecurity and emerging infectious disease and pandemics.
- Sec. 6723. Annual report on memoranda of understanding between elements of intelligence community and other entities of the United States Government regarding significant operational activities or policy.
- Sec. 6724. Study on the feasibility of encrypting unclassified wireline and wireless telephone calls.
- Sec. 6725. Reports on intelligence community loan repayment and related programs.
- Sec. 6726. Repeal of certain reporting requirements.
- Sec. 6727. Inspector General of the Intelligence Community report on senior executives of the Office of the Director of National Intelligence.
- Sec. 6728. Briefing on Federal Bureau of Investigation offering permanent residence to sources and cooperators.
- Sec. 6729. Intelligence assessment of North Korea revenue sources.
- Sec. 6730. Report on possible exploitation of virtual currencies by terrorist actors.

Subtitle C—Other Matters

- Sec. 6741. Public Interest Declassification Board.
- Sec. 6742. Technical and clerical amendments to the National Security Act of 1947.
- Sec. 6743. Bug bounty programs.
- Sec. 6744. Technical amendments related to the Department of Energy.
- Sec. 6745. Sense of Congress on notification of certain disclosures of classified information.
- Sec. 6746. Sense of Congress on consideration of espionage activities when considering whether or not to provide visas to foreign individuals to be accredited to a United Nations mission in the United States.
- Sec. 6747. Sense of Congress on WikiLeaks.

1 SEC. 5003. DEFINITIONS.

2 In this division:

3 (1) CONGRESSIONAL INTELLIGENCE COMMIT-
 4 TEES.—The term “congressional intelligence com-
 5 mittees” has the meaning given such term in section
 6 3 of the National Security Act of 1947 (50 U.S.C.
 7 3003).

8 (2) INTELLIGENCE COMMUNITY.—The term
 9 “intelligence community” has the meaning given

1 such term in section 3 of the National Security Act
2 of 1947 (50 U.S.C. 3003).

3 **SUBDIVISION 1—INTELLIGENCE**
4 **AUTHORIZATIONS FOR FIS-**
5 **CAL YEAR 2020**

6 **SEC. 5100. TABLE OF CONTENTS.**

7 The table of contents for this subdivision is as fol-
8 lows:

Sec. 5100. Table of contents.

TITLE LI—INTELLIGENCE ACTIVITIES

Sec. 5101. Authorization of appropriations.

Sec. 5102. Classified schedule of authorizations.

Sec. 5103. Intelligence community management account.

TITLE LII—CENTRAL INTELLIGENCE AGENCY RETIREMENT AND
DISABILITY SYSTEM

Sec. 5201. Authorization of appropriations.

TITLE LIII—INTELLIGENCE COMMUNITY MATTERS

Subtitle A—General Intelligence Community Matters

Sec. 5301. Restriction on conduct of intelligence activities.

Sec. 5302. Increase in employee compensation and benefits authorized by law.

Sec. 5303. Expansion of scope of protections for identities of covert agents.

Sec. 5304. Required counterintelligence assessments, briefings, notifications,
and reports.

Sec. 5305. Inclusion of security risks in program management plans required
for acquisition of major systems in National Intelligence Pro-
gram.

Sec. 5306. Intelligence community public-private talent exchange.

Sec. 5307. Assessment of contracting practices to identify certain security and
counterintelligence concerns.

Subtitle B—Office of the Director of National Intelligence

Sec. 5321. Establishment of Climate Security Advisory Council.

Sec. 5322. Foreign Malign Influence Response Center.

Sec. 5323. Encouragement of cooperative actions to detect and counter foreign
influence operations.

Sec. 5324. Transfer of National Intelligence University to the Office of the Di-
rector of National Intelligence.

Subtitle C—Inspector General of the Intelligence Community

- Sec. 5331. Definitions.
- Sec. 5332. Inspector General external review panel.
- Sec. 5333. Harmonization of whistleblower processes and procedures.
- Sec. 5334. Oversight by Inspector General of the Intelligence Community over intelligence community whistleblower matters.
- Sec. 5335. Report on cleared whistleblower attorneys.

Subtitle D—Central Intelligence Agency

- Sec. 5341. Clarification of certain authority of the Central Intelligence Agency.

TITLE LIV—SECURITY CLEARANCES

- Sec. 5401. Improving visibility into the security clearance process.
- Sec. 5402. Making certain policies and execution plans relating to personnel clearances available to industry partners.

TITLE LV—MATTERS RELATING TO FOREIGN COUNTRIES

Subtitle A—Matters Relating to Russia

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Subtitle C—Matters Relating to Other Countries

- Sec. 5521. Sense of Congress and report on Iranian efforts in Syria and Lebanon.
- Sec. 5522. Assessments regarding the Northern Triangle and Mexico.

TITLE LVI—FEDERAL EFFORTS AGAINST DOMESTIC TERRORISM

- Sec. 5601. Definitions.
- Sec. 5602. Strategic intelligence assessment of and reports on domestic terrorism.

TITLE LVII—REPORTS AND OTHER MATTERS

Subtitle A—Reports and Briefings

- Sec. 5701. Modification of requirements for submission to Congress of certain reports.
- Sec. 5702. Increased transparency regarding counterterrorism budget of the United States.
- Sec. 5703. Study on role of retired and former personnel of intelligence community with respect to certain foreign intelligence operations.

- Sec. 5704. Collection, analysis, and dissemination of workforce data.
- Sec. 5705. Plan for strengthening the supply chain intelligence function.
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- Sec. 5710. Annual report by Comptroller General of the United States on cybersecurity and surveillance threats to Congress.
- Sec. 5711. Analysis of and periodic briefings on major initiatives of intelligence community in artificial intelligence and machine learning.
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Subtitle B—Other Matters

- Sec. 5721. Whistleblower disclosures to Congress and committees of Congress.
- Sec. 5722. Task force on illicit financing of espionage and foreign influence operations.
- Sec. 5723. Establishment of fifth-generation technology prize competition.
- Sec. 5724. Establishment of deepfakes prize competition.
- Sec. 5725. Identification of and countermeasures against certain International Mobile Subscriber Identity-catchers.
- Sec. 5726. Securing energy infrastructure.

1 **TITLE LI—INTELLIGENCE**
 2 **ACTIVITIES**

3 **SEC. 5101. AUTHORIZATION OF APPROPRIATIONS.**

4 Funds are hereby authorized to be appropriated for
 5 fiscal year 2020 for the conduct of the intelligence and
 6 intelligence-related activities of the following elements of
 7 the United States Government:

1 (1) The Office of the Director of National Intel-
2 ligence.

3 (2) The Central Intelligence Agency.

4 (3) The Department of Defense.

5 (4) The Defense Intelligence Agency.

6 (5) The National Security Agency.

7 (6) The Department of the Army, the Depart-
8 ment of the Navy, and the Department of the Air
9 Force.

10 (7) The Coast Guard.

11 (8) The Department of State.

12 (9) The Department of the Treasury.

13 (10) The Department of Energy.

14 (11) The Department of Justice.

15 (12) The Federal Bureau of Investigation.

16 (13) The Drug Enforcement Administration.

17 (14) The National Reconnaissance Office.

18 (15) The National Geospatial-Intelligence Agen-
19 cy.

20 (16) The Department of Homeland Security.

21 **SEC. 5102. CLASSIFIED SCHEDULE OF AUTHORIZATIONS.**

22 (a) SPECIFICATIONS OF AMOUNTS.—The amounts
23 authorized to be appropriated under section 5101 for the
24 conduct of the intelligence activities of the elements listed
25 in paragraphs (1) through (16) of section 5101, are those

1 specified in the classified Schedule of Authorizations pre-
2 pared to accompany this division.

3 (b) AVAILABILITY OF CLASSIFIED SCHEDULE OF AU-
4 THORIZATIONS.—

5 (1) AVAILABILITY.—The classified Schedule of
6 Authorizations referred to in subsection (a) shall be
7 made available to the Committee on Appropriations
8 of the Senate, the Committee on Appropriations of
9 the House of Representatives, and to the President.

10 (2) DISTRIBUTION BY THE PRESIDENT.—Sub-
11 ject to paragraph (3), the President shall provide for
12 suitable distribution of the classified Schedule of Au-
13 thorizations referred to in subsection (a), or of ap-
14 propriate portions of such Schedule, within the exec-
15 utive branch.

16 (3) LIMITS ON DISCLOSURE.—The President
17 shall not publicly disclose the classified Schedule of
18 Authorizations or any portion of such Schedule ex-
19 cept—

20 (A) as provided in section 601(a) of the
21 Implementing Recommendations of the 9/11
22 Commission Act of 2007 (50 U.S.C. 3306(a));

23 (B) to the extent necessary to implement
24 the budget; or

25 (C) as otherwise required by law.

1 **SEC. 5103. INTELLIGENCE COMMUNITY MANAGEMENT AC-**
2 **COUNT.**

3 (a) AUTHORIZATION OF APPROPRIATIONS.—There is
4 authorized to be appropriated for the Intelligence Commu-
5 nity Management Account of the Director of National In-
6 telligence for fiscal year 2020 the sum of \$565,637,000.

7 (b) CLASSIFIED AUTHORIZATION OF APPROPRIA-
8 TIONS.—In addition to amounts authorized to be appro-
9 priated for the Intelligence Community Management Ac-
10 count by subsection (a), there are authorized to be appro-
11 priated for the Intelligence Community Management Ac-
12 count for fiscal year 2020 such additional amounts as are
13 specified in the classified Schedule of Authorizations re-
14 ferred to in section 5102(a).

15 **TITLE LII—CENTRAL INTEL-**
16 **LIGENCE AGENCY RETIRE-**
17 **MENT AND DISABILITY SYS-**
18 **TEM**

19 **SEC. 5201. AUTHORIZATION OF APPROPRIATIONS.**

20 There is authorized to be appropriated for the Cen-
21 tral Intelligence Agency Retirement and Disability Fund
22 \$514,000,000 for fiscal year 2020.

1 **TITLE LIII—INTELLIGENCE**
2 **COMMUNITY MATTERS**
3 **Subtitle A—General Intelligence**
4 **Community Matters**

5 **SEC. 5301. RESTRICTION ON CONDUCT OF INTELLIGENCE**
6 **ACTIVITIES.**

7 The authorization of appropriations by this subdivi-
8 sion shall not be deemed to constitute authority for the
9 conduct of any intelligence activity which is not otherwise
10 authorized by the Constitution or the laws of the United
11 States.

12 **SEC. 5302. INCREASE IN EMPLOYEE COMPENSATION AND**
13 **BENEFITS AUTHORIZED BY LAW.**

14 Appropriations authorized by this subdivision for sal-
15 ary, pay, retirement, and other benefits for Federal em-
16 ployees may be increased by such additional or supple-
17 mental amounts as may be necessary for increases in such
18 compensation or benefits authorized by law.

19 **SEC. 5303. EXPANSION OF SCOPE OF PROTECTIONS FOR**
20 **IDENTITIES OF COVERT AGENTS.**

21 Section 605(4) of the National Security Act of 1947
22 (50 U.S.C. 3126(4)) is amended—

23 (1) in subparagraph (A)—

24 (A) by striking clause (ii);

1 (B) in clause (i), by striking “, and” and
2 inserting “; or”; and

3 (C) by striking “agency—” and all that
4 follows through “whose identity” and inserting
5 “agency whose identity”; and

6 (2) in subparagraph (B)(i), by striking “resides
7 and acts outside the United States” and inserting
8 “acts”.

9 **SEC. 5304. REQUIRED COUNTERINTELLIGENCE ASSESS-**
10 **MENTS, BRIEFINGS, NOTIFICATIONS, AND RE-**
11 **PORTS.**

12 (a) FOREIGN COUNTERINTELLIGENCE AND CYBER-
13 SECURITY THREATS TO FEDERAL ELECTION CAM-
14 PAIGNS.—

15 (1) REPORTS REQUIRED.—

16 (A) IN GENERAL.—As provided in sub-
17 paragraph (B), with respect to an election for
18 Federal office, the Director of National Intel-
19 ligence, in coordination with the Under Sec-
20 retary of Homeland Security for Intelligence
21 and Analysis and the Director of the Federal
22 Bureau of Investigation, shall make publicly
23 available on an internet website an advisory re-
24 port on foreign counterintelligence and cyberse-
25 curity threats to campaigns of candidates for

1 Federal office. Each such report, consistent
2 with the protection of sources and methods,
3 shall include the following:

4 (i) A description of foreign counter-
5 intelligence and cybersecurity threats to
6 campaigns of candidates for Federal office.

7 (ii) A summary of best practices that
8 campaigns of candidates for Federal office
9 can employ in seeking to counter such
10 threats.

11 (iii) An identification of publicly avail-
12 able resources, including United States
13 Government resources, for countering such
14 threats.

15 (B) SCHEDULE FOR SUBMITTAL.—

16 (i) IN GENERAL.—Except as provided
17 by clause (ii), with respect to an election
18 for Federal office, a report under this sub-
19 section shall be first made available not
20 later than the date that is 1 year before
21 the date of such election, and may be sub-
22 sequently revised as the Director of Na-
23 tional Intelligence determines appropriate.

24 (ii) 2020 ELECTIONS.—With respect
25 to an election for Federal office that occurs

1 during 2020, the report under this sub-
2 section shall be first made available not
3 later than the date that is 60 days after
4 the date of the enactment this Act, and
5 may be subsequently revised as the Direc-
6 tor of National Intelligence determines ap-
7 propriate.

8 (C) INFORMATION TO BE INCLUDED.—A
9 report under this subsection shall reflect the
10 most current information available to the Direc-
11 tor of National Intelligence regarding foreign
12 counterintelligence and cybersecurity threats.

13 (2) TREATMENT OF CAMPAIGNS SUBJECT TO
14 HEIGHTENED THREATS.—If the Director of the Fed-
15 eral Bureau of Investigation and the Under Sec-
16 retary of Homeland Security for Intelligence and
17 Analysis jointly determine that a campaign of a can-
18 didate for Federal office is subject to a heightened
19 foreign counterintelligence or cybersecurity threat,
20 the Director and the Under Secretary, consistent
21 with the protection of sources and methods, may
22 make available additional information to the appro-
23 priate representatives of such campaign.

24 (b) BRIEFINGS ON COUNTERINTELLIGENCE ACTIVI-
25 TIES OF THE FEDERAL BUREAU OF INVESTIGATION.—

1 (1) IN GENERAL.—Title V of the National Se-
2 curity Act of 1947 (50 U.S.C. 3091 et seq.), is
3 amended by adding at the end the following new sec-
4 tion:

5 **“SEC. 512. BRIEFINGS AND NOTIFICATIONS ON COUNTER-**
6 **INTELLIGENCE ACTIVITIES OF THE FEDERAL**
7 **BUREAU OF INVESTIGATION.**

8 “(a) QUARTERLY BRIEFINGS.—In addition to, and
9 without any derogation of, the requirement under section
10 501 to keep the congressional intelligence committees fully
11 and currently informed of the intelligence and counter-
12 intelligence activities of the United States, not less fre-
13 quently than once each quarter, or more frequently if re-
14 quested by the congressional intelligence committees, the
15 Director of the Federal Bureau of Investigation shall pro-
16 vide to the congressional intelligence committees a briefing
17 on the counterintelligence activities of the Federal Bureau
18 of Investigation. Such briefings shall include, at a min-
19 imum, an overview and update of—

20 “(1) the counterintelligence posture of the Bu-
21 reau;

22 “(2) counterintelligence investigations; and

23 “(3) any other information relating to the coun-
24 terintelligence activities of the Bureau that the Di-
25 rector determines necessary.

1 “(b) NOTIFICATIONS.—In addition to the quarterly
2 briefings under subsection (a), the Director of the Federal
3 Bureau of Investigation shall promptly notify the congress-
4 sional intelligence committees of any counterintelligence
5 investigation carried out by the Bureau with respect to
6 any counterintelligence risk or threat that is related to an
7 election or campaign for Federal office.

8 “(c) GUIDELINES.—

9 “(1) DEVELOPMENT AND CONSULTATION.—The
10 Director shall develop guidelines governing the scope
11 of the briefings provided under subsection (a), the
12 notifications provided under subsection (b), and the
13 information required by section 5304(a)(2) of the
14 Damon Paul Nelson and Matthew Young Pollard In-
15 telligence Authorization Act for Fiscal Years 2018,
16 2019, and 2020. The Director shall consult the con-
17 gressional intelligence committees during such devel-
18 opment.

19 “(2) SUBMISSION.—The Director shall submit
20 to the congressional intelligence committees—

21 “(A) the guidelines under paragraph (1)
22 upon issuance; and

23 “(B) any updates to such guidelines by not
24 later than 15 days after making such update.”.

1 (2) CLERICAL AMENDMENT.—The table of con-
2 tents at the beginning of such Act is amended by in-
3 serting after the item relating to section 511 the fol-
4 lowing new item:

 “Sec. 512. Briefings and notifications on counterintelligence activities of the
 Federal Bureau of Investigation.”.

5 (c) DIRECTOR OF NATIONAL INTELLIGENCE ASSESS-
6 MENT OF FOREIGN INTERFERENCE IN FEDERAL ELEC-
7 TIONS.—

8 (1) ASSESSMENTS REQUIRED.—Not later than
9 45 days after the end of a Federal election cycle, the
10 Director of National Intelligence, in consultation
11 with the heads of such other executive departments
12 and agencies as the Director considers appropriate,
13 shall—

14 (A) conduct an assessment of any informa-
15 tion indicating that a foreign government, or
16 any person acting as an agent of or on behalf
17 of a foreign government, has acted with the in-
18 tent or purpose of interfering in elections for
19 Federal office occurring during the Federal
20 election cycle; and

21 (B) transmit the findings of the Director
22 with respect to the assessment conducted under
23 subparagraph (A), along with such supporting

1 information as the Director considers appro-
2 priate, to the following:

- 3 (i) The President.
4 (ii) The Secretary of State.
5 (iii) The Secretary of the Treasury.
6 (iv) The Secretary of Defense.
7 (v) The Attorney General.
8 (vi) The Secretary of Homeland Secu-
9 rity.
10 (vii) Congress.

11 (2) ELEMENTS.—An assessment conducted
12 under paragraph (1)(A), with respect to an act de-
13 scribed in such paragraph, shall identify, to the
14 maximum extent ascertainable, the following:

- 15 (A) The nature of any foreign interference
16 and any methods employed to execute the act.
17 (B) The persons involved.
18 (C) The foreign government or govern-
19 ments that authorized, directed, sponsored, or
20 supported the act.

21 (3) PUBLICATION.—The Director shall, not
22 later than 60 days after the end of a Federal elec-
23 tion cycle, make available to the public, to the great-
24 est extent possible consistent with the protection of

1 sources and methods, the findings transmitted under
2 paragraph (1)(B).

3 (4) FEDERAL ELECTION CYCLE DEFINED.—In
4 this section, the term “Federal election cycle” means
5 the period which begins on the day after the date of
6 a regularly scheduled general election for Federal of-
7 fice and which ends on the date of the first regularly
8 scheduled general election for Federal office held
9 after such date.

10 (5) EFFECTIVE DATE.—This subsection shall
11 apply with respect to the Federal election cycle that
12 began during November 2018, and each succeeding
13 Federal election cycle.

14 **SEC. 5305. INCLUSION OF SECURITY RISKS IN PROGRAM**
15 **MANAGEMENT PLANS REQUIRED FOR ACQUI-**
16 **SITION OF MAJOR SYSTEMS IN NATIONAL IN-**
17 **TELLIGENCE PROGRAM.**

18 Section 102A(q)(1)(A) of the National Security Act
19 of 1947 (50 U.S.C. 3024(q)(1)(A)) is amended by insert-
20 ing “security risks,” after “schedule.”.

21 **SEC. 5306. INTELLIGENCE COMMUNITY PUBLIC-PRIVATE**
22 **TALENT EXCHANGE.**

23 (a) POLICIES, PROCESSES, AND PROCEDURES RE-
24 QUIRED.—Not later than 270 days after the date of the
25 enactment of this Act, the Director of National Intel-

1 ligen ce shall develop policies, processes, and procedures to
2 facilitate the rotation of personnel of the intelligence com-
3 munity to the private sector, and personnel from the pri-
4 vate sector to the intelligence community.

5 (b) **DETAIL AUTHORITY.**—Under policies developed
6 by the Director pursuant to subsection (a), pursuant to
7 a written agreement with a private-sector organization,
8 and with the consent of the employee, a head of an ele-
9 ment of the intelligence community may arrange for the
10 temporary detail of an employee of such element to such
11 private-sector organization, or from such private-sector or-
12 ganization to such element under this section.

13 (c) **AGREEMENTS.**—

14 (1) **IN GENERAL.**—A head of an element of the
15 intelligence community exercising the authority of
16 the head under subsection (a) shall provide for a
17 written agreement among the element of the intel-
18 ligence community, the private-sector organization,
19 and the employee concerned regarding the terms and
20 conditions of the employee’s detail under this sec-
21 tion. The agreement—

22 (A) shall require that the employee of the
23 element, upon completion of the detail, serve in
24 the element, or elsewhere in the civil service if
25 approved by the head of the element, for a pe-

1 riod that is at least equal to the length of the
2 detail;

3 (B) shall provide that if the employee of
4 the element fails to carry out the agreement,
5 such employee shall be liable to the United
6 States for payment of all nonsalary and benefit
7 expenses of the detail, unless that failure was
8 for good and sufficient reason, as determined
9 by the head of the element;

10 (C) shall contain language informing such
11 employee of the prohibition on sharing, using,
12 or otherwise improperly handling classified or
13 unclassified nonpublic information for the ben-
14 efit or advantage of the private-sector organiza-
15 tion;

16 (D) shall contain language governing the
17 handling of classified information by such em-
18 ployee during the detail; and

19 (E) shall contain language requiring the
20 employee to acknowledge the obligations of the
21 employee under section 1905 of title 18, United
22 States Code.

23 (2) AMOUNT OF LIABILITY.—An amount for
24 which an employee is liable under paragraph (1)
25 shall be treated as a debt due the United States.

1 (3) WAIVER.—The head of an element of the
2 intelligence community may waive, in whole or in
3 part, collection of a debt described in paragraph (2)
4 based on a determination that the collection would
5 be against equity and good conscience and not in the
6 best interests of the United States, after taking into
7 account any indication of fraud, misrepresentation,
8 fault, or lack of good faith on the part of the em-
9 ployee.

10 (d) TERMINATION.—A detail under this section may,
11 at any time and for any reason, be terminated by the head
12 of the element of the intelligence community concerned or
13 the private-sector organization concerned.

14 (e) DURATION.—

15 (1) IN GENERAL.—A detail under this section
16 shall be for a period of not less than 3 months and
17 not more than 2 years, renewable up to a total of
18 3 years.

19 (2) LONGER PERIODS.—A detail under this sec-
20 tion may be for a period in excess of 2 years, but
21 not more than 3 years, if the head of the element
22 making the detail determines that such detail is nec-
23 essary to meet critical mission or program require-
24 ments.

1 (3) LIMITATION.—No employee of an element
2 of the intelligence community may be detailed under
3 this section for more than a total of 5 years, inclu-
4 sive of all such details.

5 (f) STATUS OF FEDERAL EMPLOYEES DETAILED TO
6 PRIVATE-SECTOR ORGANIZATIONS.—

7 (1) IN GENERAL.—An employee of an element
8 of the intelligence community who is detailed to a
9 private-sector organization under this section shall
10 be considered, during the period of detail, to be on
11 a regular work assignment in the element. The writ-
12 ten agreement established under subsection (c)(1)
13 shall address the specific terms and conditions re-
14 lated to the employee's continued status as a Fed-
15 eral employee.

16 (2) REQUIREMENTS.—In establishing a tem-
17 porary detail of an employee of an element of the in-
18 telligence community to a private-sector organiza-
19 tion, the head of the element shall—

20 (A) certify that the temporary detail of
21 such employee shall not have an adverse or neg-
22 ative impact on mission attainment or organiza-
23 tional capabilities associated with the detail;
24 and

1 (B) in the case of an element of the intel-
2 ligence community in the Department of De-
3 fense, ensure that the normal duties and func-
4 tions of such employees are not, as a result of
5 and during the course of such temporary detail,
6 performed or augmented by contractor per-
7 sonnel in violation of the provisions of section
8 2461 of title 10, United States Code.

9 (g) TERMS AND CONDITIONS FOR PRIVATE-SECTOR
10 EMPLOYEES.—An employee of a private-sector organiza-
11 tion who is detailed to an element of the intelligence com-
12 munity under this section—

13 (1) shall continue to receive pay and benefits
14 from the private-sector organization from which such
15 employee is detailed and shall not receive pay or
16 benefits from the element, except as provided in
17 paragraph (2);

18 (2) is deemed to be an employee of the element
19 for the purposes of—

20 (A) chapters 73 and 81 of title 5, United
21 States Code;

22 (B) sections 201, 203, 205, 207, 208, 209,
23 603, 606, 607, 643, 654, 1905, and 1913 of
24 title 18, United States Code;

1 (C) sections 1343, 1344, and 1349(b) of
2 title 31, United States Code;

3 (D) chapter 171 of title 28, United States
4 Code (commonly known as the “Federal Tort
5 Claims Act”) and any other Federal tort liabil-
6 ity statute;

7 (E) the Ethics in Government Act of 1978
8 (5 U.S.C. App.); and

9 (F) chapter 21 of title 41, United States
10 Code;

11 (3) may perform work that is considered inher-
12 ently governmental in nature only when requested in
13 writing by the head of the element;

14 (4) may not be used to circumvent any limita-
15 tion or restriction on the size of the workforce of the
16 element;

17 (5) shall be subject to the same requirements
18 applicable to an employee performing the same func-
19 tions and duties proposed for performance by the
20 private-sector employee; and

21 (6) in the case of an element of the intelligence
22 community in the Department of Defense, may not
23 be used to circumvent the provisions of section 2461
24 of title 10, United States Code.

1 (h) PROHIBITION AGAINST CHARGING CERTAIN
2 COSTS TO THE FEDERAL GOVERNMENT.—A private-sec-
3 tor organization may not charge an element of the intel-
4 ligence community or any other agency of the Federal
5 Government, as direct costs under a Federal contract, the
6 costs of pay or benefits paid by the organization to an
7 employee detailed to an element of the intelligence commu-
8 nity under this section for the period of the detail and
9 any subsequent renewal periods.

10 (i) ADDITIONAL ADMINISTRATIVE MATTERS.—In
11 carrying out this section, the Director, pursuant to proce-
12 dures developed under subsection (a)—

13 (1) shall, to the degree practicable, ensure that
14 small business concerns are represented with respect
15 to details authorized by this section;

16 (2) may, notwithstanding any other provision of
17 law, establish criteria for elements of the intelligence
18 community to use appropriated funds to reimburse
19 small business concerns for the salaries and benefits
20 of its employees during the periods when the small
21 business concern agrees to detail its employees to
22 the intelligence community under this section;

23 (3) shall take into consideration the question of
24 how details under this section might best be used to

1 help meet the needs of the intelligence community,
2 including with respect to the training of employees;

3 (4) shall take into consideration areas of pri-
4 vate-sector expertise that are critical to the intel-
5 ligence community; and

6 (5) shall establish oversight mechanisms to de-
7 termine whether the public-private exchange author-
8 ized by this section improves the efficiency and effec-
9 tiveness of the intelligence community.

10 (j) DEFINITIONS.—In this section:

11 (1) DETAIL.—The term “detail” means, as ap-
12 propriate in the context in which such term is
13 used—

14 (A) the assignment or loan of an employee
15 of an element of the intelligence community to
16 a private-sector organization without a change
17 of position from the intelligence community ele-
18 ment that employs the individual; or

19 (B) the assignment or loan of an employee
20 of a private-sector organization to an element of
21 the intelligence community without a change of
22 position from the private-sector organization
23 that employs the individual.

24 (2) PRIVATE-SECTOR ORGANIZATION.—The
25 term “private-sector organization” means—

1 (A) a for-profit organization; or

2 (B) a not-for-profit organization.

3 (3) **SMALL BUSINESS CONCERN.**—The term
4 “small business concern” has the meaning given
5 such term in section 3703(e)(2) of title 5, United
6 States Code.

7 **SEC. 5307. ASSESSMENT OF CONTRACTING PRACTICES TO**
8 **IDENTIFY CERTAIN SECURITY AND COUNTER-**
9 **INTELLIGENCE CONCERNS.**

10 (a) **ASSESSMENT.**—

11 (1) **CONTRACTING PRACTICES.**—The Director of
12 National Intelligence shall conduct an assessment of
13 the authorities, policies, processes, and standards
14 used by the elements of the intelligence community
15 to ensure that the elements appropriately weigh se-
16 curity and counterintelligence risks in awarding a
17 contract to a contractor that—

18 (A) carries out any joint research and de-
19 velopment activities with a covered foreign
20 country; or

21 (B) performs any contract or other agree-
22 ment entered into with a covered foreign coun-
23 try.

24 (2) **ELEMENTS.**—The assessment under para-
25 graph (1) shall include the following:

1 (A) An assessment of whether the authori-
2 ties, policies, processes, and standards specified
3 in paragraph (1) sufficiently identify security
4 and counterintelligence concerns.

5 (B) Identification of any authority gaps in
6 such authorities, policies, processes, and stand-
7 ards that prevent the intelligence community
8 from considering the activities specified in sub-
9 paragraphs (A) and (B) of paragraph (1) when
10 evaluating offers for a contract.

11 (3) CONSULTATION.—In carrying out para-
12 graph (1), the Director shall consult with each head
13 of an element of the intelligence community.

14 (b) REPORT.—

15 (1) REQUIREMENT.—Not later than 180 days
16 after the date of the enactment of this Act, the Di-
17 rector shall submit to the congressional intelligence
18 committees a report on the assessment under sub-
19 section (a)(1).

20 (2) MATTERS INCLUDED.—The report under
21 paragraph (1) shall include the following:

22 (A) The assessment under subsection
23 (a)(1).

24 (B) An identification of any known con-
25 tractors that have—

1 (i) carried out activities specified in
2 subparagraphs (A) and (B) of subsection
3 (a)(1); and

4 (ii) submitted an offer for a contract
5 with an element of the intelligence commu-
6 nity.

7 (C) A description of the steps that the Di-
8 rector and the heads of the elements of the in-
9 telligence community took to identify contrac-
10 tors under subparagraph (B).

11 (3) FORM.—The report under paragraph (1)
12 shall be submitted in unclassified form, but may in-
13 clude a classified annex.

14 (c) COVERED FOREIGN COUNTRY DEFINED.—In this
15 section, the term “covered foreign country” means the
16 government, or any entity affiliated with the military or
17 intelligence services of, the following foreign countries:

18 (1) The People’s Republic of China.

19 (2) The Russian Federation.

20 (3) The Democratic People’s Republic of Korea.

21 (4) The Islamic Republic of Iran.

22 (5) Such other countries as the Director con-
23 siders appropriate.

1 **Subtitle B—Office of the Director**
2 **of National Intelligence**

3 **SEC. 5321. ESTABLISHMENT OF CLIMATE SECURITY ADVI-**
4 **SORY COUNCIL.**

5 (a) ESTABLISHMENT.—Title I of the National Secu-
6 rity Act of 1947 (50 U.S.C. 3021 et seq.) is amended by
7 adding at the end the following new section:

8 **“SEC. 120. CLIMATE SECURITY ADVISORY COUNCIL.**

9 “(a) ESTABLISHMENT.—The Director of National In-
10 telligence shall establish a Climate Security Advisory
11 Council for the purpose of—

12 “(1) assisting intelligence analysts of various
13 elements of the intelligence community with respect
14 to analysis of climate security and its impact on the
15 areas of focus of such analysts;

16 “(2) facilitating coordination between the ele-
17 ments of the intelligence community and elements of
18 the Federal Government that are not elements of the
19 intelligence community in collecting data on, and
20 conducting analysis of, climate change and climate
21 security; and

22 “(3) ensuring that the intelligence community is
23 adequately prioritizing climate change in carrying
24 out its activities.

25 “(b) COMPOSITION OF COUNCIL.—

1 “(1) MEMBERS.—The Council shall be com-
2 posed of the following individuals appointed by the
3 Director of National Intelligence:

4 “(A) An appropriate official from the Na-
5 tional Intelligence Council, who shall chair the
6 Council.

7 “(B) The lead official with respect to cli-
8 mate and environmental security analysis
9 from—

10 “(i) the Central Intelligence Agency;

11 “(ii) the Bureau of Intelligence and
12 Research of the Department of State;

13 “(iii) the National Geospatial-Intel-
14 ligence Agency;

15 “(iv) the Office of Intelligence and
16 Counterintelligence of the Department of
17 Energy;

18 “(v) the Office of the Under Secretary
19 of Defense for Intelligence; and

20 “(vi) the Defense Intelligence Agency.

21 “(C) Three appropriate officials from ele-
22 ments of the Federal Government that are not
23 elements of the intelligence community that are
24 responsible for—

1 “(i) providing decision makers with a
2 predictive understanding of the climate;

3 “(ii) making observations of our
4 Earth system that can be used by the pub-
5 lic, policymakers, and to support strategic
6 decisions; or

7 “(iii) coordinating Federal research
8 and investments in understanding the
9 forces shaping the global environment,
10 both human and natural, and their impacts
11 on society.

12 “(D) Any other officials as the Director of
13 National Intelligence or the chair of the Council
14 may determine appropriate.

15 “(2) RESPONSIBILITIES OF CHAIR.—The chair
16 of the Council shall have responsibility for—

17 “(A) identifying agencies to supply individ-
18 uals from elements of the Federal Government
19 that are not elements of the intelligence com-
20 munity;

21 “(B) securing the permission of the rel-
22 evant agency heads for the participation of such
23 individuals on the Council; and

24 “(C) any other duties that the Director of
25 National Intelligence may direct.

1 “(c) DUTIES AND RESPONSIBILITIES OF COUNCIL.—

2 The Council shall carry out the following duties and re-
3 sponsibilities:

4 “(1) To meet at least quarterly to—

5 “(A) exchange appropriate data between
6 elements of the intelligence community and ele-
7 ments of the Federal Government that are not
8 elements of the intelligence community;

9 “(B) discuss processes for the routine ex-
10 change of such data and implementation of
11 such processes; and

12 “(C) prepare summaries of the business
13 conducted at each meeting.

14 “(2) To assess and determine best practices
15 with respect to the analysis of climate security, in-
16 cluding identifying publicly available information
17 and intelligence acquired through clandestine means
18 that enables such analysis.

19 “(3) To assess and identify best practices with
20 respect to prior efforts of the intelligence community
21 to analyze climate security.

22 “(4) To assess and describe best practices for
23 identifying and disseminating climate security indi-
24 cators and warnings.

1 “(5) To recommend methods of incorporating
2 analysis of climate security and the best practices
3 identified under paragraphs (2) through (4) into ex-
4 isting analytic training programs.

5 “(6) To consult, as appropriate, with other ele-
6 ments of the intelligence community that conduct
7 analysis of climate change or climate security and
8 elements of the Federal Government that are not
9 elements of the intelligence community that conduct
10 analysis of climate change or climate security, for
11 the purpose of sharing information about ongoing ef-
12 forts and avoiding duplication of existing efforts.

13 “(7) To work with elements of the intelligence
14 community that conduct analysis of climate change
15 or climate security and elements of the Federal Gov-
16 ernment that are not elements of the intelligence
17 community that conduct analysis of climate change
18 or climate security—

19 “(A) to exchange appropriate data between
20 such elements, establish processes, procedures
21 and practices for the routine exchange of such
22 data, discuss the implementation of such proc-
23 esses; and

24 “(B) to enable and facilitate the sharing of
25 findings and analysis between such elements.

1 “(8) To assess whether the elements of the in-
2 telligence community that conduct analysis of cli-
3 mate change or climate security may inform the re-
4 search direction of academic work and the sponsored
5 work of the United States Government.

6 “(9) At the discretion of the chair of the Coun-
7 cil, to convene conferences of analysts and nonintel-
8 ligence community personnel working on climate
9 change or climate security on subjects that the chair
10 shall direct.

11 “(d) SUNSET.—The Council shall terminate on the
12 date that is 4 years after the date of the enactment of
13 this section.

14 “(e) DEFINITIONS.—In this section:

15 “(1) CLIMATE SECURITY.—The term ‘climate
16 security’ means the effects of climate change on the
17 following:

18 “(A) The national security of the United
19 States, including national security infrastruc-
20 ture.

21 “(B) Subnational, national, and regional
22 political stability.

23 “(C) The security of allies and partners of
24 the United States.

1 “(D) Ongoing or potential political vio-
2 lence, including unrest, rioting, guerrilla war-
3 fare, insurgency, terrorism, rebellion, revolution,
4 civil war, and interstate war.

5 “(2) CLIMATE INTELLIGENCE INDICATIONS AND
6 WARNINGS.—The term ‘climate intelligence indica-
7 tions and warnings’ means developments relating to
8 climate security with the potential to—

9 “(A) imminently and substantially alter
10 the political stability or degree of human secu-
11 rity in a country or region; or

12 “(B) imminently and substantially threat-
13 en—

14 “(i) the national security of the
15 United States;

16 “(ii) the military, political, or eco-
17 nomic interests of allies and partners of
18 the United States; or

19 “(iii) citizens of the United States
20 abroad.”.

21 (b) CLERICAL AMENDMENT.—The table of contents
22 in the first section of the National Security Act of 1947
23 is amended by inserting after the item relating to section
24 119B the following new item:

“Sec. 120. Climate Security Advisory Council.”.

1 (c) INITIAL APPOINTMENTS.—Not later than 90 days
2 after the date of the enactment of this Act, the Director
3 of National Intelligence shall appoint the members of the
4 Council under section 120 of the National Security Act
5 of 1947, as added by subsection (a).

6 **SEC. 5322. FOREIGN MALIGN INFLUENCE RESPONSE CEN-**
7 **TER.**

8 (a) ESTABLISHMENT.—The National Security Act of
9 1947 (50 U.S.C. 3001 et seq.) is amended by inserting
10 after section 119B the following new section:

11 **“SEC. 119C. FOREIGN MALIGN INFLUENCE RESPONSE CEN-**
12 **TER.**

13 “(a) ESTABLISHMENT.—There is within the Office of
14 the Director of National Intelligence a Foreign Malign In-
15 fluence Response Center (in this section referred to as the
16 ‘Center’).

17 “(b) FUNCTIONS AND COMPOSITION.—The Center
18 shall—

19 “(1) be comprised of analysts from all elements
20 of the intelligence community, including elements
21 with diplomatic and law enforcement functions;

22 “(2) have access to all intelligence and other re-
23 porting possessed or acquired by the United States
24 Government pertaining to foreign malign influence;

1 “(3) serve as the primary organization in the
2 United States Government for analyzing and inte-
3 grating all intelligence possessed or acquired by the
4 United States Government pertaining to foreign ma-
5 lign influence; and

6 “(4) provide to employees and officers of the
7 Federal Government in policy-making positions and
8 Congress comprehensive assessments, and indica-
9 tions and warnings, of foreign malign influence.

10 “(c) DIRECTOR.—

11 “(1) APPOINTMENT.—There is a Director of
12 the Center, who shall be the head of the Center, and
13 who shall be appointed by the Director of National
14 Intelligence.

15 “(2) ROLE.—The Director of the Center
16 shall—

17 “(A) report directly to the Director of Na-
18 tional Intelligence;

19 “(B) carry out the functions under sub-
20 section (b); and

21 “(C) at the request of the President or the
22 Director of National Intelligence, develop and
23 provide recommendations for potential re-
24 sponses by the United States to foreign malign
25 influence.

1 “(d) ANNUAL REPORTS.—

2 “(1) IN GENERAL.—In addition to the matters
3 submitted pursuant to subsection (b)(4), at the di-
4 rection of the Director of National Intelligence, but
5 not less than once each year, the Director of the
6 Center shall submit to the congressional intelligence
7 committees, the Committee on Foreign Affairs of the
8 House of Representatives, and the Committee on
9 Foreign Relations of the Senate a report on foreign
10 malign influence.

11 “(2) MATTERS INCLUDED.—Each report under
12 paragraph (1) shall include, with respect to the pe-
13 riod covered by the report, a discussion of the fol-
14 lowing:

15 “(A) The most significant activities of the
16 Center.

17 “(B) Any recommendations the Director
18 determines necessary for legislative or other ac-
19 tions to improve the ability of the Center to
20 carry out its functions, including recommenda-
21 tions regarding the protection of privacy and
22 civil liberties.

23 “(e) DEFINITIONS.—In this section:

24 “(1) COVERED FOREIGN COUNTRY.—The term
25 ‘covered foreign country’ means the following:

1 “(A) The Russian Federation.

2 “(B) The Islamic Republic of Iran.

3 “(C) The Democratic People’s Republic of
4 Korea.

5 “(D) The People’s Republic of China.

6 “(E) Any other foreign country that the
7 Director of the Center determines appropriate
8 for purposes of this section.

9 “(2) FOREIGN MALIGN INFLUENCE.—The term
10 ‘foreign malign influence’ means any hostile effort
11 undertaken by, at the direction of, or on behalf of
12 or with the substantial support of, the government
13 of a covered foreign country with the objective of in-
14 fluencing, through overt or covert means—

15 “(A) the political, military, economic, or
16 other policies or activities of the United States
17 Government or State or local governments, in-
18 cluding any election within the United States;
19 or

20 “(B) the public opinion within the United
21 States.”.

22 (b) CLERICAL AMENDMENT.—The table of contents
23 at the beginning of such Act is amended by inserting after
24 the item relating to section 119B the following new item:

“Sec. 119C. Foreign Malign Influence Response Center.”.

1 (c) CONFORMING AMENDMENT.—Section 507(a) of
2 such Act (50 U.S.C. 3106) is amended by adding at the
3 end the following new paragraph:

4 “(6) An annual report submitted under section
5 119C(d)(1).”.

6 **SEC. 5323. ENCOURAGEMENT OF COOPERATIVE ACTIONS**
7 **TO DETECT AND COUNTER FOREIGN INFLU-**
8 **ENCE OPERATIONS.**

9 (a) FINDINGS.—Congress makes the following find-
10 ings:

11 (1) The Russian Federation, through military
12 intelligence units, also known as the “GRU”, and
13 Kremlin-linked troll organizations often referred to
14 as the “Internet Research Agency”, deploy informa-
15 tion warfare operations against the United States,
16 its allies and partners, with the goal of advancing
17 the strategic interests of the Russian Federation.

18 (2) One line of effort deployed as part of these
19 information warfare operations is the weaponization
20 of social media platforms with the goals of inten-
21 sifying societal tensions, undermining trust in gov-
22 ernmental institutions within the United States, its
23 allies and partners in the West, and generally sow-
24 ing division, fear, and confusion.

1 (3) These information warfare operations are a
2 threat to the national security of the United States
3 and that of the allies and partners of the United
4 States. As former Director of National Intelligence
5 Dan Coats stated, “These actions are persistent,
6 they are pervasive and they are meant to undermine
7 America’s democracy.”.

8 (4) These information warfare operations con-
9 tinue to evolve and increase in sophistication.

10 (5) Other foreign adversaries and hostile non-
11 state actors are increasingly adopting similar tactics
12 of deploying information warfare operations against
13 the West, such as recent state-backed operations
14 from China around the Hong Kong protests identi-
15 fied by social media companies.

16 (6) Technological advances, including artificial
17 intelligence, will only make it more difficult in the
18 future to detect fraudulent accounts, deceptive mate-
19 rial posted on social media, and malign behavior on
20 social media platforms.

21 (7) Because these information warfare oper-
22 ations are deployed within and across private social
23 media platforms, the companies that own these plat-
24 forms have a responsibility to detect and facilitate

1 the removal or neutralization of foreign adversary
2 networks operating clandestinely on their platforms.

3 (8) The social media companies are inherently
4 technologically sophisticated and adept at rapidly
5 analyzing large amounts of data and developing soft-
6 ware-based solutions to diverse and ever-changing
7 challenges on their platforms, which makes them
8 well-equipped to address the threat occurring on
9 their platforms.

10 (9) Independent analyses confirmed Kremlin-
11 linked threat networks, based on data provided by
12 several social media companies to the Select Com-
13 mittee on Intelligence of the Senate, thereby dem-
14 onstrating that it is possible to discern both broad
15 patterns of cross-platform information warfare oper-
16 ations and specific fraudulent behavior on social
17 media platforms.

18 (10) General Paul Nakasone, Director of the
19 National Security Agency, emphasized the impor-
20 tance of these independent analyses to the planning
21 and conducting of military cyber operations to frus-
22 trate Kremlin-linked information warfare operations
23 against the 2018 mid-term elections. General
24 Nakasone stated that the reports “were very, very
25 helpful in terms of being able to understand exactly

1 what our adversary was trying to do to build dissent
2 within our nation.”.

3 (11) Institutionalizing ongoing robust, inde-
4 pendent, and vigorous analysis of data related to
5 foreign threat networks within and across social
6 media platforms will help counter ongoing informa-
7 tion warfare operations against the United States,
8 its allies, and its partners.

9 (12) Archiving and disclosing to the public the
10 results of these analyses by the social media compa-
11 nies and trusted third-party experts in a transparent
12 manner will serve to demonstrate that the social
13 media companies are detecting and removing foreign
14 malign activities from their platforms while pro-
15 tecting the privacy of the people of the United
16 States and will build public understanding of the
17 scale and scope of these foreign threats to our de-
18 mocracy, since exposure is one of the most effective
19 means to build resilience.

20 (b) SENSE OF CONGRESS.—It is the sense of Con-
21 gress that—

22 (1) the social media companies should cooperate
23 among themselves and with independent organiza-
24 tions and researchers on a sustained and regular
25 basis to share and analyze data and indicators rel-

1 evant to foreign information warfare operations
2 within and across their platforms in order to detect
3 and counter foreign information warfare operations
4 that threaten the national security of the United
5 States and its allies and partners;

6 (2) information from law enforcement and the
7 intelligence community is also important in assisting
8 efforts by these social media companies to identify
9 foreign information warfare operations;

10 (3) these analytic efforts should be organized in
11 such a fashion as to meet the highest standards of
12 ethics, confidentiality, and privacy protection of the
13 people of the United States, while still allowing time-
14 ly research access to relevant data;

15 (4) these analytic efforts should be undertaken
16 as soon as possible to facilitate countering ongoing
17 state or state-backed foreign information warfare op-
18 erations and to aid in preparations for the United
19 States Presidential and congressional elections in
20 2020 and beyond;

21 (5) the structure and operations of social media
22 companies make them well positioned to work with
23 independent organizations and researchers to ad-
24 dress foreign adversary threat networks within and
25 across their platforms, and these efforts could be

1 conducted without direct Government involvement,
2 direction, or regulation; and

3 (6) if the social media industry fails to take
4 sufficient action to address foreign adversary threat
5 networks operating within or across their platforms,
6 Congress would have to consider additional safe-
7 guards for ensuring that this threat is effectively
8 mitigated.

9 (c) AUTHORITY TO FACILITATE ESTABLISHMENT OF
10 SOCIAL MEDIA DATA AND THREAT ANALYSIS CENTER.—

11 (1) AUTHORITY.—The Director of National In-
12 telligence, in coordination with the Secretary of De-
13 fense, may facilitate, by grant or contract or under
14 an existing authority of the Director, the establish-
15 ment of a Social Media Data and Threat Analysis
16 Center with the functions described in paragraph (2)
17 at an independent, nonprofit organization.

18 (2) FUNCTIONS.—The functions described in
19 this paragraph are the following:

20 (A) Acting as a convening and sponsoring
21 authority for cooperative social media data
22 analysis of foreign threat networks involving so-
23 cial media companies and third-party experts,
24 nongovernmental organizations, data journal-
25 ists, Federally funded research and development

1 centers, academic researchers, traditional
2 media, and international counterparts, as ap-
3 propriate.

4 (B) Facilitating analysis of foreign influ-
5 ence operation, within and across the individual
6 social media platforms as well as hacking and
7 leaking campaigns, and other tactics, and re-
8 lated unlawful activities that fund or subsidize
9 such operations.

10 (C) Developing processes to share informa-
11 tion from government entities on foreign influ-
12 ence operations with the individual social media
13 companies to inform threat analysis, and work-
14 ing with the Office of the Director of National
15 Intelligence as appropriate.

16 (D) Determining and making public cri-
17 teria for identifying which companies, organiza-
18 tions, or researchers qualify for inclusion in the
19 activities of the Center, and inviting entities
20 that fit the criteria to join.

21 (E) Determining jointly with the social
22 media companies what data and metadata re-
23 lated to indicators of foreign adversary threat
24 networks from their platforms and business op-

1 erations will be made available for access and
2 analysis.

3 (F) Developing and making public the cri-
4 teria and standards that must be met for com-
5 panies, other organizations, and individual re-
6 searchers to access and analyze data relating to
7 foreign adversary threat networks within and
8 across social media platforms and publish or
9 otherwise use the results.

10 (G) Developing and making public the eth-
11 ical standards for investigation of foreign threat
12 networks and use of analytic results and for
13 protection of the privacy of the customers and
14 users of the social media platforms and of the
15 proprietary information of the social media
16 companies.

17 (H) Developing technical, contractual, and
18 procedural controls to prevent misuse of data,
19 including any necessary auditing procedures,
20 compliance checks, and review mechanisms.

21 (I) Developing and making public criteria
22 and conditions under which the Center shall
23 share information with the appropriate Govern-
24 ment agencies regarding threats to national se-

1 curity from, or violations of the law involving,
2 foreign activities on social media platforms.

3 (J) Hosting a searchable archive aggregating information related to foreign influence
4 and disinformation operations to build a collective understanding of the threats and facilitate
5 future examination consistent with privacy protections.
6
7
8

9 (K) Developing data standards to harmonize the sharing of information pursuant to
10 this paragraph.
11

12 (d) REPORTING AND NOTIFICATIONS.—If the Director of National Intelligence chooses to use funds under
13 subsection (c)(1) to facilitate the establishment of the
14 Center, the Director of the Center shall—
15

16 (1) not later than 180 days after the date of
17 the enactment of this Act, submit to appropriate
18 congressional committees a report on—

19 (A) the estimated funding needs of the
20 Center for fiscal year 2021 and for subsequent
21 years;

22 (B) such statutory protections from liability as the Director considers necessary for the
23 Center, participating social media companies,
24

1 and participating third-party analytical partici-
2 pants;

3 (C) such statutory penalties as the Direc-
4 tor considers necessary to ensure against mis-
5 use of data by researchers; and

6 (D) such changes to the Center's mission
7 to fully capture broader unlawful activities that
8 intersect with, complement, or support informa-
9 tion warfare tactics; and

10 (2) not less frequently than once each year,
11 submit to the Director of National Intelligence, the
12 Secretary of Defense, and the appropriate congres-
13 sional committees a report—

14 (A) that assesses—

15 (i) degree of cooperation and commit-
16 ment from the social media companies to
17 the mission of the Center; and

18 (ii) effectiveness of the Center in de-
19 tecting and facilitating the removal or neu-
20 tralization of clandestine foreign informa-
21 tion warfare operations from social media
22 platforms; and

23 (B) includes such recommendations for leg-
24 islative or administrative action as the Center

1 considers appropriate to carry out the functions
2 of the Center.

3 (e) PERIODIC REPORTING TO THE PUBLIC.—The Di-
4 rector of the Center shall—

5 (1) once each quarter, make available to the
6 public a report on key trends in foreign influence
7 and disinformation operations, including any threats
8 to campaigns and elections, to inform the public of
9 the United States; and

10 (2) as the Director considers necessary, provide
11 more timely assessments relating to ongoing
12 disinformation campaigns.

13 (f) FUNDING.—Of the amounts appropriated or oth-
14 erwise made available to the National Intelligence Pro-
15 gram (as defined in section 3 of the National Security Act
16 of 1947 (50 U.S.C. 3003)) in fiscal year 2020 and 2021,
17 the Director of National Intelligence may use up to
18 \$30,000,000 to carry out this section.

19 (g) DEFINITION OF APPROPRIATE CONGRESSIONAL
20 COMMITTEES.—In this section, the term “appropriate
21 congressional committees” means—

22 (1) the Committee on Armed Services of the
23 Senate;

24 (2) the Committee on Homeland Security and
25 Governmental Affairs of the Senate;

1 (3) the Committee on Foreign Relations of the
2 Senate;

3 (4) the Committee on the Judiciary of the Sen-
4 ate;

5 (5) the Select Committee on Intelligence of the
6 Senate;

7 (6) the Committee on Armed Services of the
8 House of Representatives;

9 (7) the Committee on Homeland Security of the
10 House of Representatives;

11 (8) the Committee on Foreign Affairs of the
12 House of Representatives;

13 (9) the Committee on the Judiciary of the
14 House of Representatives; and

15 (10) the Permanent Select Committee on Intel-
16 ligence of the House of Representatives.

17 **SEC. 5324. TRANSFER OF NATIONAL INTELLIGENCE UNI-**
18 **VERSITY TO THE OFFICE OF THE DIRECTOR**
19 **OF NATIONAL INTELLIGENCE.**

20 (a) TRANSFER.—Upon the submission of the joint
21 certifications under subsection (b)(1), the Secretary of De-
22 fense and the Director of National Intelligence shall take
23 such actions that the Director determines necessary to
24 transfer the National Intelligence University from the De-

1 fense Intelligence Agency to the Director of National In-
2 telligence.

3 (b) JOINT CERTIFICATIONS.—

4 (1) REQUIREMENT.—Except as provided by
5 paragraph (2), as soon as practicable after the date
6 of the enactment of this Act, but not later than 18
7 months after the date of such enactment, the Sec-
8 retary of Defense and the Director of National Intel-
9 ligence shall jointly submit to the appropriate con-
10 gressional committees written certifications of each
11 of the following:

12 (A) The Middle States Commission on
13 Higher Education has provided regional aca-
14 demic accreditation for the National Intel-
15 ligence University before the date of the certifi-
16 cation, or will provide such academic accredita-
17 tion as of the date on which the University is
18 transferred under subsection (a).

19 (B) Members of the Armed Forces attend-
20 ing the University will be eligible to receive
21 credit for Phase I joint professional military
22 education.

23 (C) The Secretary of Education has in-
24 formed the Director of National Intelligence
25 that the Secretary has recommended approval

1 of the degrees to be conferred pursuant to sub-
2 section (e)(2) or will provide such recommended
3 approval as of the date on which the University
4 is transferred under subsection (a).

5 (D) The Director of National Intelligence,
6 in collaboration with the Secretary of Defense,
7 has established an appropriate governance
8 model for the University.

9 (E) The Secretary of Defense shall use the
10 University to provide personnel of the Depart-
11 ment of Defense with advanced intelligence edu-
12 cation.

13 (2) FAILURE TO CERTIFY.—

14 (A) ACTIONS REQUIRED.—If the Secretary
15 of Defense and the Director of National Intel-
16 ligence fail to submit the certifications under
17 paragraph (1) by the date specified in such
18 paragraph, the Secretary and the Director
19 shall—

20 (i) jointly submit to the appropriate
21 congressional committees a report on such
22 failure by not later than 21 months after
23 the date of the enactment of this Act; and

24 (ii) jointly submit such certifications
25 as soon as practicable.

1 (B) CONTENTS OF REPORT.—The report
2 under subparagraph (A)(i) shall contain the fol-
3 lowing:

4 (i) A description of the progress made
5 toward fulfilling the conditions described in
6 such paragraph as of the date of the re-
7 port.

8 (ii) A description of any obstacles pre-
9 venting the fulfillment of such conditions.

10 (iii) The estimated dates of comple-
11 tion for the fulfillment of such conditions
12 and the submission of the certifications.

13 (c) BRIEFING.—Not later than 90 days after the date
14 of the enactment of this Act, the Director of National In-
15 telligence, the Director of the Defense Intelligence Agency,
16 and the President of the National Intelligence University
17 shall jointly provide to the appropriate congressional com-
18 mittees a briefing on the plan to carry out the transfer
19 under subsection (a), including with respect to—

20 (1) ensuring the provision of services to all ele-
21 ments of the intelligence community;

22 (2) employing a military cadre at the Univer-
23 sity; and

1 (3) addressing the current accreditation status
2 of the National Intelligence University with the Mid-
3 dle States Commission on Higher Education.

4 (d) COST ESTIMATES OF TRANSFER.—

5 (1) REQUIREMENT.—Not later than 90 days
6 after the date of the enactment of this Act, the Sec-
7 retary of Defense and the Director of National Intel-
8 ligence shall jointly submit to the appropriate con-
9 gressional committees an estimate of—

10 (A) the annual costs of operating the Na-
11 tional Intelligence University; and

12 (B) the costs to the Federal Government
13 of transferring the National Intelligence Univer-
14 sity to the Director of National Intelligence.

15 (2) INCLUSION OF INDIRECT COSTS.—The esti-
16 mate submitted under paragraph (1) shall include
17 all indirect costs, including with respect to human
18 resources, security, facilities, and information tech-
19 nology.

20 (e) DEGREE-GRANTING AUTHORITY.—

21 (1) REGULATIONS.—Beginning on the date on
22 which the National Intelligence University is trans-
23 ferred under subsection (a), under regulations pre-
24 scribed by the Director of National Intelligence, the
25 President of the National Intelligence University

1 may, upon the recommendation of the faculty of the
2 University, confer appropriate degrees upon grad-
3 uates who meet the degree requirements.

4 (2) LIMITATION.—A degree may not be con-
5 ferred under this section unless—

6 (A) the Secretary of Education has rec-
7 ommended approval of the degree in accordance
8 with the Federal Policy Governing Granting of
9 Academic Degrees by Federal Agencies; and

10 (B) the University is accredited by the ap-
11 propriate civilian academic accrediting agency
12 or organization to award the degree, as deter-
13 mined by the Secretary of Education.

14 (f) CONGRESSIONAL NOTIFICATION REQUIRE-
15 MENTS.—

16 (1) ACTIONS ON NONACCREDITATION.—Begin-
17 ning on the date on which the National Intelligence
18 University is transferred under subsection (a), the
19 Director of National Intelligence shall promptly—

20 (A) notify the congressional intelligence
21 committees of any action by the Middle States
22 Commission on Higher Education, or other ap-
23 propriate academic accrediting agency or orga-
24 nization, to not accredit the University to award
25 any new or existing degree; and

1 (B) submit to such committees a report
2 containing an explanation of any such action.

3 (2) MODIFICATION OR REDESIGNATION OF DE-
4 GREE-GRANTING AUTHORITY.—Beginning on the
5 date on which the National Intelligence University is
6 transferred under subsection (a), upon any modifica-
7 tion or redesignation of existing degree-granting au-
8 thority, the Director shall submit to the congress-
9 sional intelligence committees a report containing
10 the rationale for the proposed modification or redesi-
11 gnation and any subsequent recommendation of the
12 Secretary of Education with respect to the proposed
13 modification or redesignation.

14 (g) CONFORMING REPEAL.—

15 (1) IN GENERAL.—Section 2161 of title 10,
16 United States Code, is repealed, and the table of
17 sections at the beginning of chapter 108 of such title
18 is amended by striking the item relating to such sec-
19 tion 2161.

20 (2) EFFECTIVE DATE.—The amendments made
21 by paragraph (1) shall take effect on the date on
22 which the Secretary of Defense and the Director of
23 National Intelligence jointly submit the joint certifi-
24 cations under subsection (b)(1). The Secretary and
25 the Director shall jointly notify the Law Revision

1 Counsel of the House of Representatives of the sub-
2 mission of the certifications so that the Law Revi-
3 sion Counsel may execute the amendments made by
4 paragraph (1).

5 (h) DEFINITIONS.—In this section:

6 (1) APPROPRIATE CONGRESSIONAL COMMIT-
7 TEES.—The term “appropriate congressional com-
8 mittees” means—

9 (A) the congressional intelligence commit-
10 tees; and

11 (B) the Committees on Armed Services of
12 the Senate and House of Representatives.

13 (2) PHASE I JOINT PROFESSIONAL MILITARY
14 EDUCATION.—The term “Phase I joint professional
15 military education” has the meaning given that term
16 pursuant to section 2154 of title 10, United States
17 Code.

18 **Subtitle C—Inspector General of** 19 **the Intelligence Community**

20 **SEC. 5331. DEFINITIONS.**

21 In this subtitle:

22 (1) WHISTLEBLOWER.—The term “whistle-
23 blower” means a person who makes a whistleblower
24 disclosure.

1 (2) WHISTLEBLOWER DISCLOSURE.—The term
2 “whistleblower disclosure” means a disclosure that is
3 protected under section 1104 of the National Security
4 Act of 1947 (50 U.S.C. 3234) or section
5 3001(j)(1) of the Intelligence Reform and Terrorism
6 Prevention Act of 2004 (50 U.S.C. 3341(j)).

7 **SEC. 5332. INSPECTOR GENERAL EXTERNAL REVIEW**
8 **PANEL.**

9 (a) AUTHORITY TO CONVENE EXTERNAL REVIEW
10 PANELS.—

11 (1) IN GENERAL.—Title XI of the National Security
12 Act of 1947 (50 U.S.C. 3231 et seq.), as
13 amended by section 6718, is amended by adding at
14 the end the following new section:

15 **“SEC. 1106. INSPECTOR GENERAL EXTERNAL REVIEW**
16 **PANEL.**

17 “(a) REQUEST FOR REVIEW.—An individual with a
18 claim described in subsection (b) may submit to the In-
19 spector General of the Intelligence Community a request
20 for a review of such claim by an external review panel con-
21 vened under subsection (c).

22 “(b) CLAIMS AND INDIVIDUALS DESCRIBED.—A
23 claim described in this subsection is any—

24 “(1) claim by an individual—

1 “(A) that the individual has been subjected
2 to a personnel action that is prohibited under
3 section 1104; and

4 “(B) who has exhausted the applicable re-
5 view process for the claim pursuant to enforce-
6 ment of such section; or

7 “(2) claim by an individual—

8 “(A) that he or she has been subjected to
9 a reprisal prohibited by paragraph (1) of sec-
10 tion 3001(j) of the Intelligence Reform and
11 Terrorism Prevention Act of 2004 (50 U.S.C.
12 3341(j)); and

13 “(B) who received a decision on an appeal
14 regarding that claim under paragraph (4) of
15 such section.

16 “(c) EXTERNAL REVIEW PANEL CONVENED.—

17 “(1) DISCRETION TO CONVENE.—Upon receipt
18 of a request under subsection (a) regarding a claim,
19 the Inspector General of the Intelligence Community
20 may, at the discretion of the Inspector General, con-
21 vene an external review panel under this subsection
22 to review the claim.

23 “(2) MEMBERSHIP.—

1 “(A) COMPOSITION.—An external review
2 panel convened under this subsection shall be
3 composed of three members as follows:

4 “(i) The Inspector General of the In-
5 telligence Community.

6 “(ii) Except as provided in subpara-
7 graph (B), two members selected by the
8 Inspector General as the Inspector General
9 considers appropriate on a case-by-case
10 basis from among inspectors general of the
11 following:

12 “(I) The Department of Defense.

13 “(II) The Department of Energy.

14 “(III) The Department of Home-
15 land Security.

16 “(IV) The Department of Jus-
17 tice.

18 “(V) The Department of State.

19 “(VI) The Department of the
20 Treasury.

21 “(VII) The Central Intelligence
22 Agency.

23 “(VIII) The Defense Intelligence
24 Agency.

1 “(IX) The National Geospatial-
2 Intelligence Agency.

3 “(X) The National Reconnaissance
4 Office.

5 “(XI) The National Security
6 Agency.

7 “(B) LIMITATION.—An inspector general
8 of an agency may not be selected to sit on the
9 panel under subparagraph (A)(ii) to review any
10 matter relating to a decision made by such
11 agency.

12 “(C) CHAIRPERSON.—

13 “(i) IN GENERAL.—Except as pro-
14 vided in clause (ii), the chairperson of any
15 panel convened under this subsection shall
16 be the Inspector General of the Intelligence
17 Community.

18 “(ii) CONFLICTS OF INTEREST.—If
19 the Inspector General of the Intelligence
20 Community finds cause to recuse himself
21 or herself from a panel convened under
22 this subsection, the Inspector General of
23 the Intelligence Community shall—

24 “(I) select a chairperson from in-
25 spectors general of the elements listed

1 under subparagraph (A)(ii) whom the
2 Inspector General of the Intelligence
3 Community considers appropriate;
4 and

5 “(II) notify the congressional in-
6 telligence committees of such selec-
7 tion.

8 “(3) PERIOD OF REVIEW.—Each external re-
9 view panel convened under this subsection to review
10 a claim shall complete review of the claim no later
11 than 270 days after the date on which the Inspector
12 General convenes the external review panel.

13 “(d) REMEDIES.—

14 “(1) PANEL RECOMMENDATIONS.—If an exter-
15 nal review panel convened under subsection (c) de-
16 termines, pursuant to a review of a claim submitted
17 by an individual under subsection (a), that the indi-
18 vidual was the subject of a personnel action prohib-
19 ited under section 1104 or was subjected to a re-
20 prisal prohibited by section 3001(j)(1) of the Intel-
21 ligence Reform and Terrorism Prevention Act of
22 2004 (50 U.S.C. 3341(j)(1)), the panel may rec-
23 ommend that the agency head take corrective ac-
24 tion—

1 “(A) in the case of an employee or former
2 employee—

3 “(i) to return the employee or former
4 employee, as nearly as practicable and rea-
5 sonable, to the position such employee or
6 former employee would have held had the
7 reprisal not occurred; or

8 “(ii) reconsider the employee’s or
9 former employee’s eligibility for access to
10 classified information consistent with na-
11 tional security; or

12 “(B) in any other case, such other action
13 as the external review panel considers appro-
14 priate.

15 “(2) AGENCY ACTION.—

16 “(A) IN GENERAL.—Not later than 90
17 days after the date on which the head of an
18 agency receives a recommendation from an ex-
19 ternal review panel under paragraph (1), the
20 head shall—

21 “(i) give full consideration to such
22 recommendation; and

23 “(ii) inform the panel and the Direc-
24 tor of National Intelligence of what action

1 the head has taken with respect to the rec-
2 ommendation.

3 “(B) FAILURE TO INFORM.—The Director
4 shall notify the President of any failures to
5 comply with subparagraph (A)(ii).

6 “(e) ANNUAL REPORTS.—

7 “(1) IN GENERAL.—Not less frequently than
8 once each year, the Inspector General of the Intel-
9 ligence Community shall submit to the congressional
10 intelligence committees and the Director of National
11 Intelligence a report on the activities under this sec-
12 tion during the previous year.

13 “(2) CONTENTS.—Subject to such limitations
14 as the Inspector General of the Intelligence Commu-
15 nity considers necessary to protect the privacy of an
16 individual who has made a claim described in sub-
17 section (b), each report submitted under paragraph
18 (1) shall include, for the period covered by the re-
19 port, the following:

20 “(A) The determinations and recommenda-
21 tions made by the external review panels con-
22 vened under this section.

23 “(B) The responses of the heads of agen-
24 cies that received recommendations from the ex-
25 ternal review panels.”.

1 (2) TABLE OF CONTENTS AMENDMENT.—The
2 table of contents in the first section of the National
3 Security Act of 1947, as amended by section 6718,
4 is amended by adding at the end the following new
5 item:

“Sec. 1106. Inspector General external review panel.”.

6 (b) RECOMMENDATION ON ADDRESSING WHISTLE-
7 BLOWER APPEALS RELATING TO REPRISAL COMPLAINTS
8 AGAINST INSPECTORS GENERAL.—

9 (1) IN GENERAL.—Not later than 180 days
10 after the date of the enactment of this Act, the In-
11 spector General of the Intelligence Community, in
12 consultation with the Intelligence Community In-
13 spectors General Forum, shall submit to the con-
14 gressional intelligence committees a recommendation
15 on how to ensure that—

16 (A) a whistleblower in the intelligence com-
17 munity who has a complaint against an inspec-
18 tor general in the intelligence community and
19 who alleges a reprisal, has available the adju-
20 dication and review provided under section
21 1104 of the National Security Act of 1947 (50
22 U.S.C. 3234); and

23 (B) any such whistleblower who has ex-
24 hausted the applicable review process may re-
25 quest an external review panel and receive one,

1 at the discretion of the Inspector General of the
2 Intelligence Community.

3 (2) CONTENTS.—The recommendation sub-
4 mitted pursuant to paragraph (1) shall include the
5 following:

6 (A) A discussion of whether and to what
7 degree section 1106 of the National Security
8 Act of 1947, as added by subsection (a)(1), pro-
9 vides appropriate authorities and mechanisms
10 to provide an external review panel as described
11 in paragraph (1) of this subsection and for the
12 purposes described in such paragraph.

13 (B) Such recommendations for legislative
14 or administrative action as the Inspector Gen-
15 eral may have with respect to providing an ex-
16 ternal review panel as described in paragraph
17 (1) and for the purposes described in such
18 paragraph.

19 **SEC. 5333. HARMONIZATION OF WHISTLEBLOWER PROC-**
20 **ESSES AND PROCEDURES.**

21 (a) IN GENERAL.—Not later than 1 year after the
22 date of the enactment of this Act, the Inspector General
23 of the Intelligence Community, in coordination with the
24 Intelligence Community Inspectors General Forum, shall
25 develop recommendations, applicable to all inspectors gen-

1 eral of elements of the intelligence community, regarding
2 the harmonization, where appropriate, of instructions,
3 policies, and directives relating to processes, procedures,
4 and timelines for claims and appeals relating to allegations
5 of personnel actions prohibited under section 1104 of the
6 National Security Act of 1947 or reprisals prohibited by
7 section 3001(j)(1) of the Intelligence Reform and Ter-
8 rorism Prevention Act of 2004 (50 U.S.C. 3341(j)(1)).

9 (b) **TRANSPARENCY AND PROTECTION.**—In devel-
10 oping recommendations under subsection (a), the Inspec-
11 tor General of the Intelligence Community shall make ef-
12 forts to maximize transparency and protect whistle-
13 blowers.

14 **SEC. 5334. OVERSIGHT BY INSPECTOR GENERAL OF THE IN-**
15 **TELLIGENCE COMMUNITY OVER INTEL-**
16 **LIGENCE COMMUNITY WHISTLEBLOWER**
17 **MATTERS.**

18 (a) **SYSTEM FOR NOTIFICATION OF INFORMATION**
19 **RELATING TO COMPLAINTS BY WHISTLEBLOWERS WITH-**
20 **IN THE INTELLIGENCE COMMUNITY.**—Subject to sub-
21 section (b), not later than 1 year after the date of the
22 enactment of this Act, the Inspector General of the Intel-
23 ligence Community, in consultation with the Intelligence
24 Community Inspectors General Forum, shall establish a

1 system whereby the Inspector General of the Intelligence
2 Community is notified in near real time of the following:

3 (1) Submission of complaints by whistleblowers
4 to inspectors general of elements of the intelligence
5 community relating to the programs and activities
6 under the jurisdiction of the Director of National In-
7 telligence, and information related to such com-
8 plaints.

9 (2) Actions taken by an inspector general of an
10 element of the Intelligence Community relating to
11 such complaints.

12 (b) POLICIES FOR IMPLEMENTATION.—

13 (1) IN GENERAL.—The system established
14 under subsection (a) may not be implemented until
15 the Inspector General of the Intelligence Commu-
16 nity, in consultation with the Intelligence Commu-
17 nity Inspectors General Forum, has developed and
18 released to each of the inspectors general of the ele-
19 ments of the intelligence community written policies
20 regarding the implementation of such subsection.

21 (2) REQUIREMENTS.—The policies required by
22 paragraph (1) shall—

23 (A) protect the privacy of whistleblowers,
24 including by preventing dissemination without
25 the consent of the whistleblower, of any infor-

1 mation submitted previously by a whistleblower
2 to an inspector general of an element of the in-
3 telligence community; and

4 (B) ensure compliance with the require-
5 ments of subsection (a), while—

6 (i) ensuring that the Inspector Gen-
7 eral of the Intelligence Community can
8 oversee whistleblower policies and practices
9 and identify matters that, in the judgment
10 of the Inspector General of the Intelligence
11 Community, may be the subject of an in-
12 vestigation, inspection, audit, or review by
13 the Inspector General of the Intelligence
14 Community; and

15 (ii) avoiding the imposition of inap-
16 propriate resource burdens on inspectors
17 general of elements of the intelligence com-
18 munity.

19 **SEC. 5335. REPORT ON CLEARED WHISTLEBLOWER ATTOR-**
20 **NEYS.**

21 (a) **REPORT REQUIRED.**—Not later than 1 year after
22 the date of the enactment of this Act, the Director of Na-
23 tional Intelligence shall, in coordination with the Inspector
24 General of the Intelligence Community and the Intel-
25 ligence Community Inspectors General Forum, submit to

1 the congressional intelligence committees a report on ac-
2 cess to cleared attorneys by whistleblowers in the intel-
3 ligence community.

4 (b) CONTENTS.—The report submitted pursuant to
5 subsection (a) shall include the following with respect to
6 the 3-year period preceding the date of the report:

7 (1) The number of whistleblowers in the intel-
8 ligence community who requested, through formal
9 submission or verbal request, to retain a cleared at-
10 torney and at what stage they requested an attor-
11 ney.

12 (2) The number of such limited security agree-
13 ments approved, rejected, or pending.

14 (3) The scope and clearance levels of such lim-
15 ited security agreements.

16 (4) The number of such whistleblowers rep-
17 resented by cleared counsel.

18 (5) Recommendations for legislative or adminis-
19 trative action to ensure that whistleblowers in the
20 intelligence community have access to cleared attor-
21 neys, including improvements to the limited security
22 agreement process and such other options as the In-
23 spector General of the Intelligence Community con-
24 siders appropriate.

1 (c) SURVEY.—The Inspector General of the Intel-
2 ligence Community shall ensure that the report submitted
3 under subsection (a) is based on—

4 (1) data from a survey of whistleblowers whose
5 identity may be shared, as appropriate, with the In-
6 spector General of the Intelligence Community by
7 means of the system established pursuant to section
8 5334;

9 (2) information obtained from the inspectors
10 general of the intelligence community; or

11 (3) information from such other sources as may
12 be identified by the Inspector General of the Intel-
13 ligence Community.

14 **Subtitle D—Central Intelligence** 15 **Agency**

16 **SEC. 5341. CLARIFICATION OF CERTAIN AUTHORITY OF** 17 **THE CENTRAL INTELLIGENCE AGENCY.**

18 Section 8(a)(1) of the Central Intelligence Agency
19 Act of 1949 (50 U.S.C. 3510(a)(1)) is amended by insert-
20 ing before “rental of” the following: “payment of death
21 benefits in cases in which the circumstances of the death
22 of an employee of the Agency, a detailee of the Agency
23 or other employee of another department or agency of the
24 Federal Government assigned to the Agency, or an indi-
25 vidual affiliated with the Agency (as determined by the

1 Director), is not covered by section 11, other similar provi-
2 sions of Federal law, or any regulation issued by the Di-
3 rector providing death benefits, but that the Director de-
4 termines such payment appropriate;”.

5 **TITLE LIV—SECURITY**
6 **CLEARANCES**

7 **SEC. 5401. IMPROVING VISIBILITY INTO THE SECURITY**
8 **CLEARANCE PROCESS.**

9 (a) DEFINITION OF SECURITY EXECUTIVE AGENT.—
10 In this section, the term “Security Executive Agent”
11 means the officer serving as the Security Executive Agent
12 pursuant to section 803 of the National Security Act of
13 1947, as added by section 6605.

14 (b) POLICY REQUIRED.—Not later than 90 days after
15 the date of the enactment of this Act, the Security Execu-
16 tive Agent shall issue a policy that requires the head of
17 each Federal agency to create, not later than December
18 31, 2023, an electronic portal that can be used by human
19 resources personnel and applicants for security clearances
20 to view information about the status of an application for
21 a security clearance and the average time required for
22 each phase of the security clearance process.

1 **SEC. 5402. MAKING CERTAIN POLICIES AND EXECUTION**
2 **PLANS RELATING TO PERSONNEL CLEAR-**
3 **ANCES AVAILABLE TO INDUSTRY PARTNERS.**

4 (a) DEFINITIONS.—In this section:

5 (1) SECURITY EXECUTIVE AGENT.—The term
6 “Security Executive Agent” means the officer serv-
7 ing as the Security Executive Agent pursuant to sec-
8 tion 803 of the National Security Act of 1947, as
9 added by section 6605.

10 (2) APPROPRIATE INDUSTRY PARTNER.—The
11 term “appropriate industry partner” means a con-
12 tractor, licensee, or grantee (as defined in section
13 101(a) of Executive Order 12829 (50 U.S.C. 3161
14 note; relating to National Industrial Security Pro-
15 gram), as in effect on the day before the date of the
16 enactment of this Act) that is participating in the
17 National Industrial Security Program established by
18 such Executive Order.

19 (b) SHARING OF POLICIES AND PLANS REQUIRED.—
20 Each head of a Federal agency shall share policies and
21 plans relating to security clearances with appropriate in-
22 dustry partners directly affected by such policies and plans
23 in a manner consistent with the protection of national se-
24 curity as well as the goals and objectives of the National
25 Industrial Security Program administered pursuant to Ex-

1 Executive Order 12829 (50 U.S.C. 3161 note; relating to the
2 National Industrial Security Program).

3 (c) DEVELOPMENT OF POLICIES AND PROCEDURES
4 REQUIRED.—Not later than 90 days after the date of the
5 enactment of this Act, the Security Executive Agent and
6 the Director of the National Industrial Security Program
7 shall jointly develop policies and procedures by which ap-
8 propriate industry partners with proper security clear-
9 ances and a need to know can have appropriate access to
10 the policies and plans shared pursuant to subsection (b)
11 that directly affect those industry partners.

12 **TITLE LV—MATTERS RELATING**
13 **TO FOREIGN COUNTRIES**
14 **Subtitle A—Matters Relating to**
15 **Russia**

16 **SEC. 5501. ANNUAL REPORTS ON INFLUENCE OPERATIONS**
17 **AND CAMPAIGNS IN THE UNITED STATES BY**
18 **THE RUSSIAN FEDERATION.**

19 (a) REPORTS.—Title XI of the National Security Act
20 of 1947 (50 U.S.C. 3231 et seq.), as amended by section
21 5511, is further amended by adding at the end the fol-
22 lowing new section:

1 **“SEC. 1108. ANNUAL REPORTS ON INFLUENCE OPERATIONS**
2 **AND CAMPAIGNS IN THE UNITED STATES BY**
3 **THE RUSSIAN FEDERATION.**

4 “(a) **REQUIREMENT.**—On an annual basis, the Direc-
5 tor of the National Counterintelligence and Security Cen-
6 ter shall submit to the congressional intelligence commit-
7 tees a report on the influence operations and campaigns
8 in the United States conducted by the Russian Federation.

9 “(b) **CONTENTS.**—Each report under subsection (a)
10 shall include the following:

11 “(1) A description and listing of the Russian
12 organizations and persons involved in influence oper-
13 ations and campaigns operating in the United States
14 as of the date of the report.

15 “(2) An assessment of organizations that are
16 associated with or receive funding from organiza-
17 tions and persons identified in paragraph (1), par-
18 ticularly such entities operating in the United
19 States.

20 “(3) A description of the efforts by the organi-
21 zations and persons identified in paragraph (1) to
22 target, coerce, and influence populations within the
23 United States.

24 “(4) An assessment of the activities of the orga-
25 nizations and persons identified in paragraph (1) de-
26 signed to influence the opinions of elected leaders of

1 the United States or candidates for election in the
2 United States.

3 “(5) With respect to reports submitted after the
4 first report, an assessment of the change in goals,
5 tactics, techniques, and procedures of the influence
6 operations and campaigns conducted by the organi-
7 zations and persons identified in paragraph (1).

8 “(c) COORDINATION.—In carrying out subsection (a),
9 the Director shall coordinate with the Director of the Fed-
10 eral Bureau of Investigation, the Director of the Central
11 Intelligence Agency, the Director of the National Security
12 Agency, and any other relevant head of an element of the
13 intelligence community.

14 “(d) FORM.—Each report submitted under sub-
15 section (a) shall be submitted in unclassified form, but
16 may include a classified annex.”

17 (b) CLERICAL AMENDMENT.—The table of contents
18 in the first section of the National Security Act of 1947,
19 as amended by section 5511, is further amended by insert-
20 ing after the item relating to section 1107 the following
21 new item:

“Sec. 1108. Annual reports on influence operations and campaigns in the
United States by the Russian Federation.”.

22 (c) INITIAL REPORT.—The Director of the National
23 Counterintelligence and Security Center shall submit to
24 the congressional intelligence committees the first report

1 under section 1108 of the National Security Act of 1947,
2 as added by subsection (a), by not later than 180 days
3 after the date of the enactment of this Act.

4 **SEC. 5502. ASSESSMENT OF LEGITIMATE AND ILLEGIT-**
5 **IMATE FINANCIAL AND OTHER ASSETS OF**
6 **VLADIMIR PUTIN.**

7 (a) SENSE OF CONGRESS.—It is the sense of Con-
8 gress that the United States should do more to expose the
9 corruption of Vladimir Putin, whose ill-gotten wealth is
10 perhaps the most powerful global symbol of his dishonesty
11 and his persistent efforts to undermine the rule of law and
12 democracy in the Russian Federation.

13 (b) ASSESSMENT.—Not later than 180 days after the
14 date of the enactment of this Act, consistent with the pro-
15 tection of intelligence sources and methods, the Director
16 of National Intelligence shall submit to the appropriate
17 congressional committees an assessment, based on all
18 sources of intelligence, on the net worth and financial and
19 other assets, legitimate as well as illegitimate, of Vladimir
20 Putin and his family members, including—

21 (1) the estimated net worth of Vladimir Putin
22 and his family members;

23 (2) a description of their legitimately and ille-
24 gitimately obtained assets, including all real, per-
25 sonal, and intellectual property, bank or investment

1 or similar accounts, and any other financial or busi-
2 ness interests or holdings, including those outside of
3 Russia;

4 (3) the details of the legitimately and illegiti-
5 mately obtained assets, including real, personal, and
6 intellectual property, bank or investment or similar
7 accounts, and any other financial or business inter-
8 ests or holdings, including those outside of Russia,
9 that are owned or controlled by, accessible to, or
10 otherwise maintained for the benefit of Vladimir
11 Putin, including their nature, location, manner of
12 acquisition, value, and publicly named owner (if
13 other than Vladimir Putin);

14 (4) the methods used by Vladimir Putin or oth-
15 ers acting at his direction, with his knowledge, or for
16 his benefit, to conceal Putin's interest in his ac-
17 counts, holdings, or other assets, including the es-
18 tablishment of "front" or shell companies and the
19 use of intermediaries; and

20 (5) an identification of the most significant sen-
21 ior Russian political figures, oligarchs, and any other
22 persons who have engaged in activity intended to
23 conceal the true financial condition of Vladimir
24 Putin.

1 (c) FORM.—The assessment required under sub-
2 section (b) shall be submitted either—

3 (1) in unclassified form to the extent consistent
4 with the protection of intelligence sources and meth-
5 ods, and may include a classified annex; or

6 (2) simultaneously as both an unclassified
7 version and a classified version.

8 (d) APPROPRIATE CONGRESSIONAL COMMITTEES
9 DEFINED.—In this section, the term “appropriate con-
10 gressional committees” means—

11 (1) the Select Committee on Intelligence, the
12 Committee on Foreign Relations, the Committee on
13 Banking, Housing, and Urban Affairs, and the Com-
14 mittee on Finance of the Senate; and

15 (2) the Permanent Select Committee on Intel-
16 ligence, Committee on Foreign Affairs, the Com-
17 mittee on Financial Services, and the Committee on
18 Ways and Means of the House of Representatives.

19 **SEC. 5503. ASSESSMENTS OF INTENTIONS OF POLITICAL**
20 **LEADERSHIP OF THE RUSSIAN FEDERATION.**

21 (a) IN GENERAL.—Not later than 90 days after the
22 date of the enactment of this Act, consistent with the pro-
23 tection of intelligence sources and methods, the Director
24 of National Intelligence, and the head of any element of
25 the intelligence community that the Director determines

1 appropriate, shall submit to the appropriate congressional
2 committees each of the assessments described in sub-
3 section (b).

4 (b) ASSESSMENTS DESCRIBED.—The assessments
5 described in this subsection are assessments based on in-
6 telligence obtained from all sources that assess the current
7 intentions of the political leadership of the Russian Fed-
8 eration with respect to the following:

9 (1) Potential military action against members
10 of the North Atlantic Treaty Organization (NATO).

11 (2) Potential responses to an enlarged United
12 States or NATO military presence in eastern Europe
13 or to increased United States military support for
14 allies and partners in the region, such as the provi-
15 sion of additional lethal military equipment to
16 Ukraine or Georgia.

17 (3) Potential actions taken for the purpose of
18 exploiting perceived divisions among the govern-
19 ments of Russia's Western adversaries.

20 (c) FORM.—Each assessment required under sub-
21 section (a) may be submitted in classified form but shall
22 also include an unclassified executive summary, consistent
23 with the protection of intelligence sources and methods.

1 (d) APPROPRIATE CONGRESSIONAL COMMITTEES.—

2 In this section, the term “appropriate congressional com-
3 mittees” means—

4 (1) the Permanent Select Committee on Intel-
5 ligence, the Committee on Foreign Affairs, and the
6 Committee on Armed Services of the House of Rep-
7 resentatives; and

8 (2) the Select Committee on Intelligence, the
9 Committee on Foreign Relations, and the Committee
10 on Armed Services of the Senate.

11 **Subtitle B—Matters Relating to**
12 **China**

13 **SEC. 5511. ANNUAL REPORTS ON INFLUENCE OPERATIONS**
14 **AND CAMPAIGNS IN THE UNITED STATES BY**
15 **THE COMMUNIST PARTY OF CHINA.**

16 (a) REPORTS.—Title XI of the National Security Act
17 of 1947 (50 U.S.C. 3231 et seq.), as amended by section
18 5332, is further amended by adding at the end the fol-
19 lowing new section:

20 **“SEC. 1107. ANNUAL REPORTS ON INFLUENCE OPERATIONS**
21 **AND CAMPAIGNS IN THE UNITED STATES BY**
22 **THE COMMUNIST PARTY OF CHINA.**

23 “(a) REQUIREMENT.—On an annual basis, consistent
24 with the protection of intelligence sources and methods,
25 the Director of the National Counterintelligence and Secu-

1 rity Center shall submit to the congressional intelligence
2 committees, the Committee on Foreign Affairs of the
3 House of Representatives, and the Committee on Foreign
4 Relations of the Senate a report on the influence oper-
5 ations and campaigns in the United States conducted by
6 the Communist Party of China.

7 “(b) CONTENTS.—Each report under subsection (a)
8 shall include the following:

9 “(1) A description of the organization of the
10 United Front Work Department of the People’s Re-
11 public of China, or the successors of the United
12 Front Work Department, and the links between the
13 United Front Work Department and the Central
14 Committee of the Communist Party of China.

15 “(2) An assessment of the degree to which or-
16 ganizations that are associated with or receive fund-
17 ing from the United Front Work Department, par-
18 ticularly such entities operating in the United
19 States, are formally tasked by the Chinese Com-
20 munist Party or the Government of China.

21 “(3) A description of the efforts by the United
22 Front Work Department and subsidiary organiza-
23 tions of the United Front Work Department to tar-
24 get, coerce, and influence foreign populations, par-
25 ticularly those of ethnic Chinese descent.

1 “(4) An assessment of attempts by the Chinese
2 Embassy, consulates, and organizations affiliated
3 with the Chinese Communist Party (including, at a
4 minimum, the United Front Work Department) to
5 influence the United States-based Chinese Student
6 Scholar Associations.

7 “(5) A description of the evolution of the role
8 of the United Front Work Department under the
9 leadership of the President of China.

10 “(6) An assessment of the activities of the
11 United Front Work Department designed to influ-
12 ence the opinions of elected leaders of the United
13 States, or candidates for elections in the United
14 States, with respect to issues of importance to the
15 Chinese Communist Party.

16 “(7) A listing of all known organizations affili-
17 ated with the United Front Work Department that
18 are operating in the United States as of the date of
19 the report.

20 “(8) With respect to reports submitted after the
21 first report, an assessment of the change in goals,
22 tactics, techniques, and procedures of the influence
23 operations and campaigns conducted by the Chinese
24 Communist Party.

1 “(c) COORDINATION.—In carrying out subsection (a),
2 the Director shall coordinate with the Director of the Fed-
3 eral Bureau of Investigation, the Director of the Central
4 Intelligence Agency, the Director of the National Security
5 Agency, and any other relevant head of an element of the
6 intelligence community.

7 “(d) FORM.—Each report submitted under sub-
8 section (a) shall be submitted in unclassified form, but
9 may include a classified annex.”.

10 (b) CLERICAL AMENDMENT.—The table of contents
11 in the first section of the National Security Act of 1947,
12 as amended by section 5332, is further amended by insert-
13 ing after the item relating to section 1106 the following
14 new item:

“Sec. 1107. Annual reports on influence operations and campaigns in the
United States by the Communist Party of China.”.

15 (c) INITIAL REPORT.—The Director of the National
16 Counterintelligence and Security Center shall submit to
17 the congressional intelligence committees, the Committee
18 on Foreign Affairs of the House of Representatives, and
19 the Committee on Foreign Relations of the Senate the
20 first report under section 1107 of the National Security
21 Act of 1947, as added by subsection (a), by not later than
22 180 days after the date of the enactment of this Act.

1 **SEC. 5512. REPORT ON REPRESSION OF ETHNIC MUSLIM**
2 **MINORITIES IN THE XINJIANG REGION OF**
3 **THE PEOPLE'S REPUBLIC OF CHINA.**

4 (a) REPORT.—Not later than 150 days after the date
5 of the enactment of this Act, consistent with the protection
6 of intelligence sources and methods, the Director of Na-
7 tional Intelligence shall, in consultation with the Secretary
8 of State, submit to the congressional intelligence commit-
9 tees, the Committee on Foreign Affairs of the House of
10 Representatives, and the Committee on Foreign Relations
11 of the Senate a report on activity by the People's Republic
12 of China to repress ethnic Muslim minorities in the
13 Xinjiang region of China.

14 (b) CONTENTS.—The report under subsection (a)
15 shall include the following:

16 (1) An assessment of the number of individuals
17 detained in “political reeducation camps”, and the
18 conditions in such camps for detainees, in the
19 Xinjiang region of China, including whether detain-
20 ees endure torture, forced renunciation of faith, or
21 other mistreatment.

22 (2) A description, as possible, of the geographic
23 location of such camps.

24 (3) A description, as possible, of the methods
25 used by China to “reeducate” detainees and the ele-
26 ments of China responsible for such “reeducation”.

1 (4) A description of any forced labor in such
2 camps, and any labor performed in regional factories
3 for low wages under the threat of being sent back
4 to “political reeducation camps”.

5 (5) An assessment of the level of access China
6 grants to foreign persons observing the situation in
7 Xinjiang and a description of measures used to im-
8 pede efforts to monitor the conditions in Xinjiang.

9 (6) An assessment of the surveillance, detection,
10 and control methods used by China to target ethnic
11 minorities, including new “high-tech” policing mod-
12 els and a description of any civil liberties or privacy
13 protections provided under such models.

14 (7) An assessment and identification of the
15 technological and financial support provided by
16 United States-based companies, including techno-
17 logical support for the development of facial recogni-
18 tion capabilities or technologies for digital surveil-
19 lance, social control, or censorship, and financial
20 support, including from financial institutions, invest-
21 ment vehicles, and pension funds, to China-based
22 companies or Chinese government entities providing
23 material support to the digital surveillance or repres-
24 sion of Uyghur and other ethnic minorities in
25 Xinjiang by the Xinjiang authorities.

1 (c) COORDINATION.—The Director of National Intel-
2 ligence shall carry out subsection (a) in coordination with
3 the Director of the Central Intelligence Agency, the Direc-
4 tor of the National Security Agency, the Director of the
5 National Geospatial-Intelligence Agency, and the head of
6 any other agency of the Federal Government that the Di-
7 rector of National Intelligence determines appropriate.

8 (d) FORM.—The report submitted under subsection
9 (a) shall be submitted in unclassified form, but may in-
10 clude a classified annex.

11 **SEC. 5513. REPORT ON EFFORTS BY PEOPLE'S REPUBLIC**
12 **OF CHINA TO INFLUENCE ELECTION IN TAI-**
13 **WAN.**

14 (a) REPORT.—Consistent with section 3(c) of the
15 Taiwan Relations Act (Public Law 96–8; 22 U.S.C.
16 3302(c)), and consistent with the protection of intelligence
17 sources and methods, not later than 45 days after the date
18 of the election for the President and Vice President of Tai-
19 wan in 2020, the Director of National Intelligence shall
20 submit to the congressional intelligence committees, the
21 Committee on Foreign Affairs of the House of Representa-
22 tives, and the Committee on Foreign Relations of the Sen-
23 ate a report on any—

24 (1) influence operations conducted by China to
25 interfere in or undermine such election; and

1 (2) efforts by the United States to disrupt such
2 operations.

3 (b) ELEMENTS.—The report under subsection (a)
4 shall include the following:

5 (1) A description of any significant efforts by
6 the intelligence community to coordinate technical
7 and material support for Taiwan to identify, disrupt,
8 and combat influence operations specified in sub-
9 section (a)(1).

10 (2) A description of any efforts by the United
11 States Government to build the capacity of Taiwan
12 to disrupt external efforts that degrade a free and
13 fair election process.

14 (3) An assessment of whether and to what ex-
15 tent China conducted influence operations specified
16 in subsection (a)(1), and, if such operations oc-
17 curred—

18 (A) a comprehensive list of specific govern-
19 mental and nongovernmental entities of China
20 that were involved in supporting such oper-
21 ations and a description of the role of each such
22 entity; and

23 (B) an identification of any tactics, tech-
24 niques, and procedures used in such operations.

1 (c) FORM.—The report under subsection (a) shall be
2 submitted in unclassified form, but may include a classi-
3 fied annex.

4 **Subtitle C—Matters Relating to**
5 **Other Countries**

6 **SEC. 5521. SENSE OF CONGRESS AND REPORT ON IRANIAN**
7 **EFFORTS IN SYRIA AND LEBANON.**

8 (a) SENSE OF CONGRESS.—It is the sense of Con-
9 gress that, regardless of the ultimate number of United
10 States military personnel deployed to Syria, it is a vital
11 interest of the United States to prevent the Islamic Re-
12 public of Iran, Hizballah, and other Iranian-backed forces
13 from establishing a strong and enduring presence in Syria
14 that can be used to project power in the region and threat-
15 en the United States and its allies, including Israel.

16 (b) REPORT.—

17 (1) REPORT REQUIRED.—Not later than 180
18 days after the date of the enactment of this Act, the
19 Director of National Intelligence, in coordination
20 with the Secretary of State and the Secretary of De-
21 fense, shall submit to the appropriate congressional
22 committees a report that assesses—

23 (A) efforts by Iran to establish long-term
24 influence in Syria through military, political,
25 economic, social, and cultural means;

1 (B) the degree to which Iranian support of
2 proxy forces in Syria and Lebanon contributes
3 to Iranian strategy with respect to the region;
4 and

5 (C) the threat posed by the efforts de-
6 scribed in subparagraph (A) to United States
7 interests and allies.

8 (2) ELEMENTS.—The report under paragraph
9 (1) shall include each of the following:

10 (A) An assessment of—

11 (i) how Iran and Iranian-backed
12 forces, including the Islamic Revolutionary
13 Guard Corps and Hizballah, have provided
14 or are currently providing manpower,
15 training, weapons, equipment, and funding
16 to the Syrian government led by President
17 Bashar al-Assad;

18 (ii) the support provided by Iran and
19 Hizballah to Shia militias operating in
20 Syria composed of domestic fighters from
21 Syria and foreign fighters from countries
22 such as Afghanistan, Iraq, Lebanon, and
23 Pakistan;

1 (iii) operational lessons learned by
2 Hizballah based on the recent experiences
3 of Hizballah in Syria;

4 (iv) the threat posed by Iran and Ira-
5 nian-backed forces to—

6 (I) the al-Tanf garrison; and

7 (II) areas of northeast Syria that
8 are currently controlled by local part-
9 ner forces of the United States;

10 (v) the degree to which efforts of the
11 United States to sustain and strengthen
12 Kurdish forces in Syria may undermine the
13 influence of Iran and Iranian-backed forces
14 in Syria;

15 (vi) how Iran and Iranian-backed
16 forces seek to enhance the long-term influ-
17 ence of such entities in Syria through non-
18 military means such as purchasing stra-
19 tegic real estate in Syria, constructing Shia
20 religious centers and schools, securing loy-
21 alty from Sunni tribes in exchange for ma-
22 terial assistance, and inducing the Assad
23 government to open Farsi-language depart-
24 ments at Syrian universities;

1 (vii) whether the prominent role of
2 Iran in Syria, including the influence of
3 Iran over government institutions, may in-
4 crease the likelihood of the reconstitution
5 of the Islamic State of Iraq and Syria in
6 Syria; and

7 (viii) the provision of goods, services,
8 or technology transferred by Iran or its af-
9 filiates to Hizballah for the purpose of in-
10 digenously manufacturing or otherwise
11 producing missiles.

12 (B) An analysis of—

13 (i) how Iran is working with the Rus-
14 sian Federation, Turkey, and other coun-
15 tries to increase the influence of Iran in
16 Syria;

17 (ii) the goals of Iran in Syria, includ-
18 ing, but not limited to, protecting the
19 Assad government, increasing the regional
20 influence of Iran, threatening Israel from a
21 more proximate location, building weapon-
22 production facilities and other military in-
23 frastructure, and securing a land bridge to
24 connect Iran through Iraq and Syria to the

1 stronghold of Hizballah in southern Leb-
2 anon; and

3 (iii) the foreign and domestic supply
4 chains that significantly facilitate, support,
5 or otherwise aid acquisition or development
6 by Hizballah of missile production facili-
7 ties, including the geographic distribution
8 of such foreign and domestic supply
9 chains.

10 (C) A description of—

11 (i) how the efforts of Iran to transfer
12 advanced weapons to Hizballah and to es-
13 tablish a military presence in Syria has led
14 to direct and repeated confrontations with
15 Israel;

16 (ii) the intelligence and military sup-
17 port that the United States provides to
18 Israel to help Israel identify and appro-
19 priately address specific threats to Israel
20 from Iran and Iranian-backed forces in
21 Syria;

22 (iii) the threat posed to Israel and
23 other allies of the United States in the
24 Middle East resulting from the transfer of

1 arms or related material, or other support,
2 by Iran to Hizballah and other proxies;

3 (iv) Iranian and Iranian-controlled
4 personnel operating within Syria, including
5 Hizballah, Shiite militias, and Revolu-
6 tionary Guard Corps forces of Iran, and
7 the number and geographic distribution of
8 such personnel;

9 (v) any rocket-producing facilities in
10 Lebanon for nonstate actors, including
11 whether such facilities were assessed to be
12 built at the direction of Hizballah leader-
13 ship, Iranian leadership, or in consultation
14 between Iranian leadership and Hizballah
15 leadership; and

16 (vi) Iranian expenditures in the pre-
17 vious calendar year on military and ter-
18 rorist activities outside the country, includ-
19 ing the amount of such expenditures with
20 respect to each of Hizballah, Houthi rebels
21 in Yemen, Hamas, proxy forces in Iraq
22 and Syria, ballistic missile research and
23 testing, and any other entity, country, or
24 activity that the Director determines as de-
25 stabilizing to the Middle East region.

1 (3) FORM OF REPORT.—The report under para-
2 graph (1) shall be submitted in unclassified form,
3 but may include a classified annex.

4 (4) DEFINITIONS.—In this subsection:

5 (A) APPROPRIATE CONGRESSIONAL COM-
6 MITTEES.—the term “appropriate congressional
7 committees” means—

8 (i) the Committee on Armed Services,
9 the Committee on Foreign Relations, and
10 the Select Committee on Intelligence of the
11 Senate; and

12 (ii) the Committee on Armed Services,
13 the Committee on Foreign Affairs, and the
14 Permanent Select Committee on Intel-
15 ligence of the House of Representatives.

16 (B) ARMS OR RELATED MATERIAL.—The
17 term “arms or related material” means—

18 (i) nuclear, biological, chemical, or ra-
19 diological weapons or materials or compo-
20 nents of such weapons;

21 (ii) ballistic or cruise missile weapons
22 or materials or components of such weap-
23 ons;

24 (iii) destabilizing numbers and types
25 of advanced conventional weapons;

1 (iv) defense articles or defense serv-
2 ices, as those terms are defined in para-
3 graphs (3) and (4), respectively, of section
4 47 of the Arms Export Control Act (22
5 U.S.C. 2794);

6 (v) defense information, as that term
7 is defined in section 644 of the Foreign
8 Assistance Act of 1961 (22 U.S.C. 2403);
9 or

10 (vi) items designated by the President
11 for purposes of the United States Muni-
12 tions List under section 38(a)(1) of the
13 Arms Export Control Act (22 U.S.C.
14 2778(a)(1)).

15 **SEC. 5522. ASSESSMENTS REGARDING THE NORTHERN TRI-**
16 **ANGLE AND MEXICO.**

17 (a) ASSESSMENT.—

18 (1) REPORT.—Not later than 90 days after the
19 date of the enactment of this Act, the Director of
20 National Intelligence, in coordination with the Under
21 Secretary of Homeland Security for Intelligence and
22 Analysis, the Assistant Secretary of State for Intel-
23 ligence and Research, the Chief of Intelligence of the
24 Drug Enforcement Administration, and other appro-
25 priate officials in the intelligence community, shall

1 submit to the appropriate congressional committees
2 a report containing a comprehensive assessment of
3 drug trafficking, human trafficking, and human
4 smuggling activities in the Northern Triangle and
5 Mexico.

6 (2) MATTERS INCLUDED.—The report under
7 paragraph (1) shall include, at a minimum, the fol-
8 lowing:

9 (A) An assessment of the effect of drug
10 trafficking, human trafficking, and human
11 smuggling on the security and economic situa-
12 tion in the Northern Triangle.

13 (B) An assessment of the effect of the ac-
14 tivities of drug trafficking organizations on the
15 migration of persons from the Northern Tri-
16 angle to the United States-Mexico border.

17 (C) A summary of any relevant activities
18 by elements of the intelligence community in re-
19 lation to drug trafficking, human trafficking,
20 and human smuggling in the Northern Triangle
21 and Mexico.

22 (D) An assessment of methods and routes
23 used by drug trafficking organizations, human
24 traffickers, and human smugglers to move

1 drugs, persons, or both from the Northern Tri-
2 angle and Mexico to the United States.

3 (E) An assessment of the intersection be-
4 tween the activities of drug trafficking organi-
5 zations, human traffickers and human smug-
6 glers, and other organized criminal groups in
7 the Northern Triangle and Mexico.

8 (F) An assessment of the illicit funds and
9 financial transactions that support the activities
10 of drug trafficking organizations, human traf-
11 fickers, and human smugglers, and connected
12 criminal enterprises, in the Northern Triangle
13 and Mexico.

14 (G) A comprehensive review of the current
15 collection priorities of the intelligence commu-
16 nity for the Northern Triangle and Mexico, as
17 of the date of the enactment of this Act, in
18 order to identify whether such priorities are ap-
19 propriate and sufficient in light of the threat
20 posed by the activities of drug trafficking orga-
21 nizations and human traffickers and human
22 smugglers to the security of the United States
23 and the Western Hemisphere.

1 (3) FORM.—The report required by paragraph
2 (1) may be submitted in classified form, but if so
3 submitted, shall contain an unclassified summary.

4 (4) AVAILABILITY.—The report under para-
5 graph (1), or the unclassified summary of the report
6 described in paragraph (3), shall be made publicly
7 available.

8 (b) BRIEFINGS.—

9 (1) SEMIANNUAL REQUIREMENT.—Not later
10 than 90 days after the date on which the report
11 under subsection (a) is submitted, and every 180
12 days thereafter for a 5-year period, the Director of
13 National Intelligence shall provide to the congres-
14 sional intelligence committees a briefing on the intel-
15 ligence community's collection priorities and activi-
16 ties in the Northern Triangle and Mexico with a
17 focus on the threat posed by the activities of drug
18 trafficking organizations and human traffickers and
19 human smugglers to the security of the United
20 States and the Western Hemisphere.

21 (2) MATTERS INCLUDED.—Each briefing under
22 paragraph (1) shall include a description of the
23 funds expended by the intelligence community on the
24 efforts described in such paragraph during the pre-

1 ceding fiscal year, except the first such briefing shall
2 cover fiscal years 2018 and 2019.

3 (c) DEFINITIONS.—In this section:

4 (1) APPROPRIATE CONGRESSIONAL COMMIT-
5 TEES.—The term “appropriate congressional com-
6 mittees” means—

7 (A) the Committee on Foreign Affairs, the
8 Committee on Homeland Security, and the Per-
9 manent Select Committee on Intelligence of the
10 House of Representatives; and

11 (B) the Committee on Foreign Relations,
12 the Committee on Homeland Security and Gov-
13 ernmental Affairs, and the Select Committee on
14 Intelligence of the Senate.

15 (2) HUMAN TRAFFICKING.—The term “human
16 trafficking” has the meaning given the term “severe
17 forms of trafficking in persons” by section 103 of
18 the Victims of Trafficking and Violence Protection
19 Act of 2000 (22 U.S.C. 7102).

20 (3) NORTHERN TRIANGLE.—The term “North-
21 ern Triangle” means El Salvador, Guatemala, and
22 Honduras.

1 **TITLE LVI—FEDERAL EFFORTS**
2 **AGAINST DOMESTIC TERRORISM**

3 **SEC. 5601. DEFINITIONS.**

4 In this title:

5 (1) **APPROPRIATE CONGRESSIONAL COMMIT-**
6 **TEES.**—The term “appropriate congressional com-
7 mittees” means—

8 (A) the Permanent Select Committee on
9 Intelligence, the Committee on Homeland Secu-
10 rity, and the Committee on the Judiciary of the
11 House of Representatives; and

12 (B) the Select Committee on Intelligence,
13 the Committee on Homeland Security and Gov-
14 ernmental Affairs, and the Committee on the
15 Judiciary of the Senate.

16 (2) **DOMESTIC TERRORISM.**—The term “domes-
17 tic terrorism” has the meaning given that term in
18 section 2331 of title 18, United States Code.

19 (3) **HATE CRIME.**—The term “hate crime”
20 means a criminal offense under—

21 (A) sections 241, 245, 247, and 249 of
22 title 18, United States Code; and

23 (B) section 3631 of title 42, United States
24 Code.

1 (4) INTERNATIONAL TERRORISM.—The term
2 “international terrorism” has the meaning given
3 that term in section 2331 of title 18, United States
4 Code.

5 (5) TERMS IN ATTORNEY GENERAL’S GUIDE-
6 LINES FOR DOMESTIC FBI OPERATIONS.—The terms
7 “assessments”, “full investigations”, “enterprise in-
8 vestigations”, “predicated investigations”, and “pre-
9 liminary investigations” have the meanings given
10 those terms in the most recent, approved version of
11 the Attorney General’s Guidelines for Domestic FBI
12 Operations (or successor).

13 (6) TERMS IN FBI BUDGET MATERIALS.—The
14 terms “Consolidated Strategy Guide”, “Field Office
15 Strategic Plan”, “Integrated Program Management
16 Process”, and “Threat Review and Prioritization”
17 have the meanings given those terms in the mate-
18 rials submitted to Congress by the Attorney General
19 in support of the Federal Bureau of Investigation
20 budget for fiscal year 2020.

21 (7) TERRORISM.—The term “terrorism” in-
22 cludes domestic terrorism and international ter-
23 rorism.

24 (8) TERRORISM INFORMATION.—The term “ter-
25 rorism information” has the meaning given that

1 term in section 1016(a) of the Intelligence Reform
2 and Terrorism Prevention Act of 2004 (6 U.S.C.
3 485).

4 (9) TIME UTILIZATION AND RECORDKEEPING
5 DATA.—The term “time utilization and record-
6 keeping data” means data collected on resource utili-
7 zation and workload activity of personnel of the Fed-
8 eral Bureau of Investigation in accordance with Fed-
9 eral law.

10 **SEC. 5602. STRATEGIC INTELLIGENCE ASSESSMENT OF AND**
11 **REPORTS ON DOMESTIC TERRORISM.**

12 (a) REPORT ON STANDARDIZATION OF TERMI-
13 NOLOGY AND PROCEDURES RELATING TO DOMESTIC
14 TERRORISM.—Not later than 90 days after the date of
15 the enactment of this Act, the Director of the Federal Bu-
16 reau of Investigation and the Secretary of Homeland Se-
17 curity, in consultation with the Director of National Intel-
18 ligence in a manner consistent with the authorities and
19 responsibilities of such Director, shall jointly—

20 (1) develop, to the fullest extent feasible and for
21 purposes of internal recordkeeping and tracking,
22 uniform and standardized—

23 (A) definitions of the terms “domestic ter-
24 rorism”, “act of domestic terrorism”, “domestic

1 terrorism groups”, and any other commonly
2 used terms with respect to domestic terrorism;

3 (B) methodologies for tracking incidents of
4 domestic terrorism; and

5 (C) descriptions of categories and subcat-
6 egories of—

7 (i) domestic terrorism; and

8 (ii) ideologies relating to domestic ter-
9 rorism;

10 (2) submit to the appropriate congressional
11 committees a report containing the information de-
12 veloped under paragraph (1).

13 (b) REPORT CONTAINING STRATEGIC INTELLIGENCE
14 ASSESSMENT AND DATA ON DOMESTIC TERRORISM.—

15 (1) IN GENERAL.—Not later than 180 days
16 after the date of the enactment of this Act, the Di-
17 rector of the Federal Bureau of Investigation and
18 the Secretary of Homeland Security, in consultation
19 with the Director of National Intelligence in a man-
20 ner consistent with the authorities and responsibil-
21 ities of such Director, shall jointly submit to the ap-
22 propriate congressional committees a report on do-
23 mestic terrorism containing the following:

24 (A) The strategic intelligence assessment
25 under paragraph (2).

1 (B) The discussion of activities under
2 paragraph (3).

3 (C) Data on domestic terrorism under
4 paragraph (4).

5 (D) Recommendations under paragraph
6 (5).

7 (2) STRATEGIC INTELLIGENCE ASSESSMENT.—

8 (A) ASSESSMENT REQUIRED.—The Direc-
9 tor of the Federal Bureau of Investigation and
10 the Secretary of Homeland Security, in con-
11 sultation with the Director of National Intel-
12 ligence in a manner consistent with the authori-
13 ties and responsibilities of such Director, shall
14 prepare and include in the report under para-
15 graph (1) a strategic intelligence assessment of
16 domestic terrorism in the United States during
17 fiscal years 2017, 2018, and 2019.

18 (B) STANDARDS.—The Director of the
19 Federal Bureau of Investigation and the Sec-
20 retary of Homeland Security, in consultation
21 with the Director of National Intelligence in a
22 manner consistent with the authorities and re-
23 sponsibilities of such Director, shall ensure that
24 the strategic assessment under subparagraph
25 (A) complies with the analytic integrity and

1 tradecraft standards of the intelligence commu-
2 nity.

3 (3) DISCUSSION OF ACTIVITIES.—The report
4 under paragraph (1) shall discuss and compare the
5 following with respect to each applicable element of
6 the intelligence community:

7 (A) The criteria for opening, managing,
8 and closing domestic and international ter-
9 rorism investigations.

10 (B) Standards and procedures for the Fed-
11 eral Bureau of Investigation with respect to the
12 review, prioritization, and mitigation of domes-
13 tic and international terrorism threats in the
14 United States.

15 (C) The planning (including plans of anal-
16 ysis of the Federal Bureau of Investigation, De-
17 partment of Homeland Security, and National
18 Counterterrorism Center), development, produc-
19 tion, analysis, and evaluation of intelligence and
20 intelligence products relating to terrorism, not-
21 ing any differences with respect to domestic ter-
22 rorism and international terrorism.

23 (D) The sharing of information relating to
24 domestic and international terrorism by and be-
25 tween—

- 1 (i) the Federal Government;
- 2 (ii) State, local, Tribal, territorial, and
- 3 foreign governments;
- 4 (iii) the appropriate congressional
- 5 committees;
- 6 (iv) nongovernmental organizations;
- 7 and
- 8 (v) the private sector.

9 (E) The criteria and methodology used by
10 the Federal Bureau of Investigation to identify
11 or assign terrorism classifications to investiga-
12 tions of domestic terrorism.

13 (F) Compliance by the Federal Govern-
14 ment with privacy, civil rights, and civil liberties
15 policies and protections applicable to the pro-
16 duction of the report under paragraph (1), in-
17 cluding protections against the public release of
18 names or other personally identifiable informa-
19 tion of individuals involved in incidents, inves-
20 tigation, indictments, prosecutions, or convic-
21 tions for which data is reported under this sec-
22 tion.

23 (G) Information regarding any training or
24 resources provided by the Federal Bureau of
25 Investigation, the Department of Homeland Se-

1 security, or the National Counterterrorism Cen-
2 ter, to assist Federal, State, local, and Tribal
3 law enforcement agencies in understanding, de-
4 tecting, deterring, and investigating acts of do-
5 mestic terrorism, including the date, type, sub-
6 ject, and recipient agencies of such training or
7 resources.

8 (4) DATA ON DOMESTIC TERRORISM.—

9 (A) DATA REQUIRED.—In accordance with
10 subparagraph (B), the report under paragraph
11 (1) shall include the following data for the pe-
12 riod beginning on January 1, 2009, and ending
13 on the date of the enactment of this Act:

14 (i) For each completed or attempted
15 incident of domestic terrorism that has oc-
16 curred in the United States during such
17 period—

18 (I) a description of such incident;

19 (II) the date and location of such
20 incident;

21 (III) the number and type of
22 completed and attempted Federal
23 nonviolent crimes committed during
24 such incident;

1 (IV) the number and type of
2 completed and attempted Federal and
3 State property crimes committed dur-
4 ing such incident, including an esti-
5 mate of economic damages resulting
6 from such crimes; and

7 (V) the number and type of com-
8 pleted and attempted Federal violent
9 crimes committed during such inci-
10 dent, including the number of people
11 injured or killed as a result of such
12 crimes.

13 (ii) For such period—

14 (I) an identification of each as-
15 sessment, preliminary investigation,
16 full investigation, and enterprise in-
17 vestigation with a nexus to domestic
18 terrorism opened, pending, or closed
19 by the Federal Bureau of Investiga-
20 tion;

21 (II) the number of assessments
22 or investigations identified under sub-
23 clause (I) associated with each domes-
24 tic terrorism investigative classifica-
25 tion (including subcategories);

1 (III) the number of assessments
2 or investigations described in sub-
3 clause (II) initiated as a result of a
4 referral or investigation by a Federal,
5 State, local, Tribal, territorial, or for-
6 eign government, of a hate crime;

7 (IV) the number of Federal
8 criminal charges with a nexus to do-
9 mestic terrorism, including the num-
10 ber of indictments and complaints as-
11 sociated with each domestic terrorism
12 investigative classification (including
13 subcategories), a summary of the alle-
14 gations contained in each such indict-
15 ment, the disposition of the prosecu-
16 tion, and, if applicable, the sentence
17 imposed as a result of a conviction on
18 such charges;

19 (V) referrals of incidents of do-
20 mestic terrorism by or to State, local,
21 Tribal, territorial, or foreign govern-
22 ments, to or by departments or agen-
23 cies of the Federal Government, for
24 investigation or prosecution, including
25 the number of such referrals associ-

1 ated with each domestic terrorism in-
2 vestigation classification (including
3 any subcategories), and a summary of
4 each such referral that includes the
5 rationale for such referral and the dis-
6 position of the applicable Federal in-
7 vestigation or prosecution;

8 (VI) intelligence products pro-
9 duced by the intelligence community
10 relating to domestic terrorism, includ-
11 ing, with respect to the Federal Bu-
12 reau of Investigation, the number of
13 such products associated with each
14 domestic terrorism investigative classi-
15 fication (including any subcategories);

16 (VII) with respect to the Federal
17 Bureau of Investigation—

18 (aa) the number of staff (ex-
19 pressed in terms of full-time
20 equivalents and positions) work-
21 ing on matters relating to domes-
22 tic terrorism described in sub-
23 clauses (I) through (VI); and

24 (bb) a summary of time uti-
25 lization and recordkeeping data

1 for personnel working on such
2 matters, including the number or
3 percentage of such personnel as-
4 sociated with each domestic ter-
5 rorism investigative classification
6 (including any subcategories) in
7 the FBI Headquarters Oper-
8 ational Divisions and Field Divi-
9 sions;

10 (VIII) with respect to the Office
11 of Intelligence and Analysis of the De-
12 partment of Homeland Security, the
13 number of staff (expressed in terms of
14 full-time equivalents and positions)
15 working on matters relating to domes-
16 tic terrorism described in subclauses
17 (I) through (VI); and

18 (IX) with respect to the National
19 Counterterrorism Center, the number
20 of staff (expressed in terms of full-
21 time equivalents and positions) work-
22 ing on matters relating to domestic
23 terrorism described in subclauses (I)
24 through (VI), and the applicable legal

1 authorities relating to the activities of
2 such staff.

3 (B) COLLECTION AND COMPILATION.—The
4 requirement to submit data under paragraph
5 (1)—

6 (i) may not be construed to require
7 the creation or maintenance of any record
8 that the Federal Bureau of Investigation,
9 the Department of Homeland Security, or
10 the National Counterterrorism Center, as
11 the case may be, does not maintain in the
12 ordinary course of business or pursuant to
13 another provision of law; and

14 (ii) shall be carried out by collecting,
15 compiling, or otherwise using data and
16 records that such entities otherwise main-
17 tain or create.

18 (C) FORMAT.—The information required
19 under subparagraph (A) may be provided in a
20 format that uses the marking associated with
21 the Central Records System (or any successor
22 system) of the Federal Bureau of Investigation.

23 (5) RECOMMENDATIONS.—

24 (A) IN GENERAL.—The report under para-
25 graph (1) shall include recommendations, in-

1 including any constitutional analysis conducted
2 relating to such recommendations, with respect
3 to the following:

4 (i) The necessity of changing authori-
5 ties, roles, resources, or responsibilities
6 within the Federal Government to more ef-
7 fectively prevent and counter domestic ter-
8 rorism activities.

9 (ii) Measures necessary to ensure the
10 protection of privacy and civil liberties in
11 the carrying out of activities relating to
12 countering domestic terrorism.

13 (B) CONSULTATION.—In developing rec-
14 ommendations pursuant to subparagraph
15 (A)(ii), the Director of the Federal Bureau of
16 Investigation and the Secretary of Homeland
17 Security, in consultation with the Director of
18 National Intelligence, may seek the advice of
19 the Privacy and Civil Liberties Oversight
20 Board.

21 (c) PROVISION OF OTHER DOCUMENTS AND MATE-
22 RIALS.—

23 (1) IN GENERAL.—Together with the report
24 under subsection (b)(1), the Director of the Federal
25 Bureau of Investigation and the Secretary of Home-

1 land Security, in consultation with the Director of
2 National Intelligence in a manner consistent with
3 the authorities and responsibilities of such Director,
4 shall also submit to the appropriate congressional
5 committees the following documents and materials in
6 complete and unredacted form:

7 (A) With respect to the Federal Bureau of
8 Investigation, at a minimum, the most recent,
9 approved versions of—

10 (i) the Attorney General's Guidelines
11 for Domestic FBI Operations (or any suc-
12 cessor);

13 (ii) the FBI Domestic Investigations
14 and Operations Guide (or any successor);

15 (iii) the FBI Counterterrorism Policy
16 Guide (or any successor); and

17 (iv) materials sufficient to show the
18 rankings of domestic terrorism in relation
19 to other threats within the Threat Review
20 and Prioritization process, with respect to
21 the headquarters and each field office of
22 the Federal Bureau of Investigation.

23 (B) With respect to the intelligence com-
24 munity—

1 (i) a list of all intelligence products
2 described in subsection (b)(4)(A)(ii)(VI);
3 and

4 (ii) a means of accessing each such
5 product.

6 (2) NONDUPLICATION.—If any documents or
7 materials required under paragraph (1) have been
8 previously submitted to the appropriate congress-
9 sional committees under such paragraph and have
10 not been modified since such submission, the Direc-
11 tor of the Federal Bureau of Investigation, the Sec-
12 retary of Homeland Security, and the Director of
13 National Intelligence may provide a list of such doc-
14 uments or materials in lieu of making the submis-
15 sion under paragraph (1) for those documents or
16 materials.

17 (d) ANNUAL UPDATES.—During the 5-year period
18 following the date of the submission of the reports under
19 subsections (b) and (c), the Director of the Federal Bu-
20 reau of Investigation and the Secretary of Homeland Se-
21 curity, in consultation with the Director of National Intel-
22 ligence in a manner consistent with the authorities and
23 responsibilities of such Director, shall jointly submit to the
24 appropriate congressional committees annual updates to
25 the reports submitted under subsections (a), (b), and (c).

1 (e) CLASSIFICATION AND PUBLIC RELEASE.—The
2 reports under subsections (a), (b), and (d) shall be—

3 (1) unclassified, but may contain a classified
4 annex;

5 (2) with respect to the unclassified portion of
6 the report, made available on the public internet
7 websites of the Federal Bureau of Investigation, the
8 Department of Homeland Security, and the National
9 Counterterrorism Center—

10 (A) not later than 30 days after submis-
11 sion to the appropriate congressional commit-
12 tees; and

13 (B) in an electronic format that is fully in-
14 dexed and searchable; and

15 (3) with respect to a classified annex, submitted
16 to the appropriate congressional committees in an
17 electronic format that is fully indexed and search-
18 able.

19 (f) INFORMATION QUALITY.—The reports under sub-
20 sections (a), (b), and (d), to the extent applicable, shall
21 comply with the guidelines issued by the Director of the
22 Office of Management and Budget pursuant to section
23 515 of title V of the Consolidated Appropriations Act,
24 2001 (Public Law 106–554; 114 Stat. 2763A–154).

1 **TITLE LVII—REPORTS AND**
2 **OTHER MATTERS**
3 **Subtitle A—Reports and Briefings**

4 **SEC. 5701. MODIFICATION OF REQUIREMENTS FOR SUBMIS-**
5 **SION TO CONGRESS OF CERTAIN REPORTS.**

6 (a) MODIFICATION OF REPORTS RELATING TO
7 GUANTANAMO BAY.—

8 (1) MODIFICATION.—Section 506I(b) of the
9 National Security Act of 1947 (50 U.S.C. 3105(b))
10 is amended by striking “once every 6 months” and
11 inserting “annually”.

12 (2) MODIFICATION.—Section 319(a) of the
13 Supplemental Appropriations Act, 2009 (10 U.S.C.
14 801 note) is amended by striking “every 90 days”
15 and inserting “annually”.

16 (b) MODIFICATION TO REPORTS ON ANALYTIC IN-
17 TEGRITY.—Subsection (c) of section 1019 of the Intel-
18 ligence Reform and Terrorism Prevention Act of 2004 (50
19 U.S.C. 3364) is amended—

20 (1) in the heading, by striking “REPORTS” and
21 inserting “BRIEFINGS”; and

22 (2) by striking “submit to the congressional in-
23 telligence committees, the heads of the relevant ele-
24 ments of the intelligence community, and the heads
25 of analytic training departments a report con-

1 taining” and inserting “provide to the congressional
2 intelligence committees, the heads of the relevant
3 elements of the intelligence community, and the
4 heads of analytic training departments a briefing
5 with”.

6 (c) REPEAL OF REPORTS RELATING TO INTEL-
7 LIGENCE FUNCTIONS.—Section 506J of the National Se-
8 curity Act of 1947 (50 U.S.C. 3105a) is repealed and the
9 table of contents in the first section of such Act is amend-
10 ed by striking the item relating to section 506J.

11 (d) MODIFICATION OF REQUIRED REPORTS RELAT-
12 ING TO ENTERTAINMENT INDUSTRY.—Section 308 of the
13 Intelligence Authorization Act for Fiscal Year 2017 (50
14 U.S.C. 3332) is amended—

15 (1) in subsection (b)(2)—

16 (A) by striking “paragraph (1) shall—”
17 and all that follows through “permit an ele-
18 ment” and insert “paragraph (1) shall permit
19 an element”;

20 (B) by striking “approval; and” and insert-
21 ing “approval.”; and

22 (C) by striking subparagraph (B); and

23 (2) by striking subsection (c) and inserting the
24 following new subsection:

1 “(c) INFORMATION ON PRIOR YEAR ENGAGE-
2 MENTS.—At the written request of either of the congres-
3 sional intelligence committees, the Director of National In-
4 telligence shall submit to such committees information
5 with respect to engagements occurring during the calendar
6 year prior to the year during which such request is made.
7 Such information may include—

8 “(1) a description of the nature and duration of
9 each such engagement;

10 “(2) the cost incurred by the United States
11 Government for each such engagement;

12 “(3) a description of the benefits to the United
13 States Government for each such engagement;

14 “(4) a determination of whether any informa-
15 tion was declassified, and whether any classified in-
16 formation was improperly disclosed, for each such
17 engagement; and

18 “(5) a description of the work produced
19 through each such engagement.”.

20 **SEC. 5702. INCREASED TRANSPARENCY REGARDING**
21 **COUNTERTERRORISM BUDGET OF THE**
22 **UNITED STATES.**

23 (a) FINDINGS.—Congress finds the following:

24 (1) Consistent with section 601(a) of the Imple-
25 menting Recommendations of the 9/11 Commission

1 Act of 2007 (50 U.S.C. 3306(a)), the recent practice
2 of the intelligence community has been to release to
3 the public—

4 (A) around the date on which the Presi-
5 dent submits to Congress a budget for a fiscal
6 year pursuant to section 1105 of title 31,
7 United States Code, the “top-line” amount of
8 total funding requested for the National Intel-
9 ligence Program for such fiscal year; and

10 (B) the amount of requested and appro-
11 priated funds for the National Intelligence Pro-
12 gram and Military Intelligence Program for cer-
13 tain prior fiscal years, consistent with the pro-
14 tection of intelligence sources and methods.

15 (2) The Directorate of Strategic Operational
16 Planning of the National Counterterrorism Center is
17 responsible for producing an annual National
18 Counterterrorism Budget report, which examines the
19 alignment of intelligence and other resources in the
20 applicable fiscal year budget with the counterter-
21 rorism goals and areas of focus in the National
22 Strategy for Counterterrorism.

23 (b) SENSE OF CONGRESS.—It is the sense of Con-
24 gress that—

1 (1) despite the difficulty of compiling and re-
2 leasing to the public comprehensive information on
3 the resource commitments of the United States to
4 counterterrorism activities and programs, including
5 with respect to such activities and programs of the
6 intelligence community, the United States Govern-
7 ment could take additional steps to enhance the un-
8 derstanding of the public with respect to such re-
9 source commitments, in a manner consistent with
10 the protection of intelligence sources and methods
11 and other national security interests; and

12 (2) the United States Government should re-
13 lease to the public as much information as possible
14 regarding the funding of counterterrorism activities
15 and programs, including activities and programs of
16 the intelligence community, in a manner consistent
17 with the protection of intelligence sources and meth-
18 ods and other national security interests.

19 (c) BRIEFING ON PUBLIC RELEASE OF INFORMA-
20 TION.—

21 (1) REQUIREMENT.—Not later than 90 days
22 after the date of the enactment of this Act, and not
23 later than 90 days after the beginning of each fiscal
24 year thereafter, the President shall ensure that the
25 congressional intelligence committees receive a brief-

1 ing from appropriate personnel of the United States
2 Government on the feasibility of releasing to the
3 public additional information relating to counterter-
4 rorism efforts of the intelligence community.

5 (2) ELEMENTS.—Each briefing required by
6 paragraph (1) shall include a discussion of the feasi-
7 bility of—

8 (A) subject to paragraph (3), releasing to
9 the public the National Counterterrorism Budget
10 report described in subsection (a)(2) for the
11 prior fiscal year; and

12 (B) declassifying other reports, documents,
13 or activities of the intelligence community relat-
14 ing to counterterrorism and releasing such in-
15 formation to the public in a manner consistent
16 with the protection of intelligence sources and
17 methods and other national security interests.

18 (3) RELEASE OF NATIONAL COUNTERTER-
19 RORISM BUDGET REPORT.—The President may sat-
20 isfy the requirement under paragraph (2)(A) during
21 a fiscal year by, not later than 90 days after the be-
22 ginning of the fiscal year, releasing to the public the
23 National Counterterrorism Budget report (with any
24 redactions the Director determines necessary to pro-

1 tect intelligence sources and methods and other na-
2 tional security interests) for the prior fiscal year.

3 **SEC. 5703. STUDY ON ROLE OF RETIRED AND FORMER PER-**
4 **SONNEL OF INTELLIGENCE COMMUNITY**
5 **WITH RESPECT TO CERTAIN FOREIGN INTEL-**
6 **LIGENCE OPERATIONS.**

7 (a) STUDY.—The Director of National Intelligence
8 shall conduct a study on former intelligence personnel pro-
9 viding covered intelligence assistance.

10 (b) ELEMENTS.—The study under subsection (a)
11 shall include the following:

12 (1) An identification of, and discussion of the
13 effectiveness of, existing laws, policies, procedures,
14 and other measures relevant to the ability of ele-
15 ments of the intelligence community to prevent
16 former intelligence personnel from providing covered
17 intelligence assistance—

18 (A) without proper authorization; or

19 (B) in a manner that would violate legal or
20 policy controls if the personnel performed such
21 assistance while working for the United States
22 Government; and

23 (2) Make recommendations for such legislative,
24 regulatory, policy, or other changes as may be nec-

1 essary to ensure that the United States consistently
2 meets the objectives described in paragraph (1).

3 (c) REPORT AND PLAN.—Not later than 90 days
4 after the date of the enactment of this Act, the Director
5 shall submit to the congressional intelligence committees,
6 the Committee on Homeland Security and Governmental
7 Affairs of the Senate, and the Committee on Homeland
8 Security of the House of Representatives—

9 (1) a report on the findings of the Director with
10 respect to each element of the study under sub-
11 section (a); and

12 (2) a plan to implement any recommendations
13 made by the Director that the Director may imple-
14 ment without changes to Federal law.

15 (d) FORM.—The report and plan under subsection (c)
16 may be submitted in classified form.

17 (e) DEFINITIONS.—In this section:

18 (1) COVERED INTELLIGENCE ASSISTANCE.—
19 The term “covered intelligence assistance” means
20 assistance—

21 (A) provided by former intelligence per-
22 sonnel directly to, or for the benefit of, the gov-
23 ernment of a foreign country or indirectly to, or
24 for the benefit of, such a government through
25 a company or other entity; and

1 (B) that relates to intelligence, military, or
2 law enforcement activities of a foreign country,
3 including with respect to operations that involve
4 abuses of human rights, violations of the laws
5 of the United States, or infringements on the
6 privacy rights of United States persons.

7 (2) FORMER INTELLIGENCE PERSONNEL.—The
8 term “former intelligence personnel” means retired
9 or former personnel of the intelligence community,
10 including civilian employees of elements of the intel-
11 ligence community, members of the Armed Forces,
12 and contractors of elements of the intelligence com-
13 munity.

14 **SEC. 5704. COLLECTION, ANALYSIS, AND DISSEMINATION**
15 **OF WORKFORCE DATA.**

16 (a) MODIFICATION OF REQUIREMENT FOR ANNUAL
17 REPORT ON HIRING AND RETENTION OF MINORITY EM-
18 PLOYEES.—

19 (1) EXPANSION OF PERIOD OF REPORT.—Sub-
20 section (a) of section 114 of the National Security
21 Act of 1947 (50 U.S.C. 3050) is amended by insert-
22 ing “and the preceding 5 fiscal years” after “fiscal
23 year”.

24 (2) CLARIFICATION ON DISAGGREGATION OF
25 DATA.—Subsection (b) of such section is amended,

1 in the matter before paragraph (1), by striking
2 “disaggregated data by category of covered person
3 from each element of the intelligence community”
4 and inserting “data, disaggregated by category of
5 covered person and by element of the intelligence
6 community,”.

7 (b) INITIAL REPORTING.—

8 (1) IN GENERAL.—Not later than 180 days
9 after the date of the enactment of this Act, and sub-
10 ject to paragraph (3), the Director of National Intel-
11 ligence shall make available to the public, the appro-
12 priate congressional committees, and the workforce
13 of the intelligence community a report which in-
14 cludes aggregate demographic data and other infor-
15 mation regarding the diversity and inclusion efforts
16 of the workforce of the intelligence community.

17 (2) CONTENTS.—A report made available under
18 paragraph (1)—

19 (A) shall include unclassified reports and
20 barrier analyses relating to diversity and inclu-
21 sion efforts;

22 (B) shall include aggregate demographic
23 data—

24 (i) by segment of the workforce of the
25 intelligence community and grade or rank;

1 (ii) relating to attrition and promotion
2 rates;

3 (iii) that addresses the compliance of
4 the intelligence community with validated
5 inclusion metrics, such as the New Inclu-
6 sion Quotient index score; and

7 (iv) that provides demographic com-
8 parisons to the relevant nongovernmental
9 labor force and the relevant civilian labor
10 force;

11 (C) shall include an analysis of applicant
12 flow data, including the percentage and level of
13 positions for which data are collected, and a
14 discussion of any resulting policy changes or
15 recommendations;

16 (D) shall include demographic data relat-
17 ing to participants in professional development
18 programs of the intelligence community and the
19 rate of placement into senior positions for par-
20 ticipants in such programs;

21 (E) shall include any voluntarily collected
22 demographic data relating to the membership of
23 any external advisory committee or board to
24 which individuals in senior positions in the in-
25 telligence community appoint members; and

1 (F) may include data in proportions or
2 percentages to account for concerns relating to
3 the protection of classified information.

4 (c) UPDATES.—After making available a report
5 under subsection (b), the Director of National Intelligence
6 shall annually provide a report (which may be provided
7 as part of an annual report required under another provi-
8 sion of law) to the workforce of the intelligence community
9 (including senior leadership), the public, and the appro-
10 priate congressional committees that includes—

11 (1) demographic data and information on the
12 status of diversity and inclusion efforts of the intel-
13 ligence community;

14 (2) an analysis of applicant flow data, including
15 the percentage and level of positions for which data
16 are collected, and a discussion of any resulting policy
17 changes or recommendations; and

18 (3) demographic data relating to participants in
19 professional development programs of the intel-
20 ligence community and the rate of placement into
21 senior positions for participants in such programs.

22 (d) EXPAND THE COLLECTION AND ANALYSIS OF
23 VOLUNTARY APPLICANT FLOW DATA.—

24 (1) IN GENERAL.—The Director of National In-
25 telligence shall develop a system to collect and ana-

1 lyze applicant flow data for as many positions within
2 the intelligence community as practicable, in order
3 to identify areas for improvement in attracting di-
4 verse talent, with particular attention to senior and
5 management positions.

6 (2) PHASED IMPLEMENTATION.—The collection
7 of applicant flow data may be implemented by the
8 Director of National Intelligence in a phased ap-
9 proach commensurate with the resources available to
10 the intelligence community.

11 (e) IDENTIFY ADDITIONAL CATEGORIES FOR VOL-
12 UNTARY DATA COLLECTION OF CURRENT EMPLOYEES.—

13 (1) IN GENERAL.—The Director of National In-
14 telligence may submit to the Office of Management
15 and Budget and to the appropriate congressional
16 committees a recommendation regarding whether the
17 intelligence community should voluntarily collect
18 more detailed data on demographic categories in ad-
19 dition to the race and ethnicity categories specified
20 in the statistical policy directive issued by the Office
21 of Management and Budget entitled “Standards for
22 Maintaining, Collecting, and Presenting Federal
23 Data on Race and Ethnicity”.

1 (2) PROCESS.—In making a recommendation
2 under paragraph (1), the Director of National Intel-
3 ligence shall—

4 (A) engage in close consultation with inter-
5 nal stakeholders, such as employee resource or
6 affinity groups;

7 (B) ensure that there is clear communica-
8 tion with the workforce of the intelligence com-
9 munity—

10 (i) to explain the purpose of the po-
11 tential collection of such data; and

12 (ii) regarding legal protections relat-
13 ing to any anticipated use of such data;
14 and

15 (C) ensure adherence to relevant standards
16 and guidance issued by the Federal Govern-
17 ment.

18 (f) DEFINITIONS.—In this section:

19 (1) APPLICANT FLOW DATA.—The term “appli-
20 cant flow data” means data that tracks the rate of
21 applications for job positions among demographic
22 categories.

23 (2) APPROPRIATE CONGRESSIONAL COMMIT-
24 TEES.—The term “appropriate congressional com-
25 mittees” means—

1 (A) the Committee on Foreign Relations,
2 the Committee on Armed Services, the Com-
3 mittee on Homeland Security and Govern-
4 mental Affairs, the Select Committee on Intel-
5 ligence, and the Committee on Appropriations
6 of the Senate; and

7 (B) the Committee on Foreign Affairs, the
8 Committee on Armed Services, the Committee
9 on Homeland Security, the Permanent Select
10 Committee on Intelligence, and the Committee
11 on Appropriations of the House of Representa-
12 tives.

13 (3) DIVERSITY.—The term “diversity” means
14 diversity of persons based on gender, race, ethnicity,
15 disability status, veteran status, sexual orientation,
16 gender identity, national origin, and other demo-
17 graphic categories.

18 **SEC. 5705. PLAN FOR STRENGTHENING THE SUPPLY CHAIN**
19 **INTELLIGENCE FUNCTION.**

20 (a) IN GENERAL.—Not later than 180 days after the
21 date of the enactment of this Act, the Director of the Na-
22 tional Counterintelligence and Security Center, in coordi-
23 nation with the Director of the Defense Counterintel-
24 ligence and Security Agency and other interagency part-
25 ners, shall submit to the appropriate congressional com-

1 mitted a plan for strengthening the supply chain intel-
2 ligence function.

3 (b) ELEMENTS.—The plan submitted under sub-
4 section (a) shall address the following:

5 (1) The appropriate workforce model, including
6 size, mix, and seniority, from the elements of the in-
7 telligence community and other interagency part-
8 ners.

9 (2) The budgetary resources necessary to imple-
10 ment the plan.

11 (3) The appropriate governance structure with-
12 in the intelligence community and with interagency
13 partners.

14 (4) The authorities necessary to implement the
15 plan.

16 (c) APPROPRIATE CONGRESSIONAL COMMITTEES DE-
17 FINED.—The term “appropriate congressional commit-
18 tees” means—

19 (1) the congressional intelligence committees;
20 and

21 (2) the Committees on Armed Services of the
22 House of Representatives and the Senate.

1 **SEC. 5706. COMPREHENSIVE ECONOMIC ASSESSMENT OF**
2 **INVESTMENT IN KEY UNITED STATES TECH-**
3 **NOLOGIES BY COMPANIES OR ORGANIZA-**
4 **TIONS LINKED TO CHINA.**

5 (a) **ASSESSMENT REQUIRED.**—Not later than 90
6 days after the date of the enactment of this Act, the Direc-
7 tor of National Intelligence, in coordination with the Di-
8 rector of the National Counterintelligence and Security
9 Center, the Director of the Federal Bureau of Investiga-
10 tion, the Director of the Central Intelligence Agency, the
11 Secretary of the Treasury, and the heads of such other
12 Federal agencies as the Director of National Intelligence
13 considers appropriate, shall submit to the congressional
14 intelligence committees a comprehensive economic assess-
15 ment of investment in key United States technologies, in-
16 cluding emerging technologies, by companies or organiza-
17 tions linked to China, including the implications of these
18 investments for the national security of the United States.

19 (b) **FORM OF ASSESSMENT.**—The assessment sub-
20 mitted under subsection (a) shall be submitted in unclassi-
21 fied form, but may include a classified annex.

1 **SEC. 5707. REPORT BY DIRECTOR OF NATIONAL INTEL-**
2 **LIGENCE ON FIFTH-GENERATION WIRELESS**
3 **NETWORK TECHNOLOGY.**

4 (a) DEFINITION OF APPROPRIATE COMMITTEES OF
5 CONGRESS.—In this section, the term “appropriate com-
6 mittees of Congress” means—

- 7 (1) the congressional intelligence committees;
8 (2) the Committee on Foreign Relations of the
9 Senate; and
10 (3) Committee on Foreign Affairs of the House
11 of Representatives.

12 (b) REPORT.—Not later than 180 days after the date
13 of the enactment of this Act, the Director of National In-
14 telligence shall submit to the appropriate committees of
15 Congress a report on—

- 16 (1) the threat to the national security of the
17 United States posed by the global and regional adop-
18 tion of fifth-generation wireless network (known as
19 “5G”) technology built by foreign companies;
20 (2) the threat to the national security of the
21 United States posed by telecommunications compa-
22 nies that are subject to the jurisdiction of a foreign
23 adversary; and
24 (3) possible efforts to mitigate the threat.

25 (c) CONTENTS.—The report under subsection (b)
26 shall include—

1 (1) the timeline and scale of global and regional
2 adoption of foreign fifth-generation wireless network
3 technology;

4 (2) the implications of such global and regional
5 adoption on the cyber and espionage threat to the
6 United States, the interests of the United States,
7 and the cyber and collection capabilities of the
8 United States;

9 (3) the threat to the national security of the
10 United States from acquisition, importation, trans-
11 fer, installation, or use of any communications tech-
12 nology by any person subject to the jurisdiction of
13 the United States that involves communications
14 technology designed, developed, manufactured or
15 supplied by, controlled by, or subject to, the jurisdic-
16 tion of a foreign adversary; and

17 (4) the effect of possible mitigation efforts, in-
18 cluding with respect to—

19 (A) a policy of the United States Govern-
20 ment promoting the use of strong, end-to-end
21 encryption for data transmitted over fifth-gen-
22 eration wireless networks;

23 (B) a policy of the United States Govern-
24 ment promoting or funding free, open-source

1 implementation of fifth-generation wireless net-
2 work technology;

3 (C) subsidies or incentives provided by the
4 United States Government that could be used
5 to promote the adoption of secure fifth-genera-
6 tion wireless network technology developed by
7 companies of the United States or companies of
8 allies of the United States; and

9 (D) a strategy by the United States Gov-
10 ernment to reduce foreign influence and polit-
11 ical pressure in international standard-setting
12 bodies.

13 (d) FORM.—The report submitted under subsection
14 (b) shall be submitted in unclassified form, but may in-
15 clude a classified annex.

16 **SEC. 5708. REPORT ON USE BY INTELLIGENCE COMMUNITY**
17 **OF FACIAL RECOGNITION TECHNOLOGY.**

18 (a) SENSE OF CONGRESS.—It is the sense of Con-
19 gress that—

20 (1) the use of facial recognition technology for
21 the purpose of suppressing or burdening criticism or
22 dissent, or for disadvantaging persons based on their
23 ethnicity, race, gender, sexual orientation, or reli-
24 gion, is contrary to the values of the United States;

1 (2) the United States Government should not
2 engage in the sale or transfer of facial recognition
3 technology to any country that is using such tech-
4 nology for the suppression of human rights; and

5 (3) it is incumbent upon the intelligence com-
6 munity to develop clear policies and procedures that
7 prevent the abuse of facial recognition technology.

8 (b) REPORT REQUIRED.—Not later than 1 year after
9 the date of the enactment of this Act, the Director of Na-
10 tional Intelligence shall submit to the congressional intel-
11 ligence committees a report on the use of facial recognition
12 technology by the intelligence community. Such report
13 shall include each of the following:

14 (1) An analysis of the current use of facial rec-
15 ognition technology by the intelligence community.

16 (2) An analysis of the accuracy of facial rec-
17 ognition technology, including a discussion of the ap-
18 propriate threshold for use, and data disaggregated
19 by race, gender, ethnicity, and age.

20 (3) Whether the Government has adequate pro-
21 cedures in place to audit or test technology they pur-
22 chase to assess its accuracy, including on the basis
23 of race, gender, ethnicity, and age.

24 (4) The extent to which the intelligence commu-
25 nity has codified policies governing the use of facial

1 recognition technology that adequately prevent ad-
2 verse impacts on privacy, civil rights, and civil lib-
3 erties.

4 (5) An analysis of the ability of the intelligence
5 community to use facial recognition technology to
6 identify individuals in a way that respects constitu-
7 tional rights, civil rights, civil liberties, and privacy
8 of such individuals.

9 (6) Identification of risks and safeguards to up-
10 hold the constitutional rights, civil rights, civil lib-
11 erties, and privacy of individuals, including for com-
12 munities of color and religious minorities.

13 (7) Whether such technology is deployed in
14 public areas or on photos of public areas in a man-
15 ner that could raise First Amendment concerns.

16 (8) An identification of existing policies, proce-
17 dures, or practices that permit the sharing of facial
18 recognition data and technology with foreign govern-
19 ments or other non-United States Government enti-
20 ties.

21 (9) An identification of measures in place to
22 protect data security.

23 (10) An identification of any redress procedures
24 to address complaints in cases where the use of fa-
25 cial recognition resulted in harm to an individual.

1 (11) An analysis of existing transparency, over-
2 sight, and audits of the use of facial recognition to
3 measure the efficacy of the technology on an ongoing
4 basis, as measured against the cost and impact on
5 individual rights.

6 (c) FORM.—The report under subsection (a) shall be
7 submitted in unclassified form, but may include a classi-
8 fied annex.

9 (d) FACIAL RECOGNITION DATA DEFINED.—In this
10 section, the term “facial recognition data” means any
11 unique attribute or feature of the face of an end user that
12 is used by facial recognition technology to assign a unique,
13 persistent identifier, or for the unique personal identifica-
14 tion of a specific individual.

15 **SEC. 5709. REPORT ON DEEPFAKE TECHNOLOGY, FOREIGN**
16 **WEAPONIZATION OF DEEPFAKES, AND RE-**
17 **LATED NOTIFICATIONS.**

18 (a) REPORT ON FOREIGN WEAPONIZATION OF
19 DEEPFAKES AND DEEPFAKE TECHNOLOGY.—

20 (1) REPORT REQUIRED.—Not later than 180
21 days after the date of the enactment of this Act, the
22 Director of National Intelligence, in consultation
23 with the heads of the elements of the intelligence
24 community determined appropriate by the Director,

1 shall submit to the congressional intelligence com-
2 mittees a report on—

3 (A) the potential national security impacts
4 of machine-manipulated media (commonly
5 known as “deepfakes”); and

6 (B) the actual or potential use of machine-
7 manipulated media by foreign governments to
8 spread disinformation or engage in other malign
9 activities.

10 (2) MATTERS TO BE INCLUDED.—The report
11 under subsection (a) shall include the following:

12 (A) An assessment of the technical capa-
13 bilities of foreign governments, including for-
14 eign intelligence services, foreign government-
15 affiliated entities, and foreign individuals, with
16 respect to machine-manipulated media, ma-
17 chine-generated text, generative adversarial net-
18 works, and related machine-learning tech-
19 nologies, including—

20 (i) an assessment of the technical ca-
21 pabilities of the People’s Republic of China
22 and the Russian Federation with respect to
23 the production and detection of machine-
24 manipulated media; and

1 (ii) an annex describing those govern-
2 mental elements within China and Russia
3 known to have supported or facilitated ma-
4 chine-manipulated media research, develop-
5 ment, or dissemination, as well as any
6 civil-military fusion, private-sector, aca-
7 demic, or nongovernmental entities which
8 have meaningfully participated in such ac-
9 tivities.

10 (B) An updated assessment of how foreign
11 governments, including foreign intelligence serv-
12 ices, foreign government-affiliated entities, and
13 foreign individuals, could use or are using ma-
14 chine-manipulated media and machine-gen-
15 erated text to harm the national security inter-
16 ests of the United States, including an assess-
17 ment of the historic, current, or potential future
18 efforts of China and Russia to use machine-ma-
19 nipulated media, including with respect to—

20 (i) the overseas or domestic dissemi-
21 nation of misinformation;

22 (ii) the attempted discrediting of polit-
23 ical opponents or disfavored populations;
24 and

1 (iii) intelligence or influence oper-
2 ations directed against the United States,
3 allies or partners of the United States, or
4 other jurisdictions believed to be subject to
5 Chinese or Russian interference.

6 (C) An updated identification of the
7 countertechnologies that have been or could be
8 developed and deployed by the United States
9 Government, or by the private sector with Gov-
10 ernment support, to deter, detect, and attribute
11 the use of machine-manipulated media and ma-
12 chine-generated text by foreign governments,
13 foreign-government affiliates, or foreign individ-
14 uals, along with an analysis of the benefits, lim-
15 itations and drawbacks of such identified
16 counter-technologies, including any emerging
17 concerns related to privacy.

18 (D) An identification of the offices within
19 the elements of the intelligence community that
20 have, or should have, lead responsibility for
21 monitoring the development of, use of, and re-
22 sponse to machine-manipulated media and ma-
23 chine-generated text, including—

1 (i) a description of the coordination of
2 such efforts across the intelligence commu-
3 nity;

4 (ii) a detailed description of the exist-
5 ing capabilities, tools, and relevant exper-
6 tise of such elements to determine whether
7 a piece of media has been machine manip-
8 ulated or machine generated, including the
9 speed at which such determination can be
10 made, the confidence level of the element
11 in the ability to make such a determination
12 accurately, and how increasing volume and
13 improved quality of machine-manipulated
14 media or machine-generated text may neg-
15 atively impact such capabilities; and

16 (iii) a detailed description of planned
17 or ongoing research and development ef-
18 forts intended to improve the ability of the
19 intelligence community to detect machine-
20 manipulated media and machine-generated
21 text.

22 (E) A description of any research and de-
23 velopment activities carried out or under consid-
24 eration to be carried out by the intelligence
25 community, including the Intelligence Advanced

1 Research Projects Activity, relevant to machine-
2 manipulated media and machine-generated text
3 detection technologies.

4 (F) Updated recommendations regarding
5 whether the intelligence community requires ad-
6 ditional legal authorities, financial resources, or
7 specialized personnel to address the national se-
8 curity threat posed by machine-manipulated
9 media and machine-generated text.

10 (G) Other additional information the Di-
11 rector determines appropriate.

12 (b) FORM.—The report under subsection (a) shall be
13 submitted in unclassified form, but may include a classi-
14 fied annex.

15 (c) REQUIREMENT FOR NOTIFICATION.—The Direc-
16 tor of National Intelligence, in cooperation with the heads
17 of any other relevant departments or agencies of the Fed-
18 eral Government, shall notify the congressional intel-
19 ligence committees each time the Director of National In-
20 telligence determines—

21 (1) there is credible information or intelligence
22 that a foreign entity has attempted, is attempting,
23 or will attempt to deploy machine-manipulated
24 media or machine-generated text aimed at the elec-

1 tions or domestic political processes of the United
2 States; and

3 (2) that such intrusion or campaign can be at-
4 tributed to a foreign government, a foreign govern-
5 ment-affiliated entity, or a foreign individual.

6 (d) ANNUAL UPDATE.—Upon submission of the re-
7 port in subsection (a), on an annual basis, the Director
8 of National Intelligence, in consultation with the heads of
9 the elements of the intelligence community determined ap-
10 propriate by the Director, shall submit to the congress-
11 sional intelligence committees any significant updates with
12 respect to the matters described in subsection (a).

13 (e) DEFINITIONS.—

14 (1) MACHINE-GENERATED TEXT.—The term
15 “machine-generated text” means text generated
16 using machine-learning techniques in order to resem-
17 ble writing in natural language.

18 (2) MACHINE-MANIPULATED MEDIA.—The term
19 “machine-manipulated media” has the meaning
20 given that term in section 5724.

21 **SEC. 5710. ANNUAL REPORT BY COMPTROLLER GENERAL**
22 **OF THE UNITED STATES ON CYBERSECURITY**
23 **AND SURVEILLANCE THREATS TO CONGRESS.**

24 (a) ANNUAL REPORT REQUIRED.—Not later than
25 180 days after the date of the enactment of this Act and

1 not less frequently than once each year thereafter, the
2 Comptroller General of the United States shall submit to
3 the congressional intelligence committees a report on cy-
4 bersecurity and surveillance threats to Congress.

5 (b) STATISTICS.—Each report submitted under sub-
6 section (a) shall include statistics on cyber attacks and
7 other incidents of espionage or surveillance targeted
8 against Senators or the immediate families or staff of the
9 Senators, and Representatives, Delegates, and the Resi-
10 dent Commissioner, or the immediate families or staff of
11 the Representatives, Delegates, and the Resident Commis-
12 sioner, in which the nonpublic communications and other
13 private information of such targeted individuals were lost,
14 stolen, or otherwise subject to unauthorized access.

15 (c) CONSULTATION.—In preparing a report to be
16 submitted under subsection (a), the Comptroller General
17 shall consult with the Director of National Intelligence,
18 the Secretary of Homeland Security, the Sergeant at Arms
19 of the House of Representatives, and the Sergeant at
20 Arms and Doorkeeper of the Senate.

21 (d) FORM.—The report under subsection (a), includ-
22 ing the contents of the report in subsection (b), shall be
23 submitted in unclassified form, but may include a classi-
24 fied annex to protect sources and methods and any appro-
25 priate redactions of personally identifiable information.

1 **SEC. 5711. ANALYSIS OF AND PERIODIC BRIEFINGS ON**
2 **MAJOR INITIATIVES OF INTELLIGENCE COM-**
3 **MUNITY IN ARTIFICIAL INTELLIGENCE AND**
4 **MACHINE LEARNING.**

5 (a) ANALYSIS.—

6 (1) IN GENERAL.—Not later than 90 days after
7 the date of the enactment of this Act, the Director
8 of National Intelligence shall, in coordination with
9 the heads of such elements of the intelligence com-
10 munity as the Director considers appropriate—

11 (A) complete a comprehensive analysis of
12 the major initiatives of the intelligence commu-
13 nity in artificial intelligence and machine learn-
14 ing; and

15 (B) provide to the congressional intel-
16 ligence committees a briefing on the findings of
17 the Director with respect to the analysis con-
18 ducted pursuant to subparagraph (A).

19 (2) ELEMENTS.—The analysis conducted under
20 paragraph (1)(A) shall include analyses of how the
21 initiatives described in such paragraph—

22 (A) correspond with the strategy of the in-
23 telligence community entitled “Augmenting In-
24 telligence Using Machines”;

25 (B) complement each other and avoid un-
26 necessary duplication;

1 (C) are coordinated with the efforts of the
2 Defense Department on artificial intelligence,
3 including efforts at the Joint Artificial Intel-
4 ligence Center and Project Maven; and

5 (D) leverage advances in artificial intel-
6 ligence and machine learning in the private sec-
7 tor.

8 (b) PERIODIC BRIEFINGS.—Not later than 30 days
9 after the date of the enactment of this Act, not less fre-
10 quently than twice each year thereafter until the date that
11 is 2 years after the date of the enactment of this Act,
12 and not less frequently than once each year thereafter
13 until the date that is 7 years after the date of the enact-
14 ment of this Act, the Director and the Chief Information
15 Officer of the Department of Defense shall jointly provide
16 to the congressional intelligence committees and congress-
17 sional defense committees (as defined in section 101 of
18 title 10, United States Code) briefings with updates on
19 activities relating to, and the progress of, their respective
20 artificial intelligence and machine learning initiatives, par-
21 ticularly the Augmenting Intelligence Using Machines ini-
22 tiative and the Joint Artificial Intelligence Center.

1 **SEC. 5712. REPORT ON BEST PRACTICES TO PROTECT PRI-**
2 **VACY AND CIVIL LIBERTIES OF CHINESE**
3 **AMERICANS.**

4 (a) SENSE OF CONGRESS.—It is the sense of Con-
5 gress that—

6 (1) the People’s Republic of China appears to
7 be specifically targeting the Chinese-American com-
8 munity for intelligence purposes;

9 (2) such targeting carries a substantial risk
10 that the loyalty of such Americans may be generally
11 questioned and lead to unacceptable stereotyping,
12 targeting, and racial profiling;

13 (3) the United States Government has a duty
14 to warn and protect all Americans including those of
15 Chinese descent from these intelligence efforts by
16 the People’s Republic of China;

17 (4) the broad stereotyping, targeting, and racial
18 profiling of Americans of Chinese descent is contrary
19 to the values of the United States and reinforces the
20 flawed narrative perpetuated by the People’s Repub-
21 lic of China that ethnically Chinese individuals
22 worldwide have a duty to support the People’s Re-
23 public of China; and

24 (5) the United States efforts to combat the
25 People’s Republic of China’s intelligence activities

1 should actively safeguard and promote the constitu-
2 tional rights of all Chinese Americans.

3 (b) REPORT.—Not later than 180 days after the date
4 of the enactment of this Act, the Director of National In-
5 telligence, acting through the Office of Civil Liberties, Pri-
6 vacy, and Transparency, in coordination with the civil lib-
7 erties and privacy officers of the elements of the intel-
8 ligence community, shall submit a report to the congres-
9 sional intelligence committees containing—

10 (1) a review of how the policies, procedures,
11 and practices of the intelligence community that gov-
12 ern the intelligence activities and operations tar-
13 geting the People’s Republic of China affect policies,
14 procedures, and practices relating to the privacy and
15 civil liberties of Americans of Chinese descent who
16 may be targets of espionage and influence operations
17 by China; and

18 (2) recommendations to ensure that the privacy
19 and civil liberties of Americans of Chinese descent
20 are sufficiently protected.

21 (c) FORM.—The report under subsection (b) shall be
22 submitted in unclassified form, but may include a classi-
23 fied annex.

1 **SEC. 5713. OVERSIGHT OF FOREIGN INFLUENCE IN AKA-**
2 **DEMIA.**

3 (a) DEFINITIONS.—In this section:

4 (1) COVERED INSTITUTION OF HIGHER EDU-
5 CATION.—The term “covered institution of higher
6 education” means an institution described in section
7 102 of the Higher Education Act of 1965 (20
8 U.S.C. 1002) that receives Federal funds in any
9 amount and for any purpose.

10 (2) SENSITIVE RESEARCH SUBJECT.—The term
11 “sensitive research subject” means a subject of re-
12 search that is carried out at a covered institution of
13 higher education that receives funds that were ap-
14 propriated for—

15 (A) the National Intelligence Program; or

16 (B) any Federal agency the Director of
17 National Intelligence deems appropriate.

18 (b) REPORT REQUIRED.—Not later than 180 days
19 after the date of the enactment of this Act and not less
20 frequently than once each year thereafter, the Director of
21 National Intelligence, in consultation with such elements
22 of the intelligence community as the Director considers
23 appropriate and consistent with the privacy protections af-
24 farded to United States persons, shall submit to congres-
25 sional intelligence committees a report on risks to sensitive
26 research subjects posed by foreign entities in order to pro-

1 vide Congress and covered institutions of higher education
2 with more complete information on these risks and to help
3 ensure academic freedom.

4 (c) CONTENTS.—The report required by subsection
5 (b) shall include the following:

6 (1) A list of sensitive research subjects that
7 could affect national security.

8 (2) A list of foreign entities, including govern-
9 ments, corporations, nonprofit organizations and for-
10 profit organizations, and any subsidiary or affiliate
11 of such an entity, that the Director determines pose
12 a counterintelligence, espionage (including economic
13 espionage), or other national security threat with re-
14 spect to sensitive research subjects.

15 (3) A list of any known or suspected attempts
16 by foreign entities to exert pressure on covered insti-
17 tutions of higher education, including attempts to
18 limit freedom of speech, propagate misinformation
19 or disinformation, or to influence professors, re-
20 searchers, or students.

21 (4) Recommendations for collaboration between
22 covered institutions of higher education and the in-
23 telligence community to mitigate threats to sensitive
24 research subjects associated with foreign influence in

1 academia, including any necessary legislative or ad-
2 ministrative action.

3 (d) CONGRESSIONAL NOTIFICATIONS REQUIRED.—

4 Not later than 30 days after the date on which the Direc-
5 tor identifies a change to either list described in paragraph
6 (1) or (2) of subsection (c), the Director shall notify the
7 congressional intelligence committees of the change.

8 **SEC. 5714. REPORT ON DEATH OF JAMAL KHASHOGGI.**

9 (a) IN GENERAL.—Not later than 30 days after the
10 date of the enactment of this Act, the Director of National
11 Intelligence shall submit to Congress a report on the death
12 of Jamal Khashoggi, consistent with protecting sources
13 and methods. Such report shall include identification of
14 those who carried out, participated in, ordered, or were
15 otherwise complicit in or responsible for the death of
16 Jamal Khashoggi.

17 (b) FORM.—The report submitted under subsection
18 (a) shall be submitted in unclassified form.

19 **SEC. 5715. REPORT ON TERRORIST SCREENING DATABASE.**

20 (a) REPORT.—Not later than 180 days after the date
21 of the enactment of this Act, the Director of National In-
22 telligence and the Secretary of State shall jointly submit
23 to the congressional intelligence committees, the Com-
24 mittee on Foreign Affairs of the House of Representatives,
25 and the Committee on Foreign Relations of the Senate

1 a report on the terrorist screening database of the Federal
2 Bureau of Investigation.

3 (b) MATTERS INCLUDED.—The report under sub-
4 section (a) shall identify the following:

5 (1) Which foreign countries receive access to
6 the terrorist screening database.

7 (2) Which foreign countries have successfully
8 petitioned to add individuals to the terrorist screen-
9 ing database.

10 (3) What standards exist for determining which
11 countries get access to the terrorist screening data-
12 base.

13 (4) The extent to which the human rights
14 record of the government of a foreign country is con-
15 sidered in the determination to give the country ac-
16 cess to the terrorist screening database.

17 (5) What procedures, if any, exist to remove ac-
18 cess to the terrorist screening database from a for-
19 eign country.

20 (6) What procedures, if any, exist to inform an
21 individual, or the legal counsel of an individual, of
22 the placement of the individual on the terrorist
23 screening database.

1 (c) FORM.—The report under subsection (a) shall be
2 submitted in unclassified form, but may include a classi-
3 fied annex.

4 **SEC. 5716. REPORT CONTAINING THREAT ASSESSMENT ON**
5 **TERRORIST USE OF CONVENTIONAL AND AD-**
6 **VANCED CONVENTIONAL WEAPONS.**

7 (a) REPORT REQUIRED.—Not later than 180 days
8 after the date of the enactment of this Act, and annually
9 thereafter for a period of 4 years, the Under Secretary
10 of Homeland Security for Intelligence and Analysis, in co-
11 ordination with the Director of the Federal Bureau of In-
12 vestigation, shall develop and submit to the entities in ac-
13 cordance with subsection (b) a report containing a threat
14 assessment regarding the availability of conventional
15 weapons, including conventional weapons lacking serial
16 numbers, and advanced conventional weapons, for use in
17 furthering acts of terrorism, including the provision of ma-
18 terial support or resources to a foreign terrorist organiza-
19 tion and to individuals or groups supporting or engaging
20 in domestic terrorism.

21 (b) DISSEMINATION OF REPORT.—Consistent with
22 the protection of classified and confidential unclassified in-
23 formation, the Under Secretary shall—

24 (1) submit the initial report required under
25 subsection (a) to Federal, State, local, and Tribal

1 law enforcement officials, including officials who op-
2 erate within State, local, and regional fusion centers
3 under the Department of Homeland Security State,
4 Local, and Regional Fusion Center Initiative estab-
5 lished by section 210A of the Homeland Security
6 Act of 2002 (6 U.S.C. 124h); and

7 (2) submit each report required under sub-
8 section (a) to the appropriate congressional commit-
9 tees.

10 (c) DEFINITIONS.—In this section:

11 (1) APPROPRIATE CONGRESSIONAL COMMIT-
12 TEES.—The term “appropriate congressional com-
13 mittees” means—

14 (A) the Permanent Select Committee on
15 Intelligence, the Committee on Homeland Secu-
16 rity, and the Committee on the Judiciary of the
17 House of Representatives; and

18 (B) the Select Committee on Intelligence,
19 the Committee on Homeland Security and Gov-
20 ernmental Affairs, and the Committee on the
21 Judiciary of the Senate.

22 (2) DOMESTIC TERRORISM.—The term “domes-
23 tic terrorism” has the meaning given that term in
24 section 2331 of title 18, United States Code.

1 (3) FOREIGN TERRORIST ORGANIZATION.—The
2 term “foreign terrorist organization” means an or-
3 ganization designated as a foreign terrorist organiza-
4 tion under section 219 of the Immigration and Na-
5 tionality Act (8 U.S.C. 1189).

6 **SEC. 5717. ASSESSMENT OF HOMELAND SECURITY**
7 **VULNERABILITIES ASSOCIATED WITH CER-**
8 **TAIN RETIRED AND FORMER PERSONNEL OF**
9 **THE INTELLIGENCE COMMUNITY.**

10 (a) ASSESSMENT REQUIRED.—Not later than the
11 date that is 120 days after submission of the report re-
12 quired under section 5703, and annually thereafter, the
13 Director of National Intelligence, in coordination with the
14 Under Secretary of Homeland Security for Intelligence
15 and Analysis, the Director of the Federal Bureau of Inves-
16 tigation, the Director of the Central Intelligence Agency,
17 and the Director of the Defense Counterintelligence and
18 Security Agency, shall submit to the appropriate congres-
19 sional committees an assessment of the homeland security
20 vulnerabilities associated with retired and former per-
21 sonnel of the intelligence community providing covered in-
22 telligence assistance.

23 (b) FORM.—The assessment under subsection (a)
24 may be submitted in classified form.

25 (c) DEFINITIONS.—In this section:

1 (1) APPROPRIATE CONGRESSIONAL COMMIT-
2 TEES.—The term “appropriate congressional com-
3 mittees” means—

4 (A) the congressional intelligence commit-
5 tees;

6 (B) the Committee on Homeland Security
7 and Governmental Affairs of the Senate; and

8 (C) the Committee on Homeland Security
9 of the House of Representatives.

10 (2) COVERED INTELLIGENCE ASSISTANCE.—

11 The term “covered intelligence assistance” has the
12 meaning given that term in section 5703.

13 **SEC. 5718. STUDY ON FEASIBILITY AND ADVISABILITY OF**
14 **ESTABLISHING GEOSPATIAL-INTELLIGENCE**
15 **MUSEUM AND LEARNING CENTER.**

16 (a) STUDY REQUIRED.—Not later than 180 days
17 after the date of the enactment of this Act, the Director
18 of the National Geospatial-Intelligence Agency shall com-
19 plete a study on the feasibility and advisability of estab-
20 lishing a Geospatial-Intelligence Museum and learning
21 center.

22 (b) ELEMENTS.—The study required by subsection
23 (a) shall include the following:

1 (1) Identifying the costs, opportunities, and
2 challenges of establishing the museum and learning
3 center as described in such subsection.

4 (2) Developing recommendations concerning
5 such establishment.

6 (3) Identifying and reviewing lessons learned
7 from the establishment of the Cyber Center for Edu-
8 cation and Innovation-Home of the National
9 Cryptologic Museum under section 7781(a) of title
10 10, United States Code.

11 (c) REPORT.—Not later than 180 days after the date
12 of the enactment of this Act, the Director shall submit
13 to the congressional intelligence committees and the con-
14 gressional defense committees (as defined in section 101
15 of title 10, United States Code) a report on the findings
16 of the Director with respect to the study completed under
17 subsection (a).

18 **Subtitle B—Other Matters**

19 **SEC. 5721. WHISTLEBLOWER DISCLOSURES TO CONGRESS** 20 **AND COMMITTEES OF CONGRESS.**

21 Section 2302 of title 5, United States Code, is
22 amended—

23 (1) in subsection (b)(8)—

24 (A) in subparagraph (A), by striking “;
25 or” and inserting a semicolon;

1 (B) in subparagraph (B)(ii), by striking
2 the semicolon at the end and inserting “; or”;
3 and

4 (C) by inserting after subparagraph (B)
5 the following new subparagraph:

6 “(C) any disclosure to Congress (including
7 any committee of Congress) by any employee of
8 an agency or applicant for employment at an
9 agency of information described in subpara-
10 graph (B) that is—

11 “(i) not classified; or

12 “(ii) if classified—

13 “(I) has been classified by the
14 head of an agency that is not an ele-
15 ment of the intelligence community
16 (as defined by section 3 of the Na-
17 tional Security Act of 1947 (50
18 U.S.C. 3003)); and

19 “(II) does not reveal intelligence
20 sources and methods.”; and

21 (2) in subsection (c)(2)(C)(iii)(III), by inserting
22 after “Congress” the following: “(including any com-
23 mittee of Congress with respect to information that
24 is not classified or, if classified, has been classified
25 by the head of an agency that is not an element of

1 the intelligence community and does not reveal intel-
2 ligence sources and methods)”.
3

4 **SEC. 5722. TASK FORCE ON ILLICIT FINANCING OF ESPIO-**
5 **NAGE AND FOREIGN INFLUENCE OPER-**
6 **ATIONS.**

7 (a) ESTABLISHMENT.—Not later than 30 days after
8 the date of the enactment of this Act, the Director of Na-
9 tional Intelligence shall establish a task force to study and
10 assess the illicit financing of espionage and foreign influ-
11 ence operations directed at the United States.

12 (b) MEMBERSHIP.—The task force shall be composed
13 of the following individuals (or designees of the indi-
14 vidual):

15 (1) The Director of the Central Intelligence
16 Agency.

17 (2) The Director of the Federal Bureau of In-
18 vestigation.

19 (3) The Assistant Secretary of the Treasury for
20 Intelligence and Analysis.

21 (4) The Assistant Secretary of State for Intel-
22 ligence and Research.

23 (5) Such other heads of the elements of the in-
24 telligence community that the Director of National
25 Intelligence determines appropriate.

(c) CHAIRPERSON; MEETINGS.—

1 (1) CHAIRPERSON.—The Director of National
2 Intelligence shall appoint a senior official within the
3 Office of the Director of National Intelligence to
4 serve as the chairperson of the task force.

5 (2) MEETINGS.—The task force shall meet reg-
6 ularly but not less frequently than on a quarterly
7 basis.

8 (d) REPORTS.—

9 (1) INITIAL REPORT.—Not later than 180 days
10 after the date of the enactment of this Act, the task
11 force shall submit to the appropriate congressional
12 committees a report on the illicit financing of espio-
13 nage and foreign influence operations directed at the
14 United States. The report shall address the fol-
15 lowing:

16 (A) The extent of the collection by the in-
17 telligence community, from all sources (includ-
18 ing the governments of foreign countries), of in-
19 telligence and information relating to illicit fi-
20 nancing of espionage and foreign influence op-
21 erations directed at the United States, and any
22 gaps in such collection.

23 (B) Any specific legal, regulatory, policy,
24 or other prohibitions, or financial, human, tech-
25 nical, or other resource limitations or con-

1 strains, that have affected the ability of the
2 Director of National Intelligence or other heads
3 of relevant elements of the intelligence commu-
4 nity in collecting or analyzing intelligence or in-
5 formation relating to illicit financing of espio-
6 nage and foreign influence operations directed
7 at the United States.

8 (C) The methods, as of the date of the re-
9 port, by which hostile governments of foreign
10 countries or foreign organizations, and any
11 groups or persons acting on behalf of or with
12 the support of such governments or organiza-
13 tions, seek to disguise or obscure relationships
14 between such governments, organizations,
15 groups, or persons and United States persons,
16 for the purpose of conducting espionage or for-
17 eign influence operations directed at the United
18 States, including by exploiting financial laws,
19 systems, or instruments, of the United States.

20 (D) The existing practices of the intel-
21 ligence community for ensuring that intelligence
22 and information relating to the illicit financing
23 of espionage and foreign influence operations is
24 analyzed and shared with other elements of the

1 intelligence community, and any recommenda-
2 tions for improving such analysis and sharing.

3 (2) ANNUAL UPDATE.—Not later than 1 year
4 after the date of the enactment of this Act, and each
5 year thereafter through the date specified in sub-
6 section (e), the task force shall submit to the appro-
7 priate congressional committees an update on the re-
8 port.

9 (3) FORM.—Each report submitted under this
10 subsection may be submitted in classified form, but
11 if submitted in such form, shall include an unclassi-
12 fied summary.

13 (e) TERMINATION.—The task force shall terminate
14 on January 1, 2025.

15 (f) APPROPRIATE CONGRESSIONAL COMMITTEES DE-
16 FINED.—In this section, the term “appropriate congres-
17 sional committees” means the following:

18 (1) The congressional intelligence committees.

19 (2) The Committee on Foreign Affairs and the
20 Committee on Financial Services of the House of
21 Representatives.

22 (3) The Committee on Foreign Relations and
23 the Committee on Banking, Housing, and Urban Af-
24 fairs of the Senate.

1 **SEC. 5723. ESTABLISHMENT OF FIFTH-GENERATION TECH-**
2 **NOLOGY PRIZE COMPETITION.**

3 (a) PRIZE COMPETITION.—Pursuant to section 24 of
4 the Stevenson-Wydler Technology Innovation Act of 1980
5 (15 U.S.C. 3719), the Director of National Intelligence,
6 acting through the Director of the Intelligence Advanced
7 Research Projects Agency, shall carry out a program to
8 award prizes competitively to stimulate research and de-
9 velopment relevant to fifth-generation technology.

10 (b) PRIZE AMOUNT.—In carrying out the program
11 under subsection (a), the Director may award not more
12 than a total of \$5,000,000 to one or more winners of the
13 prize competition.

14 (c) CONSULTATION.—In carrying out the program
15 under subsection (a), the Director may consult with the
16 heads of relevant departments and agencies of the Federal
17 Government.

18 (d) FIFTH-GENERATION TECHNOLOGY DEFINED.—
19 In this section, the term “fifth-generation technology”
20 means hardware, software, or other technologies relating
21 to fifth-generation wireless networks (known as “5G”).

22 **SEC. 5724. ESTABLISHMENT OF DEEPPAKES PRIZE COM-**
23 **PETITION.**

24 (a) PRIZE COMPETITION.—Pursuant to section 24 of
25 the Stevenson-Wydler Technology Innovation Act of 1980
26 (15 U.S.C. 3719), the Director of National Intelligence,

1 acting through the Director of the Intelligence Advanced
2 Research Projects Agency, shall carry out a program to
3 award prizes competitively to stimulate the research, de-
4 velopment, or commercialization of technologies to auto-
5 matically detect machine-manipulated media.

6 (b) PRIZE AMOUNT.—In carrying out the program
7 under subsection (a), the Director may award not more
8 than a total of \$5,000,000 to one or more winners of the
9 prize competition.

10 (c) CONSULTATION.—In carrying out the program
11 under subsection (a), the Director may consult with the
12 heads of relevant departments and agencies of the Federal
13 Government.

14 (d) MACHINE-MANIPULATED MEDIA DEFINED.—In
15 this section, the term “machine-manipulated media”
16 means video, image, or audio recordings generated or sub-
17 stantially modified using machine-learning techniques in
18 order to falsely depict events, to falsely depict the speech
19 or conduct of an individual, or to depict individuals who
20 do not exist.

21 **SEC. 5725. IDENTIFICATION OF AND COUNTERMEASURES**
22 **AGAINST CERTAIN INTERNATIONAL MOBILE**
23 **SUBSCRIBER IDENTITY-CATCHERS.**

24 (a) IN GENERAL.—The Director of National Intel-
25 ligence and the Director of the Federal Bureau of Inves-

1 tigation, in collaboration with the Under Secretary of
2 Homeland Security for Intelligence and Analysis, and the
3 heads of such other Federal, State, or local agencies as
4 the Directors determine appropriate, and in accordance
5 with applicable law and policy, may—

6 (1) undertake an effort to identify International
7 Mobile Subscriber Identity-catchers operated within
8 the United States by—

9 (A) hostile foreign governments; and

10 (B) individuals who have violated a crimi-
11 nal law of the United States or of any State,
12 or who have committed acts that would be a
13 criminal violation if committed within the juris-
14 diction of the United States or any State; and

15 (2) when appropriate, develop countermeasures
16 against such International Mobile Subscriber Iden-
17 tity-catchers, with prioritization given to such Inter-
18 national Mobile Subscriber Identity-catchers identi-
19 fied in the National Capital Region.

20 (b) BRIEFING REQUIRED.—Prior to developing coun-
21 termeasures under subsection (a)(2), the Director of Na-
22 tional Intelligence and the Director of the Federal Bureau
23 of Investigation shall provide a briefing to the appropriate
24 congressional committees on—

1 (1) the use of International Mobile Subscriber
2 Identity-catchers operated within the United States
3 by the individuals and governments described in sub-
4 section (a)(1);

5 (2) potential countermeasures by the intel-
6 ligence community against such International Mobile
7 Subscriber Identity-catchers; and

8 (3) any legal or policy limitations with respect
9 to the development or carrying out of such counter-
10 measures.

11 (c) DEFINITIONS.—

12 (1) APPROPRIATE CONGRESSIONAL COMMIT-
13 TEES.—The term “appropriate congressional com-
14 mittees” means—

15 (A) the congressional intelligence commit-
16 tees;

17 (B) the Committee on Homeland Security
18 of the House of Representatives and the Com-
19 mittee on Homeland Security and Govern-
20 mental Affairs of the Senate; and

21 (C) the Committees on the Judiciary of the
22 House of Representatives and the Senate.

23 (2) INTERNATIONAL MOBILE SUBSCRIBER
24 IDENTITY-CATCHER.—The term “International Mo-
25 bile Subscriber Identity-catcher” means a device

1 used for intercepting mobile phone identifying infor-
2 mation and location data.

3 **SEC. 5726. SECURING ENERGY INFRASTRUCTURE.**

4 (a) DEFINITIONS.—In this section:

5 (1) APPROPRIATE CONGRESSIONAL COMMIT-
6 TEES.—The term “appropriate congressional com-
7 mittees” means—

8 (A) the congressional intelligence commit-
9 tees;

10 (B) the Committee on Homeland Security
11 and Governmental Affairs and the Committee
12 on Energy and Natural Resources of the Sen-
13 ate; and

14 (C) the Committee on Homeland Security
15 and the Committee on Energy and Commerce
16 of the House of Representatives.

17 (2) COVERED ENTITY.—The term “covered en-
18 tity” means an entity identified pursuant to section
19 9(a) of Executive Order No. 13636 of February 12,
20 2013 (78 Fed. Reg. 11742), relating to identifica-
21 tion of critical infrastructure where a cybersecurity
22 incident could reasonably result in catastrophic re-
23 gional or national effects on public health or safety,
24 economic security, or national security.

1 (3) EXPLOIT.—The term “exploit” means a
2 software tool designed to take advantage of a secu-
3 rity vulnerability.

4 (4) INDUSTRIAL CONTROL SYSTEM.—The term
5 “industrial control system” means an operational
6 technology used to measure, control, or manage in-
7 dustrial functions, and includes supervisory control
8 and data acquisition systems, distributed control
9 systems, and programmable logic or embedded con-
10 trollers.

11 (5) NATIONAL LABORATORY.—The term “Na-
12 tional Laboratory” has the meaning given the term
13 in section 2 of the Energy Policy Act of 2005 (42
14 U.S.C. 15801).

15 (6) PROGRAM.—The term “Program” means
16 the pilot program established under subsection (b).

17 (7) SECRETARY.—Except as otherwise specifi-
18 cally provided, the term “Secretary” means the Sec-
19 retary of Energy.

20 (8) SECURITY VULNERABILITY.—The term “se-
21 curity vulnerability” means any attribute of hard-
22 ware, software, process, or procedure that could en-
23 able or facilitate the defeat of a security control.

24 (b) PILOT PROGRAM FOR SECURING ENERGY INFRA-
25 STRUCTURE.—Not later than 180 days after the date of

1 the enactment of this Act, the Secretary shall establish
2 a 2-year control systems implementation pilot program
3 within the National Laboratories for the purposes of—

4 (1) partnering with covered entities in the en-
5 ergy sector (including critical component manufac-
6 turers in the supply chain) that voluntarily partici-
7 pate in the Program to identify new classes of secu-
8 rity vulnerabilities of the covered entities; and

9 (2) evaluating technology and standards, in
10 partnership with covered entities, to isolate and de-
11 fend industrial control systems of covered entities
12 from security vulnerabilities and exploits in the most
13 critical systems of the covered entities, including—

14 (A) analog and nondigital control systems;

15 (B) purpose-built control systems; and

16 (C) physical controls.

17 (c) WORKING GROUP TO EVALUATE PROGRAM
18 STANDARDS AND DEVELOP STRATEGY.—

19 (1) ESTABLISHMENT.—The Secretary shall es-
20 tablish a working group—

21 (A) to evaluate the technology and stand-
22 ards used in the Program under subsection
23 (b)(2); and

24 (B) to develop a national cyber-informed
25 engineering strategy to isolate and defend cov-

1 ered entities from security vulnerabilities and
2 exploits in the most critical systems of the cov-
3 ered entities.

4 (2) MEMBERSHIP.—The working group estab-
5 lished under paragraph (1) shall be composed of not
6 fewer than 10 members, to be appointed by the Sec-
7 retary, at least 1 member of which shall represent
8 each of the following:

9 (A) The Department of Energy.

10 (B) The energy industry, including electric
11 utilities and manufacturers recommended by
12 the Energy Sector coordinating councils.

13 (C)(i) The Department of Homeland Secu-
14 rity; or

15 (ii) the Industrial Control Systems Cyber
16 Emergency Response Team.

17 (D) The North American Electric Reli-
18 ability Corporation.

19 (E) The Nuclear Regulatory Commission.

20 (F)(i) The Office of the Director of Na-
21 tional Intelligence; or

22 (ii) the intelligence community (as defined
23 in section 3 of the National Security Act of
24 1947 (50 U.S.C. 3003)).

25 (G)(i) The Department of Defense; or

1 (ii) the Assistant Secretary of Defense for
2 Homeland Security and America's Security Af-
3 fairs.

4 (H) A State or regional energy agency.

5 (I) A national research body or academic
6 institution.

7 (J) The National Laboratories.

8 (d) REPORTS ON THE PROGRAM.—

9 (1) INTERIM REPORT.—Not later than 180
10 days after the date on which funds are first dis-
11 bursed under the Program, the Secretary shall sub-
12 mit to the appropriate congressional committees an
13 interim report that—

14 (A) describes the results of the Program;

15 (B) includes an analysis of the feasibility
16 of each method studied under the Program; and

17 (C) describes the results of the evaluations
18 conducted by the working group established
19 under subsection (c)(1).

20 (2) FINAL REPORT.—Not later than 2 years
21 after the date on which funds are first disbursed
22 under the Program, the Secretary shall submit to
23 the appropriate congressional committees a final re-
24 port that—

25 (A) describes the results of the Program;

1 (B) includes an analysis of the feasibility
2 of each method studied under the Program; and

3 (C) describes the results of the evaluations
4 conducted by the working group established
5 under subsection (c)(1).

6 (e) EXEMPTION FROM DISCLOSURE.—Information
7 shared by or with the Federal Government or a State,
8 Tribal, or local government under this section—

9 (1) shall be deemed to be voluntarily shared in-
10 formation;

11 (2) shall be exempt from disclosure under sec-
12 tion 552 of title 5, United States Code, or any provi-
13 sion of any State, Tribal, or local freedom of infor-
14 mation law, open government law, open meetings
15 law, open records law, sunshine law, or similar law
16 requiring the disclosure of information or records;
17 and

18 (3) shall be withheld from the public, without
19 discretion, under section 552(b)(3) of title 5, United
20 States Code, and any provision of any State, Tribal,
21 or local law requiring the disclosure of information
22 or records.

23 (f) PROTECTION FROM LIABILITY.—

1 (1) IN GENERAL.—A cause of action against a
2 covered entity for engaging in the voluntary activi-
3 ties authorized under subsection (b)—

4 (A) shall not lie or be maintained in any
5 court; and

6 (B) shall be promptly dismissed by the ap-
7 plicable court.

8 (2) VOLUNTARY ACTIVITIES.—Nothing in this
9 section subjects any covered entity to liability for not
10 engaging in the voluntary activities authorized under
11 subsection (b).

12 (g) NO NEW REGULATORY AUTHORITY FOR FED-
13 ERAL AGENCIES.—Nothing in this section authorizes the
14 Secretary or the head of any other department or agency
15 of the Federal Government to issue new regulations.

16 (h) AUTHORIZATION OF APPROPRIATIONS.—

17 (1) PILOT PROGRAM.—There is authorized to
18 be appropriated \$10,000,000 to carry out subsection
19 (b).

20 (2) WORKING GROUP AND REPORT.—There is
21 authorized to be appropriated \$1,500,000 to carry
22 out subsections (c) and (d).

23 (3) AVAILABILITY.—Amounts made available
24 under paragraphs (1) and (2) shall remain available
25 until expended.

1 **SUBDIVISION 2—INTELLIGENCE**
2 **AUTHORIZATIONS FOR FIS-**
3 **CAL YEARS 2018 AND 2019**

4 **SEC. 6100. TABLE OF CONTENTS.**

5 The table of contents for this subdivision is as fol-
6 lows:

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Sec. 6201. Authorization of appropriations.

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- Sec. 6411. Central Intelligence Agency subsistence for personnel assigned to austere locations.
- Sec. 6412. Special rules for certain monthly workers' compensation payments and other payments for Central Intelligence Agency personnel.
- Sec. 6413. Expansion of security protective service jurisdiction of the Central Intelligence Agency.
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- Sec. 6421. Consolidation of Department of Energy Offices of Intelligence and Counterintelligence.
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- Sec. 6431. Plan for designation of counterintelligence component of Defense Security Service as an element of intelligence community.
- Sec. 6432. Notice not required for private entities.
- Sec. 6433. Establishment of advisory board for National Reconnaissance Office.
- Sec. 6434. Collocation of certain Department of Homeland Security personnel at field locations.

TITLE LXV—ELECTION MATTERS

- Sec. 6501. Report on cyber attacks by foreign governments against United States election infrastructure.
- Sec. 6502. Review of intelligence community's posture to collect against and analyze Russian efforts to influence the Presidential election.
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- Sec. 6608. Reports on reciprocity for security clearances inside of departments and agencies.
- Sec. 6609. Intelligence community reports on security clearances.
- Sec. 6610. Periodic report on positions in the intelligence community that can be conducted without access to classified information, networks, or facilities.
- Sec. 6611. Information-sharing program for positions of trust and security clearances.
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TITLE LXVII—REPORTS AND OTHER MATTERS

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- Sec. 6701. Limitation relating to establishment or support of cybersecurity unit with the Russian Federation.
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- Sec. 6711. Technical correction to Inspector General study.
- Sec. 6712. Reports on authorities of the Chief Intelligence Officer of the Department of Homeland Security.
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- Sec. 6715. Report on surveillance by foreign governments against United States telecommunications networks.
- Sec. 6716. Biennial report on foreign investment risks.
- Sec. 6717. Modification of certain reporting requirement on travel of foreign diplomats.
- Sec. 6718. Semiannual reports on investigations of unauthorized disclosures of classified information.
- Sec. 6719. Congressional notification of designation of covered intelligence officer as persona non grata.

- Sec. 6720. Reports on intelligence community participation in vulnerabilities equities process of Federal Government.
- Sec. 6721. Inspectors General reports on classification.
- Sec. 6722. Reports and briefings on national security effects of global water insecurity and emerging infectious disease and pandemics.
- Sec. 6723. Annual report on memoranda of understanding between elements of intelligence community and other entities of the United States Government regarding significant operational activities or policy.
- Sec. 6724. Study on the feasibility of encrypting unclassified wireline and wireless telephone calls.
- Sec. 6725. Reports on intelligence community loan repayment and related programs.
- Sec. 6726. Repeal of certain reporting requirements.
- Sec. 6727. Inspector General of the Intelligence Community report on senior executives of the Office of the Director of National Intelligence.
- Sec. 6728. Briefing on Federal Bureau of Investigation offering permanent residence to sources and cooperators.
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Subtitle C—Other Matters

- Sec. 6741. Public Interest Declassification Board.
- Sec. 6742. Technical and clerical amendments to the National Security Act of 1947.
- Sec. 6743. Bug bounty programs.
- Sec. 6744. Technical amendments related to the Department of Energy.
- Sec. 6745. Sense of Congress on notification of certain disclosures of classified information.
- Sec. 6746. Sense of Congress on consideration of espionage activities when considering whether or not to provide visas to foreign individuals to be accredited to a United Nations mission in the United States.
- Sec. 6747. Sense of Congress on WikiLeaks.

1 **TITLE LXI—INTELLIGENCE**
 2 **ACTIVITIES**

3 **SEC. 6101. AUTHORIZATION OF APPROPRIATIONS.**

4 (a) FISCAL YEAR 2019.—Funds that were appro-
 5 priated for fiscal year 2019 for the conduct of the intel-
 6 ligence and intelligence-related activities of the following
 7 elements of the United States Government are hereby au-
 8 thorized:

1 (1) The Office of the Director of National Intel-
2 ligence.

3 (2) The Central Intelligence Agency.

4 (3) The Department of Defense.

5 (4) The Defense Intelligence Agency.

6 (5) The National Security Agency.

7 (6) The Department of the Army, the Depart-
8 ment of the Navy, and the Department of the Air
9 Force.

10 (7) The Coast Guard.

11 (8) The Department of State.

12 (9) The Department of the Treasury.

13 (10) The Department of Energy.

14 (11) The Department of Justice.

15 (12) The Federal Bureau of Investigation.

16 (13) The Drug Enforcement Administration.

17 (14) The National Reconnaissance Office.

18 (15) The National Geospatial-Intelligence Agen-
19 cy.

20 (16) The Department of Homeland Security.

21 (b) FISCAL YEAR 2018.—Funds that were appro-
22 priated for fiscal year 2018 for the conduct of the intel-
23 ligence and intelligence-related activities of the elements
24 of the United States set forth in subsection (a) are hereby
25 authorized.

1 **SEC. 6102. INTELLIGENCE COMMUNITY MANAGEMENT AC-**
2 **COUNT.**

3 The amounts that were appropriated for the Intel-
4 ligence Community Management Account of the Director
5 of National Intelligence for fiscal years 2018 and 2019
6 are hereby authorized.

7 **TITLE LXII—CENTRAL INTEL-**
8 **LIGENCE AGENCY RETIRE-**
9 **MENT AND DISABILITY SYS-**
10 **TEM**

11 **SEC. 6201. AUTHORIZATION OF APPROPRIATIONS.**

12 The amounts that were appropriated for the Central
13 Intelligence Agency Retirement and Disability Fund for
14 fiscal years 2018 and 2019 are hereby authorized.

15 **SEC. 6202. COMPUTATION OF ANNUITIES FOR EMPLOYEES**
16 **OF THE CENTRAL INTELLIGENCE AGENCY.**

17 (a) COMPUTATION OF ANNUITIES.—

18 (1) IN GENERAL.—Section 221 of the Central
19 Intelligence Agency Retirement Act (50 U.S.C.
20 2031) is amended—

21 (A) in subsection (a)(3)(B), by striking the
22 period at the end and inserting “, as deter-
23 mined by using the annual rate of basic pay
24 that would be payable for full-time service in
25 that position.”;

1 (B) in subsection (b)(1)(C)(i), by striking
2 “12-month” and inserting “2-year”;

3 (C) in subsection (f)(2), by striking “one
4 year” and inserting “two years”;

5 (D) in subsection (g)(2), by striking “one
6 year” each place such term appears and insert-
7 ing “two years”;

8 (E) by redesignating subsections (h), (i),
9 (j), (k), and (l) as subsections (i), (j), (k), (l),
10 and (m), respectively; and

11 (F) by inserting after subsection (g) the
12 following:

13 “(h) **CONDITIONAL ELECTION OF INSURABLE INTER-**
14 **EST SURVIVOR ANNUITY BY PARTICIPANTS MARRIED AT**
15 **THE TIME OF RETIREMENT.—**

16 “(1) **AUTHORITY TO MAKE DESIGNATION.—**

17 Subject to the rights of former spouses under sub-
18 section (b) and section 222, at the time of retire-
19 ment a married participant found by the Director to
20 be in good health may elect to receive an annuity re-
21 duced in accordance with subsection (f)(1)(B) and
22 designate in writing an individual having an insur-
23 able interest in the participant to receive an annuity
24 under the system after the participant’s death, ex-
25 cept that any such election to provide an insurable

1 interest survivor annuity to the participant's spouse
2 shall only be effective if the participant's spouse
3 waives the spousal right to a survivor annuity under
4 this Act. The amount of the annuity shall be equal
5 to 55 percent of the participant's reduced annuity.

6 “(2) REDUCTION IN PARTICIPANT'S ANNUITY.—
7 The annuity payable to the participant making such
8 election shall be reduced by 10 percent of an annuity
9 computed under subsection (a) and by an additional
10 5 percent for each full 5 years the designated indi-
11 vidual is younger than the participant. The total re-
12 duction under this subparagraph may not exceed 40
13 percent.

14 “(3) COMMENCEMENT OF SURVIVOR ANNU-
15 ITY.—The annuity payable to the designated indi-
16 vidual shall begin on the day after the retired partic-
17 ipant dies and terminate on the last day of the
18 month before the designated individual dies.

19 “(4) RECOMPUTATION OF PARTICIPANT'S AN-
20 NUITY ON DEATH OF DESIGNATED INDIVIDUAL.—An
21 annuity that is reduced under this subsection shall,
22 effective the first day of the month following the
23 death of the designated individual, be recomputed
24 and paid as if the annuity had not been so re-
25 duced.”.

1 (2) CONFORMING AMENDMENTS.—

2 (A) CENTRAL INTELLIGENCE AGENCY RE-
3 TIREMENT ACT.—The Central Intelligence
4 Agency Retirement Act (50 U.S.C. 2001 et
5 seq.) is amended—

6 (i) in section 232(b)(1) (50 U.S.C.
7 2052(b)(1)), by striking “221(h),” and in-
8 serting “221(i),”; and

9 (ii) in section 252(h)(4) (50 U.S.C.
10 2082(h)(4)), by striking “221(k)” and in-
11 serting “221(l)”.

12 (B) CENTRAL INTELLIGENCE AGENCY ACT
13 OF 1949.—Subsection (a) of section 14 of the
14 Central Intelligence Agency Act of 1949 (50
15 U.S.C. 3514(a)) is amended by striking
16 “221(h)(2), 221(i), 221(l),” and inserting
17 “221(i)(2), 221(j), 221(m),”.

18 (b) ANNUITIES FOR FORMER SPOUSES.—Subpara-
19 graph (B) of section 222(b)(5) of the Central Intelligence
20 Agency Retirement Act (50 U.S.C. 2032(b)(5)(B)) is
21 amended by striking “one year” and inserting “two
22 years”.

23 (c) PRIOR SERVICE CREDIT.—Subparagraph (A) of
24 section 252(b)(3) of the Central Intelligence Agency Re-
25 tirement Act (50 U.S.C. 2082(b)(3)(A)) is amended by

1 striking “October 1, 1990” both places that term appears
2 and inserting “March 31, 1991”.

3 (d) REEMPLOYMENT COMPENSATION.—Section 273
4 of the Central Intelligence Agency Retirement Act (50
5 U.S.C. 2113) is amended—

6 (1) by redesignating subsections (b) and (c) as
7 subsections (c) and (d), respectively; and

8 (2) by inserting after subsection (a) the fol-
9 lowing:

10 “(b) PART-TIME REEMPLOYED ANNUITANTS.—The
11 Director shall have the authority to reemploy an annuitant
12 on a part-time basis in accordance with section 8344(l)
13 of title 5, United States Code.”.

14 (e) EFFECTIVE DATE AND APPLICATION.—The
15 amendments made by subsection (a)(1)(A) and subsection
16 (c) shall take effect as if enacted on October 28, 2009,
17 and shall apply to computations or participants, respec-
18 tively, as of such date.

19 **TITLE LXIII—GENERAL INTEL-**
20 **LIGENCE COMMUNITY MAT-**
21 **TERS**

22 **SEC. 6301. RESTRICTION ON CONDUCT OF INTELLIGENCE**
23 **ACTIVITIES.**

24 The authorization of appropriations by this subdivi-
25 sion shall not be deemed to constitute authority for the

1 conduct of any intelligence activity which is not otherwise
2 authorized by the Constitution or the laws of the United
3 States.

4 **SEC. 6302. INCREASE IN EMPLOYEE COMPENSATION AND**
5 **BENEFITS AUTHORIZED BY LAW.**

6 Appropriations authorized by this subdivision for sal-
7 ary, pay, retirement, and other benefits for Federal em-
8 ployees may be increased by such additional or supple-
9 mental amounts as may be necessary for increases in such
10 compensation or benefits authorized by law.

11 **SEC. 6303. MODIFICATION OF SPECIAL PAY AUTHORITY**
12 **FOR SCIENCE, TECHNOLOGY, ENGINEERING,**
13 **OR MATHEMATICS POSITIONS AND ADDITION**
14 **OF SPECIAL PAY AUTHORITY FOR CYBER PO-**
15 **SITIONS.**

16 Section 113B of the National Security Act of 1947
17 (50 U.S.C. 3049a) is amended—

18 (1) by amending subsection (a) to read as fol-
19 lows:

20 “(a) SPECIAL RATES OF PAY FOR POSITIONS RE-
21 QUIRING EXPERTISE IN SCIENCE, TECHNOLOGY, ENGI-
22 NEERING, OR MATHEMATICS.—

23 “(1) IN GENERAL.—Notwithstanding part III
24 of title 5, United States Code, the head of each ele-
25 ment of the intelligence community may, for one or

1 more categories of positions in such element that re-
2 quire expertise in science, technology, engineering,
3 or mathematics—

4 “(A) establish higher minimum rates of
5 pay; and

6 “(B) make corresponding increases in all
7 rates of pay of the pay range for each grade or
8 level, subject to subsection (b) or (c), as appli-
9 cable.

10 “(2) TREATMENT.—The special rate supple-
11 ments resulting from the establishment of higher
12 rates under paragraph (1) shall be basic pay for the
13 same or similar purposes as those specified in sec-
14 tion 5305(j) of title 5, United States Code.”;

15 (2) by redesignating subsections (b) through (f)
16 as subsections (c) through (g), respectively;

17 (3) by inserting after subsection (a) the fol-
18 lowing:

19 “(b) SPECIAL RATES OF PAY FOR CYBER POSI-
20 TIONS.—

21 “(1) IN GENERAL.—Notwithstanding subsection
22 (c), the Director of the National Security Agency
23 may establish a special rate of pay—

24 “(A) not to exceed the rate of basic pay
25 payable for level II of the Executive Schedule

1 under section 5313 of title 5, United States
2 Code, if the Director certifies to the Under Sec-
3 retary of Defense for Intelligence, in consulta-
4 tion with the Under Secretary of Defense for
5 Personnel and Readiness, that the rate of pay
6 is for positions that perform functions that exe-
7 cute the cyber mission of the Agency; or

8 “(B) not to exceed the rate of basic pay
9 payable for the Vice President of the United
10 States under section 104 of title 3, United
11 States Code, if the Director certifies to the Sec-
12 retary of Defense, by name, individuals that
13 have advanced skills and competencies and that
14 perform critical functions that execute the cyber
15 mission of the Agency.

16 “(2) PAY LIMITATION.—Employees receiving a
17 special rate under paragraph (1) shall be subject to
18 an aggregate pay limitation that parallels the limita-
19 tion established in section 5307 of title 5, United
20 States Code, except that—

21 “(A) any allowance, differential, bonus,
22 award, or other similar cash payment in addi-
23 tion to basic pay that is authorized under title
24 10, United States Code, (or any other applica-
25 ble law in addition to title 5 of such Code, ex-

1 including the Fair Labor Standards Act of 1938
2 (29 U.S.C. 201 et seq.) shall also be counted
3 as part of aggregate compensation; and

4 “(B) aggregate compensation may not ex-
5 ceed the rate established for the Vice President
6 of the United States under section 104 of title
7 3, United States Code.

8 “(3) LIMITATION ON NUMBER OF RECIPI-
9 ENTS.—The number of individuals who receive basic
10 pay established under paragraph (1)(B) may not ex-
11 ceed 100 at any time.

12 “(4) LIMITATION ON USE AS COMPARATIVE
13 REFERENCE.—Notwithstanding any other provision
14 of law, special rates of pay and the limitation estab-
15 lished under paragraph (1)(B) may not be used as
16 comparative references for the purpose of fixing the
17 rates of basic pay or maximum pay limitations of
18 qualified positions under section 1599f of title 10,
19 United States Code, or section 226 of the Homeland
20 Security Act of 2002 (6 U.S.C. 147).”;

21 (4) in subsection (c), as redesignated by para-
22 graph (2), by striking “A minimum” and inserting
23 “Except as provided in subsection (b), a minimum”;

1 (5) in subsection (d), as redesignated by para-
2 graph (2), by inserting “or (b)” after “by subsection
3 (a)”;

4 (6) in subsection (g), as redesignated by para-
5 graph (2)—

6 (A) in paragraph (1), by striking “Not
7 later than 90 days after the date of the enact-
8 ment of the Intelligence Authorization Act for
9 Fiscal Year 2017” and inserting “Not later
10 than 90 days after the date of the enactment of
11 the Damon Paul Nelson and Matthew Young
12 Pollard Intelligence Authorization Act for Fis-
13 cal Years 2018 and 2019”;

14 (B) in paragraph (2)(A), by inserting “or
15 (b)” after “subsection (a)”.

16 **SEC. 6304. MODIFICATION OF APPOINTMENT OF CHIEF IN-**
17 **FORMATION OFFICER OF THE INTELLIGENCE**
18 **COMMUNITY.**

19 Section 103G(a) of the National Security Act of 1947
20 (50 U.S.C. 3032(a)) is amended by striking “President”
21 and inserting “Director”.

1 **SEC. 6305. DIRECTOR OF NATIONAL INTELLIGENCE RE-**
2 **VIEW OF PLACEMENT OF POSITIONS WITHIN**
3 **THE INTELLIGENCE COMMUNITY ON THE EX-**
4 **ECUTIVE SCHEDULE.**

5 (a) REVIEW.—The Director of National Intelligence,
6 in coordination with the Director of the Office of Per-
7 sonnel Management, shall conduct a review of positions
8 within the intelligence community regarding the placement
9 of such positions on the Executive Schedule under sub-
10 chapter II of chapter 53 of title 5, United States Code.
11 In carrying out such review, the Director of National In-
12 telligence, in coordination with the Director of the Office
13 of Personnel Management, shall determine—

14 (1) the standards under which such review will
15 be conducted;

16 (2) which positions should or should not be on
17 the Executive Schedule; and

18 (3) for those positions that should be on the
19 Executive Schedule, the level of the Executive
20 Schedule at which such positions should be placed.

21 (b) REPORT.—Not later than 60 days after the date
22 on which the review under subsection (a) is completed, the
23 Director of National Intelligence shall submit to the con-
24 gressional intelligence committees, the Committee on
25 Homeland Security and Governmental Affairs of the Sen-
26 ate, and the Committee on Oversight and Reform of the

1 House of Representatives an unredacted report describing
2 the standards by which the review was conducted and the
3 outcome of the review.

4 **SEC. 6306. SUPPLY CHAIN AND COUNTERINTELLIGENCE**

5 **RISK MANAGEMENT TASK FORCE.**

6 (a) **APPROPRIATE CONGRESSIONAL COMMITTEES**
7 **DEFINED.**—In this section, the term “appropriate con-
8 gressional committees” means the following:

9 (1) The congressional intelligence committees.

10 (2) The Committee on Armed Services and the
11 Committee on Homeland Security and Governmental
12 Affairs of the Senate.

13 (3) The Committee on Armed Services, the
14 Committee on Homeland Security, and the Com-
15 mittee on Oversight and Reform of the House of
16 Representatives.

17 (b) **REQUIREMENT TO ESTABLISH.**—The Director of
18 National Intelligence shall establish a Supply Chain and
19 Counterintelligence Risk Management Task Force to
20 standardize information sharing between the intelligence
21 community and the acquisition community of the United
22 States Government with respect to the supply chain and
23 counterintelligence risks.

1 (c) MEMBERS.—The Supply Chain and Counterintel-
2 ligence Risk Management Task Force established under
3 subsection (b) shall be composed of—

4 (1) a representative of the Defense Security
5 Service of the Department of Defense;

6 (2) a representative of the General Services Ad-
7 ministration;

8 (3) a representative of the Office of Federal
9 Procurement Policy of the Office of Management
10 and Budget;

11 (4) a representative of the Department of
12 Homeland Security;

13 (5) a representative of the Federal Bureau of
14 Investigation;

15 (6) the Director of the National Counterintel-
16 ligence and Security Center; and

17 (7) any other members the Director of National
18 Intelligence determines appropriate.

19 (d) SECURITY CLEARANCES.—Each member of the
20 Supply Chain and Counterintelligence Risk Management
21 Task Force established under subsection (b) shall have a
22 security clearance at the top secret level and be able to
23 access sensitive compartmented information.

24 (e) ANNUAL REPORT.—The Supply Chain and Coun-
25 terintelligence Risk Management Task Force established

1 under subsection (b) shall submit to the appropriate con-
2 gressional committees an annual report that describes the
3 activities of the Task Force during the previous year, in-
4 cluding identification of the supply chain, cybersecurity,
5 and counterintelligence risks shared with the acquisition
6 community of the United States Government by the intel-
7 ligence community.

8 **SEC. 6307. CONSIDERATION OF ADVERSARIAL TELE-**
9 **COMMUNICATIONS AND CYBERSECURITY IN-**
10 **FRASTRUCTURE WHEN SHARING INTEL-**
11 **LIGENCE WITH FOREIGN GOVERNMENTS AND**
12 **ENTITIES.**

13 Whenever the head of an element of the intelligence
14 community enters into an intelligence-sharing agreement
15 with a foreign government or any other foreign entity, the
16 head of the element shall consider the pervasiveness of
17 telecommunications and cybersecurity infrastructure,
18 equipment, and services provided by adversaries of the
19 United States, particularly China and Russia, or entities
20 of such adversaries in the country or region of the foreign
21 government or other foreign entity entering into the agree-
22 ment.

1 **SEC. 6308. CYBER PROTECTION SUPPORT FOR THE PER-**
2 **SONNEL OF THE INTELLIGENCE COMMUNITY**
3 **IN POSITIONS HIGHLY VULNERABLE TO**
4 **CYBER ATTACK.**

5 (a) DEFINITIONS.—In this section:

6 (1) PERSONAL ACCOUNTS.—The term “personal
7 accounts” means accounts for online and tele-
8 communications services, including telephone, resi-
9 dential internet access, email, text and multimedia
10 messaging, cloud computing, social media, health
11 care, and financial services, used by personnel of the
12 intelligence community outside of the scope of their
13 employment with elements of the intelligence com-
14 munity.

15 (2) PERSONAL TECHNOLOGY DEVICES.—The
16 term “personal technology devices” means tech-
17 nology devices used by personnel of the intelligence
18 community outside of the scope of their employment
19 with elements of the intelligence community, includ-
20 ing networks to which such devices connect.

21 (b) AUTHORITY TO PROVIDE CYBER PROTECTION
22 SUPPORT.—

23 (1) IN GENERAL.—Subject to a determination
24 by the Director of National Intelligence, the Director
25 may provide cyber protection support for the per-

1 sonal technology devices and personal accounts of
2 the personnel described in paragraph (2).

3 (2) AT-RISK PERSONNEL.—The personnel de-
4 scribed in this paragraph are personnel of the intel-
5 ligence community—

6 (A) who the Director determines to be
7 highly vulnerable to cyber attacks and hostile
8 information collection activities because of the
9 positions occupied by such personnel in the in-
10 telligence community; and

11 (B) whose personal technology devices or
12 personal accounts are highly vulnerable to cyber
13 attacks and hostile information collection activi-
14 ties.

15 (c) NATURE OF CYBER PROTECTION SUPPORT.—
16 Subject to the availability of resources, the cyber protec-
17 tion support provided to personnel under subsection (b)
18 may include training, advice, assistance, and other services
19 relating to cyber attacks and hostile information collection
20 activities.

21 (d) LIMITATION ON SUPPORT.—Nothing in this sec-
22 tion shall be construed—

23 (1) to encourage personnel of the intelligence
24 community to use personal technology devices for of-
25 ficial business; or

1 (2) to authorize cyber protection support for
2 senior intelligence community personnel using per-
3 sonal devices, networks, and personal accounts in an
4 official capacity.

5 (e) REPORT.—Not later than 180 days after the date
6 of the enactment of this Act, the Director shall submit
7 to the congressional intelligence committees a report on
8 the provision of cyber protection support under subsection
9 (b). The report shall include—

10 (1) a description of the methodology used to
11 make the determination under subsection (b)(2); and

12 (2) guidance for the use of cyber protection
13 support and tracking of support requests for per-
14 sonnel receiving cyber protection support under sub-
15 section (b).

16 **SEC. 6309. ELIMINATION OF SUNSET OF AUTHORITY RELAT-**
17 **ING TO MANAGEMENT OF SUPPLY-CHAIN**
18 **RISK.**

19 Section 309 of the Intelligence Authorization Act for
20 Fiscal Year 2012 (Public Law 112–87; 50 U.S.C. 3329
21 note) is amended by striking subsection (g).

22 **SEC. 6310. LIMITATIONS ON DETERMINATIONS REGARDING**
23 **CERTAIN SECURITY CLASSIFICATIONS.**

24 (a) PROHIBITION.—An officer of an element of the
25 intelligence community who has been nominated by the

1 President for a position that requires the advice and con-
2 sent of the Senate may not make a classification decision
3 with respect to information related to such officer's nomi-
4 nation.

5 (b) CLASSIFICATION DETERMINATIONS.—

6 (1) IN GENERAL.—Except as provided in para-
7 graph (2), in a case in which an officer described in
8 subsection (a) has been nominated as described in
9 such subsection and classification authority rests
10 with the officer or another officer who reports di-
11 rectly to such officer, a classification decision with
12 respect to information relating to the officer shall be
13 made by the Director of National Intelligence.

14 (2) NOMINATIONS OF DIRECTOR OF NATIONAL
15 INTELLIGENCE.—In a case described in paragraph
16 (1) in which the officer nominated is the Director of
17 National Intelligence, the classification decision shall
18 be made by the Principal Deputy Director of Na-
19 tional Intelligence.

20 (c) REPORTS.—Whenever the Director or the Prin-
21 cipal Deputy Director makes a decision under subsection
22 (b), the Director or the Principal Deputy Director, as the
23 case may be, shall submit to the congressional intelligence
24 committees a report detailing the reasons for the decision.

1 **SEC. 6311. JOINT INTELLIGENCE COMMUNITY COUNCIL.**

2 (a) MEETINGS.—Section 101A(d) of the National Se-
3 curity Act of 1947 (50 U.S.C. 3022(d)) is amended—

4 (1) by striking “regular”; and

5 (2) by inserting “as the Director considers ap-
6 propriate” after “Council”.

7 (b) REPORT ON FUNCTION AND UTILITY OF THE
8 JOINT INTELLIGENCE COMMUNITY COUNCIL.—

9 (1) IN GENERAL.—No later than 180 days after
10 the date of the enactment of this Act, the Director
11 of National Intelligence, in coordination with the Ex-
12 ecutive Office of the President and members of the
13 Joint Intelligence Community Council, shall submit
14 to the congressional intelligence committees a report
15 on the function and utility of the Joint Intelligence
16 Community Council.

17 (2) CONTENTS.—The report required by para-
18 graph (1) shall include the following:

19 (A) The number of physical or virtual
20 meetings held by the Council per year since the
21 Council’s inception.

22 (B) A description of the effect and accom-
23 plishments of the Council.

24 (C) An explanation of the unique role of
25 the Council relative to other entities, including
26 with respect to the National Security Council

1 and the Executive Committee of the intelligence
2 community.

3 (D) Recommendations for the future role
4 and operation of the Council.

5 (E) Such other matters relating to the
6 function and utility of the Council as the Direc-
7 tor considers appropriate.

8 (3) FORM.—The report submitted under para-
9 graph (1) shall be submitted in unclassified form,
10 but may include a classified annex.

11 **SEC. 6312. INTELLIGENCE COMMUNITY INFORMATION**
12 **TECHNOLOGY ENVIRONMENT.**

13 (a) DEFINITIONS.—In this section:

14 (1) CORE SERVICE.—The term “core service”
15 means a capability that is available to multiple ele-
16 ments of the intelligence community and required
17 for consistent operation of the intelligence commu-
18 nity information technology environment.

19 (2) INTELLIGENCE COMMUNITY INFORMATION
20 TECHNOLOGY ENVIRONMENT.—The term “intel-
21 ligence community information technology environ-
22 ment” means all of the information technology serv-
23 ices across the intelligence community, including the
24 data sharing and protection environment across mul-
25 tiple classification domains.

1 (b) ROLES AND RESPONSIBILITIES.—

2 (1) DIRECTOR OF NATIONAL INTELLIGENCE.—

3 The Director of National Intelligence shall be re-
4 sponsible for coordinating the performance by ele-
5 ments of the intelligence community of the intel-
6 ligence community information technology environ-
7 ment, including each of the following:

8 (A) Ensuring compliance with all applica-
9 ble environment rules and regulations of such
10 environment.

11 (B) Ensuring measurable performance
12 goals exist for such environment.

13 (C) Documenting standards and practices
14 of such environment.

15 (D) Acting as an arbiter among elements
16 of the intelligence community related to any
17 disagreements arising out of the implementa-
18 tion of such environment.

19 (E) Delegating responsibilities to the ele-
20 ments of the intelligence community and car-
21 rying out such other responsibilities as are nec-
22 essary for the effective implementation of such
23 environment.

24 (2) CORE SERVICE PROVIDERS.—Providers of
25 core services shall be responsible for—

1 (A) providing core services, in coordination
2 with the Director of National Intelligence; and

3 (B) providing the Director with informa-
4 tion requested and required to fulfill the re-
5 sponsibilities of the Director under paragraph
6 (1).

7 (3) USE OF CORE SERVICES.—

8 (A) IN GENERAL.—Except as provided in
9 subparagraph (B), each element of the intel-
10 ligence community shall use core services when
11 such services are available.

12 (B) EXCEPTION.—The Director of Na-
13 tional Intelligence may provide for a written ex-
14 ception to the requirement under subparagraph
15 (A) if the Director determines there is a com-
16 pelling financial or mission need for such excep-
17 tion.

18 (c) MANAGEMENT ACCOUNTABILITY.—Not later than
19 90 days after the date of the enactment of this Act, the
20 Director of National Intelligence shall designate and main-
21 tain one or more accountable executives of the intelligence
22 community information technology environment to be re-
23 sponsible for—

24 (1) management, financial control, and integra-
25 tion of such environment;

1 (2) overseeing the performance of each core
2 service, including establishing measurable service re-
3 quirements and schedules;

4 (3) to the degree feasible, ensuring testing of
5 each core service of such environment, including
6 testing by the intended users, to evaluate perform-
7 ance against measurable service requirements and to
8 ensure the capability meets user requirements; and
9 (4) coordinate transition or restructuring ef-
10 forts of such environment, including phaseout of leg-
11 acy systems.

12 (d) SECURITY PLAN.—Not later than 180 days after
13 the date of the enactment of this Act, the Director of Na-
14 tional Intelligence shall develop and maintain a security
15 plan for the intelligence community information tech-
16 nology environment.

17 (e) LONG-TERM ROADMAP.—Not later than 180 days
18 after the date of the enactment of this Act, and during
19 each of the second and fourth fiscal quarters thereafter,
20 the Director of National Intelligence shall submit to the
21 congressional intelligence committees a long-term road-
22 map that shall include each of the following:

23 (1) A description of the minimum required and
24 desired core service requirements, including—

25 (A) key performance parameters; and

1 (B) an assessment of current, measured
2 performance.

3 (2) Implementation milestones for the intel-
4 ligence community information technology environ-
5 ment, including each of the following:

6 (A) A schedule for expected deliveries of
7 core service capabilities during each of the fol-
8 lowing phases:

9 (i) Concept refinement and technology
10 maturity demonstration.

11 (ii) Development, integration, and
12 demonstration.

13 (iii) Production, deployment, and
14 sustainment.

15 (iv) System retirement.

16 (B) Dependencies of such core service ca-
17 pabilities.

18 (C) Plans for the transition or restruc-
19 turing necessary to incorporate core service ca-
20 pabilities.

21 (D) A description of any legacy systems
22 and discontinued capabilities to be phased out.

23 (3) Such other matters as the Director deter-
24 mines appropriate.

1 (f) BUSINESS PLAN.—Not later than 180 days after
2 the date of the enactment of this Act, and during each
3 of the second and fourth fiscal quarters thereafter, the Di-
4 rector of National Intelligence shall submit to the congres-
5 sional intelligence committees a business plan that in-
6 cludes each of the following:

7 (1) A systematic approach to identify core serv-
8 ice funding requests for the intelligence community
9 information technology environment within the pro-
10 posed budget, including multiyear plans to imple-
11 ment the long-term roadmap required by subsection
12 (e).

13 (2) A uniform approach by which each element
14 of the intelligence community shall identify the cost
15 of legacy information technology or alternative capa-
16 bilities where services of the intelligence community
17 information technology environment will also be
18 available.

19 (3) A uniform effort by which each element of
20 the intelligence community shall identify transition
21 and restructuring costs for new, existing, and retir-
22 ing services of the intelligence community informa-
23 tion technology environment, as well as services of
24 such environment that have changed designations as
25 a core service.

1 (g) QUARTERLY PRESENTATIONS.—Beginning not
2 later than 180 days after the date of the enactment of
3 this Act, the Director of National Intelligence shall provide
4 to the congressional intelligence committees quarterly up-
5 dates regarding ongoing implementation of the intelligence
6 community information technology environment as com-
7 pared to the requirements in the most recently submitted
8 security plan required by subsection (d), long-term road-
9 map required by subsection (e), and business plan re-
10 quired by subsection (f).

11 (h) ADDITIONAL NOTIFICATIONS.—The Director of
12 National Intelligence shall provide timely notification to
13 the congressional intelligence committees regarding any
14 policy changes related to or affecting the intelligence com-
15 munity information technology environment, new initia-
16 tives or strategies related to or impacting such environ-
17 ment, and changes or deficiencies in the execution of the
18 security plan required by subsection (d), long-term road-
19 map required by subsection (e), and business plan re-
20 quired by subsection (f).

21 (i) SUNSET.—The section shall have no effect on or
22 after September 30, 2024.

1 **SEC. 6313. REPORT ON DEVELOPMENT OF SECURE MOBILE**
2 **VOICE SOLUTION FOR INTELLIGENCE COM-**
3 **MUNITY.**

4 (a) IN GENERAL.—Not later than 180 days after the
5 date of the enactment of this Act, the Director of National
6 Intelligence, in coordination with the Director of the Cen-
7 tral Intelligence Agency and the Director of the National
8 Security Agency, shall submit to the congressional intel-
9 ligence committees a classified report on the feasibility,
10 desirability, cost, and required schedule associated with
11 the implementation of a secure mobile voice solution for
12 the intelligence community.

13 (b) CONTENTS.—The report required by subsection
14 (a) shall include, at a minimum, the following:

15 (1) The benefits and disadvantages of a secure
16 mobile voice solution.

17 (2) Whether the intelligence community could
18 leverage commercially available technology for classi-
19 fied voice communications that operates on commer-
20 cial mobile networks in a secure manner and identi-
21 fying the accompanying security risks to such net-
22 works.

23 (3) A description of any policies or community
24 guidance that would be necessary to govern the po-
25 tential solution, such as a process for determining

1 the appropriate use of a secure mobile telephone and
2 any limitations associated with such use.

3 **SEC. 6314. POLICY ON MINIMUM INSIDER THREAT STAND-**
4 **ARDS.**

5 (a) **POLICY REQUIRED.**—Not later than 60 days after
6 the date of the enactment of this Act, the Director of Na-
7 tional Intelligence shall establish a policy for minimum in-
8 sider threat standards that is consistent with the National
9 Insider Threat Policy and Minimum Standards for Execu-
10 tive Branch Insider Threat Programs.

11 (b) **IMPLEMENTATION.**—Not later than 180 days
12 after the date of the enactment of this Act, the head of
13 each element of the intelligence community shall imple-
14 ment the policy established under subsection (a).

15 **SEC. 6315. SUBMISSION OF INTELLIGENCE COMMUNITY**
16 **POLICIES.**

17 (a) **DEFINITIONS.**—In this section:

18 (1) **ELECTRONIC REPOSITORY.**—The term
19 “electronic repository” means the electronic distribu-
20 tion mechanism, in use as of the date of the enact-
21 ment of this Act, or any successor electronic dis-
22 tribution mechanism, by which the Director of Na-
23 tional Intelligence submits to the congressional intel-
24 ligence committees information.

1 (2) POLICY.—The term “policy”, with respect
2 to the intelligence community, includes unclassified
3 or classified—

4 (A) directives, policy guidance, and policy
5 memoranda of the intelligence community;

6 (B) executive correspondence of the Direc-
7 tor of National Intelligence; and

8 (C) any equivalent successor policy instru-
9 ments.

10 (b) SUBMISSION OF POLICIES.—

11 (1) CURRENT POLICY.—Not later than 180
12 days after the date of the enactment of this Act, the
13 Director of National Intelligence shall submit to the
14 congressional intelligence committees using the elec-
15 tronic repository all nonpublicly available policies
16 issued by the Director of National Intelligence for
17 the intelligence community that are in effect as of
18 the date of the submission.

19 (2) CONTINUOUS UPDATES.—Not later than 15
20 days after the date on which the Director of Na-
21 tional Intelligence issues, modifies, or rescinds a pol-
22 icy of the intelligence community, the Director
23 shall—

1 (A) notify the congressional intelligence
2 committees of such addition, modification, or
3 removal; and

4 (B) update the electronic repository with
5 respect to such addition, modification, or re-
6 moval.

7 **SEC. 6316. EXPANSION OF INTELLIGENCE COMMUNITY RE-**
8 **CRUITMENT EFFORTS.**

9 In order to further increase the diversity of the intel-
10 ligence community workforce, not later than 90 days after
11 the date of the enactment of this Act, the Director of Na-
12 tional Intelligence, in consultation with heads of elements
13 of the Intelligence Community, shall create, implement,
14 and submit to the congressional intelligence committees a
15 written plan to ensure that rural and underrepresented re-
16 gions are more fully and consistently represented in such
17 elements' employment recruitment efforts. Upon receipt of
18 the plan, the congressional committees shall have 60 days
19 to submit comments to the Director of National Intel-
20 ligence before such plan shall be implemented.

1 **TITLE LXIV—MATTERS RELAT-**
2 **ING TO ELEMENTS OF THE IN-**
3 **TELLIGENCE COMMUNITY**

4 **Subtitle A—Office of the Director**
5 **of National Intelligence**

6 **SEC. 6401. AUTHORITY FOR PROTECTION OF CURRENT AND**
7 **FORMER EMPLOYEES OF THE OFFICE OF THE**
8 **DIRECTOR OF NATIONAL INTELLIGENCE.**

9 Section 5(a)(4) of the Central Intelligence Agency
10 Act of 1949 (50 U.S.C. 3506(a)(4)) is amended by strik-
11 ing “such personnel of the Office of the Director of Na-
12 tional Intelligence as the Director of National Intelligence
13 may designate;” and inserting “current and former per-
14 sonnel of the Office of the Director of National Intel-
15 ligence and their immediate families as the Director of Na-
16 tional Intelligence may designate;”.

17 **SEC. 6402. DESIGNATION OF THE PROGRAM MANAGER-IN-**
18 **FORMATION-SHARING ENVIRONMENT.**

19 (a) INFORMATION-SHARING ENVIRONMENT.—Section
20 1016(b) of the Intelligence Reform and Terrorism Preven-
21 tion Act of 2004 (6 U.S.C. 485(b)) is amended—

22 (1) in paragraph (1), by striking “President”
23 and inserting “Director of National Intelligence”;
24 and

1 (2) in paragraph (2), by striking “President”
2 both places that term appears and inserting “Direc-
3 tor of National Intelligence”.

4 (b) PROGRAM MANAGER.—Section 1016(f)(1) of the
5 Intelligence Reform and Terrorism Prevention Act of
6 2004 (6 U.S.C. 485(f)(1)) is amended by striking “The
7 individual designated as the program manager shall serve
8 as program manager until removed from service or re-
9 placed by the President (at the President’s sole discre-
10 tion).” and inserting “Beginning on the date of the enact-
11 ment of the Damon Paul Nelson and Matthew Young Pol-
12 lard Intelligence Authorization Act for Fiscal Years 2018,
13 2019 and 2020, each individual designated as the program
14 manager shall be appointed by the Director of National
15 Intelligence.”.

16 **SEC. 6403. TECHNICAL MODIFICATION TO THE EXECUTIVE**
17 **SCHEDULE.**

18 Section 5315 of title 5, United States Code, is
19 amended by adding at the end the following:

20 “Director of the National Counterintelligence and Se-
21 curity Center.”.

22 **SEC. 6404. CHIEF FINANCIAL OFFICER OF THE INTEL-**
23 **LIGENCE COMMUNITY.**

24 Section 103I(a) of the National Security Act of 1947
25 (50 U.S.C. 3034(a)) is amended by adding at the end the

1 following new sentence: “The Chief Financial Officer shall
2 report directly to the Director of National Intelligence.”.

3 **SEC. 6405. CHIEF INFORMATION OFFICER OF THE INTEL-**
4 **LIGENCE COMMUNITY.**

5 Section 103G(a) of the National Security Act of 1947
6 (50 U.S.C. 3032(a)) is amended by adding at the end the
7 following new sentence: “The Chief Information Officer
8 shall report directly to the Director of National Intel-
9 ligence.”.

10 **Subtitle B—Central Intelligence**
11 **Agency**

12 **SEC. 6411. CENTRAL INTELLIGENCE AGENCY SUBSISTENCE**
13 **FOR PERSONNEL ASSIGNED TO AUSTERE LO-**
14 **CATIONS.**

15 Subsection (a) of section 5 of the Central Intelligence
16 Agency Act of 1949 (50 U.S.C. 3506) is amended—

17 (1) in paragraph (1), by striking “(50 U.S.C.
18 403–4a).,” and inserting “(50 U.S.C. 403–4a),”;

19 (2) in paragraph (6), by striking “and” at the
20 end;

21 (3) in paragraph (7), by striking the period at
22 the end and inserting “; and”; and

23 (4) by adding at the end the following new
24 paragraph:

1 “(8) Upon the approval of the Director, pro-
2 vide, during any fiscal year, with or without reim-
3 bursement, subsistence to any personnel assigned to
4 an overseas location designated by the Agency as an
5 austere location.”.

6 **SEC. 6412. SPECIAL RULES FOR CERTAIN MONTHLY WORK-**
7 **ERS’ COMPENSATION PAYMENTS AND OTHER**
8 **PAYMENTS FOR CENTRAL INTELLIGENCE**
9 **AGENCY PERSONNEL.**

10 (a) IN GENERAL.—The Central Intelligence Agency
11 Act of 1949 (50 U.S.C. 3501 et seq.) is amended by in-
12 serting after section 19 the following new section:

13 **“SEC. 19A. SPECIAL RULES FOR CERTAIN INDIVIDUALS IN-**
14 **JURED BY REASON OF WAR, INSURGENCY,**
15 **HOSTILE ACT, TERRORIST ACTIVITIES, OR IN-**
16 **CIDENTS DESIGNATED BY THE DIRECTOR.**

17 “(a) DEFINITIONS.—In this section:

18 “(1) COVERED DEPENDENT.—The term ‘cov-
19 ered dependent’ means a family member (as defined
20 by the Director) of a covered employee who, on or
21 after September 11, 2001—

22 “(A) accompanies the covered employee to
23 an assigned duty station in a foreign country;
24 and

1 “(B) becomes injured by reason of a quali-
2 fying injury.

3 “(2) COVERED EMPLOYEE.—The term ‘covered
4 employee’ means an officer or employee of the Cen-
5 tral Intelligence Agency who, on or after September
6 11, 2001, becomes injured by reason of a qualifying
7 injury.

8 “(3) COVERED INDIVIDUAL.—The term ‘cov-
9 ered individual’ means an individual who—

10 “(A)(i) is detailed to the Central Intel-
11 ligence Agency from other agencies of the
12 United States Government or from the Armed
13 Forces; or

14 “(ii) is affiliated with the Central Intel-
15 ligence Agency, as determined by the Director;
16 and

17 “(B) who, on or after September 11, 2001,
18 becomes injured by reason of a qualifying in-
19 jury.

20 “(4) QUALIFYING INJURY.—The term ‘quali-
21 fying injury’ means the following:

22 “(A) With respect to a covered dependent,
23 an injury incurred—

24 “(i) during a period in which the cov-
25 ered dependent is accompanying the cov-

1 ered employee to an assigned duty station
2 in a foreign country;

3 “(ii) in connection with war, insur-
4 gency, hostile act, terrorist activity, or an
5 incident designated for purposes of this
6 section by the Director; and

7 “(iii) that was not the result of the
8 willful misconduct of the covered depend-
9 ent.

10 “(B) With respect to a covered employee
11 or a covered individual—

12 “(i) an injury incurred—

13 “(I) during a period of assign-
14 ment to a duty station in a foreign
15 country;

16 “(II) in connection with war, in-
17 surgency, hostile act, or terrorist ac-
18 tivity; and

19 “(III) that was not the result of
20 the willful misconduct of the covered
21 employee or the covered individual; or

22 “(ii) an injury incurred—

23 “(I) in connection with an inci-
24 dent designated for purposes of this
25 section by the Director; and

1 “(II) that was not the result of
2 the willful misconduct of the covered
3 employee or the covered individual.

4 “(b) ADJUSTMENT OF COMPENSATION FOR CERTAIN
5 INJURIES.—

6 “(1) INCREASE.—The Director may increase
7 the amount of monthly compensation paid to a cov-
8 ered employee under section 8105 of title 5, United
9 States Code. Subject to paragraph (2), the Director
10 may determine the amount of each such increase by
11 taking into account—

12 “(A) the severity of the qualifying injury;

13 “(B) the circumstances by which the cov-
14 ered employee became injured; and

15 “(C) the seniority of the covered employee.

16 “(2) MAXIMUM.—Notwithstanding chapter 81
17 of title 5, United States Code, the total amount of
18 monthly compensation increased under paragraph
19 (1) may not exceed the monthly pay of the max-
20 imum rate of basic pay for GS-15 of the General
21 Schedule under section 5332 of such title.

22 “(c) COSTS FOR TREATING QUALIFYING INJURIES.—
23 The Director may pay the costs of treating a qualifying
24 injury of a covered employee, a covered individual, or a
25 covered dependent, or may reimburse a covered employee,

1 a covered individual, or a covered dependent for such
2 costs, that are not otherwise covered by chapter 81 of title
3 5, United States Code, or other provision of Federal law.”.

4 (b) REGULATIONS.—Not later than 120 days after
5 the date of the enactment of this Act, the Director of the
6 Central Intelligence Agency shall—

7 (1) prescribe regulations ensuring the fair and
8 equitable implementation of section 19A of the Cen-
9 tral Intelligence Agency Act of 1949, as added by
10 subsection (a); and

11 (2) submit to the congressional intelligence
12 committees such regulations.

13 (c) APPLICATION.—Section 19A of the Central Intel-
14 ligence Agency Act of 1949, as added by subsection (a),
15 shall apply with respect to—

16 (1) payments made to covered employees (as
17 defined in such section) under section 8105 of title
18 5, United States Code, beginning on or after the
19 date of the enactment of this Act; and

20 (2) treatment described in subsection (b) of
21 such section 19A occurring on or after the date of
22 the enactment of this Act.

1 **SEC. 6413. EXPANSION OF SECURITY PROTECTIVE SERVICE**
2 **JURISDICTION OF THE CENTRAL INTEL-**
3 **LIGENCE AGENCY.**

4 Subsection (a)(1) of section 15 of the Central Intel-
5 ligence Agency Act of 1949 (50 U.S.C. 3515(a)(1)) is
6 amended—

7 (1) in subparagraph (B), by striking “500
8 feet;” and inserting “500 yards;”; and

9 (2) in subparagraph (D), by striking “500
10 feet.” and inserting “500 yards.”.

11 **SEC. 6414. REPEAL OF FOREIGN LANGUAGE PROFICIENCY**
12 **REQUIREMENT FOR CERTAIN SENIOR LEVEL**
13 **POSITIONS IN THE CENTRAL INTELLIGENCE**
14 **AGENCY.**

15 (a) **REPEAL OF FOREIGN LANGUAGE PROFICIENCY**
16 **REQUIREMENT.**—Section 104A of the National Security
17 Act of 1947 (50 U.S.C. 3036) is amended by striking sub-
18 section (g).

19 (b) **CONFORMING REPEAL OF REPORT REQUIRE-**
20 **MENT.**—Section 611 of the Intelligence Authorization Act
21 for Fiscal Year 2005 (Public Law 108–487) is amended
22 by striking subsection (c).

1 **Subtitle C—Office of Intelligence**
2 **and Counterintelligence of De-**
3 **partment of Energy**

4 **SEC. 6421. CONSOLIDATION OF DEPARTMENT OF ENERGY**
5 **OFFICES OF INTELLIGENCE AND COUNTER-**
6 **INTELLIGENCE.**

7 (a) IN GENERAL.—Section 215 of the Department of
8 Energy Organization Act (42 U.S.C. 7144b) is amended
9 to read as follows:

10 “OFFICE OF INTELLIGENCE AND COUNTERINTELLIGENCE

11 “SEC. 215. (a) DEFINITIONS.—In this section, the
12 terms ‘intelligence community’ and ‘National Intelligence
13 Program’ have the meanings given such terms in section
14 3 of the National Security Act of 1947 (50 U.S.C. 3003).

15 “(b) IN GENERAL.—There is in the Department an
16 Office of Intelligence and Counterintelligence. Such office
17 shall be under the National Intelligence Program.

18 “(c) DIRECTOR.—(1) The head of the Office shall be
19 the Director of the Office of Intelligence and Counterintel-
20 ligence, who shall be an employee in the Senior Executive
21 Service, the Senior Intelligence Service, the Senior Na-
22 tional Intelligence Service, or any other Service that the
23 Secretary, in coordination with the Director of National
24 Intelligence, considers appropriate. The Director of the
25 Office shall report directly to the Secretary.

1 “(2) The Secretary shall select an individual to serve
2 as the Director from among individuals who have substan-
3 tial expertise in matters relating to the intelligence com-
4 munity, including foreign intelligence and counterintel-
5 ligence.

6 “(d) DUTIES.—(1) Subject to the authority, direc-
7 tion, and control of the Secretary, the Director shall per-
8 form such duties and exercise such powers as the Sec-
9 retary may prescribe.

10 “(2) The Director shall be responsible for estab-
11 lishing policy for intelligence and counterintelligence pro-
12 grams and activities at the Department.”.

13 (b) CONFORMING REPEAL.—Section 216 of the De-
14 partment of Energy Organization Act (42 U.S.C. 7144e)
15 is hereby repealed.

16 (c) CLERICAL AMENDMENT.—The table of contents
17 at the beginning of the Department of Energy Organiza-
18 tion Act is amended by striking the items relating to sec-
19 tions 215 and 216 and inserting the following new item:
“Sec. 215. Office of Intelligence and Counterintelligence.”.

20 **SEC. 6422. REPEAL OF DEPARTMENT OF ENERGY INTEL-**
21 **LIGENCE EXECUTIVE COMMITTEE AND BUDG-**
22 **ET REPORTING REQUIREMENT.**

23 Section 214 of the Department of Energy Organiza-
24 tion Act (42 U.S.C. 7144a) is amended—

25 (1) by striking “(a)”; and

1 (2) by striking subsections (b) and (c).

2 **Subtitle D—Other Elements**

3 **SEC. 6431. PLAN FOR DESIGNATION OF COUNTERINTEL-** 4 **LIGENCE COMPONENT OF DEFENSE SECU-** 5 **RITY SERVICE AS AN ELEMENT OF INTEL-** 6 **LIGENCE COMMUNITY.**

7 Not later than 90 days after the date of the enact-
8 ment of this Act, the Director of National Intelligence and
9 Under Secretary of Defense for Intelligence, in coordina-
10 tion with the Director of the National Counterintelligence
11 and Security Center, shall submit to the congressional in-
12 telligence committees, the Committee on Armed Services
13 of the Senate, and the Committee on Armed Services of
14 the House of Representatives a plan to designate the coun-
15 terintelligence component of the Defense Security Service
16 of the Department of Defense as an element of the intel-
17 ligence community by not later than January 1, 2021.
18 Such plan shall—

19 (1) address the implications of such designation
20 on the authorities, governance, personnel, resources,
21 information technology, collection, analytic products,
22 information sharing, and business processes of the
23 Defense Security Service and the intelligence com-
24 munity; and

1 (2) not address the personnel security functions
2 of the Defense Security Service.

3 **SEC. 6432. NOTICE NOT REQUIRED FOR PRIVATE ENTITIES.**

4 Section 3553 of title 44, United States Code, is
5 amended—

6 (1) by redesignating subsection (j) as sub-
7 section (k); and

8 (2) by inserting after subsection (i) the fol-
9 lowing:

10 “(j) **RULE OF CONSTRUCTION.**—Nothing in this sec-
11 tion shall be construed to require the Secretary to provide
12 notice to any private entity before the Secretary issues a
13 binding operational directive under subsection (b)(2).”.

14 **SEC. 6433. ESTABLISHMENT OF ADVISORY BOARD FOR NA-**
15 **TIONAL RECONNAISSANCE OFFICE.**

16 (a) **ESTABLISHMENT.**—Section 106A of the National
17 Security Act of 1947 (50 U.S.C. 3041a) is amended by
18 adding at the end the following new subsection:

19 “(d) **ADVISORY BOARD.**—

20 “(1) **ESTABLISHMENT.**—There is established in
21 the National Reconnaissance Office an advisory
22 board (in this section referred to as the ‘Board’).

23 “(2) **DUTIES.**—The Board shall—

24 “(A) study matters relating to the mission
25 of the National Reconnaissance Office, includ-

1 ing with respect to promoting innovation, com-
2 petition, and resilience in space, overhead re-
3 connaissance, acquisition, and other matters;
4 and

5 “(B) advise and report directly to the Di-
6 rector with respect to such matters.

7 “(3) MEMBERS.—

8 “(A) NUMBER AND APPOINTMENT.—

9 “(i) IN GENERAL.—The Board shall
10 be composed of five members appointed by
11 the Director from among individuals with
12 demonstrated academic, government, busi-
13 ness, or other expertise relevant to the mis-
14 sion and functions of the National Recon-
15 naissance Office.

16 “(ii) NOTIFICATION.—Not later than
17 30 days after the date on which the Direc-
18 tor appoints a member to the Board, the
19 Director shall notify the congressional in-
20 telligence committees and the congressional
21 defense committees (as defined in section
22 101(a) of title 10, United States Code) of
23 such appointment.

24 “(B) TERMS.—Each member shall be ap-
25 pointed for a term of 2 years. Except as pro-

1 vided by subparagraph (C), a member may not
2 serve more than three terms.

3 “(C) VACANCY.—Any member appointed to
4 fill a vacancy occurring before the expiration of
5 the term for which the member’s predecessor
6 was appointed shall be appointed only for the
7 remainder of that term. A member may serve
8 after the expiration of that member’s term until
9 a successor has taken office.

10 “(D) CHAIR.—The Board shall have a
11 Chair, who shall be appointed by the Director
12 from among the members.

13 “(E) TRAVEL EXPENSES.—Each member
14 shall receive travel expenses, including per diem
15 in lieu of subsistence, in accordance with appli-
16 cable provisions under subchapter I of chapter
17 57 of title 5, United States Code.

18 “(F) EXECUTIVE SECRETARY.—The Direc-
19 tor may appoint an executive secretary, who
20 shall be an employee of the National Reconnaissance
21 Office, to support the Board.

22 “(4) MEETINGS.—The Board shall meet not
23 less than quarterly, but may meet more frequently
24 at the call of the Director.

1 “(5) REPORTS.—Not later than March 31 of
2 each year, the Board shall submit to the Director
3 and to the congressional intelligence committees a
4 report on the activities and significant findings of
5 the Board during the preceding year.

6 “(6) NONAPPLICABILITY OF CERTAIN REQUIRE-
7 MENTS.—The Federal Advisory Committee Act (5
8 U.S.C. App.) shall not apply to the Board.

9 “(7) TERMINATION.—The Board shall termi-
10 nate on the date that is 3 years after the date of the
11 first meeting of the Board.”.

12 (b) INITIAL APPOINTMENTS.—Not later than 180
13 days after the date of the enactment of this Act, the Direc-
14 tor of the National Reconnaissance Office shall appoint
15 the initial five members to the advisory board under sub-
16 section (d) of section 106A of the National Security Act
17 of 1947 (50 U.S.C. 3041a), as added by subsection (a).

18 **SEC. 6434. COLLOCATION OF CERTAIN DEPARTMENT OF**
19 **HOMELAND SECURITY PERSONNEL AT FIELD**
20 **LOCATIONS.**

21 (a) IDENTIFICATION OF OPPORTUNITIES FOR COL-
22 LOCATION.—Not later than 60 days after the date of the
23 enactment of this Act, the Under Secretary of Homeland
24 Security for Intelligence and Analysis shall identify, in
25 consultation with the Commissioner of U.S. Customs and

1 Border Protection, the Administrator of the Transpor-
2 tation Security Administration, the Director of U.S. Immi-
3 gration and Customs Enforcement, and the heads of such
4 other elements of the Department of Homeland Security
5 as the Under Secretary considers appropriate, opportuni-
6 ties for collocation of officers of the Office of Intelligence
7 and Analysis in the field outside of the greater Wash-
8 ington, District of Columbia, area in order to support
9 operational units from U.S. Customs and Border Protec-
10 tion, the Transportation Security Administration, U.S.
11 Immigration and Customs Enforcement, and other ele-
12 ments of the Department of Homeland Security.

13 (b) PLAN FOR COLLOCATION.—Not later than 120
14 days after the date of the enactment of this Act, the Under
15 Secretary shall submit to the congressional intelligence
16 committees a report that includes a plan for collocation
17 as described in subsection (a).

18 **TITLE LXV—ELECTION MATTERS**

19 **SEC. 6501. REPORT ON CYBER ATTACKS BY FOREIGN GOV- 20 **ERNMENTS AGAINST UNITED STATES ELEC- 21 **TION INFRASTRUCTURE.******

22 (a) DEFINITIONS.—In this section:

23 (1) APPROPRIATE CONGRESSIONAL COMMIT-
24 TEES.—The term “appropriate congressional com-
25 mittees” means—

1 (A) the congressional intelligence commit-
2 tees;

3 (B) the Committee on Homeland Security
4 and Governmental Affairs of the Senate;

5 (C) the Committee on Homeland Security
6 of the House of Representatives;

7 (D) the Committee on Foreign Relations of
8 the Senate; and

9 (E) the Committee on Foreign Affairs of
10 the House of Representatives.

11 (2) CONGRESSIONAL LEADERSHIP.—The term
12 “congressional leadership” includes the following:

13 (A) The majority leader of the Senate.

14 (B) The minority leader of the Senate.

15 (C) The Speaker of the House of Rep-
16 resentatives.

17 (D) The minority leader of the House of
18 Representatives.

19 (3) STATE.—The term “State” means any
20 State of the United States, the District of Columbia,
21 the Commonwealth of Puerto Rico, and any territory
22 or possession of the United States.

23 (b) REPORT REQUIRED.—Not later than 60 days
24 after the date of the enactment of this Act, the Under
25 Secretary of Homeland Security for Intelligence and Anal-

1 ysis shall submit to congressional leadership and the ap-
2 propriate congressional committees a report on cyber at-
3 tacks and attempted cyber attacks by foreign governments
4 on United States election infrastructure in States and lo-
5 calities in connection with the 2016 Presidential election
6 in the United States and such cyber attacks or attempted
7 cyber attacks as the Under Secretary anticipates against
8 such infrastructure. Such report shall identify the States
9 and localities affected and shall include cyber attacks and
10 attempted cyber attacks against voter registration data-
11 bases, voting machines, voting-related computer networks,
12 and the networks of Secretaries of State and other election
13 officials of the various States.

14 (c) FORM.—The report submitted under subsection
15 (b) shall be submitted in unclassified form, but may in-
16 clude a classified annex.

17 **SEC. 6502. REVIEW OF INTELLIGENCE COMMUNITY'S POS-**
18 **TURE TO COLLECT AGAINST AND ANALYZE**
19 **RUSSIAN EFFORTS TO INFLUENCE THE PRES-**
20 **IDENTIAL ELECTION.**

21 (a) REVIEW REQUIRED.—Not later than 1 year after
22 the date of the enactment of this Act, the Director of Na-
23 tional Intelligence shall—

24 (1) complete an after action review of the pos-
25 ture of the intelligence community to collect against

1 and analyze efforts of the Government of Russia to
2 interfere in the 2016 Presidential election in the
3 United States; and

4 (2) submit to the congressional intelligence
5 committees a report on the findings of the Director
6 with respect to such review.

7 (b) ELEMENTS.—The review required by subsection
8 (a) shall include, with respect to the posture and efforts
9 described in paragraph (1) of such subsection, the fol-
10 lowing:

11 (1) An assessment of whether the resources of
12 the intelligence community were properly aligned to
13 detect and respond to the efforts described in sub-
14 section (a)(1).

15 (2) An assessment of the information sharing
16 that occurred within elements of the intelligence
17 community.

18 (3) An assessment of the information sharing
19 that occurred between elements of the intelligence
20 community.

21 (4) An assessment of applicable authorities nec-
22 essary to collect on any such efforts and any defi-
23 ciencies in those authorities.

24 (5) A review of the use of open source material
25 to inform analysis and warning of such efforts.

1 (6) A review of the use of alternative and pre-
2 dictive analysis.

3 (c) FORM OF REPORT.—The report required by sub-
4 section (a)(2) shall be submitted to the congressional intel-
5 ligence committees in a classified form.

6 **SEC. 6503. ASSESSMENT OF FOREIGN INTELLIGENCE**
7 **THREATS TO FEDERAL ELECTIONS.**

8 (a) DEFINITIONS.—In this section:

9 (1) APPROPRIATE CONGRESSIONAL COMMIT-
10 TEES.—The term “appropriate congressional com-
11 mittees” means—

12 (A) the congressional intelligence commit-
13 tees;

14 (B) the Committee on Homeland Security
15 and Governmental Affairs of the Senate; and

16 (C) the Committee on Homeland Security
17 of the House of Representatives.

18 (2) CONGRESSIONAL LEADERSHIP.—The term
19 “congressional leadership” includes the following:

20 (A) The majority leader of the Senate.

21 (B) The minority leader of the Senate.

22 (C) The Speaker of the House of Rep-
23 resentatives.

24 (D) The minority leader of the House of
25 Representatives.

1 (3) SECURITY VULNERABILITY.—The term “se-
2 curity vulnerability” has the meaning given such
3 term in section 102 of the Cybersecurity Information
4 Sharing Act of 2015 (6 U.S.C. 1501).

5 (b) IN GENERAL.—The Director of National Intel-
6 ligence, in coordination with the Director of the Central
7 Intelligence Agency, the Director of the National Security
8 Agency, the Director of the Federal Bureau of Investiga-
9 tion, the Secretary of Homeland Security, and the heads
10 of other relevant elements of the intelligence community,
11 shall—

12 (1) commence not later than 1 year before any
13 regularly scheduled Federal election occurring after
14 December 31, 2018, and complete not later than
15 180 days before such election, an assessment of se-
16 curity vulnerabilities of State election systems; and

17 (2) not later than 180 days before any regularly
18 scheduled Federal election occurring after December
19 31, 2018, submit a report on such security
20 vulnerabilities and an assessment of foreign intel-
21 ligence threats to the election to—

22 (A) congressional leadership; and

23 (B) the appropriate congressional commit-
24 tees.

1 (c) UPDATE.—Not later than 90 days before any reg-
2 ularly scheduled Federal election occurring after Decem-
3 ber 31, 2018, the Director of National Intelligence shall—

4 (1) update the assessment of foreign intel-
5 ligence threats to that election; and

6 (2) submit the updated assessment to—

7 (A) congressional leadership; and

8 (B) the appropriate congressional commit-
9 tees.

10 **SEC. 6504. STRATEGY FOR COUNTERING RUSSIAN CYBER**
11 **THREATS TO UNITED STATES ELECTIONS.**

12 (a) APPROPRIATE CONGRESSIONAL COMMITTEES
13 DEFINED.—In this section, the term “appropriate con-
14 gressional committees” means the following:

15 (1) The congressional intelligence committees.

16 (2) The Committee on Armed Services and the
17 Committee on Homeland Security and Governmental
18 Affairs of the Senate.

19 (3) The Committee on Armed Services and the
20 Committee on Homeland Security of the House of
21 Representatives.

22 (4) The Committee on Foreign Relations of the
23 Senate.

24 (5) The Committee on Foreign Affairs of the
25 House of Representatives.

1 (b) REQUIREMENT FOR A STRATEGY.—Not later
2 than 90 days after the date of the enactment of this Act,
3 the Director of National Intelligence, in coordination with
4 the Secretary of Homeland Security, the Director of the
5 Federal Bureau of Investigation, the Director of the Cen-
6 tral Intelligence Agency, the Secretary of State, the Sec-
7 retary of Defense, and the Secretary of the Treasury, shall
8 develop a whole-of-government strategy for countering the
9 threat of Russian cyber attacks and attempted cyber at-
10 tacks against electoral systems and processes in the
11 United States, including Federal, State, and local election
12 systems, voter registration databases, voting tabulation
13 equipment, and equipment and processes for the secure
14 transmission of election results.

15 (c) ELEMENTS OF THE STRATEGY.—The strategy re-
16 quired by subsection (b) shall include the following ele-
17 ments:

18 (1) A whole-of-government approach to pro-
19 tecting United States electoral systems and proc-
20 esses that includes the agencies and departments in-
21 dicated in subsection (b) as well as any other agen-
22 cies and departments of the United States, as deter-
23 mined appropriate by the Director of National Intel-
24 ligence and the Secretary of Homeland Security.

1 (2) Input solicited from Secretaries of State of
2 the various States and the chief election officials of
3 the States.

4 (3) Technical security measures, including
5 auditable paper trails for voting machines, securing
6 wireless and internet connections, and other tech-
7 nical safeguards.

8 (4) Detection of cyber threats, including attacks
9 and attempted attacks by Russian government or
10 nongovernment cyber threat actors.

11 (5) Improvements in the identification and at-
12 tribution of Russian government or nongovernment
13 cyber threat actors.

14 (6) Deterrence, including actions and measures
15 that could or should be undertaken against or com-
16 municated to the Government of Russia or other en-
17 tities to deter attacks against, or interference with,
18 United States election systems and processes.

19 (7) Improvements in Federal Government com-
20 munications with State and local election officials.

21 (8) Public education and communication ef-
22 forts.

23 (9) Benchmarks and milestones to enable the
24 measurement of concrete steps taken and progress
25 made in the implementation of the strategy.

1 (d) CONGRESSIONAL BRIEFING.—Not later than 90
2 days after the date of the enactment of this Act, the Direc-
3 tor of National Intelligence and the Secretary of Home-
4 land Security shall jointly brief the appropriate congres-
5 sional committees on the strategy developed under sub-
6 section (b).

7 **SEC. 6505. ASSESSMENT OF SIGNIFICANT RUSSIAN INFLU-**
8 **ENCE CAMPAIGNS DIRECTED AT FOREIGN**
9 **ELECTIONS AND REFERENDA.**

10 (a) RUSSIAN INFLUENCE CAMPAIGN DEFINED.—In
11 this section, the term “Russian influence campaign”
12 means any effort, covert or overt, and by any means, at-
13 tributable to the Russian Federation directed at an elec-
14 tion, referendum, or similar process in a country other
15 than the Russian Federation or the United States.

16 (b) ASSESSMENT REQUIRED.—Not later than 60
17 days after the date of the enactment of this Act, the Direc-
18 tor of National Intelligence shall submit to the congres-
19 sional intelligence committees, the Committee on Foreign
20 Affairs of the House of Representatives, and the Com-
21 mittee on Foreign Relations of the Senate a report con-
22 taining an analytical assessment of the most significant
23 Russian influence campaigns, if any, conducted during the
24 3-year period preceding the date of the enactment of this
25 Act, as well as the most significant current or planned

1 such Russian influence campaigns, if any. Such assess-
2 ment shall include—

3 (1) a summary of such significant Russian in-
4 fluence campaigns, including, at a minimum, the
5 specific means by which such campaigns were con-
6 ducted, are being conducted, or likely will be con-
7 ducted, as appropriate, and the specific goal of each
8 such campaign;

9 (2) a summary of any defenses against or re-
10 sponses to such Russian influence campaigns by the
11 foreign state holding the elections or referenda;

12 (3) a summary of any relevant activities by ele-
13 ments of the intelligence community undertaken for
14 the purpose of assisting the government of such for-
15 eign state in defending against or responding to
16 such Russian influence campaigns; and

17 (4) an assessment of the effectiveness of such
18 defenses and responses described in paragraphs (2)
19 and (3).

20 (c) FORM.—The report required by subsection (b)
21 may be submitted in classified form, but if so submitted,
22 shall contain an unclassified summary.

1 **SEC. 6506. INFORMATION SHARING WITH STATE ELECTION**
2 **OFFICIALS.**

3 (a) STATE DEFINED.—In this section, the term
4 “State” means any State of the United States, the Dis-
5 trict of Columbia, the Commonwealth of Puerto Rico, and
6 any territory or possession of the United States.

7 (b) SECURITY CLEARANCES.—

8 (1) IN GENERAL.—Not later than 30 days after
9 the date of the enactment of this Act, the Director
10 of National Intelligence shall support the Under Sec-
11 retary of Homeland Security for Intelligence and
12 Analysis, and any other official of the Department
13 of Homeland Security designated by the Secretary of
14 Homeland Security, in sponsoring a security clear-
15 ance up to the top secret level for each eligible chief
16 election official of a State or the District of Colum-
17 bia, and additional eligible designees of such election
18 official as appropriate, at the time that such election
19 official assumes such position.

20 (2) INTERIM CLEARANCES.—Consistent with
21 applicable policies and directives, the Director of Na-
22 tional Intelligence may issue interim clearances, for
23 a period to be determined by the Director, to a chief
24 election official as described in paragraph (1) and up
25 to one designee of such official under such para-
26 graph.

1 (c) INFORMATION SHARING.—

2 (1) IN GENERAL.—The Director of National In-
3 telligence shall assist the Under Secretary of Home-
4 land Security for Intelligence and Analysis and the
5 Under Secretary responsible for overseeing critical
6 infrastructure protection, cybersecurity, and other
7 related programs of the Department (as specified in
8 section 103(a)(1)(H) of the Homeland Security Act
9 of 2002 (6 U.S.C. 113(a)(1)(H))) with sharing any
10 appropriate classified information related to threats
11 to election systems and to the integrity of the elec-
12 tion process with chief election officials and such
13 designees who have received a security clearance
14 under subsection (b).

15 (2) COORDINATION.—The Under Secretary of
16 Homeland Security for Intelligence and Analysis
17 shall coordinate with the Director of National Intel-
18 ligence and the Under Secretary responsible for
19 overseeing critical infrastructure protection, cyberse-
20 curity, and other related programs of the Depart-
21 ment (as specified in section 103(a)(1)(H) of the
22 Homeland Security Act of 2002 (6 U.S.C.
23 113(a)(1)(H))) to facilitate the sharing of informa-
24 tion to the affected Secretaries of State or States.

1 **SEC. 6507. NOTIFICATION OF SIGNIFICANT FOREIGN CYBER**
2 **INTRUSIONS AND ACTIVE MEASURES CAM-**
3 **PAIGNS DIRECTED AT ELECTIONS FOR FED-**
4 **ERAL OFFICES.**

5 (a) DEFINITIONS.—In this section:

6 (1) ACTIVE MEASURES CAMPAIGN.—The term
7 “active measures campaign” means a foreign semi-
8 covert or covert intelligence operation.

9 (2) CANDIDATE, ELECTION, AND POLITICAL
10 PARTY.—The terms “candidate”, “election”, and
11 “political party” have the meanings given those
12 terms in section 301 of the Federal Election Cam-
13 paign Act of 1971 (52 U.S.C. 30101).

14 (3) CONGRESSIONAL LEADERSHIP.—The term
15 “congressional leadership” includes the following:

16 (A) The majority leader of the Senate.

17 (B) The minority leader of the Senate.

18 (C) The Speaker of the House of Rep-
19 resentatives.

20 (D) The minority leader of the House of
21 Representatives.

22 (4) CYBER INTRUSION.—The term “cyber in-
23 trusion” means an electronic occurrence that actu-
24 ally or imminently jeopardizes, without lawful au-
25 thority, electronic election infrastructure, or the in-

1 tegrity, confidentiality, or availability of information
2 within such infrastructure.

3 (5) ELECTRONIC ELECTION INFRASTRUC-
4 TURE.—The term “electronic election infrastruc-
5 ture” means an electronic information system of any
6 of the following that is related to an election for
7 Federal office:

8 (A) The Federal Government.

9 (B) A State or local government.

10 (C) A political party.

11 (D) The election campaign of a candidate.

12 (6) FEDERAL OFFICE.—The term “Federal of-
13 fice” has the meaning given that term in section 301
14 of the Federal Election Campaign Act of 1971 (52
15 U.S.C. 30101).

16 (7) HIGH CONFIDENCE.—The term “high con-
17 fidence”, with respect to a determination, means
18 that the determination is based on high-quality in-
19 formation from multiple sources.

20 (8) MODERATE CONFIDENCE.—The term “mod-
21 erate confidence”, with respect to a determination,
22 means that a determination is credibly sourced and
23 plausible but not of sufficient quality or corrobo-
24 rated sufficiently to warrant a higher level of con-
25 fidence.

1 (9) OTHER APPROPRIATE CONGRESSIONAL COM-
2 MITTEES.—The term “other appropriate congres-
3 sional committees” means—

4 (A) the Committee on Armed Services, the
5 Committee on Foreign Relations, the Com-
6 mittee on Homeland Security and Govern-
7 mental Affairs, and the Committee on Appro-
8 priations of the Senate; and

9 (B) the Committee on Armed Services, the
10 Committee on Foreign Affairs, the Committee
11 on Homeland Security, and the Committee on
12 Appropriations of the House of Representatives.

13 (b) DETERMINATIONS OF SIGNIFICANT FOREIGN
14 CYBER INTRUSIONS AND ACTIVE MEASURES CAM-
15 PAIGNS.—The Director of National Intelligence, the Di-
16 rector of the Federal Bureau of Investigation, and the
17 Secretary of Homeland Security shall jointly carry out
18 subsection (c) if such Directors and the Secretary jointly
19 determine—

20 (1) that on or after the date of the enactment
21 of this Act, a significant foreign cyber intrusion or
22 active measures campaign intended to influence an
23 upcoming election for any Federal office has oc-
24 curred or is occurring; and

1 (2) with moderate or high confidence, that such
2 intrusion or campaign can be attributed to a foreign
3 state or to a foreign nonstate person, group, or other
4 entity.

5 (c) BRIEFING.—

6 (1) IN GENERAL.—Not later than 14 days after
7 making a determination under subsection (b), the
8 Director of National Intelligence, the Director of the
9 Federal Bureau of Investigation, and the Secretary
10 of Homeland Security shall jointly provide a briefing
11 to the congressional leadership, the congressional in-
12 telligence committees and, consistent with the pro-
13 tection of sources and methods, the other appro-
14 priate congressional committees. The briefing shall
15 be classified and address, at a minimum, the fol-
16 lowing:

17 (A) A description of the significant foreign
18 cyber intrusion or active measures campaign, as
19 the case may be, covered by the determination.

20 (B) An identification of the foreign state
21 or foreign nonstate person, group, or other enti-
22 ty, to which such intrusion or campaign has
23 been attributed.

1 (C) The desirability and feasibility of the
2 public release of information about the cyber in-
3 trusion or active measures campaign.

4 (D) Any other information such Directors
5 and the Secretary jointly determine appropriate.

6 (2) ELECTRONIC ELECTION INFRASTRUCTURE
7 BRIEFINGS.—With respect to a significant foreign
8 cyber intrusion covered by a determination under
9 subsection (b), the Secretary of Homeland Security,
10 in consultation with the Director of National Intel-
11 ligence and the Director of the Federal Bureau of
12 Investigation, shall offer to the owner or operator of
13 any electronic election infrastructure directly af-
14 fected by such intrusion, a briefing on such intru-
15 sion, including steps that may be taken to mitigate
16 such intrusion. Such briefing may be classified and
17 made available only to individuals with appropriate
18 security clearances.

19 (3) PROTECTION OF SOURCES AND METH-
20 ODS.—This subsection shall be carried out in a man-
21 ner that is consistent with the protection of sources
22 and methods.

1 **SEC. 6508. DESIGNATION OF COUNTERINTELLIGENCE OFFI-**
2 **CER TO LEAD ELECTION SECURITY MATTERS.**

3 (a) IN GENERAL.—The Director of National Intel-
4 ligence shall designate a national counterintelligence offi-
5 cer within the National Counterintelligence and Security
6 Center to lead, manage, and coordinate counterintelligence
7 matters relating to election security.

8 (b) ADDITIONAL RESPONSIBILITIES.—The person
9 designated under subsection (a) shall also lead, manage,
10 and coordinate counterintelligence matters relating to
11 risks posed by interference from foreign powers (as de-
12 fined in section 101 of the Foreign Intelligence Surveil-
13 lance Act of 1978 (50 U.S.C. 1801)) to the following:

14 (1) The Federal Government election security
15 supply chain.

16 (2) Election voting systems and software.

17 (3) Voter registration databases.

18 (4) Critical infrastructure related to elections.

19 (5) Such other Government goods and services
20 as the Director of National Intelligence considers ap-
21 propriate.

22 **TITLE LXVI—SECURITY**
23 **CLEARANCES**

24 **SEC. 6601. DEFINITIONS.**

25 In this title:

1 (1) APPROPRIATE CONGRESSIONAL COMMIT-
2 TEES.—The term “appropriate congressional com-
3 mittees” means—

4 (A) the congressional intelligence commit-
5 tees;

6 (B) the Committee on Armed Services of
7 the Senate;

8 (C) the Committee on Appropriations of
9 the Senate;

10 (D) the Committee on Homeland Security
11 and Governmental Affairs of the Senate;

12 (E) the Committee on Armed Services of
13 the House of Representatives;

14 (F) the Committee on Appropriations of
15 the House of Representatives;

16 (G) the Committee on Homeland Security
17 of the House of Representatives; and

18 (H) the Committee on Oversight and Re-
19 form of the House of Representatives.

20 (2) APPROPRIATE INDUSTRY PARTNER.—The
21 term “appropriate industry partner” means a con-
22 tractor, licensee, or grantee (as defined in section
23 101(a) of Executive Order No. 12829 (50 U.S.C.
24 3161 note; relating to National Industrial Security
25 Program)) that is participating in the National In-

1 industrial Security Program established by such Exec-
2 utive order.

3 (3) CONTINUOUS VETTING.—The term “contin-
4 uous vetting” has the meaning given such term in
5 Executive Order No. 13467 (50 U.S.C. 3161 note;
6 relating to reforming processes for determining suit-
7 ability for government employment, fitness for con-
8 tractor employees, and eligibility for access to classi-
9 fied national security information).

10 (4) COUNCIL.—The term “Council” means the
11 Security, Suitability, and Credentialing Performance
12 Accountability Council established pursuant to such
13 Executive order, or any successor entity.

14 (5) RECIPROCITY.—The term “reciprocity”
15 means reciprocal recognition by Federal departments
16 and agencies of eligibility for access to classified in-
17 formation.

18 (6) SECURITY EXECUTIVE AGENT.—The term
19 “Security Executive Agent” means the officer serv-
20 ing as the Security Executive Agent pursuant to sec-
21 tion 803 of the National Security Act of 1947, as
22 added by section 6605.

23 (7) SUITABILITY AND CREDENTIALING EXECU-
24 TIVE AGENT.—The term “Suitability and
25 Credentialing Executive Agent” means the Director

1 of the Office of Personnel Management acting as the
2 Suitability and Credentialing Executive Agent in ac-
3 cordance with Executive Order No. 13467 (50
4 U.S.C. 3161 note; relating to reforming processes
5 related to suitability for Government employment,
6 fitness for contractor employees, and eligibility for
7 access to classified national security information), or
8 any successor entity.

9 **SEC. 6602. REPORTS AND PLANS RELATING TO SECURITY**
10 **CLEARANCES AND BACKGROUND INVESTIGA-**
11 **TIONS.**

12 (a) SENSE OF CONGRESS.—It is the sense of Con-
13 gress that—

14 (1) ensuring the trustworthiness and security of
15 the workforce, facilities, and information of the Fed-
16 eral Government is of the highest priority to na-
17 tional security and public safety;

18 (2) the President and Congress should
19 prioritize the modernization of the personnel security
20 framework to improve its efficiency, effectiveness,
21 and accountability;

22 (3) the current system for background inves-
23 tigations for security clearances, suitability and fit-
24 ness for employment, and credentialing lacks effi-
25 ciencies and capabilities to meet the current threat

1 environment, recruit and retain a trusted workforce,
2 and capitalize on modern technologies; and

3 (4) changes to policies or processes to improve
4 this system should be vetted through the Council to
5 ensure standardization, portability, and reciprocity
6 in security clearances across the Federal Govern-
7 ment.

8 (b) ACCOUNTABILITY PLANS AND REPORTS.—

9 (1) PLANS.—Not later than 90 days after the
10 date of the enactment of this Act, the Council shall
11 submit to the appropriate congressional committees
12 and make available to appropriate industry partners
13 the following:

14 (A) A plan, with milestones, to reduce the
15 background investigation inventory to 200,000,
16 or an otherwise sustainable steady-level, by the
17 end of year 2020. Such plan shall include notes
18 of any required changes in investigative and ad-
19 judicative standards or resources.

20 (B) A plan to consolidate the conduct of
21 background investigations associated with the
22 processing for security clearances in the most
23 effective and efficient manner in the Defense
24 Counterintelligence and Security Agency. Such
25 plan shall address required funding, personnel,

1 contracts, information technology, field office
2 structure, policy, governance, schedule, transi-
3 tion costs, and effects on stakeholders.

4 (2) REPORT ON THE FUTURE OF PERSONNEL
5 SECURITY.—

6 (A) IN GENERAL.—Not later than 180
7 days after the date of the enactment of this
8 Act, the Chairman of the Council, in coordina-
9 tion with the members of the Council, shall sub-
10 mit to the appropriate congressional committees
11 and make available to appropriate industry
12 partners a report on the future of personnel se-
13 curity to reflect changes in threats, the work-
14 force, and technology.

15 (B) CONTENTS.—The report submitted
16 under subparagraph (A) shall include the fol-
17 lowing:

18 (i) A risk framework for granting and
19 renewing access to classified information.

20 (ii) A discussion of the use of tech-
21 nologies to prevent, detect, and monitor
22 threats.

23 (iii) A discussion of efforts to address
24 reciprocity and portability.

1 (iv) A discussion of the characteristics
2 of effective insider threat programs.

3 (v) An analysis of how to integrate
4 data from continuous vetting, insider
5 threat programs, and human resources
6 data.

7 (vi) Recommendations on interagency
8 governance.

9 (3) PLAN FOR IMPLEMENTATION.—Not later
10 than 180 days after the date of the enactment of
11 this Act, the Chairman of the Council, in coordina-
12 tion with the members of the Council, shall submit
13 to the appropriate congressional committees and
14 make available to appropriate industry partners a
15 plan to implement the report's framework and rec-
16 ommendations submitted under paragraph (2)(A).

17 (4) CONGRESSIONAL NOTIFICATIONS.—Not less
18 frequently than quarterly, the Security Executive
19 Agent shall make available to the public a report re-
20 garding the status of the disposition of requests re-
21 ceived from departments and agencies of the Federal
22 Government for a change to, or approval under, the
23 Federal investigative standards, the national adju-
24 dicative guidelines, continuous vetting, or other na-
25 tional policy regarding personnel security.

1 **SEC. 6603. IMPROVING THE PROCESS FOR SECURITY**
2 **CLEARANCES.**

3 (a) **REVIEWS.**—Not later than 180 days after the
4 date of the enactment of this Act, the Security Executive
5 Agent, in coordination with the members of the Council,
6 shall submit to the appropriate congressional committees
7 and make available to appropriate industry partners a re-
8 port that includes the following:

9 (1) A review of whether the information re-
10 quested on the Questionnaire for National Security
11 Positions (Standard Form 86) and by the Federal
12 Investigative Standards prescribed by the Suitability
13 and Credentialing Executive Agent and the Security
14 Executive Agent appropriately supports the adju-
15 dicative guidelines under Security Executive Agent
16 Directive 4 (known as the “National Security Adju-
17 dicative Guidelines”). Such review shall include iden-
18 tification of whether any such information currently
19 collected is unnecessary to support the adjudicative
20 guidelines.

21 (2) An assessment of whether such Question-
22 naire, Standards, and guidelines should be revised to
23 account for the prospect of a holder of a security
24 clearance becoming an insider threat.

25 (3) Recommendations to improve the back-
26 ground investigation process by—

1 (A) simplifying the Questionnaire for Na-
2 tional Security Positions (Standard Form 86)
3 and increasing customer support to applicants
4 completing such Questionnaire;

5 (B) using remote techniques and central-
6 ized locations to support or replace field inves-
7 tigation work;

8 (C) using secure and reliable digitization of
9 information obtained during the clearance proc-
10 ess;

11 (D) building the capacity of the back-
12 ground investigation workforce; and

13 (E) replacing periodic reinvestigations with
14 continuous vetting techniques in all appropriate
15 circumstances.

16 (b) POLICY, STRATEGY, AND IMPLEMENTATION.—
17 Not later than 180 days after the date of the enactment
18 of this Act, the Security Executive Agent shall, in coordi-
19 nation with the members of the Council, establish the fol-
20 lowing:

21 (1) A policy and implementation plan for the
22 issuance of interim security clearances.

23 (2) A policy and implementation plan to ensure
24 contractors are treated consistently in the security
25 clearance process across agencies and departments

1 of the United States as compared to employees of
2 such agencies and departments. Such policy shall
3 address—

4 (A) prioritization of processing security
5 clearances based on the mission the contractors
6 will be performing;

7 (B) standardization in the forms that
8 agencies issue to initiate the process for a secu-
9 rity clearance;

10 (C) digitization of background investiga-
11 tion-related forms;

12 (D) use of the polygraph;

13 (E) the application of the adjudicative
14 guidelines under Security Executive Agent Di-
15 rective 4 (known as the “National Security Ad-
16 judicative Guidelines”);

17 (F) reciprocal recognition of clearances
18 across agencies and departments of the United
19 States, regardless of status of periodic reinves-
20 tigation;

21 (G) tracking of clearance files as individ-
22 uals move from employment with an agency or
23 department of the United States to employment
24 in the private sector;

1 (H) collection of timelines for movement of
2 contractors across agencies and departments;

3 (I) reporting on security incidents and job
4 performance, consistent with section 552a of
5 title 5, United States Code (commonly known
6 as the “Privacy Act of 1974”), that may affect
7 the ability to hold a security clearance;

8 (J) any recommended changes to the Fed-
9 eral Acquisition Regulations (FAR) necessary
10 to ensure that information affecting contractor
11 clearances or suitability is appropriately and ex-
12 peditiously shared between and among agencies
13 and contractors; and

14 (K) portability of contractor security clear-
15 ances between or among contracts at the same
16 agency and between or among contracts at dif-
17 ferent agencies that require the same level of
18 clearance.

19 (3) A strategy and implementation plan that—

20 (A) provides for periodic reinvestigations
21 as part of a security clearance determination
22 only on an as-needed, risk-based basis;

23 (B) includes actions to assess the extent to
24 which automated records checks and other con-

1 tinuous vetting methods may be used to expe-
2 dite or focus reinvestigations; and

3 (C) provides an exception to the require-
4 ment under subparagraph (A) for certain popu-
5 lations if the Security Executive Agent—

6 (i) determines such populations re-
7 quire reinvestigations at regular intervals;
8 and

9 (ii) provides written justification to
10 the appropriate congressional committees
11 for any such determination.

12 (4) A policy and implementation plan for agen-
13 cies and departments of the United States, as a part
14 of the security clearance process, to accept auto-
15 mated records checks generated pursuant to a secu-
16 rity clearance applicant's employment with a prior
17 employer.

18 (5) A policy for the use of certain background
19 information on individuals collected by the private
20 sector for background investigation purposes.

21 (6) Uniform standards for agency continuous
22 vetting programs to ensure quality and reciprocity in
23 accepting enrollment in a continuous vetting pro-
24 gram as a substitute for a periodic investigation for
25 continued access to classified information.

1 **SEC. 6604. GOALS FOR PROMPTNESS OF DETERMINATIONS**
2 **REGARDING SECURITY CLEARANCES.**

3 (a) **IN GENERAL.**—The Council shall reform the se-
4 curity clearance process with the objective that, by Decem-
5 ber 31, 2021, 90 percent of all determinations, other than
6 determinations regarding populations identified under sec-
7 tion 6603(b)(3)(C), regarding—

8 (1) security clearances—

9 (A) at the secret level are issued in 30
10 days or fewer; and

11 (B) at the top secret level are issued in 90
12 days or fewer; and

13 (2) reciprocity of security clearances at the
14 same level are recognized in 2 weeks or fewer.

15 (b) **CERTAIN REINVESTIGATIONS.**—The Council shall
16 reform the security clearance process with the goal that
17 by December 31, 2021, reinvestigation on a set periodicity
18 is not required for more than 10 percent of the population
19 that holds a security clearance.

20 (c) **EQUIVALENT METRICS.**—

21 (1) **IN GENERAL.**—If the Council develops a set
22 of performance metrics that it certifies to the appro-
23 priate congressional committees should achieve sub-
24 stantially equivalent outcomes as those outlined in
25 subsections (b) and (c), the Council may use those

1 metrics for purposes of compliance within this provi-
2 sion.

3 (2) NOTICE.—If the Council uses the authority
4 provided by paragraph (1) to use metrics as de-
5 scribed in such paragraph, the Council shall, not
6 later than 30 days after communicating such metrics
7 to departments and agencies, notify the appropriate
8 congressional committees that it is using such au-
9 thority.

10 (d) PLAN.—Not later than 180 days after the date
11 of the enactment of this Act, the Council shall submit to
12 the appropriate congressional committees and make avail-
13 able to appropriate industry partners a plan to carry out
14 this section. Such plan shall include recommended interim
15 milestones for the goals set forth in subsections (b) and
16 (c) for 2019, 2020, and 2021.

17 **SEC. 6605. SECURITY EXECUTIVE AGENT.**

18 (a) IN GENERAL.—Title VIII of the National Secu-
19 rity Act of 1947 (50 U.S.C. 3161 et seq.) is amended—

20 (1) by redesignating sections 803 and 804 as
21 sections 804 and 805, respectively; and

22 (2) by inserting after section 802 the following:

23 **“SEC. 803. SECURITY EXECUTIVE AGENT.**

24 “(a) IN GENERAL.—The Director of National Intel-
25 ligence, or such other officer of the United States as the

1 President may designate, shall serve as the Security Exec-
2 utive Agent for all departments and agencies of the United
3 States.

4 “(b) DUTIES.—The duties of the Security Executive
5 Agent are as follows:

6 “(1) To direct the oversight of investigations,
7 reinvestigations, adjudications, and, as applicable,
8 polygraphs for eligibility for access to classified in-
9 formation or eligibility to hold a sensitive position
10 made by any Federal agency.

11 “(2) To review the national security back-
12 ground investigation and adjudication programs of
13 Federal agencies to determine whether such pro-
14 grams are being implemented in accordance with
15 this section.

16 “(3) To develop and issue uniform and con-
17 sistent policies and procedures to ensure the effec-
18 tive, efficient, timely, and secure completion of inves-
19 tigation, polygraphs, and adjudications relating to
20 determinations of eligibility for access to classified
21 information or eligibility to hold a sensitive position.

22 “(4) Unless otherwise designated by law, to
23 serve as the final authority to designate a Federal
24 agency or agencies to conduct investigations of per-
25 sons who are proposed for access to classified infor-

1 mation or for eligibility to hold a sensitive position
2 to ascertain whether such persons satisfy the criteria
3 for obtaining and retaining access to classified infor-
4 mation or eligibility to hold a sensitive position, as
5 applicable.

6 “(5) Unless otherwise designated by law, to
7 serve as the final authority to designate a Federal
8 agency or agencies to determine eligibility for access
9 to classified information or eligibility to hold a sen-
10 sitive position in accordance with Executive Order
11 No. 12968 (50 U.S.C. 3161 note; relating to access
12 to classified information).

13 “(6) To review and approve the policies of the
14 Federal agencies that ensure reciprocal recognition
15 of eligibility for access to classified information or
16 eligibility to hold a sensitive position among Federal
17 agencies, and to act as the final authority to arbi-
18 trate and resolve disputes among such agencies in-
19 volving the reciprocity of investigations and adju-
20 dications of eligibility.

21 “(7) To execute all other duties assigned to the
22 Security Executive Agent by law.

23 “(c) AUTHORITIES.—The Security Executive Agent
24 shall—

1 “(1) issue guidelines and instructions to the
2 heads of Federal agencies to ensure appropriate uni-
3 formity, centralization, efficiency, effectiveness, time-
4 liness, and security in processes relating to deter-
5 minations by such agencies of eligibility for access to
6 classified information or eligibility to hold a sensitive
7 position, including such matters as investigations,
8 polygraphs, adjudications, and reciprocity;

9 “(2) have the authority to grant exceptions to,
10 or waivers of, national security investigative require-
11 ments, including issuing implementing or clarifying
12 guidance, as necessary;

13 “(3) have the authority to assign, in whole or
14 in part, to the head of any Federal agency (solely or
15 jointly) any of the duties of the Security Executive
16 Agent described in subsection (b) or the authorities
17 described in paragraphs (1) and (2), provided that
18 the exercise of such assigned duties or authorities is
19 subject to the oversight of the Security Executive
20 Agent, including such terms and conditions (includ-
21 ing approval by the Security Executive Agent) as the
22 Security Executive Agent determines appropriate;
23 and

1 “(4) define and set standards for continuous
2 vetting for continued access to classified information
3 and for eligibility to hold a sensitive position.”.

4 (b) **REPORT ON RECOMMENDATIONS FOR REVISING**
5 **AUTHORITIES.**—Not later than 30 days after the date on
6 which the Chairman of the Council submits to the appro-
7 priate congressional committees the report required by
8 section 6602(b)(2)(A), the Chairman shall submit to the
9 appropriate congressional committees such recommenda-
10 tions as the Chairman may have for revising the authori-
11 ties of the Security Executive Agent.

12 (c) **CONFORMING AMENDMENT.**—Section
13 103H(j)(4)(A) of such Act (50 U.S.C. 3033(j)(4)(A)) is
14 amended by striking “in section 804” and inserting “in
15 section 805”.

16 (d) **CLERICAL AMENDMENT.**—The table of contents
17 in the matter preceding section 2 of such Act (50 U.S.C.
18 3002) is amended by striking the items relating to sections
19 803 and 804 and inserting the following:

“Sec. 803. Security Executive Agent.

“Sec. 804. Exceptions.

“Sec. 805. Definitions.”.

20 **SEC. 6606. REPORT ON UNIFIED, SIMPLIFIED, GOVERN-**
21 **MENTWIDE STANDARDS FOR POSITIONS OF**
22 **TRUST AND SECURITY CLEARANCES.**

23 Not later than 90 days after the date of the enact-
24 ment of this Act, the Security Executive Agent and the

1 Suitability and Credentialing Executive Agent, in coordi-
2 nation with the other members of the Council, shall jointly
3 submit to the appropriate congressional committees and
4 make available to appropriate industry partners a report
5 regarding the advisability and the risks, benefits, and
6 costs to the Government and to industry of consolidating
7 to not more than three tiers for positions of trust and se-
8 curity clearances.

9 **SEC. 6607. REPORT ON CLEARANCE IN PERSON CONCEPT.**

10 (a) SENSE OF CONGRESS.—It is the sense of Con-
11 gress that to reflect the greater mobility of the modern
12 workforce, alternative methodologies merit analysis to
13 allow greater flexibility for individuals moving in and out
14 of positions that require access to classified information,
15 while still preserving security.

16 (b) REPORT REQUIRED.—Not later than 90 days
17 after the date of the enactment of this Act, the Security
18 Executive Agent shall submit to the appropriate congres-
19 sional committees and make available to appropriate in-
20 dustry partners a report that describes the requirements,
21 feasibility, and advisability of implementing a clearance in
22 person concept described in subsection (c).

23 (c) CLEARANCE IN PERSON CONCEPT.—The clear-
24 ance in person concept—

1 (1) permits an individual who once held a secu-
2 rity clearance to maintain his or her eligibility for
3 access to classified information, networks, and facili-
4 ties for up to 3 years after the individual's eligibility
5 for access to classified information would otherwise
6 lapse; and

7 (2) recognizes, unless otherwise directed by the
8 Security Executive Agent, an individual's security
9 clearance and background investigation as current,
10 regardless of employment status, contingent on en-
11 rollment in a continuous vetting program.

12 (d) CONTENTS.—The report required under sub-
13 section (b) shall address—

14 (1) requirements for an individual to voluntarily
15 remain in a continuous vetting program validated by
16 the Security Executive Agent even if the individual
17 is not in a position requiring access to classified in-
18 formation;

19 (2) appropriate safeguards for privacy;

20 (3) advantages to government and industry;

21 (4) the costs and savings associated with imple-
22 mentation;

23 (5) the risks of such implementation, including
24 security and counterintelligence risks;

25 (6) an appropriate funding model; and

1 (7) fairness to small companies and inde-
2 pendent contractors.

3 **SEC. 6608. REPORTS ON RECIPROCITY FOR SECURITY**
4 **CLEARANCES INSIDE OF DEPARTMENTS AND**
5 **AGENCIES.**

6 (a) **REPORTS TO SECURITY EXECUTIVE AGENT.**—
7 The head of each Federal department or agency shall sub-
8 mit an annual report to the Security Executive Agent that,
9 with respect to the period covered by the report—

10 (1) identifies the number of individuals whose
11 security clearances took more than 2 weeks for reci-
12 procity recognition after such individuals move to
13 another part of such department or agency; and

14 (2) breaks out the information described in
15 paragraph (1) by type of clearance and the reasons
16 for any delays.

17 (b) **ANNUAL REPORT.**—Not less frequently than once
18 each year, the Security Executive Agent shall submit to
19 the appropriate congressional committees and make avail-
20 able to industry partners a report that summarizes the
21 information received pursuant to subsection (b) during the
22 period covered by such report.

1 **SEC. 6609. INTELLIGENCE COMMUNITY REPORTS ON SECU-**
2 **RITY CLEARANCES.**

3 (a) SENSE OF CONGRESS.—It is the sense of Con-
4 gress that—

5 (1) despite sustained efforts by Congress and
6 the executive branch, an unacceptable backlog in
7 processing and adjudicating security clearances per-
8 sists, both within elements of the intelligence com-
9 munity and in other departments of the Federal
10 Government, with some processing times exceeding a
11 year or even more;

12 (2) the protracted clearance timetable threatens
13 the ability of elements of the intelligence community
14 to hire and retain highly qualified individuals, and
15 thus to fulfill the missions of such elements;

16 (3) the prospect of a lengthy clearance process
17 deters some such individuals from seeking employ-
18 ment with the intelligence community in the first
19 place, and, when faced with a long wait time, those
20 with conditional offers of employment may opt to
21 discontinue the security clearance process and pur-
22 sue different opportunities;

23 (4) now more than ever, therefore, the broken
24 security clearance process badly needs fundamental
25 reform; and

1 (5) in the meantime, to ensure the ability of
2 elements of the intelligence community to hire and
3 retain highly qualified personnel, elements should
4 consider, to the extent possible and consistent with
5 national security, permitting new employees to enter
6 on duty immediately or nearly so, and to perform,
7 on a temporary basis pending final adjudication of
8 their security clearances, work that either does not
9 require a security clearance or requires only a low-
10 level interim clearance.

11 (b) **REPORTS REQUIRED.**—Section 506H of the Na-
12 tional Security Act of 1947 (50 U.S.C. 3104) is amend-
13 ed—

14 (1) in subsection (a)(1)—

15 (A) in subparagraph (A)(ii), by adding
16 “and” at the end;

17 (B) in subparagraph (B)(ii), by striking “;
18 and” and inserting a period; and

19 (C) by striking subparagraph (C);

20 (2) by redesignating subsection (b) as sub-
21 section (c);

22 (3) by inserting after subsection (a) the fol-
23 lowing:

24 “(b) **INTELLIGENCE COMMUNITY REPORTS.**—(1)(A)

25 Not later than March 1 of each year, the Director of Na-

1 tional Intelligence shall submit a report to the congres-
2 sional intelligence committees, the Committee on Home-
3 land Security and Governmental Affairs of the Senate, the
4 Committee on Homeland Security of the House of Rep-
5 resentatives, and the Committee on Oversight and Reform
6 of the House of Representatives regarding the security
7 clearances processed by each element of the intelligence
8 community during the preceding fiscal year.

9 “(B) The Director shall submit to the Committee on
10 Armed Services of the Senate and the Committee on
11 Armed Services of the House of Representatives such por-
12 tions of the report submitted under subparagraph (A) as
13 the Director determines address elements of the intel-
14 ligence community that are within the Department of De-
15 fense.

16 “(C) Each report submitted under this paragraph
17 shall separately identify security clearances processed for
18 Federal employees and contractor employees sponsored by
19 each such element.

20 “(2) Each report submitted under paragraph (1)(A)
21 shall include, for each element of the intelligence commu-
22 nity for the fiscal year covered by the report, the following:

23 “(A) The total number of initial security clear-
24 ance background investigations sponsored for new
25 applicants.

1 “(B) The total number of security clearance
2 periodic reinvestigations sponsored for existing em-
3 ployees.

4 “(C) The total number of initial security clear-
5 ance background investigations for new applicants
6 that were adjudicated with notice of a determination
7 provided to the prospective applicant, including—

8 “(i) the total number of such adjudications
9 that were adjudicated favorably and granted ac-
10 cess to classified information; and

11 “(ii) the total number of such adjudica-
12 tions that were adjudicated unfavorably and re-
13 sulted in a denial or revocation of a security
14 clearance.

15 “(D) The total number of security clearance
16 periodic background investigations that were adju-
17 dicated with notice of a determination provided to
18 the existing employee, including—

19 “(i) the total number of such adjudications
20 that were adjudicated favorably; and

21 “(ii) the total number of such adjudica-
22 tions that were adjudicated unfavorably and re-
23 sulted in a denial or revocation of a security
24 clearance.

1 “(E) The total number of pending security
2 clearance background investigations, including initial
3 applicant investigations and periodic reinvestiga-
4 tions, that were not adjudicated as of the last day
5 of such year and that remained pending, categorized
6 as follows:

7 “(i) For 180 days or shorter.

8 “(ii) For longer than 180 days, but shorter
9 than 12 months.

10 “(iii) For 12 months or longer, but shorter
11 than 18 months.

12 “(iv) For 18 months or longer, but shorter
13 than 24 months.

14 “(v) For 24 months or longer.

15 “(F) For any security clearance determinations
16 completed or pending during the year preceding the
17 year for which the report is submitted that have
18 taken longer than 12 months to complete—

19 “(i) an explanation of the causes for the
20 delays incurred during the period covered by
21 the report; and

22 “(ii) the number of such delays involving a
23 polygraph requirement.

24 “(G) The percentage of security clearance in-
25 vestigations, including initial and periodic reinves-

1 tigitations, that resulted in a denial or revocation of
2 a security clearance.

3 “(H) The percentage of security clearance in-
4 vestigations that resulted in incomplete information.

5 “(I) The percentage of security clearance inves-
6 tigations that did not result in enough information
7 to make a decision on potentially adverse informa-
8 tion.

9 “(3) The report required under this subsection shall
10 be submitted in unclassified form, but may include a clas-
11 sified annex.”; and

12 (4) in subsection (c), as redesignated, by strik-
13 ing “subsection (a)(1)” and inserting “subsections
14 (a)(1) and (b)”.

15 **SEC. 6610. PERIODIC REPORT ON POSITIONS IN THE INTEL-**
16 **LIGENCE COMMUNITY THAT CAN BE CON-**
17 **DUCTED WITHOUT ACCESS TO CLASSIFIED**
18 **INFORMATION, NETWORKS, OR FACILITIES.**

19 Not later than 180 days after the date of the enact-
20 ment of this Act and not less frequently than once every
21 5 years thereafter, the Director of National Intelligence
22 shall submit to the congressional intelligence committees
23 a report that reviews the intelligence community for which
24 positions can be conducted without access to classified in-

1 formation, networks, or facilities, or may only require a
2 security clearance at the secret level.

3 **SEC. 6611. INFORMATION-SHARING PROGRAM FOR POSI-**
4 **TIONS OF TRUST AND SECURITY CLEAR-**
5 **ANCES.**

6 (a) PROGRAM REQUIRED.—

7 (1) IN GENERAL.—Not later than 90 days after
8 the date of the enactment of this Act, the Security
9 Executive Agent and the Suitability and
10 Credentialing Executive Agent shall establish and
11 implement a program to share between and among
12 agencies of the Federal Government and industry
13 partners of the Federal Government relevant back-
14 ground information regarding individuals applying
15 for and currently occupying national security posi-
16 tions and positions of trust, in order to ensure the
17 Federal Government maintains a trusted workforce.

18 (2) DESIGNATION.—The program established
19 under paragraph (1) shall be known as the “Trusted
20 Information Provider Program” (in this section re-
21 ferred to as the “Program”).

22 (b) PRIVACY SAFEGUARDS.—The Security Executive
23 Agent and the Suitability and Credentialing Executive
24 Agent shall ensure that the Program includes such safe-
25 guards for privacy as the Security Executive Agent and

1 the Suitability and Credentialing Executive Agent consider
2 appropriate.

3 (c) PROVISION OF INFORMATION TO THE FEDERAL
4 GOVERNMENT.—The Program shall include requirements
5 that enable investigative service providers and agencies of
6 the Federal Government to leverage certain pre-employ-
7 ment information gathered through private-sector means
8 during the employment or military recruiting process, and
9 other relevant security or human resources information
10 obtained during employment with or for the Federal Gov-
11 ernment, that satisfy Federal investigative standards,
12 while safeguarding personnel privacy.

13 (d) INFORMATION AND RECORDS.—The information
14 and records considered under the Program shall include
15 the following:

- 16 (1) Date and place of birth.
- 17 (2) Citizenship or immigration and naturaliza-
18 tion information.
- 19 (3) Education records.
- 20 (4) Employment records.
- 21 (5) Employment or social references.
- 22 (6) Military service records.
- 23 (7) State and local law enforcement checks.
- 24 (8) Criminal history checks.
- 25 (9) Financial records or information.

1 (10) Foreign travel, relatives, or associations.

2 (11) Social media checks.

3 (12) Such other information or records as may
4 be relevant to obtaining or maintaining national se-
5 curity, suitability, fitness, or credentialing eligibility.

6 (e) IMPLEMENTATION PLAN.—

7 (1) IN GENERAL.—Not later than 90 days after
8 the date of the enactment of this Act, the Security
9 Executive Agent and the Suitability and
10 Credentialing Executive Agent shall jointly submit to
11 the appropriate congressional committees and make
12 available to appropriate industry partners a plan for
13 the implementation of the Program.

14 (2) ELEMENTS.—The plan required by para-
15 graph (1) shall include the following:

16 (A) Mechanisms that address privacy, na-
17 tional security, suitability or fitness,
18 credentialing, and human resources or military
19 recruitment processes.

20 (B) Such recommendations for legislative
21 or administrative action as the Security Execu-
22 tive Agent and the Suitability and Credentialing
23 Executive Agent consider appropriate to carry
24 out or improve the Program.

1 (f) PLAN FOR PILOT PROGRAM ON TWO-WAY INFOR-
2 MATION SHARING.—

3 (1) IN GENERAL.—Not later than 180 days
4 after the date of the enactment of this Act, the Se-
5 curity Executive Agent and the Suitability and
6 Credentialing Executive Agent shall jointly submit to
7 the appropriate congressional committees and make
8 available to appropriate industry partners a plan for
9 the implementation of a pilot program to assess the
10 feasibility and advisability of expanding the Program
11 to include the sharing of information held by the
12 Federal Government related to contract personnel
13 with the security office of the employers of those
14 contractor personnel.

15 (2) ELEMENTS.—The plan required by para-
16 graph (1) shall include the following:

17 (A) Mechanisms that address privacy, na-
18 tional security, suitability or fitness,
19 credentialing, and human resources or military
20 recruitment processes.

21 (B) Such recommendations for legislative
22 or administrative action as the Security Execu-
23 tive Agent and the Suitability and Credentialing
24 Executive Agent consider appropriate to carry
25 out or improve the pilot program.

1 (g) REVIEW.—Not later than 1 year after the date
2 of the enactment of this Act, the Security Executive Agent
3 and the Suitability and Credentialing Executive Agent
4 shall jointly submit to the appropriate congressional com-
5 mittees and make available to appropriate industry part-
6 ners a review of the plans submitted under subsections
7 (e)(1) and (f)(1) and utility and effectiveness of the pro-
8 grams described in such plans.

9 **SEC. 6612. REPORT ON PROTECTIONS FOR CONFIDEN-**
10 **TIALITY OF WHISTLEBLOWER-RELATED COM-**
11 **MUNICATIONS.**

12 Not later than 180 days after the date of the enact-
13 ment of this Act, the Security Executive Agent shall, in
14 coordination with the Inspector General of the Intelligence
15 Community, submit to the appropriate congressional com-
16 mittees a report detailing the controls employed by the in-
17 telligence community to ensure that continuous vetting
18 programs, including those involving user activity moni-
19 toring, protect the confidentiality of whistleblower-related
20 communications.

21 **SEC. 6613. REPORTS ON COSTS OF SECURITY CLEARANCE**
22 **BACKGROUND INVESTIGATIONS.**

23 (a) REPORTS.—Not later than March 1, 2020, and
24 each year thereafter through 2022, the Security Executive
25 Agent, in coordination with the Council, shall submit to

1 the appropriate congressional committees a report on the
2 resources expended by each agency of the Federal Govern-
3 ment during the fiscal year prior to the date of the report
4 for processing security clearance background investiga-
5 tions and continuous vetting programs, disaggregated by
6 tier and whether the individual was a Government em-
7 ployee or contractor.

8 (b) CONTENTS.—Each report submitted under sub-
9 section (a) shall include, for the period covered by the re-
10 port—

11 (1) the costs of background investigations;

12 (2) the costs of reinvestigations;

13 (3) the costs associated with background inves-
14 tigation and reinvestigations for Government per-
15 sonnel;

16 (4) the costs associated with background inves-
17 tigation and reinvestigations for contract personnel;

18 (5) costs associated with continuous evaluation
19 initiatives monitoring for personnel for whom a
20 background investigation or reinvestigation was con-
21 ducted, other than costs associated with adjudica-
22 tion;

23 (6) the average cost per person for each type of
24 background investigation; and

1 (7) a summary of transfers and
2 reprogrammings that were executed to support the
3 processing of security clearances.

4 **TITLE LXVII—REPORTS AND**
5 **OTHER MATTERS**

6 **Subtitle A—Matters Relating to**
7 **Russia and Other Foreign Powers**

8 **SEC. 6701. LIMITATION RELATING TO ESTABLISHMENT OR**
9 **SUPPORT OF CYBERSECURITY UNIT WITH**
10 **THE RUSSIAN FEDERATION.**

11 (a) APPROPRIATE CONGRESSIONAL COMMITTEES
12 DEFINED.—In this section, the term “appropriate con-
13 gressional committees” means—

14 (1) the congressional intelligence committees;
15 (2) the Committee on Armed Services of the
16 Senate and the Committee on Armed Services of the
17 House of Representatives; and

18 (3) the Committee on Foreign Relations of the
19 Senate and the Committee on Foreign Affairs of the
20 House of Representatives.

21 (b) LIMITATION.—

22 (1) IN GENERAL.—No amount may be ex-
23 pended by the Federal Government, other than the
24 Department of Defense, to enter into or implement
25 any bilateral agreement between the United States

1 and the Russian Federation regarding cybersecurity,
2 including the establishment or support of any cyber-
3 security unit, unless, at least 30 days prior to the
4 conclusion of any such agreement, the Director of
5 National Intelligence submits to the appropriate con-
6 gressional committees a report on such agreement
7 that includes the elements required by subsection
8 (c).

9 (2) DEPARTMENT OF DEFENSE AGREE-
10 MENTS.—Any agreement between the Department of
11 Defense and the Russian Federation regarding cy-
12 bersecurity shall be conducted in accordance with
13 section 1232 of the National Defense Authorization
14 Act for Fiscal Year 2017 (Public Law 114–328), as
15 amended by section 1231 of the National Defense
16 Authorization Act for Fiscal Year 2018 (Public Law
17 115–91).

18 (c) ELEMENTS.—If the Director submits a report
19 under subsection (b) with respect to an agreement, such
20 report shall include a discussion of each of the following:

21 (1) The purpose of the agreement.

22 (2) The nature of any intelligence to be shared
23 pursuant to the agreement.

24 (3) The expected value to national security re-
25 sulting from the implementation of the agreement.

1 (4) Such counterintelligence concerns associated
2 with the agreement as the Director may have and
3 such measures as the Director expects to be taken
4 to mitigate such concerns.

5 (d) **RULE OF CONSTRUCTION.**—This section shall not
6 be construed to affect any existing authority of the Direc-
7 tor of National Intelligence, the Director of the Central
8 Intelligence Agency, or another head of an element of the
9 intelligence community, to share or receive foreign intel-
10 ligence on a case-by-case basis.

11 **SEC. 6702. ASSESSMENT OF THREAT FINANCE RELATING**
12 **TO RUSSIA.**

13 (a) **THREAT FINANCE DEFINED.**—In this section,
14 the term “threat finance” means—

15 (1) the financing of cyber operations, global in-
16 fluence campaigns, intelligence service activities, pro-
17 liferation, terrorism, or transnational crime and
18 drug organizations;

19 (2) the methods and entities used to spend,
20 store, move, raise, conceal, or launder money or
21 value, on behalf of threat actors;

22 (3) sanctions evasion; and

23 (4) other forms of threat finance activity do-
24 mestically or internationally, as defined by the Presi-
25 dent.

1 (b) REPORT REQUIRED.—Not later than 60 days
2 after the date of the enactment of this Act, the Director
3 of National Intelligence, in coordination with the Assistant
4 Secretary of the Treasury for Intelligence and Analysis,
5 shall submit to the congressional intelligence committees,
6 the Committee on Foreign Affairs of the House of Rep-
7 resentatives, and the Committee on Foreign Relations of
8 the Senate a report containing an assessment of Russian
9 threat finance. The assessment shall be based on intel-
10 ligence from all sources, including from the Office of Ter-
11 rorism and Financial Intelligence of the Department of
12 the Treasury.

13 (c) ELEMENTS.—The report required by subsection
14 (b) shall include each of the following:

15 (1) A summary of leading examples from the 3-
16 year period preceding the date of the submittal of
17 the report of threat finance activities conducted by,
18 for the benefit of, or at the behest of—

19 (A) officials of the Government of Russia;

20 (B) persons subject to sanctions under any
21 provision of law imposing sanctions with respect
22 to Russia;

23 (C) Russian nationals subject to sanctions
24 under any other provision of law; or

1 (D) Russian oligarchs or organized crimi-
2 nals.

3 (2) An assessment with respect to any trends or
4 patterns in threat finance activities relating to Rus-
5 sia, including common methods of conducting such
6 activities and global nodes of money laundering used
7 by Russian threat actors described in paragraph (1)
8 and associated entities.

9 (3) An assessment of any connections between
10 Russian individuals involved in money laundering
11 and the Government of Russia.

12 (4) A summary of engagement and coordination
13 with international partners on threat finance relat-
14 ing to Russia, especially in Europe, including exam-
15 ples of such engagement and coordination.

16 (5) An identification of any resource and collec-
17 tion gaps.

18 (6) An identification of—

19 (A) entry points of money laundering by
20 Russian and associated entities into the United
21 States;

22 (B) any vulnerabilities within the United
23 States legal and financial system, including spe-
24 cific sectors, which have been or could be ex-

1 exploited in connection with Russian threat fi-
2 nance activities; and

3 (C) the counterintelligence threat posed by
4 Russian money laundering and other forms of
5 threat finance, as well as the threat to the
6 United States financial system and United
7 States efforts to enforce sanctions and combat
8 organized crime.

9 (7) Any other matters the Director determines
10 appropriate.

11 (d) FORM OF REPORT.—The report required under
12 subsection (b) may be submitted in classified form.

13 **SEC. 6703. NOTIFICATION OF AN ACTIVE MEASURES CAM-**
14 **PAIGN.**

15 (a) DEFINITIONS.—In this section:

16 (1) APPROPRIATE CONGRESSIONAL COMMIT-
17 TEES.—The term “appropriate congressional com-
18 mittees” means—

19 (A) the congressional intelligence commit-
20 tees;

21 (B) the Committee on Armed Services of
22 the Senate and the Committee on Armed Serv-
23 ices of the House of Representatives; and

1 (C) the Committee on Foreign Relations of
2 the Senate and the Committee on Foreign Af-
3 fairs of the House of Representatives.

4 (2) CONGRESSIONAL LEADERSHIP.—The term
5 “congressional leadership” includes the following:

6 (A) The majority leader of the Senate.

7 (B) The minority leader of the Senate.

8 (C) The Speaker of the House of Rep-
9 resentatives.

10 (D) The minority leader of the House of
11 Representatives.

12 (b) REQUIREMENT FOR NOTIFICATION.—The Direc-
13 tor of National Intelligence, in cooperation with the Direc-
14 tor of the Federal Bureau of Investigation and the head
15 of any other relevant agency, shall notify the congressional
16 leadership and the chairman and vice chairman or ranking
17 member of each of the appropriate congressional commit-
18 tees, and of other relevant committees of jurisdiction, each
19 time the Director of National Intelligence determines
20 there is credible information that a foreign power has, is,
21 or will attempt to employ a covert influence or active
22 measures campaign with regard to the modernization, em-
23 ployment, doctrine, or force posture of the nuclear deter-
24 rent or missile defense.

1 (c) CONTENT OF NOTIFICATION.—Each notification
2 required by subsection (b) shall include information con-
3 cerning actions taken by the United States to expose or
4 halt an attempt referred to in subsection (b).

5 **SEC. 6704. NOTIFICATION OF TRAVEL BY ACCREDITED DIP-**
6 **LOMATIC AND CONSULAR PERSONNEL OF**
7 **THE RUSSIAN FEDERATION IN THE UNITED**
8 **STATES.**

9 In carrying out the advance notification requirements
10 set out in section 502 of the Intelligence Authorization
11 Act for Fiscal Year 2017 (division N of Public Law 115–
12 31; 131 Stat. 825; 22 U.S.C. 254a note), the Secretary
13 of State shall—

14 (1) ensure that the Russian Federation provides
15 notification to the Secretary of State at least 2 busi-
16 ness days in advance of all travel that is subject to
17 such requirements by accredited diplomatic and con-
18 sular personnel of the Russian Federation in the
19 United States, and take necessary action to secure
20 full compliance by Russian personnel and address
21 any noncompliance; and

22 (2) provide notice of travel described in para-
23 graph (1) to the Director of National Intelligence
24 and the Director of the Federal Bureau of Investiga-
25 tion within 1 hour of receiving notice of such travel.

1 **SEC. 6705. REPORT AND ANNUAL BRIEFING ON IRANIAN EX-**
2 **PENDITURES SUPPORTING FOREIGN MILI-**
3 **TARY AND TERRORIST ACTIVITIES.**

4 (a) REPORT.—

5 (1) REPORT REQUIRED.—Not later than 90
6 days after the date of the enactment of this Act, the
7 Director of National Intelligence shall submit to the
8 congressional intelligence committees a report, and
9 not less frequently than once each year thereafter
10 provide a briefing to Congress, describing Iranian
11 expenditures in the previous calendar year on mili-
12 tary and terrorist activities outside the country, in-
13 cluding each of the following:

14 (A) The amount spent in such calendar
15 year on activities by the Islamic Revolutionary
16 Guard Corps, including activities providing sup-
17 port for—

- 18 (i) Hizballah;
19 (ii) Houthi rebels in Yemen;
20 (iii) Hamas;
21 (iv) proxy forces in Iraq and Syria; or
22 (v) any other entity or country the Di-
23 rector determines to be relevant.

24 (B) The amount spent in such calendar
25 year for ballistic missile research and testing or

1 other activities that the Director determines are
2 destabilizing to the Middle East region.

3 (2) FORM.—The report required under sub-
4 section (a) shall be submitted in unclassified form,
5 but may include a classified annex.

6 (b) ANNUAL BRIEFING.—Following the submission
7 of the report under subsection (a), the Director shall an-
8 nually provide a briefing to the congressional intelligence
9 committees on the information described in such sub-
10 section.

11 **SEC. 6706. EXPANSION OF SCOPE OF COMMITTEE TO**
12 **COUNTER ACTIVE MEASURES.**

13 (a) SCOPE OF COMMITTEE TO COUNTER ACTIVE
14 MEASURES.—Section 501 of the Intelligence Authoriza-
15 tion Act for Fiscal Year 2017 (Public Law 115–31; 50
16 U.S.C. 3001 note) is amended—

17 (1) in subsections (a) through (h)—

18 (A) by inserting “, the People’s Republic of
19 China, the Islamic Republic of Iran, the Demo-
20 cratic People’s Republic of Korea, or other na-
21 tion state” after “Russian Federation” each
22 place it appears; and

23 (B) by inserting “, China, Iran, North
24 Korea, or other nation state” after “Russia”
25 each place it appears; and

1 (2) in the section heading, by inserting “, **THE**
2 **PEOPLE’S REPUBLIC OF CHINA, THE ISLAMIC**
3 **REPUBLIC OF IRAN, THE DEMOCRATIC PEOP-**
4 **PLE’S REPUBLIC OF KOREA, OR OTHER NA-**
5 **TION STATE”** after “**RUSSIAN FEDERATION”**’.

6 (b) **CLERICAL AMENDMENT.**—The table of contents
7 in section 1(b) of such Act is amended by striking the
8 item relating to section 501 and inserting the following
9 new item:

“Sec. 501. Committee to counter active measures by the Russian Federation,
the People’s Republic of China, the Islamic Republic of Iran,
the Democratic People’s Republic of Korea, and other nation
states to exert covert influence over peoples and governments.”.

10 **Subtitle B—Reports**

11 **SEC. 6711. TECHNICAL CORRECTION TO INSPECTOR GEN-** 12 **ERAL STUDY.**

13 Section 11001(d) of title 5, United States Code, is
14 amended—

15 (1) in the subsection heading, by striking
16 “**AUDIT**” and inserting “**REVIEW**”;

17 (2) in paragraph (1), by striking “audit” and
18 inserting “review”; and

19 (3) in paragraph (2), by striking “audit” and
20 inserting “review”.

1 **SEC. 6712. REPORTS ON AUTHORITIES OF THE CHIEF IN-**
2 **TELLIGENCE OFFICER OF THE DEPARTMENT**
3 **OF HOMELAND SECURITY.**

4 (a) DEFINITIONS.—In this section:

5 (1) APPROPRIATE COMMITTEES OF CON-
6 GRESS.—The term “appropriate committees of Con-
7 gress” means—

8 (A) the congressional intelligence commit-
9 tees;

10 (B) the Committee on Homeland Security
11 and Governmental Affairs of the Senate; and

12 (C) the Committee on Homeland Security
13 of the House of Representatives.

14 (2) HOMELAND SECURITY INTELLIGENCE EN-
15 TERPRISE.—The term “Homeland Security Intel-
16 ligence Enterprise” has the meaning given such
17 term in Department of Homeland Security Instruc-
18 tion Number 264–01–001, or successor authority.

19 (b) REPORT REQUIRED.—Not later than 120 days
20 after the date of the enactment of this Act, the Secretary
21 of Homeland Security, in consultation with the Under Sec-
22 retary of Homeland Security for Intelligence and Analysis,
23 shall submit to the appropriate committees of Congress
24 a report on the authorities of the Under Secretary.

25 (c) ELEMENTS.—The report required by subsection
26 (b) shall include each of the following:

1 (1) An analysis of whether the Under Secretary
2 has the legal and policy authority necessary to orga-
3 nize and lead the Homeland Security Intelligence
4 Enterprise, with respect to intelligence, and, if not,
5 a description of—

6 (A) the obstacles to exercising the authori-
7 ties of the Chief Intelligence Officer of the De-
8 partment and the Homeland Security Intel-
9 ligence Council, of which the Chief Intelligence
10 Officer is the chair; and

11 (B) the legal and policy changes necessary
12 to effectively coordinate, organize, and lead in-
13 telligence activities of the Department of Home-
14 land Security.

15 (2) A description of the actions that the Sec-
16 retary has taken to address the inability of the
17 Under Secretary to require components of the De-
18 partment, other than the Office of Intelligence and
19 Analysis of the Department to—

20 (A) coordinate intelligence programs; and

21 (B) integrate and standardize intelligence
22 products produced by such other components.

1 **SEC. 6713. REVIEW OF INTELLIGENCE COMMUNITY WHIS-**
2 **TLBLOWER MATTERS.**

3 (a) REVIEW OF WHISTLEBLOWER MATTERS.—The
4 Inspector General of the Intelligence Community, in con-
5 sultation with the inspectors general for the Central Intel-
6 ligence Agency, the National Security Agency, the Na-
7 tional Geospatial-Intelligence Agency, the Defense Intel-
8 ligence Agency, and the National Reconnaissance Office,
9 shall conduct a review of the authorities, policies, inves-
10 tigatory standards, and other practices and procedures re-
11 lating to intelligence community whistleblower matters,
12 with respect to such inspectors general.

13 (b) OBJECTIVE OF REVIEW.—The objective of the re-
14 view required under subsection (a) is to identify any dis-
15 crepancies, inconsistencies, or other issues, which frustrate
16 the timely and effective reporting of intelligence commu-
17 nity whistleblower matters to appropriate inspectors gen-
18 eral and to the congressional intelligence committees, and
19 the fair and expeditious investigation and resolution of
20 such matters.

21 (c) CONDUCT OF REVIEW.—The Inspector General of
22 the Intelligence Community shall take such measures as
23 the Inspector General determines necessary in order to en-
24 sure that the review required by subsection (a) is con-
25 ducted in an independent and objective fashion.

1 (d) REPORT.—Not later than 270 days after the date
2 of the enactment of this Act, the Inspector General of the
3 Intelligence Community shall submit to the congressional
4 intelligence committees a written report containing the re-
5 sults of the review required under subsection (a), along
6 with recommendations to improve the timely and effective
7 reporting of intelligence community whistleblower matters
8 to inspectors general and to the congressional intelligence
9 committees and the fair and expeditious investigation and
10 resolution of such matters.

11 **SEC. 6714. REPORT ON ROLE OF DIRECTOR OF NATIONAL**
12 **INTELLIGENCE WITH RESPECT TO CERTAIN**
13 **FOREIGN INVESTMENTS.**

14 (a) REPORT.—Not later than 180 days after the date
15 of the enactment of this Act, the Director of National In-
16 telligence, in consultation with the heads of the elements
17 of the intelligence community determined appropriate by
18 the Director, shall submit to the congressional intelligence
19 committees a report on the role of the Director in pre-
20 paring analytic materials in connection with the evaluation
21 by the Federal Government of national security risks asso-
22 ciated with potential foreign investments into the United
23 States.

24 (b) ELEMENTS.—The report under subsection (a)
25 shall include—

1 (1) a description of the current process for the
2 provision of the analytic materials described in sub-
3 section (a);

4 (2) an identification of the most significant ben-
5 efits and drawbacks of such process with respect to
6 the role of the Director, including the sufficiency of
7 resources and personnel to prepare such materials;
8 and

9 (3) recommendations to improve such process.

10 **SEC. 6715. REPORT ON SURVEILLANCE BY FOREIGN GOV-**
11 **ERNMENTS AGAINST UNITED STATES TELE-**
12 **COMMUNICATIONS NETWORKS.**

13 (a) APPROPRIATE CONGRESSIONAL COMMITTEES
14 DEFINED.—In this section, the term “appropriate con-
15 gressional committees” means the following:

16 (1) The congressional intelligence committees.

17 (2) The Committee on the Judiciary and the
18 Committee on Homeland Security and Governmental
19 Affairs of the Senate.

20 (3) The Committee on the Judiciary and the
21 Committee on Homeland Security of the House of
22 Representatives.

23 (b) REPORT.—Not later than 180 days after the date
24 of the enactment of this Act, the Director of National In-
25 telligence shall, in coordination with the Director of the

1 Central Intelligence Agency, the Director of the National
2 Security Agency, the Director of the Federal Bureau of
3 Investigation, and the Secretary of Homeland Security,
4 submit to the appropriate congressional committees a re-
5 port describing—

6 (1) any attempts known to the intelligence com-
7 munity by foreign governments to exploit cybersecu-
8 rity vulnerabilities in United States telecommuni-
9 cations networks (including Signaling System No. 7)
10 to target for surveillance United States persons, in-
11 cluding employees of the Federal Government; and

12 (2) any actions, as of the date of the enactment
13 of this Act, taken by the intelligence community to
14 protect agencies and personnel of the United States
15 Government from surveillance conducted by foreign
16 governments.

17 **SEC. 6716. BIENNIAL REPORT ON FOREIGN INVESTMENT**
18 **RISKS.**

19 (a) INTELLIGENCE COMMUNITY INTERAGENCY
20 WORKING GROUP.—

21 (1) REQUIREMENT TO ESTABLISH.—The Direc-
22 tor of National Intelligence shall establish an intel-
23 ligence community interagency working group to
24 prepare the biennial reports required by subsection

25 (b).

1 (2) CHAIRPERSON.—The Director of National
2 Intelligence shall serve as the chairperson of such
3 interagency working group.

4 (3) MEMBERSHIP.—Such interagency working
5 group shall be composed of representatives of each
6 element of the intelligence community that the Di-
7 rector of National Intelligence determines appro-
8 priate.

9 (b) BIENNIAL REPORT ON FOREIGN INVESTMENT
10 RISKS.—

11 (1) REPORT REQUIRED.—Not later than 180
12 days after the date of the enactment of this Act and
13 not less frequently than once every 2 years there-
14 after, the Director of National Intelligence shall sub-
15 mit to the appropriate congressional committees a
16 report on foreign investment risks prepared by the
17 interagency working group established under sub-
18 section (a).

19 (2) ELEMENTS.—Each report required by para-
20 graph (1) shall include identification, analysis, and
21 explanation of the following:

22 (A) Any current or projected major threats
23 to the national security of the United States
24 with respect to foreign investment.

1 (B) Any strategy used by a foreign country
2 that such interagency working group has identi-
3 fied to be a country of special concern to use
4 foreign investment to target the acquisition of
5 critical technologies, critical materials, or crit-
6 ical infrastructure.

7 (C) Any economic espionage efforts di-
8 rected at the United States by a foreign coun-
9 try, particularly such a country of special con-
10 cern.

11 (c) APPROPRIATE CONGRESSIONAL COMMITTEES DE-
12 FINED.—In this section, the term “appropriate congres-
13 sional committees” means—

- 14 (1) the congressional intelligence committees;
15 (2) the Committee on Homeland Security and
16 Governmental Affairs and the Committee on Foreign
17 Relations of the Senate; and
18 (3) the Committee on Homeland Security and
19 the Committee on Foreign Affairs of the House of
20 Representatives.

1 **SEC. 6717. MODIFICATION OF CERTAIN REPORTING RE-**
2 **QUIREMENT ON TRAVEL OF FOREIGN DIP-**
3 **LOMATS.**

4 Section 502(d)(2) of the Intelligence Authorization
5 Act for Fiscal Year 2017 (Public Law 115–31) is amended
6 by striking “the number” and inserting “a best estimate”.

7 **SEC. 6718. SEMIANNUAL REPORTS ON INVESTIGATIONS OF**
8 **UNAUTHORIZED DISCLOSURES OF CLASSI-**
9 **FIED INFORMATION.**

10 (a) IN GENERAL.—Title XI of the National Security
11 Act of 1947 (50 U.S.C. 3231 et seq.) is amended by add-
12 ing at the end the following new section:

13 **“SEC. 1105. SEMIANNUAL REPORTS ON INVESTIGATIONS OF**
14 **UNAUTHORIZED DISCLOSURES OF CLASSI-**
15 **FIED INFORMATION.**

16 “(a) DEFINITIONS.—In this section:

17 “(1) COVERED OFFICIAL.—The term ‘covered
18 official’ means—

19 “(A) the heads of each element of the in-
20 telligence community; and

21 “(B) the inspectors general with oversight
22 responsibility for an element of the intelligence
23 community.

24 “(2) INVESTIGATION.—The term ‘investigation’
25 means any inquiry, whether formal or informal, into

1 the existence of an unauthorized public disclosure of
2 classified information.

3 “(3) UNAUTHORIZED DISCLOSURE OF CLASSI-
4 FIED INFORMATION.—The term ‘unauthorized dis-
5 closure of classified information’ means any unau-
6 thorized disclosure of classified information to any
7 recipient.

8 “(4) UNAUTHORIZED PUBLIC DISCLOSURE OF
9 CLASSIFIED INFORMATION.—The term ‘unauthorized
10 public disclosure of classified information’ means the
11 unauthorized disclosure of classified information to a
12 journalist or media organization.

13 “(b) INTELLIGENCE COMMUNITY REPORTING.—

14 “(1) IN GENERAL.—Not less frequently than
15 once every 6 months, each covered official shall sub-
16 mit to the congressional intelligence committees a
17 report on investigations of unauthorized public dis-
18 closures of classified information.

19 “(2) ELEMENTS.—Each report submitted under
20 paragraph (1) shall include, with respect to the pre-
21 ceding 6-month period, the following:

22 “(A) The number of investigations opened
23 by the covered official regarding an unauthor-
24 ized public disclosure of classified information.

1 “(B) The number of investigations com-
2 pleted by the covered official regarding an un-
3 authorized public disclosure of classified infor-
4 mation.

5 “(C) Of the number of such completed in-
6 vestigations identified under subparagraph (B),
7 the number referred to the Attorney General
8 for criminal investigation.

9 “(c) DEPARTMENT OF JUSTICE REPORTING.—

10 “(1) IN GENERAL.—Not less frequently than
11 once every 6 months, the Assistant Attorney General
12 for National Security of the Department of Justice,
13 in consultation with the Director of the Federal Bu-
14 reau of Investigation, shall submit to the congres-
15 sional intelligence committees, the Committee on the
16 Judiciary of the Senate, and the Committee on the
17 Judiciary of the House of Representatives a report
18 on the status of each referral made to the Depart-
19 ment of Justice from any element of the intelligence
20 community regarding an unauthorized disclosure of
21 classified information made during the most recent
22 365-day period or any referral that has not yet been
23 closed, regardless of the date the referral was made.

1 “(2) CONTENTS.—Each report submitted under
2 paragraph (1) shall include, for each referral covered
3 by the report, at a minimum, the following:

4 “(A) The date the referral was received.

5 “(B) A statement indicating whether the
6 alleged unauthorized disclosure described in the
7 referral was substantiated by the Department
8 of Justice.

9 “(C) A statement indicating the highest
10 level of classification of the information that
11 was revealed in the unauthorized disclosure.

12 “(D) A statement indicating whether an
13 open criminal investigation related to the refer-
14 ral is active.

15 “(E) A statement indicating whether any
16 criminal charges have been filed related to the
17 referral.

18 “(F) A statement indicating whether the
19 Department of Justice has been able to at-
20 tribute the unauthorized disclosure to a par-
21 ticular entity or individual.

22 “(d) FORM OF REPORTS.—Each report submitted
23 under this section shall be submitted in unclassified form,
24 but may have a classified annex.”.

1 (b) CLERICAL AMENDMENT.—The table of contents
2 in the first section of the National Security Act of 1947
3 is amended by inserting after the item relating to section
4 1104 the following new item:

“Sec. 1105. Semiannual reports on investigations of unauthorized disclosures of
classified information.”.

5 **SEC. 6719. CONGRESSIONAL NOTIFICATION OF DESIGNA-**
6 **TION OF COVERED INTELLIGENCE OFFICER**
7 **AS PERSONA NON GRATA.**

8 (a) COVERED INTELLIGENCE OFFICER DEFINED.—
9 In this section, the term “covered intelligence officer”
10 means—

11 (1) a United States intelligence officer serving
12 in a post in a foreign country; or

13 (2) a known or suspected foreign intelligence of-
14 ficer serving in a United States post.

15 (b) REQUIREMENT FOR REPORTS.—Not later than
16 72 hours after a covered intelligence officer is designated
17 as a persona non grata, the Director of National Intel-
18 ligence, in consultation with the Secretary of State, shall
19 submit to the congressional intelligence committees, the
20 Committee on Foreign Relations of the Senate, and the
21 Committee on Foreign Affairs of the House of Representa-
22 tives a notification of that designation. Each such notifica-
23 tion shall include—

24 (1) the date of the designation;

1 (2) the basis for the designation; and

2 (3) a justification for the expulsion.

3 **SEC. 6720. REPORTS ON INTELLIGENCE COMMUNITY PAR-**
4 **TICIPATION IN VULNERABILITIES EQUITIES**
5 **PROCESS OF FEDERAL GOVERNMENT.**

6 (a) DEFINITIONS.—In this section:

7 (1) VULNERABILITIES EQUITIES POLICY AND
8 PROCESS DOCUMENT.—The term “Vulnerabilities
9 Equities Policy and Process document” means the
10 executive branch document entitled “Vulnerabilities
11 Equities Policy and Process” dated November 15,
12 2017.

13 (2) VULNERABILITIES EQUITIES PROCESS.—
14 The term “Vulnerabilities Equities Process” means
15 the interagency review of vulnerabilities, pursuant to
16 the Vulnerabilities Equities Policy and Process docu-
17 ment or any successor document.

18 (3) VULNERABILITY.—The term “vulnerability”
19 means a weakness in an information system or its
20 components (for example, system security proce-
21 dures, hardware design, and internal controls) that
22 could be exploited or could affect confidentiality, in-
23 tegrity, or availability of information.

24 (b) REPORTS ON PROCESS AND CRITERIA UNDER
25 VULNERABILITIES EQUITIES POLICY AND PROCESS.—

1 (1) IN GENERAL.—Not later than 90 days after
2 the date of the enactment of this Act, the Director
3 of National Intelligence shall submit to the congress-
4 sional intelligence committees a written report de-
5 scribing—

6 (A) with respect to each element of the in-
7 telligence community—

8 (i) the title of the official or officials
9 responsible for determining whether, pur-
10 suant to criteria contained in the
11 Vulnerabilities Equities Policy and Process
12 document or any successor document, a
13 vulnerability must be submitted for review
14 under the Vulnerabilities Equities Process;
15 and

16 (ii) the process used by such element
17 to make such determination; and

18 (B) the roles or responsibilities of that ele-
19 ment during a review of a vulnerability sub-
20 mitted to the Vulnerabilities Equities Process.

21 (2) CHANGES TO PROCESS OR CRITERIA.—Not
22 later than 30 days after any significant change is
23 made to the process and criteria used by any ele-
24 ment of the intelligence community for determining
25 whether to submit a vulnerability for review under

1 the Vulnerabilities Equities Process, such element
2 shall submit to the congressional intelligence com-
3 mittees a report describing such change.

4 (3) FORM OF REPORTS.—Each report sub-
5 mitted under this subsection shall be submitted in
6 unclassified form, but may include a classified
7 annex.

8 (c) ANNUAL REPORTS.—

9 (1) IN GENERAL.—Not less frequently than
10 once each calendar year, the Director of National In-
11 telligence shall submit to the congressional intel-
12 ligence committees a classified report containing,
13 with respect to the previous year—

14 (A) the number of vulnerabilities submitted
15 for review under the Vulnerabilities Equities
16 Process;

17 (B) the number of vulnerabilities described
18 in subparagraph (A) disclosed to each vendor
19 responsible for correcting the vulnerability, or
20 to the public, pursuant to the Vulnerabilities
21 Equities Process; and

22 (C) the aggregate number, by category, of
23 the vulnerabilities excluded from review under
24 the Vulnerabilities Equities Process, as de-

1 scribed in paragraph 5.4 of the Vulnerabilities
2 Equities Policy and Process document.

3 (2) UNCLASSIFIED INFORMATION.—Each report
4 submitted under paragraph (1) shall include an un-
5 classified appendix that contains—

6 (A) the aggregate number of vulnerabilities
7 disclosed to vendors or the public pursuant to
8 the Vulnerabilities Equities Process; and

9 (B) the aggregate number of vulnerabilities
10 disclosed to vendors or the public pursuant to
11 the Vulnerabilities Equities Process known to
12 have been patched.

13 (3) NONDUPLICATION.—The Director of Na-
14 tional Intelligence may forgo submission of an an-
15 nual report required under this subsection for a cal-
16 endar year, if the Director notifies the intelligence
17 committees in writing that, with respect to the same
18 calendar year, an annual report required by para-
19 graph 4.3 of the Vulnerabilities Equities Policy and
20 Process document already has been submitted to
21 Congress, and such annual report contains the infor-
22 mation that would otherwise be required to be in-
23 cluded in an annual report under this subsection.

1 **SEC. 6721. INSPECTORS GENERAL REPORTS ON CLASSI-**
2 **FICATION.**

3 (a) **REPORTS REQUIRED.**—Not less than once per
4 year in each of the three fiscal years immediately following
5 the date of the enactment of this Act, each Inspector Gen-
6 eral listed in subsection (b) shall submit to the congres-
7 sional intelligence committees a report that includes, with
8 respect to the department or agency of the Inspector Gen-
9 eral, analyses of the following with respect to the prior
10 fiscal year:

11 (1) The accuracy of the application of classi-
12 fication and handling markers on a representative
13 sample of finished reports, including such reports
14 that are compartmented.

15 (2) Compliance with declassification procedures.

16 (3) The effectiveness of processes for identi-
17 fying topics of public or historical importance that
18 merit prioritization for a declassification review.

19 (b) **INSPECTORS GENERAL LISTED.**—The Inspectors
20 General listed in this subsection are as follows:

21 (1) The Inspector General of the Intelligence
22 Community.

23 (2) The Inspector General of the Central Intel-
24 ligence Agency.

25 (3) The Inspector General of the National Se-
26 curity Agency.

1 (4) The Inspector General of the Defense Intel-
2 ligence Agency.

3 (5) The Inspector General of the National Re-
4 connaissance Office.

5 (6) The Inspector General of the National
6 Geospatial-Intelligence Agency.

7 **SEC. 6722. REPORTS AND BRIEFINGS ON NATIONAL SECU-**
8 **RITY EFFECTS OF GLOBAL WATER INSECU-**
9 **RITY AND EMERGING INFECTIOUS DISEASE**
10 **AND PANDEMICS.**

11 (a) GLOBAL WATER INSECURITY.—

12 (1) REPORT.—

13 (A) IN GENERAL.—Not later than 180
14 days after the date of the enactment of this
15 Act, the Director of National Intelligence shall
16 submit to the congressional intelligence commit-
17 tees, the Committee on Foreign Affairs of the
18 House of Representatives, and the Committee
19 on Foreign Relations of the Senate a report on
20 the implications of water insecurity on the na-
21 tional security interests of the United States,
22 including consideration of social, economic, ag-
23 ricultural, and environmental factors.

24 (B) ASSESSMENT SCOPE AND FOCUS.—

25 The report submitted under subparagraph (A)

1 shall include an assessment of water insecurity
2 described in such subsection with a global
3 scope, but focus on areas of the world—

4 (i) of strategic, economic, or humani-
5 tarian interest to the United States—

6 (I) that are, as of the date of the
7 report, at the greatest risk of insta-
8 bility, conflict, human insecurity, or
9 mass displacement; or

10 (II) where challenges relating to
11 water insecurity are likely to emerge
12 and become significant during the 5-
13 year or the 20-year period beginning
14 on the date of the report; and

15 (ii) where challenges relating to water
16 insecurity are likely to imperil the national
17 security interests of the United States or
18 allies of the United States.

19 (C) CONSULTATION.—In researching the
20 report required by subparagraph (A), the Direc-
21 tor shall consult with—

22 (i) such stakeholders within the intel-
23 ligence community, the Department of De-
24 fense, and the Department of State as the
25 Director considers appropriate; and

1 (ii) such additional Federal agencies
2 and persons in the private sector as the
3 Director considers appropriate.

4 (D) FORM.—The report submitted under
5 subparagraph (A) shall be submitted in unclas-
6 sified form, but may include a classified annex.

7 (2) QUINQUENNIAL BRIEFINGS.—Beginning on
8 the date that is 5 years after the date on which the
9 Director submits the report under paragraph (1),
10 and every 5 years thereafter, the Director shall pro-
11 vide to the committees specified in such paragraph
12 a briefing that updates the matters contained in the
13 report.

14 (b) EMERGING INFECTIOUS DISEASE AND
15 PANDEMICS.—

16 (1) REPORT.—

17 (A) IN GENERAL.—Not later than 120
18 days after the date of the enactment of this
19 Act, the Director of National Intelligence shall
20 submit to the appropriate congressional com-
21 mittees a report on the anticipated geopolitical
22 effects of emerging infectious disease (including
23 deliberate, accidental, and naturally occurring
24 infectious disease threats) and pandemics, and

1 their implications on the national security of
2 the United States.

3 (B) CONTENTS.—The report under sub-
4 paragraph (A) shall include an assessment of—

5 (i) the economic, social, political, and
6 security risks, costs, and impacts of emerg-
7 ing infectious diseases on the United
8 States and the international political and
9 economic system;

10 (ii) the economic, social, political, and
11 security risks, costs, and impacts of a
12 major transnational pandemic on the
13 United States and the international polit-
14 ical and economic system; and

15 (iii) contributing trends and factors to
16 the matters assessed under clauses (i) and
17 (ii).

18 (C) EXAMINATION OF RESPONSE CAPAC-
19 ITY.—In examining the risks, costs, and im-
20 pacts of emerging infectious disease and a pos-
21 sible transnational pandemic under subpara-
22 graph (B), the Director of National Intelligence
23 shall also examine in the report under subpara-
24 graph (A) the response capacity within affected
25 countries and the international system. In con-

1 sidering response capacity, the Director shall
2 include—

3 (i) the ability of affected nations to ef-
4 fectively detect and manage emerging in-
5 fectious diseases and a possible
6 transnational pandemic;

7 (ii) the role and capacity of inter-
8 national organizations and nongovern-
9 mental organizations to respond to emerg-
10 ing infectious disease and a possible pan-
11 demic, and their ability to coordinate with
12 affected and donor nations; and

13 (iii) the effectiveness of current inter-
14 national frameworks, agreements, and
15 health systems to respond to emerging in-
16 fectious diseases and a possible
17 transnational pandemic.

18 (2) **QUINQUENNIAL BRIEFINGS.**—Beginning on
19 the date that is 5 years after the date on which the
20 Director submits the report under paragraph (1),
21 and every 5 years thereafter, the Director shall pro-
22 vide to the congressional intelligence committees a
23 briefing that updates the matters contained in the
24 report.

1 (3) FORM.—The report under paragraph (1)
2 and the briefings under paragraph (2) may be classi-
3 fied.

4 (4) APPROPRIATE CONGRESSIONAL COMMIT-
5 TEES DEFINED.—In this subsection, the term “ap-
6 propriate congressional committees” means—

7 (A) the congressional intelligence commit-
8 tees;

9 (B) the Committee on Foreign Affairs, the
10 Committee on Armed Services, the Committee
11 on Energy and Commerce, and the Committee
12 on Appropriations of the House of Representa-
13 tives; and

14 (C) the Committee on Foreign Relations,
15 the Committee on Armed Services, the Com-
16 mittee on Health, Education, Labor, and Pen-
17 sions, and the Committee on Appropriations of
18 the Senate.

1 **SEC. 6723. ANNUAL REPORT ON MEMORANDA OF UNDER-**
2 **STANDING BETWEEN ELEMENTS OF INTEL-**
3 **LIGENCE COMMUNITY AND OTHER ENTITIES**
4 **OF THE UNITED STATES GOVERNMENT RE-**
5 **GARDING SIGNIFICANT OPERATIONAL AC-**
6 **TIVITIES OR POLICY.**

7 Section 311 of the Intelligence Authorization Act for
8 Fiscal Year 2017 (50 U.S.C. 3313) is amended—

9 (1) by redesignating subsection (b) as sub-
10 section (c); and

11 (2) by striking subsection (a) and inserting the
12 following:

13 “(a) IN GENERAL.—Each year, concurrent with the
14 annual budget request submitted by the President to Con-
15 gress under section 1105 of title 31, United States Code,
16 each head of an element of the intelligence community
17 shall submit to the congressional intelligence committees
18 a report that lists each memorandum of understanding or
19 other agreement regarding significant operational activi-
20 ties or policy entered into during the most recently com-
21 pleted fiscal year between or among such element and any
22 other entity of the United States Government.

23 “(b) PROVISION OF DOCUMENTS.—Each head of an
24 element of an intelligence community who receives a re-
25 quest from the Select Committee on Intelligence of the
26 Senate or the Permanent Select Committee on Intelligence

1 of the House of Representatives for a copy of a memo-
2 randum of understanding or other document listed in a
3 report submitted by the head under subsection (a) shall
4 submit to such committee the requested copy as soon as
5 practicable after receiving such request.”.

6 **SEC. 6724. STUDY ON THE FEASIBILITY OF ENCRYPTING**
7 **UNCLASSIFIED WIRELINE AND WIRELESS**
8 **TELEPHONE CALLS.**

9 (a) **STUDY REQUIRED.**—Not later than 180 days
10 after the date of the enactment of this Act, the Director
11 of National Intelligence shall complete and submit to the
12 congressional intelligence committees a study on the feasi-
13 bility of encrypting unclassified wireline and wireless tele-
14 phone calls between personnel in the intelligence commu-
15 nity.

16 (b) **BRIEFING.**—Not later than 90 days after the date
17 on which the Director submits the study required by sub-
18 section (a), the Director shall provide to the congressional
19 intelligence committees a briefing on the Director’s find-
20 ings with respect to such study.

21 **SEC. 6725. REPORTS ON INTELLIGENCE COMMUNITY LOAN**
22 **REPAYMENT AND RELATED PROGRAMS.**

23 (a) **SENSE OF CONGRESS.**—It is the sense of Con-
24 gress that—

1 (1) there should be established, through the
2 issuing of an Intelligence Community Directive or
3 otherwise, an intelligence-community-wide program
4 for student loan repayment, student loan forgive-
5 ness, financial counseling, and related matters, for
6 employees of the intelligence community;

7 (2) creating such a program would enhance the
8 ability of the elements of the intelligence community
9 to recruit, hire, and retain highly qualified per-
10 sonnel, including with respect to mission-critical and
11 hard-to-fill positions;

12 (3) such a program, including with respect to
13 eligibility requirements, should be designed so as to
14 maximize the ability of the elements of the intel-
15 ligence community to recruit, hire, and retain highly
16 qualified personnel, including with respect to mis-
17 sion-critical and hard-to-fill positions; and

18 (4) to the extent possible, such a program
19 should be uniform throughout the intelligence com-
20 munity and publicly promoted by each element of
21 the intelligence community to both current employ-
22 ees of the element as well as to prospective employ-
23 ees of the element.

24 (b) REPORT ON POTENTIAL INTELLIGENCE COMMU-
25 NITY-WIDE PROGRAM.—

1 (1) IN GENERAL.—Not later than 180 days
2 after the date of the enactment of this Act, the Di-
3 rector of National Intelligence, in cooperation with
4 the heads of the elements of the intelligence commu-
5 nity and the heads of any other appropriate depart-
6 ment or agency of the Federal Government, shall
7 submit to the congressional intelligence committees a
8 report on potentially establishing and carrying out
9 an intelligence-community-wide program for student
10 loan repayment, student loan forgiveness, financial
11 counseling, and related matters, as described in sub-
12 section (a).

13 (2) MATTERS INCLUDED.—The report under
14 paragraph (1) shall include, at a minimum, the fol-
15 lowing:

16 (A) A description of the financial resources
17 that the elements of the intelligence community
18 would require to establish and initially carry
19 out the program specified in paragraph (1).

20 (B) A description of the practical steps to
21 establish and carry out such a program.

22 (C) The identification of any legislative ac-
23 tion the Director determines necessary to estab-
24 lish and carry out such a program.

1 (c) ANNUAL REPORTS ON ESTABLISHED PRO-
2 GRAMS.—

3 (1) COVERED PROGRAMS DEFINED.—In this
4 subsection, the term “covered programs” means any
5 loan repayment program, loan forgiveness program,
6 financial counseling program, or similar program,
7 established pursuant to title X of the National Secu-
8 rity Act of 1947 (50 U.S.C. 3191 et seq.) or any
9 other provision of law that may be administered or
10 used by an element of the intelligence community.

11 (2) ANNUAL REPORTS REQUIRED.—Not less
12 frequently than once each year, the Director of Na-
13 tional Intelligence shall submit to the congressional
14 intelligence committees a report on the covered pro-
15 grams. Each such report shall include, with respect
16 to the period covered by the report, the following:

17 (A) The number of personnel from each
18 element of the intelligence community who used
19 each covered program.

20 (B) The total amount of funds each ele-
21 ment expended for each such program.

22 (C) A description of the efforts made by
23 each element to promote each covered program
24 pursuant to both the personnel of the element

1 of the intelligence community and to prospec-
2 tive personnel.

3 **SEC. 6726. REPEAL OF CERTAIN REPORTING REQUIRE-**
4 **MENTS.**

5 (a) CORRECTING LONG-STANDING MATERIAL WEAK-
6 NESSES.—Section 368 of the Intelligence Authorization
7 Act for Fiscal Year 2010 (Public Law 110–259; 50 U.S.C.
8 3051 note) is hereby repealed.

9 (b) INTERAGENCY THREAT ASSESSMENT AND CO-
10 ORDINATION GROUP.—Section 210D of the Homeland Se-
11 curity Act of 2002 (6 U.S.C. 124k) is amended—

12 (1) by striking subsection (e); and

13 (2) by redesignating subsections (d) through (i)
14 as subsections (c) through (h), respectively; and

15 (3) in subsection (c), as so redesignated—

16 (A) in paragraph (8), by striking “; and”
17 and inserting a period; and

18 (B) by striking paragraph (9).

19 (c) INSPECTOR GENERAL REPORT.—Section 8H of
20 the Inspector General Act of 1978 (5 U.S.C. App.) is
21 amended—

22 (1) by striking subsection (g); and

23 (2) by redesignating subsections (h) and (i) as
24 subsections (g) and (h), respectively.

1 **SEC. 6727. INSPECTOR GENERAL OF THE INTELLIGENCE**
2 **COMMUNITY REPORT ON SENIOR EXECU-**
3 **TIVES OF THE OFFICE OF THE DIRECTOR OF**
4 **NATIONAL INTELLIGENCE.**

5 (a) SENIOR EXECUTIVE SERVICE POSITION DE-
6 FINED.—In this section, the term “Senior Executive Serv-
7 ice position” has the meaning given that term in section
8 3132(a)(2) of title 5, United States Code, and includes
9 any position above the GS–15, step 10, level of the Gen-
10 eral Schedule under section 5332 of such title.

11 (b) REPORT.—Not later than 90 days after the date
12 of the enactment of this Act, the Inspector General of the
13 Intelligence Community shall submit to the congressional
14 intelligence committees a report on the number of Senior
15 Executive Service positions in the Office of the Director
16 of National Intelligence.

17 (c) MATTERS INCLUDED.—The report under sub-
18 section (b) shall include the following:

19 (1) The number of required Senior Executive
20 Service positions for the Office of the Director of
21 National Intelligence.

22 (2) Whether such requirements are reasonably
23 based on the mission of the Office.

24 (3) A discussion of how the number of the Sen-
25 ior Executive Service positions in the Office compare

1 to the number of senior positions at comparable or-
2 ganizations.

3 (d) COOPERATION.—The Director of National Intel-
4 ligence shall provide to the Inspector General of the Intel-
5 ligence Community any information requested by the In-
6 spector General of the Intelligence Community that is nec-
7 essary to carry out this section by not later than 14 cal-
8 endar days after the date on which the Inspector General
9 of the Intelligence Community makes such request.

10 **SEC. 6728. BRIEFING ON FEDERAL BUREAU OF INVESTIGA-**
11 **TION OFFERING PERMANENT RESIDENCE TO**
12 **SOURCES AND COOPERATORS.**

13 Not later than 30 days after the date of the enact-
14 ment of this Act, the Director of the Federal Bureau of
15 Investigation shall provide to the congressional intelligence
16 committees a briefing on the ability of the Federal Bureau
17 of Investigation to offer, as an inducement to assisting the
18 Bureau, permanent residence within the United States to
19 foreign individuals who are sources or cooperators in coun-
20 terintelligence or other national-security-related investiga-
21 tions. The briefing shall address the following:

22 (1) The extent to which the Bureau may make
23 such offers, whether independently or in conjunction
24 with other agencies and departments of the United
25 States Government, including a discussion of the au-

1 thorities provided by section 101(a)(15)(S) of the
2 Immigration and Nationality Act (8 U.S.C.
3 1101(a)(15)(S)), section 7 of the Central Intel-
4 ligence Agency Act (50 U.S.C. 3508), and any other
5 provision of law under which the Bureau may make
6 such offers.

7 (2) An overview of the policies and operational
8 practices of the Bureau with respect to making such
9 offers.

10 (3) The sufficiency of such policies and prac-
11 tices with respect to inducing individuals to cooper-
12 ate with, serve as sources for such investigations, or
13 both.

14 (4) Whether the Director recommends any leg-
15 islative actions to improve such policies and prac-
16 tices, particularly with respect to the counterintel-
17 ligence efforts of the Bureau.

18 **SEC. 6729. INTELLIGENCE ASSESSMENT OF NORTH KOREA**

19 **REVENUE SOURCES.**

20 (a) ASSESSMENT REQUIRED.—Not later than 180
21 days after the date of the enactment of this Act, the Direc-
22 tor of National Intelligence, in coordination with the As-
23 sistant Secretary of State for Intelligence and Research
24 and the Assistant Secretary of the Treasury for Intel-
25 ligence and Analysis, shall produce an intelligence assess-

1 ment of the revenue sources of the North Korean regime.

2 Such assessment shall include revenue from the following

3 sources:

4 (1) Trade in coal, iron, and iron ore.

5 (2) The provision of fishing rights to North Ko-
6 rean territorial waters.

7 (3) Trade in gold, titanium ore, vanadium ore,
8 copper, silver, nickel, zinc, or rare earth minerals,
9 and other stores of value.

10 (4) Trade in textiles.

11 (5) Sales of conventional defense articles and
12 services.

13 (6) Sales of controlled goods, ballistic missiles,
14 and other associated items.

15 (7) Other types of manufacturing for export, as
16 the Director of National Intelligence considers ap-
17 propriate.

18 (8) The exportation of workers from North
19 Korea in a manner intended to generate significant
20 revenue, directly or indirectly, for use by the govern-
21 ment of North Korea.

22 (9) The provision of nonhumanitarian goods
23 (such as food, medicine, and medical devices) and
24 services by other countries.

1 (10) The provision of services, including bank-
2 ing and other support, including by entities located
3 in the Russian Federation, China, and Iran.

4 (11) Online commercial activities of the Govern-
5 ment of North Korea, including online gambling.

6 (12) Criminal activities, including cyber-enabled
7 crime and counterfeit goods.

8 (b) ELEMENTS.—The assessment required under
9 subsection (a) shall include an identification of each of the
10 following:

11 (1) The sources of North Korea's funding.

12 (2) Financial and nonfinancial networks, in-
13 cluding supply chain management, transportation,
14 and facilitation, through which North Korea accesses
15 the United States and international financial sys-
16 tems and repatriates and exports capital, goods, and
17 services; and

18 (3) the global financial institutions, money serv-
19 ices business, and payment systems that assist
20 North Korea with financial transactions.

21 (c) SUBMITTAL TO CONGRESS.—Upon completion of
22 the assessment required under subsection (a), the Director
23 of National Intelligence shall submit to the congressional
24 intelligence committees, the Committee on Foreign Affairs
25 of the House of Representatives, and the Committee on

1 Foreign Relations of the Senate a copy of such assess-
2 ment.

3 **SEC. 6730. REPORT ON POSSIBLE EXPLOITATION OF VIR-**
4 **TUAL CURRENCIES BY TERRORIST ACTORS.**

5 (a) SHORT TITLE.—This section may be cited as the
6 “Stop Terrorist Use of Virtual Currencies Act”.

7 (b) REPORT.—Not later than 1 year after the date
8 of the enactment of this Act, the Director of National In-
9 telligence, in consultation with the Secretary of the Treas-
10 ury and the Under Secretary of Homeland Security for
11 Intelligence and Analysis, shall submit to Congress a re-
12 port on the possible exploitation of virtual currencies by
13 terrorist actors. Such report shall include the following
14 elements:

15 (1) An assessment of the means and methods
16 by which international terrorist organizations and
17 State sponsors of terrorism use virtual currencies.

18 (2) An assessment of the use by terrorist orga-
19 nizations and state sponsors of terrorism of virtual
20 currencies compared to the use by such organiza-
21 tions and states of other forms of financing to sup-
22 port operations, including an assessment of the col-
23 lection posture of the intelligence community on the
24 use of virtual currencies by such organizations and
25 states.

1 (3) A description of any existing legal impedi-
2 ments that inhibit or prevent the intelligence com-
3 munity from collecting information on or helping
4 prevent the use of virtual currencies by international
5 terrorist organizations and state sponsors of ter-
6 rorism and an identification of any gaps in existing
7 law that could be exploited for illicit funding by such
8 organizations and States.

9 (c) FORM OF REPORT.—The report required by sub-
10 section (b) shall be submitted in unclassified form, but
11 may include a classified annex.

12 (d) DISSEMINATION TO STATE AND LOCAL PART-
13 NERS.—Consistent with the protection of classified and
14 confidential unclassified information, the Under Secretary
15 shall share the report required by subsection (b) with
16 State, local, and regional officials who operate within
17 State, local, and regional fusion centers through the De-
18 partment of Homeland Security State, Local, and Re-
19 gional Fusion Center Initiative established in section 210A
20 of the Homeland Security Act of 2002 (6 U.S.C. 124h).

21 **Subtitle C—Other Matters**

22 **SEC. 6741. PUBLIC INTEREST DECLASSIFICATION BOARD.**

23 (a) MEETINGS.—Section 703(e) of the Public Inter-
24 est Declassification Act of 2000 (Public Law 106–567; 50
25 U.S.C. 3161 note) is amended by striking “funds.” and

1 inserting “funds, but shall meet in person not less fre-
2 quently than on a quarterly basis.”.

3 (b) REMOVAL OF SUNSET.—Section 710 of the Pub-
4 lic Interest Declassification Act of 2000 (Public Law 106–
5 567; 50 U.S.C. 3161 note) is amended—

6 (1) by striking subsection (b);

7 (2) in the section heading, by striking “; **SUN-**
8 **SET**”; and

9 (3) by striking “(a) EFFECTIVE DATE.—”.

10 (c) STATUS OF BOARD.—Notwithstanding section
11 710(b) of the Public Interest Declassification Act of 2000
12 (Public Law 106–567; 50 U.S.C. 3161 note) as in effect
13 on the day before the date of the enactment of this Act—

14 (1) the Public Interest Declassification Board
15 shall be deemed to not have terminated for purposes
16 of the appointment of members to the Board;

17 (2) section 703(h) of such Act shall not apply
18 with respect to the period beginning on December
19 31, 2018, and ending on the day before the date of
20 the enactment of this Act; and

21 (3) the length of the terms of the members
22 serving on the Board as of December 30, 2018, shall
23 be calculated by not counting the period specified in
24 paragraph (2).

1 **SEC. 6742. TECHNICAL AND CLERICAL AMENDMENTS TO**
2 **THE NATIONAL SECURITY ACT OF 1947.**

3 (a) TABLE OF CONTENTS.—The table of contents at
4 the beginning of the National Security Act of 1947 (50
5 U.S.C. 3001 et seq.) is amended—

6 (1) by inserting after the item relating to sec-
7 tion 2 the following new item:

“Sec. 3. Definitions.”;

8 (2) by striking the item relating to section 107;

9 (3) by striking the item relating to section
10 113B and inserting the following new item:

“Sec. 113B. Special pay authority for science, technology, engineering, or
mathematics positions.”;

11 (4) by striking the items relating to sections
12 202, 203, 204, 208, 209, 210, 211, 212, 213, and
13 214; and

14 (5) by inserting after the item relating to sec-
15 tion 311 the following new item:

“Sec. 312. Repealing and saving provisions.”.

16 (b) OTHER TECHNICAL CORRECTIONS.—Such Act is
17 further amended—

18 (1) in section 102A—

19 (A) in subparagraph (G) of paragraph (1)
20 of subsection (g), by moving the margins of
21 such subparagraph 2 ems to the left; and

1 (B) in paragraph (3) of subsection (v), by
2 moving the margins of such paragraph 2 ems to
3 the left;

4 (2) in section 106—

5 (A) by inserting “Sec. 106.” before “(a)”
6 and conforming the typeface and typestyle ac-
7 cordingly; and

8 (B) in subparagraph (I) of paragraph (2)
9 of subsection (b), by moving the margins of
10 such subparagraph 2 ems to the left;

11 (3) by striking section 107;

12 (4) in section 108(c), by striking “in both a
13 classified and an unclassified form” and inserting
14 “to Congress in classified form, but may include an
15 unclassified summary”;

16 (5) in section 112(c)(1), by striking “section
17 103(c)(7)” and inserting “section 102A(i)”;

18 (6) by amending section 201 to read as follows:

19 **“SEC. 201. DEPARTMENT OF DEFENSE.**

20 “Except to the extent inconsistent with the provisions
21 of this Act or other provisions of law, the provisions of
22 title 5, United States Code, shall be applicable to the De-
23 partment of Defense.”;

24 (7) in section 205, by redesignating subsections
25 (b) and (c) as subsections (a) and (b), respectively;

1 (8) in section 206, by striking “(a)”;

2 (9) in section 207, by striking “(c)”;

3 (10) in section 308(a), by striking “this Act”
4 and inserting “sections 2, 101, 102, 103, and 303
5 of this Act”;

6 (11) by redesignating section 411 as section
7 312;

8 (12) in section 503—

9 (A) in paragraph (5) of subsection (c)—

10 (i) by moving the margins of such
11 paragraph 4 ems to the left; and

12 (ii) by moving the margins of sub-
13 paragraph (B) of such paragraph 2 ems to
14 the left; and

15 (B) in paragraph (2) of subsection (d), by
16 moving the margins of such paragraph 2 ems to
17 the left; and

18 (13) in subparagraph (B) of paragraph (3) of
19 subsection (a) of section 504, by moving the margins
20 of such subparagraph 2 ems to the right.

21 **SEC. 6743. BUG BOUNTY PROGRAMS.**

22 (a) DEFINITIONS.—In this section:

23 (1) APPROPRIATE COMMITTEES OF CON-
24 GRESS.—The term “appropriate committees of Con-
25 gress” means—

1 (A) the congressional intelligence commit-
2 tees;

3 (B) the Committee on Armed Services and
4 the Committee on Homeland Security and Gov-
5 ernmental Affairs of the Senate; and

6 (C) the Committee on Armed Services and
7 the Committee on Homeland Security of the
8 House of Representatives.

9 (2) BUG BOUNTY PROGRAM.—The term “bug
10 bounty program” means a program under which an
11 approved computer security specialist or security re-
12 searcher is temporarily authorized to identify and re-
13 port vulnerabilities within the information system of
14 an agency or department of the United States in ex-
15 change for compensation.

16 (3) INFORMATION SYSTEM.—The term “infor-
17 mation system” has the meaning given that term in
18 section 3502 of title 44, United States Code.

19 (b) BUG BOUNTY PROGRAM PLAN.—

20 (1) REQUIREMENT.—Not later than 180 days
21 after the date of the enactment of this Act, the Sec-
22 retary of Homeland Security, in consultation with
23 the Secretary of Defense, shall submit to appro-
24 priate committees of Congress a strategic plan for

1 appropriate agencies and departments of the United
2 States to implement bug bounty programs.

3 (2) CONTENTS.—The plan required by para-
4 graph (1) shall include—

5 (A) an assessment of—

6 (i) the “Hack the Pentagon” pilot
7 program carried out by the Department of
8 Defense in 2016 and subsequent bug boun-
9 ty programs in identifying and reporting
10 vulnerabilities within the information sys-
11 tems of the Department of Defense; and

12 (ii) private sector bug bounty pro-
13 grams, including such programs imple-
14 mented by leading technology companies in
15 the United States; and

16 (B) recommendations on the feasibility of
17 initiating bug bounty programs at appropriate
18 agencies and departments of the United States.

19 **SEC. 6744. TECHNICAL AMENDMENTS RELATED TO THE DE-**
20 **PARTMENT OF ENERGY.**

21 (a) NATIONAL NUCLEAR SECURITY ADMINISTRATION
22 ACT.—Section 3233(b) of the National Nuclear Security
23 Administration Act (50 U.S.C. 2423(b)) is amended—

24 (1) by striking “Administration” and inserting
25 “Department”; and

1 (2) by inserting “Intelligence and” after “the
2 Office of”.

3 (b) ATOMIC ENERGY DEFENSE ACT.—Section
4 4524(b)(2) of the Atomic Energy Defense Act (50 U.S.C.
5 2674(b)(2)) is amended by inserting “Intelligence and”
6 after “The Director of”.

7 (c) NATIONAL SECURITY ACT OF 1947.—Paragraph
8 (2) of section 106(b) of the National Security Act of 1947
9 (50 U.S.C. 3041(b)(2)) is amended—

10 (1) in subparagraph (E), by inserting “and
11 Counterintelligence” after “Office of Intelligence”;

12 (2) by striking subparagraph (F); and

13 (3) by redesignating subparagraphs (G), (H),
14 and (I) as subparagraphs (F), (G), and (H), respec-
15 tively.

16 **SEC. 6745. SENSE OF CONGRESS ON NOTIFICATION OF CER-**
17 **TAIN DISCLOSURES OF CLASSIFIED INFOR-**
18 **MATION.**

19 (a) DEFINITIONS.—In this section:

20 (1) ADVERSARY FOREIGN GOVERNMENT.—The
21 term “adversary foreign government” means the
22 government of any of the following foreign countries:

23 (A) North Korea.

24 (B) Iran.

25 (C) China.

1 (D) Russia.

2 (E) Cuba.

3 (2) COVERED CLASSIFIED INFORMATION.—The
4 term “covered classified information” means classi-
5 fied information that was—

6 (A) collected by an element of the intel-
7 ligence community; or

8 (B) provided by the intelligence service or
9 military of a foreign country to an element of
10 the intelligence community.

11 (3) ESTABLISHED INTELLIGENCE CHANNELS.—
12 The term “established intelligence channels” means
13 methods to exchange intelligence to coordinate for-
14 eign intelligence relationships, as established pursu-
15 ant to law by the Director of National Intelligence,
16 the Director of the Central Intelligence Agency, the
17 Director of the National Security Agency, or other
18 head of an element of the intelligence community.

19 (4) INDIVIDUAL IN THE EXECUTIVE BRANCH.—
20 The term “individual in the executive branch”
21 means any officer or employee of the executive
22 branch, including individuals—

23 (A) occupying a position specified in article
24 II of the Constitution;

1 (B) appointed to a position by an indi-
2 vidual described in subparagraph (A); or

3 (C) serving in the civil service or the Sen-
4 ior Executive Service (or similar service for sen-
5 ior executives of particular departments or
6 agencies).

7 (b) FINDINGS.—Congress finds that section 502 of
8 the National Security Act of 1947 (50 U.S.C. 3092) re-
9 quires elements of the intelligence community to keep the
10 congressional intelligence committees “fully and currently
11 informed” about all “intelligence activities” of the United
12 States, and to “furnish to the congressional intelligence
13 committees any information or material concerning intel-
14 ligence activities * * * which is requested by either of the
15 congressional intelligence committees in order to carry out
16 its authorized responsibilities.”.

17 (c) SENSE OF CONGRESS.—It is the sense of Con-
18 gress that—

19 (1) section 502 of the National Security Act of
20 1947 (50 U.S.C. 3092), together with other intel-
21 ligence community authorities, obligates an element
22 of the intelligence community to submit to the con-
23 gressional intelligence committees written notifica-
24 tion, by not later than 7 days after becoming aware,
25 that an individual in the executive branch has dis-

1 closed covered classified information to an official of
2 an adversary foreign government using methods
3 other than established intelligence channels; and

4 (2) each such notification should include—

5 (A) the date and place of the disclosure of
6 classified information covered by the notifica-
7 tion;

8 (B) a description of such classified infor-
9 mation;

10 (C) identification of the individual who
11 made such disclosure and the individual to
12 whom such disclosure was made; and

13 (D) a summary of the circumstances of
14 such disclosure.

15 **SEC. 6746. SENSE OF CONGRESS ON CONSIDERATION OF**
16 **ESPIONAGE ACTIVITIES WHEN CONSIDERING**
17 **WHETHER OR NOT TO PROVIDE VISAS TO**
18 **FOREIGN INDIVIDUALS TO BE ACCREDITED**
19 **TO A UNITED NATIONS MISSION IN THE**
20 **UNITED STATES.**

21 It is the sense of the Congress that the Secretary of
22 State, in considering whether or not to provide a visa to
23 a foreign individual to be accredited to a United Nations
24 mission in the United States, should consider—

1 (1) known and suspected intelligence activities,
2 espionage activities, including activities constituting
3 precursors to espionage, carried out by the indi-
4 vidual against the United States, foreign allies of the
5 United States, or foreign partners of the United
6 States; and

7 (2) the status of an individual as a known or
8 suspected intelligence officer for a foreign adversary.

9 **SEC. 6747. SENSE OF CONGRESS ON WIKILEAKS.**

10 It is the sense of Congress that WikiLeaks and the
11 senior leadership of WikiLeaks resemble a nonstate hostile
12 intelligence service often abetted by state actors and
13 should be treated as such a service by the United States.

14 **DIVISION F—OTHER MATTERS**
15 **TITLE LXXI—SANCTIONS WITH**
16 **RESPECT TO NORTH KOREA**

Sec. 7101. Short title.

Subtitle A—Sanctions With Respect to North Korea

Sec. 7111. Sense of Congress.

Sec. 7112. Definitions.

PART I—EXPANSION OF SANCTIONS AND RELATED MATTERS

Sec. 7121. Sanctions with respect to foreign financial institutions that provide financial services to certain sanctioned persons.

Sec. 7122. Mandatory designations under North Korea Sanctions and Policy Enhancement Act of 2016.

Sec. 7123. Extension of applicability period of proliferation prevention sanctions.

Sec. 7124. Opposition to assistance by the international financial institutions.

Sec. 7125. Support for capacity of the International Monetary Fund to prevent money laundering and financing of terrorism.

Sec. 7126. Report and briefings on compliance, penalties, and technical assistance.

- Sec. 7127. Sense of Congress on identification and blocking of property of North Korean officials.
- Sec. 7128. Modification of report on implementation of United Nations Security Council resolutions by other governments.
- Sec. 7129. Report on use by the Government of North Korea of beneficial ownership rules to access the international financial system.

PART II—CONGRESSIONAL REVIEW AND OVERSIGHT

- Sec. 7131. Notification of termination or suspension of sanctions.
- Sec. 7132. Reports on certain licensing actions.
- Sec. 7133. Report and briefings on financial networks and financial methods of the Government of North Korea.
- Sec. 7134. Report on countries of concern with respect to transshipment, re-exportation, or diversion of certain items to North Korea.

PART III—GENERAL MATTERS

- Sec. 7141. Rulemaking.
- Sec. 7142. Authority to consolidate reports.
- Sec. 7143. Waivers, exemptions, and termination.
- Sec. 7144. Procedures for review of classified and certain other information.
- Sec. 7145. Briefing on resourcing of sanctions programs.
- Sec. 7146. Briefing on proliferation financing.
- Sec. 7147. Exception relating to importation of goods.

Subtitle B—Financial Industry Guidance to Halt Trafficking

- Sec. 7151. Short title.
- Sec. 7152. Sense of Congress.
- Sec. 7153. Coordination of human trafficking issues by the Office of Terrorism and Financial Intelligence.
- Sec. 7154. Strengthening the role of anti-money laundering and other financial tools in combating human trafficking.
- Sec. 7155. Sense of Congress on resources to combat human trafficking.

1 **SEC. 7101. SHORT TITLE.**

2 This title may be cited as the “Otto Warmbier North
3 Korea Nuclear Sanctions and Enforcement Act of 2019”.

4 **Subtitle A—Sanctions With Respect**
5 **to North Korea**

6 **SEC. 7111. SENSE OF CONGRESS.**

7 It is the sense of Congress that—

- 8 (1) the United States is committed to working
- 9 with its allies and partners to halt the nuclear and
- 10 ballistic missile programs of North Korea through a

1 policy of maximum pressure and diplomatic engage-
2 ment;

3 (2) the imposition of sanctions, including those
4 under this title, should not be construed to limit the
5 authority of the President to fully engage in diplo-
6 matic negotiations to further the policy objective de-
7 scribed in paragraph (1);

8 (3) the successful use of sanctions to halt the
9 nuclear and ballistic missile programs of North
10 Korea is part of a broader diplomatic and economic
11 strategy that relies on effective coordination among
12 relevant Federal agencies and officials, as well as
13 with international partners of the United States; and

14 (4) the coordination described in paragraph (3)
15 should include proper vetting of external messaging
16 and communications from all parts of the Executive
17 branch to ensure that those communications are an
18 intentional component of and aligned with the strat-
19 egy of the United States with respect to North
20 Korea.

21 **SEC. 7112. DEFINITIONS.**

22 In this subtitle, the terms “applicable Executive
23 order”, “applicable United Nations Security Council reso-
24 lution”, “appropriate congressional committees”, “Gov-
25 ernment of North Korea”, “North Korea”, “North Ko-

1 rean financial institution”, and “North Korean person”
2 have the meanings given those terms in section 3 of the
3 North Korea Sanctions and Policy Enhancement Act of
4 2016 (22 U.S.C. 9202).

5 **PART I—EXPANSION OF SANCTIONS AND**
6 **RELATED MATTERS**

7 **SEC. 7121. SANCTIONS WITH RESPECT TO FOREIGN FINAN-**
8 **CIAL INSTITUTIONS THAT PROVIDE FINAN-**
9 **CIAL SERVICES TO CERTAIN SANCTIONED**
10 **PERSONS.**

11 (a) IN GENERAL.—Title II of the North Korea Sanc-
12 tions and Policy Enhancement Act of 2016 (22 U.S.C.
13 9221 et seq.) is amended by inserting after section 201A
14 the following:

15 **“SEC. 201B. SANCTIONS WITH RESPECT TO FOREIGN FINAN-**
16 **CIAL INSTITUTIONS THAT PROVIDE FINAN-**
17 **CIAL SERVICES TO CERTAIN SANCTIONED**
18 **PERSONS.**

19 “(a) IN GENERAL.—The Secretary of the Treasury
20 shall impose one or more of the sanctions described in sub-
21 section (b) with respect to a foreign financial institution
22 that the Secretary determines, in consultation with the
23 Secretary of State, knowingly, on or after the date that
24 is 120 days after the date of the enactment of the Otto
25 Warmbier North Korea Nuclear Sanctions and Enforce-

1 ment Act of 2019, provides significant financial services
2 to any person designated for the imposition of sanctions
3 with respect to North Korea under—

4 “(1) subsection (a), (b), or (g) of section 104;

5 “(2) an applicable Executive order; or

6 “(3) an applicable United Nations Security
7 Council resolution.

8 “(b) SANCTIONS DESCRIBED.—The sanctions that
9 may be imposed with respect to a foreign financial institu-
10 tion subject to subsection (a) are the following:

11 “(1) ASSET BLOCKING.—The Secretary may
12 block and prohibit, pursuant to the International
13 Emergency Economic Powers Act (50 U.S.C. 1701
14 et seq.), all transactions in all property and interests
15 in property of the foreign financial institution if
16 such property and interests in property are in the
17 United States, come within the United States, or are
18 or come within the possession or control of a United
19 States person.

20 “(2) RESTRICTIONS ON CORRESPONDENT AND
21 PAYABLE-THROUGH ACCOUNTS.—The Secretary may
22 prohibit, or impose strict conditions on, the opening
23 or maintaining in the United States of a cor-
24 respondent account or a payable-through account by
25 the foreign financial institution.

1 “(c) IMPLEMENTATION; PENALTIES.—

2 “(1) IMPLEMENTATION.—The President may
3 exercise all authorities provided under sections 203
4 and 205 of the International Emergency Economic
5 Powers Act (50 U.S.C. 1702 and 1704) to carry out
6 this section.

7 “(2) PENALTIES.—A person that violates, at-
8 tempts to violate, conspires to violate, or causes a
9 violation of this section or any regulation, license, or
10 order issued to carry out this section shall be subject
11 to the penalties set forth in subsections (b) and (c)
12 of section 206 of the International Emergency Eco-
13 nomic Powers Act (50 U.S.C. 1705) to the same ex-
14 tent as a person that commits an unlawful act de-
15 scribed in subsection (a) of that section.

16 “(d) REGULATIONS.—Not later than 120 days after
17 the date of the enactment of the Otto Warmbier North
18 Korea Nuclear Sanctions and Enforcement Act of 2019,
19 the President shall, as appropriate, prescribe regulations
20 to carry out this section.

21 “(e) EXCEPTION RELATING TO IMPORTATION OF
22 GOODS.—

23 “(1) IN GENERAL.—Notwithstanding section
24 404(b) or any provision of this section, the authori-
25 ties and requirements to impose sanctions under this

1 section shall not include the authority or a require-
2 ment to impose sanctions on the importation of
3 goods.

4 “(2) GOOD DEFINED.—In this subsection, the
5 term ‘good’ means any article, natural or manmade
6 substance, material, supply or manufactured prod-
7 uct, including inspection and test equipment, and ex-
8 cluding technical data.

9 “(f) DEFINITIONS.—In this section:

10 “(1) ACCOUNT; CORRESPONDENT ACCOUNT;
11 PAYABLE-THROUGH ACCOUNT.—The terms ‘ac-
12 count’, ‘correspondent account’, and ‘payable-
13 through account’ have the meanings given those
14 terms in section 5318A of title 31, United States
15 Code.

16 “(2) FOREIGN FINANCIAL INSTITUTION.—The
17 term ‘foreign financial institution’ has the meaning
18 given that term in section 510.309 of title 31, Code
19 of Federal Regulations (or any corresponding similar
20 regulation or ruling).

21 “(3) KNOWINGLY.—The term ‘knowingly’, with
22 respect to conduct, a circumstance, or a result,
23 means that a person has actual knowledge, or should
24 have known, of the conduct, the circumstance, or the
25 result.

1 **“SEC. 201C. PROHIBITION ON TRANSACTIONS WITH CER-**
2 **TAIN SANCTIONED PERSONS BY PERSONS**
3 **OWNED OR CONTROLLED BY UNITED STATES**
4 **FINANCIAL INSTITUTIONS.**

5 “(a) IN GENERAL.—Not later than 180 days after
6 the date of the enactment of the Otto Warmbier North
7 Korea Nuclear Sanctions and Enforcement Act of 2019,
8 the Secretary of the Treasury, in consultation with the
9 Secretary of State, shall prohibit an entity owned or con-
10 trolled by a United States financial institution and estab-
11 lished or maintained outside the United States from know-
12 ingly engaging in any transaction described in subsection
13 (b) directly or indirectly with the Government of North
14 Korea or any person designated for the imposition of sanc-
15 tions with respect to North Korea under—

16 “(1) subsection (a), (b), or (g) of section 104;

17 “(2) an applicable Executive order; or

18 “(3) an applicable United Nations Security
19 Council resolution.

20 “(b) TRANSACTIONS DESCRIBED.—A transaction de-
21 scribed in this subsection is a transaction that would be
22 prohibited by an order or regulation issued pursuant to
23 the International Emergency Economic Powers Act (50
24 U.S.C. 1701 et seq.) if the transaction were engaged in
25 in the United States or by a United States person.

1 “(c) CIVIL PENALTIES.—The civil penalty provided
2 for in section 206(b) of the International Emergency Eco-
3 nomic Powers Act (50 U.S.C. 1705(b)) shall apply to a
4 United States financial institution to the same extent that
5 such penalty applies to a person that commits an unlawful
6 act described in section 206(a) of that Act if an entity
7 owned or controlled by the United States financial institu-
8 tion and established or maintained outside the United
9 States violates, attempts to violate, conspires to violate,
10 or causes a violation of any order or regulation issued to
11 implement subsection (a).

12 “(d) UNITED STATES FINANCIAL INSTITUTION DE-
13 FINED.—In this section, the term ‘United States financial
14 institution’ has the meaning given the term ‘U.S. financial
15 institution’ in section 510.328 of title 31, Code of Federal
16 Regulations (or any corresponding similar regulation or
17 ruling).”.

18 (b) CLERICAL AMENDMENT.—The table of contents
19 for the North Korea Sanctions and Policy Enhancement
20 Act of 2016 is amended by inserting after the item relat-
21 ing to section 201A the following:

“Sec. 201B. Sanctions with respect to foreign financial institutions that provide
financial services to certain sanctioned persons.

“Sec. 201C. Prohibition on transactions with certain sanctioned persons by per-
sons owned or controlled by United States financial institu-
tions.”.

1 **SEC. 7122. MANDATORY DESIGNATIONS UNDER NORTH**
2 **KOREA SANCTIONS AND POLICY ENHANCE-**
3 **MENT ACT OF 2016.**

4 (a) IN GENERAL.—Section 104 of the North Korea
5 Sanctions and Policy Enhancement Act of 2016 (22
6 U.S.C. 9214) is amended—

7 (1) by adding at the end the following:

8 “(g) ADDITIONAL MANDATORY DESIGNATIONS.—

9 “(1) IN GENERAL.—Except as provided in sec-
10 tion 208, the President shall designate under this
11 subsection any person that the President deter-
12 mines—

13 “(A) knowingly, directly or indirectly, en-
14 gages in the importation from or exportation to
15 North Korea of significant quantities of—

16 “(i)(I) coal, textiles, seafood, iron, or
17 iron ore; or

18 “(II) refined petroleum products or
19 crude oil above limits set by the United
20 Nations Security Council and with which
21 the United States concurs; or

22 “(ii) services or technology related to
23 goods specified in clause (i);

24 “(B) knowingly facilitates a significant
25 transfer of funds or property of the Govern-
26 ment of North Korea that materially contrib-

1 utes to any violation of an applicable United
2 Nations Security Council resolution;

3 “(C) knowingly, directly or indirectly, en-
4 gages in, facilitates, or is responsible for the ex-
5 portation of workers from North Korea, or the
6 employment of such workers, in a manner that
7 generates significant revenue, directly or indi-
8 rectly, for use by the Government of North
9 Korea or by the Workers’ Party of Korea;

10 “(D) knowingly, directly or indirectly, sells
11 or transfers a significant number of vessels to
12 North Korea, except as specifically approved by
13 the United Nations Security Council;

14 “(E) knowingly engages in a significant ac-
15 tivity to charter, insure, register, facilitate the
16 registration of, or maintain insurance or a reg-
17 istration for, a vessel owned, controlled, com-
18 manded, or crewed by a North Korean person;
19 or

20 “(F) knowingly contributes to and partici-
21 pates in—

22 “(i) a significant act of bribery of an
23 official of the Government of North Korea
24 or any person acting for or on behalf of
25 that official;

1 “(ii) the misappropriation, theft, or
2 embezzlement of a significant amount of
3 public funds by, or for the benefit of, an
4 official of the Government of North Korea
5 or any person acting for or on behalf of
6 that official; or

7 “(iii) the use of any proceeds of any
8 activity described in subparagraph (A) or
9 (B).”;

10 (2) in subsection (c), by inserting “or (g)” after
11 “subsection (a)”;

12 (3) in subsection (d)—

13 (A) by striking “or” the first place it ap-
14 pears and inserting a comma; and

15 (B) by inserting “, or (g)” after “(b)”;

16 (4) in subsection (e)—

17 (A) by striking “or” the last place it ap-
18 pears and inserting a comma; and

19 (B) by inserting “, or (g)” after “(b)”.

20 (b) CONFORMING AMENDMENTS.—The North Korea
21 Sanctions and Policy Enhancement Act of 2016 is amend-
22 ed—

23 (1) in section 3(4) (22 U.S.C. 9202(4))—

24 (A) by striking “or” the first place it ap-
25 pears and inserting a comma; and

1 (B) by inserting “, or (g)” after “(b)”; and
2 (2) in section 102 (22 U.S.C. 9212)—

3 (A) in subsection (a), by inserting “or (g)”
4 after “section 104(a)” each place it appears;
5 and

6 (B) in subsection (b)(1)—

7 (i) by striking “and” the first place it
8 appears and inserting a comma; and

9 (ii) by inserting “, and (g)” after
10 “(b)”; and

11 (3) in section 204 (22 U.S.C. 9224), by insert-
12 ing “or (g)” after “section 104(a)” each place it ap-
13 pears; and

14 (4) in section 302(b)(3) (22 U.S.C. 9241(b)(3))
15 is amended by striking “section 104(b)(1)(M)” and
16 inserting “section 104(g)(1)(C)”.

17 **SEC. 7123. EXTENSION OF APPLICABILITY PERIOD OF PRO-**
18 **LIFERATION PREVENTION SANCTIONS.**

19 Section 203(b)(2) of the North Korea Sanctions and
20 Policy Enhancement Act of 2016 (22 U.S.C. 9223(b)(2))
21 is amended by striking “2 years” and inserting “5 years”.

1 **SEC. 7124. OPPOSITION TO ASSISTANCE BY THE INTER-**
2 **NATIONAL FINANCIAL INSTITUTIONS.**

3 (a) IN GENERAL.—The Bretton Woods Agreements
4 Act (22 U.S.C. 286 et seq.) is amended by adding at the
5 end the following:

6 **“SEC. 73. OPPOSITION TO ASSISTANCE FOR ANY GOVERN-**
7 **MENT THAT FAILS TO IMPLEMENT SANC-**
8 **TIONS ON NORTH KOREA.**

9 “(a) IN GENERAL.—The Secretary of the Treasury
10 shall instruct the United States Executive Director at each
11 international financial institution (as defined in section
12 1701(c) of the International Financial Institutions Act
13 (22 U.S.C. 262r(c))) that it is the policy of the United
14 States to oppose the provision by that institution of finan-
15 cial assistance to a foreign government, other than assist-
16 ance to support basic human needs, if the President deter-
17 mines that, in the year preceding consideration of approval
18 of such assistance, the government has knowingly failed
19 to adequately enforce sanctions under an applicable
20 United Nations Security Council resolution (as defined in
21 section 3 of the North Korea Sanctions and Policy En-
22 hancement Act of 2016 (22 U.S.C. 9202)).

23 “(b) WAIVER.—The President may waive subsection
24 (a) for up to 180 days at a time with respect to a foreign
25 government if the President—

26 “(1) determines that—

1 “(A) the failure of the foreign government
2 described in subsection (a) is due exclusively to
3 a lack of capacity on the part of the foreign
4 government;

5 “(B) the foreign government is taking ef-
6 fective steps to prevent recurrence of such fail-
7 ure; or

8 “(C) the waiver is in the national security
9 interests of the United States; and

10 “(2) submits to Congress a report on the rea-
11 sons for the determination under paragraph (1).”.

12 (b) **TERMINATION.**—Effective on the date that is 10
13 years after the date of the enactment of this Act, section
14 73 of the Bretton Woods Agreements Act, as added by
15 subsection (a), is repealed.

16 **SEC. 7125. SUPPORT FOR CAPACITY OF THE INTER-**
17 **NATIONAL MONETARY FUND TO PREVENT**
18 **MONEY LAUNDERING AND FINANCING OF**
19 **TERRORISM.**

20 (a) **IN GENERAL.**—Title XVI of the International Fi-
21 nancial Institutions Act (22 U.S.C. 262p et seq.) is
22 amended by adding at the end the following:

1 **“SEC. 1629. SUPPORT FOR CAPACITY OF THE INTER-**
2 **NATIONAL MONETARY FUND TO PREVENT**
3 **MONEY LAUNDERING AND FINANCING OF**
4 **TERRORISM.**

5 “The Secretary of the Treasury shall instruct the
6 United States Executive Director at the International
7 Monetary Fund to use the voice and vote of the United
8 States to support the increased use of the administrative
9 budget of the Fund for technical assistance that strength-
10 ens the capacity of members of the Fund to prevent money
11 laundering and the financing of terrorism.”.

12 (b) **TERMINATION.**—Effective on the date that is 5
13 years after the date of the enactment of this Act, section
14 1629 of the International Financial Institutions Act, as
15 added by subsection (a), is repealed.

16 (c) **NATIONAL ADVISORY COUNCIL REPORT TO CON-**
17 **GRESS.**—The Chairman of the National Advisory Council
18 on International Monetary and Financial Policies shall in-
19 clude in each report required by section 1701 of the Inter-
20 national Financial Institutions Act (22 U.S.C. 262r) after
21 the date of the enactment of this Act and before December
22 31, 2023, a description of—

23 (1) the activities of the International Monetary
24 Fund in the fiscal year covered by the report to pro-
25 vide technical assistance that strengthens the capac-
26 ity of members of the Fund to prevent money laun-

1 dering and the financing of terrorism, and the effec-
2 tiveness of the assistance; and

3 (2) the efficacy of efforts by the United States
4 to support such technical assistance through the use
5 of the Fund's administrative budget, and the level of
6 such support.

7 **SEC. 7126. REPORT AND BRIEFINGS ON COMPLIANCE, PEN-**
8 **ALTIES, AND TECHNICAL ASSISTANCE.**

9 (a) **REPORT REQUIRED.**—Not later than 180 days
10 after the date of the enactment of this Act, the Secretary
11 of the Treasury shall submit to the committees specified
12 in subsection (d) a report that includes—

13 (1) a list of financial institutions that, during
14 the period beginning on the date that is one year be-
15 fore the date of the enactment of this Act and end-
16 ing on the date of the report, knowingly facilitated
17 a significant transaction or transactions or provided
18 significant financial services for—

19 (A) any North Korean person designated
20 under an applicable Executive order;

21 (B) any North Korean person that know-
22 ingly facilitates the transfer of bulk cash or cov-
23 ered goods (as defined under section 1027.100
24 of title 31, Code of Federal Regulations (or any
25 corresponding similar regulation or ruling));

1 (C) any person that knowingly invests in,
2 or participates in a joint venture with, an entity
3 in which the Government of North Korea par-
4 ticipates or an entity that is created or orga-
5 nized under the laws of North Korea;

6 (D) any person that knowingly provides fi-
7 nancial services, including through a subsidiary
8 or joint venture, in North Korea;

9 (E) any person that knowingly provides
10 specialized teaching, training, or information or
11 provides material or technological support to a
12 North Korean person that—

13 (i) may contribute to North Korea's
14 development and proliferation of weapons
15 of mass destruction, including systems de-
16 signed in whole or in part for the delivery
17 of such weapons; or

18 (ii) may contribute to significant ac-
19 tivities undermining cybersecurity; and

20 (2) a description of efforts by the Department
21 of the Treasury during the period described in para-
22 graph (1), through outreach, consultations, technical
23 assistance, or other appropriate activities, to
24 strengthen the capacity of financial institutions and
25 foreign governments to prevent the provision of fi-

1 nancial services benefitting any person subject to
2 sanctions under—

3 (A) this Act or an amendment made by
4 this Act;

5 (B) an applicable Executive order; or

6 (C) an applicable United Nations Security
7 Council resolution.

8 (b) ANNUAL BRIEFINGS.—Not later than one year
9 after the submission of the report required by subsection
10 (a), and annually thereafter until the date that is 5 years
11 after the date of the enactment of this Act, the Secretary
12 of the Treasury shall brief the committees specified in sub-
13 section (d) on the matters covered by the report for the
14 one-year period preceding the briefing.

15 (c) TESTIMONY REQUIRED.—Upon request of either
16 of the committees specified in subsection (d), the Under
17 Secretary of the Treasury for Terrorism and Financial
18 Crimes shall testify to explain the effects of this Act and
19 the amendments made by this Act on North Korea's ac-
20 cess to illicit finance channels.

21 (d) COMMITTEES SPECIFIED.—The committees spec-
22 ified in this subsection are—

23 (1) the Committee on Financial Services of the
24 House of Representatives; and

1 (2) the Committee on Banking, Housing, and
2 Urban Affairs of the Senate.

3 **SEC. 7127. SENSE OF CONGRESS ON IDENTIFICATION AND**
4 **BLOCKING OF PROPERTY OF NORTH KOREAN**
5 **OFFICIALS.**

6 It is the sense of Congress that the President
7 should—

8 (1) encourage international collaboration to
9 counter the money laundering, terrorist financing,
10 and proliferation financing threats emanating from
11 North Korea; and

12 (2) prioritize multilateral efforts to identify and
13 block—

14 (A) any property owned or controlled by a
15 North Korean official; and

16 (B) any significant proceeds of kleptocracy
17 by the Government of North Korea or a North
18 Korean official.

19 **SEC. 7128. MODIFICATION OF REPORT ON IMPLEMENTA-**
20 **TION OF UNITED NATIONS SECURITY COUN-**
21 **CIL RESOLUTIONS BY OTHER GOVERNMENTS.**

22 Section 317 of the Korean Interdiction and Mod-
23 ernization of Sanctions Act (title III of Public Law 115-
24 44; 131 Stat. 950) is amended—

25 (1) in subsection (a)—

1 (A) in the matter preceding paragraph (1),
2 by striking “Not later than 180 days after the
3 date of the enactment of this Act, and annually
4 thereafter for 5 years,” and inserting “Not
5 later than 180 days after the date of the enact-
6 ment of the Otto Warmbier North Korea Nu-
7 clear Sanctions and Enforcement Act of 2019,
8 and annually thereafter for 5 years,”;

9 (B) in paragraph (3), by striking “; or”
10 and inserting a semicolon;

11 (C) by redesignating paragraph (4) as
12 paragraph (8); and

13 (D) by inserting after paragraph (3) the
14 following:

15 “(4) prohibit, in the territories of such coun-
16 tries or by persons subject to the jurisdiction of such
17 governments, the opening of new joint ventures or
18 cooperative entities with North Korean persons or
19 the expansion of existing joint ventures through ad-
20 ditional investments, whether or not for or on behalf
21 of the Government of North Korea, unless such joint
22 ventures or cooperative entities have been approved
23 by the committee of the United Nations Security
24 Council established by United Nations Security
25 Council Resolution 1718 (2006);

1 “(5) prohibit the unauthorized clearing of funds
2 by North Korean financial institutions through fi-
3 nancial institutions subject to the jurisdiction of
4 such governments;

5 “(6) prohibit the unauthorized conduct of com-
6 mercial trade with North Korea that is prohibited
7 under applicable United Nations Security Council
8 resolutions;

9 “(7) prevent the provision of significant finan-
10 cial services to North Korean persons or the transfer
11 of such services to North Korean persons to,
12 through, or from the territories of such countries or
13 by persons subject to the jurisdiction of such govern-
14 ments; or”;

15 (2) by amending subsection (c) to read as fol-
16 lows:

17 “(c) DEFINITIONS.—In this section:

18 “(1) APPROPRIATE CONGRESSIONAL COMMIT-
19 TEES AND LEADERSHIP.—The term ‘appropriate
20 congressional committees and leadership’ means—

21 “(A) the Committee on Foreign Relations,
22 the Committee on Banking, Housing, and
23 Urban Affairs, and the majority and minority
24 leaders of the Senate; and

1 “(B) the Committee on Foreign Affairs,
2 the Committee on Financial Services, the Com-
3 mittee on Ways and Means, and the Speaker,
4 the majority leader, and the minority leader of
5 the House of Representatives.

6 “(2) APPLICABLE UNITED NATIONS SECURITY
7 COUNCIL RESOLUTION; NORTH KOREAN FINANCIAL
8 INSTITUTION; NORTH KOREAN PERSON.—The terms
9 ‘applicable United Nations Security Council resolu-
10 tion’, ‘North Korean financial institution’, and
11 ‘North Korean person’ have the meanings given
12 those terms in section 3 of the North Korea Sanc-
13 tions and Policy Enhancement Act of 2016 (22
14 U.S.C. 9202).”.

15 **SEC. 7129. REPORT ON USE BY THE GOVERNMENT OF**
16 **NORTH KOREA OF BENEFICIAL OWNERSHIP**
17 **RULES TO ACCESS THE INTERNATIONAL FI-**
18 **NANCIAL SYSTEM.**

19 (a) IN GENERAL.—Not later than 180 days after the
20 date of the enactment of this Act, the Secretary of the
21 Treasury, in consultation with the Secretary of State, shall
22 submit to the appropriate congressional committees a re-
23 port setting forth the findings of the Secretary regarding
24 how the Government of North Korea is exploiting the laws
25 of countries other than the United States with respect to

1 the beneficial owner of an entity in order to access the
2 international financial system.

3 (b) ELEMENTS.—The Secretary shall include in the
4 report required under subsection (a) proposals for such
5 legislative and administrative action as the Secretary con-
6 siderers appropriate to combat the abuse by the Government
7 of North Korea of shell companies and other similar enti-
8 ties subject to the jurisdiction of governments other than
9 the United States Government to avoid or evade sanctions.

10 (c) FORM.—The report required by subsection (a)
11 shall be submitted in unclassified form but may include
12 a classified annex.

13 **PART II—CONGRESSIONAL REVIEW AND**
14 **OVERSIGHT**

15 **SEC. 7131. NOTIFICATION OF TERMINATION OR SUSPEN-**
16 **SION OF SANCTIONS.**

17 Before taking any action to terminate or suspend the
18 application of sanctions under this subtitle or an amend-
19 ment made by this subtitle, the President shall notify the
20 appropriate congressional committees of the President's
21 intent to take the action and the reasons for the action.

22 **SEC. 7132. REPORTS ON CERTAIN LICENSING ACTIONS.**

23 (a) REPORT REQUIRED.—

24 (1) IN GENERAL.—Not later than 180 days
25 after the date of the enactment of this Act, and

1 every 180 days thereafter, the President shall sub-
2 mit to the committees specified in paragraph (2) a
3 report on the operation of the system for issuing li-
4 censes for transactions under covered regulatory
5 provisions during the preceding 180-day period that
6 includes—

7 (A) the number and types of such licenses
8 applied for during that period; and

9 (B) the number of such licenses issued
10 during that period and information identifying
11 the person receiving each such license.

12 (2) COMMITTEES SPECIFIED.—The committees
13 specified in this paragraph are the following:

14 (A) The Committee on Financial Services
15 and the Committee on Foreign Affairs of the
16 House of Representatives.

17 (B) The Committee on Banking, Housing,
18 and Urban Affairs and the Committee on For-
19 eign Relations of the Senate.

20 (b) SUBMISSION OF COPIES OF LICENSES ON RE-
21 QUEST.—The Secretary of the Treasury shall expedi-
22 tiously provide a copy of any license identified in a report
23 required by subsection (a)(1) to the Committee on Finan-
24 cial Services of the House of Representatives and the
25 Committee on Banking, Housing, and Urban Affairs of

1 the Senate if an appropriate Member of Congress requests
2 a copy of that license not later than 30 days after submis-
3 sion of the report.

4 (c) FORM.—Each report required by subsection (a),
5 and each copy of a license submitted under subsection (b),
6 shall be submitted in unclassified form but may include
7 a classified annex.

8 (d) DEFINITIONS.—In this section:

9 (1) APPROPRIATE MEMBER OF CONGRESS.—

10 The term “appropriate Member of Congress”
11 means—

12 (A) the chairman or ranking member of
13 the Committee on Financial Services of the
14 House of Representatives; or

15 (B) the chairman or ranking member of
16 the Committee on Banking, Housing, and
17 Urban Affairs of the Senate.

18 (2) COVERED REGULATORY PROVISION.—The
19 term “covered regulatory provision” means any of
20 the following provisions, as in effect on the day be-
21 fore the date of the enactment of this Act and as
22 such provisions relate to North Korea:

23 (A) Part 743, 744, or 746 of title 15, Code
24 of Federal Regulations.

1 (B) Part 510 of title 31, Code of Federal
2 Regulations.

3 (C) Any other provision of title 31, Code of
4 Federal Regulations.

5 **SEC. 7133. REPORT AND BRIEFINGS ON FINANCIAL NET-**
6 **WORKS AND FINANCIAL METHODS OF THE**
7 **GOVERNMENT OF NORTH KOREA.**

8 (a) REPORT REQUIRED.—

9 (1) IN GENERAL.—Not later than 180 days
10 after the date of the enactment of this Act, the
11 President shall submit to the appropriate congres-
12 sional committees a report on sources of external
13 support for the Government of North Korea that in-
14 cludes—

15 (A) a description of the methods used by
16 the Government of North Korea to deal in,
17 transact in, or conceal the ownership, control,
18 or origin of, goods and services exported by
19 North Korea;

20 (B) an assessment of the relationship be-
21 tween the proliferation of weapons of mass de-
22 struction by the Government of North Korea
23 and the financial industry or financial institu-
24 tions;

1 (C) an assessment of the relationship be-
2 tween the acquisition by the Government of
3 North Korea of military expertise, equipment,
4 and technology and the financial industry or fi-
5 nancial institutions;

6 (D) a description of the export by any per-
7 son to the United States of goods, services, or
8 technology that are made with significant
9 amounts of North Korean labor, material, or
10 goods, including minerals, manufacturing, sea-
11 food, overseas labor, or other exports from
12 North Korea;

13 (E) an assessment of the involvement of
14 any person in human trafficking involving citi-
15 zens or nationals of North Korea;

16 (F) a description of how the President
17 plans to address the flow of funds generated by
18 activities described in subparagraphs (A)
19 through (E), including through the use of sanc-
20 tions or other means;

21 (G) an assessment of the extent to which
22 the Government of North Korea engages in
23 criminal activities, including money laundering,
24 to support that Government;

1 (H) information relating to the identifica-
2 tion, blocking, and release of property described
3 in section 201B(b)(1) of the North Korea Sanc-
4 tions and Policy Enhancement Act of 2016, as
5 added by section 7121;

6 (I) a description of the metrics used to
7 measure the effectiveness of law enforcement
8 and diplomatic initiatives of Federal, State, and
9 foreign governments to comply with the provi-
10 sions of applicable United Nations Security
11 Council resolutions; and

12 (J) an assessment of the effectiveness of
13 programs within the financial industry to en-
14 sure compliance with United States sanctions,
15 applicable United Nations Security Council res-
16 olutions, and applicable Executive orders.

17 (2) FORM.—The report required by paragraph
18 (1) shall be submitted in unclassified form but may
19 include a classified annex.

20 (b) BRIEFINGS.—Not later than one year after the
21 submission of the report required by subsection (a), and
22 annually thereafter until the date that is 5 years after the
23 date of the enactment of this Act, the President shall brief
24 the appropriate congressional committees on the matters

1 covered by the report for the one-year period preceding
2 the briefing.

3 (c) INTERAGENCY COORDINATION.—The President
4 shall ensure that any information collected pursuant to
5 subsection (a) is shared among the Federal departments
6 and agencies involved in investigations described in section
7 102(b) of the North Korea Sanctions and Policy Enhance-
8 ment Act of 2016 (22 U.S.C. 9212(b)).

9 **SEC. 7134. REPORT ON COUNTRIES OF CONCERN WITH RE-**
10 **SPECT TO TRANSSHIPMENT, REEXPOR-**
11 **TATION, OR DIVERSION OF CERTAIN ITEMS**
12 **TO NORTH KOREA.**

13 (a) IN GENERAL.—Not later than 180 days after the
14 date of the enactment of this Act, and annually thereafter
15 through 2023, the Director of National Intelligence shall
16 submit to the President, the Secretary of Defense, the Sec-
17 retary of Commerce, the Secretary of State, the Secretary
18 of the Treasury, and the appropriate congressional com-
19 mittees a report that identifies all countries that the Di-
20 rector determines are of concern with respect to trans-
21 shipment, reexportation, or diversion of items subject to
22 the provisions of the Export Administration Regulations
23 under subchapter C of chapter VII of title 15, Code of
24 Federal Regulations, to an entity owned or controlled by
25 the Government of North Korea.

1 (b) FORM.—Each report required by subsection (a)
2 shall be submitted in unclassified form but may include
3 a classified annex.

4 **PART III—GENERAL MATTERS**

5 **SEC. 7141. RULEMAKING.**

6 The President shall prescribe such rules and regula-
7 tions as may be necessary to carry out this subtitle and
8 amendments made by this subtitle.

9 **SEC. 7142. AUTHORITY TO CONSOLIDATE REPORTS.**

10 (a) IN GENERAL.—Any and all reports required to
11 be submitted to the appropriate congressional committees
12 under this subtitle or an amendment made by this subtitle
13 that are subject to a deadline for submission consisting
14 of the same unit of time may be consolidated into a single
15 report that is submitted pursuant to that deadline.

16 (b) CONTENTS.—Any reports consolidated under sub-
17 section (a) shall contain all information required under
18 this subtitle or an amendment made by this subtitle and
19 any other elements that may be required by existing law.

20 **SEC. 7143. WAIVERS, EXEMPTIONS, AND TERMINATION.**

21 (a) APPLICATION AND MODIFICATION OF EXEMP-
22 TIONS FROM AND WAIVERS OF NORTH KOREA SANC-
23 TIONS AND POLICY ENHANCEMENT ACT OF 2016.—Sec-
24 tion 208 of the North Korea Sanctions and Policy En-
25 hancement Act of 2016 (22 U.S.C. 9228) is amended by

1 inserting “201B, 201C,” after “201A,” each place it ap-
2 pears.

3 (b) SUSPENSION.—

4 (1) IN GENERAL.—Subject to section 7131, the
5 President may suspend the application of any provi-
6 sion of or amendment made by this subtitle (other
7 than section 7147 of this title or section 201B(e) of
8 the North Korea Sanctions and Policy Enhancement
9 Act of 2016, as added by section 7121 of this title)
10 with respect to an entity, individual, or transaction,
11 for renewable periods of not more than 180 days
12 each if, before such a suspension or renewal of such
13 a suspension takes effect, the President submits to
14 the appropriate congressional committees—

15 (A) a certification that—

16 (i) the Government of North Korea
17 has—

18 (I) committed to the verifiable
19 suspension of North Korea’s prolifera-
20 tion and testing of weapons of mass
21 destruction, including systems de-
22 signed in whole or in part for the de-
23 livery of such weapons; and

24 (II) has agreed to multilateral
25 talks including the Government of the

1 United States, with the goal of perma-
2 nently and verifiably limiting North
3 Korea's weapons of mass destruction
4 and ballistic missile programs; or

5 (ii) the suspension is vital to the na-
6 tional security interests of the United
7 States; and

8 (B) if the President submits a certification
9 under subparagraph (A)(ii), an explanation of
10 the reasons the suspension is vital to the na-
11 tional security interests of the United States.

12 (2) CONFORMING AMENDMENT.—Section
13 401(a) of the North Korea Sanctions and Policy En-
14 hancement Act of 2016 (22 U.S.C. 9251(a)) is
15 amended by inserting “(other than section 104(g),
16 201B, or 201C)” after “such titles”).

17 (c) TERMINATION.—Subject to section 7131, any re-
18 quirement to impose sanctions under this subtitle or the
19 amendments made by this subtitle, and any sanctions im-
20 posed pursuant to this subtitle or any such amendment,
21 shall terminate on the date on which the President makes
22 the certification described in section 402 of the North
23 Korea Sanctions and Policy Enhancement Act of 2016 (22
24 U.S.C. 9252).

1 **SEC. 7144. PROCEDURES FOR REVIEW OF CLASSIFIED AND**
2 **CERTAIN OTHER INFORMATION.**

3 (a) **IN GENERAL.**—If a finding under this subtitle or
4 an amendment made by this subtitle, a prohibition, condi-
5 tion, or penalty imposed as a result of any such finding,
6 or a penalty imposed under this subtitle or an amendment
7 made by this subtitle, is based on classified information
8 (as defined in section 1(a) of the Classified Information
9 Procedures Act (18 U.S.C. App.)), law enforcement infor-
10 mation, or any other information protected from disclo-
11 sure by statute, and a court reviews the finding or the
12 imposition of the prohibition, condition, or penalty, the
13 Secretary of the Treasury may submit such information
14 to the court *ex parte* and *in camera*.

15 (b) **RULE OF CONSTRUCTION.**—Nothing in this sec-
16 tion shall be construed to confer or imply any right to judi-
17 cial review of any finding under this subtitle or an amend-
18 ment made by this subtitle, any prohibition, condition, or
19 penalty imposed as a result of any such finding, or any
20 penalty imposed under this subtitle or an amendment
21 made by this subtitle.

22 **SEC. 7145. BRIEFING ON RESOURCING OF SANCTIONS PRO-**
23 **GRAMS.**

24 Not later than 30 days after the date of the enact-
25 ment of this Act, the Secretary of the Treasury shall pro-

1 vide to the appropriate congressional committees a brief-
2 ing on—

3 (1) the resources allocated by the Department
4 of the Treasury to support each sanctions program
5 administered by the Department; and

6 (2) recommendations for additional authorities
7 or resources necessary to expand the capacity or ca-
8 pability of the Department related to implementation
9 and enforcement of such programs.

10 **SEC. 7146. BRIEFING ON PROLIFERATION FINANCING.**

11 (a) IN GENERAL.—Not later than 60 days after the
12 date of the enactment of this Act, the Secretary of the
13 Treasury, in consultation with the Secretary of State, shall
14 provide to the appropriate congressional committees a
15 briefing on addressing proliferation finance.

16 (b) ELEMENTS.—The briefing required by subsection
17 (a) shall include the following:

18 (1) The Department of the Treasury’s descrip-
19 tion of the principles underlying appropriate meth-
20 ods for combating the financing of the proliferation
21 of weapons of mass destruction.

22 (2) An assessment of—

23 (A) Federal financial regulatory agency
24 oversight, including by the Financial Crimes
25 Enforcement Network, of United States finan-

1 cial institutions and the adoption by their for-
2 eign subsidiaries, branches, and correspondent
3 institutions of the principles described under
4 paragraph (1); and

5 (B) whether financial institutions in for-
6 eign jurisdictions known by the United States
7 intelligence and law enforcement communities
8 to be jurisdictions through which North Korea
9 moves substantial sums of licit and illicit fi-
10 nance are applying a risk-based approach to
11 proliferation financing, and if that approach is
12 comparable to the approach required by United
13 States financial institution supervisors.

14 (3) A survey of the technical assistance the Of-
15 fice of Technical Assistance of the Department of
16 the Treasury and other appropriate Executive
17 branch offices currently provide foreign governments
18 on implementing counter-proliferation financing best
19 practices.

20 (4) An assessment of the ability of foreign sub-
21 sidiaries, branches, and correspondent institutions of
22 United States financial institutions to implement a
23 risk-based approach to proliferation financing.

1 **SEC. 7147. EXCEPTION RELATING TO IMPORTATION OF**
2 **GOODS.**

3 (a) **IN GENERAL.**—The authorities and requirements
4 to impose sanctions authorized under this subtitle or any
5 amendment made by this subtitle shall not include the au-
6 thority or requirement to impose sanctions on the importa-
7 tion of goods.

8 (b) **GOOD DEFINED.**—In this section, the term
9 “good” means any article, natural or manmade substance,
10 material, supply or manufactured product, including in-
11 spection and test equipment, and excluding technical data.

12 **Subtitle B—Financial Industry**
13 **Guidance to Halt Trafficking**

14 **SEC. 7151. SHORT TITLE.**

15 This subtitle may be cited as the “Financial Industry
16 Guidance to Halt Trafficking Act” or the “FIGHT Act”.

17 **SEC. 7152. SENSE OF CONGRESS.**

18 It is the sense of Congress that—

19 (1) the President should aggressively apply, as
20 appropriate, existing sanctions for human trafficking
21 authorized under section 111 of the Trafficking Vic-
22 tims Protection Act of 2000 (22 U.S.C. 7108);

23 (2) the Financial Crimes Enforcement Network
24 of the Department of the Treasury should con-
25 tinue—

1 (A) to monitor reporting required under
2 subchapter II of chapter 53 of title 31, United
3 States Code (commonly known as the “Bank
4 Secrecy Act”) and to update advisories, as war-
5 ranted;

6 (B) to periodically review its advisories to
7 provide covered financial institutions, as appro-
8 priate, with a list of new “red flags” for identi-
9 fying activities of concern, particularly human
10 trafficking;

11 (C) to encourage entities covered by the
12 advisories described in subparagraph (B) to in-
13 corporate relevant elements provided in the
14 advisories into their current transaction and ac-
15 count monitoring systems or in policies, proce-
16 dures, and training on human trafficking to en-
17 able financial institutions to maintain ongoing
18 efforts to examine transactions and accounts;

19 (D) to use geographic targeting orders, as
20 appropriate, to impose additional reporting and
21 recordkeeping requirements under section
22 5326(a) of title 31, United States Code, to
23 carry out the purposes of, and prevent evasions
24 of, the Bank Secrecy Act; and

1 (E) to utilize the Bank Secrecy Act Advi-
2 sory Group and other relevant entities to iden-
3 tify opportunities for nongovernmental organi-
4 zations to share relevant actionable information
5 on human traffickers' use of the financial sector
6 for nefarious purposes;

7 (3) Federal banking regulators, the Department
8 of the Treasury, relevant law enforcement agencies,
9 and the Human Smuggling and Trafficking Center,
10 in partnership with representatives from the United
11 States financial community, should adopt regular
12 forms of sharing information to disrupt human traf-
13 ficking, including developing protocols and proce-
14 dures to share actionable information between and
15 among covered institutions, law enforcement, and
16 the United States intelligence community;

17 (4) training frontline bank and money service
18 business employees, school teachers, law enforcement
19 officers, foreign service officers, counselors, and the
20 general public is an important factor in identifying
21 trafficking victims;

22 (5) the Department of Homeland Security's
23 Blue Campaign, training by the BEST Employers
24 Alliance, and similar efforts by industry, human
25 rights, and nongovernmental organizations focused

1 on human trafficking provide good examples of cur-
2 rent efforts to educate employees of critical sectors
3 with respect to how to save victims and disrupt traf-
4 ficking networks;

5 (6) the President should intensify diplomatic ef-
6 forts, bilaterally and in appropriate international
7 fora such as the United Nations, to develop and im-
8 plement a coordinated, consistent, multilateral strat-
9 egy for addressing the international financial net-
10 works supporting human trafficking; and

11 (7) in deliberations between the United States
12 Government and any foreign country, including
13 through participation in the Egmont Group of Fi-
14 nancial Intelligence Units, regarding money laun-
15 dering, corruption, and transnational crimes, the
16 United States Government should—

17 (A) encourage cooperation by foreign gov-
18 ernments and relevant international fora in
19 identifying the extent to which the proceeds
20 from human trafficking are being used to facili-
21 tate terrorist financing, corruption, or other il-
22 licit financial crimes;

23 (B) encourage cooperation by foreign gov-
24 ernments and relevant international fora in

1 identifying the nexus between human traf-
2 ficking and money laundering;

3 (C) advance policies that promote the co-
4 operation of foreign governments, through in-
5 formation sharing, training, or other measures,
6 in the enforcement of this subtitle;

7 (D) encourage other countries to assess
8 their human trafficking and money laundering
9 risks in light of updated guidance provided by
10 the Financial Action Task Force in 2018; and

11 (E) encourage the Egmont Group of Fi-
12 nancial Intelligence Units to study the extent to
13 which human trafficking operations are being
14 used for money laundering, terrorist financing,
15 or other illicit financial purposes.

16 **SEC. 7153. COORDINATION OF HUMAN TRAFFICKING**
17 **ISSUES BY THE OFFICE OF TERRORISM AND**
18 **FINANCIAL INTELLIGENCE.**

19 (a) FUNCTIONS.—Section 312(a)(4) of title 31,
20 United States Code, is amended—

21 (1) by redesignating subparagraphs (E), (F),
22 and (G) as subparagraphs (F), (G), and (H), respec-
23 tively; and

24 (2) by inserting after subparagraph (D) the fol-
25 lowing:

1 “(E) combating illicit financing relating to
2 human trafficking;”.

3 (b) INTERAGENCY COORDINATION.—Section 312(a)
4 of such title is amended by adding at the end the fol-
5 lowing:

6 “(8) INTERAGENCY COORDINATION.—The Sec-
7 retary of the Treasury, after consultation with the
8 Undersecretary for Terrorism and Financial Crimes,
9 shall designate an office within the OTFI that shall
10 coordinate efforts to combat the illicit financing of
11 human trafficking with—

12 “(A) other offices of the Department of the
13 Treasury;

14 “(B) other Federal agencies, including—

15 “(i) the Office to Monitor and Combat
16 Trafficking in Persons of the Department
17 of State; and

18 “(ii) the Interagency Task Force to
19 Monitor and Combat Trafficking;

20 “(C) State and local law enforcement agen-
21 cies; and

22 “(D) foreign governments.”.

1 **SEC. 7154. STRENGTHENING THE ROLE OF ANTI-MONEY**
2 **LAUNDERING AND OTHER FINANCIAL TOOLS**
3 **IN COMBATING HUMAN TRAFFICKING.**

4 (a) INTERAGENCY TASK FORCE RECOMMENDATIONS
5 TARGETING MONEY LAUNDERING RELATED TO HUMAN
6 TRAFFICKING.—

7 (1) IN GENERAL.—Not later than 270 days
8 after the date of the enactment of this Act, the
9 Interagency Task Force to Monitor and Combat
10 Trafficking, with the concurrence of the Secretary of
11 State and the Secretary of the Treasury, shall sub-
12 mit to the Committee on Banking, Housing, and
13 Urban Affairs, the Committee on Foreign Relations,
14 and the Committee on the Judiciary of the Senate,
15 the Committee on Financial Services, the Committee
16 on Foreign Affairs, and the Committee on the Judi-
17 ciary of the House of Representatives, and each ap-
18 propriate Federal banking agency—

19 (A) an analysis of anti-money laundering
20 efforts of the United States Government,
21 United States financial institutions, and inter-
22 national financial institutions (as defined in sec-
23 tion 1701(c) of the International Financial In-
24 stitutions Act (22 U.S.C. 262r(c))) related to
25 human trafficking; and

1 (B) appropriate legislative, administrative,
2 and other recommendations to strengthen ef-
3 forts against money laundering related to
4 human trafficking.

5 (2) REQUIRED RECOMMENDATIONS.—The rec-
6 ommendations under paragraph (1) shall include—

7 (A) best practices based on successful anti-
8 human trafficking programs currently in place
9 at domestic and international financial institu-
10 tions that are suitable for broader adoption;

11 (B) feedback from stakeholders, including
12 victims of severe forms of trafficking in per-
13 sons, advocates of persons at risk of becoming
14 victims of severe forms of trafficking in per-
15 sons, the United States Advisory Council on
16 Human Trafficking, civil society organizations,
17 and financial institutions on policy proposals
18 derived from the analysis conducted by the task
19 force referred to in paragraph (1) that would
20 enhance the efforts and programs of financial
21 institutions to detect and deter money laun-
22 dering related to human trafficking, including
23 any recommended changes to internal policies,
24 procedures, and controls related to human traf-
25 ficking;

1 (C) any recommended changes to training
2 programs at financial institutions to better
3 equip employees to deter and detect money
4 laundering related to human trafficking; and

5 (D) any recommended changes to expand
6 human trafficking-related information sharing
7 among financial institutions and between such
8 financial institutions, appropriate law enforce-
9 ment agencies, and appropriate Federal agen-
10 cies.

11 (b) ADDITIONAL REPORTING REQUIREMENT.—Sec-
12 tion 105(d)(7) of the Trafficking Victims Protection Act
13 of 2000 (22 U.S.C. 7103(d)(7)) is amended—

14 (1) in the matter preceding subparagraph (A)—

15 (A) by inserting “the Committee on Finan-
16 cial Services,” after “the Committee on Foreign
17 Affairs”; and

18 (B) by inserting “the Committee on Bank-
19 ing, Housing, and Urban Affairs,” after “the
20 Committee on Foreign Relations,”;

21 (2) in subparagraph (Q)(vii), by striking “;
22 and” and inserting a semicolon;

23 (3) in subparagraph (R), by striking the period
24 at the end and inserting “; and”; and

25 (4) by adding at the end the following:

1 “(S) the efforts of the United States to
2 eliminate money laundering related to human
3 trafficking and the number of investigations,
4 arrests, indictments, and convictions in money
5 laundering cases with a nexus to human traf-
6 ficking.”.

7 (c) REQUIRED REVIEW OF PROCEDURES.—Not later
8 than 180 days after the date of the enactment of this Act,
9 the Federal Financial Institutions Examination Council,
10 in consultation with the Secretary of the Treasury, victims
11 of severe forms of trafficking in persons, advocates of per-
12 sons at risk of becoming victims of severe forms of traf-
13 ficking in persons, the United States Advisory Council on
14 Trafficking, civil society organizations, the private sector,
15 and appropriate law enforcement agencies, shall—

16 (1) review and enhance training and examina-
17 tion procedures to improve the surveillance capabili-
18 ties of anti-money laundering programs and pro-
19 grams countering the financing of terrorism to de-
20 tect human trafficking-related financial transactions;

21 (2) review and enhance procedures for referring
22 potential human trafficking cases to the appropriate
23 law enforcement agency; and

24 (3) determine, as appropriate, whether require-
25 ments for financial institutions and covered financial

1 institutions are sufficient to detect and deter money
2 laundering related to human trafficking.

3 (d) LIMITATIONS.—Nothing in this section shall be
4 construed to—

5 (1) grant rulemaking authority to the Inter-
6 agency Task Force to Monitor and Combat Traf-
7 ficking; or

8 (2) authorize financial institutions to deny serv-
9 ices to or violate the privacy of victims of trafficking,
10 victims of severe forms of trafficking, or individuals
11 not responsible for promoting severe forms of traf-
12 ficking in persons.

13 **SEC. 7155. SENSE OF CONGRESS ON RESOURCES TO COM-**
14 **BAT HUMAN TRAFFICKING.**

15 It is the sense of Congress that—

16 (1) adequate funding should be provided for
17 critical Federal efforts to combat human trafficking;

18 (2) the Department of the Treasury should
19 have the appropriate resources to vigorously inves-
20 tigate human trafficking networks under section 111
21 of the Trafficking Victims Protection Act of 2000
22 (22 U.S.C. 7108) and other relevant statutes and
23 Executive orders;

24 (3) the Department of the Treasury and the
25 Department of Justice should each have the capacity

1 and appropriate resources to support technical as-
2 sistance to develop foreign partners' ability to com-
3 bat human trafficking through strong national anti-
4 money laundering programs and programs coun-
5 tering the financing of terrorism;

6 (4) each United States Attorney's Office should
7 be provided appropriate funding to increase the
8 number of personnel for community education and
9 outreach and investigative support and forensic anal-
10 ysis related to human trafficking; and

11 (5) the Department of State should be provided
12 additional resources, as necessary, to carry out the
13 Survivors of Human Trafficking Empowerment Act
14 (section 115 of Public Law 114–22; 129 Stat. 243).

15 **TITLE LXXII—SANCTIONS WITH**
16 **RESPECT TO FOREIGN TRAF-**
17 **FICKERS OF ILLICIT SYN-**
18 **THETIC OPIOIDS**

Sec. 7201. Short title.

Sec. 7202. Sense of Congress.

Sec. 7203. Definitions.

Subtitle A—Sanctions With Respect to Foreign Opioid Traffickers

Sec. 7211. Identification of foreign opioid traffickers.

Sec. 7212. Imposition of sanctions.

Sec. 7213. Description of sanctions.

Sec. 7214. Waivers.

Sec. 7215. Procedures for judicial review of classified information.

Sec. 7216. Briefings on implementation.

Sec. 7217. Inclusion of additional material in International Narcotics Control
Strategy Report.

Subtitle B—Commission on Combating Synthetic Opioid Trafficking

Sec. 7221. Commission on combating synthetic opioid trafficking.

Subtitle C—Other Matters

Sec. 7231. Director of National Intelligence program on use of intelligence resources in efforts to sanction foreign opioid traffickers.

Sec. 7232. Authorization of appropriations.

Sec. 7233. Regulatory authority.

Sec. 7234. Termination.

Sec. 7235. Exception relating to importation of goods.

1 **SEC. 7201. SHORT TITLE.**

2 This title may be cited as the “Fentanyl Sanctions
3 Act”.

4 **SEC. 7202. SENSE OF CONGRESS.**

5 It is the sense of Congress that—

6 (1) the United States should apply economic
7 and other financial sanctions to foreign traffickers of
8 illicit opioids to protect the national security, foreign
9 policy, and economy of the United States and the
10 health of the people of the United States;

11 (2) it is imperative that the People’s Republic
12 of China follow through on full implementation of
13 the new regulations, adopted May 1, 2019, to treat
14 all fentanyl analogues as controlled substances under
15 the laws of the People’s Republic of China, including
16 by devoting sufficient resources for implementation
17 and strict enforcement of the new regulations; and

18 (3) the effective enforcement of the new regula-
19 tions should result in diminished trafficking of illicit
20 fentanyl originating from the People’s Republic of
21 China into the United States.

1 **SEC. 7203. DEFINITIONS.**

2 In this title:

3 (1) ALIEN; NATIONAL; NATIONAL OF THE
4 UNITED STATES.—The terms “alien”, “national”,
5 and “national of the United States” have the mean-
6 ings given those terms in section 101 of the Immi-
7 gration and Nationality Act (8 U.S.C. 1101).

8 (2) APPROPRIATE CONGRESSIONAL COMMIT-
9 TEES AND LEADERSHIP.—The term “appropriate
10 congressional committees and leadership” means—

11 (A) the Committee on Appropriations, the
12 Committee on Armed Services, the Committee
13 on Banking, Housing, and Urban Affairs, the
14 Committee on Foreign Relations, the Com-
15 mittee on Homeland Security and Govern-
16 mental Affairs, the Committee on the Judiciary,
17 the Select Committee on Intelligence, and the
18 majority leader and the minority leader of the
19 Senate; and

20 (B) the Committee on Appropriations, the
21 Committee on Armed Services, the Committee
22 on Financial Services, the Committee on For-
23 eign Affairs, the Committee on Homeland Secu-
24 rity, the Committee on the Judiciary, the Com-
25 mittee on Oversight and Reform, the Perma-
26 nent Select Committee on Intelligence, and the

1 Speaker and the minority leader of the House
2 of Representatives.

3 (3) CONTROLLED SUBSTANCE; LISTED CHEM-
4 ICAL.—The terms “controlled substance”, “listed
5 chemical”, “narcotic drug”, and “opioid” have the
6 meanings given those terms in section 102 of the
7 Controlled Substances Act (21 U.S.C. 802).

8 (4) ENTITY.—The term “entity” means a part-
9 nership, joint venture, association, corporation, orga-
10 nization, network, group, or subgroup, or any form
11 of business collaboration.

12 (5) FOREIGN OPIOID TRAFFICKER.—The term
13 “foreign opioid trafficker” means any foreign person
14 that the President determines plays a significant
15 role in opioid trafficking.

16 (6) FOREIGN PERSON.—The term “foreign per-
17 son”—

18 (A) means—

19 (i) any citizen or national of a foreign
20 country; or

21 (ii) any entity not organized under the
22 laws of the United States or a jurisdiction
23 within the United States; and

24 (B) does not include the government of a
25 foreign country.

1 (7) KNOWINGLY.—The term “knowingly”, with
2 respect to conduct, a circumstance, or a result,
3 means that a person has actual knowledge, or should
4 have known, of the conduct, the circumstance, or the
5 result.

6 (8) OPIOID TRAFFICKING.—The term “opioid
7 trafficking” means any illicit activity—

8 (A) to produce, manufacture, distribute,
9 sell, or knowingly finance or transport—

10 (i) synthetic opioids, including con-
11 trolled substances that are synthetic
12 opioids and listed chemicals that are syn-
13 thetic opioids; or

14 (ii) active pharmaceutical ingredients
15 or chemicals that are used in the produc-
16 tion of controlled substances that are syn-
17 thetic opioids;

18 (B) to attempt to carry out an activity de-
19 scribed in subparagraph (A); or

20 (C) to assist, abet, conspire, or collude
21 with other persons to carry out such an activity.

22 (9) PERSON.—The term “person” means an in-
23 dividual or entity.

24 (10) UNITED STATES PERSON.—The term
25 “United States person” means—

1 (A) any citizen or national of the United
2 States;

3 (B) any alien lawfully admitted for perma-
4 nent residence in the United States;

5 (C) any entity organized under the laws of
6 the United States or any jurisdiction within the
7 United States (including a foreign branch of
8 such an entity); or

9 (D) any person located in the United
10 States.

11 **Subtitle A—Sanctions With Respect**
12 **to Foreign Opioid Traffickers**

13 **SEC. 7211. IDENTIFICATION OF FOREIGN OPIOID TRAF-**
14 **FICKERS.**

15 (a) PUBLIC REPORT.—

16 (1) IN GENERAL.—The President shall submit
17 to the appropriate congressional committees and
18 leadership, in accordance with subsection (c), a re-
19 port—

20 (A) identifying the foreign persons that the
21 President determines are foreign opioid traf-
22 fickers;

23 (B) detailing progress the President has
24 made in implementing this subtitle; and

1 (C) providing an update on cooperative ef-
2 forts with the governments of Mexico, the Peo-
3 ple's Republic of China, and other countries of
4 concern with respect to combating foreign
5 opioid traffickers.

6 (2) IDENTIFICATION OF ADDITIONAL PER-
7 SONS.—If, at any time after submitting a report re-
8 quired by paragraph (1) and before the submission
9 of the next such report, the President determines
10 that a foreign person not identified in the report is
11 a foreign opioid trafficker, the President shall sub-
12 mit to the appropriate congressional committees and
13 leadership an additional report containing the infor-
14 mation required by paragraph (1) with respect to
15 the foreign person.

16 (3) EXCLUSION.—The President shall not be
17 required to include in a report under paragraph (1)
18 or (2) any persons with respect to which the United
19 States has imposed sanctions before the date of the
20 report under this subtitle or any other provision of
21 law with respect to opioid trafficking.

22 (4) FORM OF REPORT.—

23 (A) IN GENERAL.—Each report required
24 by paragraph (1) or (2) shall be submitted in

1 unclassified form but may include a classified
2 annex.

3 (B) AVAILABILITY TO PUBLIC.—The un-
4 classified portion of a report required by para-
5 graph (1) or (2) shall be made available to the
6 public.

7 (b) CLASSIFIED REPORT.—

8 (1) IN GENERAL.—The President shall submit
9 to the appropriate congressional committees and
10 leadership, in accordance with subsection (c), a re-
11 port, in classified form—

12 (A) describing in detail the status of sanc-
13 tions imposed under this subtitle, including the
14 personnel and resources directed toward the im-
15 position of such sanctions during the preceding
16 fiscal year;

17 (B) providing background information with
18 respect to persons newly identified as foreign
19 opioid traffickers and their illicit activities;

20 (C) describing actions the President in-
21 tends to undertake or has undertaken to imple-
22 ment this subtitle; and

23 (D) providing a strategy for identifying ad-
24 ditional foreign opioid traffickers.

1 (2) EFFECT ON OTHER REPORTING REQUIRE-
2 MENTS.—The report required by paragraph (1) is in
3 addition to, and in no way delimits or restricts, the
4 obligations of the President to keep Congress fully
5 and currently informed pursuant to the provisions of
6 the National Security Act of 1947 (50 U.S.C. 3001
7 et seq.).

8 (c) SUBMISSION OF REPORTS.—Not later than 180
9 days after the date of the enactment of this Act, and annu-
10 ally thereafter until the date that is 5 years after such
11 date of enactment, the President shall submit the reports
12 required by subsections (a) and (b) to the appropriate con-
13 gressional committees and leadership.

14 (d) EXCLUSION OF CERTAIN INFORMATION.—

15 (1) INTELLIGENCE.—Notwithstanding any
16 other provision of this section, a report required by
17 subsection (a) or (b) shall not disclose the identity
18 of any person if the Director of National Intelligence
19 determines that such disclosure could compromise an
20 intelligence operation, activity, source, or method of
21 the United States.

22 (2) LAW ENFORCEMENT.—Notwithstanding any
23 other provision of this section, a report required by
24 subsection (a) or (b) shall not disclose the identity
25 of any person if the Attorney General, in coordina-

1 tion, as appropriate, with the Director of the Fed-
2 eral Bureau of Investigation, the Administrator of
3 the Drug Enforcement Administration, the Secretary
4 of the Treasury, the Secretary of State, and the
5 head of any other appropriate Federal law enforce-
6 ment agency, determines that such disclosure could
7 reasonably be expected—

8 (A) to compromise the identity of a con-
9 fidential source, including a State, local, or for-
10 eign agency or authority or any private institu-
11 tion that furnished information on a confiden-
12 tial basis;

13 (B) to jeopardize the integrity or success
14 of an ongoing criminal investigation or prosecu-
15 tion;

16 (C) to endanger the life or physical safety
17 of any person; or

18 (D) to cause substantial harm to physical
19 property.

20 (3) NOTIFICATION REQUIRED.—If the Director
21 of National Intelligence makes a determination
22 under paragraph (1) or the Attorney General makes
23 a determination under paragraph (2), the Director
24 or the Attorney General, as the case may be, shall
25 notify the appropriate congressional committees and

1 leadership of the determination and the reasons for
2 the determination.

3 (4) **RULE OF CONSTRUCTION.**—Nothing in this
4 section may be construed to authorize or compel the
5 disclosure of information determined by the Presi-
6 dent to be law enforcement information, classified
7 information, national security information, or other
8 information the disclosure of which is prohibited by
9 any other provision of law.

10 (e) **PROVISION OF INFORMATION REQUIRED FOR RE-**
11 **PORTS.**—The Secretary of the Treasury, the Attorney
12 General, the Secretary of Defense, the Secretary of State,
13 the Secretary of Homeland Security, and the Director of
14 National Intelligence shall consult among themselves and
15 provide to the President and the Director of the Office
16 of National Drug Control Policy the appropriate and nec-
17 essary information to enable the President to submit the
18 reports required by subsection (a).

19 **SEC. 7212. IMPOSITION OF SANCTIONS.**

20 The President shall impose five or more of the sanc-
21 tions described in section 7213 with respect to each for-
22 eign person that is an entity, and four or more of such
23 sanctions with respect to each foreign person that is an
24 individual, that—

1 (1) is identified as a foreign opioid trafficker in
2 a report submitted under section 7211(a); or

3 (2) the President determines is owned, con-
4 trolled, directed by, knowingly supplying or sourcing
5 precursors for, or knowingly acting for or on behalf
6 of, such a foreign opioid trafficker.

7 **SEC. 7213. DESCRIPTION OF SANCTIONS.**

8 (a) IN GENERAL.—The sanctions that may be im-
9 posed with respect to a foreign person under section 7212
10 are the following:

11 (1) LOANS FROM UNITED STATES FINANCIAL
12 INSTITUTIONS.—The United States Government
13 may prohibit any United States financial institution
14 from making loans or providing credits to the for-
15 eign person.

16 (2) PROHIBITIONS ON FINANCIAL INSTITU-
17 TIONS.—The following prohibitions may be imposed
18 with respect to a foreign person that is a financial
19 institution:

20 (A) PROHIBITION ON DESIGNATION AS
21 PRIMARY DEALER.—Neither the Board of Gov-
22 ernors of the Federal Reserve System nor the
23 Federal Reserve Bank of New York may des-
24 ignate, or permit the continuation of any prior
25 designation of, the financial institution as a pri-

1 mary dealer in United States Government debt
2 instruments.

3 (B) PROHIBITION ON SERVICE AS A RE-
4 POSITORY OF GOVERNMENT FUNDS.—The fi-
5 nancial institution may not serve as agent of
6 the United States Government or serve as re-
7 pository for United States Government funds.

8 The imposition of either sanction under subpara-
9 graph (A) or (B) shall be treated as one sanction for
10 purposes of section 7212, and the imposition of both
11 such sanctions shall be treated as 2 sanctions for
12 purposes of that section.

13 (3) PROCUREMENT BAN.—The United States
14 Government may not procure, or enter into any con-
15 tract for the procurement of, any goods or services
16 from the foreign person.

17 (4) FOREIGN EXCHANGE.—The President may,
18 pursuant to such regulations as the President may
19 prescribe, prohibit any transactions in foreign ex-
20 change that are subject to the jurisdiction of the
21 United States and in which the foreign person has
22 any interest.

23 (5) BANKING TRANSACTIONS.—The President
24 may, pursuant to such regulations as the President
25 may prescribe, prohibit any transfers of credit or

1 payments between financial institutions or by,
2 through, or to any financial institution, to the extent
3 that such transfers or payments are subject to the
4 jurisdiction of the United States and involve any in-
5 terest of the foreign person.

6 (6) PROPERTY TRANSACTIONS.—The President
7 may, pursuant to such regulations as the President
8 may prescribe, prohibit any person from—

9 (A) acquiring, holding, withholding, using,
10 transferring, withdrawing, or transporting any
11 property that is subject to the jurisdiction of
12 the United States and with respect to which the
13 foreign person has any interest;

14 (B) dealing in or exercising any right,
15 power, or privilege with respect to such prop-
16 erty; or

17 (C) conducting any transaction involving
18 such property.

19 (7) BAN ON INVESTMENT IN EQUITY OR DEBT
20 OF SANCTIONED PERSON.—The President may, pur-
21 suant to such regulations or guidelines as the Presi-
22 dent may prescribe, prohibit any United States per-
23 son from investing in or purchasing significant
24 amounts of equity or debt instruments of the foreign
25 person.

1 (8) EXCLUSION OF CORPORATE OFFICERS.—

2 The President may direct the Secretary of State to
3 deny a visa to, and the Secretary of Homeland Secu-
4 rity to exclude from the United States, any alien
5 that the President determines is a corporate officer
6 or principal of, or a shareholder with a controlling
7 interest in, the foreign person.

8 (9) SANCTIONS ON PRINCIPAL EXECUTIVE OF-

9 FICERS.—The President may impose on the prin-
10 cipal executive officer or officers of the foreign per-
11 son, or on individuals performing similar functions
12 and with similar authorities as such officer or offi-
13 cers, any of the sanctions described in paragraphs
14 (1) through (8) that are applicable.

15 (b) PENALTIES.—A person that violates, attempts to
16 violate, conspires to violate, or causes a violation of any
17 regulation, license, or order issued to carry out subsection
18 (a) shall be subject to the penalties set forth in subsections
19 (b) and (c) of section 206 of the International Emergency
20 Economic Powers Act (50 U.S.C. 1705) to the same ex-
21 tent as a person that commits an unlawful act described
22 in subsection (a) of that section.

23 (c) EXCEPTIONS.—

1 (1) INTELLIGENCE AND LAW ENFORCEMENT
2 ACTIVITIES.—Sanctions under this section shall not
3 apply with respect to—

4 (A) any activity subject to the reporting
5 requirements under title V of the National Se-
6 curity Act of 1947 (50 U.S.C. 3091 et seq.); or

7 (B) any authorized intelligence or law en-
8 forcement activities of the United States.

9 (2) EXCEPTION TO COMPLY WITH UNITED NA-
10 TIONS HEADQUARTERS AGREEMENT.—Sanctions
11 under subsection (a)(8) shall not apply to an alien
12 if admitting the alien into the United States is nec-
13 essary to permit the United States to comply with
14 the Agreement regarding the Headquarters of the
15 United Nations, signed at Lake Success June 26,
16 1947, and entered into force November 21, 1947,
17 between the United Nations and the United States,
18 the Convention on Consular Relations, done at Vi-
19 enna April 24, 1963, and entered into force March
20 19, 1967, or other applicable international obliga-
21 tions.

22 (d) IMPLEMENTATION.—The President may exercise
23 all authorities provided under sections 203 and 205 of the
24 International Emergency Economic Powers Act (50
25 U.S.C. 1702 and 1704) to carry out this section.

1 **SEC. 7214. WAIVERS.**

2 (a) WAIVER FOR STATE-OWNED ENTITIES IN COUN-
3 TRIES THAT COOPERATE IN MULTILATERAL ANTI-TRAF-
4 FICKING EFFORTS.—

5 (1) IN GENERAL.—The President may waive for
6 a period of not more than 12 months the application
7 of sanctions under this subtitle with respect to an
8 entity that is owned or controlled, directly or indi-
9 rectly, by a foreign government or any political sub-
10 division, agency, or instrumentality of a foreign gov-
11 ernment, if, not less than 15 days before the waiver
12 is to take effect, the President certifies to the appro-
13 priate congressional committees and leadership that
14 the foreign government is closely cooperating with
15 the United States in efforts to prevent opioid traf-
16 ficking.

17 (2) CERTIFICATION.—The President may cer-
18 tify under paragraph (1) that a foreign government
19 is closely cooperating with the United States in ef-
20 forts to prevent opioid trafficking if that government
21 is—

22 (A) implementing domestic laws to sched-
23 ule all fentanyl analogues as controlled sub-
24 stances; and

25 (B) doing two or more of the following:

1 (i) Implementing substantial improve-
2 ments in regulations involving the chemical
3 and pharmaceutical production and export
4 of illicit opioids.

5 (ii) Implementing substantial improve-
6 ments in judicial regulations to combat
7 transnational criminal organizations that
8 traffic opioids.

9 (iii) Increasing efforts to prosecute
10 foreign opioid traffickers.

11 (iv) Increasing intelligence sharing
12 and law enforcement cooperation with the
13 United States with respect to opioid traf-
14 ficking.

15 (3) SUBSEQUENT RENEWAL OF WAIVER.—The
16 President may renew a waiver under paragraph (1)
17 for subsequent periods of not more than 12 months
18 each if, not less than 15 days before the renewal is
19 to take effect, the Secretary of State certifies to the
20 appropriate congressional committees and leadership
21 that the government of the country to which the
22 waiver applies has effectively implemented and is ef-
23 fectively enforcing the measures that formed the
24 basis for the certification under paragraph (2).

1 (b) WAIVERS FOR NATIONAL SECURITY AND ACCESS
2 TO PRESCRIPTION MEDICATIONS.—

3 (1) IN GENERAL.—The President may waive
4 the application of sanctions under this subtitle if the
5 President determines that the application of such
6 sanctions would harm—

7 (A) the national security interests of the
8 United States; or

9 (B) subject to paragraph (2), the access of
10 United States persons to prescription medica-
11 tions.

12 (2) MONITORING.—The President shall estab-
13 lish a monitoring program to verify that a person
14 that receives a waiver under paragraph (1)(B) is not
15 trafficking illicit opioids.

16 (3) NOTIFICATION.—Not later than 15 days
17 after making a determination under paragraph (1),
18 the President shall notify the appropriate congres-
19 sional committees and leadership of the determina-
20 tion and the reasons for the determination.

21 (c) HUMANITARIAN WAIVER.—The President may
22 waive, for renewable periods of 180 days, the application
23 of the sanctions under this subtitle if the President cer-
24 tifies to the appropriate congressional committees and

1 leadership that the waiver is necessary for the provision
2 of humanitarian assistance.

3 **SEC. 7215. PROCEDURES FOR JUDICIAL REVIEW OF CLASSI-**
4 **FIED INFORMATION.**

5 (a) IN GENERAL.—If a finding under this subtitle,
6 or a prohibition, condition, or penalty imposed as a result
7 of any such finding, is based on classified information (as
8 defined in section 1(a) of the Classified Information Pro-
9 cedures Act (18 U.S.C. App.)) and a court reviews the
10 finding or the imposition of the prohibition, condition, or
11 penalty, the President may submit such information to the
12 court ex parte and in camera.

13 (b) RULE OF CONSTRUCTION.—Nothing in this sec-
14 tion shall be construed—

15 (1) to confer or imply any right to judicial re-
16 view of any finding under this subtitle, or any prohi-
17 bition, condition, or penalty imposed as a result of
18 any such finding; or

19 (2) to limit or restrict any other practice, proce-
20 dure, right, remedy, or safeguard that—

21 (A) relates to the protection of classified
22 information; and

23 (B) is available to the United States in
24 connection with any type of administrative
25 hearing, litigation, or other proceeding.

1 **SEC. 7216. BRIEFINGS ON IMPLEMENTATION.**

2 Not later than 90 days after the date of the enact-
3 ment of this Act, and every 180 days thereafter until the
4 date that is 5 years after such date of enactment, the
5 President, acting through the Secretary of State and the
6 Director of National Intelligence, in coordination with the
7 Secretary of the Treasury, shall provide to the appropriate
8 congressional committees and leadership a comprehensive
9 briefing on efforts to implement this subtitle.

10 **SEC. 7217. INCLUSION OF ADDITIONAL MATERIAL IN**
11 **INTERNATIONAL NARCOTICS CONTROL**
12 **STRATEGY REPORT.**

13 (a) SENSE OF CONGRESS.—It is the sense of Con-
14 gress that, in order to apply economic and other financial
15 sanctions to foreign traffickers of illicit opioids to protect
16 the national security, foreign policy, and economy of the
17 United States—

18 (1) the President should instruct the Secretary
19 of State to intensify diplomatic efforts, both in ap-
20 propriate international fora such as the United Na-
21 tions, the Group of Seven, the Group of Twenty, and
22 trilaterally and bilaterally with partners of the
23 United States, to combat foreign opioid trafficking,
24 including by working to establish a multilateral
25 sanctions regime with respect to foreign opioid traf-
26 ficking; and

1 (2) the Secretary of State, in consultation with
2 the Secretary of the Treasury, should intensify ef-
3 forts to maintain and strengthen the coalition of
4 countries formed to combat foreign opioid traf-
5 ficking.

6 (b) AMENDMENT TO FOREIGN ASSISTANCE ACT OF
7 1961.—Section 489(a) of the Foreign Assistance Act of
8 1961 (22 U.S.C. 2291(a)) is amended by adding at the
9 end the following:

10 “(9)(A) An assessment conducted by the Sec-
11 retary of State, in consultation with the Secretary of
12 the Treasury and the Director of National Intel-
13 ligence, of the extent to which any diplomatic efforts
14 described in section 7217(a) of the Fentanyl Sanc-
15 tions Act have been successful.

16 “(B) Each assessment required by subpara-
17 graph (A) shall include an identification of—

18 “(i) the countries the governments of
19 which have agreed to undertake measures to
20 apply economic or other financial sanctions to
21 foreign traffickers of illicit opioids and a de-
22 scription of those measures; and

23 “(ii) the countries the governments of
24 which have not agreed to measures described in
25 clause (i), and, with respect to those countries,

1 other measures the Secretary of State rec-
2 ommends that the United States take to apply
3 economic and other financial sanctions to for-
4 eign traffickers of illicit opioids.”.

5 **Subtitle B—Commission on Com-**
6 **bating Synthetic Opioid Traf-**
7 **ficking**

8 **SEC. 7221. COMMISSION ON COMBATING SYNTHETIC**
9 **OPIOID TRAFFICKING.**

10 (a) ESTABLISHMENT.—

11 (1) IN GENERAL.—There is established a com-
12 mission to develop a consensus on a strategic ap-
13 proach to combating the flow of synthetic opioids
14 into the United States.

15 (2) DESIGNATION.—The commission estab-
16 lished under paragraph (1) shall be known as the
17 “Commission on Combating Synthetic Opioid Traf-
18 ficking” (in this section referred to as the “Commis-
19 sion”).

20 (b) MEMBERSHIP.—

21 (1) COMPOSITION.—

22 (A) IN GENERAL.—Subject to subpara-
23 graph (B), the Commission shall be composed
24 of the following members:

1 (i) The Director of the Office of Na-
2 tional Drug Control Policy.

3 (ii) The Administrator of the Drug
4 Enforcement Administration.

5 (iii) The Secretary of Homeland Secu-
6 rity.

7 (iv) The Secretary of Defense.

8 (v) The Secretary of the Treasury.

9 (vi) The Secretary of State.

10 (vii) The Director of National Intel-
11 ligence.

12 (viii) Two members appointed by the
13 majority leader of the Senate, one of whom
14 shall be a Member of the Senate and one
15 of whom shall not be.

16 (ix) Two members appointed by the
17 minority leader of the Senate, one of whom
18 shall be a Member of the Senate and one
19 of whom shall not be.

20 (x) Two members appointed by the
21 Speaker of the House of Representatives,
22 one of whom shall be a Member of the
23 House of Representatives and one of whom
24 shall not be.

1 (xi) Two members appointed by the
2 minority leader of the House of Represent-
3 atives, one of whom shall be a Member of
4 the House of Representatives and one of
5 whom shall not be.

6 (B)(i) The members of the Commission
7 who are not Members of Congress and who are
8 appointed under clauses (viii) through (xi) of
9 subparagraph (A) shall be individuals who are
10 nationally recognized for expertise, knowledge,
11 or experience in—

12 (I) transnational criminal organiza-
13 tions conducting synthetic opioid traf-
14 ficking;

15 (II) the production, manufacturing,
16 distribution, sale, or transportation of syn-
17 thetic opioids; or

18 (III) relations between—

19 (aa) the United States; and

20 (bb) the People's Republic of
21 China, Mexico, or any other country
22 of concern with respect to trafficking
23 in synthetic opioids.

24 (ii) An official who appoints members of
25 the Commission may not appoint an individual

1 as a member of the Commission if the indi-
2 vidual possesses any personal or financial inter-
3 est in the discharge of any of the duties of the
4 Commission.

5 (iii)(I) All members of the Commission de-
6 scribed in clause (i) shall possess an appro-
7 priate security clearance in accordance with ap-
8 plicable provisions of law concerning the han-
9 dling of classified information.

10 (II) For the purpose of facilitating the ac-
11 tivities of the Commission, the Director of Na-
12 tional Intelligence shall expedite to the fullest
13 degree possible the processing of security clear-
14 ances that are necessary for members of the
15 Commission.

16 (2) CO-CHAIRS.—

17 (A) IN GENERAL.—The Commission shall
18 have 2 co-chairs, selected from among the mem-
19 bers of the Commission, one of whom shall be
20 a member of the majority party and one of
21 whom shall be a member of the minority party.

22 (B) SELECTION.—The individuals who
23 serve as the co-chairs of the Commission shall
24 be jointly agreed upon by the President, the
25 majority leader of the Senate, the minority

1 leader of the Senate, the Speaker of the House
2 of Representatives, and the minority leader of
3 the House of Representatives.

4 (c) DUTIES.—The duties of the Commission are as
5 follows:

6 (1) To define the core objectives and priorities
7 of the strategic approach described in subsection
8 (a)(1).

9 (2) To weigh the costs and benefits of various
10 strategic options to combat the flow of synthetic
11 opioids from the People’s Republic of China, Mexico,
12 and other countries of concern with respect to traf-
13 ficking in synthetic opioids.

14 (3) To evaluate whether the options described
15 in paragraph (2) are exclusive or complementary,
16 the best means for executing such options, and how
17 the United States should incorporate and implement
18 such options within the strategic approach described
19 in subsection (a)(1).

20 (4) To review and make determinations on the
21 difficult choices present within such options, among
22 them what norms-based regimes the United States
23 should seek to establish to encourage the effective
24 regulation of dangerous synthetic opioids.

1 (5) To report on efforts by actors in the Peo-
2 ple's Republic of China to subvert United States
3 laws and to supply illicit synthetic opioids to persons
4 in the United States, including up-to-date estimates
5 of the scale of illicit synthetic opioids flows from the
6 People's Republic of China.

7 (6) To report on the deficiencies in the regula-
8 tion of pharmaceutical and chemical production of
9 controlled substances and export controls with re-
10 spect to such substances in the People's Republic of
11 China and other countries that allow opioid traf-
12 fickers to subvert such regulations and controls to
13 traffic illicit opioids into the United States.

14 (7) To report on the scale of contaminated or
15 counterfeit drugs originating from Mexico, the Peo-
16 ple's Republic of China, India, and other countries
17 of concern with respect to the exportation of con-
18 taminated or counterfeit drugs.

19 (8) To report on how the United States could
20 work more effectively with subnational and local offi-
21 cials in the People's Republic of China and other
22 countries to combat the illicit production of synthetic
23 opioids.

24 (9) In weighing the options for defending the
25 United States against the dangers of trafficking in

1 synthetic opioids, to consider possible structures and
2 authorities that need to be established, revised, or
3 augmented within the Federal Government.

4 (d) FUNCTIONING OF COMMISSION.—The provisions
5 of subsections (c), (d), (e), (g), (h), (i), and (m) of section
6 1652 of the John S. McCain National Defense Authoriza-
7 tion Act for Fiscal Year 2019 (Public Law 115–232) shall
8 apply to the Commission to the same extent and in the
9 same manner as such provisions apply to the commission
10 established under that section, except that—

11 (1) subsection (c)(1) of that section shall be ap-
12 plied and administered by substituting “30 days” for
13 “45 days”;

14 (2) subsection (g)(4)(A) of that section shall be
15 applied and administered by inserting “and the At-
16 torney General” after “Secretary of Defense”; and

17 (3) subsections (h)(2)(A) and (i)(1)(A) of that
18 section shall be applied and administered by sub-
19 stituting “level V of the Executive Schedule under
20 section 5316” for “level IV of the Executive Sched-
21 ule under section 5315”.

22 (e) TREATMENT OF INFORMATION PROVIDED TO
23 COMMISSION.—

24 (1) INFORMATION RELATING TO NATIONAL SE-
25 CURITY.—

1 (A) RESPONSIBILITY OF DIRECTOR OF NA-
2 TIONAL INTELLIGENCE.—The Director of Na-
3 tional Intelligence shall assume responsibility
4 for the handling and disposition of any informa-
5 tion related to the national security of the
6 United States that is received, considered, or
7 used by the Commission under this section.

8 (B) ACCESS AFTER TERMINATION OF COM-
9 MISSION.—Notwithstanding any other provision
10 of law, after the termination of the Commission
11 under subsection (h), only the members and
12 designated staff of the appropriate congres-
13 sional committees and leadership, the Director
14 of National Intelligence (and the designees of
15 the Director), and such other officials of the ex-
16 ecutive branch as the President may designate
17 shall have access to information related to the
18 national security of the United States that is
19 received, considered, or used by the Commis-
20 sion.

21 (2) INFORMATION PROVIDED BY CONGRESS.—
22 The Commission may obtain information from any
23 Member, committee, or office of Congress, including
24 information related to the national security of the
25 United States, only with the consent of the Member,

1 committee, or office involved and only in accordance
2 with any applicable rules and procedures of the
3 House of Representatives or Senate (as the case
4 may be) governing the provision of such information
5 by Members, committees, and offices of Congress to
6 entities in the executive branch.

7 (f) REPORTS.—The Commission shall submit to the
8 appropriate congressional committees and leadership—

9 (1) not later than 270 days after the date of
10 the enactment of this Act, an initial report on the
11 activities and recommendations of the Commission
12 under this section; and

13 (2) not later than 270 days after the submis-
14 sion of the initial report under paragraph (1), a final
15 report on the activities and recommendations of the
16 Commission under this section.

17 (g) TERMINATION.—

18 (1) IN GENERAL.—The Commission, and all the
19 authorities of this section, shall terminate at the end
20 of the 120-day period beginning on the date on
21 which the final report required by subsection (f)(2)
22 is submitted to the appropriate congressional com-
23 mittees and leadership.

24 (2) WINDING UP OF AFFAIRS.—The Commis-
25 sion may use the 120-day period described in para-

1 graph (1) for the purposes of concluding its activi-
2 ties, including providing testimony to Congress con-
3 cerning the final report required by subsection (f)(2)
4 and disseminating the report.

5 **Subtitle C—Other Matters**

6 **SEC. 7231. DIRECTOR OF NATIONAL INTELLIGENCE PRO-** 7 **GRAM ON USE OF INTELLIGENCE RE-** 8 **SOURCES IN EFFORTS TO SANCTION FOR-** 9 **EIGN OPIOID TRAFFICKERS.**

10 (a) PROGRAM REQUIRED.—

11 (1) IN GENERAL.—The Director of National In-
12 telligence shall, in consultation with the Director of
13 the Office of National Drug Control Policy, carry
14 out a program to allocate and enhance use of re-
15 sources of the intelligence community, including in-
16 telligence collection and analysis, to assist the Sec-
17 retary of the Treasury, the Secretary of State, and
18 the Administrator of the Drug Enforcement Admin-
19 istration in efforts to identify and impose sanctions
20 with respect to foreign opioid traffickers under sub-
21 title A.

22 (2) FOCUS ON ILLICIT FINANCE.—To the ex-
23 tent practicable, efforts described in paragraph (1)
24 shall—

1 (A) take into account specific illicit finance
2 risks related to narcotics trafficking; and

3 (B) be developed in consultation with the
4 Undersecretary of the Treasury for Terrorism
5 and Financial Crimes, appropriate officials of
6 the Office of Intelligence and Analysis of the
7 Department of the Treasury, the Director of
8 the Financial Crimes Enforcement Network,
9 and appropriate Federal law enforcement agen-
10 cies.

11 (b) REVIEW OF COUNTERNARCOTICS EFFORTS OF
12 THE INTELLIGENCE COMMUNITY.—The Director of Na-
13 tional Intelligence shall, in coordination with the Director
14 of the Office of National Drug Control Policy, carry out
15 a comprehensive review of the current intelligence collec-
16 tion priorities of the intelligence community for counter-
17 narcotics purposes in order to identify whether such prior-
18 ities are appropriate and sufficient in light of the number
19 of lives lost in the United States each year due to use
20 of illegal drugs.

21 (c) REPORTS.—

22 (1) QUARTERLY REPORTS ON PROGRAM.—Not
23 later than 90 days after the date of the enactment
24 of this Act, and every 90 days thereafter, the Direc-
25 tor of National Intelligence and the Director of the

1 Office of National Drug Control Policy shall jointly
2 submit to the appropriate congressional committees
3 and leadership a report on the status and accom-
4 plishments of the program required by subsection
5 (a) during the 90-day period ending on the date of
6 the report. The first report under this paragraph
7 shall also include a description of the amount of
8 funds devoted by the intelligence community to the
9 efforts described in subsection (a) during each of fis-
10 cal years 2017 and 2018.

11 (2) REPORT ON REVIEW.—Not later than 120
12 days after the date of the enactment of this Act, the
13 Director of National Intelligence, in consultation
14 with the Director of the Office of National Drug
15 Control Policy and other relevant agencies, shall
16 submit to the appropriate congressional committees
17 and leadership—

18 (A) a comprehensive description of the re-
19 sults of the review required by subsection (b);
20 and

21 (B) an assessment of whether—

22 (i) the priorities described in that sub-
23 section are appropriate and sufficient in
24 light of the number of lives lost in the

1 United States each year due to use of ille-
2 gal drugs; and

3 (ii) any changes to such priorities are
4 necessary.

5 (d) INTELLIGENCE COMMUNITY DEFINED.—In this
6 section, the term “intelligence community” has the mean-
7 ing given that term in section 3(4) of the National Secu-
8 rity Act of 1947 (50 U.S.C. 3003(4)).

9 **SEC. 7232. AUTHORIZATION OF APPROPRIATIONS.**

10 (a) DEPARTMENT OF THE TREASURY.—There are
11 authorized to be appropriated to the Secretary of the
12 Treasury such sums as may be necessary for fiscal year
13 2020 to carry out operations and activities of the Depart-
14 ment of the Treasury solely for purposes of carrying out
15 this title.

16 (b) COMMISSION ON COMBATING SYNTHETIC OPIOID
17 TRAFFICKING.—Of the amount authorized to be appro-
18 priated by section 1403 for fiscal year 2020 and available
19 for Drug Interdiction and Counter-Drug Activities, De-
20 fense-wide, as specified in the funding table in section
21 4501, the Secretary of Defense may, notwithstanding sec-
22 tion 2215 of title 10, United States Code, transfer
23 \$5,000,000 to the Commission on Combating Synthetic
24 Opioid Trafficking established under section 7221 in order
25 to carry out the duties of the Commission.

1 (c) SUPPLEMENT NOT SUPPLANT.—Amounts au-
2 thORIZED to be appropriated by subsection (a) shall supple-
3 ment and not supplant other amounts available to carry
4 out operations and activities described in such subsections.

5 (d) NOTIFICATION REQUIREMENT.—Amounts au-
6 thORIZED to be appropriated by subsection (a) may not be
7 obligated until 15 days after the date on which the Presi-
8 dent notifies the appropriate committees of Congress of
9 the President’s intention to obligate such funds.

10 (e) APPROPRIATE COMMITTEES OF CONGRESS DE-
11 FINED.—In this section, the term “appropriate commit-
12 tees of Congress” means—

13 (1) the Committee on Armed Services, the
14 Committee on Banking, Housing, and Urban Af-
15 fairs, the Committee on Foreign Relations, the Se-
16 lect Committee on Intelligence, the Committee on
17 the Judiciary, and the Committee on Appropriations
18 of the Senate; and

19 (2) the Committee on Armed Services, the
20 Committee on Financial Services, the Committee on
21 Foreign Affairs, the Permanent Select Committee on
22 Intelligence, the Committee on Oversight and Re-
23 form, and the Committee on Appropriations of the
24 House of Representatives.

1 **SEC. 7233. REGULATORY AUTHORITY.**

2 Not later than 90 days after the date of the enact-
3 ment of this Act, the President shall issue such regulations
4 as are necessary to carry out this title, including guidance
5 with respect to what activities are included under the defi-
6 nition of “opioid trafficking” under section 7203(8).

7 **SEC. 7234. TERMINATION.**

8 The provisions of this title, and any sanctions im-
9 posed pursuant to this title, shall terminate on the date
10 that is 7 years after the date of the enactment of this
11 Act.

12 **SEC. 7235. EXCEPTION RELATING TO IMPORTATION OF**
13 **GOODS.**

14 (a) IN GENERAL.—The authorities and requirements
15 to impose sanctions under this title shall not include the
16 authority or a requirement to impose sanctions on the im-
17 portation of goods.

18 (b) GOOD DEFINED.—In this section, the term
19 “good” means any article, natural or manmade substance,
20 material, supply, or manufactured product, including in-
21 spection and test equipment, and excluding technical data.

22 **TITLE LXXIII—PFAS**

Sec. 7301. Short title.

Sec. 7302. Definition of Administrator.

Subtitle A—Drinking Water

Sec. 7311. Monitoring and detection.

Sec. 7312. Drinking water state revolving funds.

Subtitle B—PFAS Release Disclosure

Sec. 7321. Additions to toxics release inventory.

Subtitle C—USGS Performance Standard

Sec. 7331. Definitions.

Sec. 7332. Performance standard for the detection of highly fluorinated compounds.

Sec. 7333. Nationwide sampling.

Sec. 7334. Data usage.

Sec. 7335. Collaboration.

Subtitle D—Emerging Contaminants

Sec. 7341. Definitions.

Sec. 7342. Research and coordination plan for enhanced response on emerging contaminants.

Subtitle E—Toxic Substances Control Act

Sec. 7351. PFAS data call.

Sec. 7352. Significant new use rule for long-chain PFAS.

Subtitle F—Other Matters

Sec. 7361. PFAS destruction and disposal guidance.

Sec. 7362. PFAS research and development.

1 **SEC. 7301. SHORT TITLE.**

2 This title may be cited as the “PFAS Act of 2019”.

3 **SEC. 7302. DEFINITION OF ADMINISTRATOR.**

4 In this title, the term “Administrator” means the Ad-
5 ministrator of the Environmental Protection Agency.

6 **Subtitle A—Drinking Water**

7 **SEC. 7311. MONITORING AND DETECTION.**

8 (a) MONITORING PROGRAM FOR UNREGULATED
9 CONTAMINANTS.—

10 (1) IN GENERAL.—The Administrator shall in-
11 clude each substance described in paragraph (2) in
12 the fifth publication of the list of unregulated con-
13 taminants to be monitored under section

1 1445(a)(2)(B)(i) of the Safe Drinking Water Act
2 (42 U.S.C. 300j-4(a)(2)(B)(i)).

3 (2) SUBSTANCES DESCRIBED.—The substances
4 referred to in paragraph (1) are perfluoroalkyl and
5 polyfluoroalkyl substances and classes of
6 perfluoroalkyl and polyfluoroalkyl substances—

7 (A) for which a method to measure the
8 level in drinking water has been validated by
9 the Administrator; and

10 (B) that are not subject to a national pri-
11 mary drinking water regulation.

12 (3) EXCEPTION.—The perfluoroalkyl and
13 polyfluoroalkyl substances and classes of
14 perfluoroalkyl and polyfluoroalkyl substances in-
15 cluded in the list of unregulated contaminants to be
16 monitored under section 1445(a)(2)(B)(i) of the
17 Safe Drinking Water Act (42 U.S.C. 300j-
18 4(a)(2)(B)(i)) under paragraph (1) shall not count
19 towards the limit of 30 unregulated contaminants to
20 be monitored by public water systems under that
21 section.

22 (b) APPLICABILITY.—

23 (1) IN GENERAL.—The Administrator shall—

1 (A) require public water systems serving
2 more than 10,000 persons to monitor for the
3 substances described in subsection (a)(2);

4 (B) subject to paragraph (2) and the avail-
5 ability of appropriations, require public water
6 systems serving not fewer than 3,300 and not
7 more than 10,000 persons to monitor for the
8 substances described in subsection (a)(2); and

9 (C) subject to paragraph (2) and the avail-
10 ability of appropriations, ensure that only a
11 representative sample of public water systems
12 serving fewer than 3,300 persons are required
13 to monitor for the substances described in sub-
14 section (a)(2).

15 (2) REQUIREMENT.—If the Administrator de-
16 termines that there is not sufficient laboratory ca-
17 pacity to carry out the monitoring required under
18 subparagraphs (B) and (C) of paragraph (1), the
19 Administrator may waive the monitoring require-
20 ments in those subparagraphs.

21 (3) FUNDS.—The Administrator shall pay the
22 reasonable cost of such testing and laboratory anal-
23 ysis as is necessary to carry out the monitoring re-
24 quired under subparagraphs (B) and (C) of para-
25 graph (1) using—

1 (A) funds made available pursuant to sub-
2 section (a)(2)(H) or subsection (j)(5) of section
3 1445 of the Safe Drinking Water Act (42
4 U.S.C. 300j-4); or

5 (B) any other funds made available for
6 that purpose.

7 **SEC. 7312. DRINKING WATER STATE REVOLVING FUNDS.**

8 Section 1452 of the Safe Drinking Water Act (42
9 U.S.C. 300j-12) is amended—

10 (1) in subsection (a)(2), by adding at the end
11 the following:

12 “(G) EMERGING CONTAMINANTS.—

13 “(i) IN GENERAL.—Notwithstanding
14 any other provision of law and subject to
15 clause (ii), amounts deposited under sub-
16 section (t) in a State loan fund established
17 under this section may only be used to pro-
18 vide grants for the purpose of addressing
19 emerging contaminants, with a focus on
20 perfluoroalkyl and polyfluoroalkyl sub-
21 stances.

22 “(ii) REQUIREMENTS.—

23 “(I) SMALL AND DISADVAN-
24 TAGED COMMUNITIES.—Not less than
25 25 percent of the amounts described

1 in clause (i) shall be used to provide
2 grants to—

3 “(aa) disadvantaged commu-
4 nities (as defined in subsection
5 (d)(3)); or

6 “(bb) public water systems
7 serving fewer than 25,000 per-
8 sons.

9 “(II) PRIORITIES.—In selecting
10 the recipient of a grant using amounts
11 described in clause (i), a State shall
12 use the priorities described in sub-
13 section (b)(3)(A).

14 “(iii) NO INCREASED BONDING AU-
15 THORITY.—The amounts deposited in the
16 State loan fund of a State under sub-
17 section (t) may not be used as a source of
18 payment of, or security for (directly or in-
19 directly), in whole or in part, any obliga-
20 tion the interest on which is exempt from
21 the tax imposed under chapter 1 of the In-
22 ternal Revenue Code of 1986.”;

23 (2) in subsection (m)(1), in the matter pre-
24 ceding subparagraph (A), by striking “this section”

1 and inserting “this section, except for subsections
2 (a)(2)(G) and (t)”;

3 (3) by adding at the end the following:

4 “(t) EMERGING CONTAMINANTS.—

5 “(1) IN GENERAL.—Amounts made available
6 under this subsection shall be allotted to a State as
7 if allotted under subsection (a)(1)(D) as a capital-
8 ization grant, for deposit into the State loan fund of
9 the State, for the purposes described in subsection
10 (a)(2)(G).

11 “(2) AUTHORIZATION OF APPROPRIATIONS.—

12 There is authorized to be appropriated to carry out
13 this subsection \$100,000,000 for each of fiscal years
14 2020 through 2024, to remain available until ex-
15 pended.”.

16 **Subtitle B—PFAS Release**
17 **Disclosure**

18 **SEC. 7321. ADDITIONS TO TOXICS RELEASE INVENTORY.**

19 (a) DEFINITION OF TOXICS RELEASE INVENTORY.—

20 In this section, the term “toxics release inventory” means
21 the list of toxic chemicals subject to the requirements of
22 section 313(c) of the Emergency Planning and Commu-
23 nity Right-To-Know Act of 1986 (42 U.S.C. 11023(c)).

24 (b) IMMEDIATE INCLUSION.—

1 (1) IN GENERAL.—Subject to subsection (e),
2 beginning January 1 of the calendar year following
3 the date of enactment of this Act, the following
4 chemicals shall be deemed to be included in the
5 toxics release inventory:

6 (A) Perfluorooctanoic acid (commonly re-
7 ferred to as “PFOA”) (Chemical Abstracts
8 Service No. 335–67–1).

9 (B) The salts associated with the chemical
10 described in subparagraph (A) (Chemical Ab-
11 stracts Service Nos. 3825–26–1, 335–95–5, and
12 68141–02–6).

13 (C) Perfluorooctane sulfonic acid (com-
14 monly referred to as “PFOS”) (Chemical Ab-
15 stracts Service No. 1763–23–1).

16 (D) The salts associated with the chemical
17 described in subparagraph (C) (Chemical Ab-
18 stracts Service Nos. 2795–39–3, 29457–72–5,
19 56773–42–3, 29081–56–9, and 70225–14–8).

20 (E) A perfluoroalkyl or polyfluoroalkyl sub-
21 stance or class of perfluoroalkyl or
22 polyfluoroalkyl substances that is—

23 (i) listed as an active chemical sub-
24 stance in the February 2019 update to the
25 inventory under section 8(b)(1) of the

1 Toxic Substances Control Act (15 U.S.C.
2 2607(b)(1)); and

3 (ii) on the date of enactment of this
4 Act, subject to the provisions of—

5 (I) section 721.9582 of title 40,
6 Code of Federal Regulations; or

7 (II) section 721.10536 of title
8 40, Code of Federal Regulations.

9 (F) Hexafluoropropylene oxide dimer acid
10 (commonly referred to as “GenX”) (Chemical
11 Abstracts Service No. 13252–13–6).

12 (G) The compound associated with the
13 chemical described in subparagraph (F) identi-
14 fied by Chemical Abstracts Service No. 62037–
15 80–3.

16 (H) Perfluorononanoic acid (commonly re-
17 ferred to as “PFNA”) (Chemical Abstracts
18 Service No. 375–95–1).

19 (I) Perfluorohexanesulfonic acid (com-
20 monly referred to as “PFHxS”) (Chemical Ab-
21 stracts Service No. 355–46–4).

22 (2) THRESHOLD FOR REPORTING.—

23 (A) IN GENERAL.—Subject to subpara-
24 graph (B), the threshold for reporting the
25 chemicals described in paragraph (1) under sec-

1 tion 313 of the Emergency Planning and Com-
2 munity Right-To-Know Act of 1986 (42 U.S.C.
3 11023) is 100 pounds.

4 (B) REVISIONS.—Not later than 5 years
5 after the date of enactment of this Act, the Ad-
6 ministrator shall—

7 (i) determine whether revision of the
8 threshold under subparagraph (A) is war-
9 ranted for any chemical described in para-
10 graph (1); and

11 (ii) if the Administrator determines a
12 revision to be warranted under clause (i),
13 initiate a revision under section 313(f)(2)
14 of the Emergency Planning and Commu-
15 nity Right-To-Know Act of 1986 (42
16 U.S.C. 11023(f)(2)).

17 (c) INCLUSION FOLLOWING ASSESSMENT.—

18 (1) IN GENERAL.—

19 (A) DATE OF INCLUSION.—Subject to sub-
20 section (e), notwithstanding section 313 of the
21 Emergency Planning and Community Right-To-
22 Know Act of 1986, a perfluoroalkyl or
23 polyfluoroalkyl substance or class of
24 perfluoroalkyl or polyfluoroalkyl substances not
25 described in subsection (b)(1) shall be deemed

1 to be included in the toxics release inventory be-
2 ginning January 1 of the calendar year after
3 any of the following dates:

4 (i) FINAL TOXICITY VALUE.—The
5 date on which the Administrator finalizes a
6 toxicity value for the perfluoroalkyl or
7 polyfluoroalkyl substance or class of
8 perfluoroalkyl or polyfluoroalkyl sub-
9 stances.

10 (ii) SIGNIFICANT NEW USE RULE.—
11 The date on which the Administrator
12 makes a covered determination for the
13 perfluoroalkyl or polyfluoroalkyl substance
14 or class of perfluoroalkyl or polyfluoroalkyl
15 substances.

16 (iii) ADDITION TO EXISTING SIGNIFI-
17 CANT NEW USE RULE.—The date on which
18 the perfluoroalkyl or polyfluoroalkyl sub-
19 stance or class of perfluoroalkyl or
20 polyfluoroalkyl substances is added to a
21 list of substances covered by a covered de-
22 termination.

23 (iv) ADDITION AS ACTIVE CHEMICAL
24 SUBSTANCE.—The date on which the
25 perfluoroalkyl or polyfluoroalkyl substance

1 or class of perfluoroalkyl or polyfluoroalkyl
2 substances to which a covered determina-
3 tion applies is—

4 (I) added to the list published
5 under paragraph (1) of section 8(b) of
6 the Toxic Substances Control Act and
7 designated as an active chemical sub-
8 stance under paragraph (5)(A) of
9 such section; or

10 (II) designated as an active
11 chemical substance on such list under
12 paragraph (5)(B) of such section.

13 (B) COVERED DETERMINATION.—For pur-
14 poses of this paragraph, a covered determina-
15 tion is a determination made, by rule, under
16 section 5(a)(2) of the Toxic Substances Control
17 Act that a use of a perfluoroalkyl or
18 polyfluoroalkyl substance or class of
19 perfluoroalkyl or polyfluoroalkyl substances is a
20 significant new use (except such a determina-
21 tion made in connection with a determination
22 described in section 5(a)(3)(B) or section
23 5(a)(3)(C) of such Act).

24 (2) THRESHOLD FOR REPORTING.—

1 (A) IN GENERAL.—Subject to subpara-
2 graph (B), notwithstanding subsection (f)(1) of
3 section 313 of the Emergency Planning and
4 Community Right-To-Know Act of 1986 (42
5 U.S.C. 11023), the threshold for reporting
6 under such section 313 the substances and
7 classes of substances included in the toxics re-
8 lease inventory under paragraph (1) is 100
9 pounds.

10 (B) REVISIONS.—Not later than 5 years
11 after the date on which a perfluoroalkyl or
12 polyfluoroalkyl substance or class of
13 perfluoroalkyl or polyfluoroalkyl substances is
14 included in the toxics release inventory under
15 paragraph (1), the Administrator shall—

16 (i) determine whether revision of the
17 threshold under subparagraph (A) is war-
18 ranted for the substance or class of sub-
19 stances; and

20 (ii) if the Administrator determines a
21 revision to be warranted under clause (i),
22 initiate a revision under section 313(f)(2)
23 of the Emergency Planning and Commu-
24 nity Right-To-Know Act of 1986 (42
25 U.S.C. 11023(f)(2)).

1 (d) INCLUSION FOLLOWING DETERMINATION.—

2 (1) IN GENERAL.—Not later than 2 years after
3 the date of enactment of this Act, the Administrator
4 shall determine whether the substances and classes
5 of substances described in paragraph (2) meet any
6 one of the criteria described in section 313(d)(2) of
7 the Emergency Planning and Community Right-To-
8 Know Act of 1986 (42 U.S.C. 11023(d)(2)) for in-
9 clusion in the toxics release inventory.

10 (2) SUBSTANCES DESCRIBED.—The substances
11 and classes of substances referred to in paragraph
12 (1) are perfluoroalkyl and polyfluoroalkyl substances
13 and classes of perfluoroalkyl and polyfluoroalkyl sub-
14 stances not described in subsection (b)(1), includ-
15 ing—

16 (A) perfluoro[(2-pentafluoroethoxy-
17 ethoxy)acetic acid] ammonium salt (Chemical
18 Abstracts Service No. 908020–52–0);

19 (B) 2,3,3,3-tetrafluoro 2–(1,1,2,3,3,3-
20 hexafluoro)–2–(trifluoromethoxy) propanoyl flu-
21 oride (Chemical Abstracts Service No. 2479–
22 75–6);

23 (C) 2,3,3,3-tetrafluoro 2–(1,1,2,3,3,3-
24 hexafluoro)–2–(trifluoromethoxy) propionic acid
25 (Chemical Abstracts Service No. 2479–73–4);

1 (D) 3H-perfluoro-3-[(3-methoxy-propoxy)
2 propanoic acid] (Chemical Abstracts Service
3 No. 919005-14-4);

4 (E) the salts associated with the chemical
5 described in subparagraph (D) (Chemical Ab-
6 stracts Service Nos. 958445-44-8, 1087271-
7 46-2, and NOCAS 892452);

8 (F) 1-octanesulfonic acid
9 3,3,4,4,5,5,6,6,7,7,8,8-tridecafluoro-potassium
10 salt (Chemical Abstracts Service No. 59587-
11 38-1);

12 (G) perfluorobutanesulfonic acid (Chemical
13 Abstracts Service No. 375-73-5);

14 (H) 1-Butanesulfonic acid,
15 1,1,2,2,3,3,4,4,4-nonafluoro-potassium salt
16 (Chemical Abstracts Service No. 29420-49-3);

17 (I) the component associated with the
18 chemical described in subparagraph (H) (Chem-
19 ical Abstracts Service No. 45187-15-3);

20 (J) heptafluorobutyric acid (Chemical Ab-
21 stracts Service No. 375-22-4);

22 (K) perfluorohexanoic acid (Chemical Ab-
23 stracts Service No. 307-24-4);

24 (L) the compound associated with the
25 chemical described in subsection (b)(1)(F) iden-

1 tified by Chemical Abstracts Service No. 2062–
2 98–8;

3 (M) perfluoroheptanoic acid (commonly re-
4 ferred to as “PFHpA”) (Chemical Abstracts
5 Service No. 375–85–9);

6 (N) each perfluoroalkyl or polyfluoroalkyl
7 substance or class of perfluoroalkyl or
8 polyfluoroalkyl substances for which a method
9 to measure levels in drinking water has been
10 validated by the Administrator; and

11 (O) a perfluoroalkyl and polyfluoroalkyl
12 substance or class of perfluoroalkyl or
13 polyfluoroalkyl substances other than the
14 chemicals described in subparagraphs (A)
15 through (N) that is used to manufacture
16 fluorinated polymers, as determined by the Ad-
17 ministrator.

18 (3) ADDITION TO TOXICS RELEASE INVEN-
19 TORY.—Subject to subsection (e), if the Adminis-
20 trator determines under paragraph (1) that a sub-
21 stance or a class of substances described in para-
22 graph (2) meets any one of the criteria described in
23 section 313(d)(2) of the Emergency Planning and
24 Community Right-To-Know Act of 1986 (42 U.S.C.
25 11023(d)(2)), the Administrator shall revise the

1 toxics release inventory in accordance with such sec-
2 tion 313(d) to include that substance or class of sub-
3 stances not later than 2 years after the date on
4 which the Administrator makes the determination.

5 (e) CONFIDENTIAL BUSINESS INFORMATION.—

6 (1) IN GENERAL.—Prior to including on the
7 toxics release inventory pursuant to subsection
8 (b)(1), (c)(1), or (d)(3) any perfluoroalkyl or
9 polyfluoroalkyl substance or class of perfluoroalkyl
10 or polyfluoroalkyl substances the chemical identity of
11 which is subject to a claim of a person of protection
12 from disclosure under subsection (a) of section 552
13 of title 5, United States Code, pursuant to sub-
14 section (b)(4) of that section, the Administrator
15 shall—

16 (A) review any such claim of protection
17 from disclosure; and

18 (B) require that person to reassert and
19 substantiate or resubstantiate that claim in ac-
20 cordance with section 14(f) of the Toxic Sub-
21 stances Control Act (15 U.S.C. 2613(f)).

22 (2) NONDISCLOSURE OF PROTECTION INFORMA-
23 TION.—If the Administrator determines that the
24 chemical identity of a perfluoroalkyl or
25 polyfluoroalkyl substance or class of perfluoroalkyl

1 or polyfluoroalkyl substances qualifies for protection
2 from disclosure pursuant to paragraph (1), the Ad-
3 ministrators shall include the substance or class of
4 substances, as applicable, on the toxics release inven-
5 tory in a manner that does not disclose the protected
6 information.

7 (f) EMERGENCY PLANNING AND COMMUNITY RIGHT-
8 TO-KNOW ACT OF 1986.—Section 313(c) of the Emer-
9 gency Planning and Community Right-To-Know Act of
10 1986 (42 U.S.C. 11023(c)) is amended—

11 (1) by striking the period at the end and insert-
12 ing “; and”;

13 (2) by striking “are those chemicals” and in-
14 serting the following: “are—

15 “(1) the chemicals”; and

16 (3) by adding at the end the following:

17 “(2) the chemicals included on such list under
18 subsections (b)(1), (c)(1), and (d)(3) of section 7321
19 of the PFAS Act of 2019.”.

20 **Subtitle C—USGS Performance** 21 **Standard**

22 **SEC. 7331. DEFINITIONS.**

23 In this subtitle:

24 (1) DIRECTOR.—The term “Director” means
25 the Director of the United States Geological Survey.

1 (2) HIGHLY FLUORINATED COMPOUND.—

2 (A) IN GENERAL.—The term “highly
3 fluorinated compound” means a perfluoroalkyl
4 substance or a polyfluoroalkyl substance with at
5 least one fully fluorinated carbon atom.

6 (B) DEFINITIONS.—In this paragraph:

7 (i) FULLY FLUORINATED CARBON
8 ATOM.—The term “fully fluorinated carbon
9 atom” means a carbon atom on which all
10 the hydrogen substituents have been re-
11 placed by fluorine.

12 (ii) PERFLUOROALKYL SUBSTANCE.—
13 The term “perfluoroalkyl substance”
14 means a chemical of which all of the car-
15 bon atoms are fully fluorinated carbon
16 atoms.

17 (iii) POLYFLUOROALKYL SUB-
18 STANCE.—The term “polyfluoroalkyl sub-
19 stance” means a chemical containing at
20 least one fully fluorinated carbon atom and
21 at least one carbon atom that is not a fully
22 fluorinated carbon atom.

1 **SEC. 7332. PERFORMANCE STANDARD FOR THE DETECTION**
2 **OF HIGHLY FLUORINATED COMPOUNDS.**

3 (a) IN GENERAL.—The Director, in consultation with
4 the Administrator, shall establish a performance standard
5 for the detection of highly fluorinated compounds.

6 (b) EMPHASIS.—

7 (1) IN GENERAL.—In developing the perform-
8 ance standard under subsection (a), the Director
9 shall emphasize the ability to detect as many highly
10 fluorinated compounds present in the environment
11 as possible using validated analytical methods that—

12 (A) achieve limits of quantitation (as de-
13 fined in the document of the United States Ge-
14 ological Survey entitled “Analytical Methods for
15 Chemical Analysis of Geologic and Other Mate-
16 rials, U.S. Geological Survey” and dated 2002);
17 and

18 (B) are as sensitive as is feasible and prac-
19 ticable.

20 (2) REQUIREMENT.—In developing the per-
21 formance standard under subsection (a), the Direc-
22 tor may—

23 (A) develop quality assurance and quality
24 control measures to ensure accurate sampling
25 and testing;

1 (B) develop a training program with re-
2 spect to the appropriate method of sample col-
3 lection and analysis of highly fluorinated com-
4 pounds; and

5 (C) coordinate as necessary with the Ad-
6 ministrator, including, if appropriate, to develop
7 methods to detect individual and different high-
8 ly fluorinated compounds simultaneously.

9 **SEC. 7333. NATIONWIDE SAMPLING.**

10 (a) IN GENERAL.—The Director shall carry out a na-
11 tionwide sampling to determine the concentration of highly
12 fluorinated compounds in estuaries, lakes, streams,
13 springs, wells, wetlands, rivers, aquifers, and soil using the
14 performance standard developed under section 7332(a).

15 (b) REQUIREMENTS.—In carrying out the sampling
16 under subsection (a), the Director shall—

17 (1) first carry out the sampling at sources of
18 drinking water near locations with known or sus-
19 pected releases of highly fluorinated compounds;

20 (2) when carrying out sampling of sources of
21 drinking water under paragraph (1), carry out the
22 sampling prior to and, at the request of the Admin-
23 istrator, after any treatment of the water;

24 (3) survey for ecological exposure to highly
25 fluorinated compounds, with a priority in deter-

1 mining direct human exposure through drinking
2 water; and

3 (4) consult with—

4 (A) States to determine areas that are a
5 priority for sampling; and

6 (B) the Administrator—

7 (i) to enhance coverage of the sam-
8 pling; and

9 (ii) to avoid unnecessary duplication.

10 (c) REPORT.—Not later than 120 days after the com-
11 pletion of the sampling under subsection (a), the Director
12 shall prepare a report describing the results of the sam-
13 pling and submit the report to—

14 (1) the Committee on Environment and Public
15 Works and the Committee on Energy and Natural
16 Resources of the Senate;

17 (2) the Committee on Energy and Commerce
18 and the Committee on Natural Resources of the
19 House of Representatives;

20 (3) the Senators of each State in which the Di-
21 rector carried out the sampling; and

22 (4) each Member of the House of Representa-
23 tives who represents a district in which the Director
24 carried out the sampling.

1 **SEC. 7334. DATA USAGE.**

2 (a) IN GENERAL.—The Director shall provide the
3 sampling data collected under section 7333 to—

4 (1) the Administrator; and

5 (2) other Federal and State regulatory agencies
6 on request.

7 (b) USAGE.—The sampling data provided under sub-
8 section (a) shall be used to inform and enhance assess-
9 ments of exposure, likely health and environmental im-
10 pacts, and remediation priorities.

11 **SEC. 7335. COLLABORATION.**

12 In carrying out this subtitle, the Director shall col-
13 laborate with—

14 (1) appropriate Federal and State regulators;

15 (2) institutions of higher education;

16 (3) research institutions; and

17 (4) other expert stakeholders.

18 **Subtitle D—Emerging**
19 **Contaminants**

20 **SEC. 7341. DEFINITIONS.**

21 In this subtitle:

22 (1) CONTAMINANT.—The term “contaminant”
23 means any physical, chemical, biological, or radio-
24 logical substance or matter in water.

25 (2) CONTAMINANT OF EMERGING CONCERN;
26 EMERGING CONTAMINANT.—The terms “contami-

1 nant of emerging concern” and “emerging contami-
2 nant” mean a contaminant—

3 (A) for which the Administrator has not
4 promulgated a national primary drinking water
5 regulation; and

6 (B) that may have an adverse effect on the
7 health of individuals.

8 (3) FEDERAL RESEARCH STRATEGY.—The term
9 “Federal research strategy” means the coordinated
10 cross-agency plan for addressing critical research
11 gaps related to detecting, assessing exposure to, and
12 identifying the adverse health effects of emerging
13 contaminants in drinking water developed by the Of-
14 fice of Science and Technology Policy in response to
15 the report of the Committee on Appropriations of
16 the Senate accompanying S. 1662 of the 115th Con-
17 gress (S. Rept. 115–139).

18 (4) TECHNICAL ASSISTANCE AND SUPPORT.—
19 The term “technical assistance and support” in-
20 cludes—

21 (A) assistance with—

22 (i) identifying appropriate analytical
23 methods for the detection of contaminants;

1 (ii) understanding the strengths and
2 limitations of the analytical methods de-
3 scribed in clause (i);

4 (iii) troubleshooting the analytical
5 methods described in clause (i);

6 (B) providing advice on laboratory certifi-
7 cation program elements;

8 (C) interpreting sample analysis results;

9 (D) providing training with respect to
10 proper analytical techniques;

11 (E) identifying appropriate technology for
12 the treatment of contaminants; and

13 (F) analyzing samples, if—

14 (i) the analysis cannot be otherwise
15 obtained in a practicable manner other-
16 wise; and

17 (ii) the capability and capacity to per-
18 form the analysis is available at a Federal
19 facility.

20 (5) WORKING GROUP.—The term “Working
21 Group” means the Working Group established under
22 section 7342(b)(1).

1 **SEC. 7342. RESEARCH AND COORDINATION PLAN FOR EN-**
2 **HANCED RESPONSE ON EMERGING CONTAMI-**
3 **NANTS.**

4 (a) IN GENERAL.—The Administrator shall—

5 (1) review Federal efforts—

6 (A) to identify, monitor, and assist in the
7 development of treatment methods for emerging
8 contaminants; and

9 (B) to assist States in responding to the
10 human health risks posed by contaminants of
11 emerging concern; and

12 (2) in collaboration with owners and operators
13 of public water systems, States, and other interested
14 stakeholders, establish a strategic plan for improving
15 the Federal efforts referred to in paragraph (1).

16 (b) INTERAGENCY WORKING GROUP ON EMERGING
17 CONTAMINANTS.—

18 (1) IN GENERAL.—Not later than 180 days
19 after the date of enactment of this Act, the Adminis-
20 trator and the Secretary of Health and Human
21 Services shall jointly establish a Working Group to
22 coordinate the activities of the Federal Government
23 to identify and analyze the public health effects of
24 drinking water contaminants of emerging concern.

25 (2) MEMBERSHIP.—The Working Group shall
26 include representatives of the following:

1 (A) The Environmental Protection Agency,
2 appointed by the Administrator.

3 (B) The following agencies, appointed by
4 the Secretary of Health and Human Services:

5 (i) The National Institutes of Health.

6 (ii) The Centers for Disease Control
7 and Prevention.

8 (iii) The Agency for Toxic Substances
9 and Disease Registry.

10 (C) The United States Geological Survey,
11 appointed by the Secretary of the Interior.

12 (D) Any other Federal agency the assist-
13 ance of which the Administrator determines to
14 be necessary to carry out this subsection, ap-
15 pointed by the head of the respective agency.

16 (3) EXISTING WORKING GROUP.—The Adminis-
17 trator may expand or modify the duties of an exist-
18 ing working group to perform the duties of the
19 Working Group under this subsection.

20 (c) NATIONAL EMERGING CONTAMINANT RESEARCH
21 INITIATIVE.—

22 (1) FEDERAL RESEARCH STRATEGY.—

23 (A) IN GENERAL.—Not later than 180
24 days after the date of enactment of this Act,
25 the Director of the Office of Science and Tech-

1 nology Policy (referred to in this subsection as
2 the “Director”) shall coordinate with the heads
3 of the agencies described in subparagraph (C)
4 to establish a research initiative, to be known as
5 the “National Emerging Contaminant Research
6 Initiative”, that shall—

7 (i) use the Federal research strategy
8 to improve the identification, analysis,
9 monitoring, and treatment methods of con-
10 taminants of emerging concern; and

11 (ii) develop any necessary program,
12 policy, or budget to support the implemen-
13 tation of the Federal research strategy, in-
14 cluding mechanisms for joint agency review
15 of research proposals, for interagency co-
16 funding of research activities, and for in-
17 formation sharing across agencies.

18 (B) RESEARCH ON EMERGING CONTAMI-
19 NANTS.—In carrying out subparagraph (A), the
20 Director shall—

21 (i) take into consideration consensus
22 conclusions from peer-reviewed, pertinent
23 research on emerging contaminants; and

1 (ii) in consultation with the Adminis-
2 trator, identify priority emerging contami-
3 nants for research emphasis.

4 (C) FEDERAL PARTICIPATION.—The agen-
5 cies referred to in subparagraph (A) include—

6 (i) the National Science Foundation;

7 (ii) the National Institutes of Health;

8 (iii) the Environmental Protection
9 Agency;

10 (iv) the National Institute of Stand-
11 ards and Technology;

12 (v) the United States Geological Sur-
13 vey; and

14 (vi) any other Federal agency that
15 contributes to research in water quality,
16 environmental exposures, and public
17 health, as determined by the Director.

18 (D) PARTICIPATION FROM ADDITIONAL
19 ENTITIES.—In carrying out subparagraph (A),
20 the Director shall consult with nongovernmental
21 organizations, State and local governments, and
22 science and research institutions determined by
23 the Director to have scientific or material inter-
24 est in the National Emerging Contaminant Re-
25 search Initiative.

1 (2) IMPLEMENTATION OF RESEARCH REC-
2 COMMENDATIONS.—

3 (A) IN GENERAL.—Not later than 1 year
4 after the date on which the Director and heads
5 of the agencies described in paragraph (1)(C)
6 establish the National Emerging Contaminant
7 Research Initiative under paragraph (1)(A), the
8 head of each agency described in paragraph
9 (1)(C) shall—

10 (i) issue a solicitation for research
11 proposals consistent with the Federal re-
12 search strategy and that agency's mission;
13 and

14 (ii) make grants to applicants that
15 submit research proposals consistent with
16 the Federal research strategy and in ac-
17 cordance with subparagraph (B).

18 (B) SELECTION OF RESEARCH PRO-
19 POSALS.—The head of each agency described in
20 paragraph (1)(C) shall select research proposals
21 to receive grants under this paragraph on the
22 basis of merit, using criteria identified by the
23 head of each such agency, including the likeli-
24 hood that the proposed research will result in

1 significant progress toward achieving the objec-
2 tives identified in the Federal research strategy.

3 (C) ELIGIBLE ENTITIES.—Any entity or
4 group of 2 or more entities may submit to the
5 head of each agency described in paragraph
6 (1)(C) a research proposal in response to the
7 solicitation for research proposals described in
8 subparagraph (A)(i), including, consistent with
9 that agency’s grant policies—

- 10 (i) State and local agencies;
11 (ii) public institutions, including pub-
12 lic institutions of higher education;
13 (iii) private corporations; and
14 (iv) nonprofit organizations.

15 (d) FEDERAL TECHNICAL ASSISTANCE AND SUP-
16 PORT FOR STATES.—

17 (1) STUDY.—

18 (A) IN GENERAL.—Not later than 1 year
19 after the date of enactment of this Act, the Ad-
20 ministrator shall conduct a study on actions the
21 Administrator can take to increase technical as-
22 sistance and support for States with respect to
23 emerging contaminants in drinking water sam-
24 ples.

1 (B) CONTENTS OF STUDY.—In carrying
2 out the study described in subparagraph (A),
3 the Administrator shall identify—

4 (i) methods and effective treatment
5 options to increase technical assistance and
6 support with respect to emerging contami-
7 nants to States, including identifying op-
8 portunities for States to improve commu-
9 nication with various audiences about the
10 risks associated with emerging contami-
11 nants;

12 (ii) means to facilitate access to quali-
13 fied contract testing laboratory facilities
14 that conduct analyses for emerging con-
15 taminants; and

16 (iii) actions to be carried out at exist-
17 ing Federal laboratory facilities, including
18 the research facilities of the Administrator,
19 to provide technical assistance and support
20 for States that require testing facilities for
21 emerging contaminants.

22 (C) AVAILABILITY OF ANALYTICAL RE-
23 SOURCES.—In carrying out the study described
24 in subparagraph (A), the Administrator shall
25 consider—

1 (i) the availability of—

2 (I) Federal and non-Federal lab-
3 oratory capacity; and

4 (II) validated methods to detect
5 and analyze contaminants; and

6 (ii) other factors determined to be ap-
7 propriate by the Administrator.

8 (2) REPORT.—Not later than 18 months after
9 the date of enactment of this Act, the Administrator
10 shall submit to Congress a report describing the re-
11 sults of the study described in paragraph (1).

12 (3) PROGRAM TO PROVIDE FEDERAL ASSIST-
13 ANCE TO STATES.—

14 (A) IN GENERAL.—Not later than 3 years
15 after the date of enactment of this Act, based
16 on the findings in the report described in para-
17 graph (2), the Administrator shall develop a
18 program to provide technical assistance and
19 support to eligible States for the testing and
20 analysis of emerging contaminants.

21 (B) APPLICATION.—

22 (i) IN GENERAL.—To be eligible for
23 technical assistance and support under this
24 paragraph, a State shall submit to the Ad-
25 ministrator an application at such time, in

1 such manner, and containing such infor-
2 mation as the Administrator may require.

3 (ii) CRITERIA.—The Administrator
4 shall evaluate an application for technical
5 assistance and support under this para-
6 graph on the basis of merit using criteria
7 identified by the Administrator, includ-
8 ing—

9 (I) the laboratory facilities avail-
10 able to the State;

11 (II) the availability and applica-
12 bility of existing analytical methodolo-
13 gies;

14 (III) the potency and severity of
15 the emerging contaminant, if known;
16 and

17 (IV) the prevalence and mag-
18 nitude of the emerging contaminant.

19 (iii) PRIORITIZATION.—In selecting
20 States to receive technical assistance and
21 support under this paragraph, the Admin-
22 istrator—

23 (I) shall give priority to States
24 with affected areas primarily in finan-
25 cially distressed communities;

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1 (II) may—

2 (aa) waive the application
3 process in an emergency situa-
4 tion; and

5 (bb) require an abbreviated
6 application process for the con-
7 tinuation of work specified in a
8 previously approved application
9 that continues to meet the cri-
10 teria described in clause (ii); and

11 (III) shall consider the relative
12 expertise and availability of—

13 (aa) Federal and non-Fed-
14 eral laboratory capacity available
15 to the State;

16 (bb) analytical resources
17 available to the State; and

18 (cc) other types of technical
19 assistance available to the State.

20 (C) DATABASE OF AVAILABLE RE-
21 SOURCES.—The Administrator shall establish
22 and maintain a database of resources available
23 through the program developed under subpara-
24 graph (A) to assist States with testing for
25 emerging contaminants that—

- 1 (i) is—
- 2 (I) available to States and stake-
- 3 holder groups determined by the Ad-
- 4 ministrator to have scientific or mate-
- 5 rial interest in emerging contami-
- 6 nants, including—
- 7 (aa) drinking water and
- 8 wastewater utilities;
- 9 (bb) laboratories;
- 10 (cc) Federal and State emer-
- 11 gency responders;
- 12 (dd) State primacy agencies;
- 13 (ee) public health agencies;
- 14 and
- 15 (ff) water associations;
- 16 (II) searchable; and
- 17 (III) accessible through the
- 18 website of the Administrator; and
- 19 (ii) includes a description of—
- 20 (I) qualified contract testing lab-
- 21 oratory facilities that conduct analyses
- 22 for emerging contaminants; and
- 23 (II) the resources available in
- 24 Federal laboratory facilities to test for
- 25 emerging contaminants.

1 (D) WATER CONTAMINANT INFORMATION
2 TOOL.—The Administrator shall integrate the
3 database established under subparagraph (C)
4 into the Water Contaminant Information Tool
5 of the Environmental Protection Agency.

6 (4) FUNDING.—Of the amounts available to the
7 Administrator, the Administrator may use not more
8 than \$15,000,000 in a fiscal year to carry out this
9 subsection.

10 (e) REPORT.—Not less frequently than once every 2
11 years until 2029, the Administrator shall submit to Con-
12 gress a report that describes the progress made in car-
13 rying out this subtitle.

14 (f) EFFECT.—Nothing in this section modifies any
15 obligation of a State, local government, or Indian Tribe
16 with respect to treatment methods for, or testing or moni-
17 toring of, drinking water.

18 **Subtitle E—Toxic Substances**
19 **Control Act**

20 **SEC. 7351. PFAS DATA CALL.**

21 Section 8(a) of the Toxic Substances Control Act (15
22 U.S.C. 2607(a)) is amended by adding at the end the fol-
23 lowing:

24 “(7) PFAS DATA.—Not later than January 1,
25 2023, the Administrator shall promulgate a rule in

1 accordance with this subsection requiring each per-
2 son who has manufactured a chemical substance
3 that is a perfluoroalkyl or polyfluoroalkyl substance
4 in any year since January 1, 2011, to submit to the
5 Administrator a report that includes, for each year
6 since January 1, 2011, the information described in
7 subparagraphs (A) through (G) of paragraph (2).”.

8 **SEC. 7352. SIGNIFICANT NEW USE RULE FOR LONG-CHAIN**
9 **PFAS.**

10 Not later than June 22, 2020, the Administrator
11 shall take final action on the proposed rule entitled “Long-
12 Chain Perfluoroalkyl Carboxylate and Perfluoroalkyl
13 Sulfonate Chemical Substances; Significant New Use
14 Rule” (80 Fed. Reg. 2885 (January 21, 2015)).

15 **Subtitle F—Other Matters**

16 **SEC. 7361. PFAS DESTRUCTION AND DISPOSAL GUIDANCE.**

17 (a) IN GENERAL.—Not later than 1 year after the
18 date of enactment of this Act, the Administrator shall
19 publish interim guidance on the destruction and disposal
20 of perfluoroalkyl and polyfluoroalkyl substances and mate-
21 rials containing perfluoroalkyl and polyfluoroalkyl sub-
22 stances, including—

- 23 (1) aqueous film-forming foam;
24 (2) soil and biosolids;

1 (3) textiles, other than consumer goods, treated
2 with perfluoroalkyl and polyfluoroalkyl substances;

3 (4) spent filters, membranes, resins, granular
4 carbon, and other waste from water treatment;

5 (5) landfill leachate containing perfluoroalkyl
6 and polyfluoroalkyl substances; and

7 (6) solid, liquid, or gas waste streams con-
8 taining perfluoroalkyl and polyfluoroalkyl substances
9 from facilities manufacturing or using perfluoroalkyl
10 and polyfluoroalkyl substances.

11 (b) CONSIDERATIONS; INCLUSIONS.—The interim
12 guidance under subsection (a) shall—

13 (1) take into consideration—

14 (A) the potential for releases of
15 perfluoroalkyl and polyfluoroalkyl substances
16 during destruction or disposal, including
17 through volatilization, air dispersion, or leach-
18 ate; and

19 (B) potentially vulnerable populations liv-
20 ing near likely destruction or disposal sites; and

21 (2) provide guidance on testing and monitoring
22 air, effluent, and soil near potential destruction or
23 disposal sites for releases described in paragraph
24 (1)(A).

1 (c) REVISIONS.—The Administrator shall publish re-
2 visions to the interim guidance under subsection (a) as
3 the Administrator determines to be appropriate, but not
4 less frequently than once every 3 years.

5 **SEC. 7362. PFAS RESEARCH AND DEVELOPMENT.**

6 (a) IN GENERAL.—The Administrator, acting
7 through the Assistant Administrator for the Office of Re-
8 search and Development, shall—

9 (1)(A) further examine the effects of
10 perfluoroalkyl and polyfluoroalkyl substances on
11 human health and the environment; and

12 (B) make publicly available information relating
13 to the findings under subparagraph (A);

14 (2) develop a process for prioritizing which
15 perfluoroalkyl and polyfluoroalkyl substances, or
16 classes of perfluoroalkyl and polyfluoroalkyl sub-
17 stances, should be subject to additional research ef-
18 forts that is based on—

19 (A) the potential for human exposure to
20 the substances or classes of substances;

21 (B) the potential toxicity of the substances
22 or classes of substances; and

23 (C) information available about the sub-
24 stances or classes of substances;

1 (3) develop new tools to characterize and iden-
2 tify perfluoroalkyl and polyfluoroalkyl substances in
3 the environment, including in drinking water, waste-
4 water, surface water, groundwater, solids, and the
5 air;

6 (4) evaluate approaches for the remediation of
7 contamination by perfluoroalkyl and polyfluoroalkyl
8 substances in the environment; and

9 (5) develop and implement new tools and mate-
10 rials to communicate with the public about
11 perfluoroalkyl and polyfluoroalkyl substances.

12 (b) FUNDING.—There is authorized to be appro-
13 priated to the Administrator to carry out this section
14 \$15,000,000 for each of fiscal years 2020 through 2024.

15 **TITLE LXXIV—CAESAR SYRIA CI-**
16 **VILIAN PROTECTION ACT OF**
17 **2019**

Sec. 7401. Short title.

Sec. 7402. Statement of policy.

Subtitle A—Additional Actions in Connection With the National Emergency
With Respect to Syria

Sec. 7411. Measures with respect to Central Bank of Syria.

Sec. 7412. Sanctions with respect to foreign persons that engage in certain
transactions.

Sec. 7413. Strategy relating to areas of Syria in which civilians are subject to
forced displacement.

Subtitle B—Assistance for the People of Syria

Sec. 7421. Sense of Congress.

Sec. 7422. Briefing on monitoring and evaluating of ongoing assistance pro-
grams in Syria and to the Syrian people.

Sec. 7423. Assessment of potential methods to enhance the protection of civil-
ians.

Sec. 7424. Assistance to support entities taking actions relating to gathering evidence for investigations into war crimes or crimes against humanity in Syria since March 2011.

Sec. 7425. Codification of certain services in support of nongovernmental organizations' activities authorized.

Sec. 7426. Briefing on strategy to facilitate humanitarian assistance.

Subtitle C—General Provisions

Sec. 7431. Suspension of sanctions.

Sec. 7432. Waivers and exemptions.

Sec. 7433. Implementation and regulatory authorities.

Sec. 7434. Exception relating to importation of goods.

Sec. 7435. Cost limitation.

Sec. 7436. Rule of construction.

Sec. 7437. Prohibition on construction of provisions of this title as an authorization for use of military force.

Sec. 7438. Sunset.

1 SEC. 7401. SHORT TITLE.

2 This title may be cited as the “Caesar Syria Civilian
3 Protection Act of 2019”.

4 SEC. 7402. STATEMENT OF POLICY.

5 It is the policy of the United States that diplomatic
6 and coercive economic means should be utilized to compel
7 the government of Bashar al-Assad to halt its murderous
8 attacks on the Syrian people and to support a transition
9 to a government in Syria that respects the rule of law,
10 human rights, and peaceful co-existence with its neigh-
11 bors.

1 **Subtitle A—Additional Actions in**
2 **Connection With the National**
3 **Emergency With Respect to**
4 **Syria**

5 **SEC. 7411. MEASURES WITH RESPECT TO CENTRAL BANK**
6 **OF SYRIA.**

7 (a) DETERMINATION REGARDING CENTRAL BANK OF
8 SYRIA.—Not later than 180 days after the date of the en-
9 actment of this Act, the Secretary of the Treasury shall
10 determine, under section 5318A of title 31, United States
11 Code, whether reasonable grounds exist for concluding
12 that the Central Bank of Syria is a financial institution
13 of primary money laundering concern.

14 (b) ENHANCED DUE DILIGENCE AND REPORTING
15 REQUIREMENTS.—If the Secretary of the Treasury deter-
16 mines under subsection (a) that reasonable grounds exist
17 for concluding that the Central Bank of Syria is a finan-
18 cial institution of primary money laundering concern, the
19 Secretary, in consultation with the Federal functional reg-
20 ulators (as defined in section 509 of the Gramm-Leach-
21 Bliley Act (15 U.S.C. 6809)), shall impose one or more
22 of the special measures described in section 5318A(b) of
23 title 31, United States Code, with respect to the Central
24 Bank of Syria.

25 (c) REPORT REQUIRED.—

1 (1) IN GENERAL.—Not later than 90 days after
2 making a determination under subsection (a) with
3 respect to whether the Central Bank of Syria is a
4 financial institution of primary money laundering
5 concern, the Secretary of the Treasury shall submit
6 to the appropriate congressional committees a report
7 that includes the reasons for the determination.

8 (2) FORM.—A report required by paragraph (1)
9 shall be submitted in unclassified form but may in-
10 clude a classified annex.

11 (3) APPROPRIATE CONGRESSIONAL COMMIT-
12 TEES DEFINED.—In this subsection, the term “ap-
13 propriate congressional committees” means—

14 (A) the Committee on Foreign Affairs and
15 the Committee on Financial Services of the
16 House of Representatives; and

17 (B) the Committee on Foreign Relations
18 and the Committee on Banking, Housing, and
19 Urban Affairs of the Senate.

20 **SEC. 7412. SANCTIONS WITH RESPECT TO FOREIGN PER-**
21 **SONS THAT ENGAGE IN CERTAIN TRANS-**
22 **ACTIONS.**

23 (a) IMPOSITION OF SANCTIONS.—

24 (1) IN GENERAL.—On and after the date that
25 is 180 days after the date of the enactment of this

1 Act, the President shall impose the sanctions de-
2 scribed in subsection (b) with respect to a foreign
3 person if the President determines that the foreign
4 person, on or after such date of enactment, know-
5 ingly engages in an activity described in paragraph
6 (2).

7 (2) ACTIVITIES DESCRIBED.—A foreign person
8 engages in an activity described in this paragraph if
9 the foreign person—

10 (A) knowingly provides significant finan-
11 cial, material, or technological support to, or
12 knowingly engages in a significant transaction
13 with—

14 (i) the Government of Syria (including
15 any entity owned or controlled by the Gov-
16 ernment of Syria) or a senior political fig-
17 ure of the Government of Syria;

18 (ii) a foreign person that is a military
19 contractor, mercenary, or a paramilitary
20 force knowingly operating in a military ca-
21 pacity inside Syria for or on behalf of the
22 Government of Syria, the Government of
23 the Russian Federation, or the Govern-
24 ment of Iran; or

1 (iii) a foreign person subject to sanc-
2 tions pursuant to the International Emer-
3 gency Economic Powers Act (50 U.S.C.
4 1701 et seq.) with respect to Syria or any
5 other provision of law that imposes sanc-
6 tions with respect to Syria;

7 (B) knowingly sells or provides significant
8 goods, services, technology, information, or
9 other support that significantly facilitates the
10 maintenance or expansion of the Government of
11 Syria's domestic production of natural gas, pe-
12 troleum, or petroleum products;

13 (C) knowingly sells or provides aircraft or
14 spare aircraft parts that are used for military
15 purposes in Syria for or on behalf of the Gov-
16 ernment of Syria to any foreign person oper-
17 ating in an area directly or indirectly controlled
18 by the Government of Syria or foreign forces
19 associated with the Government of Syria;

20 (D) knowingly provides significant goods
21 or services associated with the operation of air-
22 craft that are used for military purposes in
23 Syria for or on behalf of the Government of
24 Syria to any foreign person operating in an
25 area described in subparagraph (C); or

1 (E) knowingly, directly or indirectly, pro-
2 vides significant construction or engineering
3 services to the Government of Syria.

4 (3) SENSE OF CONGRESS.—It is the sense of
5 Congress that, in implementing this section, the
6 President should consider financial support under
7 paragraph (2)(A) to include the provision of loans,
8 credits, or export credits.

9 (b) SANCTIONS DESCRIBED.—

10 (1) IN GENERAL.—The sanctions to be imposed
11 with respect to a foreign person described in sub-
12 section (a) are the following:

13 (A) BLOCKING OF PROPERTY.—The Presi-
14 dent shall exercise all of the powers granted to
15 the President under the International Emer-
16 gency Economic Powers Act (50 U.S.C. 1701 et
17 seq.) to the extent necessary to block and pro-
18 hibit all transactions in property and interests
19 in property of the foreign person if such prop-
20 erty and interests in property are in the United
21 States, come within the United States, or are or
22 come within the possession or control of a
23 United States person.

24 (B) INELIGIBILITY FOR VISAS, ADMISSION,
25 OR PAROLE.—

1 (i) VISAS, ADMISSION, OR PAROLE.—

2 An alien described in subsection (a) is—

3 (I) inadmissible to the United
4 States;

5 (II) ineligible to receive a visa or
6 other documentation to enter the
7 United States; and

8 (III) otherwise ineligible to be
9 admitted or paroled into the United
10 States or to receive any other benefit
11 under the Immigration and Nation-
12 ality Act (8 U.S.C. 1101 et seq.).

13 (ii) CURRENT VISAS REVOKED.—

14 (I) IN GENERAL.—An alien de-
15 scribed in subsection (a) is subject to
16 revocation of any visa or other entry
17 documentation regardless of when the
18 visa or other entry documentation is
19 or was issued.

20 (II) IMMEDIATE EFFECT.—A rev-
21 ocation under subclause (I) shall—

22 (aa) take effect immediately;

23 and

24 (bb) automatically cancel
25 any other valid visa or entry doc-

1 umentation that is in the alien's
2 possession.

3 (2) PENALTIES.—The penalties provided for in
4 subsections (b) and (c) of section 206 of the Inter-
5 national Emergency Economic Powers Act (50
6 U.S.C. 1705) shall apply to a person that violates,
7 attempts to violate, conspires to violate, or causes a
8 violation of regulations promulgated under section
9 7433(b) to carry out paragraph (1)(A) to the same
10 extent that such penalties apply to a person that
11 commits an unlawful act described in section 206(a)
12 of that Act.

13 (3) EXCEPTIONS.—Sanctions under paragraph
14 (1)(B) shall not apply with respect to an alien if ad-
15 mitting or paroling the alien into the United States
16 is necessary—

17 (A) to permit the United States to comply
18 with the Agreement regarding the Head-
19 quarters of the United Nations, signed at Lake
20 Success June 26, 1947, and entered into force
21 November 21, 1947, between the United Na-
22 tions and the United States, or other applicable
23 international obligations; or

24 (B) to carry out or assist law enforcement
25 activity in the United States.

1 **SEC. 7413. STRATEGY RELATING TO AREAS OF SYRIA IN**
2 **WHICH CIVILIANS ARE SUBJECT TO FORCED**
3 **DISPLACEMENT.**

4 (a) IN GENERAL.—Not later than 180 days after the
5 date of the enactment of this Act, the President shall—

6 (1) identify the areas described in subsection

7 (b); and

8 (2) submit to the appropriate congressional
9 committees the strategy described in subsection (c).

10 (b) AREAS DESCRIBED.—The areas described in this
11 subsection are areas in Syria that the President deter-
12 mines—

13 (1) are under the control of—

14 (A) the Government of Syria;

15 (B) the Government of the Russian Fed-
16 eration;

17 (C) the Government of Iran; or

18 (D) a foreign person described in section
19 7412(a)(2)(A)(ii); and

20 (2) are areas in which civilians have been sub-
21 ject to forced displacement by—

22 (A) a government specified in subpara-
23 graph (A), (B), or (C) of paragraph (1); or

24 (B) a foreign person described in section
25 7412(a)(2)(A)(ii).

1 (c) STRATEGY DESCRIBED.—The strategy described
2 in this subsection is a strategy to deter foreign persons
3 from entering into contracts related to reconstruction in
4 the areas described in subsection (b) for or on behalf of—

5 (1) a government specified in subparagraph
6 (A), (B), or (C) of subsection (b)(1); or

7 (2) a foreign person described in section
8 7412(a)(2)(A)(ii).

9 (d) FORM.—The strategy required by subsection
10 (a)(2) shall be submitted in unclassified form but may in-
11 clude a classified annex.

12 (e) APPROPRIATE CONGRESSIONAL COMMITTEES DE-
13 FINED.—In this section, the term “appropriate congres-
14 sional committees” means—

15 (1) the Committee on Foreign Affairs of the
16 House of Representatives; and

17 (2) the Committee on Foreign Relations of the
18 Senate.

19 **Subtitle B—Assistance for the** 20 **People of Syria**

21 **SEC. 7421. SENSE OF CONGRESS.**

22 It is the sense of Congress that it is in the interests
23 of the United States to continue to provide assistance to
24 the people of Syria in order to promote peace, stability,

1 and development, including through multilateral organiza-
2 tions.

3 **SEC. 7422. BRIEFING ON MONITORING AND EVALUATING**
4 **OF ONGOING ASSISTANCE PROGRAMS IN**
5 **SYRIA AND TO THE SYRIAN PEOPLE.**

6 (a) IN GENERAL.—Not later than 180 days after the
7 date of the enactment of this Act, the Secretary of State
8 and the Administrator of the United States Agency for
9 International Development shall brief the Committee on
10 Foreign Affairs of the House of Representatives and the
11 Committee on Foreign Relations of the Senate on the
12 monitoring and evaluation of ongoing assistance programs
13 in Syria and for the Syrian people, including assistance
14 provided through multilateral organizations.

15 (b) MATTERS TO BE INCLUDED.—The briefing re-
16 quired by subsection (a) shall include a description of—

17 (1) the specific project monitoring and evalua-
18 tion efforts, including measurable goals and per-
19 formance metrics for assistance in Syria;

20 (2) the memoranda of understanding entered
21 into by the Department of State, the United States
22 Agency for International Development, and their re-
23 spective Inspectors General, and the multilateral or-
24 ganizations through which United States assistance
25 will be delivered that formalize requirements for the

1 sharing of information between such entities for the
2 conduct of audits, investigations, and evaluations;
3 and

4 (3) the major challenges to monitoring and
5 evaluating programs described in subsection (a).

6 **SEC. 7423. ASSESSMENT OF POTENTIAL METHODS TO EN-**
7 **HANCE THE PROTECTION OF CIVILIANS.**

8 (a) IN GENERAL.—Not later than 90 days after the
9 date of the enactment of this Act, the President shall brief
10 the appropriate congressional committees on the potential
11 effectiveness, risks, and operational requirements of mili-
12 tary and non-military means to enhance the protection of
13 civilians inside Syria, especially civilians who are in be-
14 sieged areas, trapped at borders, or internally displaced.

15 (b) CONSULTATION.—The briefing required by sub-
16 section (a) shall be informed by consultations with the De-
17 partment of State, the United States Agency for Inter-
18 national Development, the Department of Defense, and
19 international and local humanitarian aid organizations op-
20 erating in Syria.

21 (c) APPROPRIATE CONGRESSIONAL COMMITTEES DE-
22 FINED.—In this section, the term “appropriate congres-
23 sional committees” means—

1 (1) the Committee on Foreign Affairs and the
2 Committee on Armed Services of the House of Rep-
3 resentatives; and

4 (2) the Committee on Foreign Relations and
5 the Committee on Armed Services of the Senate.

6 **SEC. 7424. ASSISTANCE TO SUPPORT ENTITIES TAKING AC-**
7 **TIONS RELATING TO GATHERING EVIDENCE**
8 **FOR INVESTIGATIONS INTO WAR CRIMES OR**
9 **CRIMES AGAINST HUMANITY IN SYRIA SINCE**
10 **MARCH 2011.**

11 (a) IN GENERAL.—Except as provided in subsection
12 (b), the Secretary of State, after consultation with the At-
13 torney General and the heads of other appropriate Federal
14 agencies, is authorized, consistent with the national inter-
15 est, to provide assistance to support entities that are con-
16 ducting criminal investigations, supporting prosecutions,
17 or collecting evidence and preserving the chain of custody
18 for such evidence for eventual prosecution, against those
19 who have committed war crimes or crimes against human-
20 ity in Syria, including the aiding and abetting of such
21 crimes by foreign governments and organizations sup-
22 porting the Government of Syria, since March 2011.

23 (b) LIMITATION.—No assistance may be provided
24 under subsection (a) while President Bashar al-Assad re-
25 mains in power—

1 (1) to build the investigative or judicial capac-
2 ities of the Government of Syria; or

3 (2) to support prosecutions in the domestic
4 courts in Syria.

5 (c) BRIEFING.—Not later than one year after the
6 date of the enactment of this Act, the Secretary of State
7 shall brief the Committee on Foreign Affairs of the House
8 of Representatives and the Committee on Foreign Rela-
9 tions of the Senate on assistance provided under sub-
10 section (a).

11 **SEC. 7425. CODIFICATION OF CERTAIN SERVICES IN SUP-**
12 **PORT OF NONGOVERNMENTAL ORGANIZA-**
13 **TIONS' ACTIVITIES AUTHORIZED.**

14 (a) IN GENERAL.—Except as provided in subsection
15 (b), section 542.516 of title 31, Code of Federal Regula-
16 tions (relating to certain services in support of nongovern-
17 mental organizations' activities authorized), as in effect on
18 the day before the date of the enactment of this Act,
19 shall—

20 (1) remain in effect on and after such date of
21 enactment; and

22 (2) in the case of a nongovernmental organiza-
23 tion that is authorized to export or reexport services
24 to Syria under such section on the day before such
25 date of enactment, apply to such organization on

1 and after such date of enactment to the same extent
2 and in the same manner as such section applied to
3 such organization on the day before such date of en-
4 actment.

5 (b) EXCEPTION.—

6 (1) IN GENERAL.—Section 542.516 of title 31,
7 Code of Federal Regulations, as codified under sub-
8 section (a), shall not apply with respect to a foreign
9 person that has been designated as a foreign ter-
10 rorist organization under section 219 of the Immi-
11 gration and Nationality Act (8 U.S.C. 1189), or oth-
12 erwise designated as a terrorist organization, by the
13 Secretary of State, in consultation with or upon the
14 request of the Attorney General or the Secretary of
15 Homeland Security.

16 (2) EFFECTIVE DATE.—Paragraph (1) shall
17 apply with respect to a foreign person on and after
18 the date on which the designation of that person as
19 a terrorist organization is published in the Federal
20 Register.

21 **SEC. 7426. BRIEFING ON STRATEGY TO FACILITATE HU-**
22 **MANITARIAN ASSISTANCE.**

23 (a) IN GENERAL.—Not later than 180 days after the
24 date of the enactment of this Act, the President shall brief
25 the appropriate congressional committees on the strategy

1 of the President to help facilitate the ability of humani-
2 tarian organizations to access financial services to help fa-
3 cilitate the safe and timely delivery of assistance to com-
4 munities in need in Syria.

5 (b) CONSIDERATION OF DATA FROM OTHER COUN-
6 TRIES AND NONGOVERNMENTAL ORGANIZATIONS.—In
7 preparing the strategy required by subsection (a), the
8 President shall consider credible data already obtained by
9 other countries and nongovernmental organizations, in-
10 cluding organizations operating in Syria.

11 (c) APPROPRIATE CONGRESSIONAL COMMITTEES DE-
12 FINED.—In this section, the term “appropriate congres-
13 sional committees” means—

14 (1) the Committee on Foreign Affairs and the
15 Committee on Financial Services of the House of
16 Representatives; and

17 (2) the Committee on Foreign Relations and
18 the Committee on Banking, Housing, and Urban Af-
19 fairs of the Senate.

20 **Subtitle C—General Provisions**

21 **SEC. 7431. SUSPENSION OF SANCTIONS.**

22 (a) IN GENERAL.—The President may suspend in
23 whole or in part the imposition of sanctions otherwise re-
24 quired under this Act or the imposition of sanctions re-
25 quired by any amendment made by this title for renewable

1 periods not to exceed 180 days if the President determines
2 that the following criteria have been met in Syria:

3 (1) The air space over Syria is no longer being
4 utilized by the Government of Syria or the Govern-
5 ment of the Russian Federation to target civilian
6 populations through the use of incendiary devices,
7 including barrel bombs, chemical weapons, and con-
8 ventional arms (including air-delivered missiles and
9 explosives).

10 (2) Areas besieged by the Government of Syria,
11 the Government of the Russian Federation, the Gov-
12 ernment of Iran, or a foreign person described in
13 section 7412(a)(2)(A)(ii) are no longer cut off from
14 international aid and have regular access to humani-
15 tarian assistance, freedom of travel, and medical
16 care.

17 (3) The Government of Syria is releasing all po-
18 litical prisoners forcibly held within the prison sys-
19 tem of the regime of Bashar al-Assad and the Gov-
20 ernment of Syria is allowing full access to prison
21 system facilities for investigations by appropriate
22 international human rights organizations.

23 (4) The forces of the Government of Syria, the
24 Government of the Russian Federation, the Govern-
25 ment of Iran, and any foreign person described in

1 section 7412(a)(2)(A)(ii) are no longer engaged in
2 deliberate targeting of medical facilities, schools, res-
3 idential areas, and community gathering places, in-
4 cluding markets, in violation of international norms.

5 (5) The Government of Syria is—

6 (A) taking steps to verifiably fulfill its
7 commitments under the Convention on the Pro-
8 hibition of the Development, Production, Stock-
9 piling and Use of Chemical Weapons and on
10 their Destruction, done at Geneva September 3,
11 1992, and entered into force April 29, 1997
12 (commonly known as the “Chemical Weapons
13 Convention”), and the Treaty on the Non-Pro-
14 liferation of Nuclear Weapons, done at Wash-
15 ington, London, and Moscow July 1, 1968, and
16 entered into force March 5, 1970 (21 UST
17 483); and

18 (B) making tangible progress toward be-
19 coming a signatory to the Convention on the
20 Prohibition of the Development, Production and
21 Stockpiling of Bacteriological (Biological) and
22 Toxin Weapons and on their Destruction, done
23 at Washington, London, and Moscow April 10,
24 1972, and entered into force March 26, 1975
25 (26 UST 583).

1 (6) The Government of Syria is permitting the
2 safe, voluntary, and dignified return of Syrians dis-
3 placed by the conflict.

4 (7) The Government of Syria is taking
5 verifiable steps to establish meaningful account-
6 ability for perpetrators of war crimes in Syria and
7 justice for victims of war crimes committed by the
8 Assad regime, including through participation in a
9 credible and independent truth and reconciliation
10 process.

11 (b) BRIEFING REQUIRED.—Not later than 30 days
12 after the President makes a determination described in
13 subsection (a), the President shall provide a briefing to
14 the appropriate congressional committees on the deter-
15 mination and the suspension of sanctions pursuant to the
16 determination.

17 (c) REIMPOSITION OF SANCTIONS.—Any sanctions
18 suspended under subsection (a) shall be reimposed if the
19 President determines that the criteria described in that
20 subsection are no longer being met.

21 (d) RULE OF CONSTRUCTION.—Nothing in this sec-
22 tion shall be construed to limit the authority of the Presi-
23 dent to terminate the application of sanctions under sec-
24 tion 7412 with respect to a person that no longer engages
25 in activities described in subsection (a)(2) of that section.

1 (e) APPROPRIATE CONGRESSIONAL COMMITTEES DE-
2 FINED.—In this section, the term “appropriate congres-
3 sional committees” means—

4 (1) the Committee on Foreign Affairs, the
5 Committee on Financial Services, the Committee on
6 Ways and Means, and the Committee on the Judici-
7 ary of the House of Representatives; and

8 (2) the Committee on Foreign Relations, the
9 Committee on Banking, Housing, and Urban Af-
10 fairs, and the Committee on the Judiciary of the
11 Senate.

12 **SEC. 7432. WAIVERS AND EXEMPTIONS.**

13 (a) EXEMPTIONS.—The following activities and
14 transactions shall be exempt from sanctions authorized
15 under this title or any amendment made by this title:

16 (1) Any activity subject to the reporting re-
17 quirements under title V of the National Security
18 Act of 1947 (50 U.S.C. 3091 et seq.), or to any au-
19 thorized intelligence activities of the United States.

20 (2) Any transaction necessary to comply with
21 United States obligations under—

22 (A) the Agreement regarding the Head-
23 quarters of the United Nations, signed at Lake
24 Success June 26, 1947, and entered into force

1 November 21, 1947, between the United Na-
2 tions and the United States;

3 (B) the Convention on Consular Relations,
4 done at Vienna April 24, 1963, and entered
5 into force March 19, 1967; or

6 (C) any other international agreement to
7 which the United States is a party.

8 (b) WAIVER.—

9 (1) IN GENERAL.—The President may, for re-
10 newable periods not to exceed 180 days, waive the
11 application of any provision of this title (other than
12 section 7434) with respect to a foreign person if the
13 President certifies to the appropriate congressional
14 committees that such a waiver is in the national se-
15 curity interests of the United States.

16 (2) BRIEFING.—Not later than 90 days after
17 the issuance of a waiver under paragraph (1), and
18 every 180 days thereafter while the waiver remains
19 in effect, the President shall brief the appropriate
20 congressional committees on the reasons for the
21 waiver.

22 (c) HUMANITARIAN WAIVER.—

23 (1) IN GENERAL.—The President may waive,
24 for renewable periods not to exceed 2 years, the ap-
25 plication of any provision of this title (other than

1 section 7434) with respect to a nongovernmental or-
2 ganization providing humanitarian assistance not
3 covered by the authorization described in section
4 7425 if the President certifies to the appropriate
5 congressional committees that such a waiver is im-
6 portant to address a humanitarian need and is con-
7 sistent with the national security interests of the
8 United States.

9 (2) BRIEFING.—Not later than 90 days after
10 the issuance of a waiver under paragraph (1), and
11 every 180 days thereafter while the waiver remains
12 in effect, the President shall brief the appropriate
13 congressional committees on the reasons for the
14 waiver.

15 (d) APPROPRIATE CONGRESSIONAL COMMITTEES
16 DEFINED.—In this section, the term “appropriate con-
17 gressional committees” means—

18 (1) the Committee on Foreign Affairs, the
19 Committee on Financial Services, the Committee on
20 Ways and Means, and the Committee on the Judici-
21 ary of the House of Representatives; and

22 (2) the Committee on Foreign Relations, the
23 Committee on Banking, Housing, and Urban Af-
24 fairs, and the Committee on the Judiciary of the
25 Senate.

1 **SEC. 7433. IMPLEMENTATION AND REGULATORY AUTHORI-**
2 **TIES.**

3 (a) IMPLEMENTATION AUTHORITY.—The President
4 may exercise all authorities provided to the President
5 under sections 203 and 205 of the International Emer-
6 gency Economic Powers Act (50 U.S.C. 1702 and 1704)
7 for purposes of carrying out this title and the amendments
8 made by this title.

9 (b) REGULATORY AUTHORITY.—The President shall,
10 not later than 180 days after the date of the enactment
11 of this Act, promulgate regulations as necessary for the
12 implementation of this title and the amendments made by
13 this title.

14 **SEC. 7434. EXCEPTION RELATING TO IMPORTATION OF**
15 **GOODS.**

16 (a) IN GENERAL.—The authorities and requirements
17 to impose sanctions authorized under this title or the
18 amendments made by this title shall not include the au-
19 thority or a requirement to impose sanctions on the impor-
20 tation of goods.

21 (b) GOOD DEFINED.—In this section, the term
22 “good” means any article, natural or manmade substance,
23 material, supply or manufactured product, including in-
24 spection and test equipment, and excluding technical data.

1 **SEC. 7435. COST LIMITATION.**

2 No additional funds are authorized to be appro-
3 priated to carry out the requirements of this title and the
4 amendments made by this title. Such requirements shall
5 be carried out using amounts otherwise authorized to be
6 appropriated.

7 **SEC. 7436. RULE OF CONSTRUCTION.**

8 Except for section 7434 with respect to the importa-
9 tion of goods, nothing in this title shall be construed to
10 limit the authority of the President pursuant to the Inter-
11 national Emergency Economic Powers Act (50 U.S.C.
12 1701 et seq.) or any other provision of law.

13 **SEC. 7437. PROHIBITION ON CONSTRUCTION OF PROVI-**
14 **SIONS OF THIS TITLE AS AN AUTHORIZATION**
15 **FOR USE OF MILITARY FORCE.**

16 Nothing in this title may be construed as an author-
17 ization for use of military force.

18 **SEC. 7438. SUNSET.**

19 This title shall cease to be effective on the date that
20 is 5 years after the date of the enactment of this Act.

21 **TITLE LXXV—PROTECTING**
22 **EUROPE’S ENERGY SECURITY**

Sec. 7501. Short title.

Sec. 7502. Sense of Congress.

Sec. 7503. Imposition of sanctions with respect to provision of certain vessels
for the construction of certain Russian energy export pipelines.

1 **SEC. 7501. SHORT TITLE.**

2 This title may be cited as the “Protecting Europe’s
3 Energy Security Act of 2019”.

4 **SEC. 7502. SENSE OF CONGRESS.**

5 It is the sense of Congress that—

6 (1) the United States and Europe share a com-
7 mon history, a common identity, and common values
8 built upon the principles of democracy, rule of law,
9 and individual freedoms;

10 (2) the United States has encouraged and ad-
11 mired the European project, which has resulted in a
12 common market and common policies, has achieved
13 unprecedented prosperity and stability on the con-
14 tinent, and serves as a model for other countries to
15 reform their institutions and prioritize
16 anticorruption measures;

17 (3) the relationships between the United States
18 and Europe and the United States and Germany are
19 critical to the national security interests of the
20 United States as well as to global prosperity and
21 peace, and Germany in particular is a crucial part-
22 ner for the United States in multilateral efforts
23 aimed at promoting global prosperity and peace;

24 (4) the United States should stand against any
25 effort designed to weaken those relationships; and

1 (5) Germany has demonstrated leadership with-
2 in the European Union and in international fora to
3 ensure that sanctions imposed with respect to the
4 Russian Federation for its malign activities are
5 maintained.

6 **SEC. 7503. IMPOSITION OF SANCTIONS WITH RESPECT TO**
7 **PROVISION OF CERTAIN VESSELS FOR THE**
8 **CONSTRUCTION OF CERTAIN RUSSIAN EN-**
9 **ERGY EXPORT PIPELINES.**

10 (a) REPORT REQUIRED.—

11 (1) IN GENERAL.—Not later than 60 days after
12 the date of the enactment of this Act, and every 90
13 days thereafter, the Secretary of State, in consulta-
14 tion with the Secretary of the Treasury, shall submit
15 to the appropriate congressional committees a report
16 that identifies, for the period specified in paragraph

17 (2)—

18 (A) vessels that engaged in pipe-laying at
19 depths of 100 feet or more below sea level for
20 the construction of the Nord Stream 2 pipeline
21 project, the TurkStream pipeline project, or any
22 project that is a successor to either such
23 project; and

1 (B) foreign persons that the Secretary of
2 State, in consultation with the Secretary of the
3 Treasury, determines have knowingly—

4 (i) sold, leased, or provided those ves-
5 sels for the construction of such a project;

6 or

7 (ii) facilitated deceptive or structured
8 transactions to provide those vessels for
9 the construction of such a project.

10 (2) PERIOD SPECIFIED.—The period specified
11 in this paragraph is—

12 (A) in the case of the first report required
13 to be submitted by paragraph (1), the period
14 beginning on the date of the enactment of this
15 Act and ending on the date on which the report
16 is submitted; and

17 (B) in the case of any subsequent such re-
18 port, the 90-day period preceding submission of
19 the report.

20 (b) INELIGIBILITY FOR VISAS, ADMISSION, OR PA-
21 ROLE OF IDENTIFIED PERSONS AND CORPORATE OFFI-
22 CERS.—

23 (1) IN GENERAL.—

24 (A) VISAS, ADMISSION, OR PAROLE.—An
25 alien described in paragraph (2) is—

1 (i) inadmissible to the United States;

2 (ii) ineligible to receive a visa or other

3 documentation to enter the United States;

4 and

5 (iii) otherwise ineligible to be admitted

6 or paroled into the United States or to re-

7 ceive any other benefit under the Immigra-

8 tion and Nationality Act (8 U.S.C. 1101 et

9 seq.).

10 (B) CURRENT VISAS REVOKED.—

11 (i) IN GENERAL.—The visa or other

12 entry documentation of an alien described

13 in paragraph (2) shall be revoked, regard-

14 less of when such visa or other entry docu-

15 mentation is or was issued.

16 (ii) IMMEDIATE EFFECT.—A revoca-

17 tion under clause (i) shall—

18 (I) take effect immediately; and

19 (II) automatically cancel any

20 other valid visa or entry documenta-

21 tion that is in the alien's possession.

22 (2) ALIENS DESCRIBED.—An alien is described

23 in this paragraph if the alien is—

24 (A) a foreign person identified under sub-

25 section (a)(1)(B);

1 (B) a corporate officer of a person de-
2 scribed in subparagraph (A); or

3 (C) a principal shareholder with a control-
4 ling interest in a person described in subpara-
5 graph (A).

6 (c) BLOCKING OF PROPERTY OF IDENTIFIED PER-
7 SONS.—The President shall exercise all powers granted to
8 the President by the International Emergency Economic
9 Powers Act (50 U.S.C. 1701 et seq.) to the extent nec-
10 essary to block and prohibit all transactions in all property
11 and interests in property of any person identified under
12 subsection (a)(1)(B) if such property and interests in
13 property are in the United States, come within the United
14 States, or are or come within the possession or control
15 of a United States person.

16 (d) WIND-DOWN PERIOD.—The President may not
17 impose sanctions under this section with respect to a per-
18 son identified in the first report submitted under sub-
19 section (a) if the President certifies in that report that
20 the person has, not later than 30 days after the date of
21 the enactment of this Act, engaged in good faith efforts
22 to wind down operations that would otherwise subject the
23 person to the imposition of sanctions under this section.

24 (e) EXCEPTIONS.—

1 (1) EXCEPTION FOR INTELLIGENCE, LAW EN-
2 FORCEMENT, AND NATIONAL SECURITY ACTIVI-
3 TIES.—Sanctions under this section shall not apply
4 to any authorized intelligence, law enforcement, or
5 national security activities of the United States.

6 (2) EXCEPTION TO COMPLY WITH UNITED NA-
7 TIONS HEADQUARTERS AGREEMENT.—Sanctions
8 under this section shall not apply with respect to the
9 admission of an alien to the United States if the ad-
10 mission of the alien is necessary to permit the
11 United States to comply with the Agreement regard-
12 ing the Headquarters of the United Nations, signed
13 at Lake Success June 26, 1947, and entered into
14 force November 21, 1947, between the United Na-
15 tions and the United States, the Convention on Con-
16 sular Relations, done at Vienna April 24, 1963, and
17 entered into force March 19, 1967, or other applica-
18 ble international obligations.

19 (3) EXCEPTION FOR SAFETY OF VESSELS AND
20 CREW.—Sanctions under this section shall not apply
21 with respect to a person providing provisions to a
22 vessel identified under subsection (a)(1)(A) if such
23 provisions are intended for the safety and care of
24 the crew aboard the vessel, the protection of human
25 life aboard the vessel, or the maintenance of the ves-

1 sel to avoid any environmental or other significant
2 damage.

3 (4) EXCEPTION FOR REPAIR OR MAINTENANCE
4 OF PIPELINES.—Sanctions under this section shall
5 not apply with respect to a person for engaging in
6 activities necessary for or related to the repair or
7 maintenance of, or environmental remediation with
8 respect to, a pipeline project described in subsection
9 (a)(1)(A).

10 (5) EXCEPTION RELATING TO IMPORTATION OF
11 GOODS.—

12 (A) IN GENERAL.—Notwithstanding any
13 other provision of this section, the authorities
14 and requirements to impose sanctions author-
15 ized under this section shall not include the au-
16 thority or a requirement to impose sanctions on
17 the importation of goods.

18 (B) GOOD DEFINED.—In this paragraph,
19 the term “good” means any article, natural or
20 man-made substance, material, supply or manu-
21 factured product, including inspection and test
22 equipment, and excluding technical data.

23 (f) WAIVERS.—

24 (1) NATIONAL INTEREST WAIVER FOR VISA
25 BAN.—The President may waive the application of

1 sanctions under subsection (b) with respect to an
2 alien if the President—

3 (A) determines that the waiver is in the
4 national interests of the United States; and

5 (B) submits to the appropriate congress-
6 sional committees a report on the waiver and
7 the reasons for the waiver.

8 (2) NATIONAL SECURITY WAIVER FOR ECO-
9 NOMIC AND OTHER SANCTIONS.—The President may
10 waive the application of sanctions under subsection
11 (c) with respect to a person if the President—

12 (A) determines that the waiver is in the
13 national security interests of the United States;
14 and

15 (B) submits to the appropriate congress-
16 sional committees a report on the waiver and
17 the reasons for the waiver.

18 (g) IMPLEMENTATION; PENALTIES.—

19 (1) IMPLEMENTATION.—The President may ex-
20 ercise all authorities provided to the President under
21 sections 203 and 205 of the International Emer-
22 gency Economic Powers Act (50 U.S.C. 1702 and
23 1704) to carry out this section.

24 (2) PENALTIES.—A person that violates, at-
25 tempts to violate, conspires to violate, or causes a

1 violation of this section or any regulation, license, or
2 order issued to carry out this section shall be subject
3 to the penalties set forth in subsections (b) and (c)
4 of section 206 of the International Emergency Eco-
5 nomic Powers Act (50 U.S.C. 1705) to the same ex-
6 tent as a person that commits an unlawful act de-
7 scribed in subsection (a) of that section.

8 (h) TERMINATION AND SUNSET.—The authority to
9 impose sanctions under this section with respect to a per-
10 son involved in the construction of a pipeline project de-
11 scribed in subsection (a)(1)(A), and any sanctions imposed
12 under this section with respect to that project, shall termi-
13 nate on the date that is the earlier of—

14 (1) the date on which the President certifies to
15 the appropriate congressional committees that ap-
16 propriate safeguards have been put in place—

17 (A) to minimize the ability of the Govern-
18 ment of the Russian Federation to use that
19 project as a tool of coercion and political lever-
20 age, including by achieving the unbundling of
21 energy production and transmission so that en-
22 tities owned or controlled by that Government
23 do not control the transmission network for the
24 pipeline; and

1 (B) to ensure, barring unforeseen cir-
2 cumstances, that the project would not result in
3 a decrease of more than 25 percent in the vol-
4 ume of Russian energy exports transiting
5 through existing pipelines in other countries,
6 particularly Ukraine, relative to the average
7 monthly volume of Russian energy exports
8 transiting through such pipelines in 2018; or

9 (2) the date that is 5 years after the date of the
10 enactment of this Act.

11 (i) DEFINITIONS.—In this section:

12 (1) ADMISSION; ADMITTED; ALIEN.—The terms
13 “admission”, “admitted”, and “alien” have the
14 meanings given those terms in section 101 of the
15 Immigration and Nationality Act (8 U.S.C. 1101).

16 (2) APPROPRIATE CONGRESSIONAL COMMIT-
17 TEES.—The term “appropriate congressional com-
18 mittees” means—

19 (A) the Committee on Foreign Relations
20 and the Committee on Banking, Housing, and
21 Urban Affairs of the Senate; and

22 (B) the Committee on Foreign Affairs and
23 the Committee on Financial Services of the
24 House of Representatives.

1 (3) FOREIGN PERSON.—The term “foreign per-
2 son” means an individual or entity that is not a
3 United States person.

4 (4) KNOWINGLY.—The term “knowingly”, with
5 respect to conduct, a circumstance, or a result,
6 means that a person has actual knowledge, or should
7 have known, of the conduct, the circumstance, or the
8 result.

9 (5) UNITED STATES PERSON.—The term
10 “United States person” means—

11 (A) a United States citizen or an alien law-
12 fully admitted for permanent residence to the
13 United States;

14 (B) an entity organized under the laws of
15 the United States or any jurisdiction within the
16 United States, including a foreign branch of
17 such an entity; or

18 (C) any person within the United States.

19 **TITLE LXXVI—OTHER MATTERS**

Subtitle A—Federal Employee Paid Leave Act

- Sec. 7601. Short title.
- Sec. 7602. Paid parental leave under title 5.
- Sec. 7603. Paid parental leave for congressional employees.
- Sec. 7604. Conforming amendment to Family and Medical Leave Act for GAO
 and Library of Congress employees.
- Sec. 7605. Clarification for members of the National Guard and Reserves.
- Sec. 7606. Conforming amendment for certain TSA employees.

Subtitle B—Other Matters

- Sec. 7611. Liberian refugee immigration fairness.
- Sec. 7612. Pensacola Dam and Reservoir, Grand River, Oklahoma.

Sec. 7613. Limitation on certain rolling stock procurements; cybersecurity certification for rail rolling stock and operations.

1 **Subtitle A—Federal Employee Paid**
2 **Leave Act**

3 **SEC. 7601. SHORT TITLE.**

4 This subtitle may be cited as the “Federal Employee
5 Paid Leave Act”.

6 **SEC. 7602. PAID PARENTAL LEAVE UNDER TITLE 5.**

7 (a) IN GENERAL.—Subsection (d) of section 6382 of
8 title 5, United States Code, is amended—

9 (1) by striking “An employee” and inserting
10 “(1) An employee”;

11 (2) by striking “subparagraph (A), (B), (C),”
12 and inserting “subparagraph (C),”; and

13 (3) by adding at the end the following:

14 “(2)(A) An employee may elect to substitute for
15 any leave without pay under subparagraph (A) or
16 (B) of subsection (a)(1) any paid leave which is
17 available to such employee for that purpose.

18 “(B) The paid leave that is available to an em-
19 ployee for purposes of subparagraph (A) is—

20 “(i) 12 administrative workweeks of paid
21 parental leave under this subparagraph in con-
22 nection with the birth or placement involved;
23 and

1 “(ii) during the 12-month period referred
2 to in subsection (a)(1), and in addition to the
3 12 administrative workweeks under clause (i),
4 any annual or sick leave accrued or accumu-
5 lated by such employee under subchapter I.

6 “(C) Nothing in this subsection shall be consid-
7 ered to require that an employee first use all or any
8 portion of the leave described in subparagraph
9 (B)(ii) before being allowed to use the paid parental
10 leave described in subparagraph (B)(i).

11 “(D) Paid parental leave under subparagraph
12 (B)(i)—

13 “(i) shall be payable from any appropria-
14 tion or fund available for salaries or expenses
15 for positions within the employing agency;

16 “(ii) shall not be considered to be annual
17 or vacation leave for purposes of section 5551
18 or 5552 or for any other purpose; and

19 “(iii) if not used by the employee before
20 the end of the 12-month period (as referred to
21 in subsection (a)(1)) to which it relates, shall
22 not accumulate for any subsequent use.

23 “(E) Nothing in this paragraph shall be con-
24 strued to modify the requirement to complete at
25 least 12 months of service as an employee (within

1 the meaning of section 6381(1)(A)) before the date
2 of the applicable birth or placement involved to be
3 eligible for paid parental leave under subparagraph
4 (B)(i) of this paragraph.

5 “(F)(i) An employee may not take leave under
6 this paragraph unless the employee agrees (in writ-
7 ing), before the commencement of such leave, to
8 work for the applicable employing agency for not
9 less than a period of 12 weeks beginning on the date
10 such leave concludes.

11 “(ii) The head of the agency shall waive the re-
12 quirement in clause (i) in any instance where the
13 employee is unable to return to work because of the
14 continuation, recurrence, or onset of a serious health
15 condition (including mental health), related to the
16 applicable birth or placement of a child, of the em-
17 ployee or the child.

18 “(iii) The head of the employing agency may re-
19 quire that an employee who claims to be unable to
20 return to work because of a health condition de-
21 scribed under clause (ii) provide certification sup-
22 porting such claim by the health care provider of the
23 employee or the child (as the case may be). The em-
24 ployee shall provide such certification to the head in
25 a timely manner.

1 “(G)(i) If an employee fails to return from paid
2 leave provided under this paragraph after the date
3 such leave concludes, the employing agency may re-
4 cover, from such employee, an amount equal to the
5 total amount of Government contributions paid by
6 the agency under section 8906 on behalf of the em-
7 ployee for maintaining such employee’s health cov-
8 erage under chapter 89 during the period of such
9 leave.

10 “(ii) Clause (i) shall not apply to any employee
11 who fails to return from such leave due to—

12 “(I) the continuation, recurrence, or onset
13 of a serious health condition as described under,
14 and consistent with the requirements of, sub-
15 paragraph (F); or

16 “(II) any other circumstance beyond the
17 control of the employee.”.

18 (b) CONFORMING AMENDMENTS.—Section 6382(a) is
19 amended—

20 (1) in paragraph (1), in the matter preceding
21 subparagraph (A) by inserting “and subsection
22 (d)(2) of this section” after “section 6383”; and

23 (2) in paragraph (4), by striking “During” and
24 inserting “Subject to subsection (d)(2), during”.

1 (c) EFFECTIVE DATE.—The amendments made by
2 this section shall not be effective with respect to any birth
3 or placement occurring before October 1, 2020.

4 **SEC. 7603. PAID PARENTAL LEAVE FOR CONGRESSIONAL**
5 **EMPLOYEES.**

6 (a) AMENDMENTS TO CONGRESSIONAL ACCOUNT-
7 ABILITY ACT.—Section 202 of the Congressional Account-
8 ability Act of 1995 (2 U.S.C. 1312) is amended—

9 (1) in subsection (a)(1), by adding at the end
10 the following: “In applying section 102 of such Act
11 with respect to leave for an event described in sub-
12 section (a)(1)(A) or (B) of such section to covered
13 employees, subsection (d) of this section shall apply.
14 Paragraphs (1) and (4) of section 102(a) of such
15 Act shall be subject to subsection (d) of this sec-
16 tion.”;

17 (2) by redesignating subsections (d) and (e) as
18 subsections (e) and (f), respectively; and

19 (3) by inserting after subsection (c) the fol-
20 lowing:

21 “(d) SPECIAL RULE FOR PAID PARENTAL LEAVE.—

22 “(1) SUBSTITUTION OF PAID LEAVE.—A cov-
23 ered employee may elect to substitute for any leave
24 without pay under subparagraph (A) or (B) of sec-
25 tion 102(a)(1) of the Family and Medical Leave Act

1 of 1993 (29 U.S.C. 2612(a)(1)) any paid leave
2 which is available to such employee for that purpose.

3 “(2) AMOUNT OF PAID LEAVE.—The paid leave
4 that is available to a covered employee for purposes
5 of paragraph (1) is—

6 “(A) the number of weeks of paid parental
7 leave in connection with the birth or placement
8 involved that corresponds to the number of ad-
9 ministrative workweeks of paid parental leave
10 available to employees under section
11 6382(d)(2)(B)(i) of title 5, United States Code;
12 and

13 “(B) during the 12-month period referred
14 to in section 102(a)(1) of the Family and Med-
15 ical Leave Act of 1993 (29 U.S.C. 2612(a)(1))
16 and in addition to the administrative workweeks
17 described in subparagraph (A), any additional
18 paid vacation, personal, family, medical, or sick
19 leave provided by the employing office to such
20 employee.

21 “(3) LIMITATION.—Nothing in this section or
22 section 102(d)(2)(A) of the Family and Medical
23 Leave Act of 1993 (29 U.S.C. 2612(d)(2)(A)) shall
24 be considered to require or permit an employing of-
25 fice to require that an employee first use all or any

1 portion of the leave described in paragraph (2)(B)
2 before being allowed to use the paid parental leave
3 described in paragraph (2)(A).

4 “(4) ADDITIONAL RULES.—Paid parental leave
5 under paragraph (2)(A)—

6 “(A) shall be payable from any appropria-
7 tion or fund available for salaries or expenses
8 for positions within the employing office;

9 “(B) if not used by the covered employee
10 before the end of the 12-month period (as re-
11 ferred to in section 102(a)(1) of the Family and
12 Medical Leave Act of 1993 (29 U.S.C.
13 2612(a)(1))) to which it relates, shall not accu-
14 mulate for any subsequent use; and

15 “(C) shall apply without regard to the limi-
16 tations in subparagraph (E), (F), or (G) of sec-
17 tion 6382(d)(2) of title 5, United States Code,
18 or section 104(c)(2) of the Family and Medical
19 Leave Act of 1993 (29 U.S.C. 2614(c)(2)).”.

20 (b) CONFORMING AMENDMENT.—Section 202(a)(2)
21 of the Congressional Accountability Act of 1995 (2 U.S.C.
22 1312(a)(2)) is amended by adding at the end the fol-
23 lowing: “The requirements of subparagraph (B) shall not
24 apply with respect to leave under subparagraph (A) or (B)

1 of section 102(a)(1) of the Family and Medical Leave Act
2 of 1993 (29 U.S.C. 2612(a)(1)).”.

3 (c) EFFECTIVE DATE.—The amendments made by
4 this section shall not be effective with respect to any birth
5 or placement occurring before October 1, 2020.

6 **SEC. 7604. CONFORMING AMENDMENT TO FAMILY AND**
7 **MEDICAL LEAVE ACT FOR GAO AND LIBRARY**
8 **OF CONGRESS EMPLOYEES.**

9 (a) AMENDMENT TO FAMILY AND MEDICAL LEAVE
10 ACT OF 1993.—Section 102 of the Family and Medical
11 Leave Act of 1993 (29 U.S.C. 2612) is amended—

12 (1) in subsection (a)—

13 (A) in paragraph (1), by inserting “and
14 subsection (d)(3)” after “section 103”; and

15 (B) in paragraph (4), by striking “Dur-
16 ing” and inserting “Subject to subsection
17 (d)(3), during”; and

18 (2) in subsection (d), by adding at the end the
19 following:

20 “(3) SPECIAL RULE FOR GAO EMPLOYEES.—

21 “(A) SUBSTITUTION OF PAID LEAVE.—An
22 employee of the Government Accountability Of-
23 fice may elect to substitute for any leave with-
24 out pay under subparagraph (A) or (B) of sub-

1 section (a)(1) any paid leave which is available
2 to such employee for that purpose.

3 “(B) AMOUNT OF PAID LEAVE.—The paid
4 leave that is available to an employee of the
5 Government Accountability Office for purposes
6 of subparagraph (A) is—

7 “(i) the number of weeks of paid pa-
8 rental leave in connection with the birth or
9 placement involved that corresponds to the
10 number of administrative workweeks of
11 paid parental leave available to employees
12 under section 6382(d)(2)(B)(i) of title 5,
13 United States Code; and

14 “(ii) during the 12-month period re-
15 ferred to in section 102(a)(1) and in addi-
16 tion to the administrative workweeks de-
17 scribed in clause (i), any additional paid
18 vacation, personal, family, medical, or sick
19 leave provided by such employer.

20 “(C) LIMITATION.—Nothing in this section
21 shall be considered to require or permit an em-
22 ployer to require that an employee first use all
23 or any portion of the leave described in sub-
24 paragraph (B)(ii) before being allowed to use

1 the paid parental leave described in clause (i) of
2 subparagraph (B).

3 “(D) ADDITIONAL RULES.—Paid parental
4 leave under subparagraph (B)(i)—

5 “(i) shall be payable from any appro-
6 priation or fund available for salaries or
7 expenses for positions with the Government
8 Accountability Office;

9 “(ii) if not used by the employee of
10 such employer before the end of the 12-
11 month period (as referred to in subsection
12 (a)(1)) to which it relates, shall not accu-
13 mulate for any subsequent use; and

14 “(iii) shall apply without regard to the
15 limitations in subparagraph (E), (F), or
16 (G) of section 6382(d)(2) of title 5, United
17 States Code or section 104(c)(2) of this
18 Act.

19 “(4) SPECIAL RULE FOR LIBRARY OF CON-
20 GRESS EMPLOYEES.—Consistent with section
21 101(a)(3)(J) of the Congressional Accountability Act
22 of 1995 (2 U.S.C. 1301(a)(3)(J)), the rights and
23 protections established by sections 101 through 105,
24 including section 102(d)(3), shall apply to employees

1 of the Library of Congress under section 202 of that
2 Act (2 U.S.C. 1312).”.

3 (b) CONFORMING AMENDMENT.—Section 101(2) of
4 the Family and Medical Leave Act of 1993 (29 U.S.C.
5 2611(2)) is amended by adding at the end the following:

6 “(E) GAO EMPLOYEES.—In the case of an
7 employee of the Government Accountability Of-
8 fice, the requirements of subparagraph (A) shall
9 not apply with respect to leave under section
10 102(a)(1)(A) or (B).”.

11 (c) EFFECTIVE DATE.—The amendments made by
12 this section shall not be effective with respect to any birth
13 or placement occurring before October 1, 2020.

14 **SEC. 7605. CLARIFICATION FOR MEMBERS OF THE NA-**
15 **TIONAL GUARD AND RESERVES.**

16 (a) EXECUTIVE BRANCH EMPLOYEES.—For pur-
17 poses of determining the eligibility of an employee who is
18 a member of the National Guard or Reserves to take leave
19 under section 6382(a) of title 5, United States Code, or
20 to substitute such leave pursuant to subsection (d)(2)(A)
21 of section 6382 of such title (as added by section 1102),
22 any service by such employee on active duty (as defined
23 in section 6381(7) of such title) shall be counted as service
24 as an employee for purposes of section 6381(1)(B) of such
25 title.

1 (b) CONGRESSIONAL EMPLOYEES.—For purposes of
2 determining the eligibility of a covered employee (as such
3 term is defined in section 101(3) of the Congressional Ac-
4 countability Act) who is a member of the National Guard
5 or Reserves to take leave under section 102(a) of the Fam-
6 ily and Medical Leave Act of 1993 (pursuant to section
7 202(a)(1) of the Congressional Accountability Act), any
8 service by such employee on active duty (as defined in sec-
9 tion 101(14) of the Family and Medical Leave Act of
10 1993) shall be counted as time during which such em-
11 ployee has been employed in an employing office for pur-
12 poses of section 202(a)(2)(B) of the Congressional Ac-
13 countability Act.

14 (c) GAO AND LIBRARY OF CONGRESS EMPLOYEES.—
15 For purposes of determining the eligibility of an employee
16 of the Government Accountability Office or Library of
17 Congress who is a member of the National Guard or Re-
18 serves to take leave under section 102(a) of the Family
19 and Medical Leave Act of 1993, any service by such em-
20 ployee on active duty (as defined in section 101(14) of
21 such Act) shall be counted as time during which such em-
22 ployee has been employed for purposes of section
23 101(2)(A) of such Act.

1 **SEC. 7606. CONFORMING AMENDMENT FOR CERTAIN TSA**
2 **EMPLOYEES.**

3 Section 111(d)(2) of the Aviation and Transportation
4 Security Act (49 U.S.C. 44935 note) is amended to read
5 as follows:

6 “(2) EXCEPTIONS.—

7 “(A) REEMPLOYMENT.—In carrying out
8 the functions authorized under paragraph (1),
9 the Under Secretary shall be subject to the pro-
10 visions set forth in chapter 43 of title 38,
11 United States Code.

12 “(B) LEAVE.—The provisions of sub-
13 chapter V of chapter 63 of title 5, United
14 States Code, shall apply to any individual ap-
15 pointed under paragraph (1) as if such indi-
16 vidual were an employee (within the meaning of
17 subparagraph (A) of section 6381(1) of such
18 title).”.

19 **Subtitle B—Other Matters**

20 **SEC. 7611. LIBERIAN REFUGEE IMMIGRATION FAIRNESS.**

21 (a) DEFINITIONS.—In this section:

22 (1) IN GENERAL.—Except as otherwise specifi-
23 cally provided, any term used in this Act that is
24 used in the immigration laws shall have the meaning
25 given the term in the immigration laws.

1 (2) IMMIGRATION LAWS.—The term “immigra-
2 tion laws” has the meaning given the term in section
3 101(a)(17) of the Immigration and Nationality Act
4 (8 U.S.C. 1101(a)(17)).

5 (3) SECRETARY.—The term “Secretary” means
6 the Secretary of Homeland Security.

7 (b) ADJUSTMENT OF STATUS.—

8 (1) IN GENERAL.—Except as provided in para-
9 graph (3), the Secretary shall adjust the status of
10 an alien described in subsection (c) to that of an
11 alien lawfully admitted for permanent residence if
12 the alien—

13 (A) applies for adjustment not later than
14 1 year after the date of the enactment of this
15 Act;

16 (B) is otherwise eligible to receive an im-
17 migrant visa; and

18 (C) subject to paragraph (2), is admissible
19 to the United States for permanent residence.

20 (2) APPLICABILITY OF GROUNDS OF INADMIS-
21 SIBILITY.—In determining the admissibility of an
22 alien under paragraph (1)(C), the grounds of inad-
23 missibility specified in paragraphs (4), (5), (6)(A),
24 and (7)(A) of section 212(a) of the Immigration and
25 Nationality Act (8 U.S.C. 1182(a)) shall not apply.

1 (3) EXCEPTIONS.—An alien shall not be eligible
2 for adjustment of status under this subsection if the
3 Secretary determines that the alien—

4 (A) has been convicted of any aggravated
5 felony;

6 (B) has been convicted of two or more
7 crimes involving moral turpitude (other than a
8 purely political offense); or

9 (C) has ordered, incited, assisted, or other-
10 wise participated in the persecution of any per-
11 son on account of race, religion, nationality,
12 membership in a particular social group, or po-
13 litical opinion.

14 (4) RELATIONSHIP OF APPLICATION TO CER-
15 TAIN ORDERS.—

16 (A) IN GENERAL.—An alien present in the
17 United States who has been subject to an order
18 of exclusion, deportation, removal, or voluntary
19 departure under any provision of the Immigra-
20 tion and Nationality Act (8 U.S.C. 1101 et
21 seq.) may, notwithstanding such order, submit
22 an application for adjustment of status under
23 this subsection if the alien is otherwise eligible
24 for adjustment of status under paragraph (1).

1 (B) SEPARATE MOTION NOT REQUIRED.—
2 An alien described in subparagraph (A) shall
3 not be required, as a condition of submitting or
4 granting an application under this subsection,
5 to file a separate motion to reopen, reconsider,
6 or vacate an order described in subparagraph
7 (A).

8 (C) EFFECT OF DECISION BY SEC-
9 RETARY.—

10 (i) GRANT.—If the Secretary adjusts
11 the status of an alien pursuant to an appli-
12 cation under this subsection, the Secretary
13 shall cancel any order described in sub-
14 paragraph (A) to which the alien has been
15 subject.

16 (ii) DENIAL.—If the Secretary makes
17 a final decision to deny such application,
18 any such order shall be effective and en-
19 forceable to the same extent that such
20 order would be effective and enforceable if
21 the application had not been made.

22 (c) ALIENS ELIGIBLE FOR ADJUSTMENT OF STA-
23 TUS.—

24 (1) IN GENERAL.—The benefits provided under
25 subsection (b) shall apply to any alien who—

1 (A)(i) is a national of Liberia; and
2 (ii) has been continuously present in the
3 United States during the period beginning on
4 November 20, 2014, and ending on the date on
5 which the alien submits an application under
6 subsection (b); or

7 (B) is the spouse, child, or unmarried son
8 or daughter of an alien described in subpara-
9 graph (A).

10 (2) DETERMINATION OF CONTINUOUS PHYS-
11 ICAL PRESENCE.—For purposes of establishing the
12 period of continuous physical presence referred to in
13 paragraph (1)(A)(ii), an alien shall not be consid-
14 ered to have failed to maintain continuous physical
15 presence based on one or more absences from the
16 United States for one or more periods amounting, in
17 the aggregate, of not more than 180 days.

18 (d) STAY OF REMOVAL.—

19 (1) IN GENERAL.—The Secretary shall promul-
20 gate regulations establishing procedures by which an
21 alien who is subject to a final order of deportation,
22 removal, or exclusion, may seek a stay of such order
23 based on the filing of an application under sub-
24 section (b).

25 (2) DURING CERTAIN PROCEEDINGS.—

1 (A) IN GENERAL.—Except as provided in
2 subparagraph (B), notwithstanding any provi-
3 sion of the Immigration and Nationality Act (8
4 U.S.C. 1101 et seq.), the Secretary may not
5 order an alien to be removed from the United
6 States if the alien—

7 (i) is in exclusion, deportation, or re-
8 moval proceedings under any provision of
9 such Act; and

10 (ii) has submitted an application for
11 adjustment of status under subsection (b).

12 (B) EXCEPTION.—The Secretary may
13 order an alien described in subparagraph (A) to
14 be removed from the United States if the Sec-
15 retary has made a final determination to deny
16 the application for adjustment of status under
17 subsection (b) of the alien.

18 (3) WORK AUTHORIZATION.—

19 (A) IN GENERAL.—The Secretary may—

20 (i) authorize an alien who has applied
21 for adjustment of status under subsection
22 (b) to engage in employment in the United
23 States during the period in which a deter-
24 mination on such application is pending;
25 and

1 (ii) provide such alien with an “em-
2 ployment authorized” endorsement or
3 other appropriate document signifying au-
4 thorization of employment.

5 (B) PENDING APPLICATIONS.—If an appli-
6 cation for adjustment of status under sub-
7 section (b) is pending for a period exceeding
8 180 days and has not been denied, the Sec-
9 retary shall authorize employment for the appli-
10 cable alien.

11 (e) RECORD OF PERMANENT RESIDENCE.—On the
12 approval of an application for adjustment of status under
13 subsection (b) of an alien, the Secretary shall establish
14 a record of admission for permanent residence for the
15 alien as of the date of the arrival of the alien in the United
16 States.

17 (f) AVAILABILITY OF ADMINISTRATIVE REVIEW.—
18 The Secretary shall provide applicants for adjustment of
19 status under subsection (b) with the same right to, and
20 procedures for, administrative review as are provided to—

21 (1) applicants for adjustment of status under
22 section 245 of the Immigration and Nationality Act
23 (8 U.S.C. 1255); and

24 (2) aliens subject to removal proceedings under
25 section 240 of such Act (8 U.S.C. 1229a).

1 (g) LIMITATION ON JUDICIAL REVIEW.—

2 (1) IN GENERAL.—A determination by the Sec-
3 retary with respect to the adjustment of status of
4 any alien under this section is final and shall not be
5 subject to review by any court.

6 (2) RULE OF CONSTRUCTION.—Nothing in
7 paragraph (1) shall be construed to preclude the re-
8 view of a constitutional claim or a question of law
9 under section 704 of title 5, United States Code,
10 with respect to a denial of adjustment of status
11 under this section.

12 (h) NO OFFSET IN NUMBER OF VISAS AVAILABLE.—
13 The Secretary of State shall not be required to reduce the
14 number of immigrant visas authorized to be issued under
15 any provision of the Immigration and Nationality Act (8
16 U.S.C. 1101 et seq.) to offset the adjustment of status
17 of an alien who has been lawfully admitted for permanent
18 residence pursuant to this section.

19 (i) APPLICATION OF IMMIGRATION AND NATION-
20 ALITY ACT PROVISIONS.—

21 (1) SAVINGS PROVISION.—Nothing in this Act
22 may be construed to repeal, amend, alter, modify, ef-
23 fect, or restrict the powers, duties, function, or au-
24 thority of the Secretary in the administration and
25 enforcement of the Immigration and Nationality Act

1 (8 U.S.C. 1101 et seq.) or any other law relating to
2 immigration, nationality, or naturalization.

3 (2) EFFECT OF ELIGIBILITY FOR ADJUSTMENT
4 OF STATUS.—The eligibility of an alien to be law-
5 fully admitted for permanent residence under this
6 section shall not preclude the alien from seeking any
7 status under any other provision of law for which
8 the alien may otherwise be eligible.

9 **SEC. 7612. PENSACOLA DAM AND RESERVOIR, GRAND**
10 **RIVER, OKLAHOMA.**

11 (a) DEFINITIONS.—In this section:

12 (1) COMMISSION.—The term “Commission”
13 means the Federal Energy Regulatory Commission.

14 (2) CONSERVATION POOL.—The term “con-
15 servation pool” means all land and water of Grand
16 Lake O’ the Cherokees, Oklahoma, below the flood
17 pool.

18 (3) FLOOD POOL.—The term “flood pool”
19 means all land and water of Grand Lake O’ the
20 Cherokees, Oklahoma, allocated for flood control or
21 navigation by the Secretary pursuant to section 7 of
22 the Flood Control Act of 1944 (33 U.S.C. 709).

23 (4) PROJECT.—The term “project” means the
24 Pensacola Hydroelectric Project (FERC No. 1494).

1 (5) SECRETARY.—The term “Secretary” means
2 the Secretary of the Army.

3 (b) CONSERVATION POOL MANAGEMENT.—

4 (1) FEDERAL LAND.—Notwithstanding section
5 3(2) of the Federal Power Act (16 U.S.C. 796(2)),
6 any Federal land within the project boundary, in-
7 cluding any right, title, or interest in or to land held
8 by the United States for any purpose, shall not—

9 (A) be subject to the first proviso in sec-
10 tion 4(e) of the Federal Power Act (16 U.S.C.
11 797(e)); or

12 (B) be considered to be—

13 (i) land or other property of the
14 United States for purposes of
15 recompensing the United States for the
16 use, occupancy, or enjoyment of the land
17 under section 10(e)(1) of that Act (16
18 U.S.C. 803(e)(1)); or

19 (ii) land of the United States for pur-
20 poses of section 24 of that Act (16 U.S.C.
21 818).

22 (2) LICENSE CONDITIONS.—

23 (A) IN GENERAL.—Except as may be re-
24 quired by the Secretary to carry out responsibil-
25 ities under section 7 of the Flood Control Act

1 of 1944 (33 U.S.C. 709), the Commission or
2 any other Federal or State agency shall not in-
3 clude in any license for the project any condi-
4 tion or other requirement relating to—

5 (i) surface elevations of the conserva-
6 tion pool; or

7 (ii) the flood pool (except to the ex-
8 tent it references flood control require-
9 ments prescribed by the Secretary).

10 (B) EXCEPTION.—Notwithstanding sub-
11 paragraph (A), the project shall remain subject
12 to the Commission’s rules and regulations for
13 project safety and protection of human health.

14 (3) PROJECT SCOPE.—

15 (A) LICENSING JURISDICTION.—The li-
16 censing jurisdiction of the Commission for the
17 project shall not extend to any land or water
18 outside the project boundary.

19 (B) OUTSIDE INFRASTRUCTURE.—Any
20 land, water, or physical infrastructure or other
21 improvement outside the project boundary shall
22 not be considered to be part of the project.

23 (C) BOUNDARY JURISDICTION AMEND-
24 MENTS.—The Commission may, consistent with
25 the requirements of the Federal Power Act,

1 amend the project boundary, only with the ex-
2 pressed written agreement of the project li-
3 censee. If the licensee does not agree to a
4 project boundary change proposed by the Com-
5 mission, the purposes and requirements of part
6 I of the Federal Power Act (16 U.S.C. 791a et
7 seq.) shall be deemed to be satisfied without the
8 Commission's proposed boundary or jurisdiction
9 change.

10 (c) EXCLUSIVE JURISDICTION OF FLOOD POOL MAN-
11 AGEMENT.—The Secretary shall have exclusive jurisdic-
12 tion and responsibility for management of the flood pool
13 for flood control operations at Grand Lake O' the Chero-
14 kees.

15 (d) STUDY OF UPSTREAM INFRASTRUCTURE.—Not
16 later than 90 days after the date of the enactment of this
17 Act, the Secretary shall initiate a study of infrastructure
18 and lands upstream from the project to evaluate resiliency
19 to flooding. Not later than one year after initiating the
20 study, the Secretary shall issue a report advising local
21 communities and State departments of transportation of
22 any identified deficiencies and potential mitigation op-
23 tions.

24 (e) SAVINGS PROVISION.—Nothing in this section af-
25 fects, with respect to the project—

1 (1) any authority or obligation of the Secretary
2 or the Chief of Engineers pursuant to section 2 of
3 the Act of June 28, 1938 (commonly known as the
4 “Flood Control Act of 1938”) (33 U.S.C. 701c–1);

5 (2) any authority of the Secretary or the Chief
6 of Engineers pursuant to section 7 of the Act of De-
7 cember 22, 1944 (commonly known as the “Flood
8 Control Act of 1944”) (33 U.S.C. 709);

9 (3) any obligation of the United States to ob-
10 tain flowage or other property rights pursuant to the
11 Act of July 31, 1946 (60 Stat. 743, chapter 710);

12 (4) any obligation of the United States to ac-
13 quire flowage or other property rights for additional
14 reservoir storage pursuant to Executive Order 9839
15 (12 Fed. Reg. 2447; relating to the Grand River
16 Dam Project);

17 (5) any authority of the Secretary to acquire
18 real property interest pursuant to section 560 of the
19 Water Resources Development Act of 1996 (Public
20 Law 104–303; 110 Stat. 3783);

21 (6) any obligation of the Secretary to conduct
22 and pay the cost of a feasibility study pursuant to
23 section 449 of the Water Resources Development
24 Act of 2000 (Public Law 106–541; 114 Stat. 2641);

1 (7) the National Flood Insurance Program es-
2 tablished under the National Flood Insurance Act of
3 1968 (42 U.S.C. 4001 et seq.), including any policy
4 issued under that Act; or

5 (8) any disaster assistance made available
6 under the Robert T. Stafford Disaster Relief and
7 Emergency Assistance Act (42 U.S.C. 5121 et seq.)
8 or other Federal disaster assistance program.

9 **SEC. 7613. LIMITATION ON CERTAIN ROLLING STOCK PRO-**
10 **CUREMENTS; CYBERSECURITY CERTIFI-**
11 **CATION FOR RAIL ROLLING STOCK AND OP-**
12 **ERATIONS.**

13 Section 5323 of title 49, United States Code, is
14 amended by adding at the end the following:

15 “(u) LIMITATION ON CERTAIN ROLLING STOCK PRO-
16 CUREMENTS.—

17 “(1) IN GENERAL.—Except as provided in para-
18 graph (5), financial assistance made available under
19 this chapter shall not be used in awarding a contract
20 or subcontract to an entity on or after the date of
21 enactment of this subsection for the procurement of
22 rolling stock for use in public transportation if the
23 manufacturer of the rolling stock—

24 “(A) is incorporated in or has manufac-
25 turing facilities in the United States; and

1 “(B) is owned or controlled by, is a sub-
2 sidiary of, or is otherwise related legally or fi-
3 nancially to a corporation based in a country
4 that—

5 “(i) is identified as a nonmarket econ-
6 omy country (as defined in section 771(18)
7 of the Tariff Act of 1930 (19 U.S.C.
8 1677(18))) as of the date of enactment of
9 this subsection;

10 “(ii) was identified by the United
11 States Trade Representative in the most
12 recent report required by section 182 of
13 the Trade Act of 1974 (19 U.S.C. 2242)
14 as a foreign country included on the pri-
15 ority watch list defined in subsection (g)(3)
16 of that section; and

17 “(iii) is subject to monitoring by the
18 Trade Representative under section 306 of
19 the Trade Act of 1974 (19 U.S.C. 2416).

20 “(2) EXCEPTION.—For purposes of paragraph
21 (1), the term ‘otherwise related legally or financially’
22 does not include a minority relationship or invest-
23 ment.

24 “(3) INTERNATIONAL AGREEMENTS.—This sub-
25 section shall be applied in a manner consistent with

1 the obligations of the United States under inter-
2 national agreements.

3 “(4) CERTIFICATION FOR RAIL ROLLING
4 STOCK.—

5 “(A) IN GENERAL.—Except as provided in
6 paragraph (5), as a condition of financial as-
7 sistance made available in a fiscal year under
8 section 5337, a recipient that operates rail fixed
9 guideway service shall certify in that fiscal year
10 that the recipient will not award any contract
11 or subcontract for the procurement of rail roll-
12 ing stock for use in public transportation with
13 a rail rolling stock manufacturer described in
14 paragraph (1).

15 “(B) SEPARATE CERTIFICATION.—The cer-
16 tification required under this paragraph shall be
17 in addition to any certification the Secretary es-
18 tablishes to ensure compliance with the require-
19 ments of paragraph (1).

20 “(5) SPECIAL RULES.—

21 “(A) PARTIES TO EXECUTED CON-
22 TRACTS.—This subsection, including the certifi-
23 cation requirement under paragraph (4), shall
24 not apply to the award of any contract or sub-
25 contract made by a public transportation agen-

1 cy with a rail rolling stock manufacturer de-
2 scribed in paragraph (1) if the manufacturer
3 and the public transportation agency have exe-
4 cuted a contract for rail rolling stock before the
5 date of enactment of this subsection.

6 “(B) ROLLING STOCK.—Except as pro-
7 vided in subparagraph (C) and for a contract or
8 subcontract that is not described in subpara-
9 graph (A), this subsection, including the certifi-
10 cation requirement under paragraph (4), shall
11 not apply to the award of a contract or sub-
12 contract made by a public transportation agen-
13 cy with any rolling stock manufacturer for the
14 2-year period beginning on or after the date of
15 enactment of this subsection.

16 “(C) EXCEPTION.—Subparagraph (B)
17 shall not apply to the award of a contract or
18 subcontract made by the Washington Metropoli-
19 tan Area Transit Authority.

20 “(v) CYBERSECURITY CERTIFICATION FOR RAIL
21 ROLLING STOCK AND OPERATIONS.—

22 “(1) CERTIFICATION.—As a condition of finan-
23 cial assistance made available under this chapter, a
24 recipient that operates a rail fixed guideway public
25 transportation system shall certify that the recipient

1 has established a process to develop, maintain, and
2 execute a written plan for identifying and reducing
3 cybersecurity risks.

4 “(2) COMPLIANCE.—For the process required
5 under paragraph (1), a recipient of assistance under
6 this chapter shall—

7 “(A) utilize the approach described by the
8 voluntary standards and best practices devel-
9 oped under section 2(c)(15) of the National In-
10 stitute of Standards and Technology Act (15
11 U.S.C. 272(c)(15)), as applicable;

12 “(B) identify hardware and software that
13 the recipient determines should undergo third-
14 party testing and analysis to mitigate cyberse-
15 curity risks, such as hardware or software for
16 rail rolling stock under proposed procurements;
17 and

18 “(C) utilize the approach described in any
19 voluntary standards and best practices for rail
20 fixed guideway public transportation systems
21 developed under the authority of the Secretary
22 of Homeland Security, as applicable.

23 “(3) LIMITATIONS ON STATUTORY CONSTRUC-
24 TION.—Nothing in this subsection shall be construed
25 to interfere with the authority of—

1 “(A) the Secretary of Homeland Security
2 to publish or ensure compliance with require-
3 ments or standards concerning cybersecurity for
4 rail fixed guideway public transportation sys-
5 tems; or

6 “(B) the Secretary of Transportation
7 under section 5329 to address cybersecurity
8 issues as those issues relate to the safety of rail
9 fixed guideway public transportation systems.”.

And the House agree to the same.

S. 1790

*Managers on the part of the
HOUSE*

*Managers on the part of the
SENATE*

From the Committee on Armed Services, for consideration of the Senate bill and the House amendment, and modifications committed to conference:

Mr. Smith of Washington

Mrs. Davis of California

Mr. Langevin

Mr. Larsen of Washington

Mr. Cooper

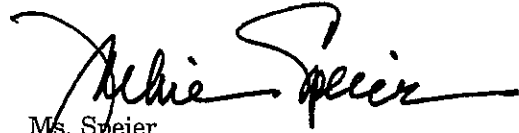
Mr. Courtney

Mr. Garamendi

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*Managers on the part of the
HOUSE*

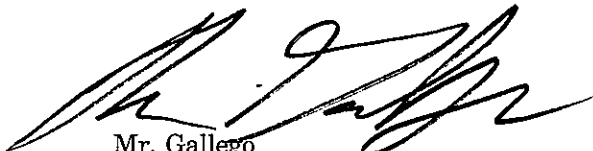
*Managers on the part of the
SENATE*



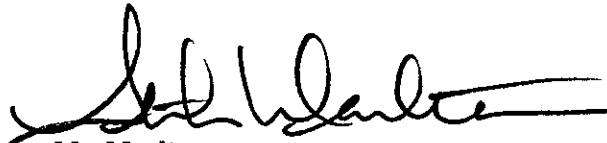
Ms. Speier



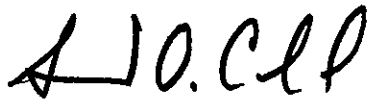
Mr. Norcross




Mr. Gallego



Mr. Moulton



Mr. Carbajal



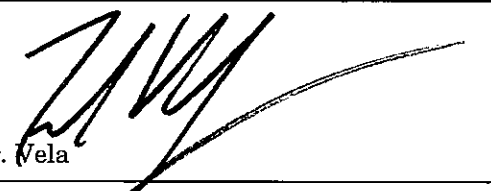
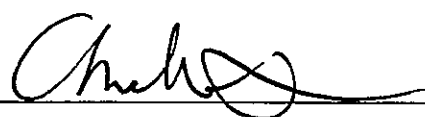

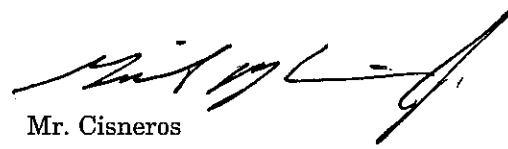
Mr. Brown of Maryland




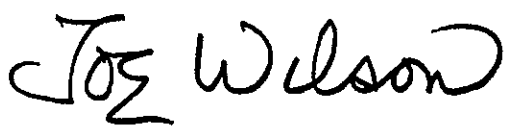






Mr. Khanna





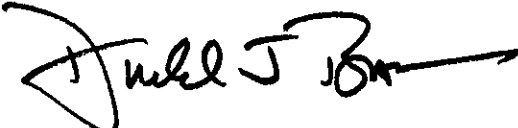
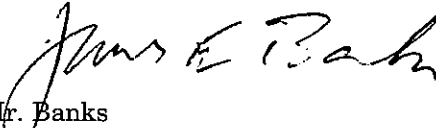

S. 1790—Continued

| <i>Managers on the part of the HOUSE</i> | <i>Managers on the part of the SENATE</i> |
|---|---|
|  Mr. Vela | |
|  Mr. Kim | |
|  Ms. Kendra S. Horn of Oklahoma | |
|  Mr. Cisneros | |
| | |
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| <i>Managers on the part of the HOUSE</i> | <i>Managers on the part of the SENATE</i> |
|---|---|
|  Mr. Thornberry | |
|  Mr. Wilson of South Carolina | |
|  Mr. Turner | |
|  Mr. Rogers of Alabama | |
|  Mr. Conaway | |
|  Mr. Lamborn | |
|  Mr. Wittman | |
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S. 1790—Continued

| <i>Managers on the part of the HOUSE</i> | <i>Managers on the part of the SENATE</i> |
|---|---|
|  Ms. Stefanik | |
|  Mr. Kelly of Mississippi | |
|  Mr. Bacon | |
|  Mr. Banks | |
|  Ms. Cheney | |
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S. 1790—Continued

| <i>Managers on the part of the HOUSE</i> | <i>Managers on the part of the SENATE</i> |
|---|---|
| From the Committee on the Budget, for consideration of secs. 4 and 10608 of the Senate bill, and secs. 1006 and 1112 of the House amendment, and modifications committed to conference: | |
|  Mr. Yarmuth | |
|  Mr. Peters | |
|  Mr. Johnson of Ohio | |
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S. 1790—Continued

| <i>Managers on the part of the HOUSE</i> | <i>Managers on the part of the SENATE</i> |
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| From the Committee on Education and Labor, for consideration of secs. 571, 572, and 5501 of the Senate bill, and secs. 211, 576, 580, 1099N, 1117, 3120, and 3503 of the House amendment, and modifications committed to conference: | |
|  Mr. Scott of Virginia | |
|  Mrs. Trahan | |
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S. 1790—Continued

| <i>Managers on the part of the HOUSE</i> | <i>Managers on the part of the SENATE</i> |
|---|---|
| From the Committee on Financial Services, for consideration of secs. 6017, 6018, 6804, 6811, 6813-16, 6834, 6835, and title LXIX of the Senate bill, and secs. 550K, 560G, subtitle I of title X, secs. 1240B, 1292, 1704, 1711, 1713-16, 1733, and 2843 of the House amendment, and modifications committed to conference: | |
|  | |
|  Mr. Sherman | |
|  Mr. Barr | |
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S. 1790—Continued

| <i>Managers on the part of the HOUSE</i> | <i>Managers on the part of the SENATE</i> |
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| <p>From the Committee on Foreign Affairs, for consideration of secs. 834, 1011, 1043, 1202, 1203, 1205, 1206, 1211, 1212, 1215, 1221-24, 1231-36, 1238, 1252, 1281-84, title XIII, secs. 1671, 1681, 2822, 6203-06, 6210, 6213, 6215, 6231, 6236, title LXVIII, secs. 6921, 6922, 6931, 6941, 6943, 6954, part I of subtitle B of title LXXXV, secs. 8562, and 10701 of the Senate bill, and secs. 634, 1036, 1046, 1050, 1099X, 1201, 1202, 1204, 1207, 1210, 1213, 1215, 1218, 1221-25, 1229, 1231-34, 1240A, 1241, 1250D, 1251, 1255, 1258, 1260A, 1260B, 1265, 1266, 1269, 1270, 1270G, 1270H, 1270I, 1270N, 1270R, 1270S, 1270T, 1270W, subtitle I of title XII, subtitle J of title XII, title XIII, secs. 1521, 1669, and title XVII of the House amendment, and modifications committed to conference:</p> | |
| <p></p> | |
| <p></p> | |
| <p> Mr. McCaul</p> | |
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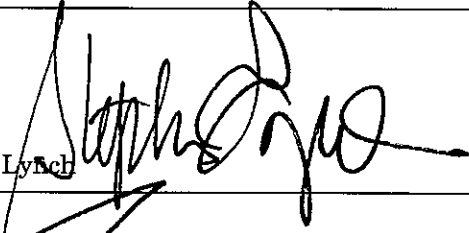
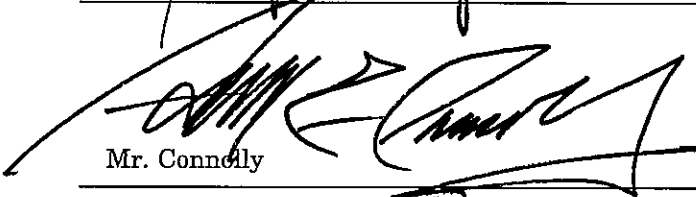
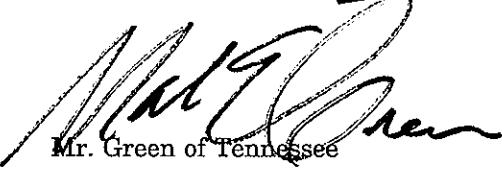
S. 1790—Continued

| <i>Managers on the part of the HOUSE</i> | <i>Managers on the part of the SENATE</i> |
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| From the Committee on Homeland Security, for consideration of secs. 6006, 6012, and 8543 of the Senate bill, and modifications committed to conference: | |
|  Mr. Rose of New York | |
|  Ms. Underwood | |
|  Mr. Walker | |
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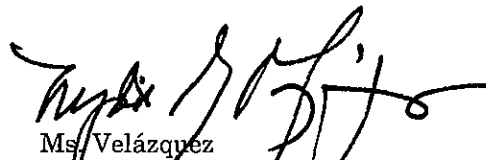
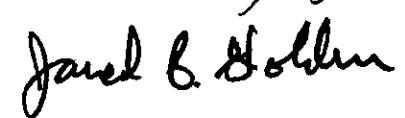

S. 1790—Continued

| <i>Managers on the part of the HOUSE</i> | <i>Managers on the part of the SENATE</i> |
|---|---|
| From the Committee on Natural Resources, for consideration of secs. 314, 2812, 2814, 6001, 6020, subtitle C of title LXVII, sec. 8524, part I of subtitle B of title LXXXV, secs. 8554, and 8571 of the Senate bill, and secs. 330G, 1094, 1099D, 1099F, 1099U, 2851, subtitle F of title XXVIII, secs. 2876, and 2880 of the House amendment, and modifications committed to conference: | |
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| Ms. Haaland | |
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| Mr. Bishop of Utah | |
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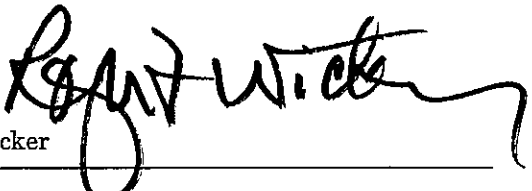
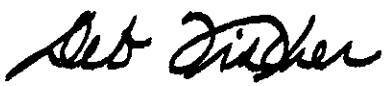

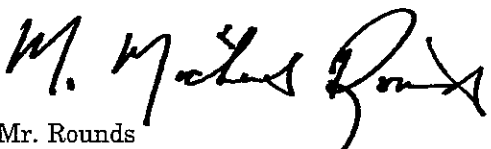
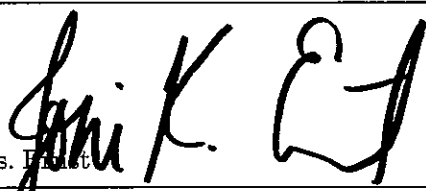
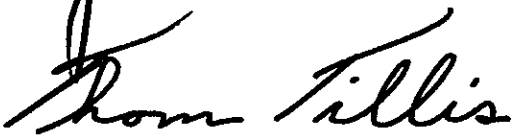

S. 1790—Continued

| <i>Managers on the part of the HOUSE</i> | <i>Managers on the part of the SENATE</i> |
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| <p>From the Committee on Oversight and Reform, for consideration of secs. 218, 530, 559, 579, 1081, 1082, title XI, secs. 5802, 6012, subtitle B of title LXV, secs. 9304, 9307, 9311, 9313, 9314, 10303, 10432, 10434, 10601, 10603-05, 10612, 10741, and 10742 of the Senate bill, and secs. 212, 239, 5500, 629, 633, 804, 829, 842, 861, 872, 877, 883, 884, 891, 895, 899E, 899H, 899I, 1064, 1085, 1099B, title XI, secs. 1704, 1711, 1713-16, and 3127 of the House amendment, and modifications committed to conference:</p> | |
|  Mr. Lynch | |
|  Mr. Connolly | |
|  Mr. Green of Tennessee | |
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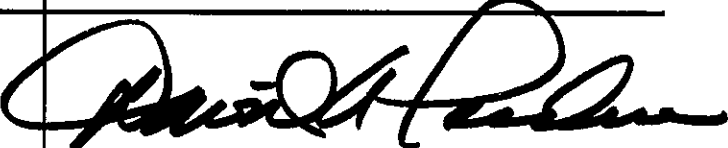
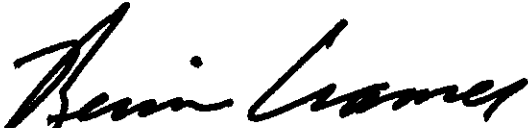



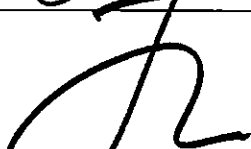


S. 1790—Continued

| <i>Managers on the part of the HOUSE</i> | <i>Managers on the part of the SENATE</i> |
|---|---|
| From the Committee on Small Business, for consideration of sec. 841 of the Senate bill, and secs. 872-76, 878, 879, 881, 882, and 886-89 of the House amendment, and modifications committed to conference: | |
|  Ms. Velázquez | |
|  Mr. Golden | |
|  Mr. Chabot | |
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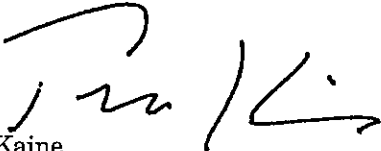
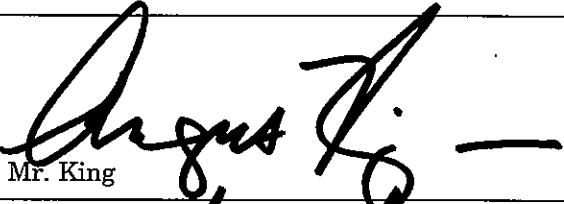
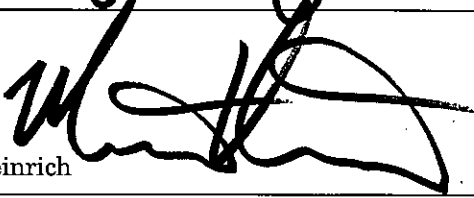

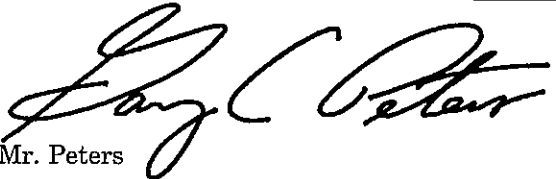
S. 1790—Continued

| <i>Managers on the part of the HOUSE</i> | <i>Managers on the part of the SENATE</i> |
|--|--|
| |  Mr. Inhofe |
| |  Mr. Wicker |
| |  Mrs. Fischer |
| |  Mr. Cotton |
| |  Mr. Rounds |
| |  Ms. Hunt |
| |  Mr. Tillis |
| |  Mr. Sullivan |



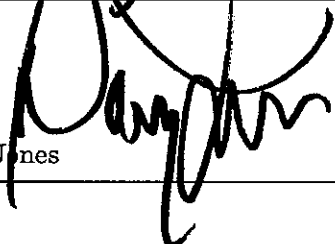
S. 1790—Continued

| <i>Managers on the part of the HOUSE</i> | <i>Managers on the part of the SENATE</i> |
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| |  |
| | Mr. Perdue |
| |  |
| | Mr. Craner |
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| | Ms. McSally |
| |  |
| | Mr. Scott of Florida |
| |  |
| | Mrs. Blackburn |
| |  |
| | Mr. Hawley |
| |  |
| | Mr. Reed |
| |  |
| | Mrs. Shaheen |

S. 1790—Continued

| <i>Managers on the part of the HOUSE</i> | <i>Managers on the part of the SENATE</i> |
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| |  Mr. Blumenthal |
| |  Ms. Hirose |
| |  Mr. Kaine |
| |  Mr. King |
| |  Mr. Heinrich |
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| |  Mr. Peters |

S. 1790—Continued

| <i>Managers on the part of the HOUSE</i> | <i>Managers on the part of the SENATE</i> |
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| |  Ms. Duckworth |
| |  Mr. Jones |
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JOINT EXPLANATORY STATEMENT OF THE COMMITTEE OF CONFERENCE

The managers on the part of the House and the Senate at the conference on the disagreeing votes of the two Houses on the amendment of the House to the bill (S. 1790), to authorize appropriations for fiscal year 2020 for military activities of the Department of Defense, for military construction, and for defense activities of the Department of Energy, to prescribe military personnel strengths for such fiscal year, and for other purposes, submit the following joint statement to the House and the Senate in explanation of the effect of the action agreed upon by the managers and recommended in the accompanying conference report:

The House amendment struck all of the Senate bill after the enacting clause and inserted a substitute text.

The Senate recedes from its disagreement to the amendment of the House with an amendment that is a substitute for the Senate bill and the House amendment. The differences between the Senate bill, the House amendment, and the substitute agreed to in conference are noted below, except for clerical corrections, conforming changes made necessary by agreements reached by the conferees, and minor drafting and clarifying changes.

Compliance with rules of the House of Representatives and Senate regarding earmarks and congressionally directed spending items

Pursuant to clause 9 of rule XXI of the Rules of the House of Representatives and Rule XLIV(3) of the Standing Rules of the Senate, neither this conference report nor the accompanying joint statement of managers contains any congressional earmarks, congressionally directed spending items, limited tax benefits, or limited tariff benefits, as defined in such rules.

Summary of discretionary authorizations and budget authority implication

The budget request for national defense discretionary programs within the jurisdiction of the Committees on Armed Services of the Senate and the House of Representatives for fiscal year 2020 was \$741.9 billion. Of this amount, \$642.5 billion was requested for base Department of Defense programs, \$75.9 billion was requested for overseas contingency operations, \$23.2 billion was requested for national security programs in the Department of Energy and the Defense Nuclear Facilities Safety Board, and \$300.0 million for defense-related activities.

The conference agreement would authorize \$729.9 billion in fiscal year 2020, including \$635.0 billion for base Department of Defense programs, \$71.5 billion for overseas contingency operations, \$23.1 billion for national security programs in the Department of Energy and the Defense Nuclear Facilities Safety Board, and \$300.0 million for defense-related activities.

The two tables preceding the detailed program adjustments in Division D of the accompanying joint statement of managers summarize the discretionary authorizations in the agreement and the equivalent budget authority levels for fiscal year 2020 defense programs.

Budgetary effects of this Act (sec. 4)

The Senate bill contained a provision (sec. 4) that would require that the budgetary effects of this Act be determined in accordance with the procedures established in the Statutory Pay-As-You-Go Act of 2010 (title I of Public Law 111-139).

The House amendment contained a similar provision (sec. 1006).

The House recesses.

DIVISION A—DEPARTMENT OF DEFENSE AUTHORIZATIONS

TITLE I—PROCUREMENT

BUDGET ITEMS

Columbia-class submarine advance procurement

The budget request included \$1.7 billion in line item 1 of Shipbuilding and Conversion, Navy for *Columbia*-class submarine advance procurement.

The House amendment would authorize an increase of \$125.0 million above the request.

The Senate bill would authorize an increase of \$125.0 million above the request.

The agreement authorizes an increase of \$123.0 million above the request.

The conferees' intent in authorizing additional funds for submarine industrial base expansion is to ensure second- and third-tier contractors are able to meet increased production requirements.

The conferees direct the Secretary of the Navy to notify the congressional defense committees within 30 days of obligating funds provided for submarine industrial base expansion of the: obligation date, contractor name or names, location, description of the shortfall to be addressed, actions to be undertaken, desired end state, usable end items to be procured, period of performance, dollar amount, projected associated savings including business case analysis if applicable, contract name, and contract number.

The conferees believe that expanding the capabilities of the second- and third-tier contractors in the submarine industrial base should lead to greater cost savings and improved efficiency as production increases to meet the *Columbia*-class schedule and higher requirement for *Virginia*-class attack submarines in the Navy's latest Force Structure Assessment.

Virginia-class submarine procurement and advance procurement

The budget request included \$7.2 billion in line number 3 of Shipbuilding and Conversion, Navy (SCN) for *Virginia*-class submarine procurement and \$2.8 billion in line number 4 of SCN for *Virginia*-class submarine advance procurement.

The House amendment would authorize a decrease of \$550.0 million below the request in line number 3 of SCN and the funding level of the request in line number 4 of SCN.

The Senate bill would authorize a decrease of \$2.5 billion below the request in line number 3 of SCN and an increase of \$1.5 billion above the request in line number 4 of SCN.

The agreement authorizes a decrease of \$1.7 billion below the request in line number 3 of SCN and an increase of \$200.0 million above the request in line number 4 of SCN.

The conferees note that the budget request included a plan to procure 11 *Virginia*-class attack submarines across the future years defense program (FYDP). The conferees supported that plan in both the House of Representatives and Senate National Defense Authorization Acts for Fiscal Year 2020. Unfortunately, the conferees have learned from the Navy that the original request was not financially or technically executable. For example, the Navy's request included procuring one boat in each of fiscal years 2020 and 2021 without the *Virginia* Payload Module (VPM). The conferees only recently learned that shifting the configuration to a non-VPM design would have resulted in considerable delay and disruption in building attack submarines, and could have harmed the *Columbia*-class program as well.

The conferees expect budget requests and associated materials to be complete and accurate, with rigorous supporting justification and analysis that demonstrates such requests are fully executable. The conferees further expect that when the Navy finds discrepancies, the Navy will provide timely, full, and open disclosure of such issues. The conferees are concerned that the *Virginia*-class fiscal year 2020 request lacked both accuracy and timely reporting of discrepancies.

The Navy has recently proposed a revised acquisition strategy with 9 *Virginia*-class submarines procured in fiscal years 2019 through 2023, with options to procure additional ships over that period. The conferees priority is to ensure the Navy fully preserves a plan to procure 10 *Virginia*-class attack submarines, nine of which include the VPM, and expects the Navy to budget accordingly in their fiscal year 2021 budget submission. Therefore, the conferees are providing the necessary additional *Virginia*-class advance procurement (AP) and procurement funds, including the AP funds needed to procure two submarines in fiscal year 2021, as submitted in the fiscal year 2020 budget as well as the 30-year shipbuilding plan.

The conferees recognize that due to recent negotiations the required multi-year certification of a ten submarine contract may not be possible, because it is not fully funded across the FYDP. The conferees note that section 2306b of title 10, United States Code, allows the Secretary of Defense to

certify the contract even if all of the requirements are not met. The conferees encourage the Secretary to consider utilizing this authority in order to expeditiously secure a contract for ten submarines.

The conferees regret that they presently lack sufficient budgetary information to support an eleventh *Virginia*-class submarine in the fiscal year 2019 through 2023 timeframe. The conferees would thoroughly consider an opportunity to increase submarine procurement in the future if it were technically and financially executable.

SUBTITLE A—AUTHORIZATION OF APPROPRIATIONS

Authorization of appropriations (sec. 101)

The Senate bill contained a provision (sec. 101) that would authorize appropriations for procurement at the levels identified in section 4101 of division D of this Act.

The House amendment contained an identical provision (sec. 101).

The conference agreement includes this provision.

SUBTITLE B—ARMY PROGRAMS

Authority of the Secretary of the Army to waive certain limitations related to the Distributed Common Ground System-Army Increment 1 (sec. 111)

The Senate bill contained a provision (sec. 112) that would amend Section 113(d) of the National Defense Authorization Act for Fiscal Year 2017 (Public Law 114-38; 130 Stat. 2028) by striking "Secretary of Defense" and inserting "Secretary of the Army".

The House amendment contained no similar provision.

The House recedes.

SUBTITLE C—NAVY PROGRAMS

Ford-class aircraft carrier cost limitation baselines (sec. 121)

The House amendment contained a provision (sec. 112) that would repeal section 122 of the John Warner National Defense Authorization Act for Fiscal Year 2007 (Public Law 109-364).

The Senate bill contained a similar provision (sec. 123) that would establish *Ford*-class aircraft carrier cost limitation

baselines in title 10, United States Code, and repeal section 122 of the John Warner National Defense Authorization Act for Fiscal Year 2007 (Public Law 109-364).

The House recedes with an amendment that would provide the Secretary of the Navy with the authority to adjust *Ford*-class aircraft carrier cost limitation baselines if advance notice is given to the congressional defense committees.

Modification of annual report on cost targets for certain aircraft carriers (sec. 122)

The House amendment contained a provision (sec. 111) that would amend section 126(c) of the National Defense Authorization Act for Fiscal Year 2017 (Public Law 114-328), that requires an annual report on cost reduction efforts for CVN-79 and CVN-80.

The Senate bill contained no similar provision.

The Senate recedes with an amendment that would require annual reports through fiscal year 2032.

Refueling and complex overhauls of the U.S.S. John C. Stennis and U.S.S. Harry S. Truman (sec. 123)

The Senate bill contained a provision (sec. 128) that would require the Secretary of the Navy to carry out the nuclear refueling and complex overhaul of the USS *John C. Stennis* (CVN-74) and USS *Harry S. Truman* (CVN-75). The provision would also authorize the use of incremental funding for a period not to exceed 6 years after advance procurement funds for each nuclear refueling and complex overhaul effort are first obligated.

The House amendment contained no similar provision.

The House recedes.

Ford class aircraft carrier support for F-35C aircraft (sec. 124)

The House amendment contained a provision (sec. 113) that would require the Secretary of the Navy to ensure that the aircraft carrier to be designated CVN-79 is capable of deploying with the F-35 prior to accepting delivery.

The Senate bill contained no similar provision.

The Senate recedes with an amendment that would require CVN-79 be capable of deploying with the F-35 prior to the completion of the ship's post shakedown availability.

Prohibition on use of funds for reduction of aircraft carrier force structure (sec. 125)

The House amendment contained a provision (sec. 114) that would limit the Secretary of Defense from reducing aircraft carrier force structure below the level required by section 5062 of title 10, United States Code.

The Senate bill contained no similar provision.

The Senate recesses.

Modification of prohibition on availability of funds for Navy waterborne security barriers (sec. 126)

The Senate bill contained a provision (sec. 121) that would amend section 130 of the John S. McCain National Defense Authorization Act for Fiscal Year 2019 (Public Law 115-232) to extend the prohibition on availability of funds for Navy port waterborne security barriers through fiscal year 2020 and would require the Secretary of the Navy to notify the congressional defense committees if exigent circumstances, under which an exception is granted, are deemed to exist.

The House amendment contained no similar provision.

The House recesses with an amendment that would limit the sustainment, refurbishment, and replacement to not more than 30 percent of portions of existing waterborne security barriers.

LHA Replacement Amphibious Assault Ship Program (sec. 127)

The Senate bill contained a provision (sec. 125) that would authorize the Secretary of the Navy to enter into and incrementally fund a contract for design and construction of the LHA replacement ship designated LHA-9. The provision would also repeal section 125 of the John Warner National Defense Authorization Act for Fiscal Year 2007 (Public Law 109-364).

The House amendment contained no similar provision.

The House recesses.

Strategic sealift fleet vessel (sec. 128)

The House amendment contained a provision (sec. 118) that would direct the Secretary of the Navy to enter into a contract for one sealift vessel, subject to certain requirements.

The Senate bill contained no similar provision.

The Senate recesses with an amendment that would make entering into a contract or other agreement with a private-sector entity under which the entity would serve as the executive agent permissive.

Design and construction of amphibious transport dock designated LPD-31 (sec. 129)

The House amendment contained a provision (sec. 115) that would authorize the Secretary of the Navy to enter into a contract for the amphibious transport dock ship designated LPD-31. Additionally, the Secretary would be authorized to use incremental funding authority to complete the construction.

The Senate bill contained a similar provision (sec. 124).

The Senate recesses.

The conferees' intent is for the Secretary of the Navy to use the \$350.0 million appropriated in Shipbuilding and Conversion, Navy (SCN) line number 13 in fiscal year 2019 and additional fiscal year 2020 funds in SCN line number 12 to procure LPD-31 long-lead material and start construction as efficiently as possible. Consistent with the budget request, the conferees expect the Navy to request the balance of costs for LPD-31 in fiscal year 2021.

Limitation on availability of funds for the Littoral Combat Ship (sec. 130)

The Senate bill contained provisions (sec. 126 and sec. 5126) that would prohibit funds from being used to exceed the total procurement quantity listed in revision five of the Littoral Combat Ship acquisition strategy unless the Under Secretary of Defense for Acquisition and Sustainment submits to the congressional defense committees a certification.

The House amendment contained no similar provision.

The House recesses with a technical amendment.

Limitation on the next new class of Navy large surface combatants (sec. 131)

The Senate bill contained a provision (sec. 127) that would require design changes identified during the full duration of the combat system ship qualification trials and operational test periods of the first *Arleigh Burke*-class destroyer in the Flight III configuration be incorporated prior to Milestone B approval for the next new class of Navy large surface combatants.

The House amendment contained no similar provision.

The House recesses with an amendment that would require a land-based engineering site for the propulsion system.

The conferees note that over the last 10 years, the Comptroller General of the United States has issued at least 26 reports that identified shipbuilding best practices and made 67 recommendations to help the Navy improve shipbuilding outcomes. In a June 2018 report, the Government Accountability Office

found that the Navy, in many cases, has not taken steps based upon these shipbuilding best practices.

In order to better understand the key aspects of ship design necessary to provide confidence in a program's cost, schedule, and reliability targets, the conferees direct the Comptroller General to conduct a review of shipbuilding design practices. This review shall include an examination of the Navy's design practices for shipbuilding major defense acquisition programs to assess measures of the lead ship or lead ship of a major ship modification's design maturity and stability sufficient to inform an understanding of the construction costs and the effort needed to execute the design, and any other related matters. The Comptroller General shall provide a briefing and report to the congressional defense committees not later than April 1, 2020 and January 1, 2021, respectively, that describe the findings of the review.

Limitation on availability of funds pending quarterly updates on the CH-53K King Stallion helicopter program (sec. 132)

The House amendment contained a provision (sec. 116) that would require the Secretary of the Navy to provide quarterly briefings to the Committee on Armed Services of the House of Representatives on the progress of the CH-53K King Stallion program.

The Senate bill contained no similar provision.

The Senate recedes with a technical amendment.

Limitation on availability of funds for VH-92A helicopter (sec. 133)

The House amendment contained a provision (sec. 117) that would require the Secretary of the Navy to submit a report to Committee on Armed Services of the House of Representatives on the VH-92A helicopter program.

The Senate bill contained no similar provision.

The Senate recedes with a technical amendment.

Report on carrier wing and aviation combat element composition (sec. 134)

The Senate bill contained a provision (sec. 129) that would direct the Secretary of the Navy to submit a report to the congressional defense committees, no later than May 1, 2020, on the optimal composition of the carrier air wing (CVW) in 2030 and 2040, as well as alternative force design concepts. The provision would also require the Secretary to provide a briefing

on the report no later than March 1, 2020, to the congressional defense committees.

The House amendment contained no similar provision.

The House recedes with an amendment that would direct the Secretary of the Navy to submit a report on the optimal composition of the CVW on aircraft carriers and aviation combat element (ACE) embarked on amphibious ships in 2030 and 2040, including alternative force design concepts. Of specific concern that should be highlighted is the logistics impact based on the aircraft carriers ability to support the specified air wing.

SUBTITLE D—AIR FORCE PROGRAMS

Modification of requirement to preserve certain C-5 aircraft (sec. 141)

The House amendment contained a provision (sec. 121) that would amend section 141(d) of the National Defense Authorization Act for Fiscal Year 2013 (Public Law 112-239) to reinstate the requirement for the Secretary of the Air Force to continue to preserve certain C-5 aircraft in a storage condition that would allow a recall of retired aircraft to future service in the Air Force Reserve, Air National Guard, or Active Force structure.

The Senate bill contained no similar provision.

The Senate recedes with an amendment that would require storage of C-5 aircraft until a new mobility requirement study is accomplished.

OC-135B aircraft recapitalization program (sec. 142)

The House amendment contained a provision (sec. 130A) that would ensure that any Request for Proposals for the procurement of an OC-135B aircraft under the Open Skies Treaty aircraft recapitalization program meets the requirements for full and open competition as set forth in section 2304 of title 10, United States Code, and incorporates a full competitive bidding process, to include both new production aircraft and recently manufactured low-hour, low-cycle aircraft.

The Senate bill contained no similar provision.

The Senate recedes with an amendment that would require a full competitive bidding process, including new and recently manufactured aircraft.

Requirement to align Air Force aviation force structure with National Defense Strategy (sec. 143)

The Senate bill contained a provision (sec. 141) that would require the Secretary of the Air Force to align the fighter force structure acquisition strategy with the results of the independent studies required by section 1064 of the National Defense Authorization Act for Fiscal Year 2018 (Public Law 115-91) and to transmit the new strategy in a report to the congressional defense committees no later than March 1, 2020.

The House amendment contained no similar provision.

The House recedes with an amendment that would require the Secretary of the Air Force to submit a report to the congressional defense committees, no later than March 1, 2020, on the aviation force structure acquisition strategy that aligns with the stated capability and capacity requirements of the Air Force to meet the National Defense Strategy. Additionally, the amendment would require a waiver from the Secretary of Defense if the Secretary of the Air Force deviates from the strategy

Prohibition on availability of funds for reduction in KC-10 primary mission aircraft inventory (sec. 144)

The House amendment contained a provision (sec. 124) that would prohibit the retirement of any primary inventory KC-10 aircraft in fiscal year 2020.

The Senate bill contained no similar provision.

The Senate recedes.

Limitation on availability of funds for F-15EX aircraft program (sec. 145)

The House amendment contained a provision (sec. 123) that would require the Secretary of Defense to designate the F-15EX program as a major subprogram and subject it to relevant reporting requirements and criteria pertinent to a major subprogram.

The Senate bill contained no similar provision.

The Senate recedes with an amendment that would require the same information pertinent to a major subprogram in the form of a comprehensive report, which the conferees understand would be less burdensome on the Secretary to generate instead of formal acquisition documents that could delay execution of the program using middle-tier rapid-acquisition authorities for the first two procurement lots of aircraft. The amendment would also authorize procurement of long-lead aircraft materials to be procured for all aircraft authorized.

The conferees expect the Secretary of the Air Force to maintain information transparency with the congressional defense committees, and to sufficiently and promptly keep the

congressional defense committees apprised of issues particularly associated with the planning, cost, schedule, execution, fielding, or risk related to the F-15EX program.

Limitation on availability of funds for VC-25B aircraft (sec. 146)

The House amendment contained a provision (sec. 125) that would prohibit the Secretary of the Air Force from obligating or expending any funds to exercise the over-and-above clause of the VC-25B contract until the Secretary submits a certification to the congressional defense committees.

The Senate bill contained no similar provision.

The Senate recedes with an amendment that would require the notification of congressional committees if the over-and-above clause in the VC-25B contract is used.

Limitation on availability of funds for RC-26B aircraft (sec. 147)

The House amendment contained a provision (sec. 129) that would limit funds for the retiring of the RC-26B aircraft until the Secretary of Air Force certifies to the congressional defense committees that other platforms or technologies provide equivalent capabilities to the RC-26B aircraft.

The Senate bill contained no similar provision.

The Senate recedes with an amendment that would limit funds until the report regarding the efficacy of the RC-26 mission is delivered; the Secretary of the Air Force certifies whether there are missions that the RC-26B is required to complete; and whether there is a more cost effective way to complete those missions should the RC-26B be divested or retired.

Limitation on availability of funds for retirement of RC-135 aircraft (sec. 148)

The House amendment contained a provision (sec. 126) that would prohibit any use of funds authorized to be appropriated in fiscal year 2020 for the Air Force to retire, or prepare to retire, any RC-135 aircraft until 60 days after the date on which the Secretary of Defense certifies to the congressional defense committees that equivalent RC-135 capacity and capability exists to meet combatant commander requirements for indications and warning, intelligence preparation of the

operational environment, and direct support to kinetic and non-kinetic operations.

The Senate bill contained no similar provision.

The Senate recedes with a technical amendment.

Air Force aggressor squadron modernization (sec. 149)

The Senate bill contained a provision (sec. 144) that would require the Secretary of the Air Force to submit a report to the congressional defense committees on Air Force aggressor squadron modernization.

The House amendment contained a similar provision (sec. 130) that would require the Chief of Staff of the Air Force to submit to the congressional defense committees a plan and report on the strategy for modernizing the organic aggressor fleet.

The House recedes.

Air Force plan for Combat Rescue Helicopter fielding (sec. 150)

The Senate bill contained a provision (sec. 145) that expressed the Sense of Congress that the Air National Guard should retain additional HH-60G helicopters given the delays of the Operational Loss Replacement program and the fielding schedule of the Combat Rescue Helicopter program. Furthermore, it directed a report on the fielding and training plan for the Air National Guard.

The House amendment contained no similar provision.

The House recedes.

Report on feasibility of multiyear contract for procurement of JASSM-ER missiles (sec. 151)

The Senate bill contained a provision (sec. 143) that would require the Air Force to submit a report assessing the feasibility of entering into a multi-year contract for the procurement of the JASSM-ER. The report requires the Air Force to examine multi-year contract scenarios, including one that is an annual quantity of 550 missiles for five years. The conferees note that the Air Force quantity requirement for the JASSM-ER has recently increased and that procurement utilizing multi-year contracts versus annual contracts could provide significant cost savings to the Air Force.

The House amendment contained no similar provision.

The House recedes.

Report on aircraft fleet of the Civil Air Patrol (sec. 152)

The House amendment contained a provision (sec. 127) that would require the Secretary of the Air Force to submit a report to the congressional defense committees not later than 90 days after the date of the enactment of this Act on the Civil Air Patrol (CAP) that identifies and assesses the suitability of the current CAP aircraft fleet size, types of aircraft, and operating locations to meet mission requirements.

The Senate bill contained no similar provision.

The Senate recesses.

Sense of Congress on the light attack aircraft initiative of the Air Force (sec. 153)

The House amendment contained a provision (sec. 135) that would authorize the Commander of the U.S. Special Operations Command (USSOCOM) to procure light attack aircraft for Combat Air Advisor mission support if a validated special operations unique procurement requirement exists for USSOCOM.

The Senate bill contained no similar provision.

The Senate recesses with an amendment that expresses a sense of the Congress on the importance of USSOCOM and the Secretary of the Air Force fully coordinating and collaborating on the experimental activities associated with the Air Force light attack aircraft initiative to inform future activities for USSOCOM and the Department of the Air Force regarding procurement of the light attack aircraft platform.

The conferees understand USSOCOM has an operational need and requirement for light attack aircraft for combat mission advisor support and as such expect the Secretary of the Air Force in coordination with the Commander of USSOCOM to consider options to synchronize and leverage Light Attack Aircraft experiments efforts to accelerate the procurement or development of aircraft for supporting the Combat Air Advisor mission requirements.

SUBTITLE E—DEFENSE-WIDE, JOINT, AND MULTISERVICE MATTERS

Economic order quantity contracting and buy-to-budget acquisition for F-35 aircraft program (sec. 161)

The House amendment contained a provision (sec. 131) that would authorize the Secretary of Defense to procure economic order quantities of material and equipment for the F-35 program. This section would also authorize the Secretary to procure F-35 aircraft exceeding the quantity otherwise authorized by this Act

if procurement of additional aircraft would not require additional funds to be authorized or appropriated.

The Senate bill contained a similar provision (sec. 153) that would authorize the Secretary of Defense to enter into multiyear procurement contracts for F-35 aircraft in economic order quantities for fiscal year 2021 (Lot 15) through fiscal year 2023 (Lot 17).

The Senate recedes with an amendment that would remove the requirement for the Secretary to provide the congressional defense committees a separate business-case analysis performed by the Office of the Director, Cost Assessment and Program Evaluation.

The conferees also support procurement, by the Secretary of Defense, of additional F-35A aircraft beyond the quantity of F-35A aircraft authorized in this Bill, if such procurement of additional aircraft would mitigate any negative cost and schedule impacts for current F-35 program participants resulting from the actions or decisions of foreign partners or customers currently involved in the F-35 program.

Relief from contractors for failure to deliver ready-for-issue spare parts for the F-35 aircraft program (sec. 162)

The House amendment contained a provision (sec. 134) that would require the Secretary of Defense to seek compensation from the contractor for costs related to the failure to deliver ready-for-issue spare parts for the F-35 aircraft program.

The Senate bill contained no similar provision.

The Senate recedes with an amendment that would ensure adequate relief from the prime contractors that delivered noncompliant ready-for-issue spare parts.

Limitation on availability of funds for reallocation of Turkish F-35A aircraft to the United States (sec. 163)

The conferees support the removal of the Government of Turkey from the F-35 program due to its purchase of the S-400 Russian air defense system. As such, the conferees would support procurement by the Department of Defense of all F-35A aircraft procured by the Government of Turkey. The conferees also encourage the Secretary of Defense to maximize the procurement quantity of Turkish F-35A aircraft associated with Lots 12, 13, or 14 during fiscal year 2020 using the additional funds authorized in section 4101 of this Act.

Additionally, given the significant impact of the sustainment and spare parts deficit currently within the F-35 program, the conferees emphasize the importance of fully funding

spare parts, ancillary mission equipment, publications, and technical data required to sustain F-35 aircraft. Therefore, the conferees recommend a provision that would require the Secretary of Defense to certify that these necessary support equipment items will be procured prior to taking possession of the Turkish F-35A aircraft, and that any Turkish F-35A aircraft will be delivered to the U.S. Air Force in a configuration that allows for integration into the existing Air Force F-35A fleet.

Finally, the conferees direct the Secretary of the Air Force, in consultation with the Undersecretary of Defense for Acquisition and Sustainment and the F-35 Program Executive Officer, to submit a report to the congressional defense committees not later than March 1, 2020, that describes the strategy and implementation plan associated with the necessary funding and actions required during each phase to produce, modernize, deliver, field, operate and sustain the Turkish F-35A aircraft authorized to be procured by the Department of Defense elsewhere in this Act.

Requirement to establish the use of an Agile DevOps software development solution as an alternative for Joint Strike Fighter Autonomic Logistics Information System (sec. 164)

The Senate bill contained a provision (sec. 142) that would require the Secretary of Defense to establish an agile software development activity as an alternative for the F-35 Autonomic Logistics Information System (ALIS) and would direct the Secretary of the Defense, in coordination with the Secretary of the Air Force, to brief the congressional defense committees on the findings of the competitive analysis no later than September 30, 2020.

The House amendment contained no similar provision.

The House recedes with an amendment that would require the Secretary of Defense to conduct a competitive analysis of the performance and design architecture enhancement efforts between the currently fielded ALIS, ALIS-Next, and the Department of the Air Force agile development operations Madhatter initiative efforts, including system technology transition opportunities and timelines.

F-35 sustainment cost (sec. 165)

The Senate bill contained a provision (sec. 152) that would require the F-35 Joint Program Office (JPO) to provide sustainment cost data, as part of the quarterly briefings to the congressional defense committees as required by section 155 of

the John S. McCain National Defense Authorization Act for Fiscal Year 2019 (Public Law 115-232).

The House amendment contained no similar provision.

The House recedes with clarifying amendments associated with the specific timeline that achievable actions will be implemented by the F-35 program to address sustainment-related issues and that will reduce sustainment costs at a more expedient pace.

Reports on the progress and performance of the F-35 aircraft program (sec. 166)

The House amendment contained a provision (sec. 132) that would require the Secretary of Defense to designate the F-35 Block 4 and Continuous Capability Development and Delivery (C2D2) program as a major subprogram of the F-35 program in accordance with Title 10, United States Code, section 2430a. The amendment would also require the Comptroller General to submit annually to the congressional defense committees a report on various aspects of the F-35 Block 4 and C2D2 program.

The Senate bill contained no similar provision.

The Senate recedes with an amendment that would remove the requirement to designate the F-35 Block 4 and C2D2 program as a major subprogram, but require the Secretary of Defense to submit annually to the congressional defense committees an integrated master schedule and past performance assessment for each planned phase of Block 4 and C2D2 upgrades.

The conferees expect the Secretary of Defense to keep the congressional defense committees fully and promptly informed on the planning, cost, schedule, execution, fielding, and programmatic risk associated with the Block 4 and C2D2 program.

Other reports on F-35 aircraft program (sec. 167)

The House amendment contained a provision (sec. 133) that would require the Secretary of Defense to provide reports to the congressional defense committees on F-35 reliability and maintainability metrics, Block 4 capability development and fielding activities, and modernization and upgrade plans for the F-35 Autonomic Logistics Information System (ALIS).

The Senate bill contained no similar provision.

The Senate recedes with a clarifying amendment that would modify the information provided by the Undersecretary of Defense for Research and Engineering, and by the Director, Operational Test and Evaluation for the F-35 Block 4 Upgrade and Continuous Capability Development and Delivery program.

Limitation on availability of funds for communications systems lacking certain resiliency features (sec. 168)

The Senate bill contained a provision (sec. 151, as amended by sec. 5151) that would prohibit funding of any current or future Department of Defense (DOD) communications programs of record that do not meet certain resiliency requirements.

The House amendment contained no similar provision.

The House recedes with a clarifying amendment.

Repeal of tactical unmanned vehicle common data link requirement (sec. 169)

The Senate bill contained a provision (sec. 154) that would strike section 141 of the National Defense Authorization Act for Fiscal Year 2006 (Public Law 109-163).

The House amendment contained no similar provision.

The House recedes with a technical amendment.

The conferees understand that Department of Defense policy will continue to prioritize commonality, open architecture, and non-proprietary systems for current and emerging platform, sensor, and weapons requirements. Repeal of this provision should not be construed as tacit permission to procure proprietary, unique data links for intelligence, surveillance, and reconnaissance (ISR) systems. The conferees expect the Under Secretary of Defense for Acquisition and Sustainment to update the DoD CDL policy dated May 3, 2018, as necessary to emphasize that program priorities, such as the congressionally-mandated migration off the common data link-To Be Sunset (TBS) waveforms, will proceed as previously planned. Further, the conferees expect a detailed accounting from USD A&S on plans to address data link requirements for emerging ISR systems and concepts.

LEGISLATIVE PROVISIONS NOT ADOPTED

Sense of Senate on Army's approach to capability drops 1 and 2 of the Distributed Common Ground System-Army program

The Senate bill contained a provision (sec. 111) that expressed the Sense of the Senate on the Army's approach to Capability Drops 1 and 2 of the Distributed Common Ground System-Army program.

The House amendment contained no similar provision.

The Senate recedes.

The conferees note the significant progress that the Army has made in deploying the Distributed Common Ground System-Army. The transition to using capability drops and the increased use

of readily available technology integration have improved program outcomes and accelerated deployment timelines.

The conferees encourage program managers in other military services and agencies of the Department of Defense to review the Army's approach to determine whether that approach would improve outcomes for their own Distributed Common Ground System programs in accordance with the requirements of 10 U.S.C. 2377.

Report on plans to support and maintain aircraft at Marine Corps air stations

The House amendment contained a provision (sec. 119) that would require the Secretary of the Navy to submit a report on the plans to support and maintain aircraft assigned to Marine Corps air stations that are transitioning from F-18 Hornet aircraft to the F-35 Lightning aircraft.

The Senate bill contained no similar provision.

The House recesses.

The conferees direct the Secretary of the Navy to submit a report to the congressional defense committees, not later than 90 days after enactment of this Act, which details the plans to support and maintain the F-35 aircraft at Marine Corps air stations. The report shall include the number and composition of squadrons assigned to each air station, the required support and maintenance workforce including uniformed military, civilian, and contract personnel needed at each location, and the required construction and support facilities associated with F-35 stationing at each air station.

Capabilities based assessment for naval vessels that carry fixed-wing aircraft

The Senate bill contained a provision (sec. 122) that would require a capabilities based assessment for naval vessels that carry fixed-wing aircraft.

The House amendment contained no similar provision.

The Senate recesses.

Modification of limitation on use of funds for KC-46A aircraft

The House amendment contained a provision (sec. 122) that would amend section 146 of the John S. McCain National Defense Authorization Act for Fiscal Year 2019 (Public Law 115-232), to limit the use of funds for KC-46A aircraft pending submittal of certification, to include a military flight release.

The Senate bill contained no similar provision.

The House recesses.

Increase in funding for RC-135 aircraft mission training systems

The House amendment contained a provision (sec. 128) that would increase funding for the RC-135 aircraft mission training systems by \$200.0 million.

The Senate bill contained no similar provision.

The House recesses.

The outcome is reflected in section 4103 of the Act.

**TITLE II—RESEARCH, DEVELOPMENT, TEST, AND
EVALUATION**

SUBTITLE A—AUTHORIZATION OF APPROPRIATIONS

Authorization of appropriations (sec. 201)

The Senate bill contained a provision (sec. 201) that would authorize appropriations for research, development, test, and evaluation at the levels identified in section 4201 of division D of this Act.

The House amendment contained an identical provision (sec. 201).

The conference agreement includes this provision.

**SUBTITLE B—PROGRAM REQUIREMENTS,
RESTRICTIONS, AND LIMITATIONS**

Program on enhancement of preparation of dependents of members of Armed Forces for careers in science, technology, engineering, and mathematics (sec. 211)

The House amendment contained a provision (sec. 211) that would make section 233 of the Carl Levin and Howard P. ``Buck'' McKeon National Defense Authorization Act for Fiscal Year 2015 (Public Law 113-291) permanent.

The Senate bill contained no similar provision.

The Senate recesses.

Updates to the Department of Defense personnel management authority to attract experts in science and engineering (sec. 212)

The House amendment contained a provision (sec. 212) that would provide personnel management authorities through December

31, 2024, to the Director of the Joint Artificial Intelligence Center to facilitate the recruitment of eminent experts in science or engineering.

The Senate bill contained no similar provision.

The Senate recedes with a technical/clarifying amendment.

Establishment of joint reserve detachment of the Defense Innovation Unit (sec. 213)

The House amendment contained a provision (sec. 878F) that would require the Secretary of Defense, in consultation with the Secretaries of the military departments, to establish not fewer than three joint reserve detachments at the Defense Innovation Unit.

The Senate bill contained no similar provision.

The Senate recedes with an amendment that would allow the Secretary of Defense, in consultation with the Secretaries of the military departments, to establish joint reserve detachments at Defense Innovation Unit locations. The provision would also stipulate that assignment to a joint reserve detachment shall not qualify as a joint duty assignment.

The conferees encourage the Secretary of Defense to establish joint reserve detachments at Defense Innovation Unit locations and leverage the expertise, analysis, and alternatives for innovation that members of the reserve can provide, while simultaneously creating opportunities for greater engagement and collaboration between the defense innovation ecosystem, industry, and academia. The conferees also encourage the Secretaries of the military departments to provide additional opportunities for members of the reserve to serve in joint reserve detachments at the Defense Innovation Unit in order to utilize their relevant private sector experience to advance the technology requirements of the Department of Defense.

Research and educational programs and activities for Historically Black Colleges and Universities and Minority-Serving Institutions of Higher Education (sec. 214)

The House amendment contained a provision (sec. 871) that would amend chapter 141 of title 10, United States Code, to require the Department of Defense to ensure that the system used by the Federal Government to monitor or record contractor past performance for a grant or contract awarded to an institution of higher education includes incentives for the award of a sub-grant or subcontract to minority institutions.

The Senate bill contained no similar provision.

The Senate recedes with an amendment that would modify section 2362 of title 10, United States Code, to allow the Secretary of Defense to establish incentives to encourage higher education institutions to collaborate with minority institutions in support of defense-related research and education.

The conferees note that another provision in this bill directs the Secretary of Defense to commission an independent study of defense research at historically black colleges and universities and other minority institutions, which will include recommendations on the development of incentives to encourage research and educational collaborations.

Modification of authority for prizes for advanced technology achievements (sec. 215)

The Senate bill contained a provision (sec. 239) that would authorize the office of the Under Secretary of Defense for Acquisition and Sustainment to award prizes as part of competitions to develop or demonstrate technologies relevant to defense missions.

The House amendment contained no similar provision.

The House recedes.

The conferees note the Defense Advanced Research Projects Agency's and the Services' successful use of these types of prize competitions, which have spurred the advancement of robotics, driverless cars, and cybersecurity technologies.

Joint hypersonics transition office (sec. 216)

The House amendment contained a provision (sec. 213) that would amend section 218 of the John Warner National Defense Authorization Act for Fiscal Year 2007 (Public Law 109-364) by directing the Department of Defense to establish a coordinating office that standardizes the technical priorities across the Department and provides discretionary authorization of funding of new technologies for expeditious transition to the service weapons systems.

The Senate bill contained no similar provision.

The Senate recedes with a clarifying amendment.

Modification of proof of concept commercialization program (sec. 217)

The Senate bill contained a provision (sec. 216) that would make the commercialization pilot program authorized in section 1603 of the National Defense Authorization Act for

Fiscal Year 2014 (Public Law 113-66; 10 U.S.C. 2359 note) permanent.

The House amendment contained a similar provision (sec. 214).

The Senate recedes.

Modification of authority and addition of technology areas for expedited access to technical talent (sec. 218)

The Senate bill contained a provision (sec. 235) that would add rapid prototyping and infrastructure resilience to the technical areas eligible for the rapid contracting processes authorized under section 217 of the National Defense Authorization Act for Fiscal Year 2018 (Public Law 115-91).

The House amendment contained no similar provision.

The House recedes with an amendment that would amend the same section of law to require the Secretary of Defense to direct the Secretaries of the military departments to establish not fewer than three multi-institution task order contracts, consortia, cooperative agreements, or other arrangements to facilitate expedited access to university technical expertise, including faculty, staff, and students, within 180 days of the enactment of this Act. The amendment would also add hypersonics to the technical areas eligible for the rapid contracting process.

Expansion of coordination in support of national security innovation and entrepreneurial education (sec. 219)

The House amendment contained a provision (sec. 249) that would require the Under Secretary of Defense for Research and Engineering, in consultation with the Director of the Advanced Manufacturing Office of the Department of Energy, to conduct a study on the feasibility and potential benefits of establishing a lab-embedded entrepreneurial fellowship program.

The Senate bill contained no similar provision.

The Senate recedes with an amendment that would add the Department of Energy's lab-embedded entrepreneurship programs to the list of national security innovation and entrepreneurial education programs that the Secretary of Defense may support.

Modification of defense quantum information science and technology research and development program (sec. 220)

The Senate bill contained a provision (sec. 217) that would amend section 234 of the John S. McCain National Defense Authorization Act for Fiscal Year 2019 (Public Law 115-232) by

specifying a list of organizations to be consulted in developing the research and investment plan required in that section and by requiring the Department of Defense to develop, in coordination with appropriate Federal entities, a taxonomy for quantum science activities and requirements for relevant technology and standards.

The House amendment contained a similar provision (sec. 230B).

The House recedes with an amendment that would: (1) Add a list of organizations to be consulted with; (2) Require the development of a taxonomy of quantum science activities; (3) Add a section on quantum science research centers; and (4) Add elements to the reporting requirement.

Understanding of investments in artificial intelligence and development of capabilities by adversaries (sec. 221)

The Senate bill contained a provision (sec. 5203) that would amend section 238 of the John S. McCain National Defense Authorization Act for Fiscal Year 2019 (Public Law 115-232) to require the official designated to coordinate the Department of Defense's artificial intelligence activities to examine relevant open source publications germane to artificial intelligence research and development. The provision would also require the Secretary of Defense to provide to the congressional defense committees an analysis on the comparative capabilities of the United States and China in artificial intelligence.

The House amendment contained no similar provision.

The House recedes with an amendment that would remove the analysis from the provision.

The conferees direct the Secretary of Defense to provide to the congressional defense committees an analysis and briefing of comparative capabilities of China in artificial intelligence by March 1, 2020. The analysis and briefing shall consist of a comprehensive and national-level: (1) Comparison of public and private investment differentiated by sector and industry; (2) Review of current trends in ability to set and determine global standards and norms for artificial intelligence technology in national security, including efforts in international standard setting bodies; (3) Assessment of access to artificial intelligence technology in national security; and (4) Assessment of areas and activities in which the United States should invest in order to provide the United States with technical superiority over China in relevant areas of artificial intelligence. The analysis and briefing should also include: (1) A comprehensive assessment of the relative technical quality of activities in the United States and China; (2) A comprehensive assessment of

the likelihood that developments in artificial intelligence will successfully transition into military systems of China; (3) Predicted effects on United States national security if current trends in China and the United States continue; (4) Predicted effects of current trends in the digital and technology export relationships of both countries with existing and new trading partners; and (5) An assessment of the relationships that are critical and in need of development in the private and public sectors to ensure that investment in artificial intelligence keeps pace with that of global investment.

Advisory role of JASON scientific advisory group (sec. 222)

The House amendment contained a provision (sec. 215) that would require the Secretary of Defense, acting through the Under Secretary of Defense for Acquisition and Sustainment, to seek to enter into a contract to support the JASON scientific advisory group.

The Senate bill contained no similar provision.

The Senate recedes with an amendment that would modify the requirement for the Department of Defense's arrangement with the JASON scientific advisory group to conduct national security studies and analyses. The conferees expect the arrangement or contract to be structured to allow for the efficient management of multiple national security research studies under one agreement with the Department and to be available for use by other Federal agencies, similar to previous contracts for JASON research studies.

Direct Air Capture and Blue Carbon Removal Technology Program (sec. 223)

The Senate bill contained a provision (sec. 219) that would require the Secretary of Defense, in coordination with the Secretary of Homeland Security, the Secretary of Energy, and the heads of other Federal agencies as deemed appropriate by the Secretary of Defense, to carry out a program on the research, development, testing, evaluation, study, and demonstration of technologies related to blue carbon capture and direct air capture.

The House amendment contained a similar provision (sec. 217).

The House recedes with a technical amendment.

Requiring defense microelectronics products and services meet trusted supply chain and operational security standards (sec. 224)

The Senate bill contained a provision (sec. 233) that would require the Secretary of Defense to establish, by January 1, 2021, supply chain and operational security standards and requirements for microelectronics and require the Department of Defense to purchase microelectronics and related services to the maximum practicable extent from providers that meet these standards.

The House amendment contained a similar provision (sec. 230C).

The House recedes with an amendment that would: (1) Modify the required purchase implementation date; (2) Clarify the purchase requirement definition and specification; (3) Refine the applicability statement; (4) Clarify that suppliers should maintain the ability to sell commercially; and (5) Clarify that the standards be comprised of best practices.

The conferees intend that by incorporating and standardizing best practices the Department will improve its acquisition of securely manufactured, commercially-available products and ensure that a growing industrial base is more resilient to a variety of risks in the supply chain. Relevant best practices include those relating to: manufacturing location; company ownership; workforce composition and access during manufacturing; suppliers' design, sourcing, manufacturing, packaging, and distribution processes; and reliability of the supply chain. Rather than MIL-SPEC style standards that would inhibit the Department's flexibility, the standardization of best practices is intended to strike a balance between security and the cost-effectiveness of commercial solutions.

Development and acquisition strategy to procure secure, low probability of detection data link network capability (sec. 225)

The Senate bill contained a provision (sec. 211, as amended by sec. 5211) that would require the Chief of Staff of the Air Force (CSAF) and Chief of Naval Operations (CNO) to develop a joint development and acquisition strategy to procure a resilient, low latency, and low probability of detection data link network capability that would enable effective operation in the contested environments highlighted in the National Defense Strategy.

The House amendment contained no similar provision.

The House recedes with a clarifying amendment that includes the Chief of Staff of the Army as part of the requirement.

The conferees are concerned about an absence of coordinated effort by the Department and the military services

on resilient, anti-jam, low probability of intercept/low probability of detection (LPI/LPD) communications. The conferees note that Congress previously directed a similar strategy on LPI/LPD data links in the National Defense Authorization Act for Fiscal Year 2018 (Public Law 115- 91). The Department's response was incomplete and inadequate, recommending no change to current Department policy that designates the F-35's Multifunction Advanced Data Link (MADL) as the solution for 5th to 4th generation air platform networked communications. Both the Navy and Air Force acknowledge that the aircraft modifications needed to install MADL are unaffordable at scale. A January 2019 memorandum signed by all three service secretaries commits the military services to common data standards to ensure interoperability across the joint force. While this is a positive step, the conferees believe progress on the specific LPI/LPD communications issue requires additional leadership and attention from both the Department and the military services. The conferees expect a more comprehensive and executable response to this legislative provision and subsequent investment in the Fiscal Year 2021 budget submission.

Establishment of secure next-generation wireless network (5G) infrastructure for the Nevada Test and Training Range and base infrastructure (sec. 226)

The Senate bill contained a provision (sec. 212) that would require the Secretary of Defense to establish a secure fifth generation (5G) wireless network at the Nevada Test and Training Range as part of the Department of Defense (DOD) test infrastructure in order to provide an advanced cellular range for the Department.

The House amendment contained no similar provision.

The House recedes with a technical amendment.

Administration of manufacturing innovation institutes funded by the Department of Defense (sec. 227)

The Senate bill contained a provision (sec. 5206) that would direct the Secretary of Defense to make changes to the administration of centers for manufacturing innovation funded by the Department of Defense and coordinate with other activities.

The House amendment contained no similar provision.

The House recedes with technical amendments.

Research program on foreign malign influence operations (sec. 228)

The House amendment contained a provision (sec. 218) that would require the Secretary of Defense, acting through the Under Secretary of Defense for Research and Engineering, to carry out a research program on foreign malign influence operations as part of the university and other basic research programs of the Department of Defense.

The Senate bill contained no similar provision.

The Senate recedes with an amendment that would authorize the Secretary of Defense, acting through the Under Secretary of Defense for Research and Engineering, to carry out a research program on foreign malign influence operations as part of the university research programs of the Department of Defense. Further, the provision would require the Secretary to submit to the congressional defense committees a notification not less than 30 days prior to initiating such a program.

Diversification of the research and engineering workforce of the Department of Defense (sec. 229)

The House amendment contained a provision (sec. 222) that would require the Secretary of Defense: (1) To assess critical skillsets required in the Department of Defense's science, technology, research, and engineering workforce to support emerging and future warfighter technologies, including an analysis of the recruitment, retention, and representation of minorities and women in the current workforce and geographic diversity; and (2) To develop and implement a plan to diversify and strengthen the Department's science, technology, research, and engineering workforce using existing programs and authorities.

The Senate bill contained no similar provision.

The Senate recedes with an amendment that would: (1) Include support from the Under Secretary of Personnel and Readiness for the assessment; (2) Specify the scope of the assessment as the research and engineering workforce of the Department of Defense; (3) Modify the elements required in the assessment; and (4) Require consultation with the Secretaries of the military departments in the development of the plan.

Policy on the talent management of digital expertise and software professionals (sec. 230)

The House amendment contained a provision (sec. 223) that would create a Chief Digital Engineering Recruitment and Management Officer at the Department of Defense responsible for promoting and maintaining digital expertise and software

development as core competencies for civilian and military employees at the Department of Defense.

The Senate bill contained a similar provision (sec. 517).

The Senate recedes with an amendment that would authorize the Secretary of Defense to appoint a Chief Digital Engineering Recruitment and Management Officer. The amendment would also require an implementation plan describing how the Department of Defense will execute its policy to promote and maintain digital expertise and software development as core competencies of the civilian and military workforce.

The conferees encourage the Secretary of Defense to include in the implementation plan required by this section the following: (1) An assessment of progress made in recruiting an individual to serve as the Chief Digital Engineering Recruitment and Management Officer; (2) A timeline for implementation of the policy required by this section; and (3) Recommendations for any legislative or administrative action needed to meet the requirements of this section.

Digital engineering capability to automate testing and evaluation (sec. 231)

The House amendment contained a provision (sec. 224) that would direct the Under Secretary of Defense for Research and Engineering and the Director of Operational Test and Evaluation to establish a digital engineering capability to serve as the foundation for automated approaches to software testing and evaluation and to establish a pilot to demonstrate whether such testing could satisfy developmental and operational test requirements; that would direct associated changes to policies and guidance for both efforts; and that would require an initial report regarding these activities to be submitted to the congressional defense committees not later than 90 days after enactment.

The Senate bill contained no similar provision.

The Senate recedes with amendments that would further elaborate the governance process and that would further define the scope of the demonstration and selection of programs to participate, as well as clarifying amendments to the roles and responsibilities of officials and organizations and technical amendments to the reporting requirements.

The conferees believe that establishing a digital engineering capability is critical to accelerating the adoption of best practices in the use of software to model and simulate complex system behavior to assess potential effects of proposed hardware or software engineering changes on system performance. Further, the conferees note the significant potential value of

digital engineering capability for automating developmental and operational test and evaluation, and especially where a weapon or business system is software-defined and is developed using agile or secure continuous development/continuous delivery methods.

Process to align policy formulation and emerging technology development (sec. 232)

The House amendment contained a provision (sec. 225) that would require the Secretary of Defense to establish a process, not later than 180 days after the date of the enactment of this Act, to ensure that the policies of the Department of Defense relating to emerging technology are formulated and updated continuously as such technology is developed by the Department.

The Senate bill contained no similar amendment.

The Senate recedes with an amendment that would: (1) Modify the elements required for the process; (2) Modify the required report to a briefing; and (3) Modify definitions.

Improvement of the Strategic Capabilities Office of the Department of Defense (sec. 233)

The House amendment contained a provision (sec. 226) that would limit the ability of the Secretary of Defense to transfer the functions of the Strategic Capabilities Office (SCO) to another organization or element of the Department unless certain conditions are met.

The Senate bill contained a similar provision (sec. 905) that would prohibit any reorganization to the Department of Defense (DOD) that would impact SCO until the Chief Management Officer provides to the congressional defense committees a report assessing the impacts of such an organizational change.

The Senate recedes with a clarifying amendment.

Pilot program on enhanced civics education (sec. 234)

The House amendment contained a provision (sec. 238) that would require that the Secretary of Defense carry out a program under which the Secretary makes grants to eligible entities, on a competitive basis, to support the development and evaluation of civics education programs.

The Senate bill contained no similar provision.

The Senate recedes with an amendment that would require the Secretary of Defense to carry out a pilot program to provide enhanced educational support and funding to Department of Defense Education Activity schools and schools with a Junior

Reserve Officers' Training Corps unit for the improvement of civics education programs.

Technology and national security fellowship (sec. 235)

The Senate bill contained a provision (sec. 218) that would require the Secretary of Defense to establish a technology and national security fellowship for individuals who possess an undergraduate or graduate degree that focuses on science, technology, engineering, or mathematics coursework.

The House amendment contained a provision (sec. 239) that would authorize the establishment of a similar fellowship.

The House recedes with an amendment that would: (1) Add individuals with an associate's degree; (2) Include an experience requirement for fellows who will be assigned to a congressional office; (3) Modify the entities specified for coordination; and (4) Give the Department of Defense discretion in establishing the fellowship program.

Documentation relating to the Advanced Battle Management System (sec. 236)

The House amendment contained a provision (sec. 220) that would require the Secretary of the Air Force to provide program documentation for the Advanced Battle Management System (ABMS) family of systems.

The Senate bill contained a similar provision (sec. 215) that would express the sense of the Senate on the Air Force's approach to the ABMS.

The Senate recedes with an amendment that would require the Secretary of the Air Force to provide a report on the ABMS family of systems that includes a list of activities, programs, and projects related to ABMS, the final analysis of alternatives for ABMS, and an analysis of the requirements and development schedule for the networked architecture necessary for multidomain command and control and battle management as part of the ABMS family of systems.

The conferees understand this concept, the Advanced Battle Management System family of systems, envisions several existing airborne and ground intelligence, surveillance, and reconnaissance (ISR) and command and control systems connected by resilient, protected communications and data links. Given the intended capability of ABMS, the conferees believes the Air Force should consider prototyping and demonstrating the utility of artificial intelligence and automated sensor fusion as part of the ABMS concept.

Sensor data integration for fifth generation aircraft (sec. 237)

The House amendment contained a provision (sec. 219) that would require the Secretary of Defense to ensure fifth generation aircraft such as the F-35, F-22, and B-21 can share and disseminate data collected by on-board sensors with other joint service users and platforms.

The Senate bill contained no similar provision.

The Senate recesses.

Sense of Congress on future vertical lift technologies (sec. 238)

The House amendment contained a provision (sec. 230A) that expressed the Sense of Congress that the Army should continue to invest in research, development, test, and evaluation programs to mature future vertical lift technologies.

The Senate bill contained no similar provision.

The Senate recesses with a technical amendment.

Use of funds for Strategic Environmental Research Program, Environmental Security Technical Certification Program, and Operational Energy Capability Improvement (sec. 239)

The Senate bill contained a provision (sec. 240) that would require the Secretary of Defense to expend specific amounts appropriated for fiscal year 2020 for the Strategic Environmental Research Program, Operational Energy Capability Improvement Fund, and Security Technical Certification Program.

The House amendment contained no similar provision.

The House recesses with an amendment that would modify the use of funds for fiscal year 2020 and clarify that the account be executed through the Under Secretary of Defense for Acquisition and Sustainment.

Limitation and report on Indirect Fire Protection Capability Increment 2 capability (sec. 240)

The Senate bill contained a provision (sec. 213, as amended by sec. 5213) that would prohibit the obligation or expenditure of any funds for fiscal year 2020 for the Army's Indirect Fire Protection Capability Increment 2 (IFPC Inc 2) enduring capability program until the Secretary of the Army submits a report to the congressional defense committees addressing several issues related to the program. The provision would also require the Secretary of the Army to identify a

program of record in the President's budget request for fiscal year 2021 that addresses the Army's responsibility to provide the capability to defend against supersonic cruise missiles.

The House amendment contained no similar provision.

The House recesses with an amendment that would limit the obligation or expenditure of not more than 50 percent of funds for the IFPC Inc 2 program, including both enduring and interim capability, subject to submission of the report, including an assessment of the results of the performance, test, evaluation, integration, and interoperability of the first two batteries procured for the interim capability. The amendment would also require that the Secretary of Defense submit to the congressional defense committees a notification identifying the military services or agencies that will be responsible for the conduct of air and missile defense in support of joint campaigns as it applies to defense against current and emerging missile threats, including against each class of cruise missile.

SUBTITLE C—PLANS, REPORTS, AND OTHER MATTERS

Master plan for implementation of authorities relating to science and technology reinvention laboratories (sec. 251)

The House amendment contained a provision (sec. 231) that would require the Secretary of Defense, acting through the Under Secretary of Defense for Research and Engineering, to provide a master plan to the congressional defense committees by October 30, 2020, as to how the Department of Defense will use its current authorities and responsibilities established in previous National Defense Authorization Acts to modernize the workforce and capabilities of its science and technology reinvention laboratories.

The Senate bill contained no similar provision.

The Senate recesses with an amendment that would: (1) Require the Secretary of Defense and each of the Secretaries of the military departments to develop the master plan; (2) Modify the elements required in the plan; and (3) Modify the reporting requirements.

Infrastructure to support research, development, test, and evaluation missions (sec. 252)

The House amendment contained a provision (sec. 232) that would require the Secretary of Defense, in consultation with the Secretaries of the military departments, to develop and

implement a master plan that addresses the research, development, test, and evaluation infrastructure and modernization requirements of the Department of Defense, to include the science and technology reinvention laboratories and the Major Range and Test Facility Bases.

The Senate bill contained no similar provision.

The Senate recesses with an amendment that would: (1) Require consultation with the Secretaries of the military departments; (2) Modify the elements of the plan; and (3) Require prioritization of unfunded requirements for laboratory military construction projects.

Energetics plan (sec. 253)

The Senate bill contained a provision(sec. 5201) that would require the Under Secretary of Defense for Research and Engineering to develop an energetics research and development plan to ensure a long-term, multi-domain research, development, prototyping, and experimentation effort.

The House amendment contained no similar provision.

The House recesses.

Strategy and implementation plan for fifth generation information and communications technologies (sec. 254)

The Senate bill contained a provision (sec. 236) that would express the sense of the Senate on the importance of secure fifth-generation (5G) wireless networks for the Department of Defense and would require the Secretary of Defense to provide quarterly briefings to the congressional defense committees on Department of Defense activities to develop and utilize secure 5G wireless networking technology.

The House amendment contained a provision (sec. 233) that would require the Secretary of Defense to develop and implement a strategy for 5G information and communications technologies not later than 270 days after the date of the enactment of this Act and to provide a briefing to the congressional defense committees not later than 180 days after the date of the enactment of this Act on the progress made in developing the strategy.

The Senate recesses with an amendment that would: (1) Modify elements of the required strategy; and (2) Add periodic briefings on the development and implementation of the strategy.

Department-wide software science and technology strategy (sec. 255)

The House amendment contained a provision (sec. 234) that would require the Secretary of Defense, acting through the Under Secretary of Defense for Research and Engineering, to designate a senior official or existing entity within the Department of Defense with the principal responsibility for guiding the direction of research and development for next generation software and software intensive systems for the Department. This provision would also require that the designated senior official or entity develop a strategy for research and development of the next generation software and software intensive systems and submit the strategy to the congressional defense committees not later than 1 year after the date of the enactment of this Act.

The Senate bill contained no similar provision.

The Senate recedes with an amendment that would expand the scope of the activities assigned under a senior official and associated scope of the strategy, to include foundational research, technical workforce and infrastructure, software acquisition, and software dependent missions; and further an amendment that would expand the strategy to incorporate activities in certain organizations to include universities, federally funded research and development centers and other entities.

Artificial intelligence education strategy (sec. 256)

The House amendment contained a provision (sec. 235) that would require the Secretary of Defense to develop a strategy which identifies the key aspects, applications, and challenges associated with artificial intelligence that can be developed into an educational curriculum for military servicemembers who utilize the technology in the execution of their responsibilities. This provision would also require the development of an implementation plan for the educational curriculum and would mandate that the Department of Defense provide the Artificial Intelligence (AI) Education Strategy and the associated implementation plan to the congressional defense committees not later than 270 days after the date of the enactment of this Act.

The Senate bill contained no similar provision.

The Senate recedes with an amendment that would require the Secretary of Defense to develop a strategy and implementation plan for educating servicemembers in relevant occupational fields on matters relating to artificial intelligence.

The conferees note that the implementation plan required by this provision should identify the following, as applicable:
(1) The military occupational specialties that are most likely

to involve interaction with AI technology; (2) The specific occupational specialties that will receive training in accordance with the planned curriculum; (3) The planned duration of AI training; (4) The context in which the training will be provided; (5) Metrics for evaluating the effectiveness of the training and curriculum; and (6) Any other issues the Secretary of Defense determines to be relevant.

Cyber science and technology activities roadmap and reports (sec. 257)

The Senate bill contained a provision (sec. 232) that would require the Under Secretary of Defense for Research and Engineering to develop a roadmap for the science and technology activities of the Department of Defense in support of the Department's cyber needs and missions.

The House amendment contained no similar provision.

The House recedes with an amendment that would add the rest of the Federal government to the list of entities to be consulted.

Report on B-52 commercial engine replacement program (sec. 258)

The House amendment contained a provision (sec. 221) that would limit funds for the B-52 commercial engine replacement program until the Secretary of the Air Force submits a capability development document and a signed test and evaluation master plan.

The Senate bill contained no similar provision.

The Senate recedes with a clarifying amendment.

Commercial edge computing technologies and best practices for Department of Defense warfighting systems (sec. 259)

The Senate bill contained a provision (sec. 5207) that would require the Under Secretary of Defense for Acquisition and Sustainment to report to the congressional defense committees on commercial edge computing technologies and best practices for Department of Defense warfighting systems.

The House amendment contained no similar provision.

The House recedes.

Biannual report on the Joint Artificial Intelligence Center (sec. 260)

The House amendment contained a provision (sec. 236) that would require the Secretary of Defense to submit biannually a

report on the Joint Artificial Intelligence Center and its efforts to harmonize the Department's work on artificial intelligence issues.

The House amendment contained another provision (sec. 1078) that would require the Secretary of Defense, in consultation with head of the Joint Artificial Intelligence Center, to submit to the appropriate congressional committees a report on the artificial intelligence strategy of the Department of Defense.

The Senate bill contained no similar provision.

The Senate recedes with an amendment that would combine the reports into a single report and modify the required elements therein.

Quarterly updates on the Optionally Manned Fighting Vehicle program (sec. 261)

The House amendment contained a provision (sec. 237) that would require the Assistant Secretary of the Army for Acquisition, Logistics, and Technology in consultation with the Commander of the Army Futures Command to provide quarterly reports to the Committee on Armed Services of the House of Representatives on the progress of the Optionally Manned Fighting Vehicle program.

The Senate bill contained no similar provision.

The Senate recedes with a technical amendment.

National Study on Defense Research at Historically Black Colleges and Universities and Other Minority Institutions (sec. 262)

The House amendment contained a provision (sec. 240) that would establish an independent Federal commission to advance the research capability of Historically Black Colleges and Universities and other Minority Institutions.

The Senate bill contained no similar provision.

The Senate recedes with an amendment that would modify the provision to require the Secretary of Defense to commission an independent National Academies of Sciences, Engineering, and Medicine study to review the state of defense research at covered institutions. The provision would also require the Department of Defense to develop an implementation plan in response to the recommendations of the study.

Study on national security emerging biotechnologies for the Department of Defense (sec. 263)

The Senate bill contained a provision (sec. 231) that would require the Secretary of Defense to develop a coordinated research program in emerging biotechnologies.

The House amendment contained no similar provision.

The House recedes with an amendment that would change the provision into a requirement for the Secretary of Defense to direct the Defense Science Board to study the national security aspects of emerging biotechnologies. The provision would also require a briefing on emerging biotechnology-based threats.

Independent study on optimizing resources allocated to Combating Terrorism Technical Support Office (sec. 264)

The Senate bill contained a provision (sec.237) that would require, not later than March 1, 2020, the transfer of responsibilities for the authority, direction, and control of the Combating Terrorism Technical Support Office (CTTSO) from the Assistant Secretary of Defense for Special Operations and Low-Intensity Conflict to the Under Secretary of Defense for Research and Engineering.

The House amendment contained no similar provision.

The House recedes with an amendment that would require the Secretary of Defense to seek to enter into a contract with a federally funded research and development center to conduct a study on the optimal use of resources allocated to the CTTSO.

Independent assessment of electronic warfare plans and programs (sec. 265)

The House amendment contained a provision (sec. 216) that would require the Secretary of Defense to seek to engage the members of the private scientific advisory group known as JASON as advisory personnel to provide advice, on an ongoing basis, on matters involving science, technology, and national security.

The Senate bill contained no similar provision.

The Senate recedes with an amendment that would require the Secretary of Defense to engage the scientific advisory group known as JASON in order to carry out an independent assessment of electronic warfare plans and programs.

Technical correction to Global Research Watch Program (sec. 266)

The Senate bill contained a provision (sec. 234) that would make a technical correction to section 2365 of title 10, United States Code, related to the Global Research Watch Program.

The House amendment contained no similar provision.

The House recesses.

LEGISLATIVE PROVISIONS NOT ADOPTED

Electromagnetic spectrum sharing research and development program

The Senate bill contained a provision (sec. 214) that would require the Secretary of Defense, in consultation with the Administrator of the National Telecommunications and Information Administration and the Federal Communications Commission, to establish an electromagnetic spectrum sharing research and development program for fifth-generation wireless network technologies, Federal systems, and non-Federal incumbent systems that would focus on expanding sharing of electromagnetic spectrum.

The House amendment contained no similar provision.

The Senate recesses.

Sense of Congress on the importance of continued coordination of studies and analysis research of the Department of Defense

The House amendment contained a provision (sec. 227) that would express the sense of Congress on the importance of the continued coordination of studies and analysis research of the Department of Defense.

The Senate bill contained no similar provision.

The House recesses.

The conferees note the responsibilities of the Under Secretary of Defense for Research and Engineering in supervising all defense research and engineering, technology development, transition, prototyping, experimentation, and development testing activities, including unifying these efforts across the Department and the Services. The conferees understand the importance of coordinating these activities to prevent duplication of effort while also preserving the service-specific applications of research and engineering activities.

Musculoskeletal injury prevention research

The House amendment contained a provision (sec. 229) that would require the Secretary of Defense to conduct a musculoskeletal research program to identify risk factors for musculoskeletal injuries among servicemembers.

The Senate bill contained no similar provision.

The House recesses.

STEM jobs action plan

The House amendment contained a provision (sec. 230) that would require the Secretary of Defense to develop a plan of action to ensure the Department of Defense has access to personnel with necessary qualifications and experience in science, technology, engineering, and mathematics.

The Senate bill contained no similar provision.

The House recesses.

The conferees note that jobs in science, technology, engineering, and math (STEM) make up a significant portion of the workforce of the Department of Defense. These jobs exist with the organic industrial base, research, development, and engineering centers, life-cycle management commands, and logistics centers of the Department. The conferees urge the Secretary of Defense to take decisive action to replace STEM personnel as they retire to ensure that the military does not suffer a skills and knowledge gap.

Briefing on cooperative defense technology programs and risks of technology transfer to China or Russia

The Senate bill contained a provision (sec. 238) that would require a briefing relates to cooperative defense technology programs the risks of technology transfer.

The House amendment contained no similar provision.

The Senate recesses.

Not later than March 1, 2020, the conferees direct the Secretary of Defense, in consultation with the Director of National Intelligence, to provide the congressional defense committees a briefing, and documents as appropriate, on current cooperative defense technology programs of the Department of Defense with any country the Secretary assess to be engage in significant defense or other advanced technology cooperation with the People's Republic of China or the Russian Federation. The briefing shall address: whether any current cooperative defense technology programs of the Department of Defense increase the risk of technology transfer to the People's Republic of China or the Russian Federation; what actions the Department of Defense has taken to mitigate the risk of technology transfer to the People's Republic of China or the Russian Federation with respect to current cooperative defense technology programs; and such recommendations as the Secretary may have for legislative or administrative action to prevent technology transfer to the People's Republic of China or the Russian Federation with respect to current or prospective cooperative defense technology programs, especially as it

relates to capabilities the Secretary assesses to be critical to maintain or restore the comparative military advantage of the United States.

Increase in funding for basic operational medical research science

The House amendment contained a provision (sec. 241) that would authorize an increase in funding for basic operational medical research in the Department of Defense.

The Senate bill contained no similar provision.

The House recesses.

Funding for the Sea-Launched Cruise Missile-Nuclear analysis of alternatives

The Senate bill contained a provision (sec. 241) that would increase the amount authorized for the nuclear sea-launched cruise missile analysis of alternatives by \$5.0 million, and would establish a program of record for this system.

The House amendment contained no similar provision.

The Senate recesses.

Increase in funding for university research initiatives

The House amendment contained a provision (sec. 242) that would increase the funding table authorization for research, development, test, and evaluation, Army, basic research, university research initiatives, line 003 (PE 0601103A), by \$5.0 million and decrease the funding table authorization for operation and maintenance, Defense-wide, operating forces, Special Operations Command management/operational headquarters, line 080, by \$5.0 million.

The Senate bill contained no similar provision.

The House recesses.

Review and assessment pertaining to transition of Department of Defense-originated dual-use technology

The Senate bill contained a provision (sec. 242) that would require the Under Secretary of Defense for Research and Engineering to assess the Department of Defense (DOD) science and technology enterprise's policies and programs regarding intellectual property and commercialization and the potential for alternative contracting policies and strategies to facilitate innovation.

The House amendment contained no similar provision.
The Senate recedes.

The conferees direct the Under Secretary of Defense for Research and Engineering to enter into an arrangement with a university business school or law school with resident economics and intellectual property expertise to conduct an independent assessment of the Defense Advanced Research Projects Agency's and defense laboratories' contracting and intellectual property management policies and their effects on the commercialization of and innovation in dual-use technology. The assessment shall evaluate: (1) Whether current DOD policies and practices concerning intellectual property and government-purpose rights and licenses, in conjunction with current intellectual property law and its practice, limit commercialization and innovation in dual use-technology; and (2) Alternative policy options to accelerate commercialization and innovation in dual-use technology. The policy options to be evaluated should include at a minimum: (1) The DOD's retention, via contractual mechanisms, of intellectual property currently retained by contractors; (2) The DOD's use of prize-based competitions, research-as-a-service contracts, and government-funded grants to fund science and technology activities while retaining the intellectual property developed through those activities; (3) The incorporation of price ceilings for commercial products and licenses and commercial sale mandates in DOD contracts to discourage selective commercial hoarding; (4) Expansions or modifications to government purpose rights; and (5) Programs and policy to make DOD intellectual property, including that originating from research and development conducted in Department laboratories, more discoverable or available to the private sector.

No later than January 1, 2021, the university business school or law school should submit a report on the assessment to the Secretary of Defense with any recommendations for changes to statute, regulations, or policy. No later than February 1, 2021, the Secretary of Defense shall deliver the report to the Committees on Armed Services of the Senate and House of Representatives along with any relevant Department of Defense comments or recommendations.

Quantum Information Science Innovation Center

The House amendment contained a provision (sec. 243) that would require the Secretary of Defense to establish a Quantum Information Science Innovation Center to accelerate the Air Force's research and development in quantum information science. The provision would also increase the funding table authorization for research, development, test, and evaluation,

Air Force, applied research, dominant information sciences and methods, line 014, by \$10.0 million and decrease the funding table authorization for operation and maintenance, Defense-wide, operating forces, Special Operations Command Operational Support, line 090, by \$10.0 million.

The Senate bill contained no similar provision.

The House recedes.

The conferees note the modification of the existing authorization of a Defense Quantum Information Science and Technology Research and Development Program elsewhere in this bill. The conferees note that the Defense Quantum Information Science and Technology Research and Development Program includes the authority for each of the Secretaries of the military departments to establish or designate a Quantum Science Research Center.

Increase in funding for Naval University Research Initiatives

The House amendment contained a provision (sec. 244) that would increase the funding table authorization for research, development, test, and evaluation, Navy, basic research, University Research Initiatives, line 001 (PE 0601103N), by \$5.0 million and decrease the funding table authorization for operation and maintenance, Defense-wide, operating forces, Special Operations Command Theater Forces, line 100, by \$5.0 million.

The Senate bill contained no similar provision.

The House recedes.

Increase in funding for university and industry research centers

The House amendment contained a provision (sec. 245) that would increase the funding table authorization for research, development, test, and evaluation, Army, basic research for university and industry research centers, line 004 (PE 0601104A), by \$5.0 million and decrease the funding table authorization for operation and maintenance, Air Force, operational systems development, AF integrated personnel and pay system (AF-IPPS), line 158 (PE 0605018F), by \$5.0 million.

The Senate bill contained no similar provision.

The House recedes.

Increase in funding for national security innovation capital

The House amendment contained a provision (sec. 246) that would increase the funding table authorization for research, development, test, and evaluation, Defense-wide, for Defense

Innovation Unit Prototyping by \$75.0 million and decrease the funding table authorization for research, development, test, and evaluation, Defense-wide, advanced component development and prototypes, advanced innovative technologies, line 096 (PE 0604250D8Z), by \$75.0 million.

The Senate bill contained no similar provision.

The House recesses.

Increase in funding for Air Force University Research Initiatives

The House amendment contained a provision (sec. 247) that would increase the funding table authorization for research, development, test, and evaluation, Air Force, basic research, University Research Initiatives, line 002 (PE 0601103F), by \$5.0 million and decrease the funding table authorization for operation and maintenance, Defense-wide, operating forces, Special Operations Command Theater Forces, line 100, by \$5.0 million.

The Senate bill contained no similar provision.

The House recesses.

Increase in funding for Naval University Research Initiatives

The House amendment contained a provision (sec. 248) that would increase the funding table authorization for Navy basic research, University Research Initiatives, line 001 (PE 0601103N), by \$5.0 million and decrease the funding table authorization for operation and maintenance, Defense-wide, operating forces, Special Operations Command Theater Forces, line 100, by \$5.0 million.

The Senate bill contained no similar provision.

The House recesses.

Independent study on threats to United States national security from development of hypersonic weapons by foreign nations

The House amendment contained a provision (sec. 250) that would require the Secretary of Defense to enter into a contract with a federally funded research and development center in order to conduct a study on the development of hypersonic weapons capabilities by foreign nations.

The Senate bill contained no similar provision.

The House recesses.

The conferees note that the development of hypersonic weapons is a critical national interest as highlighted in the John S. McCain National Defense Authorization Act for Fiscal

Year 2019 (sec. 247) and encourages the Department of Defense to accelerate testing and development of hypersonic capabilities and technology.

Report on innovation investments and management

The House amendment contained a provision (sec. 251) that would require the Under Secretary of Defense for Research and Engineering to submit, not later than December 31, 2019, to the congressional defense committees a report on the efforts of the Department of Defense to improve innovation investments and management.

The Senate bill contained no similar provision.

The House recesses.

The conferees direct the Under Secretary of Defense for Research and Engineering, not later than December 31, 2019, to provide to the Committees on Armed Services of the Senate and House of Representatives a report on the efforts of the Department of Defense to improve innovation investments and management.

The report shall include an explanation of the following: (1) How incremental and disruptive innovation investments for each military department are defined; (2) How such investments are assessed; and (3) Whether the Under Secretary has defined a science and technology management framework that emphasizes the greater use of existing flexible approaches to more quickly initiate and discontinue projects to respond to the rapid pace of innovation, incorporates acquisition stakeholders into technology development programs to ensure that they are relevant to customers, and promotes advanced prototyping of disruptive technologies within the defense labs so that the science and technology community can evaluate the effectiveness of these technologies and applications in future acquisition programs.

Increase in funding for Army University Research Initiatives

The House amendment contained a provision (sec. 253) that would increase the funding table authorization for Army basic research, University Research Initiatives, Line 003 (PE 0601103A), by \$5.0 million and decrease the funding table authorization for research, development, test, and evaluation, Army, system development and demonstration, integrated personnel and pay system-Army (IPPS-A), Line 143 (PE 0605018A), by \$5.0 million.

The Senate bill contained no similar provision.

The House recesses.

Funding for anti-tamper heterogenous integrated microelectronics

The House amendment contained a provision (sec. 254) that would increase the funding table authorization for research, development, test, and evaluation, Defense-wide, advanced technology development, defense-wide manufacturing science and technology program, line 047 (PE 0603680D8Z), by \$5.0 million and decrease the funding table authorization for other procurement, Army, elect equip-automation, general fund enterprise business systems fam, line 114, by \$5.0 million.

The Senate bill contained no similar provision.

The House recesses.

Briefing on use of blockchain technology for defense purposes

The House amendment contained a provision (sec. 255) that would require the Under Secretary of Defense for Research and Engineering to provide, no later than 180 days after the enactment of this Act, to the congressional defense committees a briefing on the potential use of distributed ledger technology for defense purposes.

The Senate bill contained no similar provision.

The House recesses.

The conferees direct the Under Secretary of Defense for Research and Engineering to provide, not later than 180 days after the date of the enactment of this Act, to the congressional defense committees a briefing on the potential use of distributed ledger technology for defense purposes. This briefing shall include an explanation of how distributed ledger technology may be used by the Department of Defense to: (1) Improve cybersecurity, beginning at the hardware level, of vulnerable assets such as energy, water, and transport grids through distributed versus centralized computing; (2) Reduce single points of failure in emergency and catastrophe decision-making by subjecting decisions to consensus validation through distributed ledger technologies; (3) Improve the efficiency of defense logistics and supply chain operations; (4) Enhance the transparency of procurement auditing; and (5) Allow innovations to be adapted by the private sector for ancillary uses. The briefing shall also include any other information that the Under Secretary of Defense for Research and Engineering determines to be appropriate.

Efforts to counter manipulated media content

The House amendment contained a provision (sec. 256) that would direct the Secretary of Defense not later than 180 days

after the date of the enactment of this Act to provide a briefing to the congressional defense committees on Department of Defense (DoD) initiatives to identify and address manipulated media content, specifically "deepfakes."

The Senate bill contained no similar provision.

The House recesses.

The conferees direct the Secretary of Defense not later than 180 days after the date of the enactment of this Act to provide a briefing to the congressional defense committees on initiatives of the DoD to identify and address, as appropriate and as authorized in support of DoD operations, manipulated media content, specifically "deepfakes." The briefing shall include, at a minimum:

1)A description of the status of efforts to develop technology to identify manipulated content impacting the national security of the United States;

2)A description of any challenges to detecting, labeling, and preventing foreign actors' manipulation of images and video impacting national security;

3)A description of any plans to make "deepfake"detection technology available to the public and other Federal agencies for use in identifying manipulated media;

4)A description of any efforts by DoD to engage academia and industry stakeholders to combat deliberately manipulated or deceptive information from state and non-state actors on social media platforms impacting operations overseas;

5)An assessment of the ability of adversaries to generate "deepfakes";

6)Recommendations for a long-term transition partner organization for ongoing research programs; and

7)Any other matters the Secretary deems relevant.

Additional amounts for research, development, test, and evaluation

The Senate bill contained a provision (sec. 5204) that would increase the funding table authorization for research, development, test, and evaluation, Defense-wide, Information Systems Security Program (PE 0303140D8Z), by \$25.0 million. The provision would also increase the funding table authorization for research, development, test, and evaluation, Navy, University Research Initiatives (PE 0601103N), by \$5.0 million. Finally, the provision would decrease the funding table authorization for the Defense Health Program's procurement program, the Department of Defense Healthcare Management System Modernization, by \$30.0 million.

The House amendment contained no similar provision.

The Senate recesses.

Briefing on explainable artificial intelligence

The Senate bill contained a provision (sec. 5205) that would require the Secretary of Defense to brief the congressional defense committees on the development and applications of explainable artificial intelligence, defined as artificial intelligence that has the ability to demonstrate the rationale behind its decisions in order for its human user to comprehend and characterize the strengths and weaknesses of its decision-making process as well as to understand how it will behave in the future in the contexts in which it is used.

The House amendment contained no similar provision.

The Senate recesses.

The committees direct the Secretary of Defense to brief, no later than 180 days after the date of the enactment of this Act, the congressional defense committees on the development and applications of explainable artificial intelligence. The briefing shall address or include: (1) The extent to which the Department of Defense currently uses and prioritizes explainable artificial intelligence; (2) The limitations of explainable artificial intelligence and the plans of the Department to address those limitations; (3) The future plans of the Department to require explainable artificial intelligence, particularly in technologies that have warfighting applications; (4) Any potential roadblocks to the effective deployment of explainable artificial intelligence across the Department; (5) Identification and descriptions of programs and activities, including funding and schedule, to develop or procure explainable artificial intelligence to meet defense requirements and technology development goals; and (6) Such other matters that the Secretary considers appropriate. The briefing shall be unclassified but may include a classified supplement.

TITLE III—OPERATION AND MAINTENANCE

SUBTITLE A—AUTHORIZATION OF APPROPRIATIONS

Authorization of appropriations (sec. 301)

The Senate bill contained a provision (sec. 301) that would authorize appropriations for operation and maintenance activities at the levels identified in section 4301 of division D of this Act.

The House amendment contained an identical provision (sec. 301).

The conference agreement includes this provision.

SUBTITLE B—ENERGY AND ENVIRONMENT

Timeline for Clearinghouse review of applications for energy projects that may have an adverse impact on military operations and readiness (sec. 311)

The House amendment contained a provision (sec. 311) that would amend section 183a of title 10, United States Code, to allow the Military Aviation and Installation Assurance Clearinghouse 90 days to conduct its preliminary review of applications for an energy project.

The Senate bill contained no similar provision.

The Senate recedes with an amendment that would allow the Military Aviation and Installation Clearinghouse 75 days to conduct its preliminary review.

Authority to accept contributions of funds from applicants for energy projects for mitigation of impacts on military operations and readiness (sec. 312)

The House amendment contained a provision (sec. 313) that would amend section 183a of title 10, United States Code, to allow the Secretary of Defense to accept voluntary contribution of funds from an applicant for an energy project.

The Senate bill contained no similar provision.

The Senate recedes.

Use of proceeds from sale of recyclable materials (sec. 313)

The House amendment contained a provision (sec. 326) that would amend section 2577(c) of title 10, United States Code, by striking ``\$2,000,000'' and inserting ``\$10,000,000''.

The Senate bill contained no similar provision.

The Senate recedes.

Disposal of recyclable materials (sec. 314)

The House amendment contained a provision (sec. 327) that would amend section 2577(a) of title 10, United States Code, by defining the term 'recyclable materials' to include any quality recyclable material provided to the Department by a State or local government entity.''

The Senate bill contained no similar provision.

The Senate recesses with an amendment that would require the Office of the Secretary of Defense to authorize the recyclable material provided to the Department by a State or local government entity.

Department of Defense improvement of previously conveyed utility systems serving military installations (sec. 315)

The House amendment contained a provision (sec. 314) that would amend section 2688 of title 10, United States Code, by authorizing the use of military construction funding to support improvements to the reliability, resiliency, efficiency, physical security, or cybersecurity of a conveyed utility system.

The Senate bill contained no similar provision.

The Senate recesses.

Modification of Department of Defense environmental restoration authorities to include Federal Government facilities used by National Guard (sec. 316)

The Senate bill contained a provision (sec. 319) that would establish environmental restoration accounts for the Army National Guard and the Air National Guard.

The House amendment contained a similar provision (sec. 315) that would amend section 2707 of title 10, United States Code, to allow the Chief of the National Guard Bureau to access Defense Environmental Remediation Account funds for the limited purpose of addressing perfluorooctanoic acid and perfluorooctane sulfonate exposure and contamination resulting from National Guard activities in and around National Guard bases. This authority would sunset 5 years after the date of the enactment of this Act.

The Senate recesses with an amendment that would eliminate the 5 year sunset.

Use of operational energy cost savings of Department of Defense (sec. 317)

The Senate bill contained a provision (sec. 311) that would amend section 2912 of title 10, United States Code, to require that operational energy cost savings realized by the Department of Defense be used for the implementation of additional operational energy cost saving methods.

The House amendment contained a similar provision (sec. 899).

The House recesses.

Sale of electricity from alternate energy and cogeneration production facilities (sec. 318)

The Senate bill contained a provision (sec. 312) that would amend section 2916(b) of title 10, United States Code, to provide the Department of Defense more flexibility when using geothermal revenue.

The House amendment contained a similar provision (sec. 316).

The Senate recesses.

Energy resilience programs and activities (sec. 319)

The Senate bill contained a provision (sec. 313) that would make technical corrections to the Annual Energy Management and Resilience Report, require a report on funding levels for certain energy program offices, and establish targets for reduction in water use.

The House amendment contained a similar provision (sec. 330K).

The House recesses.

Technical and grammatical corrections and repeal of obsolete provisions relating to energy (sec. 320)

The Senate bill contained a provision (sec. 323) that would provide technical corrections to title 10, United States Code.

The House amendment contained no similar provision.

The House recesses.

Transfer authority for funding of study and assessment on health implications of per- and polyfluoroalkyl substances contamination in drinking water by Agency for Toxic Substances and Disease Registry (sec. 321)

The Senate bill contained a provision (sec. 317) that would amend section 316(a)(2)(B)(ii) of the National Defense Authorization Act for Fiscal Year 2018 (Public Law 115-91), as amended by section 315(a) of the John S. McCain National Defense Authorization Act for Fiscal Year 2019 (Public Law 115-232) to extend through 2021, the transfer authority for funding of the study and assessment on health implications of per- and polyfluoroalkyl substances contamination in drinking water by the Agency for Toxic Substances and Disease Registry.

The House amendment contained an identical provision (sec. 317).

The conference agreement includes this provision.

Replacement of fluorinated aqueous film-forming foam with fluorine-free fire-fighting agent (sec. 322)

The Senate bill contained a provision (sec. 316) that would prohibit the Department of Defense from procuring firefighting foam that contains perfluoroalkyl and polyfluoroalkyl substances after October 1, 2022.

The House amendment contained a similar provision (sec. 318) that would require the Secretary of the Navy to complete a military specification for a fluorine-free fire fighting agent to be used at all Department of Defense installations not later than January 2025. This provision would ban use of fluorinated foams on military installations by September 2029 or before such date, if possible.

The Senate recedes with an amendment that would require the Secretary of the Navy to complete a military specification for a fluorine-free firefighting agent by January 2023 and prohibits Department of Defense procurement of fire-fighting foam containing perfluoroalkyl and polyfluoroalkyl substances after October 2023. Additionally, the amendment would prohibit the use of fluorinated foam by October 2024 with the option for the Secretary of Defense to extend the date for up to one year using a waiver authority.

Prohibition of uncontrolled release of fluorinated aqueous film-forming foam at military installations (sec. 323)

The House amendment contained a provision (sec. 319) that would require the Secretary of Defense to prohibit uncontrolled release of fluorinated Aqueous Film Forming Foam (AFFF) at military installations except in cases of emergency response and limited non-emergency use for training or testing of equipment where complete containment, capture, and proper disposal mechanisms are in place to ensure no AFFF is released into the environment.

The Senate bill contained no similar provision.

The Senate recedes.

Prohibition on use of fluorinated aqueous film forming foam for training exercises (sec. 324)

The House amendment contained a provision (sec. 320) that would prohibit the use of fluorinated aqueous film forming foam for training exercises at military installations.

The Senate bill contained no similar provision.

The Senate recesses.

Real-time sound-monitoring at Navy installations where tactical fighter aircraft operate (sec. 325)

The House amendment contained a provision (sec. 321) that would require the Secretary of the Navy and Secretary of the Air Force to conduct real-time noise monitoring at no fewer than three installations per military department where tactical fighter aircraft operate regularly and noise contours have been developed through noise modeling.

The Senate bill contained a similar provision (sec. 5305) that would require the Secretary of Defense to submit to the Committees on Armed Services of the Senate and the House of Representatives a report on monitoring of noise from flights and training of EA-18G Growlers associated with Naval Air Station Whidbey Island.

The Senate recesses with an amendment that would require noise monitoring at two West Coast Naval Air Stations. The conferees intent is that the use of real-time noise monitoring will assist in validating or modifying current noise modeling profiles and may advance the understanding of noise impacts.

Development of extreme weather vulnerability and risk assessment tool (sec. 326)

The House amendment contained a provision (sec. 322) that would direct the Secretary of Defense to develop a climate vulnerability and risk assessment tool to assist in providing standardized risk calculations of climate-related impacts to military facilities and capabilities.

The Senate bill contained no similar provision.

The Senate recesses with an amendment that would require the Secretary of Defense to determine whether an existing climate vulnerability and risk assessment tool is available or can be adapted to be used quantify the risks associated with extreme weather events.

Removal of barriers that discourage investments to increase military installation resilience (sec. 327)

The House amendment contained a provision (sec. 324) that would require the Secretary of Defense to remove barriers and

reform policies that discourage investments to increase military installation resilience.

The Senate bill contained no similar provision.

The Senate recesses with a technical amendment.

Budgeting of Department of Defense relating to extreme weather (sec. 328)

The Senate bill contained a provision (sec. 320) that would require the Secretary of Defense to include a dedicated budget line item for adaptation to and mitigation of effects of extreme weather on military networks, systems, installations, facilities, and other assets and capabilities of the Department of Defense in the annual budget submission of the President.

The House amendment contained a similar provision (sec. 328).

The House recesses.

Prohibition on Perfluoroalkyl Substances and Polyfluoroalkyl Substances in Meals Ready-to-Eat Food Packaging (sec. 329)

The House amendment contained a provision (sec. 330B) that would require, not later than October 1, 2020, the Director of the Defense Logistics Agency (DLA) to ensure that any food contact substances used to assemble and package meals ready-to-eat procured by the DLA do not contain any perfluoroalkyl substances or polyfluoroalkyl substances.

The Senate bill contained no similar provision.

The Senate recesses with an amendment that would change the date of prohibition from October 1, 2020 to October 1, 2021.

Disposal of materials containing per- and polyfluoroalkyl substances or aqueous film-forming foam (sec. 330)

The House amendment contained a provision (sec. 330D) that would provide the Department with guidance on the disposal of per- and polyfluoroalkyl substances (PFAS) by incineration, and the storage of PFAS containing materials.

The Senate bill contained no similar provision.

The Senate recesses with an amendment to clarify that all incineration is to achieve the maximum degree of reduction in PFAS emissions and that the provision only pertains to certain materials within the Department of Defense.

Agreements to share monitoring data relating to perfluoroalkyl and polyfluoroalkyl substances and other contaminants of concern (sec. 331)

The House amendment contained a provision (sec. 330F) that would require the Secretary of Defense to seek to enter into agreements with municipalities or municipal drinking water utilities located adjacent to military installations under which both the Secretary and the municipalities and utilities would share monitoring data relating to perfluoroalkyl substances, polyfluoroalkyl substances, and other emerging contaminants of concern collected at the military installation.

The Senate bill contained no similar provision.

The Senate recesses with an amendment that would require the Secretary of Defense to maintain a publicly available website to provide information on exposure, testing, cleanup and treatment.

Cooperative agreements with States to address contamination by perfluoroalkyl and polyfluoroalkyl substances (sec. 332)

The Senate bill contained provisions (secs. 318 and 5318) that would encourage the Secretary of Defense to work expeditiously to finalize a cooperative agreement upon request from the governor of a State if there is suspected contamination from perfluoroalkyl and polyfluoroalkyl substances. If an agreement is not finalized or amended within 1 year, the Secretary would be required to submit a report to the appropriate committees and Members of Congress.

The House amendment contained an identical provision (sec. 330H).

The conference agreement includes this provision.

Plan to phase out use of burn pits (sec. 333)

The House amendment contained a provision (sec. 330L) that would require the Secretary of Defense to submit an implementation plan to phase out the use of the burn pits identified in the "Department of Defense Open Burn Pit Report to Congress" published in April 2019.

The Senate bill contained no similar provision.

The Senate recesses.

Information relating to locations of burn pit use (sec. 334)

The House amendment contained a provision (sec. 330M) that would require the Secretary of Defense to submit to the Secretary of Veterans Affairs and Congress a list of all locations at which open-air burn pits have been used by Secretary of Defense.

The Senate bill contained no similar provision.

The Senate recesses.

Data quality review of radium testing conducted at certain locations of the Department of the Navy (sec. 335)

The House amendment contained a provision (sec. 330N) that would require the Secretary of the Navy to provide an independent third-party data quality review of all radium testing completed by contractors of the Department of the Navy at locations where the Secretary is undertaking a project or activity funded through the following Department of Defense accounts: (1) Operation and Maintenance, Environmental Restoration, Navy; and (2) Operation and Maintenance, Environmental Restoration, Formerly Used Defense Sites.

The Senate bill contained no similar provision.

The Senate recesses with an amendment that would limit the requirement for an independent third-party quality review to certain locations.

Reimbursement of Environmental Protection Agency for certain costs in connection with the Twin Cities Army Ammunition Plant, Minnesota (sec. 336)

The Senate bill contained a provision (sec. 315) that would allow the Secretary of Defense to reimburse the Environmental Protection Agency for remedial actions performed at the Twin Cities Army Ammunition Plant.

The House amendment contained no similar provision.

The House recesses.

Pilot program for availability of working-capital funds for increased combat capability through energy optimization (sec. 337)

The Senate bill contained a provision (sec. 321) that would allow the Secretary of Defense and the military departments to use the working capital fund established pursuant to section 2208 of title 10, United States Code, to conduct a pilot program for energy optimization initiatives. Further, this provision would require the Secretary of Defense to submit an annual report to the congressional defense committees on the use of the authority during the preceding fiscal year. The annual report would be required to be submitted not later than 60 days after the President's budget is submitted to the Congress.

The House amendment contained no similar provision.

The House recesses.

Report on efforts to reduce high energy intensity at military installations (sec. 338)

The Senate bill contained a provision (sec. 322) that would require the Under Secretary of Defense for Acquisition and Sustainment to submit a report on efforts to achieve cost savings at military installations with high energy intensity to the congressional defense committees not later than September 1, 2020.

The House amendment contained no similar provision.
The House recesses.

SUBTITLE C—TREATMENT OF CONTAMINATED WATER NEAR MILITARY INSTALLATIONS

*Treatment of contaminated water near military installations
(secs. 341-345)*

The Senate bill contained a series of provisions (secs. 1071-1075) that would allow the Secretaries of the military departments to provide uncontaminated water sources or to treat water contaminated with perfluoroalkyl and polyfluoroalkyl substances if the water is used for agricultural purposes leading to products destined for human consumption. Additionally, these provisions would authorize the Secretary of the Air Force to acquire real property that has shown signs of contamination from perfluorooctanoic and perfluorooctane sulfonate.

The House amendment contained a similar provision (sec. 323).

The House recesses.

SUBTITLE D—LOGISTICS AND SUSTAINMENT

Materiel readiness metrics and objectives (sec. 351)

The Senate bill contained a provision (sec. 5301) that would require the Secretary of Defense to provide the congressional defense committees with a report for the life cycle sustainment of each major weapon system not later than February 1 of each year.

The House amendment contained a similar provision (sec. 331).

The Senate recesses with an amendment that would require the Secretary of Defense to conduct a comprehensive assessment

of the Department of Defense's materiel readiness and weapons system sustainment and to provide a report to the congressional defense committees not later than April 1, 2020.

Clarification of authority regarding use of working capital funds for unspecified minor military construction projects related to revitalization and recapitalization of defense industrial base facilities (sec. 352)

The House amendment contained a provision (sec. 332) that would amend section 2208(u)(2) of title 10, United States Code, to clarify the authority on the use of working capital funds for unspecified minor military construction projects related to defense industrial base facilities.

The Senate bill contained no similar provision.

The Senate recesses.

Modification to limitation on length of overseas forward deployment of naval vessels (sec. 353)

The Senate bill contained a provision (sec. 332) that would amend section 323 of the John S. McCain National Defense Authorization Act for Fiscal Year 2019 (Public Law 115-232) relating to the limitation on length of overseas forward deployment of naval vessels.

The House amendment contained no similar provision.

The House recesses.

Extension of temporary installation reutilization authority for arsenals, depots, and plants (sec. 354)

The Senate bill contained a provision (sec. 357) that would amend section 345(d) of the National Defense Authorization Act for Fiscal Year 2018 (Public Law 115-91; 10 U.S.C. 2667 note) by striking ``September 30, 2020'' and inserting ``September 30, 2025."

The House amendment contained a similar provision (sec. 337).

The House recesses with a technical amendment.

F-35 Joint Strike Fighter sustainment (sec. 355)

The House amendment contained a provision (sec. 333) that would require the Under Secretary of Defense for Acquisition and Sustainment to submit a report on the steps being taken to improve the availability and accountability of F-35 parts within the supply chain. In addition, this provision would limit funds

available to the Under Secretary until such time as the report is delivered.

The Senate bill contained no similar provision.

The Senate recesses with a technical amendment.

Report on strategic policy for prepositioned materiel and equipment (sec. 356)

The House amendment contained a provision (sec. 334) that would require the Assistant Secretary of Defense for Sustainment, in coordination with the Joint Staff, to submit a report to the congressional defense committees, not later than March 1, 2020, on the implementation plan for prepositioned materiel and equipment as required by section 321 of the National Defense Authorization Act for Fiscal Year 2014 (Public Law 113-66).

The Senate bill contained no similar provision.

The Senate recesses with an amendment that would strike the funding prohibition.

Pilot program to train skilled technicians in critical shipbuilding skills (sec. 357)

The House amendment contained a provision (sec. 338) that would allow the Secretary of Defense to carry out a pilot program to train individuals to become skilled technicians in critical shipbuilding skills in partnership with existing Federal or State projects relating to investment and infrastructure in training and education or workforce development.

The Senate bill contained no similar provision.

The Senate recesses with a technical amendment.

Requirement for military department inter-service depot maintenance (sec. 358)

The Senate bill contained a provision (sec. 331) that would require a joint memorandum of understanding in such cases where one military service would provide depot maintenance for an air platform of another military service.

The House amendment contained no similar provision.

The House recesses with a clarifying amendment.

Strategy to improve infrastructure of certain depots of the Department of Defense (sec. 359)

The Senate bill contained a provision (sec. 351) that would require the Secretary of Defense to deliver a comprehensive strategy to the congressional defense committees, not later than October 1, 2020, for improving the depot infrastructure of the military departments with the objective of ensuring that the depots have the capacity and capability to support the readiness and materiel availability goals of current and future weapon systems of the Department of Defense.

The House amendment contained no similar provision.

The House recedes with a technical amendment.

SUBTITLE E—REPORTS

Readiness reporting (sec. 361)

The House amendment contained a provision (sec. 341) that would amend sections 117 and 482 of title 10, United States Code, to modify the delivery method, timeline, and required elements of the Quarterly Readiness Report to Congress and the Joint Forces Readiness Review.

The Senate bill contained no similar provision.

The Senate recedes.

Technical correction to deadline for transition to Defense Readiness Reporting System Strategic (sec. 362)

The Senate bill contained a provision (sec. 359) that would amend section 358(c) of the John S. McCain National Defense Authorization Act for Fiscal Year 2019 (Public Law 115-232) by striking ``October 1, 2019'' and replacing it with ``October 1, 2020.''

The House amendment contained an identical provision (sec. 342).

The conference agreement includes this provision.

Report on Navy ship depot maintenance budget (sec. 363)

The House amendment contained a provision (sec. 343) that would require the Secretary of the Navy to submit reports for fiscal years 2021, 2022, and 2023 that provide additional information related to ship and submarine depot maintenance funding.

The Senate bill contained no similar provision.

The Senate recedes.

Report on Runit Dome (sec. 364)

The House amendment contained a provision (sec. 344) that would require the Secretary of Energy to submit a report on the status of the Runit Dome in the Marshall Islands.

The Senate bill contained no similar provision.

The Senate recesses with an amendment that would modify the reporting requirements.

Prohibition on subjective upgrades by commanders of unit ratings in monthly readiness reporting on military units (sec. 365)

The Senate bill contained a provision (sec. 356) that would prohibit the commander of a military unit who is responsible for monthly reporting of readiness from making any subjective upgrade of the overall rating of the unit. This provision would include a waiver authority if the first flag or general officer above the reporting unit in the chain of command approves of the upgrade. Additionally, this provision would require that any such waiver, and subsequent upgrades, be included in the Quarterly Readiness Report to Congress.

The House amendment contained no similar provision.

The House recesses.

Requirement to include foreign language proficiency in readiness reporting systems of Department of Defense (sec. 366)

The Senate bill contained a provision (sec. 5304) that would require the Secretary of Defense and the Secretaries of the military departments to include measures of foreign language proficiency as a mandatory element of unit readiness reporting in the Global Readiness and Force Management Enterprise not later than 90 days after the date of the enactment of this Act.

The House amendment contained no similar provision.

The House recesses.

SUBTITLE F—OTHER MATTERS

Prevention of encroachment on military training routes and military operation areas (sec. 371)

The Senate bill contained a provision (sec. 353) that would require projects to file 1 year before construction if they are proposed within wide area surveillance over-the-horizon radar. Additionally, the provision allows the governor of a State to recommend geographical areas of concern to the Secretary of Defense.

The House amendment contained a similar provision (sec. 351) that would amend section 183a(c)(6) of title 10, United States Code, to include over-the-horizon radar in the coverage of early outreach procedures issues by the Military Aviation and Installation Assurance Siting Clearinghouse.

The House recesses.

Expansion and enhancement of authorities on transfer and adoption of military animals (sec. 372)

The Senate bill contained a provision (sec. 354) that would amend section 2583 of title 10, United States Code, to require veterinary screening and care for military working dogs prior to retirement or transfer to law enforcement agencies. The provision would also, as requested by the Department of Defense, extend transfer and adoption authorities to Department-owned mules and donkeys, in order to provide consistency for use of the word ``transfer`` throughout this section of law.

The House amendment contained a similar provision (sec. 353).

The House recesses.

Extension of authority for Secretary of Defense to use Department of Defense reimbursement rate for transportation services provided to certain non-Department of Defense entities (sec. 373)

The House amendment contained a provision (sec. 352) that would amend section 2642 of title 10, United States Code, to extend the date that the Secretary of Defense may use the Department of Defense reimbursement rate for military transportation services provided to certain non-Department of Defense entities until October 1, 2024.

The Senate bill contained no similar provision.

The Senate recesses.

Extension of authority of Secretary of Transportation to issue non-premium aviation insurance (sec. 374)

The House amendment contained a provision (sec. 354) that would amend section 44310 of title 49, United States Code, to extend the authority of the Secretary of Transportation to issue non-premium aviation insurance until September 30, 2023.

The Senate bill contained no similar provision.

The Senate recesses.

Defense personal property program (sec. 375)

The Senate bill contained a provision (sec. 355) that would prohibit the Secretary of Defense from entering into or awarding a contract to a commercial provider for the management of the Defense Personal Property Program (DP3) until 60 days after the Comptroller General of the United States submits to the congressional defense committees a report on the administration of the DP3.

The House amendment contained a similar provision (sec. 355) that, in addition to requiring a similar report from the Comptroller General, would establish a Global Household Relocation Services Advisory Group; require the Commander of the United States Transportation Command (USTRANSCOM) to prepare a business case analysis for the proposed award of a global household goods contract (GHC) for the DP3; and prohibit the Secretary of Defense from entering into a global household goods contract until the Commander of USTRANSCOM briefs the defense committees on its business case analysis and on the proposed structure and meeting schedule for the advisory group.

The Senate recedes with amendments that would prohibit the award of a GHC contract until April 1, 2020, and require the Under Secretary of Defense for Acquisition and Sustainment and the Assistant Secretary of Defense for Personnel and Readiness to submit to the congressional defense committees a report on implementation of the Personal Property Program Improvement Action Plan that was developed by the Personnel Relocation/Household Goods Movement Cross-Functional Team.

In addition, the conferees direct the Secretary of Defense to establish a Military Relocation Advisory Committee consisting of members representing USTRANSCOM; the military services; transportation services providers, including two small business concerns; and consumer representatives who are members of the Armed Forces or spouses of members of the Armed Forces. The Secretary of Defense should ensure that the advisory committee convenes regularly to provide the Secretary feedback on the DP3, military relocation services, and other issues relating to permanent change of station moves. Additionally, the Secretary should ensure that the advisory committee provides quarterly reports of its activities to the congressional defense committees.

Public events about Red Hill Bulk Fuel Storage Facility (sec. 376)

The House amendment contained a provision (sec. 356) that would require the Department of the Navy to hold quarterly events open to the public that provide information and updates on the Red Hill Bulk Fuel Storage Facility.

The Senate bill contained no similar provision.
The Senate recesses.

*Sense of Congress regarding Innovative Readiness Training
program (sec. 377)*

The House amendment contained a provision (sec. 357) that would express the sense of Congress on the importance of Innovative Readiness Training, particularly to non-contiguous States and territories.

The Senate bill contained no similar provision.
The Senate recesses.

Detonation chambers for explosive ordnance disposal (sec. 378)

The House amendment contained a provision (sec. 329) that would require the Secretary of the Navy to purchase and operate a closed detonation chamber.

The Senate bill contained no similar provision.
The Senate recesses with a clarifying amendment.

LEGISLATIVE PROVISIONS NOT ADOPTED

Funding for Army Community Services

The House amendment contained a provision (sec. 302) that would increase the funding for Operation and Maintenance, Army for Base Operations Support for Army Community Services by \$30.0 million.

The Senate bill contained no similar provision.
The House recesses.

The conferees note that Army Community Services provides critical services, such as victim advocacy, financial counseling, employment readiness, among others. The conferees encourage the Department to increase the resources allocated to the account so Army Community Services can continue to provide imperative resources to servicemembers.

Increase in funding for civil military programs

The House amendment contained a provision (sec. 303) that would increase the funding for Operation and Maintenance, Defense-Wide for Civil Military Programs by \$50.0 million to support the National Guard Youth Challenge Program.

The Senate bill contained no similar provision.
The House recesses.

Authority to make final finding on designation of geographic areas of concern for purposes of energy projects with adverse impacts on military operations and readiness

The House amendment contained a provision (sec. 312) that would amend section 183a of title 10, United States Code, by changing the list of Department of Defense personnel who can make a final finding on the designation of a geographic area of concern.

The Senate bill contained no similar provision.
The House recesses.

Native American Indian lands environmental mitigation program

The Senate bill contained a provision (sec. 314) that would amend chapter 160 of title 10, United States Code, to allow the Secretary of Defense to establish a program to mitigate the environmental impacts of Department of Defense activities on Native American Indian lands.

The House amendment contained no similar provision.
The Senate recesses.

Offshore energy development

The House amendment contained a provision (sec. 325) that would prohibit the Secretary of Defense from issuing an offshore wind assessment that proposes wind exclusion areas and from objecting to an offshore energy project filed for review by the Military Aviation and Installation Assurance Clearinghouse (Clearinghouse) until 180 days after submitting a report to the congressional defense committees.

The Senate bill contained no similar provision.
The House recesses.

Comptroller General report on environmental cleanup of Vieques and Culebra, Puerto Rico

The House amendment contained a provision (sec. 330) that would require the Comptroller General of the United States to complete a study on the status of the Federal cleanup and decontamination process in the island-municipalities of Vieques and Culebra, Puerto Rico, and submit a report on the findings to the congressional defense committees not later than 180 days after the date of enactment of this Act.

The Senate bill contained no similar provision.
The House recesses.

The conferees believe that the Secretary of Defense should explore all alternatives to expedite the ongoing cleanup and environmental restoration process at the former military training sites located on Vieques and Culebra. The Department of Defense should also work with the U.S. Environmental Protection Agency, the Fish and Wildlife Service, and the Government of Puerto Rico to ensure the decontamination process is conducted in a manner that causes the least possible intrusion on the lives of island residents and minimizes public health risks. Lastly, the conferees note that the Federal Government should collaborate with local and private stakeholders to effectively address economic challenges and opportunities in Vieques, Culebra, and the adjacent communities of the former United States Naval Station Roosevelt Roads.

As such, the conferees direct the Comptroller General of the United States to complete a study and submit a report to the congressional defense committees on the status of the Federal cleanup and decontamination process in the island-municipalities of Vieques and Culebra, Puerto Rico, not later than 180 days after the date of enactment of this Act. The study should include a comprehensive analysis of the following:

(1) The pace of ongoing cleanup and environmental restoration efforts in the former military training sites in Vieques and Culebra; and

(2) Potential challenges and alternatives to accelerate the completion of such efforts, including their associated costs and any impact they might have on the public health and safety of island residents.

Comptroller General study on PFAS contamination

The House amendment contained a provision (sec. 330C) that would require the Comptroller General of the United States to conduct a review on the Department of Defense's efforts to clean up per- and polyfluoroalkyl substances contamination in and around military bases.

The Senate bill contained no similar provision.

The House recesses.

The conferees direct the Comptroller General of the United States to conduct a review of the efforts of the Department of Defense to clean up Perfluorooctanoic acid (PFOA) and Perfluorooctane sulfonate (PFOS) contamination in and around military bases as well as the Department's efforts to mitigate the public health impact of the contamination. The study shall include an assessment of:

(1) When the Department discovered that drinking water sources used by members of the Armed Forces and residents of

communities surrounding military bases were contaminated with PFOS and/or PFOA;

(2) After learning that the drinking water was contaminated, when the Department notified members of the Armed Forces and residents of communities surrounding military bases that their drinking water is contaminated with per- and polyfluoroalkyl substances (PFAS);

(3) After providing such notification, how much time lapsed before those affected were given alternative sources of drinking water;

(4) The number of installations and surrounding communities currently drinking water that is contaminated with PFOS and/or PFOA above the Environmental Protection Agency's advisory limit;

(5) The amount of money the Department has spent on cleaning up PFOS and PFOA contamination through the date of enactment of this Act;

(6) The number of sites where the Department has taken action to remediate PFAS contamination or other materials as a result of the use of firefighting foam on military bases;

(7) Factors that might limit or prevent the Department from remediating PFAS contamination or other materials as a result of the use of firefighting foam on military bases;

(8) The estimated total cost of clean-up of PFOS and PFOA;

(9) The cost to the Department to discontinue the use of PFAS in firefighting foam and to develop and procure viable replacements that meet military specifications;

(10) The number of members of the Armed Forces who have been exposed to PFOS or PFOA in their drinking water above the EPA's Health Advisory levels during their military service.

(11) An evaluation of what the Department could have done better to mitigate the release of PFOS or PFOA contamination into the environment and expose servicemembers; and

(12) Any other elements the Comptroller General may deem necessary.

The Comptroller General shall provide, to the congressional defense committees, the Committee on Energy and Commerce of the House of Representatives, and the Committee on the Environment and Public Works of the Senate, a briefing on the preliminary findings not later than 1 year after the date of the enactment of this Act. The final results of the study shall be provided by a time mutually agreed upon by the committees and the Comptroller General.

Prohibition on use of perfluoroalkyl substances and polyfluoroalkyl substances for land-based applications of firefighting foam

The House amendment contained a provision (sec. 330E) that would prohibit the Secretary of Defense from using firefighting foam containing perfluoroalkyl and polyfluoroalkyl substances for land-based applications not later than October 1, 2023.

The Senate bill contained no similar provision.

The House recesses.

Study on energy savings performance contracts

The House amendment contained a provision (sec. 330J) that would require the Secretary of Defense to conduct a study on energy saving performance contracts (ESPCs).

The Senate bill contained no similar provision.

The House recesses.

The conferees direct the Secretary of Defense to conduct a study identifying any legislative or regulatory barriers to entering into more ESPCs. The study should include policy proposals for how the Department of Defense could evaluate the cost savings caused by increasing energy resiliency when evaluating whether to enter into ESPCs. The conferees further direct the Secretary to submit a report on the findings of the study the congressional defense committees not later than 180 days after the date of the enactment of this Act.

Findings, purpose, and apology

The House amendment contained a provision (sec. 330I) that would amend section 2(a)(1) of the Radiation Exposure Compensation Act (Public Law 101-426; 42 U.S.C. 2210 note) by inserting `` , including individuals in New Mexico, Idaho, Colorado, Arizona, Utah, Texas, Wyoming, Oregon, Washington, South Dakota, North Dakota, Nevada, Guam, and the Northern Mariana Islands, '' after ``tests exposed individuals''.

The Senate bill contained no similar provision.

The House recesses.

The conferees encourage the congressional judicial committees to take up the issue raised in the House provision given it is in their jurisdiction.

Limitation on use of funds for implementation of elements of master plan for redevelopment of Former Ship Repair Facility in Guam

The House amendment contained a provision (sec. 335) that would continue the limitations established by section 325 of the John S. McCain National Defense Authorization Act for Fiscal Year 2019 (Public Law 115-232) on expending Department of the

Navy funds to modify the former Ship Repair Facility in Guam except in certain circumstances through fiscal year 2020.

The Senate bill contained no similar provision.

The House recesses.

Report on effects of increased automation of defense industrial base on manufacturing workforce

The House amendment contained a provision (sec. 336) that would require the Secretary of Defense to submit a report on the effects of increased automation of the defense industrial base not later than 180 days after enactment.

The Senate bill contained no similar provision.

The House recesses.

The conferees note that the Department of Defense Industrial Capabilities Annual Report for Fiscal Year 2018 highlights the manufacturing and defense industrial base provides opportunities for employment growth. The report goes on to say although the number of workers engaged in many traditional production occupations is projected to continue to decline over the coming decade, several other occupations that enable and support the modern, automated manufacturing facility are expected to surge. The Under Secretary of Defense for Acquisition and Sustainment is directed to brief the congressional defense committees by March 15, 2020 on the estimated number of jobs in the industrial base workforce expected to be gained due to the automation in the defense sector, an analysis describing the jobs expected to be gained, and a strategy to assist in attracting, training, and developing a workforce for these jobs.

Report on modernization of Joint Pacific Alaska Range Complex

The Senate bill contained a provision (sec. 341) that would require the Secretary of the Air Force to submit to the congressional defense committees a report on the long-term modernization of the Joint Pacific Alaska Range Complex.

The House amendment contained no similar provision.

The Senate recesses.

The conferees direct, not later than May 1, 2020, the Secretary of the Air Force submit to the congressional defense committees a report on the long-term modernization of the Joint Pacific Alaska Range Complex, the Nevada Test and Training Range, and other major training ranges. The report shall include the following: (1) An assessment of the requirement for providing realistic training against modern adversaries, including 5th generation adversary aircraft and ground threats,

and any current limitations compared to those requirements; (2) An assessment of the requirement to provide a realistic anti-access area denial training environment and any current limitations compared to those requirements; (3) An assessment of the requirement to modernize to provide realistic threats in a large-scale, combined-arms near-peer environment and any current limitations in meeting that requirement; and (4) A plan for balancing coalition training against training only for members of the Armed Forces of the United States.

Comptroller General study of out-of-pocket costs for service dress uniforms

The House amendment contained a provision (sec. 345) that would require the Comptroller General of the United States to conduct a study of the out-of-pocket costs to members of the Armed Forces for service dress uniforms.

The Senate bill contained no similar provision.

The House recesses.

The conferees direct the Comptroller General of the United States to conduct a study of the out-of-pocket costs to members of the Armed Forces for service dress uniforms. The study should include the following:

(1) A description and comparison of the out-of-pocket cost to members of the Armed Forces for the purchase of service dress uniforms and service dress uniform items, broken down by—

- (A) gender;
- (B) Armed Force;
- (C) enlisted; and
- (D) officer.

(2) Stipends, in-kind provision of items, or other assistance provided by each service to personnel to offset cost of service dress uniforms.

(3) A comparison of the out-of-pocket cost for purchase and maintenance of service and service dress uniforms over 1, 5, 10, and 20-year periods.

(4) A description of service dress uniform changes directed by any of the Armed Forces over the past 10 years that have affected the out-of-pocket costs to members of the Armed Forces and the costs associated with such change, by gender.

(5) Any other information that the Comptroller General determines appropriate.

The conferees further direct the Comptroller General to provide a briefing to the congressional defense committees on the preliminary findings of the study not later than April 15, 2020, with a final report on the findings of the study to be

submitted to the congressional defense committees not later than September 30, 2020.

Inspector General audit of certain commercial depot maintenance contracts

The House amendment contained a provision (sec. 346) that would require the Inspector General of the Department of Defense to audit sole-source commercial depot maintenance contracts to determine if there has been any excess profit or cost escalation.

The Senate bill contained no similar provision.

The House recesses.

The conferees direct the Inspector General of the Department of Defense to audit each military department and Defense Agency, as applicable, to determine if there has been any excess profit or cost escalation with respect to sole-source contracts relating to commercial depot maintenance, to include contracts for parts, supplies, equipment, and maintenance services.

Report on plan to decontaminate sites formerly used by the Department of the Army that have since been transferred to units of local government and are affected by pollutants that are, in whole or in part, a result of activity by the Department of Defense

The House amendment contained a provision (sec. 347) that would require the Secretary of the Army to submit to the appropriate congressional committees a report specifying properties that were under the jurisdiction of the Department of the Army and transferred to units of local government that may remain polluted because of activity by the Department of Defense as well as the Secretary's plan to decontaminate each covered property.

The Senate bill contained no similar provision.

The House recesses.

The conferees note that there are numerous properties formerly under the jurisdiction of the Department of the Army, such as former Nike missile sites, that have been transferred to units of local governments and may remain polluted due to Department of Defense activity. This pollution may prevent these properties from being used for commercial or residential purposes.

As such, the conferees direct the Secretary of the Army to submit a report, not later than 90 days after the enactment of this Act, specifying the covered properties that may remain

polluted because of Department of Defense activities and a plan for how the Secretary plans to decontaminate each covered property. The report should be submitted to the Committee on Armed Services and the Committee on Energy and Natural Resources of the Senate as well as to the Committees on Armed Services, the Committee on Energy and Commerce, and the Committee Natural Resources of the House of Representatives.

The term "covered property" means property that was under the jurisdiction of the Department of the Army and was transferred to a unit of local government before the date of the enactment of section 120(h) of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980, but that would have triggered Federal Government notice or action under that section had the transfer occurred on or after that date.

Limitation on use of funds regarding the basing of KC-46A aircraft outside the continental United States

The Senate bill contained a provision (sec. 352, as amended by sec. 5352) that would limit Air Force funds until the Secretary of the Air Force submits to the Congress a report on the projected plan and timeline for strategic basing of the KC-46A aircraft outside the continental United States.

The House amendment contained no similar provision.

The Senate recesses.

The conferees direct the Secretary of the Air Force to submit to Congress, not later than 180 days after the date of the enactment of this Act, a report on the projected plan for strategic basing of the KC-46A aircraft outside the continental United States.

Pilot program on reduction of effects of military aviation noise on private residences

The House amendment contained a provision (sec. 358) that would authorize a five-year pilot program for the purpose of mitigating the effects of military aviation noise on private residences in the vicinity of the military installations from which they operate.

The Senate bill contained no similar provision.

The House recesses.

The conferees remain concerned about the impact of military aviation noise on the communities surrounding military installations. The conferees note that community support is an important enabler of readiness. The conferees encourage the military services to find innovative ways to address the

community concerns about military aviation noise, maximize transparency, and increase dialog with concerned community members.

Clarification of food ingredient requirements for food or beverages provided by the Department of Defense

The Senate bill contained a provision (sec. 358) that would require the Secretary of Defense to publish a notice of proposed action before making any final rule, statement, or determination on the limitation or prohibition of a food or beverage ingredient provided by the Department of Defense.

The House amendment contained no similar provision.

The Senate recesses.

The conferees note that in 2017 the Department issued a notice that prohibited commonly used ingredients without considering the implications to manufacturers, farmers, and suppliers. The conferees direct the Secretary of Defense to engage with the private industry prior to making a new determination on food ingredients that may impact food supply chains, as well as, establish a point of contact within the department for engagement. Transparency when changing policy guidance on food ingredients will ensure the food and agriculture supply chain can meet new requirements.

Completion of Department of Defense Directive 2310.07E regarding missing persons

The House amendment contained a provision (sec. 359) that would require the Secretary of Defense to prioritize completion of Department of Defense Directive 2310.07E to improve the efficiency of locating missing persons.

The Senate bill contained no similar provision.

The House recesses.

Briefing on plans to increase readiness of B-1 bomber aircraft

The Senate bill contained a provision (sec. 5101) that would require the Secretary of the Air Force to provide the congressional defense committees a briefing on the Air Force's plans to increase the readiness of the B-1 bomber aircraft.

The House amendment contained no similar provision.

The Senate recesses.

The conferees are concerned with the readiness rates of the B-1 bomber and, therefore, direct the Secretary of the Air Force to provide, no later than February 29, 2020, the

congressional defense committees a briefing on the Air Force's plans to increase the readiness of the B-1 bomber aircraft.

The briefing should include the following elements: 1) A description of aircraft structural issues; 2) A plan for continued structural deficiency data analysis and training; 3) Projected repair timelines; 4) Future mitigation strategies; 5) An aircrew and maintainer training plan, including a plan to ensure that the training pipeline remains steady, for any degradation period; 6) A recovery timeline to meet future deployment tasking; and 7) A plan for continued upgrades and improvements.

Sense of Senate on prioritizing survivable logistics for the Department of Defense

The Senate bill contained a provision (sec. 5302) that would express the sense of the Senate on the importance of prioritizing survivable logistics.

The House amendment contained no similar provision.

The Senate recesses.

The conferees note that the joint logistics enterprise of the Armed Forces faces high-end threats from strategic competitors - China, Russia, and Iran - all of which have invested in anti-access area denial capabilities and gray zone tactics. As such, the conferees believe that resilient and agile logistics are necessary to implement the 2018 National Defense Strategy because it enables the United States to project power and sustain the fight against its strategic competitors in peacetime and during war.

Additionally, there are significant logistics shortfalls, as outlined in the November 2018 final report of the Defense Science Board Task Force on Survivable Logistics, which, if left unaddressed, would hamper the readiness and ability of the Armed Forces to conduct operations globally. The conferees believe that since the military departments have not shown a strong commitment to funding logistics, the Secretaries of the military departments should review the full list of recommendations in the report and address the chronic underfunding of logistics relative to other priorities.

Plan on sustainment of Rough Terrain Container Handler fleets

The Senate bill contained a provision (sec. 5303) that would require the Secretary of the Army and the Secretary of the Navy to develop plans for sustainment of the RT240 fleet, assess available modernization capabilities, and provide a joint

briefing to the defense committees on the readiness of both fleets.

The House amendment contained no similar provision.

The Senate recesses.

The conferees direct the Secretary of the Army and Secretary of the Navy to provide a briefing to the congressional defense committees, not later than 90 days after enactment of this Act. The briefing shall include the plans for sustainment of the RT-240 Rough Terrain Cargo Handler fleets to ensure operational capabilities into the 2030s, an assessment of available modernization capabilities to enhance joint deployment of such fleets, and current readiness of such fleets.

TITLE IV—MILITARY PERSONNEL AUTHORIZATIONS

SUBTITLE A—ACTIVE FORCES

End strengths for active forces (sec. 401)

The Senate bill contained a provision (sec. 401) that would authorize active-duty end strength as of September 30, 2019 as follows: Army, 480,000; Navy, 355,400; Marine Corps, 186,200; Air Force, 332,800.

The House amendment contained an identical provision.

The conference agreement includes this provision.

Revisions in permanent active duty end strength minimum levels (sec. 402)

The House amendment contained a provision (sec. 402) that would establish new minimum Active Duty end strengths for the Army, Navy, Marine Corps, and Air Force as of September 30, 2020. The committee recommends 480,000 as the minimum Active Duty end strength for the Army, 340,500 as the minimum Active Duty end strength for the Navy, 186,200 as the minimum Active Duty end strength for the Marine Corps, and 332,800 as the minimum Active Duty end strength for the Air Force.

The Senate bill contained no similar provision.

The Senate recesses.

SUBTITLE B—RESERVE FORCES

End strengths for Selected Reserve (sec. 411)

The Senate bill contained a provision (sec. 411) that would authorize the following end strengths for Selected Reserve personnel of the Armed Forces as of September 30, 2020; the Army National Guard of the United States, 336,000; the Army Reserve, 189,500; the Navy Reserve, 59,000; the Marine Corps Reserve, 38,500; the Air National Guard of the United States, 107,700; the Air Force Reserve, 70,100; and the Coast Guard Reserve, 7,000.

The House amendment contained an identical provision (sec. 411).

The conference agreement contains this provision.

End strengths for Reserves on active duty in support of the reserves (sec. 412)

The Senate bill contained a provision (sec. 412) that would authorize the following end strengths for Reserves on Active Duty in support of the reserve components as of September 30, 2020; the Army National Guard of the United States, 30,595; the Army reserve, 16,511; the Navy Reserve, 10,155; the Marine Corps Reserve, 2,386; the Air National Guard of the United States, 22,637; the Air Force Reserve, 4,431.

The House amendment contained an identical provision (sec. 412).

The conference agreement include this provision.

End strengths for military technicians (dual status) (sec. 413)

The Senate bill contained a provision (sec. 413) that would authorize the following end strengths for military technicians (dual status) as of September 30, 2020; the Army National Guard of the United States, 22,294; the Army Reserve, 6,492; the Air National Guard of the United States, 13,569; and the Air Force Reserve, 8,938.

The provision would also prohibit under any circumstances the coercion of a military technician (dual status) by a State into accepting an offer of realignment or conversion to any other military status, including as a member of the Active, Guard, and Reserve program of a reserve component. The provision would further specify that if a technician declines to participate in such a realignment or conversion, no further action may be taken against the individual or the individual's position. The provision would require the Chief of the National Guard Bureau to certify by January 1, 2020, to the Committees on Armed Services of the Senate and House of Representatives the number of positions realigned from military technician (dual

status) to a position in the Active, Guard, and Reserve (AGR) program of the Air National Guard during fiscal year 2019.

Finally, the provision would specify that if the number so certified is less than 3,190, that the authorized strength for Air National Guard military technicians be increased by the difference between the number certified and 3,190 (with a maximum increase of 2,292) and that authorized AGR strength for the Air National Guard be decreased by that same amount.

The House amendment contained a similar provision (sec. 413).

The House recedes with an amendment that would authorize the minimum number of military technicians (dual status) on the last day of fiscal year 2020 for the reserve components of the Army and the Air Force.

Maximum number of reserve personnel authorized to be on active duty for operational support (sec. 414)

The Senate bill contained a provision (sec. 414) that would authorize the maximum number of reserve component personnel who may be on Active Duty or full-time National Guard duty under section 115(b) of title 10, United States Code, during fiscal year 2020 to provide operational support.

The House amendment contained an identical provision (sec. 414).

The conference agreement includes this provision.

Authorized strengths for Marine Corps Reserves on active duty (sec. 415)

The Senate bill contained a provision (sec. 415) that would amend section 12011(a)(1) and section 12012(a) of title 10, United States Code, by adjusting the controlled grade caps for field grade officers and senior enlisted marines to account for increased end strength in the Marine Corps Active Reserve Program. The provision would also expand the field grade officer and senior enlisted strength tables to allow for future end strength increases.

The House amendment contained no similar provision.

The House recedes with a technical amendment.

Modification of authorized strength of Air Force Reserve serving on full-time reserve component duty for administration of the reserves or the National Guard (sec. 416)

The Senate bill contained a provision (sec. 5401) that would amend section 12011 of title 10, United States Code, to

increase the number of officers of the Air Force Reserve who are authorized to serve in the grade of major, lieutenant colonel, or colonel.

The House amendment contained no similar provision.

The House recesses.

SUBTITLE C—AUTHORIZATION OF APPROPRIATIONS

Military personnel (sec. 421)

The Senate bill contained a provision (sec. 421) that would authorize appropriations for military personnel activities at the levels identified in section 4401 of division D of this Act.

The House amendment contained an identical provision (sec. 421).

The conference agreement includes this provision.

TITLE V—MILITARY PERSONNEL POLICY

SUBTITLE A—OFFICER PERSONNEL POLICY

Maker of original appointments in a regular or reserve component of commissioned officers previously subject to original appointment in other type of component (sec. 501)

The Senate bill contained a provision (sec. 502) that would amend section 531 of title 10, United States Code, to require the Secretary of Defense to make regular officer transfer appointments onto the Active-Duty list for reserve officers currently included on the reserve active-status list. The provision would also amend section 12203 of title 10, United States Code, to require the Secretary of Defense to make reserve officer transfer appointments onto the reserve active-status list for regular officers currently included on the Active-Duty list.

The House amendment contained no similar provision.

The House recesses with an amendment that would require the Secretary of Defense to submit a report to the Committees on Armed Services of the Senate and the House of Representative on the transfer of officer appointments from the regular to the reserve component.

Furnishing of adverse information on officers to promotion selection boards (sec. 502)

The Senate bill contained a provision (sec. 503) that would modify section 615 of title 10, United States Code, to expand the grades of officers for which credible information of an adverse nature must be furnished to a promotion selection board. In addition, the provision would require that credible information of an adverse nature be furnished to a promotion selection board and its members at each stage or phase of the board, concurrent with the screening, rating, assessment, evaluation, discussion, or other consideration of the officer or of the officer's official military personnel file.

The House amendment contained no similar provision.

The House recesses.

Limitation on number of officers recommendable for promotion by promotion selection boards (sec. 503)

The Senate bill contained a provision (sec. 504) that would amend section 616 of title 10, United States Code, to limit the number of officers who may be recommended for promotion by a promotion selection board to no more than 95 percent of officers who are in a given promotion zone.

The House amendment contained no similar provision.

The House recesses.

Expansion of authority for continuation on active duty of officers in certain military specialties and career tracks (sec. 504)

The Senate bill contained a provision (sec. 505) that would correct a technical oversight in section 506 of the John S. McCain National Defense Authorization Act for Fiscal Year 2019 (Public Law 115-232) by amending section 637a of title 10, United States Code, to authorize each of the Secretaries of the military departments to continue certain officers serving in the pay grades of O-3 and O-4 in an occupational specialty, rating, or specialty code, as designated by the relevant secretary, who are not yet retirement eligible but would otherwise be subject to statutory separation to complete up to 40 years of active service.

The House amendment contained no similar provision.

The House recesses.

Management policies for joint qualified officers (sec. 505)

The House amendment contained a provision (sec. 501) that would amend section 661 of title 10, United States Code, to allow the Chairman of the Joint Chiefs of Staff to delegate the

approval authority for non-Joint Qualified Officers to fill critical joint duty assignments, thus allowing the Chairman's designee to approve or disapprove waivers.

The Senate bill contained no similar provision.

The Senate recesses with an amendment that would allow the Chairman of the Joint Chiefs of Staff to delegate the approval authority for non-Joint Qualified Officers to fill critical joint duty assignment to a general or flag officer who is an officer of the armed forces in the grade of O-9 or higher.

Modification of authorities on management of deployments of members of the Armed Forces and related unit operating and personnel tempo matters (sec. 506)

The Senate bill contained a provision (sec. 515) that would amend section 991 of title 10, United States Code, to limit the ability of the Secretary of Defense to delegate deployment threshold exceptions to Senate-confirmed civilian officials within the Department of Defense. The provision would also require the Secretary of Defense to prescribe a separate policy to track dwell time for reserve members of the Armed Forces.

The House amendment contained no similar provision.

The House recesses with an amendment that would strike language repealing the authority of the Secretary of Defense to prescribe alternative definitions of "deployment."

Personnel tempo of the Armed Forces and the United States Special Operations Command during periods of inapplicability of high-deployment limitations (sec. 507)

The Senate bill contained a provision (sec. 5506) that would amend section 991 of title 10, United States Code, to require the Secretary of the military department concerned to create and maintain specific, measurable, deployment thresholds whenever a waiver to otherwise required personnel tempo limitations is in effect.

The House amendment contained no similar provision.

The House recesses with a clarifying amendment.

Permanent authority to defer past age 64 the retirement of chaplains in general and flag officer grades (sec. 508)

The Senate bill contained a provision (sec. 5510) that would amend section 1253 of title 10, United States Code, to permanently authorize the Secretary of the military department concerned to defer the retirement of an officer serving in a

general or flag officer grade who is the Chief of Chaplains or Deputy Chief of Chaplains of that officer's armed force.

The House amendment contained no similar provision.

The House recesses.

Higher grade in retirement for officers following reopening of determination or certification of retired grade (sec. 509)

The Senate bill contained a provision (sec. 506) that would modify section 1370 of title 10, United States Code, to require that any increase in the retired grade of an officer resulting from the reopening of the determination or certification of that officer's retired grade be made by the Secretary of Defense, by and with the advice and consent of the Senate. Any associated modification of the officer's retired pay would go into effect on the effective date of the increase in the officer's retired grade and would not be retroactive to the date of the officer's retirement. The provision would apply to any increase in retired grade that occurs after the date of the enactment of this Act, regardless of when the officer retired.

The House amendment contained no similar provision.

The House recesses.

Authority of promotion boards to recommend that officers of particular merit be placed higher on promotion list (sec. 510)

The House amendment contained a provision (sec. 503) that would amend sections 14108, 14109, and 14308 of title 10, United States Code, to allow for Reserve Component promotion selection boards to recommend placing an officer on the reserve active-status list higher on a promotion list based on particular merit, if at least a majority of the promotion selection board members so recommend.

The Senate bill contained no similar provision.

The Senate recesses.

Availability on the internet of certain information about officers serving in general or flag officer grades (sec. 510A)

The Senate bill contained a provision (sec. 507) that would require each of the Secretaries of the military departments to make available on a public website certain biographical, assignment-related information about the department's general and flag officers, including public notice when a general or flag officer has been reassigned to a new duty position. A secretary may decline to publish such information

only for reasons of risk to the individual officer or to national security, and only after informing the Committees on Armed Services of the Senate and the House of Representatives in writing.

The House amendment contained an identical provision (sec. 504).

The conference agreement includes this provision.

Functional badge or insignia upon commission for chaplains (sec. 510B)

The House amendment contained a provision (sec. 506) that would require military chaplains to receive a functional badge or insignia upon commission.

The Senate bill contained no similar provision.

The Senate recesses.

SUBTITLE B—RESERVE COMPONENT MANAGEMENT

Modification of grade level threshold for Junior Reserve Officers' Training Corps (sec. 511)

The House amendment contained a provision (sec. 520A) that would amend section 2031 of title 10, United States Code, to authorize the Secretary to consider the number of physically fit students above the 7th grade when establishing a Junior Reserve Officers' Training Corps (JROTC).

The Senate bill contained no similar provision.

The Senate recesses with an amendment that would require eligible JROTC students above the 7th grade to be co-located with the 9th grade participating unit.

Inclusion of STEM in courses of instruction for the Junior Reserve Officers' Training Corps (sec. 512)

The House amendment contained a provision (sec. 515) that would amend section 2031 of title 10, United States Code, to add science, technology, engineering, and mathematics to Junior Reserve Officers' Training Corps curriculum.

The Senate bill contained no similar provision.

The Senate recesses.

Inclusion of homeschooled students in Junior Reserve Officers' Training Corps units (sec. 513)

The Senate bill contained a provision (sec. 592) that would amend section 2031 of title 10, United States Code, to require public secondary educational institutions that maintain a Junior Reserve Officers' Training Corps unit to permit membership in the unit of home-schooled students residing in the area served by the institution and who would otherwise be qualified for membership in the unit if they were enrolled in the institution.

The House amendment contained a similar provision (sec. 520B).

The House recesses.

Clarification of eligibility to serve as Commander, Marine Forces Reserve (sec. 514)

The House amendment contained a provision (sec. 511) that would amend section 7038, 8083, 8084, and 9038 of title 10, United States Code, to require all officers selected to serve as the chief or commander of their respective service's reserve command be reserve officers who hold the rank of lieutenant general, or vice admiral in the case of the Navy.

The Senate bill contained no similar provision.

The Senate recesses with an amendment that would amend section 8084 of title 10, United States Code, to require officers selected to serve as the Commander of the Marine Forces Reserve be a general officer of the Marine Corps Reserve.

Extension and periodic evaluation of suicide prevention and resilience program for the reserve components (sec. 515)

The House amendment contained a provision (sec. 520G) that would strike subsection (g) of section 10219 of title 10, United States Code, to extend permanently the suicide prevention and resilience program for the reserve components and their families.

The Senate bill contained no similar provision.

The Senate recesses with an amendment that would extend such program for 5 years and require the Secretary of Defense to conduct a program evaluation every third year beginning in 2022, until the program terminates, to determine the effectiveness of the program.

Authority to defer mandatory separation at age 68 of officers in medical specialties in the reserve components (sec. 516)

The House amendment contained a provision (sec. 512) that would amend section 14703 of title 10, United States Code, to

authorize the Secretary concerned to retain Reserve Component medical specialty officers beyond the age of 68.

The Senate bill contained no similar provision.

The Senate recesses.

Modernization of inspection authorities applicable to the National Guard (sec. 517)

The Senate bill contained a provision (sec. 1036) that would amend section 105 of title 32, United States Code, to authorize the Chief of the National Guard Bureau to conduct inspections to determine whether units and members of the Army National Guard and Air Force National Guard comply with Federal law and policy applicable to the National Guard.

The House amendment contained no similar provision.

The House recesses with an amendment that would amend section 105 of title 32, United States Code, to authorize the Chief of the National Guard Bureau to have inspections made by commissioned officers of the National Guard on behalf of the Secretary of the Army or the Secretary of the Air Force. Any inspections made under this authority may be made only with the approval of the Secretary of the Army or the Secretary of the Air Force.

Consultation with Chief of the National Guard Bureau in the appointment or designation of National Guard property and fiscal officers (sec. 518)

The Senate bill contained a provision (sec. 1038) that would amend section 708 of title 32, United States Code, to require the Chief of the National Guard Bureau, subject to the approval of the secretary of the military department concerned, to assign, designate, or detail property and fiscal officers for each State, each territory, and the District of Columbia.

The House amendment contained no similar provision.

The House recesses with an amendment that would amend section 708 of title 32, United States Code, to require the Governor of each State, the Commonwealth of Puerto Rico, Guam, and the Virgin Islands, and the commanding general of the National Guard of the District of Columbia to consult the Chief of the National Guard Bureau in appointing a qualified commissioned officer to be the property and fiscal officer of that jurisdiction.

Coast Guard Junior Reserve Officers' Training Corps (sec. 519)

The House amendment contained a provision (sec. 520) that would authorize the Secretary of the department in which the Coast Guard is operating to establish a Junior Reserve Officers' Training Corps unit in co-operation with Lucy Garrett Beckham High School, Charleston County, South Carolina.

The Senate bill contained no similar provision.

The Senate recedes with an amendment that would amend chapter 3 of title 14, United States Code, to authorize the Secretary of the department in which the Coast Guard is operating to establish and maintain a Junior Reserve Officers' Training Corp at public and private secondary educational institutions.

Repeal of requirement for review of certain Army Reserve officer unit vacancy promotions by commanders of associated active duty units (sec. 520)

The Senate bill contained a provision (sec. 511) that would repeal section 1113 of the Army National Guard Combat Readiness Reform Act of 1992, which was included in the National Defense Authorization Act for Fiscal Year 1993 (Public Law 102-484). This section required the review of a recommended unit vacancy promotion of an officer in the Selected Reserve by the commander of the Active-Duty unit associated with the Selected Reserve unit of that officer.

The House amendment contained an identical provision (sec. 513).

The conference agreement includes this provision.

Report on methods to enhance domestic response to large scale, complex and catastrophic disasters (sec. 520A)

The House amendment contained a provision (sec. 520E) that, not later than 180 days after the enactment of this Act, would require the Secretary of Defense, in consultation with the Federal Emergency Management Agency, the National Security Council, the Council of Governors, and the National Governors Association, to submit a report on their plan to establish policy and processes to implement the authority provided by the amendments made by section 520.

The Senate bill contained no similar provision.

The Senate recedes with a clarifying amendment.

Report and briefing on the Senior Reserve Officers' Training Corps (sec. 520B)

The Senate bill contained a provision (sec. 5507) that would require the Secretary of Defense to submit a report to the Committees on Armed Services of the Senate and the House of Representatives on the feasibility and advisability of expanding the Senior Reserve Officers' Training Corps (ROTC) to include distance learning programs and community colleges. The provision would also require a briefing on the effect of prohibitions on closing certain ROTC detachments.

The House amendment contained no similar provision.

The House recesses.

Sense of Congress on increase in number of Junior Reserve Officers' Training Corps units (sec. 520C)

The House amendment contained a provision (sec. 518) that would express the sense of Congress regarding support for 3,700 Junior Reserve Officers' Training Corps units nationwide.

The Senate bill contained a similar provision.

The Senate recesses with an amendment that would remove all findings from the provision.

SUBTITLE C—GENERAL SERVICE AUTHORITIES AND CORRECTION OF MILITARY RECORDS

Advice and counsel of trauma experts in review by boards for correction of military records and discharge review boards of certain claims (sec. 521)

The Senate bill contained a provision (sec. 548) that would include social workers in the category of health care professionals whose diagnosis that a current or former servicemember is experiencing or has experienced post-traumatic stress disorder, traumatic brain injury, or another mental health disorder, must be accorded consideration by a board for the correction of military records or discharge review board in the matter of that member.

Further, the provision would include social workers in the category of health care professionals authorized to render a medical advisory opinion to a board for the correction of military records, or to be a member of a discharge review board considering the application of such a servicemember.

The Senate bill also included a provision (sec. 549) that would expand the types of cases in which boards for the correction of military records and discharge review boards must accord liberal consideration to the evidence presented by a servicemember or former servicemember, to include cases in which

post-traumatic stress disorder or traumatic brain injury related to sexual trauma, intimate partner violence, spousal abuse, or combat serves as all or part of the justification for the member or former member's application to the board for relief.

Further, the Senate bill included a provision (sec. 550) that would require a board for the correction of military records or a discharge review board reviewing a case in which a current or former servicemember's request for relief is based on post-traumatic stress disorder or traumatic brain injury, to seek advice and counsel from a psychiatrist, psychologist, or social worker with training on like mental health issues. The provision would further require that, if an applicant asserts sexual trauma, intimate partner violence, or spousal abuse, the board must seek advice and counsel from an expert in trauma specific to those adverse experiences.

The House amendment included a provision (sec. 530D) that would require a board for the correction of military records or a discharge review board considering a servicemember's request for relief that is grounded in post-traumatic stress disorder or traumatic brain injury, to seek advice and counsel from a psychiatrist, psychologist, or social worker with training on mental health issues associated with those diagnoses. If any such board is reviewing a claim in which sexual trauma, intimate partner violence, or spousal abuse is claimed, the board is mandated to seek advice from an expert in trauma specific to such adverse experiences.

The Senate recesses with a technical amendment.

Reduction in required number of members of discharge review boards (sec. 522)

The Senate bill contained a provision (sec. 547) that would amend section 1553 of title 10, United States Code, to reduce the minimum number of members comprising a Discharge Review Board from five to three.

The House amendment contained no similar provision.

The House recesses.

Establishment of process to review a request for upgrade of discharge or dismissal (sec. 523)

The House amendment contained a provision (sec. 521) that would require the Secretary of Defense to establish a board of discharge appeals to hear appeals of requests for upgraded discharges and dismissals that had been denied by the service review agencies. The provision also would require the Secretary to submit a report not later than April 1, 2021, on data based

on the appeals heard by the board, and to publish the information online annually beginning on October 1, 2022.

The Senate bill contained no similar provision.

The Senate recedes with an amendment that would require the Secretary of Defense to establish a process by which to conduct a final review of a request for an upgrade in the characterization of a discharge or dismissal, after the petitioner had exhausted all remedies available at a military department board for the correction of military or naval records or discharge review board. The amended provision would direct the Secretary to make use of existing organizations, boards, processes, and personnel of the Department of Defense, to the greatest extent practicable, in establishing and implementing the review process, and would provide that subsequent to final review, the Secretary of Defense may recommend, as appropriate, that the secretary of the military department concerned upgrade the characterization of the petitioner's discharge or dismissal. Finally, the amended provision would delay until January 1, 2022, the requirement that the Secretary of Defense submit to the committees on armed services of the Senate and the House of Representatives, a report detailing the outcomes of the review process to that date, and echoes the requirement for annual online reporting of outcomes beginning on October 1, 2022.

Prohibition on reduction in the number of personnel assigned to duty with a service review agency (sec. 524)

The House amendment contained a provision (sec. 522) that would amend section 1559(a) of title 10, United States Code, to extend the prohibition on reducing the number of military and civilian personnel assigned to duty with the service review agency of a military department until December 31, 2025. This provision would also require the Secretary of each military department to submit a report that details that department's plan to reduce the backlog of applications before the service review agency and, not later than October 1, 2021, to maintain the resources required to meet timeliness standards for disposition of applications before the Corrections Boards under section 1557 of title 10, United States Code. The report would be required to be submitted to the Committees on Armed Services of the Senate and House of Representatives not later than 180 days after the enactment of this Act.

The Senate bill contained no similar provision.

The Senate recedes.

Training of members of boards for correction of military records and discharge review boards on sexual trauma, intimate partner violence, spousal abuse, and related matters (sec. 525)

The Senate bill contained a provision (sec. 551) that would expand the types of cases in which boards for the correction of military records and discharge review boards must accord liberal consideration to the evidence presented by the servicemember or former servicemember in support of an application to the board and/or grant expedited consideration of such an application to include cases in which post-traumatic stress disorder or traumatic brain injury related to sexual trauma, intimate partner violence, spousal abuse, or combat serves as all or part of the justification for the member or former member's request for relief.

The House amendment contained a provision (sec. 530E) that would require that the curriculum of training for members of boards for the correction of military or naval records and discharge review boards include training on sexual trauma, intimate partner violence, spousal abuse, and the various responses of individuals to trauma.

Further, the provision would require the Secretary of Defense and the Secretary of Homeland Security to ensure that, to the extent practicable, the training developed and provided in this regard is uniform across the Armed Forces.

The Senate recesses.

Time requirements for certification of honorable service (sec. 526)

The House amendment contained a provision (sec. 524) that would require the secretary of a military department or a designated commissioned officer serving in the pay grade of O-6 or higher to, upon submission of a completed United States Citizenship and Immigration Services Form N-426 in the case of a member of the Armed Forces who has served honorably on Active Duty, provide certification not later than 5 days thereafter, and in the case of a member of the Armed Forces who has served honorably in the reserve component provide certification not later than 3 weeks thereafter.

The Senate bill contained no similar provision.

The Senate recesses with an amendment that would require the Secretary of Defense to publish regulations governing the submission and processing of a completed United States Citizenship and Immigration Services Form N-426. Such regulations shall designate the appropriate grade of an officer authorized to certify the form, and establish timeliness

requirements, within which the form must be returned to the submitting servicemember.

Correction of certain discharge characterizations (sec. 527)

The House amendment contained a provision (sec. 530H) that would require that, on request of a former servicemember who was discharged from the Armed Forces because of his or her sexual orientation, the boards for the correction of military or naval records and discharge review boards of the applicable military department would change the discharge characterization of that member to honorable, if the board's review determined such change to be appropriate. The provision would require consistency across the Department of Defense in the manner of considering such requests, and that the former member be authorized to use regular processes to appeal a decision by such a board not to change the characterization of the member's discharge. Finally, as to each former member whose discharge characterization is changed, the provision would require the Secretary of Defense to reissue a revised DD Form 214 that does not reflect the sexual orientation of the member or the reason for the member's initial discharge.

The Senate bill contained no similar provision.

The Senate recedes with an amendment that would clarify that a former member covered by this provision may seek review pursuant to section 1552 of title 10, United States Code, section 1553 of such title, or any other process established by the Secretary of Defense for such purpose, of a decision by the appropriate board not to change the discharge characterization of that member.

Development of guidelines for use of unofficial sources of information to determine eligibility of members and former members of the Armed Forces for decorations when the service records are incomplete because of damage to the official record (sec. 528)

The House amendment contained a provision (sec. 530A) that would require the Secretary of Defense, in consultation with the Secretary of Veterans Affairs, to develop guidelines for the use of unofficial sources of information to determine the eligibility of a servicemember for benefits and decorations when the service records are incomplete because of damage to the records.

The Senate bill contained no similar provision.

The Senate recedes with an amendment that would require the Secretary of Defense to develop guidelines for the use of

unofficial sources of information to determine the eligibility of a member or former member of the Armed Forces for decorations when the service records are incomplete because of damage.

Strategic plan for diversity and inclusion (sec. 529)

The House amendment contained a provision (sec. 526) that would require the Secretary of Defense to update and implement a Department of Defense Diversity and Inclusion Strategic Plan. The plan would cover a 5-year period beginning January 1, 2020.

The Senate bill contained no similar provision.

The Senate recedes with an amendment that would require the Secretary of Defense to design and implement a 5-year strategic plan for diversity and inclusion in the Department of Defense that incorporates existing efforts to promote diversity and inclusion and is consistent with the objectives of the 2018 National Military Strategy. The amended provision would require the Secretary to implement the strategic plan for diversity and inclusion not later than 1 year from the date of the enactment of this Act.

Study regarding screening individuals who seek to enlist in the Armed Forces (sec. 530)

The House amendment contained a provision (sec. 530C) that would require the Secretary of Defense to study the feasibility of using the Federal Bureau of Investigation Tattoo and Graffiti Identification Program and National Gang Intelligence Center, to screen for white nationalists and individuals with ties to white nationalist organizations as part of background investigations and security screenings of individuals who seek to enlist in the Armed Forces.

The Senate bill contained no similar provision.

The Senate recedes with an amendment that would require the Secretary of Defense to study the feasibility of using the Federal Bureau of Investigation Tattoo and Graffiti Identification Program and National Gang Intelligence Center to screen for a variety of extremist and gang-related activity.

Feasibility study regarding notification to Secretary of Homeland Security of honorable discharges of non-citizens (sec. 530A)

The House amendment contained a provision (sec. 530F) that would require the Secretary of Defense to provide the Secretary of Homeland Security with a copy of the Certificate of Release or Discharge from Active Duty (DD Form 214) issued to each

servicemember who is not a citizen of the United States and who is honorably discharged from the Armed Forces, not later than 30 days after the date of such discharge.

The Senate bill contained no similar provision.

The Senate recedes with an amendment that would require the Secretary of Defense to study the feasibility of providing the Secretary of Homeland Security with a copy of the DD Form 214 of each non-citizen servicemember who is discharged from a period of Active Duty in the Armed Forces with an honorable characterization of service, within 30 days of the date of such member's discharge.

The conferees note that the purpose of the assessment is to consider whether the proactive transmission of a former servicemember's DD Form 214 to the Secretary of Homeland Security within 30 days of discharge promotes accurate and up-to-date record keeping regarding the immigration status of that former member. The conferees direct the Secretary of Defense to provide a report on the results of the assessment to the Committees on Armed Services of the Senate and the House of Representatives not later than 180 days after the date of the enactment of this Act.

Sense of Congress regarding accession physicals (sec. 530B)

The Senate bill contained a provision (sec. 5509) that would express a sense of Congress that permitting military accession physicals in local communities would allow military recruiters to focus on their core recruiting mission and also reduce cost and increase efficiency at military entrance processing stations (MEPS).

The House amendment contained a similar provision (sec. 529).

The Senate recedes with an amendment that would express a sense of Congress that the Secretary of Defense should explore alternatives to centralized accession physicals at MEPS, including by conducting such physicals through local community health care providers.

SUBTITLE D—MILITARY JUSTICE

Expansion of pre-referral matters reviewable by military judges and military magistrates in the interest of efficiency in military justice (sec. 531)

The Senate bill contained a provision (sec. 555) that would amend Article 30a of the Uniform Code of Military Justice

(10 U.S.C. 830a) to require the President to prescribe regulations governing proceedings related to an expanded set of matters that would be authorized to be conducted by military judges and military magistrates prior to the referral of court-martial charges. In addition to matters related to investigative subpoenas, warrants for electronic communications, and matters referred by an appellate court, this expanded set of pre-referral matters would include matters related to the pre-trial confinement of an accused, the mental capacity responsibility of an accused, and an accused's request for individual military counsel.

The House amendment contained a similar provision (sec. 540B).

The House recesses with a clarifying amendment.

Command influence (sec. 532)

The House amendment contained a provision (sec. 531) that would amend section 837 of title 10, United States Code (article 37 of the Uniform Code of Military Justice), to prohibit convening authorities and commanding officers from censuring or admonishing a military court, or any of its members, the military judge, or counsel, with respect to the findings or sentence adjudged by the court; from deterring or attempting to deter a potential witness from participating in the investigative process or testifying at a court-martial; or from attempting to coerce or influence the action of a court-martial or member thereof, in reaching the findings or sentence in any case, or the actions of the convening, approving, or reviewing authority. The provision would expressly permit convening authorities and commanding officers to engage in general communications with subordinates or to seek advice from a superior officer on the disposition of alleged violations of the Uniform Code of Military Justice. The provision would clarify that no findings of a sentence of a court-martial may be held incorrect on the grounds of a violation of this provision unless the violation materially prejudices the substantial rights of the accused.

The Senate bill contained no similar provision.

The Senate recesses with technical amendments.

Statute of limitations for certain offenses (sec. 533)

The House amendment contained a provision (sec. 532) that would amend Article 43 of the Uniform Code of Military Justice (10 U.S.C. 843) to include the offenses of maiming or kidnapping of a child among those that may be tried and punished at any

time, without limitation. This amendment would take effect on the date of enactment of this Act and would apply with respect to the prosecution of such offenses committed before, on, or after the date of the enactment of this Act, provided the applicable limitation period has not yet expired.

The Senate bill contained no similar provision.

The Senate recesses.

Public access to dockets, filings, and court records of courts-martial or other records of trial of the military justice system (sec. 534)

The Senate bill contained a provision (sec. 559) that would amend Article 140a of the Uniform Code of Military Justice (10 U.S.C. 940a) to clarify that the Secretary of Defense must act in coordination with the Secretary of Homeland Security to apply to the United States Coast Guard the uniform standards and criteria governing administration of the military justice system, including those associated with: (1) The collection and analysis of data; (2) Case processing and management; (3) Timely, efficient, and accurate production and distribution of records of trial; and (4) Facilitating public access to docket information, filings, and records of court-martial proceedings. Further, the provision also would clarify that the Privacy Act (5 U.S.C. 552a) would not apply to courts-martial information made publicly available in accordance with Article 140a. Finally, the provision would affirm that the public access requirement would not apply to court-martial docket information, filings, or records that are classified, subject to a judicial protective order, or ordered sealed.

The House amendment contained no similar provision.

The House recesses with an amendment that would maintain applicability of the Privacy Act to records of trial produced or distributed within the military justice system, as well as to docket information, filings, and records made accessible to the public.

Extension of Defense Advisory Committee on Investigation, Prosecution, and Defense of Sexual Assault in the Armed Forces (sec. 535)

The Senate bill contained a provision (sec. 533) that would amend section 546(f)(1) of the Carl Levin and Howard P. "Buck" McKeon National Defense Authorization Act for Fiscal Year 2015 (Public Law 113-291) to extend the term of the Defense Advisory Committee on Investigation, Prosecution, and Defense of Sexual Assault in the Armed Forces (DAC-IPAD) by 5 years.

The House amendment contained a similar provision (sec. 548).

The House recesses.

The conferees request the DAC-IPAD review, as appropriate, whether other justice programs (e.g., restorative justice programs, mediation) could be employed or modified to assist the victim of an alleged sexual assault or the alleged offender, particularly in cases in which the evidence in the victim's case has been determined not to be sufficient to take judicial, non-judicial, or administrative action against the perpetrator of the alleged offense.

Further, the conferees recognize the importance of providing survivors of sexual assault an opportunity to provide a full and complete description of the impact of the assault on the survivor during court-martial sentencing hearings related to the offense. The conferees are concerned by reports that some military judges have interpreted Rule for Courts-Martial (RCM) 1001(c) too narrowly, limiting what survivors are permitted to say during sentencing hearings in ways that do not fully inform the court of the impact of the crime on the survivor.

Therefore, the conferees request that, on a one-time basis, or more frequently, as appropriate, and adjunct to its review of court-martial cases completed in any particular year, the DAC-IPAD assess whether military judges are according appropriate deference to victims of crimes who exercise their right to be heard under RCM 1001(c) at sentencing hearings, and appropriately permitting other witnesses to testify about the impact of the crime under RCM 1001.

Authority for return of personal property to victims of sexual assault who file a Restricted Report before conclusion of related proceedings (sec. 536)

The Senate bill contained a provision (sec. 532) that would amend section 586 of the National Defense Authorization Act for Fiscal Year 2012 (Public Law 112-81) to require the Secretary of Defense to prescribe procedures under which a victim of sexual assault who files a restricted report may, at any time and on a confidential basis, request the return of the victim's personal property obtained as part of the sexual assault forensic examination. Any such request on the part of the victim would not affect the restricted nature of the victim's report of sexual assault. The provision also would require a Sexual Assault Response Coordinator or Sexual Assault Prevention and Response Victim Advocate to inform the victim of his or her right to request the return of personal property under these procedures, but that any such return might

negatively affect a subsequent adjudication of the case, should the victim later decide to convert the restricted report to an unrestricted report. The provision would not affect the requirement to retain a sexual assault forensic examination kit for the period required in law.

The House amendment contained no similar provision.

The House recesses.

Guidelines on sentences for offenses committed under the Uniform Code of Military Justice (sec. 537)

The House amendment contained a provision (sec. 533) that would require the Secretary of Defense to establish non-binding sentencing guidelines for offenses under the Uniform Code of Military Justice, taking into account sentencing data collected by the Military Justice Review Panel.

The Senate bill contained no similar provision.

The Senate recesses with an amendment that would require the Secretary of Defense to develop non-binding guidelines on sentences for offenses under chapter 47 of title 10, United States Code (the Uniform Code of Military Justice), including suggested ranges of confinement. The provision would require the Secretary of Defense to submit the sentencing guidelines developed, together with an assessment of the feasibility and advisability of implementing such guidelines in panel sentencing cases, to the Committees on Armed Services of the Senate and the House of Representatives, not later than 1 year after the date on which the first report of the Military Justice Review Panel is submitted, to ensure that development of the guidelines is informed by sentencing data collected by the Panel.

Notification of significant events and documentation of preference for prosecution jurisdiction for victims of sexual assault (sec. 538)

The Senate bill contained a provision (sec. 524) that would require a commander of a member of the Armed Forces who is the victim of an alleged sexual assault committed by another member of the Armed Forces to provide notification to the victim of every key or other significant event in the military justice process in connection with the investigation, prosecution, and confinement of such other member. In cases in which the member of the Armed Forces alleged to have committed the sexual assault is subject to prosecution by both court-martial and by a civilian court under Federal or State law, the commander of the victim would be required to create and maintain appropriate documentation of the victim's expressed preference, if any, of

forum for prosecution of the offense. The Secretary of Defense would be required to prescribe regulations applicable to the notifications, elections, and documentation required by the provision.

The House amendment contained a similar provision (sec. 534).

The Senate recedes with an amendment that would require notification to a victim of each significant event in the military justice process, and documentation of that notification, as well as documentation of the victim's preference for prosecution jurisdiction, in an appropriate system of records of the military department concerned. The Secretary of Defense would be required to prescribe regulations implementing this provision not later than 180 days after the date of the enactment of this Act, with a view to permitting the Secretary to determine by whom each such notifications should be made, the manner of each notification, whether a victim may elect not to receive such notifications, and how decisions on the part of the victim should be memorialized, among other matters.

Increase in number of digital forensic examiners for certain military criminal investigative organizations (sec. 539)

The Senate bill contained a provision (sec. 557) that would require each of the secretaries of the military departments to increase the number of digital forensic examiners in each military criminal investigative organization (MCIO) under that secretary's jurisdiction by not fewer than 10 examiners above the baseline number of digital forensic examiners in each MCIO as of September 30, 2019.

The House amendment contained a similar provision (sec. 536).

The House recedes with a clarifying amendment.

Increase in investigative personnel and Victim Witness Assistance Program liaisons (sec. 540)

The House amendment contained a provision (sec. 535) that would require the secretaries of the military departments to ensure the number of personnel authorizations for criminal investigators allow for the completion of investigations of sex-related offenses in no more than 6 months, to the extent practicable. The provision would require each Secretary to issue guidance requiring criminal investigators to submit a status report to their direct supervisor in the event an investigation exceeds 90 days. The provision also would require

the secretaries of the military departments to increase the number of personnel serving as Victim Witness Assistance Program liaisons to address personnel shortages.

The Senate bill contained no similar provision.

The Senate recesses with an amendment that would require the secretaries of the military departments, within 1 year from the date of enactment of this Act, to increase the number of personnel assigned to the military criminal investigative organization of that department, with the goal of ensuring that, to the extent practicable, the investigation of any sex-related offense is completed not later than 6 months after the date on which the investigation is initiated. An investigation would be deemed complete when the active phase of the investigation is sufficiently complete to enable the appropriate authority to reach a decision with respect to the disposition of charges for the sex-related offense. The provision would further require each secretary to increase the number of personnel serving as Victim Witness Assistance liaisons to address personnel shortages in the program, also within a period of one year. Finally, the provision would specify that neither the statement of an aspirational timeline for the completion of investigations of sex-related offenses, nor the directive to increase the number of criminal investigators and Victim Witness Assistance liaisons creates a cause of action enforceable at law or in equity against the United States, the Department of Defense, or any person.

Training for sexual assault initial disposition authorities on exercise of disposition authority for sexual assault and collateral offenses (sec. 540A)

The Senate bill contained a provision (sec. 523) that would require comprehensive training for sexual assault initial disposition authorities, as defined by the April 20, 2012, Secretary of Defense memorandum, "Withholding Initial Disposition Authority Under the Uniform Code of Military Justice in Certain Sexual Assault Cases," on the exercise of their authorities in such cases, with a view to enhancing the capabilities of such authorities and promoting trust and confidence in the military justice system.

The House amendment contained a similar provision (sec. 540).

The Senate recesses with a technical amendment.

Training for commanders in the Armed Forces on their role in all stages of military justice in connection with sexual assault (sec. 540B)

The Senate bill contained a provision (sec. 525) that would require training provided to all military commanders to include comprehensive training on the role of a commander: (1) In all stages of the military justice process in connection with sexual assault committed by a member of the Armed Forces, including investigation and prosecution; (2) In ensuring that a victim of sexual assault is informed of, and has the opportunity to obtain, the assistance available by law; (3) In ensuring that the victim is afforded all rights and protections authorized under law; (4) In preventing retaliation; (5) In establishing and maintaining a healthy command climate; and (6) In any other matters in connection with sexual assault deemed appropriate by the Secretary of Defense.

The provision would further require that the training provided to commanders incorporate best practices in all matters covered. These best practices should be identified and brought current through periodic surveys and reviews.

The House amendment contained a similar provision (sec. 540C).

The House recesses with a technical amendment.

Timely disposition of nonprosecutable sex-related offenses (sec. 540C)

The House amendment contained a provision (sec. 539) that would require the Secretary of Defense to develop and implement a policy to ensure the timely disposition of non-prosecutable sex-related offenses.

The Senate bill contained no similar provision.

The Senate recesses with an amendment that would require the Secretary of Defense to develop a policy to ensure the timely disposition of alleged sex-related offenses that a court-martial convening authority has declined to refer for trial by a general or special court-martial, due to a determination that there is insufficient evidence to support prosecution of the offense. The Secretary would be required to implement the policy within 180 days of the enactment of this Act.

Department of Defense-wide policy and military department-specific programs on reinvigoration of the prevention of sexual assault involving members of the Armed Forces (sec. 540D)

The Senate bill contained a provision (sec. 521) that would require the Secretary of Defense to promulgate a comprehensive policy to reinvigorate the prevention of sexual assault among members of the Armed Forces, within 180 days after enactment of this Act.

The provision would require inclusion in the comprehensive policy of programs that: (1) Provide education and training on the prevention of sexual assault; (2) Promote healthy relationships; (3) Are designed to empower and enhance the role of non-commissioned officers in the prevention of sexual assault; (4) Foster social courage to promote interventions to prevent sexual assault; (5) Address behaviors across the continuum of harm; (6) Counter alcohol abuse, including binge drinking; and (7) Encompass such other matters as the Secretary of Defense deems appropriate.

The House amendment contained no similar provision.

The House recesses with a technical amendment.

Recommendations on separate punitive article in the Uniform Code of Military Justice on sexual harassment (sec. 540E)

The Senate bill contained a provision (sec. 529) that would require the Joint Service Committee on Military Justice to submit to the Committees on Armed Services of the Senate and the House of Representatives, a report setting forth legislative and administrative actions required to establish a punitive article on sexual harassment in the Uniform Code of Military Justice. The report would be required to be submitted within 180 days of the date of the enactment of this Act.

The House amendment contained no similar provision.

The House recesses with an amendment that would require the Secretary of Defense to submit a report to the Committees on Armed Services of the Senate and the House of Representatives, not later than 180 days after the date of enactment of this Act, which report must set forth such recommendations as the Secretary considers appropriate with respect to the establishment of a separate punitive article on sexual harassment in chapter 47 of title 10, United States Code (the Uniform Code of Military Justice).

Report on military justice system involving alternative authority for determining whether to prefer or refer charges for felony offenses under the Uniform Code of Military Justice (sec. 540F)

The Senate bill contained a provision (sec. 561) that would require the Secretary of Defense to submit to the Committees on Armed Services of the Senate and the House of Representatives a report setting forth the results of a study on the feasibility and advisability of an alternative military justice system in which determinations to prefer or refer charges for trial by court-martial, for offenses for which the

maximum punishment includes confinement for more than 1 year under the Uniform Code of Military Justice (Chapter 47 of title 10, United States Code), would be made by a judge advocate officer in a grade of 0-6 or higher, who has significant experience in criminal litigation and is outside of the chain of command of the member of the Armed Forces who is the subject of the charges, rather than by a commanding officer in the subject's chain of command. The report would further assess the feasibility and advisability of conducting a pilot program to assess any such alternative military justice system, and would be required to be submitted not later than 300 days after the date of the enactment of this Act.

The House amendment contained no similar provision.

The House recesses.

Report on standardization among the military departments in collection and presentation of information on matters within the military justice system (sec. 540G)

The Senate bill contained a provision (sec. 562) that would require the Secretary of Defense to submit a report to the Committees on Armed Services of the Senate and the House of Representatives, describing plans to standardize across the military departments, to the extent practicable, the collection and presentation of matters within their military justice systems, including information collected and maintained to facilitate public access to court-martial docket information, filings, and records, and for other purposes set forth in article 140 of the Uniform Code of Military Justice (10 U.S.C. 940a). In particular, the provision would require the Secretary to assess the feasibility and advisability of establishing and maintaining a single, Department of Defense-wide military justice data management system. The report would be submitted not later than 180 days after the date of the enactment of this Act.

The House amendment contained no similar provision.

The House recesses.

Report on expansion of Air Force safe to report policy across the Armed Forces (sec. 540H)

The Senate bill contained a provision (sec. 528) that would require the Secretary of Defense, in consultation with the secretaries of the military departments and the Secretary of Homeland Security, to submit a report to the Committees on Armed Services of the Senate and House of Representatives, assessing the feasibility and advisability of applying across the Armed

Forces, the Safe to Report policy currently applicable only in the Air Force. The report would be required to be submitted within 180 days of the date of the enactment of this Act.

The Safe to Report policy currently in effect in the Air Force provides that a member of the Armed Forces who is a victim of a sexual assault committed by another member of the Armed Forces, but who may have committed minor collateral misconduct at or about the time of the sexual assault or whose minor collateral misconduct is discovered only as a result of the investigation of the sexual assault, may report the assault to authorities without fear or receipt of discipline in connection with that minor collateral misconduct.

The House amendment contained no similar provision.

The House recesses.

Assessment of racial, ethnic, and gender disparities in the military justice system (sec. 540I)

The Senate bill contained a provision (sec. 535) that would require the Defense Advisory Committee on Investigation, Prosecution, and Defense of Sexual Assault in the Armed Forces to conduct a review and assessment of the race and ethnicity of servicemembers accused, charged, or convicted of certain sexual offenses.

The House amendment contained a similar provision (sec. 540A) that would require the Secretary of Defense to require that, as to each court-martial conducted after the date of the enactment of this Act, the race, ethnicity, gender, and other such demographic information about the victim and the accused are recorded, and that data based on this information is included in the annual military justice reports of the Armed Forces. Further, in consultation with the secretaries of the military departments and the Secretary of Homeland Security, the Secretary of Defense would conduct an evaluation to identify the causes of any racial, ethnic, or gender disparities in the military justice system and take appropriate steps to address them.

The Senate recesses with an amendment that would require the Defense Advisory Committee on Investigation, Prosecution, and Defense of Sexual Assault in the Armed Forces (or DAC-IPAD) to conduct certain reviews and assessments regarding the race and ethnicity of members of the Armed Forces accused, charged with, and convicted of certain sexual assault offenses, for each fiscal year in which the Committee assesses completed court-martial cases. A report on the results of all such reviews and assessment would be submitted to the Committees on Armed

Services of the Senate and the House of Representatives not later than one year after the date of the enactment of this Act.

Pilot programs on defense investigators in the military justice system (sec. 540J)

The Senate bill contained a provision (sec. 560) that would require each of the Secretaries of the military departments to execute a pilot program to determine whether the presence and utilization of defense investigators makes the military justice system more fair and efficient and more effective in determining the truth. Defense investigators engaged in each secretary's pilot would participate in the military justice system in a manner similar to that in which defense investigators participate in civilian criminal justice systems, and the personnel and activities of pilot program defense investigators would be uniform across all military departments, to the extent practicable.

The provision would specify that a defense investigator participating in the pilot may question a victim only upon a request made through a Special Victims' Counsel or other counsel of the victim or the trial counsel.

Further, the provision would require that, not later than 3 years after the date of the enactment of this Act, the Secretary of Defense submit to the Committees on Armed Services of the Senate and the House of Representatives a consolidated report on the defense investigator pilot program with an assessment of the feasibility and advisability of establishing and maintaining defense investigators as a permanent element of the military justice system.

The House amendment contained a similar provision (sec. 537).

The Senate recesses.

Report on preservation of recourse to restricted report on sexual assault for victims of sexual assault following certain victim or third-party communications (sec. 540K)

The Senate bill contained a provision (sec. 531) that would require the Secretary of Defense to submit to the Committees on Armed Services of the Senate and the House of Representatives a report on the feasibility and advisability of a Department of Defense policy that would permit the victim of a sexual assault, when the victim is a member of the Armed Forces or an adult dependent of such a member, to have a report of the assault made by the victim to a member of the Armed Forces in the victim's or victim's sponsor's chain of command, or to

military law enforcement, treated as a restricted report. A report of the assault made by any individual other than the victim would be similarly treated. In preparing the report, which would be due not later than 180 days after the date of the enactment of this Act, the Secretary would be required to consult with the Defense Advisory Committee on Investigation, Prosecution, and Defense of Sexual Assault in the Armed Forces.

The House amendment contained a similar provision (sec. 550P).

The House recesses.

Report on establishment of guardian ad litem program for certain military dependents who are a victim or witness of an offense under the Uniform Code of Military Justice involving abuse or exploitation (sec. 540L)

The Senate bill contained a provision (sec. 563) that would require the Secretary of Defense to submit to the Committees on Armed Services of the Senate and the House of Representatives a report on the feasibility and advisability of establishing a guardian ad litem program for military dependents, under 12 years of age or who lack mental or other capacity, who are victims or witnesses to an offense under the Uniform Code of Military Justice (Chapter 47 of title 10, United States Code) that involves an element of abuse or exploitation. Should the Secretary determine that establishment of such a program is feasible and advisable, the report must include a description of: (1) The administrative requirements, including resources, required for the program; (2) Best practices, determined in consultation with civilian experts on child advocacy; and (3) Recommendations for legislative and administrative action required to implement the program. The report would be required to be submitted not later than 1 year after the date of the enactment of this Act.

The House amendment contained no similar provision.

The House recesses with a technical amendment.

Comptroller General of the United States report on implementation by the Armed Forces of recent statutory requirements on sexual assault prevention and response in the military (sec. 540M)

The Senate bill contained a provision (sec. 537) that would require the Comptroller General of the United States to conduct a study of the Armed Forces' implementation of statutory requirements on sexual assault prevention and response enacted by the National Defense Authorization Act for Fiscal Year 2004

(Public Law 108-136) and each succeeding National Defense Authorization Act through the John S. McCain National Defense Authorization Act for Fiscal Year 2019 (Public Law 115-232). The provision also would require the Comptroller General to submit a report on this study to the Committees on Armed Services of the Senate and the House of Representatives. For each statutory requirement the report would include an assessment of: (1) Whether the requirement has been or is being implemented; (2) The actions taken by the Armed Forces to determine whether the actions taken pursuant to each requirement have proven effective in meeting the intended objective; and (3) Any other matters deemed appropriate. Finally, the provision would require the Comptroller General to provide to the Committees on Armed Services of the Senate and the House of Representatives, not later than May 1, 2020, one or more briefings on the status of the study, including any findings and recommendations generated by the study to date.

The House amendment contained no similar provision.
The House recesses.

Sense of Congress on the Port Chicago 50 (sec. 540N)

The House amendment contained a provision (sec. 1099) that would express the sense of Congress that: (1) The American people should recognize the role of racial bias in the prosecution and convictions of the Port Chicago 50 following the deadliest home front disaster in World War II; (2) The military records of each of the Port Chicago 50 should reflect such exoneration of any and all charges brought against them in the aftermath of the explosion; and (3) The Secretary of the Navy should upgrade the general and summary discharges of each of the Port Chicago 50 sailors to honorable discharges.

The Senate bill contained no similar provision.

The Senate recesses with an amendment that would convey the sense of Congress that the American people should recognize the role of racial bias during the era in which the prosecution and conviction of the Port Chicago 50 took place, and that the Secretary of the Navy should, as appropriate, recommend executive action in favor of the 49 remaining Sailors with a general court-martial conviction and the 207 remaining Sailors with a summary court-martial conviction.

SUBTITLE E - OTHER LEGAL MATTERS

*Improvement of certain Special Victims' Counsel authorities
(sec. 541)*

The Senate bill contained a provision (sec. 542) that would expand the legal assistance authorized to be provided by Special Victims' Counsel to include legal consultation and assistance in connection with an incident of retaliation, whether occurring before, during, or after the conclusion of any criminal proceedings.

The provision would also codify the Special Victims' Counsel's duty to solicit the preference of a victim of an alleged sex-related offense as to whether the offense should be prosecuted by court-martial or in a civilian court with jurisdiction over the offense and to advise appropriate military prosecutors of the victim's preference.

Finally, within 120 days of enactment of this Act, the provision would require the Secretary of Defense to provide a report to the Committees on Armed Services of the Senate and the House of Representatives, detailing the manner—including the additional personnel, resources, and training required—in which the Department of Defense would extend eligibility for Special Victims' Counsel services to certain military and military-affiliated civilian victims of alleged domestic violence offenses and to certain other civilian victims of an alleged sex-related or domestic violence offenses, were expansion of the program to be authorized in law.

The House amendment contained no similar provision.

The House recedes with an amendment that would require that not later than 4 years after the date of the enactment this Act, the secretary of each military department shall ensure that the number of Special Victims' Counsel serving in that department is sufficient to ensure that the average caseload of a Special Victims' Counsel does not exceed, to the extent practicable, 25 cases any given time. The amendment would further remove from this provision the assignment to Special Victims' Counsel of the responsibility to solicit the preference of the victim of an alleged sex-related offense with regard to the forum of prosecution, and would eliminate from this provision the reporting requirement pertaining to the extension of Special Victims' Counsel services.

Availability of Special Victims' Counsel at military installations (sec. 542)

The Senate bill contained a provision (sec. 543) that would require that, in circumstances in which a Special Victims' Counsel is not available at a military installation to provide services to a member of the Armed Forces who requests such a counsel, such a counsel be made available not later than 72 hours after the member's request.

Further, the provision would require each of the secretaries of the military departments to submit to the Committees on Armed Services of the Senate and the House of Representatives a report assessing the feasibility and advisability of establishing for each Special Victims' Counsel, one or more civilian positions to support the counsel and to ensure continuity and the preservation of institutional knowledge related to the provision of Special Victims' Counsel services. The report would be submitted not later than 180 days after enactment of this Act.

The House amendment contained a similar provision (sec. 550A).

The House recedes with an amendment that would require that a Special Victims' Counsel be made available for access by a servicemember who requests such counsel, not later than 72 hours after such a request, and that if the Secretary concerned determines that exigent circumstances related to military activities preclude the availability of a Special Victims' Counsel within the prescribed period, the Secretary shall ensure that such counsel is made available to the requesting servicemember as soon as practicable.

Notification of issuance of military protective order to civilian law enforcement (sec. 543)

The House amendment contained a provision (sec. 543) that would amend section 1567a of title 10, United States Code, to require unit commanders to notify civilian authorities of the issuance of a military protective order against a member of the Armed Forces, and in the case of the member's transfer to another unit, to notify the receiving unit of the issuance of a military protective order.

The provision also would require the Secretary of Defense, not later than March 1, 2020, and each year thereafter through 2024, to submit a report to the congressional defense committees identifying the number of military protective orders issued and the number of military protective orders reported to civilian authorities in the prior calendar year.

The Senate bill contained no similar provision.

The Senate recedes with an amendment that would delay until March 1, 2021, and extend through 2025, submission by the Secretary of Defense to the congressional defense committees of an annual report on military protective orders, which report would further detail the extent to which the Department is complying with the requirement to report such orders to civilian authorities.

Copyright protection for civilian faculty of certain accredited institutions (sec. 544)

The House amendment contained a provision (sec. 550D) that would add a section to title 10, United States Code, providing that for purposes of copyright, a work produced by a civilian member of the faculty of 12 "covered institutions" is only a work of the United States Government if created in direct support of a lecture, instruction, curriculum development, or special duty assigned to that civilian faculty member. The provision would further allow that the Secretary concerned may require a civilian member of a covered institution who becomes the owner of a copyright under these conditions to provide the Federal Government with an irrevocable, royalty-free, world-wide, nonexclusive license to use, modify, reproduce, release, perform, display, or disclose such work for United States Government purposes. The provision would enumerate the 12 "covered institutions": (1) National Defense University; (2) United States Military Academy; (3) Army War College; (4) United States Army Command and General Staff College; (5) United States Naval Academy; (6) Naval War College; (7) Naval Post Graduate School; (8) Marine Corps University; (9) United States Air Force Academy; (10) Air University; (11) Defense Language Institute; and (12) United States Coast Guard Academy.

The Senate bill contained no similar provision.

The Senate recedes with an amendment that would modify section 105 of title 17, United States Code, to provide that a civilian faculty member of one of the 12 covered institutions owns the copyright to a literary work produced by the faculty member for publication by a scholarly press or journal. The amendment would further provide that the Secretary of Defense may direct the faculty member to provide the Federal Government with an irrevocable, royalty-free, world-wide nonexclusive license to reproduce, distribute, perform, or display such literary work for United States Government purposes.

The conferees echo the significant concerns expressed in the 2018 National Defense Strategy (NDS) about the degraded state of Department of Defense Professional Military Education (PME). The NDS acknowledged, "PME has stagnated, focused more on the accomplishment of mandatory credit at the expense of lethality and ingenuity." The conferees view the instant provision as a small step toward overarching PME reform. The conferees encourage the Secretary of Defense to publish policy guidance to ensure the consistent implementation of this provision across all covered institutions. Further, with a view to measuring the effects of this provision, the conferees request that not later than January 31, 2022, the Department of

Defense provide a report to the Committees on Armed Services of the Senate and House of Representatives detailing: (1) Since enactment of this provision, how many copyrights vested in civilian faculty members at each of the 12 covered institutions; (2) How many civilian faculty members in whom such a copyright vested published a literary work in a scholarly press or journal, by covered institution; and (3) Real world examples of the ways in which this provision has improved the recruitment and retention of civilian faculty members at each covered institution.

Termination of leases of premises and motor vehicles of servicemembers who incur catastrophic injury or illness or die while in military service (sec. 545)

The Senate bill contained a provision (sec. 6007) that would amend section 3955 of title 50, United States Code, allowing a spouse of a servicemember who incurs a catastrophic injury or illness during a period of military service while performing full-time National Guard duty, active Guard and Reserve duty, or inactive-duty training to terminate the lease of a premises or motor vehicle.

The House amendment contained an identical provision (sec. 550G).

The conference agreement includes this provision.

Military orders required for termination of leases pursuant to the Servicemembers Civil Relief Act (sec. 546)

The House amendment contained a provision (sec. 546) that would amend section 3955 of title 50, United States Code, to clarify that, in the context of terminating residential or motor vehicle leases, military orders for a permanent change of station include separation or retirement orders.

The Senate bill contained no similar provision.

The Senate recedes.

Preservation of right to bring class action under Servicemembers Civil Relief Act (sec. 547)

The House amendment contained a provision (sec. 550J) that would amend section 802(a) of the Servicemembers Civil Relief Act (Public Law 109-189) to clarify that individuals covered by the Servicemembers Civil Relief Act are entitled to be a representative party on behalf of members of a class or be a member of a class, in accordance with the Federal Rules of Civil Procedure.

The Senate bill contained no similar provision.
The Senate recesses.

*Legal counsel for victims of alleged domestic violence offenses
(sec. 548)*

The Senate bill contained a provision (sec. 541) that would authorize the secretaries of the military departments to provide Special Victims' Counsel services to certain military and military-affiliated civilian personnel who are the victims of an alleged domestic violence offense, if a given secretary determines that resources are available for this purpose without impairing capacity to provide such services to the victims of alleged sex-related offenses already authorized by law to receive them. The provision also would authorize a given secretary to extend the provision of Special Victims' Counsel services, under the same terms and conditions, to certain civilian persons who are the victims of an alleged sex-related offense or alleged domestic violence offense, but who are not currently authorized to receive such services.

The House amendment contained a similar provision (sec. 542) that would expand the Special Victims' Counsel program to cover domestic violence victims and to include designated Special Victims' Counsel paralegals. This provision would also require expansion of the Special Victim's Counsel program not later than two years after the date of enactment of this Act, and would mandate a report, due to Congress not later than December 1, 2022, assessing military service compliance with Special Victims' Counsel program requirements.

The House recesses with an amendment that would require the Secretary of Defense to carry out a program to provide legal counsel to victims of alleged domestic violence offenses who are otherwise eligible for military legal assistance, not later than December 1, 2020. The program may be part of another program or established separately. The Secretary of Defense would be required to ensure that program counsel receive specialized training in the legal issues commonly associated with alleged domestic violence offenses and, to the extent practicable, serve in the program for a period of no less than two years. Further, the Secretary would ensure that counsel are supported by sufficient trained paralegal support. In a report due to the Committees on Armed Services of the Senate and the House of Representatives not later than 120 days after the date of the enactment of this Act, the Secretary of Defense would provide: (1) A description of the manner in which the Department will implement the required program; (2) Describe any additional personnel, resources, and training needed; and (3) Make

recommendations for any modifications to law that may be necessary to carry out the program effectively.

Notice to victims of alleged sexual assault of pendency of further administrative action following a determination not to refer to trial by court-martial (sec. 549)

The Senate bill contained a provision (sec. 526) that would require the Secretary of Defense to promulgate regulations to require a commander who determines not to refer a case of alleged sexual assault for trial by court-martial to provide the victim with notification, no less frequently than monthly, of the status of any further action in the case, including non-judicial punishment, administrative action, or no action, until a final determination of such further action is made.

The House amendment contained an identical provision (sec. 550B).

The conference agreement includes this provision.

Treatment of information in Catch a Serial Offender Program for certain purposes (sec. 550)

The Senate bill contained a provision (sec. 530) that would exclude reports filed with the Catch a Serial Offender Program from application of the Freedom of Information Act (5 U.S.C. 552). Further, the provision would make plain that transmittal or receipt of a restricted report of sexual assault to or by the Catch a Serial Offender Program would not terminate the report's treatment or status as restricted.

The House amendment contained a similar provision (sec. 5500).

The House recedes with an amendment that would specify that victim disclosures under the Catch a Serial Offender Program shall be withheld from public disclosure under paragraph (b)(3) of the Freedom of Information Act (5 U.S.C. 552).

Policies and procedures on registration at military installations of civilian protective orders applicable to members of the Armed Forces assigned to such installations and certain other individuals (sec. 550A)

The Senate bill contained a provision (sec. 556) that would require the Secretary of Defense to establish policies and procedures for the registration at military installations of any civilian protective order issued against: (1) A member of the Armed Forces assigned to the installation; (2) A civilian employee employed at the installation; or (3) A spouse or

intimate partner of a member of the Armed Forces on Active Duty assigned to the installation or of a civilian employee employed at the installation.

The provision would specify that the policies and procedures established by the Secretary must include a requirement for notice between and among the commander, installation military law enforcement elements, and military criminal investigative elements, whenever such a civilian protective order is registered. The provision would require that a failure to register a civilian protective order may not be offered as justification for a lack of enforcement of the order by military law enforcement and other personnel who have knowledge of it.

Further, the provision would require that, as soon as practicable after establishing the requisite policies and procedures, the Secretary of Defense submit to the Committees on Armed Services of the Senate and the House of Representatives a letter describing the policies and procedures established and certifying that they have been implemented on each military installation.

The House amendment contained an identical provision (sec. 544).

The conference agreement includes this provision.

Defense Advisory Committee for the Prevention of Sexual Misconduct (sec. 550B)

The Senate bill contained a provision (sec. 534) that would require the Secretary of Defense to establish and maintain within the Department of Defense a Defense Advisory Committee on the Prevention of Sexual Misconduct. The Advisory Committee would be established not later than 180 days after the enactment of this Act and would be comprised of not fewer than 20 members, including persons with expertise in the prevention of sexual assault and behaviors on the sexual assault continuum of harm, the prevention of suicide, and the change in culture of large organizations. The Advisory Committee would coordinate with the Defense Advisory Committee on Investigation, Prosecution, and Defense of Sexual Assault in the Armed Forces on matters of joint interest and, not later than March 30 of each year, would submit an annual report on its activities to the Committees on Armed Services of the Senate and the House of Representatives.

The House amendment contained a similar provision (sec. 549).

The Senate recedes with an amendment to extend the period for establishment of the Advisory Committee to one year after the date of enactment of this Act, and to require that the

Committee include at least one member with expertise in the prevention of adverse behaviors, including suicide and substance abuse.

Training for Special Victims' Counsel on civilian criminal justice matters in the States of the military installations to which assigned (sec. 550C)

The Senate bill contained a provision (sec. 544) that would require that, on the assignment of a Special Victims' Counsel (including a Victim Legal Counsel of the Navy) to a military installation in the United States, such counsel will be provided appropriate training on the law and policies governing criminal justice matters in the State or States in which the military installation is located. Such training would include: (1) Victim rights; (2) Protective orders; (3) Prosecution of criminal offenses; and (4) Sentencing for conviction of a criminal offense.

The House amendment contained a similar provision (sec. 550C) that would clarify that the purpose of the training is to assist such counsel in providing victims of alleged sex-related offenses with information necessary to make an informed decision regarding preference as to the jurisdiction in which such offenses will be prosecuted. Further, the House provision would not apply to a Special Victims' Counsel of the Coast Guard.

The Senate recedes with an amendment that would add "protective orders" to the list of State criminal justice matters about which a Special Victims' Counsel or Victim Legal Counsel should be provided appropriate training.

Enhancing the capability of military criminal investigative organizations to prevent and combat child sexual exploitation (sec. 550D)

The House amendment contained a provision (sec. 550N) that would require the Secretary of Defense to establish an initiative, not later than 180 days from the date of enactment of this Act, to improve the capacity of military criminal investigative organizations to prevent child sexual exploitation.

The Senate bill contained no similar provision.

The Senate recedes with an amendment that would require the Secretary of Defense to establish and execute an initiative to enhance the capability of military criminal investigative organizations to prevent and combat child sexual exploitation. In the context of this initiative, the Secretary of Defense may work with internal and external functional experts to train

military criminal investigative agents on technologies, tools, and techniques--like digital forensics--to enhance investigations of child sexual exploitation, and on evidence-based forensic interviewing of child victims. Further, to the extent authorized by law, the Secretary may, as part of this initiative, collaborate with Federal, State, local, and other civilian law enforcement agencies on issues relating to child sexual exploitation; assist in educating the military community on the prevention and response to child sexual exploitation; and carry out such other activities as the Secretary deems relevant.

Feasibility study on establishment of database of military protective orders (sec. 550E)

The House amendment contained a provision (sec. 550F) that would amend section 101(b) of the National Instant Criminal Background Check System Improvement Amendments Act of 2007 (34 U.S.C. 40911(b)) to require that not later than three business days after the final disposition of a judicial proceeding conducted within the Department of Defense, the Secretary of Defense make available to the Attorney General those records that are relevant to a determination of whether a member of the Armed Forces involved in such proceeding is disqualified from possessing or receiving a firearm under subsection (g) or (n) of section 922 of title 18, United States Code (the Gun Control Act of 1968, as amended, 18 U.S.C. 921-938), for use in background checks performed by the National Instant Criminal Background Check System. The provision would further require the Secretary of Defense to conduct a study and submit a report on the feasibility of establishing a database of military protective orders issued by military commanders against individuals suspected of having committed an offense of domestic violence under the Uniform Code of Military Justice (Chapter 47 of Title 10, U.S.C.), and the feasibility of establishing a process by which a military judge or magistrate may issue a protective order against an individual suspected of having committed such an offense. Such report must be submitted to the congressional defense committees no later than 180 days after the date of enactment of this Act.

The Senate bill contained no similar provision.

The Senate recedes with an amendment that would eliminate that part of the provision that would amend the National Instant Criminal Background Check System Improvement Amendments Act of 2007. Further, the amendment would add to the matters to be examined by the study and included in the resultant report, a requirement to assess how any military protective order database and process for the issuance of a military protective order by a

military judge deemed feasible, would differ from analogous civilian databases and processes, including with regard to due process and other procedural protections.

The conferees direct the Department of Defense and its components to take immediate and deliberate action to ensure strict compliance with standards established in Department of Defense Instruction 5501.11, Fingerprint Card and Final Disposition Report Submission Requirements, last updated on March 30, 2017, and other issuances and policy guidance applicable to the Defense Department and the military departments and services, for submission to the Federal Bureau of Investigation of criminal history information, fingerprints, case disposition information, and other data pertaining to certain members of the Armed Forces.

GAO review of USERRA and SCRA (sec. 550F)

The House amendment contained a provision (sec. 545) that would amend section 4303 of title 38, United States Code, to render unenforceable any part of a contract or agreement that would mandate the use of arbitration to resolve a claim under the Uniformed Services Employment and Reemployment Rights Act (USERRA), unless all parties consent to arbitration after a complaint on the specific claim has been filed in court or with the Merit Systems Protection Board.

The House amendment also contained a provision (sec. 550H) that would provide that any contract with a servicemember, or a servicemember and the servicemember's spouse jointly, that provides for the use of arbitration to resolve a controversy under the contract and the Servicemembers Civil Relief Act (50 U.S.C. App. 512) (SCRA), arbitration may be used only if all parties to the matter consent after such controversy arises.

The Senate bill contained no similar provisions.

The Senate recedes with an amendment that would require the Comptroller General of the United States to conduct a review and, not later than January 31, 2021, submit a report to the Committees on Armed Services of the Senate and House of Representatives regarding the effects of the common commercial and governmental practices of including a mandatory arbitration clause in employment and consumer agreements, on the ability of servicemembers to assert claims under USERRA and SCRA. The report will: (1) Identify each process by which a servicemember may assert a claim under, and secure redress for violations of USERRA and SCRA; (2) Assess each process identified under prescribed criteria; (3) Determine the extent to which each process identified achieved a final disposition favorable to the servicemember; (4) Assess general societal trends in the use

of mandatory arbitration clauses in employment and consumer agreements; and (5) Assess the effects of mandatory arbitration clauses in employment or consumer agreements on military readiness and deployability, as well as on the willingness of employers to employ, and consumer service businesses to provide services to servicemembers and their families.

SUBTITLE F—MEMBER EDUCATION

Authority for detail of certain enlisted members of the Armed Forces as students at law schools (sec. 551)

The Senate bill contained a provision (sec. 567) that would modify section 2004 of title 10, United States Code, to permit the detail of certain enlisted members, in addition to officers as authorized by current law, as students at law schools for a period of training leading to a juris doctor degree. The provision would limit the number of enlisted persons and officers so detailed to 25 per year and would retain the requirement for the competitive selection of detailees. To qualify for such detail, an enlisted person must: (1) Have served on Active Duty for not less than 4 and nor more than 8 years; (2) Be in the pay grade E-5, E-6, or E-7 as of the time law school training begins; (3) Meet all requirements for acceptance of a commission as a commissioned officer in the Armed Forces; (4) Agree to accept transfer to be a judge advocate, upon completion of law school; and (5) Agree to serve on Active Duty for a period of 2 years for each year or partial year of legal training received.

The House amendment contained a similar provision (sec. 551).

The House recesses.

Inclusion of Coast Guard in Department of Defense STARBASE Program (sec. 552)

The House amendment contained a provision (sec. 555) that would amend section 2193b of title 10, United States Code, to include the Coast Guard in the Department of Defense's Starbase program.

The Senate bill contained no similar provision.

The Senate recesses.

Degree granting authority for United State Army Armament Graduate School; limitation on establishment of certain educational institutions (sec. 553)

The House amendment contained a provision (sec. 556) that would amend chapter 751 of title 10, United States Code, to authorize the United States Army Armament Graduate School to confer appropriate degrees upon graduates who meet the degree requirements.

The Senate bill contained no similar provision.

The Senate recedes with an amendment that would add a new section to chapter 101 of title 10, United States Code, requiring the Secretary of Defense to notify the congressional defense committees at least one year before establishing a new post-secondary educational institution.

Prohibition on off-duty employment for cadets and midshipmen completing obligated service after graduation (sec. 554)

The House amendment contained a provision (sec. 560C) that would amend section 7453, 8467, and 9453 of title 10, United States Code, to require graduates of military service academies to be appointed as a Regular second lieutenant or ensign in the Navy.

The Senate bill contained no similar provision.

The Senate recedes with an amendment that would amend section 7448, 8459, and 9448 of title 10, United States Code, to prohibit service academy graduates from seeking or accepting approval for off-duty employment as a professional athlete before completing at least two consecutive years of commissioned service.

Consideration of request for transfer of a cadet or midshipman at a military service academy who is the victim of a sexual assault or related offense (sec. 555)

The House amendment contained a provision (sec. 558) that would amend sections 7461, 8480, and 9461 of title 10, United States Code, and would direct the secretaries of the military departments to establish regulations, based on guidelines provided by the Secretary of Defense, for the timely consideration of an application for transfer of a military service academy cadet or midshipman who is the victim of an alleged sexual assault or related offense, to another military service academy.

The Senate bill contained no similar provision.

The Senate recedes with an amendment that would expand the options available to a military service academy cadet or midshipman who is the victim an alleged sexual assault or related offense, to include requesting transfer to enroll in a

Senior Reserve Officers' Training Corps program affiliated with another institution of higher education.

Redesignation of the Commandant of the United States Air Force Institute of Technology as the Director and Chancellor of such Institute (sec. 556)

The House amendment contained a provision (sec. 559) that would amend section 9414b of title 10, United States Code, to redesignate the Commandant of the United States Air Force Institute of Technology (AFIT) as the Director and Chancellor of AFIT.

The Senate bill contained no similar provision.
The Senate recedes.

Eligibility of additional enlisted members for associate degree programs of the Community College of the Air Force (sec. 557)

The House amendment contained a provision (sec. 560) that would amend section 9415 of title 10, United States Code, to authorize the Community College of the Air Force (CCAF) to award associate degrees to enlisted members of services other than the Air Force who are participating in CCAF affiliated joint service training and education courses.

The Senate bill contained no similar provision.
The Senate recedes.

Speech disorders of cadets and midshipmen (sec. 558)

The House amendment contained a provision (sec. 560H) that would require a military academy superintendent to provide testing for speech disorders to incoming cadets and midshipmen under the jurisdiction of that superintendent.

The Senate bill contained no similar provision.

The Senate recedes with an amendment that would require the service secretaries to submit a joint report to the Committees on Armed Services of the Senate and the House of Representatives, within 180 days of the date of the enactment of this Act, that provides: (1) The number of cadets and midshipmen with an identified speech disorder at each academy; (2) A list of health care and administrative resources available to such cadets and midshipmen; and (3) A list of the military positions and specialties pursued by such cadets and midshipmen.

Requirement to continue provision of tuition assistance for members of the Armed Forces (sec. 559)

The House amendment contained a provision (sec. 560E) that would require service secretaries, in fiscal year 2020, to spend on servicemember tuition assistance at least the amount appropriated for tuition assistance in fiscal year 2020.

The Senate bill contained no similar provision.

The Senate recesses.

Information on institutions of higher education participating in the Department of Defense Tuition Assistance Program (sec. 560)

The House amendment contained a provision (sec. 560F) that would require the Secretary of Defense to make available, on a publicly accessible Department of Defense website, a list of higher education institutions that receive funds under the Department of Defense Tuition Assistance Program and the amount of funds received by each institution. The provision would also require the Secretary of Defense to perform audits of certain higher education institutions that do not meet certain standards under section 1099c of title 20, United States Code.

The Senate bill contained no similar provision.

The Senate recesses with an amendment that would require the Secretary of Defense to make public a list of higher education institutions that receive Department of Defense tuition assistance funding and the amount of funds received.

Inclusion of information on free credit monitoring in annual financial literacy briefing (sec. 560A)

The House amendment contained a provision (sec. 560G) that would require the Secretary of each military department to ensure the annual financial literacy education briefing provided to servicemembers includes information on the availability of free credit monitoring services.

The Senate bill contained no similar provision.

The Senate recesses.

Programs to facilitate the award of private pilot's certificates (sec. 560B)

The House amendment contained a provision (sec. 517) that would authorize the Department of Defense to create a program to award scholarships to qualified members of Junior Reserve Officers' Training Corps units to pursue a private pilot's certification.

The Senate bill contained no similar provision.

The Senate recesses with an amendment that would authorize the Department of Defense to create a program to award

scholarships for the purpose of pursuing a private pilot's certification.

SUBTITLE G-MEMBER TRAINING AND TRANSITION

Requirement to provide information regarding benefits claims to members during TAP counseling (sec. 561)

The House amendment contained a provision (sec. 567) that would amend section 1142(b) of title 10, United States Code, to require that servicemembers receive information during Transition Assistance Program counseling regarding how to file claims for benefits under laws administered by the Secretaries of Defense and Veterans Affairs.

The Senate bill contained no similar provision.

The Senate recesses.

Participation of other Federal agencies in the SkillBridge apprenticeship and internship program for members of the Armed Forces (sec. 562)

The Senate bill contained a provision (sec. 5505) that would amend section 1143(e) of title 10, United States Code, to authorize Federal agencies to participate in the SkillBridge program.

The House amendment contained no similar provision.

The House recesses.

First modification of elements of report on the improved Transition Assistance Program (sec. 563)

The House amendment contained a provision (sec. 570D) that would amend section 552(b)(4) of the John S. McCain National Defense Authorization Act for Fiscal Year 2019 (Public Law 115-232) to include an element on the effectiveness of the Transition Assistance Program for female servicemembers in the report required under such section.

The Senate bill contained no similar provision.

The Senate recesses with a clarifying amendment.

Second modification of element of report on the improved Transition Assistance Program (sec. 564)

The House amendment contained a provision (sec. 593) that would amend section 552(b)(4) of the John S. McCain National Defense Authorization Act for Fiscal Year 2019 (Public Law 115-

232) to modify the elements of reports of the Transition Assistance Program required under such section.

The Senate bill contained no similar provision.

The Senate recesses.

Prohibition on gender-segregated training at Marine Corps Recruit Depots (sec. 565)

The House amendment contained a provision (sec. 561) that would prohibit the Commandant of the Marine Corps from segregating training at the Marine Corps Recruit Depot, Parris Island, South Carolina, not later than 5 years after the date of the enactment of this Act and at Marine Corps Recruit Depot, San Diego, California, not later than 8 years after the date of the enactment of this Act.

The Senate bill contained no similar provision.

The Senate recesses.

Assessment of deaths of recruits under the jurisdiction of the Secretaries of the military departments (sec. 566)

The House amendment contained a provision (sec. 563) that would require the Inspector General of the Department of Defense to conduct an assessment of the deaths of recruits at facilities under the jurisdiction of the Secretary of the Navy and to assess the effectiveness of the current medical protocols on training bases. The provision would require the Inspector General to submit a report to the Committees on Armed Services of the Senate and the House of Representatives not later than September 30, 2020, containing the results of the assessments.

The Senate bill contained no similar provision.

The Senate recesses with an amendment that would require the Inspector General to conduct an assessment of the deaths of recruits at facilities under the jurisdiction of the service secretaries and to assess the effectiveness of the current medical protocols on training bases.

Review of Department of Defense training programs regarding disinformation campaigns (sec. 567)

The House amendment contained a provision (sec. 570) that would require the Secretary of Defense to establish, not later than September 30, 2020, a program for training members of the Armed Forces and employees of the Department of Defense regarding the threat of disinformation campaigns specifically targeted at such individuals and the families of such individuals.

The Senate bill contained no similar provision.

The Senate recedes with an amendment that would direct the Secretary of Defense not later than 120 days after the date of enactment of this Act to conduct a review of existing programs, tools, and resources of the Department of Defense for training members of the Armed Forces and employees of the Department regarding the threat of disinformation campaigns and to submit the finds of such review not later than 270 days after the enactment of this Act.

Command matters in connection with transition assistance programs (sec. 568)

The House amendment contained a provision (sec. 595) that would require each command climate assessment for the commander of a military installation to include an assessment of the extent the commander and other command personnel encourage and support participation in transition assistance programs of servicemembers. The provision would also require an installation commander to undergo training on such programs available to servicemembers.

The Senate bill contained no similar provision.

The Senate recedes with an amendment that would require the training provided to an installation commander, upon assignment to the installation, to include a module on covered transition assistance programs available for servicemembers assigned to the installation.

Machine readability and electronic transferability of Certificate of Release or Discharge from Active Duty (DD Form 214) (sec. 569)

The House amendment contained a provision (sec. 565) that would require the Secretary of Defense to modify the DD Form 214 to make it machine readable and electronically transferable.

The Senate bill contained no similar provision.

The Senate recedes with an amendment that would require the Secretary of Defense, in the course of modifying the DD Form 214 to make it machine readable, to also include a specific block where a servicemember may provide one or more email addresses.

Records of service for Reserves (sec. 570)

The House amendment contained a provision (sec. 566) that would require the Secretary of Defense to establish and implement a standard record of service for members of the

Reserve Component that summarizes the record of service of the servicemember including dates of Active Duty service.

The Senate bill contained no similar provision.

The Senate recesses.

Limitations and requirements in connection with separations for members of the Armed Forces who suffer from mental health conditions in connection with a sex-related, intimate partner violence-related, or spousal abuse offense (sec. 570A)

The Senate bill contained a provision (sec. 552) that would require that, before a member of the Armed Forces—who was the victim of a sex-related, intimate partner violence-related, or spousal abuse-related offense during the period of the member's military service, and who has a mental health condition not amounting to a disability—is separated, discharged, or released from military service based on that condition, the diagnosis of the condition must be both corroborated by a competent mental health care professional at or above the level of the healthcare professional rendering the diagnosis and endorsed by the Surgeon General of the military department concerned. This provision would apply to all separations, discharges, and releases from the Armed Forces that occur on or after the date that is 180 days after the date of the enactment of this Act.

The House amendment contained no similar provision.

The House recesses.

Prohibition on involuntary separation of certain members of the Armed Forces; consideration of military service in removal determinations (sec. 570B)

The House amendment contained a provision (sec. 530G) that would provide that neither a member of the Armed Forces, nor a former member who was discharged under honorable conditions, who has received deferred action under the Deferred Action for Childhood Arrivals program of the Department of Homeland Security, or who has "Temporary Protected Status" in accordance with section 244 of the Immigration and Nationality Act, may be involuntarily separated from the Armed Forces, placed into removal proceedings, or removed from the United States, solely on the basis of such status.

The Senate bill contained no similar provision.

The Senate recesses with an amendment that would provide that no member of the Armed Forces who possesses a current, valid Employment Authorization Document issued pursuant to the June 15, 2012, U.S. Department of Homeland Security Memorandum,

"Exercising Prosecutorial Discretion with Respect to Individuals who Came to the United States as Children", or who is currently in a temporary protected status under section 244 of the Immigration and Nationality Act (8 U.S.C. 1254a) may be involuntarily separated from the Armed Forces, solely on the basis of their deferred or protected status.

The amendment would further provide that in evaluating whether to issue a notice to appear in removal proceedings, administrative order of removal, or reinstatement of a final removal order, and in evaluating whether to execute a final order of removal, evidence that an individual served as a member of the Armed Forces and the characterizations associated with of each period of the individual's service shall be considered by the immigration officer.

Inclusion of question regarding immigration status on preseparation counseling checklist (DD Form 2648) (sec. 570C)

The House amendment contained a provision (sec. 570G) that would require the Secretary of Defense to modify the preseparation counseling checklist for active component, active Guard Reserve, active Reserve, full time support, and Reserve program administrator servicemembers (DD Form 2648) to include a specific block wherein a member of the Armed Forces may indicate a desire to receive information regarding that member's immigration status and expedited naturalization.

The Senate bill contained no similar provision.

The Senate recesses.

Counseling for members of the Armed Forces who are not citizens of the United States on naturalization in the United States (sec. 570D)

The House amendment contained a provision (sec. 570H) that would require the Secretary concerned to furnish counseling with regard to how to apply for naturalization to a member of the Armed Forces under the jurisdiction of that Secretary, which member is not a citizen of the United States.

The Senate bill contained no similar provision.

The Senate recesses.

Pilot program on information sharing between Department of Defense and designated relatives and friends of members of the Armed Forces regarding the experiences and challenges of military service (sec. 570E)

The Senate bill contained a provision (sec. 580) that would require the Secretary of Defense, within 1 year of the date of the enactment of this Act, to enter into an agreement with the American Red Cross to conduct a pilot program to encourage members of the Armed Forces to designate up to 10 persons to whom certain information regarding the military service of each such member would be shared. The provision would require the Secretary, within 2 years after the pilot program begins, to administer a survey to persons who elected to receive information under the program to receive feedback on the quality of the information they received. Finally, the provision would require the Secretary to submit a final report on the pilot program to the congressional defense committees within 3 years after the program begins.

The House amendment contained a similar provision (sec. 570C).

The House recesses.

Connections of members retiring or separating from the Armed Forces with community-based organizations and related entities (sec. 570F)

The Senate bill contained a provision (sec. 568) that would require the Secretaries of Defense and Veterans Affairs to enter jointly into a memorandum of understanding or other agreements with State veterans agencies to transmit information from Department of Defense form DD-2648 on individuals undergoing retirement, discharge, or release from the Armed Forces, if elected by such individuals, to provide or connect veterans to benefits or services.

The House amendment contained no similar provision.

The House recesses.

Pilot program regarding online application for the Transition Assistance Program (sec. 570G)

The House amendment contained a provision (sec. 570F) that would authorize the Secretary of Defense, the Secretary of Veterans Affairs, and the Secretary of Labor jointly to conduct a pilot program, which would create a one-stop source for online applications to assist servicemembers and veterans participating in the Transition Assistance Program.

The Senate bill contained no similar provision.

The Senate recesses with a clarifying amendment.

SUBTITLE H—MILITARY FAMILY READINESS AND DEPENDENTS' EDUCATION

Authorizing members to take leave for a birth or adoption in more than one increment (sec. 571)

The Senate bill contained a provision (sec. 516) that would amend section 701 of title 10, United States Code, to remove the requirement that military leave taken in connection with the birth or adoption of a child be taken only in one increment.

The House amendment contained a similar provision (sec. 571).

The House recedes with a clarifying amendment.

Deferred deployment for members who give birth (sec. 572)

The House amendment contained a provision (sec. 572) that would amend section 701 of title 10, United States Code, to standardize new mother deployment deferral policy across the military services, to include the Coast Guard.

The Senate bill contained no similar provision.

The Senate recedes with an amendment that would authorize the Secretary of Defense to deploy a servicemember who has given birth within the previous 12 month if such deployment is determined to be in the interest of national security.

Authority of the Secretary concerned to transport remains of a covered decedent to no more than two places selected by the person designated to direct disposition of the remains (sec. 573)

The House amendment contained a provision (sec. 573) that would amend section 1482(a)(8) of title 10, United States Code, to authorize transportation of remains of a covered decedent, and travel and transportation allowances for a single escort to the place selected by the person designated (designee) to direct disposition of the remains, or to a national or other cemetery, which is selected by the Secretary of the Military Department concerned. Additionally, the provision would authorize the Secretary concerned to transport the remains to no more than two places selected by the designee. Finally, the provision would authorize the Secretary concerned to provide delivery of remains by air, to the maximum extent practicable, to an airport nearest to the place selected by the designee.

The Senate bill contained no similar provision.

The Senate recesses with a technical amendment.

Military funeral honors matters (sec. 574)

The Senate bill contained a provision (sec. 591) that would amend section 1491(b) of title 10, United States Code, to require the Secretaries of the military departments to provide full military honors for the funeral of a veteran who: (1) Is first interred or inurned in Arlington National Cemetery after the date of the enactment of this Act; (2) Was awarded the medal of honor or the prisoner-of-war medal; and (3) Is not entitled to full military honors by the grade of that veteran. Additionally, the provision would require each commander of a relevant military installation to maintain and carry out a plan for the provision, upon request, of full military funeral honors at funerals for veterans for whom funeral honors details are authorized under section 1491 of title 10, United States Code. The provision would prescribe elements of the required plans, including the provision of a gun salute by either appropriate personnel of the installation, reserve component members, or members of veterans' organizations or other organizations referred to in section 1491(b)(2) of such title.

The House amendment contained a provision (sec. 580E) that would amend section 1491(b) of the same title to require the Secretaries of the military departments to provide full military honors for the funeral of a veteran under the same criteria as section 591 of the Senate bill.

The House recesses with technical amendments.

Improvement of occupational license portability for relocated spouses of members of the uniformed services (sec. 575)

The Senate bill contained a provision (sec. 577) that would amend section 1784 of title 10, United States Code, to require the Secretary of Defense to enter into a cooperative agreement with the Council of State Governments to assist with the funding and development of interstate compacts on licensed occupations.

The House amendment contained a similar provision (sec. 624) that would also guarantee residency for spouses of servicemembers for the purposes of registering a business.

The Senate recesses with an amendment that would require the Secretary of Defense to enter into a cooperative agreement with the Council of State Governments to assist with the funding and development of interstate compacts on licensed occupations. The conferees note that the guarantee of residency for spouses of servicemembers is included in another provision in this Act.

Continued eligibility for education and training opportunities for spouses of promoted members (sec. 576)

The House amendment contained a provision (sec. 623) that would amend section 1784a(b) of title 10, United States Code, to allow a military spouse eligible for a program under this section to finish his or her course of education or training for a degree, license, or credential, regardless of whether the servicemember to whom the spouse is married is promoted to a higher grade.

The Senate bill contained no similar provision.

The Senate recedes.

The conferees encourage the Department of Defense to improve the data collection for military spouse education and employment programs, to establish a better understanding of utilization and completion of the programs.

Modification to authority to reimburse for State licensure and certification costs of a spouse of a servicemember arising from relocation (sec. 577)

The Senate bill contained a provision (sec. 576) that would amend section 476(p)(4) of title 37, United States Code, to extend the authority for reimbursement of state licensure and certification costs of military spouses arising from relocation to another State to December 31, 2024.

The House amendment contained a provision (sec. 628) that would amend section 476(p) of title 37, United States Code, to authorize the Secretary concerned to reimburse a member of the uniformed services for qualified relicensing costs of the spouse of the member, not to exceed \$1,000, until December 31, 2024. Additionally, the provision requires an analysis of whether the maximum reimbursement amount is sufficient to cover the average costs of relicensing.

The Senate recedes.

Clarification regarding eligibility to transfer entitlement under Post-9/11 Educational Assistance Program (sec. 578)

The House amendment contained a provision (sec. 574) that would amend section 3319 of title 38, United States Code, to prevent the Secretary of Defense from imposing a limit on transferability of Post-9/11 GI Bill benefits based on maximum number of years of service.

The Senate bill contained no similar provision.

The Senate recesses. The conferees note the provision authorizing some servicemembers to transfer their education benefit was originally included as part of the Post-9/11 Veterans' Educational Assistance Act of 2008 (Public Law 110-252) to serve as a retention incentive. Section 3319 of title 38, United States Code, is explicit in stating the purpose of the transferability provision is to "promote recruitment and retention in the uniformed services." Therefore, the conferees fully expect the Department of Defense to require that any servicemember who requests, and is authorized, to transfer their education benefits serve the mandated four additional years as a member of the uniformed services. This payback period should be applied in all cases, regardless of when a servicemember actually elects to transfer their benefits.

While this provision prohibits the Department of Defense from imposing a general limit on transferability based on the number of years served, the overall authority on whether to grant an individual servicemember's request to transfer benefits remains entirely at the service secretary's discretion. The conferees encourage service secretaries to develop policies that properly treat transferability as one of many possible recruiting and retention tools to attract and keep high-quality servicemembers.

Annual State report card (sec. 579)

The Senate bill contained a provision (sec. 5501) that would amend section 1111(h)(1)(C)(ii) of the Elementary and Secondary Education Act of 1965.

The House amendment contained an identical provision (sec. 576).

The conference agreement includes this provision.

Improvements to child care for members of the Armed Forces (sec. 580)

The Senate bill contained a provision (sec. 579) that would clarify section 559(e) of the National Defense Authorization Act for Fiscal Year 2018 (Public Law 115-91) by including family childcare coordinator services and school age childcare coordinator services in the direct hire authority.

The House amendment contained a provision (sec. 629) that would: (1) Expand the authority to provide financial assistance to civilian providers of child care services or youth program services that provide services to survivors of members of the Armed Forces who die in the line of duty; (2) Expand the direct hire authority for childcare service providers; (3) Require the

Secretary of Defense to conduct an assessment of financial assistance provided to civilian childcare providers; (4) Require the Secretary of Defense to conduct an assessment of childcare capacity on military installations and require remedial action to alleviate the waiting lists for childcare if necessary; (5) Require the Secretary of Defense to conduct an assessment of the accessibility of websites of the Department of Defense related to childcare and spousal employment; and (6) Ensure the portability of background investigations and training certifications for childcare providers employed by the Department of Defense when such providers are transferred to another Department facility.

The Senate recesses with an amendment that would clarify the direct hire authority for Department of Defense childcare development centers to include family childcare coordinator services and school age childcare coordinator services. Additionally, the provision would require the Secretary of Defense to take remedial action if necessary to reduce waiting lists for childcare at military installations and to provide a report to the Committees on Armed Services of the Senate and the House of Representatives on any action taken or any additional resources necessary to increase access to childcare. The provision would also require a review of the assessments conducted by the Secretary under this provision by the Comptroller General of the United States.

Transportation of remains of casualties; travel expenses for next of kin (sec. 580A)

The House amendment contained a provision (sec. 577) that would amend section 562 of the John Warner National Defense Authorization Act for Fiscal Year 2007 (Public Law 109-364) to require the Secretary of Defense to extend travel privileges via international travel authorization to family members of servicemembers who die outside of the United States and whose remains are returned to the mortuary facility at Dover Air Force Base, Delaware.

The Senate bill contained no similar provision.

The Senate recesses with a technical amendment.

Meetings of officials of the Department of Defense with representative groups of survivors of deceased members of the Armed Forces (sec. 580B)

The House amendment contained a provision (sec. 578) that would require the Secretary of Defense to direct the service chiefs and the Chief of the National Guard Bureau to meet

periodically with survivors of deceased members of the Armed Forces to receive feedback regarding issues affecting survivors.

The Senate bill contained no similar provision.

The Senate recesses with an amendment that would require the Secretary of Defense to direct the service chiefs and the Chief of the National Guard Bureau to meet periodically with representative groups of survivors to receive feedback regarding issues affecting survivors.

Information and opportunities for registration for voting and absentee ballot requests for members of the Armed Forces undergoing deployment overseas (sec. 580C)

The Senate bill contained a provision (sec. 5502) that would require that not later than 45 days prior to a general election for Federal office, a Voting Assistance Officer or other person designated by the secretary of the military department concerned, shall provide a member of the Armed Forces with a Federal write-in absentee ballot and instructions on the use of that ballot in the State in which the member is registered to vote. The provision also would require that in the case of a member intending to vote in a State that does not accept the Federal write-in absentee ballot as a simultaneous application and ballot for Federal elections, the member would be provided a briefing on, and an opportunity to fill out the official post-card form for absentee voter registration application and absentee ballot application prescribed in law. The provision concludes with a Sense of Congress relating to the use of the Federal write-in absentee ballot.

The House amendment contained a provision (sec. 575) that would amend section 102(h) of the Uniformed and Overseas Citizens Absentee Voting Act (52 U.S.C. 20302(h)) to require a chief State election official, in coordination with local election jurisdictions, to establish and operate an absentee ballot tracking program for absentee uniformed voters and overseas citizen voters.

The House recesses with an amendment that would require a Voting Assistance Officer or other person designated by the secretary of the military department concerned, to provide a Federal write-in ballot to a member of the Armed Forces, upon the request of that member. Further, in the case of a member intending to vote in a State that does not accept the Federal write-in absentee ballot as a simultaneous application and ballot, the member would be provided instructions on, and an opportunity to fill out, the official post-card form.

The conferees urge the Federal government and State governments to remove all obstacles that would inhibit deployed

servicemembers from voting. Further, the conferees strongly advocate that States that do not allow servicemembers to use the Federal write-in absentee ballot as a simultaneous application and acceptable ballot for Federal elections modify their laws to permit such use.

Study on two-way military ballot barcode tracking (sec. 580D)

The Senate bill contained a provision (sec. 5503) that would require the Director of the Federal Voting Assistance Program of the Department of Defense to conduct a study on the feasibility of a pilot program providing full ballot tracking of overseas military absentee ballots through the mail stream in a manner similar to the 2016 Military Ballot Tracking Pilot Program. The provision would further require the Director to submit a report to Congress, not later than 1 year after the date of the enactment of this Act, detailing the results of the feasibility study, together with an estimate of the costs of conducting a pilot, the organizations that would support the pilot, and the timeline for the phased implementation of the pilot program to all military personnel serving overseas.

The House amendment contained no similar provision.

The House recedes with an amendment that would require the Director of the Federal Voting Assistance Program to include in the feasibility study report, a method to determine under the pilot program if a ballot was counted, and to provide that information to the servicemember casting the vote, and a description of the efforts being undertaken to ensure a reliable and secure military ballot tracking system.

Assistance to schools with military dependent students (sec. 580E)

The Senate bill contained a provision (sec. 571) that would authorize \$40.0 million in Operation and Maintenance, Defense-wide, for continuation of the Department of Defense (DOD) assistance program to local educational agencies impacted by enrollment of dependent children of military members and DOD civilian employees.

The Senate bill contained another provision (sec. 572) that would authorize \$10.0 million in Operation and Maintenance, Defense-wide, for impact aid payments for children with severe disabilities (as enacted by Public Law 106-398; 114 Stat. 1654A-77; 20 U.S.C. 7703a) using the formula set forth in section 363 of the Floyd D. Spence National Defense Authorization Act for Fiscal Year 2001 (Public Law 106-398), for continuation of DOD assistance to local educational agencies that benefit eligible

dependents with severe disabilities. Subsection (b) of the provision would allow the Secretary of Defense to use \$5.0 million of the total amount authorized for payments to local educational agencies with higher concentrations of military children with severe disabilities at the Secretary's discretion and without regard to the formula set forth in section 363 of the Floyd D. Spence National Defense Authorization Act for Fiscal Year 2001 (Public Law 106-398).

The House amendment contained a provision (sec. 580) that would authorize \$40.0 million for the purpose of providing assistance to local educational agencies with military dependent students and \$10.0 million for local educational agencies eligible to receive a payment for children with severe disabilities.

The Senate recedes with an amendment that would allow the Secretary of Defense to use \$5.0 million of the total amount authorized for payments to local educational agencies with higher concentrations of military children with severe disabilities at the Secretary's discretion.

First expansion of the My Career Advancement Account program for military spouses (sec. 580F)

The House amendment contained a provision (Sec. 580B) that would expand the My Career Advancement Account (MyCAA) program to allow military spouses participating in the program to receive financial assistance to pursue a license, certification, or associate's degree in any career field or occupation, including both portable and non-portable career fields.

The Senate bill contained no similar provision.

The Senate recedes with an amendment that would allow military spouses participating in the MyCAA program the ability to receive financial assistance for the pursuit of a license, certification, or associate's degree in any career field or occupation.

Second expansion of the My Career Advancement Account program for military spouses (sec. 580G)

The House amendment contained a provision (sec. 580C) that would expand the Department of Defense My Career Advancement Account program (MyCAA) to all spouses of enlisted members of the U.S. Coast Guard.

The Senate bill contained no similar provision.

The Senate recedes with an amendment that would authorize eligible spouses of members of the U.S. Coast Guard to

participate in the MyCAA program if the U.S. Coast Guard reimburses the Department of Defense.

Report on training and support available to military spouses (sec. 580H)

The House amendment contained a provision (Sec. 580D) that would require a report from the Under Secretary of Defense for Personnel and Readiness on training and support available to military spouses.

The Senate bill contained no similar provision.

The Senate recesses with an amendment that would require the Under Secretary of Defense for Personnel and Readiness to submit a report to the Committees on Armed Services of the Senate and the House of Representatives on the Department of Defense's financial literacy programs designed for military spouses and their efficacy.

Ri'katak Guest Student Program at United States Army Garrison - Kwajalein Atoll (sec. 580I)

The Senate bill contained a provision (sec. 573) that would authorize the Secretary of the Army to conduct an assistance program to educate up to five local national students per grade, per academic year, on a space-available basis at the contractor-operated schools on United States Army Garrison-Kwajalein Atoll. Under this provision, the Secretary would be authorized to provide: (1) Classroom instruction; (2) Extracurricular activities; (3) Student meals; and (4) Transportation.

The House amendment contained no similar provision.

The House recesses.

SUBTITLE I—DECORATIONS AND AWARDS

Modification of authorities on eligibility for and replacement of gold star lapel buttons (sec. 581)

The Senate bill contained a provision (sec. 632) that would amend section 1126 of title 10, United States Code, to authorize the Secretary of Defense to determine the eligible recipients of the gold star lapel button. Additionally, the provision would authorize the Secretary to replace a lapel button upon application and without cost.

The House amendment contained a similar provision (sec. 581).

The House recesses.

Standardization of honorable service requirement for award of military decorations (sec. 582)

The Senate bill contained a provision (sec. 586) that would amend Chapter 57 of title 10, United States Code, to standardize the requirement for honorable service for awards of medals, crosses, bars, and associated emblems.

The House amendment contained no similar provision.

The House recesses.

Authorization for award of the Medal of Honor to John J. Duffy for acts of valor in Vietnam (sec. 583)

The Senate bill contained a provision (sec. 585) that would authorize the President, notwithstanding the time limitations specified in section 3744 of title 10, United States Code, or any other time limitation with respect to awarding certain medals to members of the Armed Forces, to award the Medal of Honor under section 3741 of such title to John J. Duffy for acts of valor during the Vietnam War.

The House amendment contained no similar provision.

The House recesses with a technical amendment.

Review of World War I Valor Medals (sec. 584)

The House amendment contained a provision (sec. 583) that would require each Secretary concerned to review certain service records of World War I veterans as recommended for review by the Valor Medals Review Task Force or another veterans service organization, to determine whether such veteran should be awarded the Medal of Honor for valor in World War I.

The Senate bill contained no similar provision.

The Senate recesses with an amendment that would require each Secretary concerned to review certain service records of World War I veterans to determine whether such veteran should be awarded the Medal of Honor for valor in World War I. The review will last no longer than 5 years.

The conferees note that the Valor Medals Review Task Force, jointly established by the United States Foundation for the Commemoration of the World Wars and the George S. Robb Centre for the Study of the Great War, has identified World War I veteran service records for potential review by the Secretaries concerned. The conferees encourage the Secretaries of the military departments to consult with the Valor Medals

Review Task Force to identify those service records that warrant further review to determine whether such veteran should be recommended for an upgrade to the Medal of Honor for valor.

SUBTITLE J-MISCELLANEOUS REPORTS AND OTHER MATTERS

Clarification of the term "assault" for purposes of Workplace and Gender Relations Surveys (sec. 591)

The House amendment contained a provision (sec. 592) that would amend section 481 of title 10, United States Code, to update the Armed Forces Workplace and Gender Relations surveys and the Department of Defense Civilian Employee Workplace and Gender Relations Survey to require solicitation of information about the types and frequency of unwanted sexual contact that have occurred during the preceding year.

The Senate bill contained no similar provision.

The Senate recedes with an amendment that would amend sections 481 and 481a of title 10, United States Code, to clarify that the term "assault", for purposes of questions posed on Armed Forces Workplace and Gender Relations Surveys and the Department of Defense Civilian Employee Workplace and Gender Relations Survey, respectively, should be defined to include "unwanted sexual contact."

Inclusion of certain veterans on temporary disability or permanent disabled retirement lists in military adaptive sports programs (sec. 592)

The Senate bill contained a provision (sec. 5601) that would amend subsection (a)(1) of section 2564a of title 10, United States Code, to authorize inclusion of servicemembers, who are eligible to participate in military adaptive sports programs, and certain veterans on temporary disability or permanent disabled retirement lists in such programs.

The House amendment contained an identical provision (sec. 599B).

The conference agreement includes this provision.

Questions in surveys regarding extremist activity in the workplace (sec. 593)

The House amendment contained a provision (sec. 594) that would require the Secretary of Defense to include in the workplace and equal opportunity, command climate, and workplace

and gender relations surveys whether respondents had ever experienced supremacist activity, extremist activity, or racism in the workplace.

The Senate bill contained no similar provision.

The Senate recedes with an amendment that would require the Secretary of Defense to include in appropriate surveys questions about whether a respondent had experienced or witnessed extremist activity in the workplace, and whether the respondent had reported such activity to appropriate authorities.

Study on best practices for providing financial literacy education for separating members of the Armed Forces (sec. 594)

The House amendment contained a provision (sec. 598) that would require the Secretary of Defense and the Secretary of Veterans Affairs to conduct a study on the best practices to provide financial literacy education for separating members of the Armed Forces and veterans.

The Senate bill contained no similar provision.

The Senate recedes with an amendment that would require the Secretary of Defense and the Secretary of the Department in which the Coast Guard is operating to conduct a study on the best practices to provide financial literacy education for separating members of the Armed Forces. The results of the study shall be reported to the Committees on Armed Services of the Senate and the House of Representatives.

Report on oversight of authorized strengths of certain grades of commissioned regular and reserve officers of the Armed Forces (sec. 595)

The Senate bill contained a provision (sec. 501) that would amend section 523 of title 10, United States Code, to require the Congress to authorize annually the number of officers serving on Active Duty in the grades of major, lieutenant colonel, and colonel in the Army, Air Force, and Marine Corps or lieutenant commander, commander, and captain in the Navy.

The House amendment contained no similar provision.

The House recedes with an amendment that would require the Secretary of Defense to submit a report to the Committees on Armed Services of the Senate and the House of Representatives on alternative methods to improve the oversight of authorized strengths of commissioned regular and reserve officers of the Armed Forces.

The conferees note the officer strength table was included as a fundamental feature of the Defense Officer Personnel Management Act (DOPMA) (Public Law 96-513). The table was designed to serve as an effective limitation on the number of mid-grade officers within each service. The House report to accompany the legislation (H. Rept. 96-1462) explained that the table would be adjusted over time to align with emerging officer manpower requirements. However, in practice, the authorized strength table is rarely updated and it is no longer linked to strategy or actual officer requirements.

Report on certain waivers (sec. 596)

The House amendment contained a provision (sec. 597) that would require the Department of Defense to submit an initial report (within 120 days of the enactment of this Act) and an annual report for 2 years thereafter, to the Committees on Armed Services of the Senate and the House of Representatives, setting forth detailed information about the number of transgender applicants and serving transgender servicemembers who, in the prior calendar year, sought and received a waiver or exception to current Defense Department policy to permit their enlistment/accession or retention in the military. The reporting would require the Department to distinguish between waivers requested by "exempt" persons—applicants or servicemembers "grandfathered" under the policies for military service by transgender persons enacted in June 2016, and "non-exempt" persons—who are subject to the policy on transgender service that that took effect on April 12, 2019.

The Senate bill contained no similar provision.

The Senate recedes with an amendment that would modify the data elements required to be included in the report and would clarify that any report submitted will not include Personally Identifiable Information or Protected Health Information.

The conferees note that the new Department of Defense policy with regard to military service by transgender persons expressly asserts that "[t]ransgender persons may seek waivers or exceptions [to the standards established by DTM-19-004], or any other standards, requirements, or policies, on the same terms as any other person." As regards a transgender person's request for a waiver or exception to policy to permit that individual to serve in the military in other than his or her biological sex, the Secretaries of the Military Departments may delegate waiver authority no lower than a Military Service Personnel Chief. The conferees note that all other waiver authority vests in the regular Service-designated waiver authority, affording transgender persons consideration at the

same level of decision-making as persons who are not transgender.

In determining whether an applicant with a disqualifying diagnosis of gender dysphoria or history of gender transition treatment or surgery merits a waiver to permit his or her service in the military, the conferees encourage Service-designated waiver authorities to consider such a waiver under the same circumstances as they would for an applicant who is not transgender, but has been diagnosed with analogous conditions or received analogous treatments, presuming the individual meets all other standards for accession.

Notifications on manning of afloat naval forces (sec. 597)

The Senate bill contained a provision (sec. 518) that would amend section 525 of the John S. McCain National Defense Authorization Act for Fiscal Year 2019 (Public Law 115-232) to make technical changes to congressional notifications germane to the manning of afloat naval forces.

The House amendment contained no similar provision.

The House recedes with an amendment that would sunset such notifications in fiscal year 2025.

Report regarding use of aerial systems of the Department of Defense to support agencies of States, Territories, and the Federal Government (sec. 598)

The House amendment contained a provision (sec. 514) that would direct the Secretary of Defense, within 90 days of enactment, to issue new guidance that treats the use of unmanned aircraft systems by the National Guard for covered activities in a manner no more restrictive than the use of other aircraft.

The Senate bill contained no similar provision.

The Senate recedes with an amendment that would direct the Secretary of Defense, not later than 180 days after enactment of this Act, to provide a report on the requirements for, and policies and procedures governing the use of Department of Defense manned and unmanned aerial systems to support States, territories, and other Federal agencies.

The conferees note that the Department of Defense provides resources, including unmanned and manned aerial systems, at the request of States, territories, and other Federal agencies for emergency operations, search and rescue operations, and Defense support to civil authorities. However, the conferees note that there is a lack of understanding on the policy, procedures, and overall availability of these resources to provide such requested support.

Information for members of the Armed Forces on availability of services of the Department of Veterans Affairs relating to sexual trauma (sec. 599)

The House amendment contained a provision (sec. 745) that would require the Secretary of Defense to use available mechanisms to inform members of the Armed Forces of their eligibility for services provided by the Department of Veterans Affairs. In particular, the Secretary would be required to ensure that Sexual Assault Response Coordinators and uniformed victim advocates of the Department of Defense advise members of the Armed Forces experiencing psychological trauma resulting from a physical assault of a sexual nature, battery of a sexual nature, or sexual harassment that occurred while serving on Active Duty, Active Duty for training, or inactive duty training, regarding their eligibility for Department of Veterans Affairs counseling, care, and services.

The Senate bill contained no similar provision.

The Senate recedes with a technical amendment.

Authority to issue an honorary promotion to Colonel Charles E. McGee, United States Air Force (ret.), to the grade of brigadier general (sec. 599A)

The House amendment contained a provision (sec. 599) that would authorize the President to issue an honorary commission promoting, to brigadier general in the Air Force, Colonel Charles E. McGee, United States Air Force (retired), a distinguished Tuskegee Airman.

The Senate bill contained no similar provision.

The Senate recedes with a technical amendment.

Authority to issue an honorary and posthumous promotion to Lieutenant Colonel Richard Cole, United States Air Force (ret.), to the grade of colonel (sec. 599B)

The House amendment contained a provision (sec. 599A) that would authorize the honorary and posthumous promotion of Lieutenant Colonel Richard E. Cole, United States Air Force (retired), to the grade of colonel.

The Senate bill contained no similar provision.

The Senate recedes with a technical amendment.

Sense of Congress on the honorable and distinguished service of General Joseph F. Dunford, United States Marine Corps, to the United States (sec. 599C)

The Senate bill contained a provision (sec. 5504) that would express the sense of Congress as to the honorable and distinguished career of service to the United States of General Joseph F. Dunford, United States Marine Corps.

The House amendment contained no similar provision.

The House recesses with a technical amendment.

The conferees find that: (1) General Joseph F. Dunford was commissioned as a second lieutenant in the United States Marine Corps in 1977; (2) Since 1977, General Dunford has served as an infantry officer at all levels and has held numerous leadership roles, including Commander of the 5th Marine Regiment during Operation IRAQI FREEDOM, Commander of the International Security Assistance Force and United States Forces-Afghanistan, and Commander, Marine Forces United States Central Command; (3) General Dunford served as the 32nd Assistant Commandant of the Marine Corps from October 23, 2010, to December 15, 2012; (4) General Dunford subsequently served as the 36th Commandant of the Marine Corps from October 17, 2014, to September 24, 2015; (5) General Dunford became the highest-ranking military officer in the United States when he was appointed as the 19th Chairman of the Joint Chiefs of Staff on October 1, 2015; (6) General Dunford is only the second United States Marine to hold the position of Chairman of the Joint Chiefs of Staff; (7) During his nearly 4 years as Chairman of the Joint Chiefs of Staff, General Dunford effectively and honorably executed the duties of the office to the highest levels of honor and integrity; and (8) General Dunford has an extensive record of impeccable service to the United States.

LEGISLATIVE PROVISIONS NOT ADOPTED

Grade of Chief of Veterinary Corps of the Army

The House amendment contained a provision (sec. 502) that would require that the grade of the Chief of the Veterinary Corps of the Army be a brigadier general.

The Senate bill contained no similar provision.

The House recesses.

Report on rate of maternal mortality among members of the Armed Forces

The House amendment contained a provision (sec. 505) that would require the Secretary of Defense and the Secretary of the Department in which the Coast Guard is operating, when not operating under the Navy, to submit a report to Congress, within 180 days of the date of the enactment of this Act, on the rate

of maternal mortality among members of the Armed Forces and their dependents.

The Senate bill contained no similar provision.

The House recesses.

The conferees note that the Senate Report accompanying S. 1790 (S. Rept. 116-48) of the National Defense Authorization Act for Fiscal Year 2020 requires the Secretary of Defense to provide a briefing to the Committees on Armed Services of the Senate and the House of Representatives by February 1, 2020, reporting the rate and incidence of pregnancy-associated deaths, defined as the death of a woman while pregnant or during the 1-year period following the date of the end of pregnancy, and severe maternal morbidities, defined as unintended outcomes of pregnancy, labor, or delivery that result in significant short- or long-term consequences to a woman's health.

JROTC Computer Science and Cybersecurity Program

The House amendment contained a provision (sec. 516) that would direct the Secretary of Defense to carry out a program to enhance the preparation of students in Junior Reserve Officers' Training Corps for careers in computer science and cybersecurity.

The Senate bill contained no similar provision.

The House recesses.

The conferees note that the United States in general, and the military in particular, currently struggle to find and produce sufficient numbers of Americans trained to succeed in computer science and cybersecurity careers. The Junior Reserve Officers' Training Corp, and programs like it, can serve as catalysts to overcoming these systemic shortages by providing an extra-curricular experience to young Americans who demonstrate a penchant for computer science and related subjects. The conferees encourage the Secretary of Defense to partner with other Federal, State, and local organizations in developing new programs to better prepare the nation's youth for the workforce of the future.

Sense of Congress regarding the National Guard Youth Challenge Program

The House amendment contained a provision (sec. 519) that would express the sense of Congress that the National Guard Youth Challenge Program provides a vital service to at-risk youth and would encourage the Secretary of Defense to use the authority provided in section 519 of the John S. McCain National Defense Authorization Act for Fiscal Year 2019 (Public Law 115-

232) to use equipment and facilities of the Department of Defense in this program.

The Senate bill contained no similar provision.

The House recedes.

The conferees reiterate the importance of the National Guard Youth Challenge Program and good work the program accomplishes. Additionally, the conferees continue to encourage the Secretary of Defense to utilize authority provided by the John S. McCain National Defense Authorization Act for Fiscal Year 2019 to use Department of Defense equipment for the purpose of supporting the National Guard Youth Challenge.

Report on expansion of the Close Airman Support team approach of the Air Force to the other Armed Forces

The Senate bill contained a provision (sec. 519) that would require a report on the expansion of the Close Airman Support team approach of the Air Force to the other Armed Forces.

The House amendment contained no similar provision.

The Senate recedes.

The conferees direct the Secretaries of the military departments to submit to the Committees on Armed Services of the Senate and the House of Representatives a joint report on the feasibility and advisability of expanding the Close Airman Support team approach employed by the Air Force for use by the other Military Services.

National guard support to major disasters

The House amendment contained a provision (sec. 520D) that would amend section 502 of title 32, United States Code, to authorize the Secretary concerned to order a member of the National Guard to perform duties related to operations or missions authorized by the President or the Secretary of Defense to respond to large scale, complex, and catastrophic disasters. The provision would also establish a permanent authorization of appropriations for sums necessary to carry out National Guard disaster response if a state of emergency has been declared by the respective Governor and the President of the United States.

The Senate bill contained no similar provision.

The House recedes.

Report regarding National Guard Youth Challenge Program

The House amendment contained a provision (sec. 520F) that would require the Secretary of Defense to submit a report to the congressional defense committees regarding the resources and authorities the Secretary determines necessary to identify the effects on graduates of the National Guard Youth Challenge Program.

The Senate bill contained no similar provision.

The House recesses.

The conferees note that section 509 of title 32, United States Code, already requires the Secretary of Defense to submit an annual report on the design, conduct, and effectiveness of the National Guard Youth Challenge Program.

Temporary authority to use Air Force reserve component personnel to provide training and instruction regarding pilot training

The House amendment contained a provision (sec. 520H) that would authorize the Secretary of the Air Force to utilize certain reserve component full time support personnel to provide pilot training to Active Duty servicemembers and foreign military personnel who are in the United States.

The Senate bill contained no similar provision.

The House recesses.

The conferees note that reserve component full time support personnel are expressly provided by law to organize, administer, recruit, instruct, or train reserve component units and personnel. To provide an exception to this long-standing requirement would be to undermine the necessary distinction between the active and reserve components.

Enactment and expansion of policy on withholding of initial disposition authority for certain offenses under the Uniform Code of Military Justice

The Senate bill contained a provision (sec. 522) that would vest only in a commissioned officer in a grade not below O-6, who is authorized to convene special courts-martial, the authority to determine the disposition of specified offenses under the Uniform Code of Military Justice (Chapter 47 of title 10, United States Code).

Generally, if such an officer's disposition determination differs from the recommendation made by the officer's legal advisor, the matter would be referred to a Special Victim Prosecutor, Senior Trial Counsel, or Regional Trial Counsel not in the chain of command of the officer making the initial disposition determination for review and recommendation to a staff judge advocate in the chain of command. That staff judge

advocate would advise the next superior commander, who would decide whether to endorse or supersede the initial disposition determination.

The provision would require the training provided to commissioned officers in the grades of O-6 and above on the exercise of such disposition determination authority to include specific training on sexual harassment, sexual assault, and family abuse and domestic violence.

The House amendment contained no similar provision.

The Senate recesses.

Advisory Committee on record and service review boards

The House amendment contained a provision (sec. 523) that would establish a Defense Advisory Committee on Record and Upgrade Review Boards to advise the Secretary of Defense on the best structure, practices, and procedures to ensure consistency of the boards for correction of military records and service review boards in carrying out their responsibilities under chapter 79 of title 10, United States Code, and in granting relief to claimants under that chapter.

The Senate bill contained no similar provision.

The House recesses.

Prohibition on implementation of military service suitability determinations for foreign nationals who are lawful permanent residents

The House amendment contained a provision (sec. 525) that would prohibit the Secretary of Defense from taking any action to implement the memorandum entitled ``Military Service Suitability Determinations for Foreign Nationals Who Are Lawful Permanent Residents'' until the Secretary submits a report on the justification for the policy changes made by that memorandum.

The Senate bill contained no similar provision.

The House recesses.

The conferees direct the Secretary of Defense to provide a briefing to the Committees on Armed Services of the Senate and House of Representatives, not later than 180 days after the enactment of this Act. The briefing shall include: (1) The number of lawful permanent residents (LPRs) who apply for military service; (2) The average length of the military service suitability determination process for LPRs, as detailed in the policy memorandum, measured in six month increments since the policy memorandum was implemented; (3) The number of LPRs who have not been deemed suitable for enlistment or accession into

the military based on a matter identified during the process established by the memorandum; (4) A summary of the most common reasons underlying past determinations that an LPR is not suitable for military service; and (5) The Department's plans to improve and expedite the military service suitability determination process as it relates to LPRs.

Independent Study on barriers to entry into the Armed Forces for English learners

The House amendment contained a provision (sec. 527) that would require the Secretary of Defense to seek to enter into a contract with a federally funded research and development center to study barriers to entry into the Armed Forces for English learners.

The Senate bill contained no similar provision.

The House recesses.

The conferees note that the Senate report 114-48 directs the Secretary of Defense to review the effectiveness of current enlistment testing practices in identifying high-potential recruits for military service, specifically among the non-native English speaking population of the United States, in light of evolving standards and methods in civilian education of measuring mental ability and academic potential.

The conferees look forward to receiving the Department's report on this topic.

Reenlistment waivers for persons separated from the Armed Forces who commit one misdemeanor cannabis offense

The House amendment contained a provision (sec. 528) that would require the Secretary of Defense to prescribe regulations, within 90 days of the date of the enactment of this Act, that would permit any Secretary of a military department to grant a reenlistment waiver to an individual previously separated from the Armed Forces who has admitted to, or been convicted by a court of a single misdemeanor violation of a Federal or State law relating to the use or possession of cannabis, which violation occurred while that individual was not on Active Duty in the Armed Forces.

The Senate bill contained no similar provision.

The House recesses.

Recognition and honoring of service of individuals who served in United States Cadet Nurse Corps during World War II

The House amendment contained a provision (sec. 530) that would require the Secretary of Defense to determine that the service of the organization known as the United States Cadet Nurse Corps during the period beginning on July 1, 1943, and ending on December 31, 1948, constitutes active military service.

The Senate bill contained no similar provision.

The House recesses.

Nondiscrimination with respect to service in the Armed Forces

The House amendment contained a provision (sec. 530B) that would add section 651a to title 10, U.S. Code, to require the Department of Defense to consider only the ability of an individual to meet gender-neutral occupational standards for military service generally and the military occupational specialty concerned, in particular, in evaluating a candidate for enlistment/accession. The provision would further require that any personnel policy developed or implemented by the Department ensure equality of treatment and opportunity for all persons in the Armed Forces, without regard to race, color, national origin, religion, and sex (including gender identity and sexual orientation). Finally, the provision promulgates a definition of "gender identity."

The Senate bill contained no similar provision.

The House recesses.

Report on mechanisms to enhance the integration and synchronization of activities of Special Victim Investigation and Prosecution personnel with activities of military criminal investigative organizations

The Senate bill contained a provision (sec. 536) that would require the Secretary of Defense to submit a report on mechanisms to enhance the integration and synchronization of activities of Special Victim Investigation and Prosecution personnel with activities of military criminal investigative organizations.

The House amendment contained no similar provision.

The Senate recesses.

The conferees direct the Secretary of Defense to provide to the Committees on Armed Services of the Senate and the House of Representatives, within 180 days from the date of enactment of this Act, a briefing setting forth proposals to enhance the integration and synchronization of Special Victim Investigation and Prosecution personnel with the activities of military criminal investigative organizations in investigations in which

both may be involved, together with any legislative and administrative actions required to implement those proposals.

Pilot program on prosecution of special victim offenses committed by attendees of military service academies

The House amendment contained a provision (sec. 538) that would require the Secretary of Defense to create and carry out a pilot program establishing an independent authority outside of the chain of command to review certain special victim offenses alleged to have been committed by military service academy cadets and midshipmen to determine whether such offenses should be referred to trial by a court-martial convening authority. This provision would also require the Secretary of Defense to establish an Office of the Chief Prosecutor within the Office of the Secretary of Defense, as part of the pilot program.

The Senate bill contained no similar provision.
The House recesses.

Standard of evidence applicable to investigations and reviews related to protected communications of members of the Armed Forces and prohibited retaliatory actions

The House amendment contained a provision (sec. 541) that would amend section 1034 of title 10, United States Code, to allow a finding or other determination made under subsections (c), (d), (g), or (h), to be based on the standards of evidence specified in section 1221(e) of title 5, United States Code.

The Senate bill contained no similar provision.
The House recesses.

Repeal of 15-year statute of limitations on motions or requests for review of discharge or dismissal from the Armed Forces

The Senate bill contained a provision (sec. 546) that would eliminate the 15-year statute of limitations on requests by or on behalf of a former servicemember for review by a discharge review board of the member's discharge or dismissal from the Armed Forces.

The House amendment contained no similar provision.
The Senate recesses.

Consultation regarding victim's preference in prosecution jurisdiction

The House amendment contained a provision (sec. 547) that would require the Secretary of Defense, acting through the Under Secretary of Defense for Personnel and Readiness, to issue guidance to ensure that a sexual assault victim's preference for prosecution jurisdiction is recorded.

The Senate bill contained no similar provision.

The House recesses.

Safe to Report policy applicable across the Armed Forces

The Senate bill contained a provision (sec. 527) that would require the Secretary of Defense, in consultation with the secretaries of the military departments and the Secretary of Homeland Security, to prescribe a Safe to Report policy applicable to all members of the Armed Forces, across both active and reserve components, and to cadets and midshipmen at the military service academies. A Safe to Report policy is one in which a victim of sexual assault who may have committed minor collateral misconduct at or about the time of the assault, or whose minor collateral misconduct is discovered only as the result of the investigation of the sexual assault, may report the assault to authorities without fear of discipline, except in cases in which aggravating circumstances increase the gravity of the minor collateral misconduct or its impact on military good order and discipline.

The provision would define minor collateral misconduct as including: (1) Improper use and possession of alcohol; (2) Consensual intimate behavior, including adultery or fraternization; (3) Presence in off-limits areas; and (4) Other misconduct specified in the regulations promulgated.

The provision would further require that the regulations promulgated by the Secretary specify the aggravating circumstances that would increase the gravity of minor collateral misconduct or its impact on good order and discipline.

The House amendment contained a similar provision (sec. 550).

The Senate and House recess.

Preliminary inquiry on Arlington National Cemetery burial

The House amendment contained a provision (sec. 550E) that would require the Department of the Army's General Counsel to conduct a preliminary inquiry to investigate the burial of Jack Edward Dunlap at Arlington National Cemetery due to accusations that Mr. Dunlap supplied the Soviet Union with intelligence during the Cold War.

The Senate bill contained no similar provision.

The House recesses.

The conferees encourage the Department of the Army to consider this case and, if necessary, to take appropriate action.

Limitation on waiver of rights and protections under Servicemembers Civil Relief Act

The House amendment contained a provision (sec. 550I) that would amend section 107(a) of the Servicemembers Civil Relief Act (Public Law 109-189) to restrict the ability of a servicemember or other covered individual to voluntarily waive their rights and protections provided by the Servicemembers Civil Relief Act.

The Senate contained no similar provision.

The House recesses.

Effective date of rule regarding payday lending protections

The House amendment contained a provision (sec. 550K) that would require section 1041.4 through 1041.6, 1041.10, and 1041.12(b)(1) through (3) of the final rule published on November 17, 2017 by the Bureau of Consumer Financial Protection related to Mandatory Underwriting Provisions to go into effect on August 19, 2019, with regards to servicemembers, veterans, and surviving spouses.

The Senate bill contained no similar provision.

The House recesses.

Strengthening civilian and military partnerships to respond to domestic and sexual violence

The House amendment contained a provision (sec. 550L) that would require the Comptroller General of the United States to submit to Congress a report on partnerships between military installations and civilian domestic and sexual violence response organizations.

The Senate bill contained no similar provision.

The House recesses.

The conferees note that page 126 of the House Report 116-120, accompanying H.R. 2500, National Defense Authorization Act for Fiscal Year 2020, directs the Comptroller General of the United States to assess and report on the military services' domestic violence prevention and response programs. The conferees request that the Comptroller General expand this assessment to include a review of partnerships between military

installations and civilian domestic and sexual violence response organizations, the scope of services and support provided via such partnerships, and their role in a coordinated community response to domestic and sexual violence in military families.

Education of Members of the Armed Forces on Career Readiness and Professional Development

The House amendment contained a provision (sec. 552) that would require the Secretary of Defense to carry out a program to provide education on career readiness and professional development to members of the Armed Forces.

The Senate bill contained no similar provision.

The House recesses.

The conferees note that the military already provides numerous opportunities for servicemembers to receive information on career readiness and professional development. The Department of Defense should continue to ensure that all servicemembers are provided opportunities to translate their military experience into civilian education and certifications wherever possible.

Defense Language Institute Foreign Language Center

The House amendment contained a provision (sec. 553) that would amend section 2168 of title 10, United States Code, to permit the Defense Language Institute to confer Bachelor degrees, in addition to Associate degrees, to graduates that meet the appropriate requirements for that degree.

The Senate bill contained no similar provision.

The House recesses.

Liberal consideration of evidence in certain claims by boards for the correction of military records and discharge review boards

The Senate bill contained a provision (sec. 553) that would require military department boards for the correction of military records and discharge review boards to review all claims relating to a claimant's discharge or dismissal, or the characterization of that discharge or dismissal, with liberal consideration of all evidence and information presented by or on behalf of the former servicemember.

The House amendment contained no similar provision.

The Senate recesses.

The conferees encourage the military department boards for the correction of military or naval records to apply their powers of equity broadly to redress injustices in the military

records of a servicemember or former member, and in appropriate cases--as authorized by law or established in board precedent--to accord liberal consideration to the evidence and information presented by or on behalf of the member or former member. In the view of the conferees, such liberal consideration is particularly warranted in cases in which official military records pertinent to the member's application for relief have been destroyed or are otherwise unavailable, through no fault of the member.

Expansion of Department of Defense STARBASE Program

The House amendment contained a provision (sec. 554) that would amend section 2193b of title 10, United States Code, to expand the Starbase program by including art and design as technical fields for education of elementary and secondary children under the program.

The Senate bill contained no similar provision.

The House recesses.

Congressional nominations for Senior Reserve Officers' Training Corps scholarships

The House amendment contained a provision (sec. 557) that would allow the Secretary of the Army to consider any candidate nominated but not selected for appointment to the United States Military Academy by Members of Congress or officials from U.S. Territories to be considered for appointment as a Senior Reserve Officers' Training Corps cadet under section 2107 of title 10, United States Code.

The Senate bill contained no similar provision.

The House recesses.

The conferees note that the Services already have the authority to ensure qualified military service academy applicants who do not receive an offer of admission are able to receive a scholarship through the Reserve Officers' Training Corps (ROTC). The Secretaries of the military departments are encouraged to develop creative policies to ensure that those young Americans who have demonstrated their propensity to serve in the military by applying to a service academy are able to qualify for and access ROTC scholarships.

Survey of members of the Armed Forces on their experiences with military investigations and military justice

The Senate bill contained a provision (sec. 558) that would require the Secretary of Defense to conduct a periodic

survey—at least once every 4 years but not more frequently than once every 2 years—to be known as the Military Investigation and Justice Experience Survey, on the experience of members of the Armed Forces with military investigations and military justice. Those surveyed would include members of the Armed Forces who are victims of an alleged sex-related offense and who made an unrestricted report of that offense. Participants would be surveyed on their experience with a Special Victims' Counsel/Victims' Legal Counsel and, if charges in the victim's case were referred to court-martial, with the prosecutor and the court-martial in general.

The House amendment contained no similar provision.

The Senate recesses.

The conferees note that the Department already has implemented a Military Investigation and Justice Experience Survey, and encourage the Department to continue to enhance this survey; to monitor trends revealed by survey responses and data over time; as appropriate, to take action to improve military investigations, the Special Victims' Counsel/Victims' Legal Counsel programs, and prosecution processes to address matters raised by survey responses and data; and to include information and insights derived from the survey, when salient, in future briefings and reports to the Congress.

Safe-to-Report policy applicable to military service academies

The House amendment contained a provision (sec. 560A) that would require the Secretary of Defense to publish regulations for the implementation of a Safe-to-Report policy, which would allow the victims of an alleged sexual assault at the United States Military Academy, United States Naval Academy, United States Air Force Academy, and the United States Coast Guard Academy, who may have committed minor collateral misconduct, an opportunity to report an occurrence of sexual assault without fear of discipline for that misconduct.

The Senate bill contained no similar provision.

The House recesses.

Recoupment of funds from cadets and midshipmen separated for criminal misconduct

The House amendment contained a provision (sec. 560B) that would direct the secretary of each military department to prescribe regulations to require the Superintendent of a military service academy to recoup the costs of advanced education received by a cadet or midshipman who is separated

from the Academy for reasons of criminal misconduct, at any time prior to graduation.

The Senate bill contained no similar provision.

The House recesses.

The conferees note that in accordance with section 2005 of title 10, United States Code, and section 303a(e) of title 37 of the Code, the secretaries of the military departments already are vested with authority to recoup the costs of advanced education at a military service academy from a cadet who is separated from the academy prior to graduation. As appropriate, the conferees encourage the secretaries of the military departments to require cadets and midshipmen separated from a military service academy for criminal misconduct to repay the costs of their advanced education, even if the cadet or midshipman is separated prior to having completed 2 years of schooling.

Support of military service academy foundations

The House amendment contained a provision (sec. 560D) that would amend chapter 155 of title 10, United States Code, to authorize service secretaries to provide support to certain non-profit fundraising foundations that operate exclusively to support military service academies.

The Senate bill contained no similar provision.

The House recesses.

The conferees note that the primary funding source for military service academies remains appropriated Federal dollars. Each academy currently receives significant additional support from several dedicated non-profit organizations. While academy superintendents may be formally prohibited from engaging in fundraising on behalf of these private organizations, that restriction helps to maintain a healthy separation between the federally funded military institution and private organizations that are not subject to Federal oversight. The conferees are encouraged that the current arrangement between the academies and their non-profit fundraising foundations has resulted recently in each academy opening new, privately funded, facilities for cadet and midshipmen athletics, character development, and cyber education.

Medical personnel at Marine Corps recruit depots

The House amendment contained a provision (sec. 562) that would require the Secretary of the Navy, in coordination with the Navy Medical Department, to assign medical personnel to the

Marine Recruit Training Regiment at each Marine Corps Recruit Depot.

The Senate bill contained no similar provision.
The House recesses.

Inclusion of Specific Email Address Block on Certificate of Release or Discharge from Active Duty (DD Form 214)

The House amendment contained a provision (sec. 564) that would modify the certificate of release or discharge from Active Duty (DD Form 214) by adding an email address block.

The Senate bill contained no similar provision.
The House recesses.

Consecutive service of service obligation in connection with payment of tuition for off-duty training or education for commissioned officers of the Armed Forces with any other service obligations

The Senate bill contained a provision (sec. 566) that would amend section 2007 of title 10, United States Code, to require that an Active-Duty service obligation incurred by an officer for the acceptance of tuition assistance for off-duty training or education be served sequentially with any other service obligation already incurred by the officer.

The House amendment contained no similar provision.
The Senate recesses.

The conferees note that section 2007 of title 10, United States Code, requires officers who accept tuition assistance to remain on Active Duty for a period of at least two years after the completion of the education for which tuition assistance was used. In fiscal year 2018, the Department of Defense provided tuition assistance to approximately 15,000 Active Duty commissioned officers at a cost of almost \$31 million. According to the Government Accountability Office, around 10 percent of Army and Navy officers who last used tuition in 2017 are now separated from the military. The median number of years served after these officer's last use of tuition assistance was 1.6 years for Army officers and only 1.2 years for Navy officers. These statistics suggest that tuition assistance may not be serving one of its intended purposes, which is to provide a valuable benefit in exchange for continued military service.

Therefore, the conferees direct the Secretary of Defense in consultation with the secretaries of the military departments to conduct an analysis of the officer voluntary tuition assistance program. The analysis should include: (1) An evaluation of whether the tuition assistance program is serving

as a retention tool; (2) A discussion of the merits of lengthening or requiring active duty service obligations incurred as a result of accepting tuition assistance be served consecutively with other service commitments; and (3) An assessment of whether those officers who receive a fully funded bachelor's degree through their commissioning source should be eligible to receive voluntary tuition assistance funding prior to the completion of their initial Active Duty service obligation.

The results of this analysis shall be submitted to the Committees on Armed Services of the Senate and House of Representatives by April 1, 2020.

Expansion and renaming of the Troops-to-Teachers Program

The House amendment contained a provision (sec. 568) that would amend section 1154 of title 10, United States Code, to expand and rename the Troops-to-Teachers Program.

The Senate bill contained no similar provision.

The House recedes.

Transition outreach pilot program

The House amendment contained a provision (sec. 569) that would require the Secretary of Defense, in coordination with the Secretaries of Veterans Affairs, Labor, Education, and Homeland Security, and the Administrator of the Small Business Administration, to establish a pilot program through the Transition to Veterans Program office, within 90 days of the date of the enactment of this Act, to foster contact between veterans and the Department of Defense. The pilot program would terminate by September 30, 2020, and the Secretary would then submit a report to Congress regarding such program within 90 days of the termination of the program.

The Senate bill contained no similar provision.

The House recedes.

Assessment and study of Transition Assistance Program

The House amendment contained a provision (sec. 570A) that would require the Secretary of Veterans Affairs to enter into an agreement with an appropriate entity with experience in adult education to conduct a 1-year independent assessment of the Transition Assistance Program (TAP). Additionally, the provision would require the Secretary, in consultation with the Secretaries of Defense and Labor and the Administrator of the Small Business Administration, to conduct a 5-year longitudinal

study regarding TAP on three separate cohorts of discharged servicemembers.

The Senate bill contained no similar provision.

The House recesses.

Information regarding county veterans service officers

The House amendment contained a provision (sec. 570B) that would require the Secretary of Defense to ensure that a separating or retiring member of the Armed Forces may elect to have Department of Defense form DD-214 sent to the appropriate county veterans service officer based on the mailing address provided by the member. The provision would require the Secretaries of Defense and Veterans Affairs to maintain a database of all county veterans services officers.

The Senate bill contained no similar provision.

The House recesses.

The conferees note that section 570F of this bill would require the Secretaries of Defense and Veterans Affairs to enter jointly into a memorandum of understanding or other agreements with State veterans agencies to transmit information from Department of Defense form DD-2648 on individuals undergoing retirement, discharge, or release from the Armed Forces, if elected by such individuals, to provide or connect veterans to benefits or services.

Notice to separating servicemembers of rights under the Servicemembers Civil Relief Act

The House amendment contained a provision (sec. 570E) that would amend section 105 of the Servicemembers Civil Relief Act (Public Law 109-189) to require service secretaries to provide notice to individuals who are no longer eligible for protections provided by the Servicemembers Civil Relief Act not sooner than 150 days and not later than 180 days after the date of termination of a period of military service of that individual.

The Senate bill contained no similar provision.

The House recesses.

The conferees encourage the Department of Defense to ensure that those servicemembers leaving the military are provided notice of lost benefits and protections under the Servicemembers Civil Relief Act.

Modification of responsibility of the Office of Special Needs for individualized service plans for members of military families with special needs

The Senate bill contained a provision (sec. 578) that would amend subparagraph (F) of section 1781(c)(d)(4) of title 10, United States Code, to require the Department of Defense (DOD) to develop an individualized service plan for military family members with special needs when requested in connection to the completion of a family needs assessment.

The House amendment contained no similar provision.

The Senate recesses.

The conferees remain concerned that military family members with special needs are not receiving individualized services plans when necessary or requested, and direct the Secretary of Defense to brief the Committees on Armed Services of the Senate and House of Representatives no later than March 1, 2020, on the implementation of the Family Needs Assessment and any other reviews involving individualized service plans, to include: (1) Data on the utilization of the Family Needs Assessment; (2) How the Department is ensuring military families are aware of the services and programs available to them as the Office of Special Needs updates policies and implements the Family Needs Assessment; and (3) How the Department intends to ensure individualized services plans are being completed and followed correctly.

Direct employment pilot program for members of the National Guard and Reserve, veterans, their spouses and dependents, and members of gold star families

The House amendment contained a provision (sec. 579) that would enable the Secretary of Defense to create a pilot program that would allow States to establish or expand job placement programs, and related employment services, for unemployed guardsmen, reservists, military spouses, and veterans.

The Senate bill contained no similar provision.

The House recesses.

Pilot program to fund non-profit organizations that support military families

The House amendment contained a provision (sec. 580A) that would require the Secretary of Defense to establish a pilot program to provide grants to eligible nonprofit organizations that support military families.

The Senate bill contained no similar provision.

The House recesses.

Increase in assistance to certain local educational agencies

The House amendment contained a provision (sec. 580F) that would authorize an additional appropriation of \$10.0 million for support to local educational activities that serve military communities and families. The additional funding would be offset by a reduction in funding of \$10.0 million for Navy shipbuilding and conversion.

The Senate bill contained no similar provision.

The House recesses.

Assistance for deployment-related support of members of the Armed Forces undergoing deployment and their families beyond the Yellow Ribbon Reintegration Program

The House amendment contained a provision (Sec. 580G) that would require the Secretary of Defense to provide funds to states, territories, and government entities to carry out programs that provide deployment information to servicemembers and their families throughout the deployment cycle.

The Senate bill contained no similar provision.

The House recesses.

Briefing on use of Family Advocacy Programs to address domestic violence

The Senate bill contained a provision (sec. 581) that would require a briefing on the use of Family Advocacy Programs to address domestic violence.

The House amendment contained no similar provision.

The Senate recesses.

The conferees direct the Secretary of Defense to provide the Committees on Armed Services of the Senate and the House of Representatives with a briefing on the various ways in which the Family Advocacy Programs of the military departments could be used and enhanced to end domestic violence among members of the Armed Forces, and to support survivors of such violence and their dependents. The briefing should be provided not later than 180 days after the date of enactment of this Act.

Establishment of the Atomic Veterans Service Medal

The House amendment contained a provision (sec. 582) that would authorize the creation of the Atomic Veterans Service Medal, to be awarded to radiation-exposed veterans.

The Senate bill contained no similar provision.

The House recesses.

Authorization for award of the Medal of Honor to Alwyn Cashe for acts of valor during Operation Iraqi Freedom

The House amendment contained a provision (sec. 584) that would waive the time limitations specified in section 7271 of title 10, United States Code, to authorize the President to award the Medal of Honor to Alwyn C. Cashe for the acts of valor during Operation Iraqi Freedom.

The Senate bill contained no similar provision.

The House recesses.

Eligibility of veterans of Operation End Sweep for Vietnam Service Medal

The House amendment contained a provision (sec. 585) that would authorize the Secretary of the military department concerned to award the Vietnam Service Medal to a veteran who participated in Operation End Sweep, upon the application of that individual.

The Senate bill contained no similar provision.

The House recesses.

The conferees recognize the outstanding service of veterans who participated in Operation End Sweep, from February 6, 1973, to July 18, 1973, undertaking the harrowing work of clearing sea mines laid in Vietnamese waters. The conferees value the meritorious performance of Operation End Sweep veterans following the cessation of military combat operations in Vietnam.

Authority to award or present a decoration not previously recommended in a timely fashion following a review requested by Congress

The Senate bill contained a provision (sec. 587) that would amend section 1130 of title 10, United States Code, authorizing the Secretary of Defense to present an award or decoration following the favorable review of a proposal upon request of a Member of Congress.

The House amendment contained no similar provision.

The Senate recesses.

The Senate bill contained an additional provision (sec. 5587) that would amend section 587 such that section 587 would have no force or effect.

The House amendment contained no similar provision.

The Senate recesses.

Authority to make posthumous and honorary promotions and appointments following a review requested by Congress

The Senate bill contained a provision (sec. 588) that would amend section 1563 of title 10, United States Code, to authorize the Secretary of Defense to prescribe regulations to make a posthumous or honorary promotion following the submission to the requesting Member of Congress and to the Committees on Armed Services of the Senate and the House of Representatives of a determination as to the merits of approving the posthumous or honorary promotion or appointment. The promotion or appointment would not affect retired pay or other benefits based upon the individual's military service.

The House amendment contained no similar provision.
The Senate recedes.

Repeal of quarterly report on end strengths

The House amendment contained a provision (sec. 591) that would repeal paragraph (3) of section 115(e) of title 10, United States Code, to remove the requirement for the Secretary of Defense to notify the Committee on Armed Services of the Senate and the Committee on Armed Services of the House of Representatives whenever the Secretary establishes an end-of-quarter strength level pursuant to section 115(e)(2)(A) or modifies a strength level pursuant to section 115(e)(2)(B).

The Senate bill contained no similar provision.
The House recedes.

Expressing support for the designation of a "Gold Star Families Remembrance Day"

The House amendment contained a provision (sec. 596) that would express the sense of Congress to support the designation of a "Gold Star Families Remembrance Day."

The Senate bill contained no similar provision.
The House recedes.

The conferees support the designation of a "Gold Star Families Remembrance Day" to honor and recognize the sacrifices made by the families of servicemembers who gave their lives to defend freedom, and encourage the observation of "Gold Star Families Remembrance Day" by performing acts of service and good will in each community and by celebrating the lives of those who have made the ultimate sacrifice so that others could continue to enjoy life, liberty, and the pursuit of happiness.

Sense of Congress regarding the High-Altitude Army National Guard Aviation Training Site

The House amendment contained a provision (sec. 599C) that would express the sense of Congress that military aviation training in Colorado is critical to the national security of the United States and the readiness of the Armed Forces.

The Senate bill contained no similar provision.

The House recesses.

The conferees express their strong support for military aviation training in Colorado and, in particular, the High-Altitude Army National Guard Aviation Training Site (HAATS). The conferees further note that HAATS is the only Department of Defense school where rotary-wing aviators in the Armed Forces, and the militaries of foreign allies, learn how to safely fly rotary-wing aircraft in mountainous, high-altitude environments.

TITLE VI—COMPENSATION AND OTHER PERSONNEL BENEFITS

SUBTITLE A—PAY AND ALLOWANCES

Clarification of continuation of pays during hospitalization and rehabilitation resulting from wounds, injury, or illness incurred while on duty in a hostile fire area or exposed to an event of hostile fire or other hostile action (sec. 601)

The House amendment contained a provision (sec. 601) that would amend section 372 of title 37, United States Code, to authorize, in the case of a member under the jurisdiction of a Secretary of a military department, the continuation of special pays until the date on which the member is determined fit for duty.

The Senate bill contained no similar provision.

The Senate recesses.

Continued entitlements while a member of the Armed Forces participates in a career intermission program (sec. 602)

The House amendment contained a provision (sec. 610) that would amend section 710(h) of title 10, United States Code, to authorize servicemembers participating in a career intermission program to be eligible for death benefits while part of the program.

The Senate bill contained no similar provision.

The Senate recesses.

Exemption from repayment of voluntary separation pay (sec. 603)

The House amendment contained a provision (sec. 610B) that would amend section 1175a of title 10, United States Code, to exempt servicemembers who are involuntarily recalled to active duty or full-time National Guard duty and who also incur a total service-connected disability from the requirement to repay voluntary separation pay.

The Senate bill contained no similar provision.

The Senate recesses.

Consideration of service on active duty to reduce age of eligibility for retired pay for non-regular service (sec. 604)

The House amendment contained a provision (sec. 627) that would amend section 12731(f)(2)(B)(i) of title 10, United States Code, to authorize retirement credit for a servicemember who as a member of the Ready Reserve serves on Active Duty or performs Active service under section 12304(b) of title 10, United States Code. The eligibility age will be reduced below 60 years of age by 3 months for each aggregate of 90 days on which such person serves on such Active Duty or performs such Active service in any fiscal year after January 28, 2008, or in any two consecutive fiscal years after September 30, 2014.

The Senate bill contained no similar provision.

The Senate recesses.

Temporary adjustment of rates of basic allowance for housing following determination that local civilian housing costs significantly differ from such rates (sec. 605)

The House amendment contained a provision (sec. 603) that would amend section 403(b) of title 37, United States Code, to authorize the Secretary of Defense to prescribe a temporary adjustment of the basic allowance for housing rates for a housing area where the actual costs of adequate housing differ from the calculated rates of housing for that area as determined by the Secretary.

The Senate bill contained no similar provision.

The Senate recesses with an amendment that would authorize the Secretary of Defense to prescribe a temporary upward or downward adjustment to Basic Allowance for Housing (BAH) if the Secretary concerned determines that the actual cost of civilian housing differs from current BAH rates by more than 20 percent.

*Reinvestment of travel refunds by the Department of Defense
(sec. 606)*

The Senate bill contained a provision (sec. 622) that would provide the Secretary of Defense with the authority to receive and effectively reinvest miscellaneous receipts obtained through a travel rebate or refund program, a repayment of inaccurate charges, or a collection of an unused travel segment.

The House amendment contained no similar provision.

The House recesses.

*Addition of partial dislocation allowance to allowable travel
and transportation expenses for servicemembers (sec. 607)*

The House amendment contained a provision (sec. 606) that would amend sections 452 and 477 of title 37, United States Code, to allow servicemembers to receive a partial dislocation allowance if they are ordered to vacate dormitories.

The Senate bill contained no similar provision.

The Senate recesses with an amendment that would amend section 477 of title 37, United States Code, to authorize Partial Dislocation Allowance to servicemembers ordered to vacate housing provided by the United States. The amendment would also amend section 452 of title 37, United States Code, to authorize a Partial Dislocation Allowance to be paid to servicemembers ordered to vacate housing provided by the United States after January 1st, 2022.

*Reductions on account of earnings from work performed while
entitled to an annuity supplement (sec. 608)*

The House amendment contained a provision (sec. 633) that would amend section 8421a of title 5, United States Code, to authorize supervisors of air traffic control instructors who are collecting a Federal retirement annuity to be exempt from reductions to their annuity supplement if re-employed under a contract with the Federal Aviation Administration.

The Senate bill contained no similar provision.

The Senate recesses.

Increase in basic pay (sec. 609)

The House amendment contained a provision (sec. 606) that would authorize a 3.1 percent increase in basic pay rates for members of the uniformed services.

The Senate bill contained no similar provision.

The Senate recesses.

SUBTITLE B—BONUSES AND SPECIAL INCENTIVE PAYS

One-year extension of certain expiring bonus and special pay authorities (sec. 611)

The Senate bill contained a provision (sec. 611) that would extend, through December 31, 2020, various expiring bonus and special pay authorities for military personnel. The provision would extend special pay and bonus authority for reserve personnel, military healthcare professionals, and nuclear officers and consolidated pay authorities for officer and enlisted personnel. The provision would also extend the authority to provide temporary increases in the rate of Basic Allowance for Housing in certain circumstances.

The House amendment contained an identical provision (sec. 611).

The conference agreement includes this provision.

SUBTITLE C—FAMILY AND SURVIVOR BENEFITS

Expansion of eligibility for exceptional transitional compensation for dependents to dependents of current members (sec. 621)

The Senate bill contained a provision (sec. 601) that would amend section 1059(m) of title 10, United States Code, to authorize the Secretaries of the military departments to provide transitional compensation, in exceptional circumstances, to certain dependents before an eligible servicemember is discharged from Active Duty.

The House amendment contained an identical provision (sec. 621).

The conference agreement includes this provision.

Phase-out of reduction of Survivor Benefit Plan survivor annuities by amount of dependency and indemnity compensation (sec. 622)

The House amendment contained a provision (sec. 630A) that would amend subchapter II of chapter 73 of title 10, United States Code, to repeal the requirement that Survivor Benefit Plan payments be offset by any payments received through dependency and indemnity compensation.

The Senate bill contained no similar provision.

The Senate recedes with an amendment that would require a 3 year phase out of the requirement that Survivor Benefit Plan payments be offset by any payments received through dependency and indemnity compensation.

Death gratuity for ROTC graduates (sec. 623)

The House amendment contained a provision (sec. 622) that would amend section 1475 of title 10, United States Code, to authorize a death gratuity to the family of a graduate of the Reserve Officers' Training Corps who dies before receiving a first duty assignment.

The Senate bill contained no similar provision.

The Senate recedes with an amendment that would require a graduate of Reserve Officers' Training Corps to also receive a commission before being eligible for a death gratuity.

Expansion of authority to provide financial assistance to civilian providers of child care services or youth program services who provide such services to survivors of members of the Armed Forces who die in combat in the line of duty (sec. 624)

The House amendment contained a provision (sec. 625) that would amend section 1798(a) of title 10, United States Code, to authorize the Department of Defense to provide financial assistance to civilian providers of childcare services or youth program services to survivors of members of the Armed Forces who die in the line of duty while on active duty, active duty for training, or inactive duty for training.

The Senate bill contained no similar provision.

The Senate recedes with an amendment that would amend section 1798(a) of title 10, United States Code, to authorize the Department of Defense to provide financial assistance to civilian providers of childcare services or youth program services to survivors of members of the Armed Forces who die in combat-related incidents in the line of duty.

Casualty assistance for survivors of deceased ROTC graduates (sec. 625)

The House amendment contained a provision (sec. 630) that would provide a casualty assistance officer to the family of Reserve Officers' Training Corps cadets who have taken the oath but have not yet reported to their first duty station, in the event of their death.

The Senate bill contained no similar provision.

The Senate recedes with an amendment that would require Reserve Officers' Training Corps graduates to have received a commission for the graduate's family to be eligible for a casualty assistance officer.

SUBTITLE D—DEFENSE RESALE MATTERS

Defense resale system matters (sec. 631)

The Senate bill contained a provision (sec. 641) that would require the Under Secretary of Defense for Personnel and Readiness, in coordination with the Chief Management Officer of the Department of Defense, to maintain oversight of the business transformation efforts of the defense commissary system and the exchange stores system to ensure: (1) Development of an inter-component business strategy that maximizes efficiencies and results in a viable defense resale system in the future; (2) Preservation of patron savings and satisfaction from and in the defense commissary system and exchange stores system; and (3) Sustainment of financial support of the defense commissary and exchange systems for morale, welfare, and recreation services of the Armed Forces. The provision would require the Executive Resale Board of the Department to advise the Under Secretary on the implementation of sustainable, complementary operations of the defense commissary system and the exchange stores system. Additionally, the provision would require the Defense Commissary Agency and the Military Exchange Service to identify and implement best commercial business practices and shared-services systems while integrating certain services provided by the exchange stores system within commissary system facilities. The provision would also require the modernization of information technology and implementation of cutting-edge marketing in the defense resale system. Finally, the provision would amend section 2483(b) of title 10, United States Code, to authorize inclusion of advertising expenses in the operating expenses of commissary stores.

The House amendment contained no similar provision.

The House recedes with an amendment that would strike paragraph (c) of the Senate provision.

Procurement by commissary stores of certain locally sourced products (sec. 632)

The Senate bill contained a provision (sec. 631) that would require the Secretary of Defense to ensure that dairy products, fruits, and vegetables procured for defense commissary stores are, to the extent practicable, locally sourced.

The House amendment contained no similar provision.

The House recedes with an amendment that would require the Secretary to maintain mandated patron savings when procuring locally sourced products for commissaries.

GAO review of defense resale optimization study (sec. 633)

The House amendment contained a provision (sec. 631) that would require the Comptroller General of the United States to conduct a review of the business case analysis performed as part of the defense resale optimization study conducted by the Reform Management Group, titled "Study to Determine the Feasibility of Consolidation of the Defense Resale Entities" and dated December 4, 2018. The Comptroller General would submit a report by April 1, 2020, to the Committees on Armed Services of the Senate and the House of Representatives. The provision would prohibit the Secretary of Defense from taking any action to consolidate military exchanges and commissaries until such committees notify the Secretary in writing of receipt and acceptance of the findings of the Comptroller General in the reports required under this provision.

The Senate bill contained no similar provision.

The Senate recedes with an amendment that would modify the report requirement.

The conferees note that the Senate Report accompanying S. 1790 (S. Rept. 116-48) of the National Defense Authorization Act for Fiscal Year 2020 requires the Comptroller General to provide a similar assessment to the same committees not later than December 1, 2019.

SUBTITLE E—MORALE, WELFARE, AND RECREATION PRIVILEGES

Extension of certain morale, welfare, and recreation privileges to Foreign Service officers on mandatory home leave (sec. 641)

The House amendment contained a provision (sec. 634) that would amend section 1065 of title 10, United States Code, as added by section 621 of the John S. McCain National Defense Authorization Act for Fiscal Year 2019 (Public Law 115-232) to extend certain morale, welfare, and recreation privileges to foreign service officers on mandatory home leave.

The Senate bill contained no similar provision.

The Senate recedes.

Extension of pilot program on a Government lodging program (sec. 642)

The Senate bill contained a provision (sec. 621) that would extend by 1 year the Secretary of Defense's authority to execute a Department of Defense lodging program.

The House amendment contained no similar provision.
The House recesses.

SUBTITLE F—REPORTS AND OTHER MATTERS

Annual reports on approval of employment or compensation of retired general or flag officers by foreign governments for emoluments clause purposes (sec. 651)

The Senate bill contained a provision (sec. 1057) that would modify section 908 of title 37, United States Code, to require the Secretaries of the military departments to submit annually to appropriate committees and Members of Congress, a joint report enumerating each approval issued during the preceding year for a retired general or flag officer to accept civil employment or compensation for which the consent of Congress is required by the last paragraph of Section 9 of Article I of the Constitution, related to acceptance of emoluments, offices, or titles from a foreign government. The provision would require the first report to cover the 5-year period preceding the year in which the report is submitted.

The House contained a similar provision (sec. 609), with an added requirement that the report be posted on a publicly available Internet website of the Department of Defense no later than 30 days after it has been submitted to Congress.

The Senate recesses with an amendment that would require that each report be generated in consultation with the Secretary of State, who takes final action on requests for waiver of the prohibition on the acceptance of emoluments, offices or titles from foreign governments, and removes the requirement for public posting of reports.

Report regarding transition from overseas housing allowance to basic allowance for housing for servicemembers in the territories (sec. 652)

The House amendment contained a provision (sec. 610A) that would require the Secretary of Defense to submit a report to the congressional defense committees evaluating whether members of the uniformed services located in the territories of the United

States should receive the Basic Allowance for Housing instead of the Overseas Housing Allowance.

The Senate bill contained no similar provision.

The Senate recesses.

Report on extension to members of the reserve components of the Armed Forces of special and incentive pays for members of the Armed Forces not currently payable to members of the reserve components (sec. 653)

The Senate bill contained a provision (sec. 5602) that would require the Secretary of Defense to submit a report to the congressional defense committees on the feasibility and advisability of paying eligible members of the reserve components any special or incentive pay for members of the Armed Forces that is not currently payable to members of the reserve components.

The House amendment contained no similar provision.

The House recesses.

Study regarding recoupment of separation pay, special separation benefits, and voluntary separation incentive payments from members of the Armed Forces and veterans who receive disability compensation under laws administered by the Secretary of Veterans Affairs (sec. 654)

The House amendment contained a provision (sec. 608) that would require the Secretaries of Defense and Veterans Affairs to conduct a joint study on recoupment of various separation pay.

The Senate bill contained no similar provision.

The Senate recesses with a technical amendment.

Report on implementation of contributions to the Department of Defense Military Retirement Fund based on pay costs per Armed Force rather than on Armed Forces-wide basis (sec. 655)

The Senate bill contained a provision (sec. 631) that would amend section 1465 of title 10, United States Code, to require the Secretary of Defense to make contributions to the Military Retirement Fund based on an actuarial calculation of each service's planned pension obligations, beginning with fiscal year 2021.

The House amendment contained no similar provision.

The House recesses with an amendment that would require the Secretary of Defense to deliver a report to the congressional defense committees detailing an implementation plan for the

Senate-passed provision that would require service-specific contributions to the Military Retirement Fund.

The conferees note that requiring service-specific contributions to the Military Retirement Fund will provide valuable insight into the true costs of each military department's manpower. The current system of Military Retirement Fund contributions produces a disparity between the services. Those services with fewer personnel who reach full retirement eligibility, like the Marine Corps, contribute more to the Military Retirement Fund than needed to pay for retired marines' pensions. Meanwhile, those services that have larger numbers of personnel who reach full retirement eligibility, like the Air Force, effectively receive a discount on their Military Retirement Fund contributions.

As each service updates its overall force profile to support the National Defense Strategy and implements other reforms, like those to the Blended Retirement System, the conferees believe it is critical that senior leaders in the DOD accurately account for the fully-burdened life-cycle cost of each service's manpower plans.

Report on food insecurity among members of the Armed Forces and their dependents (sec. 656)

The House amendment contained a provision (sec. 602) that would amend section 402 of title 37, United States Code, to authorize the Secretary of Defense to pay a basic needs allowance to a qualified servicemember.

The Senate bill contained no similar provision.

The Senate recesses with an amendment that would require the Secretary of Defense to submit a report to the Committees on Armed Services of the Senate and the House of Representative on food insecurity among members of the Armed Forces and their dependents.

LEGISLATIVE PROVISIONS NOT ADOPTED

Basic allowance for housing for a member without dependents when relocation would financially disadvantage the member

The House amendment contained a provision (sec. 604) that would allow the Secretaries of the military departments discretionary authority to authorize a housing allowance based on the old homeport or permanent duty station for single members disadvantaged as a result of a unit's change of homeport or permanent duty station, as long as the member had orders returning to the previous homeport or duty station.

The Senate bill contained no similar provision.

The House recesses.

The conferees note, in general, the Navy plans ship homeport changes well in advance of the actual relocation occurring. In the same way, the Navy should also plan personnel movements related to homeport changes well in advance in order to minimize disruption to sailors. The conferees note that current law does not require Basic Allowance for Housing be based on a ship's homeport, and would encourage the Navy to work with the Department of Defense to develop a policy solution that provides the necessary authority.

Annual adjustment of basic pay

The House amendment contained a provision (sec. 607) that would require the adjustment in rates of monthly basic pay required by subsection (a) of section 1009 of title 37, United States Code, to take effect, notwithstanding any determination made by the President.

The Senate bill contained no similar provision.

The House recesses.

Space-available travel on military aircraft for children and surviving spouses of members who die of hostile action or training duty

The House amendment contained a provision (sec. 626) that would amend section 2641 of title 10, United States Code, to allow children meeting certain requirements and surviving spouses of members of the Armed Forces who die as a result of hostile action or training duty to use space-available travel.

The Senate bill contained no similar provision.

The House recesses.

The conferees note that section 2641b of title 10, United States Code, authorizes the space-available travel program and provides the Secretary of Defense with the ability to extend eligibility for the program to any category of individual the Secretary considers appropriate. The conferees believe that space-available travel privileges should be extended to spouses and children of servicemembers who die in combat, if there is no impact on readiness or on the priority appropriately afforded to members of the armed forces on active duty and their families, in recognition of the demands of active military service and the need for respite from such demands. Accordingly, the conferees direct the Secretary to report to the Committees on Armed Services of the Senate and the House of Representatives by no later than March 1, 2020, on the scope of the population

described in section 626 of the House bill, the obstacles in providing this population with space-available privileges, and whether an extension of this benefit to such population would interfere with the use of space-available travel by active duty members and their families, particularly on the most traveled routes.

Report regarding management of military commissaries and exchanges

The House amendment contained a provision (sec. 632) that would require the Secretary of Defense to submit a report to the congressional defense committees, not later than 180 days after the date of the enactment of this Act, regarding management practices of military commissaries and exchanges.

The Senate bill contained no similar provision.

The House recesses.

Treatment of fees on services provided as supplemental funds for commissary operations

The Senate bill contained a provision (sec. 642) that would amend section 2483(c) of title 10, United States Code, to authorize retention of fees collected on services provided to secondary patron groups, such as Department of Defense contractors living overseas, by the Defense Commissary Agency to offset commissary operating costs.

The Senate bill contained a provision (sec. 5642) that would cause section 642, and the amendment made by that section, to have no cause or effect.

The House amendment contained no similar provisions.

The Senate recesses.

TITLE VII—HEALTH CARE PROVISIONS

SUBTITLE A—TRICARE AND OTHER HEALTH CARE BENEFITS

Modification of eligibility for TRICARE Reserve Select for certain members of the Selected Reserve (sec. 701)

The House amendment contained a provision (sec. 703) that would amend section 1076d(a)(2) of title 10, United States Code, to modify eligibility for TRICARE Reserve Select for certain members of the Selected Reserve after December 31, 2029.

The Senate bill contained no similar provision.
The Senate recesses.

TRICARE payment options for retirees and their dependents (sec. 702)

The Senate bill contained a provision (sec. 702) that would amend section 1099 of title 10, United States Code, to require that a premium owed by a member, former member, or dependent, eligible for medical and dental care under section 1074(b) or 1076 of such title, be withheld, to the maximum extent practicable, from the individual's retired, retainer, or equivalent pay. The provision would authorize the Secretary of Defense to determine the method and frequency of payment when circumstances prevent payment through an allotment from retired, retainer, or equivalent pay. The amendments in this provision would apply to health care coverage beginning on or after January 1, 2021.

The House amendment contained no similar provision.
The House recesses.

Lead level screening and testing for children (sec. 703)

The Senate bill contained a provision (sec. 703) that would require the Secretary of Defense to establish and disseminate clinical practice guidelines for health care providers in the military health system on screening, testing, and reporting of blood lead levels in children. The provision would require the Secretary to provide blood lead level test results to a child's parent or guardian, the State health department where the child resides, or the Centers for Disease Control and Prevention and the appropriate country if the child resides outside the United States. Finally, the provision would require the Secretary to submit a report to the congressional defense committees, not later than January 1, 2021, describing the number of children screened, tested, and treated for elevated blood lead levels during the period beginning on the date of the enactment of this Act and ending on the date of the report.

The House amendment contained a provision (sec. 704) that would amend section 1077 of title 10, United States Code, to prescribe certain times when a child should be screened and tested for elevated blood lead levels during well-baby care visits in military medical treatment facilities. The provision would require the Secretary to share test results similarly as prescribed in the Senate provision. In addition, the provision would require the Secretary to submit a similar report to the

same committees by the same date and to require the Comptroller General of the United States to submit a report to those committees, not later than January 1, 2022, on the effectiveness of screening, testing, and treating children for lead exposure and lead poisoning. Finally, the provision would require the Secretary to maintain records regarding military housing and lead-based paint.

The House recesses with a clarifying amendment.

Exposure to open burn pits and toxic airborne chemicals or other airborne contaminants as part of periodic health assessments and other physical examinations (sec. 704)

The House amendment contained a provision (sec. 705) that would amend sections 1145(a)(5) and 1074f(b)(2) of title 10, United States Code, to require the Secretary of Defense to ensure that periodic, separation, or deployment health assessments provided to servicemembers include an evaluation whether the member has been: (1) Based or stationed at a location where an open burn pit was used; and (2) Exposed to toxic airborne chemicals or contaminants, including any information recorded in the Airborne Hazards and Open Burn Pit Registry. The provision would require the Secretaries of Defense and Veterans Affairs to enter into a joint memorandum of understanding to share results of such assessments regarding a servicemember's exposure to toxic airborne chemicals or contaminants and to enroll such servicemember in the named registry unless the member elects not to enroll.

The Senate bill contained a similar provision (sec. 5702).

The Senate recesses.

Enhancement of recordkeeping with respect to exposure by members of the Armed Forces to certain occupational and environmental hazards while deployed overseas (sec. 705)

The Senate bill contained a provision (sec. 717) that would amend section 1074f of title 10, United States Code, to require the Department of Defense to include occupational or environmental health exposures during deployment in its medical tracking system. The provision would also require the Department to provide healthcare providers with questions to ask servicemembers about occupational or environmental health exposures during post-deployment health assessments and to ensure that the medical records of servicemembers include information on the external cause relating to a medical diagnosis of the member. Finally, the provision would require the Secretary of Defense to ensure that the Department's medical

personnel have access to information in the burn pit registry maintained by the Department of Veterans Affairs.

The House amendment contained a similar provision (sec. 706).

The House recesses.

Modifications to post-deployment mental health assessments for members of the Armed Forces deployed in support of a contingency operation (sec. 706)

The House amendment contained a provision (sec. 707) that would amend section 1074m(a)(1) of title 10, United States Code, to modify the requirement for post-deployment mental health assessments for servicemembers deployed in support of a contingency operation. The provision would provide certain exceptions to the timeline for the administration of mental health assessments. In addition, the provision would amend section 1074m(a)(1)(B) to eliminate the sunset for such assessments during deployment.

The Senate bill contained no similar provision.

The Senate recesses with a clarifying amendment.

Provision of blood testing for firefighters of Department of Defense to determine exposure to perfluoroalkyl and polyfluoroalkyl substances (sec. 707)

The Senate bill contained a provision (sec. 704) that would require the Secretary of Defense, beginning on October 1, 2020, to provide blood testing to determine and document potential exposure to perfluoroalkyl and polyfluoroalkyl substances for firefighters of the Department of Defense during their annual physical exams.

The House bill contained a similar provision (sec. 708).

The House recesses.

SUBTITLE B—HEALTH CARE ADMINISTRATION

Modification of organization of military health system (sec. 711)

The Senate bill contained a provision (sec. 711) that would amend section 1073c of title 10, United States Code, to make clarifying and technical amendments on the administration of the Defense Health Agency and military medical treatment facilities.

The House amendment contained no similar provision.

The House recedes with a clarifying amendment.

Over the past four years, Congress has enacted several provisions designed to guide the Department of Defense in implementing a major reform of the military health system to make it more effective, efficient, and less costly. These enactments require replacement of the semi-autonomous Service-run components of the system with a single accountable organization, the Defense Health Agency, responsible for managing an integrated health care system that includes all military medical treatment facilities in the direct care system, with a sharper focus on military medical readiness, and the purchased care system, with an emphasis on maximum value and the attainment of better health outcomes for beneficiaries and the Department. Under this construct, the responsibility of the military departments is to recruit, retain, organize, and develop the military medical force and to make it available to combatant commands when needed to support military operations or otherwise to the Defense Health Agency. The conferees are aware of a lack of consensus in the Department on implementing the reforms required by law but see no reason to change direction. The conferees expect the Secretary of Defense to fully implement the law and to accomplish these critically important reforms expeditiously.

Support by military health system of medical requirements of combatant commands (sec. 712)

The Senate bill contained a provision (sec. 712) that would amend section 712 of the John S. McCain National Defense Authorization Act for Fiscal Year 2019 (Public Law 115-332) to modify and clarify the military health system's support to the medical requirements of the combatant commands.

The House amendment contained no similar provision.

The House recedes with a clarifying amendment.

Requirements for certain prescription drug labels (sec. 713)

The House amendment contained a provision (sec. 711) that would amend section 1074g of title 10, United States Code, to require the Secretary of Defense to ensure that drugs made available through facilities of the Armed Forces under the Secretary's jurisdiction shall include printed labels, on or within the drug package, which provide directions for the drug's use. The provision would require implementation within 90 days after the date of the enactment of this Act.

The Senate bill contained no similar provision.

The Senate recesses with an amendment that would require the Secretary of Defense to ensure that such drugs include labels and other labeling in compliance with the requirements of the Federal Food, Drug, and Cosmetic Act (21 U.S.C. 301 et seq.)

Officers authorized to command Army dental units (sec. 714)

The Senate bill contained a provision (sec. 723) that would amend section 7081(d) of title 10, United States Code, to authorize Army Medical Department officers to command Army dental units.

The House amendment contained a similar provision (sec. 712).

The Senate recesses.

Improvements to interagency program office of the Department of Defense and the Department of Veterans Affairs (sec. 715)

The House amendment contained a provision (sec. 713) that would amend section 1635(c) of the Wounded Warrior Act (title 16 of Public Law 110-181) to require improvements to the Interagency Program Office (IPO) of the Department of Defense and the Department of Veterans Affairs.

The Senate bill contained no similar provision.

The Senate recesses with an amendment that would amend the same statute to require certain improvements to the IPO. The provision would: (1) Describe the qualifications and authorities for the IPO's director and deputy director and outline the purposes of the IPO; (2) Require the Departments to enter into an agreement with an independent entity to evaluate certain implementation milestones of the Departments' electronic health record systems (EHRs); (3) Require the IPO to maintain a common configuration baseline for the Departments' EHRs; (4) Require the IPO to develop a comprehensive interoperability strategy; and (5) Require the IPO to consult annually with clinical staff and to conduct clinical and patient satisfaction surveys on the EHRs. Finally, the provision would require the IPO director to submit to the Secretaries an annual publicly available report from September 30, 2020, through 2024, on the activities of the office in the preceding year.

Expansion of strategy to improve acquisition of managed care support contracts under TRICARE program (sec. 716)

The Senate bill contained a provision (sec. 714) that would amend section 705(c)(1) of the National Defense

Authorization Act for Fiscal Year 2017 (Public Law 114-328) to include overseas medical support contracts in the strategy to improve the acquisition of managed care support contracts under the TRICARE program.

The House amendment contained no similar provision.

The House recesses.

Inclusion of blast exposure history in medical records of members of the Armed Forces (sec. 717)

The House amendment contained a provision (sec. 716) that would require the Secretary of Defense, in coordination with the service secretaries, to document blast exposure history in the medical records of servicemembers. The provision would prescribe the elements of a blast exposure history and would specify how the Secretary should collect blast exposure information.

Finally, the provision would require the Secretary to submit a report on the types of information in a blast exposure history to the Committees on Armed Services of the Senate and the House of Representatives not later than 1 year after the date of the enactment of this Act.

The Senate bill contained no similar provision.

The Senate recesses with an amendment that would strike paragraph (c) of section 716 and define the type of blast exposure incident that should be documented in a servicemember's medical record.

Comprehensive policy for provision of mental health care to members of the Armed Forces (sec. 718)

The House amendment contained a provision (sec. 717) that would require the Secretary of Defense, acting through the Under Secretary of Defense for Personnel and Readiness, to develop and implement a comprehensive policy, within 180 days after the date of the enactment of this Act, for the provision of mental health care for servicemembers.

The Senate bill contained no similar provision.

The Senate recesses.

Limitation on the realignment or reduction of military medical Manning end strength (sec. 719)

The House amendment contained a provision (sec. 718) that would prohibit the Secretary of Defense and the service secretaries from realignment or reduction of military medical end strength authorizations until each secretary concerned conducts a review and analysis of the medical manpower

requirements of each military department under all national defense strategy scenarios. The provision would require the Secretary of Defense to submit a report to the Committees on Armed Services of the Senate and the House of Representatives, within 180 days of the date of the enactment of this Act, on such realignments or reductions. The provision would not apply to billets, which have remained unfilled since October 1, 2018, if such billets would not affect the provision of health care services to servicemembers or covered beneficiaries.

The Senate bill had no similar provision.

The Senate recedes with an amendment that would modify the exceptions on the limitation of the realignment or reduction of military medical end strength authorizations.

Strategy to recruit and retain mental health providers (sec. 720)

The House amendment contained a provision (sec. 719) that would require the Secretary of Defense to submit a report, within 180 days of the date of the enactment of this Act, to the congressional defense committees on the Department's strategy to recruit and retain mental health providers.

The Senate bill contained no similar provision.

The Senate recedes with a clarifying amendment.

Development of partnerships to improve combat casualty care for personnel of the Armed Forces (sec. 721)

The House amendment contained a provision (sec. 720B) that would require the Secretary of Defense, through the Joint Trauma Education and Training Directorate, to develop partnerships by October 1, 2020, with civilian academic centers and large metropolitan teaching hospitals to improve combat casualty care for servicemembers. The provision would require the Department of Defense to establish such partnerships with level 1 civilian trauma centers to train military physicians, including trauma surgeons, to treat critically injured burn patients.

The Senate bill contained no similar provision.

The Senate recedes with an amendment that would authorize the Secretary to develop such partnerships.

Modification to referrals for mental health services (sec. 722)

The House amendment contained a provision (sec. 720C) that would authorize the Secretary of Defense to refer a servicemember for mental health services to a provider under the TRICARE program if the Secretary cannot provide mental health

services in a military medical treatment facility to the member within 15 days on which the member first requests the services.

The Senate bill contained no similar provision.

The Senate recesses.

SUBTITLE C—REPORTS AND OTHER MATTERS

Authorization of claims by members of the uniformed services against the United States for personal injury or death caused by medical malpractice (sec. 731)

The House amendment contained a provision (sec. 729) that would amend chapter 171 of title 28, United States Code, to authorize a claim against the United States for damages relating to personal injury or death of a servicemember arising out of a negligent or wrongful act or omission in the performance of medical, dental, or related health care functions provided at a military medical treatment facility by a person acting within the scope of the office or employment of that person by or at the direction of the United States government.

The Senate bill contained no similar provision.

The Senate recesses with an amendment that would amend chapter 163 of title 10, United States Code, to authorize the Secretary of Defense to allow, settle, and pay a claim against the United States for personal injury or death incident to the service of a member of the uniformed services that was the result of medical malpractice caused by a Department of Defense health care provider.

Extension and clarification of authority for Joint Department of Defense-Department of Veterans Affairs Medical Facility Demonstration Fund (sec. 732)

The Senate bill contained a provision (sec. 721) that would amend title XVII of the National Defense Authorization for Fiscal Year 2010 (Public Law 111-84) to make certain technical corrections to such title. Additionally, the provision would permit the James A. Lovell Federal Health Care Center to enter into personal services contracts to carry out healthcare responsibilities at the Center to the same extent and subject to the same conditions and limitations as in medical treatment facilities of the Department of Defense. Finally, the provision would extend the authority for the joint Department of Defense-Department of Veterans Affairs Demonstration Fund from September 30, 2020, to September 30, 2021.

The House amendment contained no similar provision.

The House recesses.

Appointment of non-ex officio members of the Henry M. Jackson Foundation for the Advancement of Military Medicine (sec. 733)

The Senate bill contained a provision (sec. 722) that would amend subparagraph (C) of paragraph (1) of section 178(c) of title 10, United States Code, to authorize the appointment of a member of the council of the Henry M. Jackson Foundation for the Advancement of Military Medicine by currently serving members upon the expiration of the term of a member. The provision would also amend paragraph (2) of such section to repeal an obsolete authority establishing staggered terms of members of the council. The provision would not terminate or otherwise alter the appointment or term of service of council members serving on the date of the enactment of this Act.

The House amendment contained no similar provision.

The House recesses.

Establishment of Academic Health System in National Capital Region (sec. 734)

The Senate bill contained a provision (sec. 724) that would amend chapter 104 of title 10, United States Code, by inserting a new section to authorize the Secretary of Defense to establish an Academic Health System in the National Capital Region to integrate the healthcare, health professions education, and health research activities of the military health system in that region. The provision would authorize the Secretary to appoint employees of the Department of Defense to leadership positions in such system in addition to similar leadership positions for members of the Armed Forces. Moreover, the provision would authorize the Secretary to use the authorities under chapter 104 for the administration of the system.

The House amendment contained no similar provision.

The House recesses with a clarifying amendment.

Provision of veterinary services by veterinary professionals of the Department of Defense in emergencies (sec. 735)

The Senate bill contained a provision (sec. 725) that would amend chapter 53 of title 10, United States Code, to authorize a licensed veterinary professional of the Department of Defense (DOD) to provide veterinary services in any state, the District of Columbia, and any territory or possession of the United States, if the services provided fall within the scope of authorized duties of the veterinary professional for the DOD.

The House amendment contained no similar provision.

The House recesses.

Three-year extension of authority to continue the DOD-VA Health Care Sharing Incentive Fund (sec. 736)

The Senate bill contained a provision (sec. 726) that would amend section 8111(d)(3) of title 38, United States Code, to extend the authorization of the Department of Defense-Department of Veterans Affairs Health Care Sharing Incentive Fund to September 30, 2025.

The House amendment contained no similar provision.

The House recesses with an amendment that would authorize extension of the Fund to September 30, 2023.

Preservation of resources of the Army Medical Research and Materiel Command and continuation as Center of Excellence (sec. 737)

The Senate bill contained a provision (sec. 5703) that would preserve the resources of the Army Medical Research and Materiel Command (MRMC) as it realigns under the Defense Health Agency. The provision would require transfer to the Defense Health Program of all funding amounts available for such command upon the realignment. Additionally, the provision would require continuation of the Center of Excellence for Joint Biomedical Research, Development, and Acquisition Management for efforts undertaken under the Defense Health Program.

The House amendment contained no similar provision.

The House recesses with an amendment that would require the Secretary of Defense to maintain the resources of MRMC, including manpower and funding, at not less than the level of resources as of the date of the enactment of this Act until September 30, 2022. Additionally, the provision would require transfer of funds available to MRMC for research, development, test, and evaluation for the Army to the Defense Health Program on October 1, 2022. Finally, the provision would require continuation of the center of excellence after September 30, 2022.

Encouragement of participation in Women's Health Transition Training pilot program (sec. 738)

The House amendment contained a provision (sec. 723) that would require the service secretaries to encourage female servicemembers, separating or retiring from the Armed Forces during fiscal year 2020, to participate in the Women's Health Transition Training Pilot Program administered by the Secretary

of Veterans Affairs. The provision would require the Secretary of Defense, in consultation with the service secretaries, to submit a report to the Committees on Armed Services and the Committees on Veterans Affairs of the Senate and the House of Representatives on the pilot program not later than September 30, 2020.

The Senate bill contained no similar provision.
The Senate recesses.

National Guard suicide prevention pilot program (sec. 739)

The House amendment contained a provision (sec. 724) that would authorize the Chief of the National Guard Bureau to conduct a pilot program to expand suicide prevention and intervention efforts at the community level through a mobile application, which would enable a National Guard member to receive prompt access to a behavioral health professional on a smartphone, tablet computer, or other handheld mobile device.

The Senate bill contained no similar provision.
The Senate recesses with a clarifying amendment.

Pilot program on civilian and military partnerships to enhance interoperability and medical surge capability and capacity of National Disaster Medical System (sec. 740)

The Senate bill contained a provision (sec. 727) that would authorize the Secretary of Defense to conduct a pilot program for no more than 5 years to establish partnerships with public, private, and non-profit health care organizations, institutions, and entities in collaboration with the Secretaries of Veterans Affairs, Health and Human Services, Homeland Security, and Transportation to enhance interoperability and medical surge capability and capacity of the National Disaster Medical System. Under this pilot, the Secretary of Defense would establish these partnerships at no fewer than five major aeromedical transport hub regions of the Department of Defense in the United States. The provision would require the Secretary of Defense to submit an initial report to the Committees on Armed Services of the Senate and the House of Representatives, not later than 180 days after commencement of the pilot program, and a final report to the same committees within 180 days of the completion of the program.

The House amendment contained no similar provision.
The House recesses with a clarifying amendment.

Reports on suicide among members of the Armed Forces and suicide prevention programs and activities of the Department of Defense (sec. 741)

The House amendment contained a provision (sec. 725) that would require the Secretary of Defense to submit a report to the Committees on Armed Services of the Senate and the House of Representatives, within 90 days of the date of the enactment of this Act and annually thereafter through January 31, 2021, on suicide among servicemembers during the preceding year of the report. The provision would prescribe the matters included in such reports.

The Senate bill contained a provision (sec. 5508) that would require the Comptroller General of the United States to submit a report to the same committees, within 240 days of the date of the enactment of this Act, on the programs and activities of the Department of Defense and Armed Forces for the prevention of suicide among servicemembers and their families.

The Senate recedes with a clarifying amendment that would include both provisions.

Modification of requirements for longitudinal medical study on blast pressure exposure of members of the Armed Forces and collection of exposure information (sec. 742)

The Senate bill contained a provision (sec. 728) that would amend section 734 of the National Defense Authorization Act for Fiscal Year 2018 (Public Law 115-91) to modify the requirements of the Longitudinal Medical Study on Blast Pressure Exposure on Members of the Armed Forces. The provision would require the Secretary of Defense to submit annual status reports on the study to the Committees on Armed Services of the Senate and the House of Representatives not later than January 1 of each year until completion of the study.

The House amendment contained no similar provision.

The House recedes with an amendment that would ensure data gathered from the study is interoperable and can be uploaded into the Department's electronic health record, MHS Genesis, or a successor system. Additionally, the amendment would prescribe how the Secretary of Defense should collect blast exposure information on servicemembers.

Study and plan on the use of military-civilian integrated health delivery systems (sec. 743)

The House amendment contained a provision (sec. 726) that would require the Secretary of Defense to conduct a study on the

use of local military-civilian integrated health systems pursuant to section 706 of the National Defense Authorization Act for Fiscal Year 2017 (Public Law 114-328) and to submit a report on the results of the study to the Committees on Armed Services of the Senate and the House of Representatives within 180 days of the date of the enactment of this Act.

The Senate bill contained no similar provision.

The Senate recedes with an amendment that would require the Secretary to submit a plan for further development of the use of local military-civilian integrated health systems by the Department.

Study on case management in the military health system (sec. 744)

The House amendment contained a provision (sec. 727) that would require the Secretary of Defense to conduct a study on the effectiveness of case management practices at military medical treatment facilities and to submit a report on the results of the study to the Committees on Armed Services of the Senate and the House of Representatives within 180 days of the date of the enactment of this Act.

The Senate bill contained no similar provision.

The Senate recedes with an amendment that would require the Secretary to include in the study an evaluation of the case management and outreach provided by managed care support contractors supporting the Defense Health Agency.

Report on Global Health Security Strategy and the National Biodefense Security (sec. 745)

The House amendment contained a provision (sec. 731) that would require the Secretary of Defense to submit a report on the implementation of the Global Health Security Strategy and the National Biodefense Strategy.

The Senate bill contained no similar provision.

The Senate recedes with an amendment to clarify the appropriate congressional committees.

Study on establishment of wounded warrior service dog program (sec. 746)

The House amendment contained a provision (sec. 742) that would require the Secretary of Defense to award grants to nonprofit organizations to assist such organizations in implementing programs to provide assistance dogs to covered members of the military and veterans.

The Senate bill contained no similar provision.

The Senate recedes with an amendment that would require a study on the feasibility of establishing a wounded warrior service dog program.

GAO report on Department of Defense quality assurance program and impacts of medical malpractice actions (sec. 747)

The House amendment contained a provision (sec. 744) that would require the Secretary of Defense to submit a report to the congressional defense committees identifying the number of medical providers employed by the Department of Defense who, before being employed by the Department, lost medical malpractice insurance coverage by reason of the insurer dropping the coverage.

The Senate bill contained no similar provision.

The Senate recedes with an amendment that would require the Comptroller General of the United States to submit a report to the Committees on Armed Services of the Senate and the House of Representatives, not later than January 1, 2021, which would provide: (1) An assessment of the effectiveness of the quality assurance program of the Department in querying and monitoring the National Practitioner Data Bank; (2) A comparison of outcomes for military health system patients who may bring an action against the Federal government for negligence or medical malpractice and the outcomes for such patients who may not bring such an action; and (3) A comparison of the elements and average amounts of death and disability compensation that apply regardless of the underlying cause of death or disability with those elements and average amounts of settlements that result from medical malpractice litigation against the Federal government.

Reports on Millennium Cohort Study relating to women members of the Armed Forces (sec. 748)

The House amendment contained a provision (sec. 750) that would require the Secretary of Defense to submit annual reports to the appropriate congressional committees on the findings of the Millennium Cohort Study relating to the gynecological and perinatal health of female servicemembers participating in the study.

The Senate bill contained no similar provision.

The Senate recedes with an amendment that would modify the matters included in the reports and require the Secretary to submit such reports to the Committees on Armed Services of the Senate and the House of Representatives within 180 days of the

date of the enactment of this Act and annually through January 1, 2022.

Study on effects of sleep deprivation on readiness of members of the Armed Forces (sec. 749)

The conference agreement includes a provision that would require the Secretary of Defense to conduct a study on the effects of sleep deprivation on the readiness of servicemembers and to submit a report to the Committees on Armed Services of the Senate and the House of Representatives within 270 days of the date of the enactment of this Act.

Study and report on traumatic brain injury mitigation efforts (sec. 750)

The conference agreement includes a provision that would require the Secretary of Defense to conduct a meta-analysis of evidence-based traumatic brain injury (TBI) mitigation efforts by the Department of Defense, related Federal agency partners, and efforts discussed in academic literature, which demonstrate best clinical effectiveness in the treatment of TBI. The Secretary would submit a report on the results of the study to the Committees on Armed Services of the Senate and the House of Representatives within 270 days of the date of the enactment of this Act.

LEGISLATIVE PROVISIONS NOT ADOPTED

Contraception coverage parity under the TRICARE program

The Senate bill contained a provision (sec. 701) that would amend sections 1074d(b)(3), 1075(c), 1075a(b), and 1074g(a)(6) of title 10, United States Code, to require coverage of contraception services for covered beneficiaries under the TRICARE program. The provision would prohibit cost-sharing for any method of contraception provided by a network provider under TRICARE Select or a provider under TRICARE Prime. Additionally, a beneficiary would pay no cost-share for any prescription contraceptive on the uniform formulary that is provided by a network retail pharmacy provider or the mail-order pharmacy program. The effective date of this provision would be January 1, 2020.

The Senate bill contained a provision (sec. 5701) that would cause the amendments made by section 701 to take effect on January 1, 2030.

The House amendment contained a provision (sec. 701) similar to Senate section 701.

The House and Senate recede.

Medical services at military medical treatment facilities for sexual assault survivors

The House amendment contained a provision (sec. 702) that would amend Chapter 55 of title 10, United States Code, to require the Secretary of Defense to furnish certain information and assistance on pregnancy prevention to sexual assault survivors at each military medical treatment facility.

The Senate bill contained no similar provision.

The House recesses.

Inclusion of infertility treatments for members of the uniformed services

The House amendment contained a provision (sec. 709) that would authorize infertility treatments for uniformed services members and their spouses under section 1074(a) of title 10, United States Code.

The Senate bill contained no similar provision.

The House recesses.

Authorization of appropriations for TRICARE lead screening and testing for children

The House amendment contained a provision (sec. 710) that would authorize appropriations for TRICARE lead screening and testing for children.

The Senate bill contained no similar provision.

The House recesses.

Tours of duty of commanders or directors of military treatment facilities

The Senate bill contained a provision (sec. 713) that would require the Secretary of Defense, not later than January 1, 2021, to establish a minimum length of 4 years for tours of duty, with limited exceptions, for commanders or directors of military treatment facilities to ensure greater stability in health system executive management at each facility and throughout the military health system.

The House amendment contained no similar provision.

The Senate recesses.

Comprehensive enterprise interoperability strategy for the Armed Forces and the Department of Veterans Affairs

The House amendment contained a provision (sec. 714) that would require the Secretaries of Defense and Veterans Affairs jointly to develop and implement a comprehensive enterprise interoperability strategy and to submit such strategy to the appropriate congressional committees within 180 days after the date of the enactment of this Act. Subsequently, the Secretaries would provide an update to the strategy to the same committees not later than December 31, 2024.

The Senate bill contained no similar provision.

The House recesses.

The conferees included the intent of this provision in a separate provision that focuses on improvements to the Interagency Program Office of the Departments of Defense and Veterans Affairs.

Demonstration of interoperability milestones

The House amendment contained a provision (sec. 715) that would require the Interagency Program Office (IPO) of the Departments of Defense and Veterans Affairs to enter into an agreement with an independent entity to conduct an evaluation of interoperability, functionality, and seamless health care within the Departments' electronic health record systems by determining if the Departments have met certain prescribed milestone timelines. The IPO would then submit a report to the appropriate congressional committees detailing the evaluation, methodology for testing, and findings for each such milestone. The provision would also require the IPO to: (1) Maintain and continually evaluate a common system configuration baseline; (2) Obtain regular consultations from clinicians using the electronic health record systems; and (3) Conduct clinician and patient satisfaction surveys. Finally, the provision would require the IPO to submit annual reports on such matters to the same committees.

The Senate bill contained no similar provision.

The House recesses.

The conferees included the intent of this provision in a separate provision that focuses on improvements to the IPO of the Departments of Defense and Veterans Affairs.

Establishment of regional medical hubs to support combatant commands

The Senate bill contained a provision (sec. 715) that would require the Secretary of Defense, not later than October 1, 2022, to establish up to four regional medical hubs, consistent with section 712 of the John S. McCain National Defense Authorization Act for Fiscal Year 2019 (Public Law 115-232), to support the operational medical requirements of the combatant commands. Under this provision, each regional hub would include a major military medical center to provide complex, specialized medical services in that region. The regional medical center would be geographically located to maximize medical support to combatant commands. The provision would authorize the Secretary to establish or maintain additional medical centers in locations with large beneficiary populations or locations that serve as the primary readiness platforms of the Armed Forces.

The House amendment contained no similar provision.

The Senate recesses.

Monitoring of adverse event data on dietary supplement use by members of the Armed Forces

The Senate bill contained a provision (sec. 716) that would require the Secretary of Defense to modify the Department's electronic health record (EHR) system to include data regarding use of dietary supplements by members of the Armed Forces and any adverse events associated with such use. The provision would also require the Secretary to educate healthcare providers in the military health system on the importance of including adverse event data in the EHR and reporting those data to the Food and Drug Administration.

The House amendment contained no similar provision.

The Senate recesses.

Monitoring medication prescribing practices for the treatment of post-traumatic stress disorder

The House amendment contained a provision (sec. 720) that would require the Secretary of Defense to submit a report, within 180 days of the date of the enactment of this Act, to the Committees on Armed Services of the Senate and the House of Representatives on the practices for prescribing medication for post-traumatic stress disorder (PTSD), which were inconsistent with Department of Defense (DOD)-Department of Veterans Affairs (VA) guidelines from the period January 1, 2012, through December 31, 2017.

The Senate bill contained no similar provision.

The House recesses.

The conferees recognize the importance of clinical practice guidelines for prescribing medications for PTSD and strongly encourage medical providers of the DOD and VA to adhere to such guidelines.

Maintenance of certain medical services at military medical treatment facilities at service academies

The House amendment contained a provision (sec. 720A) that would amend section 1073d of title 10, United States Code, to require the Secretary of Defense to ensure that each military medical treatment facility located at a military service academy provides certain covered medical services unless the Secretary determines that a civilian medical facility located within 5 miles from such academy provides that covered medical service.

The Senate bill contained no similar provision.

The House recesses.

Establishment of military dental research program

The House amendment contained a provision (sec. 721) that would amend chapter 104 of title 10, United States Code, to authorize the Secretary of Defense to establish a military dental research program at the Uniformed Services University of the Health Sciences.

The Senate bill contained no similar provision.

The House recesses.

Pilot program on cryopreservation and storage

The House amendment contained a provision (sec. 722) that would require the Secretary of Defense to establish a pilot program to provide not more than 1,000 Active-Duty servicemembers with the opportunity to cryopreserve and store their gametes prior to deployment to a combat zone.

The Senate bill contained no similar provision.

The House recesses.

Study on infertility among members of the Armed Forces

The House amendment contained a provision (sec. 728) that would require the Secretary of Defense to submit a study on the incidence of infertility among active and reserve component servicemembers to the Committees on Armed Services of the Senate and the House of Representatives not later than 180 days after the date of the enactment of this Act.

The Senate bill contained no similar provision.

The House recesses.

The conferees note a requirement in the Senate Report accompanying S. 1790 (S. Rept. 116-48) of the National Defense Authorization Act for Fiscal Year 2020, that the Secretary of Defense provide a similar report to the Committees on Armed Services of the Senate and the House of Representatives by June 1, 2020.

Study on extending parent's level of TRICARE health coverage to newborn child

The House amendment contained a provision (sec. 730) that would require the Secretary of Defense to conduct a study on extending a parent's level of TRICARE coverage to the newborn child of the parent and to submit a report on the study to the congressional defense committees within 120 days of the date of the enactment of this Act.

The Senate bill contained no similar provision.

The House recesses.

Report on mental health assessments

The House amendment contained a provision (sec. 732) that would require the Comptroller General of the United States to submit to the Committees on Armed Services and Veterans Affairs of the Senate and the House of Representatives, within 1 year after the date of the enactment of this Act, a publicly available report on the Department of Defense's implementation of section 1074n of title 10, United States Code.

The Senate bill contained no similar provision.

The House recesses.

The conferees note the January 11, 2019, receipt of the Department of Defense's annual report on mental health assessments required by section 701 of the Carl Levin and Howard P. "Buck" McKeon National Defense Authorization Act for Fiscal Year 2015 (Public Law 113-291). In that report, the Department described the tools and processes used to provide annual mental health assessments and also provided certain recommendations to improve monitoring and reporting the number of servicemembers: (1) Who receive mental health assessments; (2) Who get referrals for mental health care; and (3) Who receive care from those referrals. The conferees anticipate receipt and review of the annual report in 2020 to understand how the Department has implemented its recommendations provided in the 2019 report.

Study and report on mental health assessments for members of the Armed Forces deployed in support of a contingency operation

The House amendment contained a provision (sec. 733) that would require the service secretaries to conduct a study on mental health assessments provided to servicemembers deployed in connection with a contingency operation and to submit a report containing the results of the study to the congressional defense committees within 180 days of the date of the enactment of this Act.

The Senate bill contained no similar provision.

The House recesses.

The conferees stress the importance of providing mental health assessments to servicemembers in accordance with section 1074m of title 10, United States Code, and direct the service secretaries to ensure accomplishment of those assessments for those servicemembers. Additionally, the conferees expect that all servicemembers demonstrating mental health signs or symptoms will receive rapid referral for evaluation and treatment by the appropriate mental health providers.

Education on family planning for members of the Armed Forces

The House amendment contained a provision (sec. 734) that would require the Secretary of Defense, in conjunction with the Secretary of the Department in which the Coast Guard is operating, to establish a uniform standard curriculum for servicemembers' family planning education programs within 1 year of the date of the enactment of this Act.

The Senate bill contained no similar provision.

The House recesses.

Funding for CDC ATSDR PFAS health study increment

The House amendment contained a provision (sec. 735) that would increase funding for the CDC ATSDR PFAS health study increment.

The Senate bill contained no similar provision.

The House recesses.

Sense of the House of Representatives on increasing research and development in bioprinting and fabrication in austere military environments

The House amendment contained a provision (sec. 736) that would express the sense of the House of Representatives that the Defense Health Agency should take appropriate actions to focus on research and development in bioprinting and fabrication in austere environments.

The Senate bill contained no similar provision.

The House recesses.

Increased collaboration with NIH to combat triple negative breast cancer

The House bill contained a provision (sec. 737) that would require the Department of Defense to work in collaboration with the National Institutes of Health to identify specific biomarkers and to provide information useful in drug discovery and clinical trials design to combat triple negative breast cancer.

The Senate bill contained no similar provision.

The House recesses.

Funding for post-traumatic stress disorder

The House amendment contained a provision (sec. 738) that would increase Defense Health Program funding for post-traumatic stress disorder.

The Senate bill contained no similar provision.

The House recesses.

Study on readiness contracts and the prevention of drug shortages

The House amendment contained a provision (sec. 739) that would require the Secretary of Defense to conduct a study on the effectiveness of readiness contracts managed by the Customer Pharmacy Operations Center of the Defense Logistics Agency in meeting the Department's drug requirements. The study would include an analysis to determine how the contractual approach to manage military health care drug shortages could serve as a model for responding to drug shortages in the civilian health care market.

The Senate bill contained no similar provision.

The House recesses.

Update of Department of Defense regulations, instructions, and other guidance to include gambling disorder

The House amendment contained a provision (sec. 740) that would require the Secretary of Defense, within 180 days of the date of the enactment of this Act, to consult with the service secretaries and update all regulations, instructions, and other guidance of the Department with respect to behavioral health to explicitly include gambling disorder.

The Senate bill contained no similar provision.

The House recesses.

The conferees note the requirement in section 733 of the John S. McCain National Defense Authorization Act for Fiscal Year 2019 (Public Law 115-232) for the Secretary of Defense to incorporate medical screening questions related to gambling disorder in periodic health assessments and surveys of military personnel. With this requirement, the Secretary must submit a report to the Committees on Armed Services of the Senate and the House of Representatives on the findings of the assessments or surveys in connection with the prevalence of gambling disorder among servicemembers. Until the committees receive this report, the conferees believe it is premature to require updates to the Department's regulations, instructions, or other guidance on gambling disorder.

Findings on musculoskeletal injuries

The House amendment contained a provision (sec. 741) that would express certain findings on musculoskeletal injuries of Active-Duty servicemembers.

The Senate bill contained no similar provision.

The House recesses.

National Capital Consortium Psychiatry Residency Program

The House amendment contained a provision (sec. 743) that would express a sense of Congress on the National Capital Consortium Psychiatry Residency Program.

The Senate bill contained no similar provision.

The House recesses.

Pilot program on partnerships with civilian organizations for specialized surgical training

The House amendment contained a provision (sec. 746) that would require the Secretary of Defense to conduct a pilot program to establish one or more partnerships with public, private, and non-profit organizations and institutions to provide short-term specialized surgical training to advance the medical skills and capabilities of military medical providers.

The Senate bill contained no similar provision.

The House recesses.

The conferees note that the Senate Report accompanying S. 1790 (S. Rept. 116-48) of the National Defense Authorization Act for Fiscal Year 2020 encourages the Secretary of Defense to conduct a pilot program to assess the feasibility and

advisability of partnerships to advance the skills and capabilities of such providers.

Report on research and studies regarding health effects of burn pits

The House amendment contained a provision (sec. 747) that would require the Secretary of Defense to submit a report to the congressional defense committees and the Committees on Veterans Affairs of the Senate and the House of Representatives on the status, methodology, and culmination timeline of all the research and studies being conducted to assess the health effects of burn pits.

The Senate bill contained no similar provision.

The House recesses.

The conferees note the numerous research studies on the health effects of burn pits and encourage the Departments of Defense and Veterans Affairs to continue their efforts to study the long-term health effects of exposure to harmful toxins in burn pits.

Training on health effects of burn pits and other airborne hazards

The House amendment contained a provision (sec. 748) that would require the Secretary of Defense to provide mandatory training to all medical providers in the Department on the potential health effects of burn pits and other airborne hazards and the early detection of those effects.

The Senate bill contained no similar provision.

The House recesses.

The conferees remain concerned regarding the negative health effects to servicemembers from exposure to burn pits and other airborne hazards. The conferees encourage the Departments of Defense and Veterans Affairs to develop jointly a clinical practice guideline on exposure to airborne environmental hazards, which would optimize patient care to servicemembers and veterans exposed to such hazards.

Report on operational medical and dental personnel requirements

The House amendment contained a provision (sec. 749) that would require the Secretary of Defense to submit a report to the congressional defense committees, not later than January 1, 2021, on the operational medical and dental personnel requirements of the Department.

The Senate bill contained no similar provision.

The House recesses.

Partnerships with academic health centers

The House amendment contained a provision (sec. 751) that would require the Assistant Secretary of Defense for Health Affairs to establish a University Affiliated Research Center and to partner with academic health centers to focus on research to address the unique challenges of wounded warriors.

The Senate bill contained no similar provision.

The House recesses.

Study on use of routine neuroimaging modalities in diagnosis, treatment, and prevention of brain injury due to blast pressure exposure during combat and training

The House amendment contained a provision (sec. 752) that would require the Secretary of Defense to conduct a study on the feasibility and effectiveness of the use of routine neuroimaging modalities in diagnosis, treatment, and prevention of brain injuries among servicemembers due to blast pressure exposures during combat and training.

The Senate bill contained no similar provision.

The House recesses.

**TITLE VIII—ACQUISITION POLICY, ACQUISITION
MANAGEMENT, AND RELATED MATTERS**

**SUBTITLE A—ACQUISITION POLICY AND
MANAGEMENT**

Authority for continuous integration and delivery of software applications and upgrades to embedded systems (sec. 800)

The Senate bill contained a provision (sec. 852) that would require the Secretary of Defense to establish initial guidance, not later than 180 days after the enactment of this Act, authorizing the use of special pathways for the rapid acquisition of software applications and upgrades that are intended to be fielded within 1 year. These new pathways would prioritize continuous integration and delivery of working software in a secure manner and prioritize continuous oversight from automated analytics.

The House amendment contained a similar provision (sec. 801).

The House recedes with amendments that would modify the timeline for developing the guidance; allow for the use of one or more pathways; clarify that first fielding of capability for operational use shall occur within one year of the date funds are first obligated for software development; and direct a report on use of the authority and recommendations for any changes to statute by October 15, 2020.

The conferees commend the Under Secretary of Defense for Acquisition and Sustainment's commitment to adopting the recommendations of the Defense Innovation Board. The conferees emphasize that the ability to deliver meaningful capability for operational use within one year is foundational to the establishment of this authority and associated procedures. The conferees remind the Department that delivery of increments of useful software capability no less frequently than every six months is not only a best practice for software-intensive systems but it has also been a standing government-wide requirement for years. Overcoming the Department's institutional and cultural resistance to delivering in a year or less requires ruthless prioritization of features, which hinges on more effective cooperation among stakeholders. The conferees also believe that cost estimation and assessment and program evaluation methods are critical to well-informed program oversight, and note that, for software initiatives, such approaches remain nascent. The conferees therefore direct the Director, Cost Assessment and Program Evaluation, in coordination with the Defense Digital Service and the directors of developmental test and operational test and evaluation, to incorporate lessons learned from the implementation of sections 873 and 874 of the National Defense Authorization Act for Fiscal Year 2018, and sections 215 and 869 of the National Defense Authorization Act for Fiscal Year 2019 in the development of guidance and oversight procedures for managing, estimating, and assessing software programs. First, the conferees remind the Department of flexibility already written into its directive and instruction that the milestone decision authority and program managers "shall tailor program strategies and oversight, including documentation of program information, acquisition phases, the timing and scope of decision reviews, and decision levels, to fit the particular conditions of that program, consistent with applicable laws and regulations and the time sensitivity of the capability need." Accordingly, the conferees also remind the Department that the use of source lines of code, or "SLOC", to estimate or to measure productivity, is inadequate, inappropriate, and can be detrimental in incentivizing bad code design. As such, the conferees encourage the Department to implement the recommendations on software

metrics in the Defense Innovation Board Software Acquisition and Practices Study. Finally, the conferees request a briefing no later than March 30, 2020 from the Joint Staff on how the JCIDS process can be updated to accommodate more flexibility given the iterative and ever-changing nature of present-day acquisition of software.

Pilot program on intellectual property evaluation for acquisition programs (sec. 801)

The Senate bill contained a provision (sec. 801) that would permit the Secretary of Defense and the Secretaries of the military departments to jointly carry out a pilot program to assess mechanisms to evaluate intellectual property in acquisition programs.

The House amendment contained a similar provision (sec. 861(b)).

The House recedes with an amendment which clarifies the selection of programs and activities to be carried out under the pilot.

Pilot program to use alpha contracting teams for complex requirements (sec. 802)

The Senate bill contained a provision (sec. 802) that would require the Secretary of Defense to establish a pilot program to use third-party industry, academia, or not-for-profit technical organizations as part of alpha contracting teams for complex technical requirements for services.

The House amendment contained no similar provision.

The House recedes.

The conferees note that this construct revives in a modern context the "alpha contracting" concept that is more than a decade old. Further, it brings together all government personnel involved in the functions that support acquisition actions, to include contracting staff as well as technical staff, operators, and cost personnel. This is intended to ensure that technical requirements are appropriately valued and that the most effective acquisition strategy to achieve these requirements is identified.

Failure to provide other than certified cost or pricing data upon request (sec. 803)

The House amendment contained a provision (sec. 803) that would modify section 2306a of title 10, United States Code, to revise the conditions under which the Department of Defense

requires offerors to provide certain data. Specifically, in a case where the head of contracting activity determines the Department is the only buyer of certain commercial items, it introduces a new requirement for those offerors to provide cost or pricing data. Further, in a case where the Department of Defense is determining whether a sole-source offeror's price is reasonable, the provision would direct the Secretary of Defense to require that offeror to provide other than certified cost or pricing data. The provision would further direct the Defense Contract Management Agency to propose which commercial products require should-cost analysis before award.

The House amendment contained a another provision (sec. 804) that would modify section 2306a(c) of title 10, United States Code, and section 3504 of title 41, United States Code, to give contracting officers, instead of the head of the procuring activity, the discretion to request certified cost or pricing data in cases where, although not required, the contracting officer deems it necessary to determine price reasonableness. The provision would further add commercial items to the list of products where contracting officers may request such data.

The Senate bill contained no similar provision.

The Senate recedes with an amendment that would combine the two provisions, to instead modify section 2306a(d) of title 10, United States Code, to specify that offerors who do not make a good faith effort to comply with a contracting officer's reasonable requests for data other than certified cost or pricing data are ineligible for award. The amendment would also direct contracting officers, when determining whether an offeror's price is fair and reasonable, to not base that assessment solely on the historical prices paid by the government. The amendment would further add a requirement for the Under Secretary of Defense for Acquisition and Sustainment to identify and report those offerors who denied multiple such requests and nonetheless received awards, as part of assessing whether to conduct should-cost analysis on such products in the future.

Comptroller General report on price reasonableness (sec. 804)

The House amendment contained a provision (sec. 805) that would require the Comptroller General of the United States to submit a report not later than March 31, 2021, to the congressional defense committees, the House Committee on Oversight and Reform, and the Senate Committee on Homeland Security and Governmental Affairs on the efforts of the

Department of Defense to obtain cost and pricing data for sole source contracts for spare parts.

The Senate bill contained no similar provision.

The Senate recedes with a technical amendment.

Limitation on transfer of funds related to cost overruns and cost underruns (sec. 805)

The House amendment contained a provision (sec. 814) that would repeal an annual requirement for the Secretary of each military department to pay penalties for cost overruns on major defense acquisition programs, which were then credited to the Rapid Prototyping Fund.

The Senate bill contained no similar provision.

The Senate recedes with an amendment that would make the repeal effective beginning in fiscal year 2020.

Standardizing data collection and reporting on use of source selection procedures by Federal agencies (sec. 806)

The House amendment contained a provision (sec. 829) that would amend section 813 of the National Defense Authorization Act for Fiscal Year 2017 (Public Law 114-328) and section 880 of the John S. McCain National Defense Authorization Act for Fiscal Year 2019 (Public Law 115-232) to repeal the requirements for the Comptroller General of the United States to provide annual reports on the government's use of lowest price technically acceptable (LPTA) source selection procedures. The provision would also require revising the Federal Procurement Data System (FPDS) to capture more data on the use of lowest price technically acceptable procedures.

The Senate bill contained no similar provision.

The Senate recedes.

Department of Defense use of fixed-price contracts (sec. 807)

The Senate bill contained a provision (sec. 806) that would require the Under Secretary of Defense for Acquisition and Sustainment to review how the Department of Defense uses fixed-price contracts, including fixed-price incentive contracts, to support acquisition objectives and brief the congressional defense committees not later than February 1, 2020. The provision would further require the Comptroller General of the United States to submit a report on the Department's use of fixed-price contracts over time no later than February 1, 2021. This provision would also delay the implementation of

regulations requiring the use of fixed-price contracts for foreign military sales until after 2020.

The House amendment contained no similar provision.
The House recesses.

Repeal of continuation of data rights during challenges (sec. 808)

The House amendment contained a provision (sec. 812) that would repeal section 866 of the John S. McCain National Defense Authorization Act for Fiscal Year 2019 (Public Law 115-232), pertaining to revisions of authority for the government to use non-commercial technical data during a period of challenge, in an agency Board of Contract Appeals, or the U.S. Court of Federal Claims under certain circumstances.

The Senate bill contained no similar provision.
The Senate recesses.

The conferees understand that the Under Secretary of Defense for Acquisition and Sustainment is working with industry to address possible policy modifications related to technical data rights and their disposition during challenges. The conferees encourage the Under Secretary of Defense for Acquisition and Sustainment to continue these engagements and keep the Congress informed of progress with respect to these matters.

Repeal of authority to waive acquisition laws to acquire vital national security capabilities (sec. 809)

The House amendment contained a provision (sec. 813) that would repeal section 806 of the National Defense Authorization Act for Fiscal Year 2016 (Public Law 114-92), which allowed the Secretary of Defense to waive any provision of acquisition law or regulation in certain circumstances.

The Senate bill contained no similar provision.
The Senate recesses.

The conferees note that the Department did not use the waiver.

Repeal of the Defense Cost Accounting Standards Board (sec. 810)

The House amendment contained a provision (sec. 834) that would repeal section 190 of title 10, United States Code.
The Senate bill contained no similar provision.
The Senate recesses.

SUBTITLE B—AMENDMENTS TO GENERAL CONTRACTING AUTHORITIES, PROCEDURES, AND LIMITATIONS

Modification of Director of Operational Test and Evaluation report (sec. 815)

The Senate bill contained a provision (sec. 805) that would amend section 139(h) of title 10, United States Code, to require the Director of Operational Test and Evaluation to solicit comments from the Secretaries of the military departments for inclusion in the Director's annual report to Congress, retaining the Director's discretion to issue the report without comments if they are not timely. This provision does not change or alter any Director of Operational Test and Evaluation authorities.

The House amendment contained a similar provision (sec. 252) that would amend section 139(h) of title 10, United States Code, to change the sunset date pertaining to the same annual report.

The House recedes with an amendment that would extend the sunset date through January 31, 2025.

Modification of written approval requirement for task and delivery order single contract awards (sec. 816)

The Senate bill contained a provision (sec. 803) that would amend section 2304a(d)(3) of title 10, United States Code, to eliminate the requirement that single award task or delivery order contracts over \$100.0 million receive additional approval when already authorized under one of the exceptions to full and open competition.

The House amendment contained no similar provision.

The House recedes.

Responsibility for data analysis and requirements validation for services contracts (sec. 817)

The House amendment contained a provision (sec. 825) that would amend section 2329 of title 10, United States Code, to specify that the Secretary of Defense act through the Under Secretary of Defense (Comptroller) and Director of Cost Assessment and Program Evaluation to annually collect data on the amount contracted for services procured by the Department of

Defense, which would be included in the Future Years Defense Program submitted to Congress.

The Senate bill contained no similar provision.

The Senate recesses with a technical amendment.

The conferees note that Senate Report 116-48 accompanying S. 1790 directs the Secretary of Defense, in consultation with the Chief Management Officer, the Under Secretary of Defense for Acquisition and Sustainment, and the Secretaries of the military departments, to identify updated approaches for overseeing service contracts and address how these will support the oversight, data analytics, and outcome measures specified in section 2329 of title 10, United States Code. The Senate Report further directs the Department to leverage the expertise of the Chief Data Officer, to ensure that the approaches identified align with and support the Department's analytic capabilities. The conferees direct the Under Secretary of Defense (Comptroller) and Director of Cost Assessment and Program Evaluation to coordinate with the parties identified as they carry out the efforts specified in Senate Report 116-48.

Documentation of market research related to commercial item determinations (sec. 818)

The Senate bill contained two provisions (sec. 809 and sec. 5802) that would amend section 2377(c) of title 10, United States Code, and section 3307(d) of title 41, United States Code, respectively, to require that market research for commercial products and services be documented in a manner appropriate to the size and complexity of the acquisition.

The House amendment contained no similar provision.

The House recesses.

Availability of data on the use of other transaction authority and report on the use of authority to carry out prototype projects (sec. 819)

The House amendment contained a provision (sec. 826) that would amend section 2371b of title 10, United States Code, to add a requirement for the Secretary of Defense to report annually to the congressional defense committees on the use of other transaction authority.

The Senate bill contained no similar provision.

The Senate recesses with an amendment that would revise section 873 of the John S. McCain National Defense Authorization Act for Fiscal Year 2019 (Public Law 115-323) to extend the requirement to 2023 and require data on the use of other

transactions are accessible to any official designated by the Secretary of Defense.

Notification of Navy procurement production disruptions (sec. 820)

The Senate bill contained a provision (sec. 861) that would require the Secretary of the Navy to require prime contractors of any Navy procurement program to report, within 15 calendar days of any contractor or subcontractor stop work order or within 15 days of a contractor or subcontractor manufacturing disruption that has lasted 15 calendar days, to the respective program manager and Navy technical authority.

The House amendment contained no similar provision.

The House recedes with an amendment that would limit such notifications to programs procured with funds from the Shipbuilding and Conversion, Navy and Other Procurement, Navy accounts.

The conferees direct the Secretary to submit a report to the congressional defense committees not later than 60 days after the date of enactment of this Act that details the plan to implement this provision as soon as possible.

Modification to acquisition authority of the Commander of the United States Cyber Command (sec. 821)

The Senate bill contained a provision (sec. 862) that would modify section 807 of the National Defense Authorization Act for Fiscal Year 2016 (Public Law 114-92), which established the acquisition authority of the Commander of U.S. Cyber Command, to change the applicability of the annual limit to new contract efforts.

The House amendment contained no similar provision.

The House recedes with a technical and clarifying amendment.

Extension of Never Contract With the Enemy (sec. 822)

The Senate bill contained a provision (sec. 834) that would extend the Never Contract With the Enemy program through 2023 and would provide for various expansions, including the contracts covered and the authorities of the combatant commands to mitigate threats posed by vendors supporting operations outside the United States.

The House amendment contained no similar provision.

The House recedes with an amendment that maintains only the program extension through 2023.

Modification of justification and approval requirement for certain Department of Defense contracts (sec. 823)

The Senate bill contained a provision (sec. 842) that would revise authorities relating to Department of Defense approval of certain sole source awards to 8(a) firms, which include tribes, Alaska Native, and Hawaiian firms. Specifically, the threshold for requiring justification and approval would be increased to \$100.0 million and the approving authority would be the head of procuring activity or a designee. The provision would also require the Department to collect data and the Comptroller General of the United States to report to the congressional defense committees on the impact of the provision.

The House amendment contained a similar provision (sec. 830).

The House recesses with an amendment that clarifies details of the Comptroller General review.

Extension of sunset relating to Federal Data Center Consolidation Initiative (sec. 824)

The House amendment contained a provision (sec. 895) that would extend the sunset date of the Federal Data Center Consolidation Initiative established in section 834 of the Carl Levin and Howard P. "Buck" McKeon National Defense Authorization Act for Fiscal Year 2015 (Public Law 113-291) from October 1, 2020, to October 1, 2022.

The Senate bill contained no similar provision.
The Senate recesses.

Pilot program to accelerate contracting and pricing processes (sec. 825)

The Senate bill contained a provision (sec. 807) that would amend a pilot established in section 890 of the John S. McCain National Defense Authorization Act for Fiscal Year 2019 (Public Law 115-232). That law authorized the Secretary of Defense to reform and accelerate the contracting and pricing processes for 10 programs on a pilot basis. The amendment would remove the 10-program limitation and would delay the program's sunset from January 2, 2021, to January 2, 2022.

The House amendment contained no similar provision.
The House recesses.

Uniformity in application of micro-purchase threshold to certain task or delivery orders (sec. 826)

The House amendment contained a provision (sec. 899I) that would amend section 4106(c) of title 41, United States Code, to replace \$2,500 with the micro-purchase threshold.

The Senate bill contained no similar provision.

The Senate recesses.

Requirement for cost estimates on models of commercial e-commerce portal program (sec. 827)

The House amendment contained a provision (sec. 891) that would direct the Administrator of General Services to establish a five-year program to test each of the three models of commercial e-commerce portals before awarding a final contract to a provider.

The Senate bill contained no similar provision.

The Senate recesses with amendments that replace the requirement for a five-year test program with a requirement for cost estimates, and directs that the estimates be submitted within a year after the first contracts are awarded under the program.

In implementing this section, the conferees do not intend to require the Administrator to provide independent government cost estimates, but rather a range of potential costs or a general order of magnitude for each model.

SUBTITLE C—PROVISIONS RELATING TO MAJOR DEFENSE ACQUISITION PROGRAMS

Modification of requirements for reporting to Congress on certain acquisition programs (sec. 830)

The House amendment contained a provision (sec. 893) that would exclude the selected acquisition reports required by section 2432 of title 10, United States Code, from the reports that will sunset under section 1080 of the National Defense Authorization Act for Fiscal Year 2016 (Public Law 114-92). The provision would also require the Secretary of Defense to propose an alternative for reporting the status of major defense acquisition programs and other acquisition activities that would include information on cybersecurity tests, software development metrics, and quality metrics for software.

The Senate bill contained no similar provision.

The Senate recesses with an amendment that would require selected acquisition reports for any defense program estimated to require a total expenditure of more than \$300.0 million for research, development, test and evaluation or a total

expenditure of more than \$1,800.0 million for procurement through fiscal year 2021 and that would clarify the requirement for the Secretary of Defense to report on alternatives models and thresholds for congressional reporting on acquisition programs.

Pilot program to streamline decision-making processes for weapon systems (sec. 831)

The Senate bill contained a provision (sec. 808) that would require the service acquisition executive for each military department to recommend at least one major defense acquisition program to participate in the pilot program to streamline decision-making processes not later than February 1, 2020.

The House amendment contained no similar provision.

The House recesses with a technical amendment.

The conferees direct the Under Secretary of Defense for Acquisition and Sustainment to brief the congressional defense committees not later than May 1, 2020, on the acquisition programs selected for the pilot program, the associated action plans and timelines for each program, and the manner in which each program conforms to the required elements of the pilot program.

Analysis of alternatives pursuant to materiel development decisions (sec. 832)

The Senate bill contained a provision (sec. 5803) that would require updated guidance for analyses of alternatives conducted pursuant to a materiel development decision for a major defense acquisition program, to include requiring that studies are completed within nine months; establishing procedures to waive this requirement on a case-by-case basis; and reporting late studies or the use of the waiver to congressional defense committees.

The House amendment contained no similar provision.

The House recesses with an amendment that would direct the Under Secretary of Defense for Acquisition and Sustainment to assess how the Department conducts analyses of alternatives.

Naval vessel certification required before Milestone B approval (sec. 833)

The Senate bill contained a provision (sec. 821) that would require a certification of compliance with section 8669b

of title 10, United States Code, for naval vessel programs prior to Milestone B approval.

The House amendment contained no similar provision.

The House recesses.

SUBTITLE D—PROVISIONS RELATING TO THE ACQUISITION SYSTEM

Extramural acquisition innovation and research activities (sec. 835)

The House amendment contained a provision (sec. 861(1)) that would amend chapter 97 of title 10, United States Code, to establish an academic center for acquisition innovation at the Naval Postgraduate School to provide decision-makers with academic analyses and policy alternatives for innovating the defense acquisition system.

The Senate bill contained no similar provision.

The Senate recesses with an amendment that would direct the Secretary of Defense to establish extramural acquisition innovation and research activities to include an acquisition research organization within a non-Federal civilian university or college, to provide and maintain essential research and development capabilities through a long-term, strategic relationship with the Department of Defense.

Report on realignment of the defense acquisition system to implement acquisition reforms (sec. 836)

The House amendment contained a provision (sec. 822) that would direct the Secretary of Defense to provide a briefing to the committee on lessons learned through the use of the authority provided under section 804 of the National Defense Authorization Act for Fiscal Year 2016 (10 U.S.C. 2302 note) commonly known as "Middle-Tier of Acquisition," to include certain risks and how the lessons are applicable to procedures for acquiring major defense acquisition programs.

The Senate bill contained no similar provision.

The Senate recesses with amendments that instead require the Secretary of Defense to report on ongoing efforts to realign the whole Defense Acquisition System in response to recent reforms - through changes to the 5000 series of directives, instructions, guidance and procedures and to address certain elements in the report.

The conferees appreciate the careful consideration the Department is giving to implementing the acquisition reforms

legislated through these Acts over the last five years. In doing so, the conferees note that the Department of Defense can no longer afford to use cost, schedule, and performance thresholds as simple proxies for risk when designating the path an acquisition program travels through the Defense Acquisition System, and in organizing how programs are managed and overseen. Exclusive attention to cost, schedule, and performance of major defense acquisition programs and other development programs obscures a myriad of other risks in programs large and small, any one of which could be single points of failure for successful acquisition. Such risks include: technical risks such as engineering, software, manufacturing and testing; integration and interoperability risks - complicated by the implications of systems working across multiple domains while using machine learning and artificial intelligence capabilities to continuously change and optimize system performance; operations and sustainment risks - mediated by access to technical data and intellectual property rights; workforce and training risks - to include consideration of the role of contractors as part of the total workforce; and supply chain risks - to include cybersecurity, foreign control and ownership of key elements of supply chains, and the consequences a fragile and weakening defense industrial base, combined with barriers to industrial cooperation with allies and partners pose for delivering systems and technologies in a trusted and assured manner. Finally, the Secretary's report under this section should look ahead to consider the implications of these changes for the acquisition of non-developmental items and the implications of the shift in acquisition of capabilities through development, to acquisition of capabilities "as-a-service".

Based on the Secretary's report under this section, and given the important role of the Comptroller General's annual weapons assessment in enabling the congressional defense committees' detailed oversight of the Defense Acquisition System, the conferees also direct the Comptroller General of the United States to brief the committees on how the Department's efforts are informing the refresh of that annual report as directed under section 803 of the National Defense Authorization Act for Fiscal Year 2019.

Report and limitation on the availability of funds relating to the 'middle tier' of acquisition programs (sec. 837)

The House amendment contained a provision (sec. 821) that would amend section 804 of the National Defense Authorization Act for Fiscal Year 2016 (Public Law 114-92) to direct the Secretary of Defense to ensure the Director of Operational Test

and Evaluation, the Director of Cost Assessment and Program Evaluation, and the Under Secretary of Defense for Research and Engineering have access to certain data on acquisitions carried out under the authority, and would limit use of the authority to programs below the major defense acquisition threshold unless the Secretary were to issue a waiver. The House amendment also contained a provision (sec. 861(f)) that would direct the Secretary to submit a report that would include the guidance required by section 804 of the National Defense Authorization Act for Fiscal Year 2016 (Public Law 114-92) and, would limit the Department's ability to obligate or expend funds on Middle Tier programs until that report is submitted.

The Senate bill contained no similar provision.

The Senate recedes with amendments that would strike the provision amending section 804, and, relating to the report and guidance, would expand the limitation of funds beyond acquisition programs, to the organizations which are parties to the disagreements that are preventing the guidance from being finalized.

The conferees believe the difficulty the Department has faced in reaching agreement illustrates the tension of balancing empowered execution by the Services with appropriate oversight by the Director of Cost Assessment and Program Evaluation, the Director of Operational Test and Evaluation, and the Under Secretaries of Defense for Research and Engineering and for Acquisition and Sustainment, as well as Congressional oversight. To address the latter, the conferees direct the Defense Acquisition Executive and the Service Acquisition Executives to notify the congressional defense committees within 30 days of a decision to designate a program to use the authority provided for under section 804 of the National Defense Authorization Act for Fiscal Year 2016 (Public Law 114-92). The conferees note the inability of the parties to reach agreement on the use of this authority threatens the momentum of the very initiatives that would most benefit from it. The conferees encourage the parties to focus immediately on the most critical issues, bring them to resolution, and publish the guidance required by section 804.

Report on intellectual property policy and the cadre of intellectual property experts (sec. 838)

The House amendment contained a provision (sec. 861(d)) that would amend section 802 of the National Defense Authorization Act for Fiscal Year 2018 (Public Law 115-91; 131 Stat. 1450) by requiring the Secretary of Defense, acting through the Under Secretary of Defense for Acquisition and Sustainment, to submit a report on activities to implement

section 2322 of title 10, United States Code, to include the composition and plans for the cadre, and the policy on the acquisition or licensing of intellectual property required. The provision would also limit the funds the Department may obligate or expend until the report is submitted.

The Senate bill contained no similar provision.

The Senate recedes with a an amendment that would require that the report include a description of the specific activities performed, and the programs and efforts supported by, the cadre of intellectual property experts and would change the Department of Defense offices subject to limitation of funds.

Guidance and reports relating to covered defense business systems (sec. 839)

The House amendment contained a provision (sec. 861(a)) that would amend section 2222(d) of title 10, United States Code, to require that guidance developed by the Department of Defense for defense business systems includes policies to ensure compliance with auditability requirements and approvals. The provision would also establish due dates to provide guidance related to covered defense business systems, as well as due dates to provide the Department's information technology enterprise architecture and related integration plans and schedules. The provision would also limit the availability of funds until such guidance, architecture and plans are provided.

The Senate bill contained no similar provision.

The Senate recedes with an amendment that would remove the limitation on funds and combine the reporting requirements for the information technology enterprise architecture.

Implementation guidance for use of a modular open system approach (sec. 840)

The House amendment contained a provision (sec. 861(c)) that would require the Secretary of Defense, acting through the Director of Cost Assessment and Performance Evaluation, to submit to the congressional defense committees a report that includes the study guidance required under section 2446b(b) of title 10, United States Code, and would limit funding available if the report is not provided by the end of 2019. The provision would also modify section 2446c of title 10, United States Code, to require a policy on the support for the acquisition for modular open system approaches (MOSA).

The Senate bill contained no similar provision.

The Senate recedes with an amendment that would instead modify section 2446b of title 10, United States Code, to direct

the Secretaries of the military departments to develop implementing guidance for the requirements to address MOSA, and as well would amend section 2446c of title 10, United States Code, to direct the Secretaries of the military departments to develop policies relating to the availability of major system interfaces and support for MOSA.

The conferees note the importance of policies in implementing MOSA to the fullest extent. Therefore, the conferees direct the Secretaries of the military departments to submit a report to the congressional defense committee by March 15, 2020, that includes the implementation guidance required under section 2446b of title 10 and section 2446c of title 10. Furthermore, the conferees note that MOSA should go beyond the ability to exchange information broadly through the adoption of standards. Therefore, the conferees direct the Secretaries of the military departments to include in their policy a description of the goals and anticipated benefits of MOSA, with respect to maintaining and enhancing competition across the life-cycle of systems and programs; enabling systems to be more easily upgraded over their lifetimes; more easily modifying or replacing components and modules without the risk of adversely affecting software or the functioning of other components and modules; achieving interoperability among a wide range of systems, and thereby enabling the creation of novel cross-domain and cross-service kill chains.

Limitation on availability of funds for the Office of the Chief Management Officer of the Department of Defense (sec. 841)

The House amendment contained a provision (sec. 861(e)) that would limit the fiscal year 2020 funds that may be obligated or expended for the Office of the Chief Management Officer of the Department of Defense until the date on which the Chief Management Officer submits either a certification of cost savings or the notice and justification described in Section 921(b)(5) of the National Defense Authorization Act for Fiscal Year 2019.

The Senate bill contained no similar provision.
The Senate recesses.

SUBTITLE E—INDUSTRIAL BASE MATTERS

Modernization of acquisition processes to ensure integrity of industrial base (sec. 845)

The Senate bill contained a provision (sec. 831) that would require the Secretary of Defense to modernize mitigation

of risks to the integrity of the supply chain, to include those cited in recent studies on the defense industrial base.

The House amendment contained similar provisions (secs. 853, 855, and 892).

The House recedes with amendments that would establish the requirement for the framework in statute under section 2506 of title 10, United States Code; add certain systems to a list of those being assessed; and provide further detail on phased implementation and reporting on the framework.

The conferees note that contracting is the mechanism by which the Department of Defense operationalizes its relationship with the defense industrial base/national security innovation base. The conferees further note that the Department's ability to maintain awareness of the sources of procured items or materials, including the degree to which the sources are foreign or domestic, are critical elements for understanding supply chain risks. This is particularly the case for items used in critical programs such as major defense acquisition programs. The conferees believe that certain risks to the defense industrial base are not being appropriately considered. These include but are not limited to risks associated with: insufficient insight into ownership structures, fragile sources of supply, and cybersecurity concerns, as well as contractors' violations of law pertaining to fraud, human trafficking, and worker health and safety. The conferees further note that, even where risks may be a high priority, the existing acquisition processes and procedures are not effective or timely in mitigating such risks. As such, the provision would require the Department to rigorously optimize the policy, processes, and procedures throughout the contracting life cycle, beginning with market research, responsibility determination, technical evaluation/award, mobilization, contract administration, contract management and oversight (to include contractor business systems reviews), and contract audit for closeout. It is critical that this optimization incorporate modern sources of data and methods to conduct appropriate and continuous risk assessment for contractors doing business with DOD. The provision would also require the Comptroller General of the United States to coordinate individual reviews in these risk areas, report on them collectively, and begin annual reviews of the Department's progress in this area.

Report requirements for the national technology and industrial base (sec. 846)

The House amendment contained a provision (sec. 861(k)) that would amend section 2501(a) of title 10, United States

Code, to establish a deadline for the Secretary of Defense to submit an already-required strategy to Congress after the submission of the national security strategy report required under section 108 of the National Security Act of 1947. The provision would also modify section 2504(3) of title 10, United States Code, to require that the Department's annual report to Congress on the national technology and industrial base include a prioritized list of gaps and vulnerabilities within the base.

The Senate bill contained no similar provision.

The Senate recesses with an amendment that clarifies requirements for the annual report to Congress, and that adds a requirement to submit unfunded priorities for the national technology and industrial base, ten days after the annual budget is submitted to Congress.

The conferees note that the national security strategy developed by the United States for the national technology and industrial base should leverage an analytical framework that uses digital tools, technologies, and approaches to inform decision-makers.

Mitigating risks related to foreign ownership, control, or influence of Department of Defense contractors or subcontractors (sec. 847)

The Senate bill contained a provision (sec. 833) that would require the Secretary of Defense to amend policy and regulation to take steps to enhance the process for assessing and mitigating risks related to foreign ownership, control, or influence (FOCI).

The House amendment contained no similar provision.

The House recesses with technical and clarifying amendments.

The conferees are concerned by the growing threat to the integrity of the defense industrial base from strategic competitors, like the Russian Federation, the People's Republic of China, and their proxies, seeking to gain access to sensitive defense information or technology through contractors or subcontractors. The conferees recognize that there are existing efforts underway to understand and mitigate some of these risks as directed by several pilot programs including section 1048 of the National Defense Authorization Act for Fiscal Year 2019 and section 1969 of the National Defense Authorization Act for Fiscal Year 2018. The conferees also recognize that the Defense Counterintelligence and Security Agency (DCSA) has transitioned to a new mission and has taken on additional responsibilities despite resource constraints. However, the acquisition community must have greater visibility into all cleared and

uncleared potential contractors and subcontractors seeking to do business with the Department. The Department must ensure that contractors and subcontractors do not pose a risk to the security of sensitive data, systems, or processes such as personally identifiable information, cybersecurity, or national security systems.

Prohibition on operation or procurement of foreign-made unmanned aircraft systems (sec. 848)

The Senate bill contained a provision (sec. 863) that would prohibit the operation or procurement of foreign-made unmanned aircraft systems by the Department of Defense. The House amendment contained a similar provision (sec. 854, as amended by sec. 899D) that would prohibit the Secretary of Defense from operating or entering into a contract for the procurement of certain unmanned aircraft systems.

The House recedes.

Additionally, the conferees encourage the Secretary of Defense to take such action as necessary to strengthen the domestic production of small unmanned aircraft systems (as defined in section 331 of the FAA Modernization and Reform Act of 2012 (Public Law 112-95; 49 U.S.C. 44802 note)), as described under Presidential Determination No. 2019-13 of June 10, 2019.

Modification of prohibition on acquisition of sensitive materials from non-allied foreign nations (sec. 849)

The Senate bill contained a provision (sec. 1411) that would include tantalum in the definition of covered materials. Additionally, the provision would expand the National Defense Stockpile Manager's authority to not sell a material if it is determined to not be in the national interests of the United States.

The House amendment contained a similar provision (sec. 808).

The House recedes with a technical amendment.

Acquisition and disposal of certain rare earth materials (sec. 850)

The Senate bill contained a provision (sec. 6401) that would require the Secretary of Defense, acting through the Defense Logistics Agency, to submit a report assessing issues relating to the supply chain for rare earth materials.

The House amendment contained a similar provision (sec. 807) that would require the Department of Defense to promulgate

guidance on streamlined acquisition of items with rare earth materials and allows exceptions to the Joint Capabilities Integration and Development System Manual and Department of Defense Directive 5000.01. The provision would also provide authority for the disposal of tungsten ores and concentrates contained in the National Defense Stockpile and acquisition of other critical materials.

The Senate recedes with an amendment that would remove the requirement to establish guidance on streamlined acquisition of covered rare earth materials and would include an assessment of rare earth supply chain issues.

Pilot program for development of technology-enhanced capabilities with partnership intermediaries (sec. 851)

The House amendment contained a provision (sec. 879) that would authorize the Commander of U.S. Special Operations Command to use not more than 5 percent of funds required to be expended by the Department of Defense relating to small businesses for a pilot program to increase participation by small business concerns in the development of technology-enhanced capabilities for special operations forces. The authority would terminate on September 30, 2021.

The Senate bill contained no similar provision.

The Senate recedes with an amendment that would revise the authority of the Commander of the United States Special Operations Command to use the greater of \$2.0 million or 5 percent of funds required to be expended by the Department of Defense relating to small businesses for the pilot program and limits the scope to contracts and agreements to small business concerns.

Authorized official to carry out the procurement technical assistance cooperative agreement program (sec. 852)

The Senate bill contained a provision (sec. 902) that would move the management and oversight of the Procurement Technical Assistance Cooperative (PTAC) Agreement Program from the Defense Logistics Agency to the Office of the Under Secretary of Defense for Acquisition and Sustainment.

The House amendment contained a similar provision (sec. 880).

The Senate recedes with a clarifying amendment.

Requirement that certain ship components be manufactured in the national technology and industrial base (sec. 853)

The House amendment contained a provision (sec. 806) that would amend section 2534 of title 10, United States Code, and would require certain auxiliary ship components to be procured from a manufacturer in the national technology and industrial base.

The Senate bill contained no similar provision.

The Senate recedes with an amendment that would require large medium speed diesel engines for certain auxiliary ships to be procured from a manufacturer in the national technology and industrial base.

The conferees direct the Secretary of Defense to submit a report to the congressional defense committees not later than 60 days after the date of enactment of this Act that details the plan to implement section 844 of the John S. McCain National Defense Authorization Act (Public Law 115-232) as soon as possible.

Addition of domestically produced stainless steel flatware and dinnerware to the Berry Amendment (sec. 854)

The House amendment contained a provision (sec. 815) that would amend section 2533a(b) of title 10, United States Code, to add dinnerware and stainless steel flatware as covered items, requiring that the Department of Defense procure them only from domestic sources.

The Senate bill contained no similar provision.

The Senate recedes with an amendment that would set the addition to expire at the end of fiscal year 2023, and meanwhile require the Secretary of Defense to assess the rationale and implications of limiting procurement of these items to domestic sources.

Application of miscellaneous technology base policies and programs to the Columbia-class submarine program (sec. 855)

The House amendment contained a provision (sec. 809) that would amend the application of miscellaneous technology base policies and programs to the *Columbia*-class submarine program.

The Senate bill contained no similar provision.

The Senate recedes with a technical amendment.

Application of limitation on procurement of goods other than United States goods to the FFG-Frigate Program (sec. 856)

The House amendment contained a provision (sec. 810) that would allow funds authorized for the FFG-Frigate program to be

used to award a contract that does not domestically source propulsion or certain auxiliary equipment.

The Senate bill contained no similar provision.

The Senate recesses.

Sense of Congress regarding consideration of price in procurement of the FFG(X) frigate (sec. 857)

The House amendment contained a provision (sec. 811) that would require the Secretary of the Navy to ensure cost is a critical factor in the procurement of the FFG(X) Frigate.

The Senate bill contained no similar provision.

The Senate recesses with an amendment that would express the sense of Congress that in evaluating proposals for a contract to procure a FFG(X) frigate in fiscal year 2020, the Secretary of the Navy should ensure price is a critical factor.

SUBTITLE F—PROVISIONS RELATING TO ACQUISITION WORKFORCE

Establishment of Defense Civilian Training Corps (sec. 860)

The House amendment contained a provision (sec. 861) that would amend part III of subtitle A of title 10, United States Code, to establish a Defense Civilian Acquisition Training Corps.

The Senate bill contained no similar provision.

The Senate recesses with an amendment that would require the Secretary of Defense to create a Defense Civilian Training Corps to prepare selected students for civilian service in the Department of Defense in occupations related to acquisition, science, engineering, or other occupations determined by the Secretary of Defense.

Defense acquisition workforce certification, education, and career fields (sec. 861)

The House amendment contained a provision (sec. 861) that would amend several sections of chapter 87, of title 10, United States Code, to modify how the defense acquisition workforce is managed, trained, and selected. The provision would also require the Defense Acquisition University to have at least 25 percent of its civilian instructors be visiting professors from civilian colleges or universities.

The Senate bill contained no similar provision.

The Senate recedes with an amendment that would require the Defense Acquisition University to employ at least five visiting professors by September 1st, 2021.

Software development and software acquisition training and management programs (sec. 862)

The House amendment contained a provision (sec. 802) that would direct the Secretary of Defense to implement software development and acquisition training and management programs for all software acquisition professionals, developers, and associated functions to provide software practitioners access to modern engagement and collaboration platforms to connect, share their skills and knowledge, and develop solutions leveraging the full defense enterprise.

The Senate bill contained no similar provision.

The Senate recedes with a clarifying amendment.

Modification of temporary assignments of Department of Defense employees to a private-sector organization (sec. 863)

The House amendment contained a provision (sec. 842) that would create a two-way exchange program between the Department of Defense acquisition workforce and private sector companies.

The Senate bill contained no similar provision.

The Senate recedes with an amendment that would modify the existing public-private talent exchange program authorized by section 1599g of title 10, United States Code. The amendment would clarify that private-sector organizations shall not be considered to have an organizational conflict of interest with the Department of Defense solely based on participation in the talent exchange. The amendment would also authorize the use of the Defense Acquisition Workforce Development Fund in connection with the talent exchange program.

Incentives and consideration for qualified training programs (sec. 864)

The House amendment contained a provision (sec. 843) that would amend chapter 141 of title 10, United States Code, by adding a new section to incentivize contractors to invest in workforce development programs to address the workforce needs of the Department of Defense, as determined by the Secretary. This section would also require the Secretary of Defense to include an evaluation of contractor workforce development programs in the contract past performance system.

The Senate bill contained no similar provision.

The Senate recesses.

Use of qualified apprentices by military construction contractors (sec. 865)

The House amendment contained a provision (sec. 844) that would require the Secretary of Defense to revise the Defense Supplement to the Federal Acquisition Regulation to require a system be used to monitor or record contractor past performance of the contractor making a good faith effort to meet or exceed the apprenticeship employment goal of 20 percent. This section would also require the Secretary of Defense to develop an apprenticeship workforce incentive program to encourage contractors to meet the 20 percent goal of employing certified and skilled workers who have completed State-mandated, federally funded programs in the relative career fields and certify to good faith effort to achieve the goal. This section would also require the Secretary of Defense to include an evaluation of whether the contractor meets this goal in the contractor past performance rating system.

The Senate bill contained no similar provision.

The Senate recesses with an amendment that would allow the Secretary of Defense to also consider certain high-quality industry recognized apprenticeship programs when evaluating contractor performance.

The conferees note that the Department of Labor has issued a proposed rule that would establish a process for recognizing Standards Recognition Entities, which will in turn recognize Industry-Recognized Apprenticeship Programs. The conferees encourage the Secretary of Defense to work with the Department of Labor as the proposed rule takes effect to ensure any apprenticeship programs recognized by the Department of Defense are of sufficient quality.

SUBTITLE G—SMALL BUSINESS MATTERS

Requirements relating to credit for certain small business concern subcontractors (sec. 870)

The House amendment contained a provision (sec. 873) that would amend section 8(d) of the Small Business Act (15 U.S.C. 637) to clarify that large prime contractors have the ability to receive subcontracting credit for small businesses at lower tiers; strengthen the agency's ability to collect and review data regarding prime contractors' achievement of their subcontracting plans; require the prime contractor to keep and maintain records to demonstrate subcontracting credit claimed;

and implement a new dispute process allowing small subcontractors to bring nonpayment issues to the agency small business advocate.

The Senate bill contained no similar provision.

The Senate recesses with amendment that would remove the new dispute process for nonpayment issues.

Inclusion of best in class designations in annual report on small business goals (sec. 871)

The House amendment contained a provision (sec. 874) that would amend section 15(h) of the Small Business Act (15 U.S.C. 644(h)) to require the Small Business Administration (SBA) to report Federal spending made through designated "best in class" vehicles, and to report on the dollars awarded through these vehicles to small businesses. Additionally, this section would require the SBA to report the dollar amount of contracts awarded to HUBZone, women-owned, service-disabled veteran-owned, and socially and economically disadvantaged (also known as 8(a)) small businesses.

The Senate bill contained no similar provision.

The Senate recesses.

Reauthorization and improvement of Department of Defense Mentor-Protege Program (sec. 872)

The Senate bill contained a provision (sec. 841) that would amend Section 831 of the National Defense Authorization Act for Fiscal Year 1991 (Public Law 101-510; 10 U.S.C. 2302 note) to make the Department of Defense's pilot Mentor-Protege Program permanent and to require that the Department's Office of Small Business Programs establish performance goals and outcome-based metrics for the program. The provision would also direct the Secretary of Defense to direct the Defense Business Board to study the effectiveness of the program and make recommendations for program improvements. Further, the provision would repeal the Department's half-size standard restriction for protege participants.

The House amendment contained a similar provision.

The Senate recesses with amendments that would extend the pilot program by authorizing new agreements through the end of fiscal year 2024, but limiting them to two years, and would permit reimbursements and subcontracting credits associated with such agreements through fiscal year 2026.

Accelerated payments applicable to contracts with certain small business concerns under the Prompt Payment Act (sec. 873)

The House amendment contained a provision (sec. 883) that would amend section 3903(a) of title 31, United States Code, to accelerate, to the fullest extent permitted by law, the payment date for prime contractors that are small business concerns or that subcontract with small business concerns, with a goal of 15 days.

The Senate bill contained no similar provision.
The Senate recesses.

Postaward explanations for unsuccessful offerors for certain contracts (sec. 874)

The House amendment contained a provision (sec. 884) that would revise the Federal Acquisition Regulation to require that contracting officers provide a brief explanation to unsuccessful offerors, if requested, for task or delivery orders in an amount greater than the simplified acquisition threshold and less than or equal to \$5.5 million issued under an indefinite delivery-indefinite quantity contract.

The Senate bill contained no similar provision.
The Senate recesses.

Small business contracting credit for subcontractors that are Puerto Rico businesses or covered territory businesses (sec. 875)

The House amendment contained two provisions (secs. 888 and 889) that would amend section 15(x) of the Small Business Act (15 U.S.C 644(x)). Section 888 would allow agencies to double the value of subcontracts to Puerto Rico businesses when determining agency compliance with small business contracting goals. Section 889 would allow agencies to double the value of contracts awarded to small business concerns that have their principal office located in the United States Virgin Islands, American Samoa, Guam, or the Northern Mariana Islands, when determining agency compliance with small business contracting goals.

The Senate bill contained no similar provision.

The Senate recesses with an amendment that combines the two provisions.

Technical amendment regarding treatment of certain surviving spouses under the definition of small business concern owned and controlled by service-disabled veterans (sec. 876)

The conference agreement includes a provision that would amend section 632 of title 15, United States Code, to clarify

the treatment of certain surviving spouses under the definition of small business concerns owned and controlled by service-disabled veterans.

Extension of loan assistance and deferral eligibility to reservists and members of the National Guard beyond periods of military conflict (sec. 877)

The conference agreement includes a provision that would amend section 636 of title 15, United States Code, by extending the loan assistance and deferral eligibility to military reservists beyond periods of military conflict. The provision would also require the President of the United States to submit to the Committee on Small Business and Entrepreneurship and the Committee on Appropriations of the Senate and the Committee on Small Business and the Committee on Appropriations of the House of Representatives a semi-annual report on the number of loans made under the Military Reservist Economic Injury Disaster Loan program and the dollar volume of those loans.

Modification to the Defense Research and Development Rapid Innovation Program (sec. 878)

The House amendment contained a provision (sec. 878(e)) that would amend section 2359a(b)(3) of title 10, United States Code, to increase the maximum per award threshold for projects participating in the Defense Research and Development Rapid Innovation Program from \$3.0 million per award to \$6.0 million per award, and would direct the Secretary of Defense to report on activities under the program, to include summarizing the proposals received, and associated Small Business Innovation Research (SBIR) program activities, and overall program effectiveness.

The Senate bill contained no similar provision.

The Senate recedes with amendments that would reemphasize the preference under the program for awarding to small business concerns overall, as well as the prioritization of such small business concerns; and would limit the total amount of awards under the program within a fiscal year to no more than 25 percent of the total available for that fiscal year.

Alignment of the Department of Defense Small Business Innovation Research Program and Small Business Technology Transfer Program with the National Defense Science and Technology Strategy (sec. 879)

The House amendment contained a provision (sec. 878(a)) that would direct the Secretary of Defense and the Secretaries of the military departments to align the research topics selected for activities conducted under the Small Business Innovation Research (SBIR) and Small Business Technology Transfer (STTR) Programs with the National Defense Science and Technology Strategy, and would amend title 15, United States Code, to refer to this strategy to guide the prioritization of the Department's activities.

The Senate bill contained no similar provision.

The Senate recedes with an amendment that would remove the amendment to title 15, United States Code.

Assistance for small business concerns participating in the SBIR and STTR programs (sec. 880)

The House amendment contained a provision (sec. 882) that would amend the Small Business Act (15 U.S.C. 638) to help small business concerns participating in the Small Business Innovation Research (SBIR) and Small Business Technology Transfer (STTR) programs. The provision would, among other things, require procurement center representatives and the appropriate Director of Small and Disadvantaged Business Utilization to assist participating small business concerns with researching solicitations and providing technical assistance to bid for federal contracts. The provision would also direct agency senior procurement executives, where appropriate, to assist small business concerns with commercializing research developed under SBIR or SBTT before awarding federal agency contracts.

The Senate bill contained no similar provision.

The Senate recedes with an amendment that would require procurement center representatives to consult with appropriate agency personnel to assist small business concerns in the SBIR program and STTR program, particularly in Phase III, and to provide technical assistance to submit a bid for an award of a federal contract.

Cybersecurity technical assistance under the SBIR and STTR programs (sec. 881)

The House amendment contained a provision (sec. 878(c)) that would permit the Secretary of Defense to enter into an agreement with one or more vendors to provide cybersecurity technical assistance to small business concerns engaged in Small Business Innovation Research (SBIR) or Small Business Technology Transfer (STTR) projects.

The Senate bill contained no similar provision.

The Senate recesses.

Funding for defense research activities of small business concerns (sec. 882)

The House amendment contained a provision (sec. 878(g)) that would amend section 9(f) of the Small Business Act (15 U.S.C 638(f)) to increase the required expenditure amounts for the Department of Defense from 3.2 percent to 4.0 percent, starting in fiscal year 2020.

The Senate bill contained no similar provision.

The Senate recesses with an amendment that would instead direct the Secretary of Defense to report on any assistance to small business concerns in fiscal years 2017 through 2019 under the Small Business Innovation Research and Small Business Technology Transfer programs, and any other research, development, test, and evaluation programs.

Modifications to budget display requirements for the Department of Defense Small Business Innovation Research Program and Small Business Technology Transfer Program (sec. 883)

The House amendment contained a provision (sec. 887) that would amend section 857 of the John S. McCain National Defense Authorization Act for Fiscal Year 2019 (Public Law 115-232; 132 Stat. 1891) to revise budget display requirements for the Department of Defense Small Business Innovation Research (SBIR) Program and Small Business Technology Transfer (STTR) Program.

The Senate bill contained no similar provision.

The Senate recesses.

The conferees' aim is to allow visibility into the SBIR/STTR effort to better support the program, and to support the alignment of each military services' SBIR/STTR program under the Service Secretary's strategic vision for their budget.

Pilot program for domestic investment under the SBIR program (sec. 884)

The House amendment contained a provision (sec. 878(b)) that would express a sense of congress encouraging the Administrator of the Small Business Administration to promulgate regulations implementing existing authority under title 15, United States Code, that permits small business concerns that are majority-owned by multiple venture capital operating companies, hedge funds, or private equity firms to participate in the Small Business Innovation Research (SBIR) program. The provision would further direct the Secretary of Defense to

establish a pilot program to exercise this authority and make SBIR awards to such business concerns up to 10 percent of the Department's annual SBIR allocation and would exempt the Department from the requirement for written determinations in advance of such awards. The provision would also direct the Secretary of Defense to include information about the activities under the pilot program in the annual report on the SBIR program.

The Senate bill contained no similar provision.

The Senate recedes with amendments that would eliminate the sense of congress; limit the Department of Defense exemption from the written determination to only those small business concerns meeting certain requirements related to foreign ownership; further expand the information provided in the SBIR annual report; and add a requirement for the Secretary of Defense to notify the Administrator of the Small Business Administration 30 days following an award.

SUBTITLE H—OTHER MATTERS

Review of guidance to contractors on nondiscrimination on the basis of sex (sec. 885)

The House amendment contained a provision (sec. 899C) that would direct a revision to the Defense Federal Acquisition Regulation Supplement to allow contracts only with entities that have employee policies penalizing instances of sexual harassment, and would direct the Secretary of Defense to initiate a debarment proceeding for entities seeking contracts with the Department of Defense who do not have such policies.

The Senate bill contained no similar provision.

The Senate recedes with an amendment that would require the Under Secretary of Defense for Acquisition and Sustainment to review the implementation of the requirement under Executive Order 11246 relating to the expectations of contractors to ensure nondiscrimination on the basis of sex, to include sexual harassment, and to update any relevant training guidance based on this review.

The conferees note that the appendix to Part 60-20 of Title 41, Code of Federal Regulations outlines best practices and procedures for contractors pertaining to the environment contractors should foster with regard to sexual harassment, which includes communicating that harassing conduct will not be tolerated, providing anti-harassment training, and establishing and implementing procedures for complaints about harassment and intimidation based on sex. The conferees believe the Department

should strongly encourage contractors to incorporate such best practices and procedures.

Comptroller General report on contractor violations of certain labor laws (sec. 886)

The House amendment contained a provision (sec. 899F) that would require the Comptroller General of the United States to deliver a report to the Congress on the number of Department of Defense contractors who have been found by the Department of Labor to have committed violation of the Occupational Safety and Health Act of 1970 (Public Law 91-596) or the Fair Labor Standards Act of 1938 (Public Law 75-718).

The Senate bill contained no similar provision.
The Senate recesses.

Comptroller General report on contingency contracting (sec. 887)

The House amendment contained a provision (sec. 899G) that would reauthorize the Commission on Wartime Contracting established under Section 841 of the National Defense Authorization Act for Fiscal Year 2008 (Public Law 110-181; 122 Stat. 230) and amend the Commission's duties to include studying federal agency contracting funded by overseas contingency operations funds.

The Senate bill contained no similar provision.

The Senate recesses with an amendment that would direct the Comptroller General of the United States to report on the implementation of the recommendations made by the Commission and the use of contractors to perform work supporting contingency operations since January 1, 2009, and not include the reauthorization of the Commission on Wartime Contracting.

Policies and procedures for contractors to report gross violations of internationally recognized human rights (sec. 888)

The House amendment contained a provision (sec. 899K) that would require that contractors performing Department of Defense contracts in a foreign country report possible cases of gross violations of internationally recognized human rights and that the Secretary of Defense submit a report to congressional committees describing the policies and procedures in place to obtain information about such violations and the resources needed to investigate.

The Senate bill contained no similar provision.

The Senate recesses with an amendment that would require the Department to update its policies, guidance, and regulations

to include specific guidance for both Department of Defense employees and contractors for monitoring and reporting alleged violations, and clarify its applicability to contractors performing outside the United States.

Comptroller General report on oversight of contractors providing private security functions (sec. 889)

The House amendment contained a provision (sec. 899L) that would direct the Inspector General of the Department of Defense to report on certain contracts for private security performed in contingency operations since 2001, to include data on costs, locations, civilians killed or wounded while performing the work, and disciplinary actions taken against the contractors.

The Senate bill contained no similar provision.

The Senate recedes with an amendment that would re-direct the study to the Comptroller General of the United States, and realign the substance of the review to evaluate Department of Defense's efforts to improve its oversight of contractors providing private security functions since 2009, to include how it has implemented certain new industry-wide law, policy, regulation, standards, and guidance.

The conferees note the significant changes that have occurred in the private security sector since certain reforms were initiated following the final report and recommendations of the Commission on Wartime Contracting in 2011.

Prohibition on contracting with persons that have business operations with the Maduro regime (sec. 890)

The Senate bill contained a provision (sec. 864) that would prohibit the Department of Defense from entering into a contract with any person or entity that has business operations with an authority of the Government of Venezuela that is not recognized as the legitimate Government of Venezuela by the United States Government.

The House amendment contained a similar provision (sec. 897).

The Senate recedes.

Report on the Combating Trafficking in Persons initiative (sec. 891)

The Senate bill contained a provision (sec. 865) that would direct the Comptroller General of the United States to report on the Department of Defense's efforts to combat trafficking in persons through procurement practices.

The House amendment contained a similar provision (sec. 1080A) that would require the Department of Defense to submit a report to the congressional defense committees containing an analysis of the Department's progress in implementing the Combating Trafficking in Persons Initiative.

The House recesses with an amendment that would direct the Secretary of Defense to analyze the Department's progress in implementing the Combating Trafficking in Persons initiative described in DOD Instruction 2200.01.

Noting that the Department's report will provide further information on the implementation of this program, the conferees direct the Comptroller General of the United States to submit a report to the congressional defense committees on the Department of Defense's overall efforts to combat human trafficking not later than January 31, 2021. The required report shall evaluate (1) the processes and procedures to combat human trafficking in the Department's contracting and supply chain policy, regulation, and practices, to include the implementation of title 27 of the National Defense Authorization Act for Fiscal Year 2013 (Public Law 112-239) and Executive Order 13627, as well as the nature and extent of training for contracting officers on how to evaluate compliance plans, monitor contractor adherence to the plans, and respond to reports of noncompliance; (2) the progress of the current trafficking in persons office within the Department of Defense in leading the Department to address all forms of human trafficking, the efficacy of such office in identifying, tracking, and managing any and all trafficking in persons cases, and what, if any, improvements should be made to the office; (3) the process used by contracting officers to evaluate compliance plans with regards to preventing human trafficking and a description of the remedies imposed by contracting officers in cases where an allegation of human trafficking has been substantiated; and (4) the process for reporting instances of human trafficking to the Inspector General of the Department of Defense and the disposition of those cases.

Improved management of information technology and cyberspace investments (sec. 892)

The Senate bill contained a provision (sec. 851) that would require the Department of Defense Chief Information Officer (CIO) to work with the Chief Data Officer to optimize the Department's process to account for, manage, and report its information technology and cyberspace investments and would require the CIO to brief the congressional defense committees

and to recommend any necessary legislative changes to the committees not later than February 3, 2020.

The House amendment contained no similar provision.
The House recesses.

The conferees note that the Department of Defense's process to account for, manage, and report its information technology and cyberspace investments—which account for at least \$50.0 billion annually—is inefficient. Further, the conferees are concerned that this process results in unnecessary delays in preparing the annual budget exhibit and in regulatory reporting required by the Federal Information Technology Acquisition Reform Act of 2015, incorporated into the Howard P. “Buck” McKeon National Defense Authorization Act for Fiscal Year 2015 (Public Law 113-291). After years of legislation and regulation, the definitions pertaining to and the methods for grouping and accounting for spending on these investments have become cumbersome and obscure, and they hinder, rather than facilitating, insight into and oversight of spending plans and portfolio management. The briefing provided to the committees should include alternative methods for presenting budget justification materials to the public and congressional staff to more accurately communicate when, how, and with what frequency capabilities are delivered to end-users, in accordance with best practices for managing and reporting on information technology investments.

Modification to requirements for purchase of commercial leasing services pursuant to multiple award contracts (sec. 893)

The House amendment contained a provision (sec. 899B) that would amend section 877 of the John S. McCain National Defense Authorization Act for Fiscal Year 2019 (Public Law 115-232; 41 U.S.C. 3302 note) to extend the termination date for the exemption for commercial leasing services provision from 2022 to 2025 and change the reporting date of the Comptroller General of the United States audit to every five years.

The Senate bill contained no similar provision.

The Senate recesses with an amendment that would repeal section 877 of the John S. McCain National Defense Authorization Act for Fiscal Year 2019 and would amend section 3302 of title 41, United States Code, to add the exemption for commercial leasing services as a new subsection.

LEGISLATIVE PROVISIONS NOT ADOPTED

Modification to small purchase threshold exception to sourcing requirements for certain articles

The Senate bill contained a provision (sec. 810) that would lower the threshold at which the Department of Defense must comply with the rules of section 2533a of title 10, United States Code, known as the Berry Amendment, to \$150,000.

The House amendment contained no similar provision.

The Senate recesses.

Rates for progress payments or performance-based payments

The House amendment contained a provision (sec. 823) that would require the Secretary of Defense to provide congressional defense committees with a notice of determination and to notify the public through the Federal Register before initiating changes to contract finance rates for progress payments or performance-based payments.

The Senate bill contained no similar provision.

The House recesses.

Additional requirements for negotiations for noncommercial computer software

The House amendment contained a provision (sec. 824) that would amend section 2322a of title 10, United States Code, and codify existing Defense Federal Acquisition Regulations on noncommercial software rights as well as mandate, to the maximum extent practicable, that specially negotiated licenses be used for weapon systems noncommercial software.

The Senate bill contained no similar provision.

The House recesses.

Competition requirements for purchases from Federal Prison Industries

The House amendment contained a provision (sec. 827) that would amend section 2410n of title 10, United States Code. This provision would create a requirement for conducting market research before purchasing a product listed in the Federal Prison Industries (FPI) catalog.

The Senate bill contained no similar provision.

The House recesses.

Enhanced post-award debriefing rights

The House amendment contained a provision (sec. 828) that would amend section 818 of the National Defense Authorization Act for Fiscal Year 2018 (Public Law 115-91), which required post-award debriefings of the Department of Defense rating for

each evaluation criteria and overall award decision, by reducing the award threshold for comprehensive debriefings from \$100.0 million to \$50.0 million.

The Senate bill contained no similar provision.

The House recesses.

Preference for offerors employing veterans

The House amendment contained a provision (sec. 831) that would amend chapter 137 of title 10, United States Code, by allowing the head of an agency to establish a preference for offerors that employ veterans on a full-time basis when awarding a contract for the procurement of goods or services for the Department of Defense.

The Senate bill contained no similar provision.

The House recesses.

Reporting on expenses incurred for independent research and development costs

The House amendment contained a provision (sec. 832) that would amend section 2372 of title 10, United States Code, to require Department of Defense contractors to report expenses incurred for independent research and development (IR&D) costs.

The Senate bill contained no similar provision.

The House recesses.

The conferees note that IR&D is initiated and conducted by Department of Defense contractors and the Department reimburses a portion of industry's costs. The conferees acknowledge that it is beneficial for the Department to understand what technologies its contractors are investing in beyond Department of Defense contracts. However, the conferees note that there is an ongoing Comptroller General review of recent changes to IR&D policies and the extent that recently funded IR&D projects align with the Department's modernization priorities as laid out in the National Defense Strategy. The conferees encourage the Department to use the findings from the Comptroller General's review as a basis for its IR&D strategy going forward, including what information is required to be reported by the contractor. Lastly, the conferees remind the Department that it should share information about contractor costs within the Department in a continuous and strategic manner, including in coordination with the Department's Chief Data Officer.

Assessment of precision-guided missiles for reliance on foreign-made microelectronic components

The Senate bill contained a provision (sec. 832) that would require the Air Force to assess its reliance on foreign sources for all microelectronics in precision guided munitions currently in production.

The House amendment contained no similar provision.

The Senate recesses.

The conferees direct the Under Secretary of Defense for Acquisition and Sustainment, not later than August 31, 2020, to brief the congressional defense committees on the reliance of the United States Armed Forces on foreign sources for microelectronics in precision guided munitions currently in production. The briefing should identify whether the microelectronics suppliers are single source or sole-source providers as well as which tier subcontractors supply the microelectronics. The briefing should also include an evaluation of the cybersecurity risk to precision guided munitions posed by foreign-made microelectronics.

Reporting on expenses incurred for bid and proposal costs

The House amendment contained a provision (sec. 833) that would amend section 2372a(a) of title 10, United States Code, to require that contractors report expenses incurred for bid and proposal costs annually to the Defense Contract Audit Agency, who shall give access to the information to the Principal Director for Defense Pricing and Contracting.

The Senate bill contained no similar provision.

The House recesses.

Report on requirements relating to consumption-based solutions

The House amendment contained a provision (sec. 835) that would require the Undersecretary of Defense for Acquisition and Sustainment to submit a report on requirements relating to consumption-based solutions to the congressional defense committees.

The Senate bill contained no similar provision.

The House recesses.

The conferees recognize the acquisition of supplies and services is still evolving and believe there is a place for consumption-based solutions. The conferees direct the Deputy Secretary of Defense in conjunction with the Chief Management Officer, the Undersecretary of Defense for Acquisition and Sustainment, and the Director, Cost Assessment and Program Evaluation, to report to the congressional defense committees by March 15, 2020, on the feasibility of using consumption-based

solutions as a procurement option to include recommended definitions, processes, contract types, and funding approaches.

Supply chain security of certain telecommunications and video surveillance services or equipment

The House amendment contained a provision (sec. 851) that would require the Secretary of Defense to consult with the Federal Acquisition Security Council to comprehensively assess policies and contractors' systems relating to telecommunications and video surveillance services and equipment from foreign suppliers; to mitigate risks through a specific interagency debarment and suspension process; to promulgate guidance; and to issue regulation containing certain elements. The House amendment contained another provision (sec. 852) that would require the Secretary of Defense to procure certain telecommunications services or installations of telecommunications infrastructure on national security installations located on territories of the United States in the Pacific Ocean, only from American-owned or -operated companies, with a national security waiver.

The Senate bill contained similar provisions, (sec. 831) that would require the Secretary of Defense to modernize mitigation of risks to the integrity of the supply chain, to include those cited in recent studies on the defense industrial base, and (sec. 833) that would require the Secretary of Defense to amend policy and regulation to enhance the process for assessing and mitigating risks related to foreign ownership, control, or influence.

The House recedes with amendments to sec. 831 that would direct the Secretary to recommend revisions to certain statutory definitions, would more explicitly emphasize the role of suspension and debarment in supply-chain security, and would direct the Secretary to establish a process to re-assess companies who have addressed certain risks.

The conferees acknowledge that establishing blanket "prohibitions" in legislation can be well-intended and effective in some aspects, while also having unintended consequences. The conferees intend for the Department to be pro-active rather than reactive, in securing its supply chain. The conferees note there are multiple efforts in place and underway at the Department to address supply chain risks, and that similar efforts are being undertaken government-wide. The conferees encourage the Department to harmonize these activities where appropriate in ways that do not inhibit the Department from exercising its discretion in areas of national security interest. In this regard, the Department should pay specific attention to the

procurement of telecommunications goods and services for use on installations in the Pacific Ocean.

Revised authorities to defeat adversary efforts to compromise United States defense capabilities

The House amendment contained a provision (sec. 853) that would strengthen defense supply chains by including security as a primary purpose for Department of Defense acquisition.

The Senate bill contained no similar provision.

The House recesses.

The conferees note other sections of the conference report that modernize the Department's supply chain risk mitigation efforts by requiring the Secretary of Defense to develop an analytical framework across the acquisition process, assign risk mitigation roles and responsibilities to organizations and individuals, and modernize access to data necessary to assess risk across the acquisition enterprise.

Supply chain risk mitigation policies to be implemented through requirements generation process

The House amendment contained a provision (sec. 855) that would amend section 807 of the National Defense Authorization Act for Fiscal Year 2018 (Public Law 115-91) to require the Secretary of Defense to develop tools for supply chain risk mitigation policies during the requirements generation process.

The Senate bill contained a similar provision (sec. 831) which addressed this and several other matters pertaining to the defense industrial base.

The House recesses.

The conferees note the House provision was based on the work of the Advisory Panel on Streamlining and Codifying Acquisition Regulations established by section 809 of the National Defense Authorization Act for Fiscal Year 2016 (Public Law 114-92). The conferees commend the work of the Panel and note that, since the Panel was established, it has made 98 recommendations across 3 report volumes and continues to identify areas where United States Code can be reorganized for clarity and efficiency. The Congress has enacted a number of the recommendations from the first two volumes in prior National Defense Authorization Acts and continues to carefully consider the recommendations of the Panel.

Size standard calculations for certain small business concerns

The House amendment contained a provision (sec. 872) that would clarify that section 3(a)(2)(C) of the Small Business Act applies to the Small Business Administration (SBA). The section would align the size standards based on data to the Small Business Runway Extension Act of 2018 (Public Law 115-324) by changing the calculation from 3 years to 5 years. This section also would require the SBA to develop a transition plan for small businesses and Federal agencies to help them successfully navigate the transition from the previous 3-year calculation to the new 5-year calculation as mandated and would require that the System for Award Management be updated accordingly.

The Senate bill contained no similar provision.

The House recedes.

Small Business Administration cybersecurity reports

The House amendment contained a provision (sec. 875) that would require the Small Business Administration to issue reports that assess its cybersecurity infrastructure, including determining the country of origin of its information technology components, and report cyber threats, breaches, and cyber attacks.

The Senate bill contained no similar provision.

The House recedes.

Cyber counseling certification program for lead small business development centers

The House amendment contained a provision (sec. 876) that would amend section 21(a) of the Small Business Act by adding cyber strategy training for Small Business Development Centers (SBDCs) and require the Small Business Administrator to establish, or certify, an existing cyber counseling certification program to certify employees at small business development centers (that have directly received a grant from the Administration) to provide assistance to small businesses for planning cybersecurity practices and strategies to respond to cyber attacks. The Small Business Administration would be authorized to reimburse SBDCs for employee certification costs up to \$350,000 per fiscal year.

The Senate bill contained no similar provision.

The House recedes.

Exemption of certain contracts from the periodic inflation adjustments to the acquisition-related dollar threshold

The House amendment contained a provision (sec. 877) that would amend subparagraph (B) of section 1908(b)(2) of title 41, United States Code, to exempt certain contracts from the periodic inflation adjustments to the acquisition-related dollar threshold.

The Senate bill contained no similar provision.

The House recesses.

Phase 0 Proof of Concept Partnership program for the Department of Defense

The House amendment contained a provision (sec. 878(d)) that would amend section 9(jj) of the Small Business Act (15 U.S.C 638) to change references to "The Director of the National Institutes of Health" to "A covered agency head" which is defined as the Director of the National Institutes of Health (NIH) for NIH Small Business Technology Transfer (STTR) programs or the Secretary of Defense for Department of Defense STTR programs.

The Senate bill contained no similar provision.

The House recesses.

Briefing on the Trusted Capital Marketplace pilot program

The House amendment contained a provision (sec. 885) that would require the Secretary of Defense to provide a briefing to congressional defense committees on the progress of the Trusted Capital Marketplace pilot program.

The Senate bill contained no similar provision.

The House recesses.

The conferees understand that the Secretary of Defense is intending to establish a Trusted Capital Marketplace pilot program to link technology startup companies with trusted sources of capital in areas relevant to defense missions. The conferees direct the Secretary of Defense to provide a briefing on the progress of the Trusted Capital Marketplace pilot program to the congressional defense committees to include plans for how the program will: align with critical defense requirements; use the acquisition flexibilities authorized under recent National Defense Authorization Acts; be coordinated with other research and engineering technology investment programs, including the Small Business Innovation Research program; and be managed and resourced so as to evolve into a stable, funded activity. The conferees direct the Secretary to provide this briefing no later than 6 months after the date of enactment of this Act.

Boots to Business Program

The House amendment contained a provision (sec. 886) that would codify and permanently authorize the Boots to Business program.

The Senate bill contained no similar provision.

The House recesses.

Report and database on items manufactured in the United States for major defense acquisition programs

The House amendment contained a provision (sec. 892) that would amend chapter 144 of title 10, United States Code, by inserting a new section requiring the Secretary of Defense to submit a report to the congressional defense committees assessing the domestic source content of procurements carried out in connection with major defense acquisition programs. This section would also require the Secretary of Defense to establish an information repository for the collection of domestic source content information.

The Senate bill contained no similar provision.

The House recesses.

Contractor science, technology, engineering, and math programs

The House amendment contained a provision (sec. 894) that would deem the cost of participating in certain science, technology, engineering, and math (STEM) programs an allowable cost under a contract between the contractor and the Department of Defense.

The Senate bill contained no similar provision.

The House recesses.

The conferees note the importance of developing a world class cadre of technical talent who can perform critical STEM job functions in both government and industry, including a number which require security clearances. The conferees believe that a strong partnership between the defense industry and the Department of Defense can stimulate efforts to increase that pool of STEM talent. Therefore, the conferees direct the Secretary of Defense to enter into an arrangement with one or more academic institutions to study and develop policy options and recommendations to promote DOD-defense industry collaboration in STEM education activities. The conferees note that these partnerships should be primarily focused on developing collaborative DOD-industry activities relevant to: creating a clearable technical workforce to meet defense missions, supporting educational opportunities for defense sector personnel in both government and industry, and increasing educational opportunities for veterans and military dependents.

Further, the study should focus on activities which are based on metrics and education best practices to ensure maximum effectiveness. The conferees direct that the study, accompanied by an assessment and plan for the Secretary to implement the recommended policy options, if appropriate, should be delivered to the congressional defense committees no later than October 1, 2020. The conferees direct that Secretary to ensure that the study is developed in consultation with industry, education experts, and all appropriate defense organizations with expertise in STEM education.

Report on cost growth of major defense acquisitions programs

The House amendment contained a provision (sec. 898) that would require the Comptroller General of the United States to provide a report analyzing cost growth of major defense acquisition programs to the defense committees.

The Senate bill contained no similar provision.

The House recesses.

The conferees direct the Comptroller General of the United States to submit to the Committee on Armed Services of the Senate and the Committee on Armed Services of the House of Representatives a report analyzing the cost growth of major defense acquisition programs (as defined in section 2430 of title 10 United States Code) during the 15 fiscal years preceding the date of the enactment of this Act.

Report and strategy on terminated foreign contracts

The House amendment contained a provision (sec. 899A) that would require the Secretary of Defense to submit to Congress a report on contracts performed in foreign countries for which the contract was terminated for convenience because of actions taken by the government of, or an entity located in, the foreign country that impeded the ability of the contractor to perform the contract.

The Senate bill contained no similar provision.

The House recesses.

Prohibition on contracting with persons with willful or repeated violations of the Fair Labor Standards Act of 1938

The House amendment contained a provision (sec. 899E) that would require the head of a Federal department or agency to initiate debarment proceedings for persons who willfully or repeatedly violate the Fair Labor Standards Act of 1938 (29 U.S.C. 201 et seq.).

The Senate bill contained no similar provision.
The House recesses.

Federal contractor disclosure of unpaid Federal tax liability

The House amendment contained a provision (sec. 899H) that would amend section 2313(c) of title 41, United States Code, to include information on any unpaid federal tax liability of covered persons in the federal awardee performance and integrity database.

The Senate bill contained no similar provision.
The House recesses.

*Pilot program on payment of costs for denied Government
Accountability Office bid protests*

The House amendment contained a provision (sec. 899J) that would amend the pilot program established in section 827 of the National Defense Authorization Act for Fiscal Year 2018 to require contractors to reimburse the Department of Defense for direct costs incurred by the Department in support of hearings to adjudicate bid protests. The provision would also change the date on which the pilot program begins.

The Senate bill contained no similar provision.
The House recesses.

GAO report on contracting practices of the Corps of Engineers

The House amendment contained a provision (sec. 899M) that would require the Comptroller General of the United States to conduct a study on the contracting practices of the U.S. Army Corps of Engineers (USACE).

The Senate bill contained no similar provision.
The House recesses.

The conferees direct the Comptroller General of the United States to conduct a study on the contracting practices of USACE, with a specific focus on how USACE complies with and enforces the requirement to pay prevailing wages on federally financed construction jobs, as required by subchapter IV of chapter 31 of title 40, United States Code (commonly referred to as the Davis-Bacon Act). The study should consider the following:

(1) Any programs or protocols USACE has in place for the purpose of carrying out its Davis-Bacon Act enforcement obligations as set forth in the Federal Acquisition Regulation.

(2) Any programs or protocols USACE has in place for the purpose of identifying and addressing independent contractor

misclassification on projects subject to the Davis-Bacon Act.

(3) The frequency with which USACE conducts site visits on each covered project to monitor Davis-Bacon Act compliance.

(4) The frequency with which USACE monitors certified payroll reports submitted by contractors and subcontractors on each covered project.

(5) Whether USACE accepts and investigates complaints of Davis-Bacon Act violations submitted by third parties, such as contractors and workers' rights organizations.

(6) Whether USACE maintains a database listing all contractors and subcontractors who have, in one way or another, violated the Davis-Bacon Act and whether USACE consults this database as part of its contract award process.

(7) The frequency, over the last five years, with which USACE penalized, disqualified, terminated, or moved for debarment of a contractor for Davis-Bacon violations.

(8) How USACE verifies that the contractors it hires for its projects are properly licensed.

The conferees further direct the Comptroller General to submit a report that summarizes the results of the study, with recommendations for legislative or regulatory action that would improve the efforts of enforcing the requirement to pay prevailing wages on federally financed construction jobs, to the following committees not later than 1 year after the date of enactment of this Act to: the Committee on Education and Labor; the Committee on Armed Services; and the Committee on Transportation and Infrastructure of the House of Representatives and the Committee on Health, Education, Labor, and Pensions; the Committee on Armed Services; and the Committee on Commerce, Science, and Transportation of the Senate.

Comptroller General report on defense business processes

The House amendment contained a provision (sec. 899N) that would require the Comptroller General of the United States to submit to the congressional defense committees a report on the use of defense business processes.

The Senate bill contained no similar provision.

The House recedes.

Amendments to research project transaction authorities to eliminate cost-sharing requirements and reduce burdens on use

The Senate bill contained a provision (sec. 5202) that would amend section 2371(e) of title 10, United States Code, to

eliminate certain restrictions on the use of the authority and associated funds.

The House amendment contained no similar provision.

The Senate recesses.

The conferees note that current law already permits the Secretary to engage in research project transaction authorities with cost sharing from industry that is less than fifty percent of the total costs, as appropriate, to allow for delivering performance with affordability and speed as outlined in the National Defense Strategy. The conferees believe the Secretary should use research project transaction authorities to drive efficiency, adopt and implement new ideas, and leverage leading practices from industry and academia to positively impact and support acquisition, personnel, research, and operational processes.

Report on contracts with entities affiliated with the Government of the People's Republic of China or the Chinese Communist Party

The Senate bill contained a provision (sec. 5801) that would require a report concerning Department of Defense contracts with companies or business entities that are owned or operated by, or affiliated with, the Government of the People's Republic of China or the Chinese Communist Party.

The House amendment contained no similar provision.

The Senate recesses.

Not later than 180 days after the date of the enactment of this Act, the conferees direct the Secretary of Defense to submit to the congressional defense committees a report describing all Department of Defense contracts with companies or business entities that are owned or operated by, or affiliated with, the Government of the People's Republic of China or the Chinese Communist Party.

Investment in supply chain security under Defense Production Act of 1950

The Senate bill contained a provision (sec. 6018) that would amend section 303 of the Defense Production Act of 1950 to provide authority through the Defense Production Act for the federal government to rapidly adopt supply chain security measures if a national security need arises.

The House amendment contained no similar provision.

The Senate recesses.

TITLE IX—DEPARTMENT OF DEFENSE ORGANIZATION AND MANAGEMENT

SUBTITLE A—OFFICE OF THE SECRETARY OF DEFENSE AND RELATED MATTERS

*Headquarters activities of the Department of Defense matters
(sec. 901)*

The Senate bill contained a provision (sec. 901) that would repeal certain certifications, require a report on numbers of employees in the National Guard Headquarters, provide modest increases in the statutory caps on other headquarters personnel, and sunset the requirements of section 346 of the National Defense Authorization Act for Fiscal Year 2016 (Public Law 114-92).

The House amendment contained no similar provision.

The House recedes with an amendment that would eliminate the repeal of certain certifications and modify the increases in the statutory caps on headquarters personnel with the intent of enhancing the opportunity for civilian perspective and advice to be considered in the balance on strategic decisions regarding matters of the armed forces.

The conferees are concerned about civilian-military relations and note a perceived unhealthy drift in decision-making on strategic defense issues away from civilian leaders. Therefore, the conferees urge the Secretary of Defense to utilize the relief to existing limitations on civilian personnel supporting the Office of the Secretary of Defense in such a manner as to optimize enhancement of civilian control of the military. For example, the conferees note that section 922 of the National Defense Authorization Act for Fiscal Year 2017 (Public Law 114-328) assigned additional authority to the Assistant Secretary of Defense for Special Operations and Low-Intensity Conflict (ASD SO/LIC). As such, the conferees expect the additional authority and relief of limitations on civilian personnel will enhance civilian oversight of U.S. Special Operations Command through its 'service secretary-like' role.

The conferees direct the Secretary of Defense, not later than January 1, 2020, to submit to the armed services committees a report setting forth:

- 1) the total number of members of the Armed Forces and civilian employees of the Department of Defense assigned to support the Office of the Chief of the National Guard Bureau and the National Guard Joint Staff;

2) a description of the headquarters staff of each geographic combatant command, as well as each sub-unified command and service component command under the geographic combatant command, as of the following dates: October 1, 2014 and October 1, 2019. The description of the headquarters staffs of the geographic combatant commands shall include the number of military and civilian personnel who are authorized, and the numbers assigned or detailed, to duty in, functions of, or direct support to the headquarters element, including a breakout of personnel by functional area as defined in Department of Defense Instruction 5100.73.

The conferees direct the Secretary of Defense, not later than January 1, 2021, to submit to the congressional defense committees a report setting forth the following:

a) A recommendation for the total number of members and employees required for the Office of the Chief of the National Guard Bureau and the National Guard Joint Staff to execute the missions and functions of the National Guard Bureau and the National Guard Joint Staff.

b) A recommendation for the number of military and civilian personnel who are required in the headquarters element to execute the missions and functions of each geographic combatant command.

Clarifying the roles and responsibilities of the Under Secretary of Defense for Acquisition and Sustainment and the Under Secretary of Defense for Research and Engineering (sec. 902)

The Senate bill contained a provision (sec. 5902) that would allocate the responsibilities of the Under Secretary of Defense for Acquisition, Technology, and Logistics, a position that was eliminated in the National Defense Authorization Act of Fiscal Year 2017, between the two successor entities.

The House amendment contained a similar provision (sec. 861(j)).

The Senate recedes with amendments that include directing the Secretary of Defense to issue guidance and a framework for independent technical risk assessments (ITRAs), clarifying prototyping responsibilities for the Under Secretary of Defense for Research and Engineering, updating the Executive Schedule level for the Under Secretary of Defense for Research and Engineering, and adding prototyping responsibilities for the Under Secretary of Defense for Acquisition and Sustainment.

The conferees note the benefit of having specific guidance detailing the conditions in which the Department would approve ITRAs conducted by independent organizations within the military

departments. The conferees therefore direct the Secretary of Defense to issue the required ITRA guidance and framework no later than March 1, 2020, and to provide a briefing to congressional defense committees at that time.

The conferees also direct the Secretary of Defense to further refine and elaborate the definitions of prototyping to ensure that the Under Secretary of Defense for Research and Engineering and the Under Secretary of Defense for Acquisition and Sustainment have clearly defined roles and responsibilities, paying particular attention to the activities executed under budget activity 4, and software activities, which are likely to be difficult to determine.

Return to Chief Information Officer of the Department of Defense of responsibility for business systems and related matters (sec. 903)

The Senate bill contained a provision (sec. 903) that would return the responsibilities for business systems from the Chief Management Officer back to the Chief Information Officer and would realign the Chief Data Officer to report to the Chief Information Officer instead of the Chief Management Officer.

The House amendment contained no similar provision.

The House recesses.

Assessments of responsibilities and authorities of the Chief Management Officer of the Department of Defense (sec. 904)

The Senate bill contained a provision (sec. 5901) that would direct the Secretary of Defense to determine the manner in which the Chief Management Officer directs the business-related activities of the military departments and determine the responsibilities and authorities, if any, of the Chief Management Officer for the Defense Agencies and Department of Defense Field Activities. The provision would further direct the Secretary of Defense, in light of these determinations, to assign the responsibilities and authorities of the Chief Management Officer and submit a plan to Congress for carrying out these requirements.

The House amendment contained no similar provision.

The House recesses with amendments that would require a Secretary of Defense and an independent assessment of the Chief Management Officer position, and associated reports on those assessments with recommendations regarding the roles and responsibilities of the Chief Management Officer.

The conferees note the Department has faced significant structural challenges in implementing the Chief Management

Officer position since its inception. Accordingly, it is the conferees' intention to change the position from senior executive schedule II to III and, pending the assessment directed by this section, to disestablish the Chief Management Officer position altogether. The conferees therefore direct the Secretary to ensure the assessment provided for in this section is sufficiently comprehensive to allow for the reassignment of roles and responsibilities, as well as the authorities that would be necessary for orderly transition of such activities should the conferees decide to do so.

Senior Military Advisor for Cyber Policy and Deputy Principal Cyber Advisor (sec. 905)

The Senate bill contained a provision (sec. 904) that would require the designation of a general or flag officer of the Armed Forces to serve within the Office of the Under Secretary of Defense for Policy as the Senior Military Advisor for Cyber Policy and, concurrently, as the Deputy Principal Cyber Advisor.

The House amendment contained no similar provision.
The House recedes.

Exclusion from limitations on personnel in the Office of the Secretary of Defense and Department of Defense headquarters of fellows appointed under the John S. McCain Defense Fellows Program (sec. 906)

The Senate bill contained a provision (sec. 921) that would amend section 932(f)(3) of the John S. McCain National Defense Authorization Act for Fiscal Year 2019 (Public Law 115-232) to stipulate that an individual appointed to a fellowship under this section shall not count against the limitation on the number of Office of the Secretary of Defense personnel in section 143 of title 10, United States Code, or any similar limitation in law on the number of personnel in headquarters of the Department of Defense.

The House amendment contained no similar provision.
The House recedes with a technical amendment.

**SUBTITLE B—ORGANIZATION AND MANAGEMENT OF
OTHER DEPARTMENT OF DEFENSE OFFICES AND
ELEMENTS**

Codification of Assistant Secretaries for Energy, Installations, and Environment of the Army, Navy, and Air Force (sec. 911)

The Senate bill contained a provision (sec. 911) that would amend sections 3016(a), 5016(a), and 8016(a) of title 10, United States Code, to require that each military department maintain an assistant secretary for energy, installations, and environment.

The House amendment contained a similar provision (sec. 911).

The Senate recedes with a technical amendment.

**SUBTITLE C—OTHER DEPARTMENT OF DEFENSE
ORGANIZATION AND MANAGEMENT MATTERS**

Prohibition on ownership or trading of stocks in certain companies by certain officials of the Department of Defense (sec. 921)

The Senate bill contained a provision (sec. 1034) that would prohibit Department of Defense officials who participated personally and substantially in an acquisition valued in excess of \$10.0 million who occupy a position on the Executive Schedule, are a member of the Senior Executive Service, a General or Flag Officer, or who served as a program manager, deputy program manager, procuring contracting officer, administrative contracting officer, source selection authority, member of a source selection evaluation board, or chief of a financial or technical evaluation team for a contract in excess of \$10.0 million, from owning or trading a publicly traded stock of a company that, during the preceding calendar year, received more than \$1.0 billion in revenue from the Department of Defense, including through contracts with the Department.

Further, the provision would direct that no officer or employee of the Department of Defense may own or trade a publicly traded stock of a company that is a contractor or subcontractor of the Department, if the Standards of Conduct Office of the Office of the General Counsel of the Department of Defense determines that the value of the stock may be directly or indirectly influenced by any official act of that officer or employee.

Any official who knowingly fails to comply with these requirements would be subject to administrative action by the Secretary of Defense. The definition of publicly traded stock would not include a widely-held investment fund, for purposes of this provision.

The House amendment contained no similar provision.

The House recesses with an amendment that would prohibit an individual serving in a key acquisition position in the Department of Defense who is: (1) A civilian officer or employee in a Senior Executive Service, Senior-Level, or Scientific or Professional position; or (2) A member of the Armed Forces in a grade above O-6, from owning or purchasing publicly traded stock of a company that is one of the ten entities awarded the most amount of contract funds by the Department of Defense in a fiscal year during the five preceding fiscal years. This same prohibition would apply to any civilian appointed to a position in the Department of Defense by the President, by and with the advice and consent of the Senate.

The prohibition would not apply if the aggregate market value of the stock holdings ascribed to the individual officer, employee, member of the Armed Forces, or appointee does not exceed the de minimis threshold established in the Code of Federal Regulations, or if the stock is purchased and owned as part of an Excepted Investment Fund or mutual fund.

Limitation on consolidation of Defense Media Activity (sec. 922)

The House amendment contained a provision (sec. 912) that would prohibit funds authorized or appropriated for the Department of Defense to be used to consolidate the Defense Media Activity until 180 days after the Secretary of Defense submits a report that includes any plans to consolidate the Defense Media Activity.

The Senate bill contained no similar provision.

The Senate recesses with an amendment that would remove the funding limitation, direct the Secretary of Defense not to take any actions to consolidate the Defense Media Activity until 60 days after submitting the required report, and change the definition of consolidation.

Report on resources to implement the civilian casualty policy of the Department of Defense (sec. 923)

The Senate bill contained a provision (sec. 922) that would require, not later than 30 days after the date of the enactment of this Act, the Secretary of Defense to submit to the congressional defense committee a report on the resources necessary to fulfill the requirements of section 936 of the John S. McCain National Defense Authorization Act for Fiscal Year 2019 (Public Law 115-232) over the future years defense plan.

The House amendment contained no similar provision.

The House recesses.

SUBTITLE D—UNITED STATES SPACE FORCE

United States Space Force Act (secs. 951-961)

The Senate bill contained a series of provisions (sec. 1601-1608) that would establish the United States Space Force (USSF) within the Department of the Air Force and make changes to the organization of, authorities of, and acquisition associated with space forces assigned to the Department of Defense (DOD).

The House amendment contained a similar series of provisions (sec. 921-925) that would establish a U.S. Space Corps within the Department of the Air Force.

The Senate recedes with an amendment that would enact the United States Space Force Act. The amendment would modify title 10, United States Code, to establish the United States Space Force as an Armed Force within the Department of the Air Force. The amendment would make multiple technical and conforming changes necessary to fully establish the United States Space Force in title 10, United States Code.

The Space Force would include military personnel of the Air Force Space Command and other military personnel of the Air Force as assigned to the Space Force by the Secretary of the Air Force. The amendment would prohibit the authorization of additional military billets. The conferees expect that the Space Force would be supported by civilian personnel within the Department of the Air Force and by Air Force Reserve elements, as determined by the Secretary of the Air Force. The conferees direct the Secretary of the Air Force to provide to the congressional defense committees a total force management plan in support of the Space Force. The report shall be delivered not later than 90 days after the enactment of this Act.

The amendment would designate the commander of the Space Force as the Chief of Space Operations (CSO), appointed by the President and confirmed by the Senate. The CSO's rank would be that of general with a 4-year term of command. The CSO could be the incumbent Commander, Air Force Space Command, without further appointment. The CSO would report directly to the Secretary of the Air Force upon enactment of this Act. After 1 year, the CSO would be a member of the Joint Chiefs of Staff. The amendment would provide the Secretary of Defense with the temporary authority to establish a dual-hatted arrangement wherein the CSO, for the first year after enactment, would also serve as the Commander, U.S. Space Command (SPACECOM).

The conferees expect the Space Force and its supporting elements to be the exclusive source of personnel of the Department of the Air Force to be assigned, by the CSO, to the

National Reconnaissance Office (NRO), unless otherwise specified by the Secretary of the Air Force.

The amendment would establish the position of the Assistant Secretary of Defense (ASD) for Space Policy within the Office of the Secretary of Defense. The amendment would require the Secretary of Defense to seek to enter into an agreement with a Federally Funded Research and Development Center (FFRDC) to develop recommendations on the appropriate elements of the Office of the ASD for Space Policy, including, in particular, whether to include space capabilities and programs currently assigned to the Office of the Under Secretary of Defense for Intelligence or in the Military Intelligence Program. The Secretary would submit to the congressional defense committees such recommendations, together with an assessment of those recommendations, not later than 180 after the date of the enactment of this Act.

The amendment would rename the Principal Assistant to the Secretary of the Air Force for Space as the Assistant Secretary for Space Acquisition and Integration (ASAF/SP), who would report directly to the Secretary of the Air Force and serve as the senior architect for space systems and programs across the Department of Defense, providing advice to the service acquisition executive (SAE) of the Air Force (the existing Assistant Secretary of the Air Force for Acquisition). The ASAF/SP would oversee and direct the Space Rapid Capabilities Office, the Space and Missile Systems Center, and the Space Development Agency, providing fiscal and strategic guidance to the organizations. Effective October 1, 2022, the ASAF/SP would also become the SAE for Space Systems and Programs, which would include all space acquisition activities within the Air Force. All space acquisition projects currently managed by the Assistant Secretary of the Air Force for Acquisition would be transitioned to the ASAF/SP in the role of SAE for Space Systems and Programs, therefore providing for two SAEs reporting to the Secretary of the Air Force. The ASAF/SP would require confirmation by the Senate for this additional role.

The conferees note that the Deputy Secretary of Defense did not submit to the congressional defense committees the plan required by section 1601(b) of the John S. McCain National Defense Authorization Act for Fiscal Year 2019 (Public Law 115-232). Therefore, the conferees direct the Secretary of the Air Force to provide to the congressional defense committees a report on whether and, if so, how to implement an alternative acquisition system, due not later than March 31, 2020. The report should include an assessment of the feasibility of a new acquisition system specifically tailored for space systems and programs, including with respect to procuring space vehicles,

ground segments relating to such vehicles, and satellite terminals. The plan shall include recommendations with respect to whether the alternative acquisition system described in the plan should use the Joint Capabilities Integration and Development System process or instead use a new requirements process developed in a manner that ensures that requirements for a program are synchronized across the space vehicles and ground segments. It should also consider how such a system can achieve faster acquisition and more rapid fielding of critical systems, including by using new commercial capability. The conferees also direct the Secretary to submit, not later than 120 days after the enactment of this Act, to the congressional defense committees a report with recommendations on the integration of acquisition authority for the NRO into acquisition authority of the Air Force for space systems and programs.

The amendment would also establish a Space Force Acquisition Council (SAC) within the Office of the Secretary of the Air Force that would oversee, direct, and manage Air Force acquisitions for space in order to ensure integration across the national security space enterprise. The SAC would meet not less frequently than monthly. The amendment would establish the ASAF/SP as the chair of Council. The Under Secretary of the Air Force, the Director of the NRO, the CSO, the ASD for Space Policy and the Commander, SPACECOM, would also be members of the Council. The amendment would require the SAC to submit quarterly reports to the congressional defense committees through the first calendar year quarter of 2025 on the activities of the Council.

The conferees direct the Secretary of the Air Force and Secretary of Defense to submit the following reports and briefings to the congressional defense committees on the establishment of the United States Space Force:

(1) A report and accompanying briefing on a comprehensive plan for the organizational structure of the Space Force, to be submitted by the Secretary of the Air Force not later than February 1, 2020. The report should include the following elements:

(a) A detailed description of the structure and organizational elements required for the Space Force to perform its mission;

(b) A detailed description of the organization and staff required to support the CSO;

(c) A detailed explanation of the manner in which the Space Force is expected to affect the composition and function of current space elements of the Armed Forces;

(d) A description of the manner in which the Space Force will be organized, trained, and equipped; and

(e) A description of the manner in which the Space Force will coordinate with SPACECOM and other space elements of the Armed Forces;

(2) A report and accompanying briefing on the anticipated funding requirements for the establishment of the Space Force and for its operations and activities from fiscal year 2021 through fiscal year 2025, to be submitted by the Secretary of Defense not later than February 1, 2020. The report should include the budget activity, line number, line item, line item title, and a description of the requirements specific to the Space Force for each account of the following:

(a) Procurement accounts;

(b) Research, development, test, and evaluation accounts;

(c) Operation and maintenance accounts; and

(d) Military personnel accounts.

The report should also include, for each project under military construction accounts, the country, location, project title, and project amount by fiscal year, and, for any expenditures and proposed appropriations not included, an explanation with a level of detail at least equivalent to the level of detail provided in the future year's defense program submitted to Congress. The report may be submitted in unclassified form, but may include a classified annex;

(3) A report setting forth a comprehensive legislative proposal for amendments to the laws under the jurisdiction of the congressional defense committees to fully integrate the Space Force as an Armed Force, and the regular and reserve military and the civilian personnel of the Space Force, into current law, to be submitted by the Secretary of Defense not later than 60 days after the date of the enactment of this Act;

(4) A plan to ensure the quality of the military and civilian personnel of the Space Force, to include:

(a) Mechanisms to define career professional milestones and manage the career progression of members and civilian employees of the Space Force throughout their careers;

(b) Identification and establishment of space-related career fields;

(c) Pay and incentive structures;

(d) The management and oversight of the space cadre;

(e) Training relating to planning and executing warfighting missions and operations in space;

(f) Conducting periodic cadre-wide professional assessments to determine how the cadre is developing as a group;

(g) Establishing a centralized method to control personnel assignments and distribution;

(h) The identification of future space-related career fields that the Secretary determines appropriate, including a space acquisition career field; and

(i) Identification of overlap among the operations and acquisition career fields to identify opportunities for cross-functional careers.

The Secretary should submit to the congressional defense committees a report on such plan not later than 180 days after the date of the enactment of this Act.

The conferees also direct the Secretary of Defense, in coordination with the Director of National Intelligence, to submit to the congressional defense committees a report containing the results of a review on processes designed to achieve more effective integration of capabilities among the NRO, National Security Agency, National Geospatial Intelligence Agency (NGA), and SPACECOM for joint operations. This report should be submitted not later than 180 days after the enactment of this Act.

Finally, this amendment would limit the total amount of funds to be obligated and expended in fiscal year 2020 for the establishment of the Space Force to the amount requested for the Space Force in the President's budget request for fiscal year 2020. The amendment would require the Secretary of the Air Force to implement the establishment of the United States Space Force not later than 18 months after the date of the enactment of this Act. The amendment would also require the Secretary and the CSO to jointly provide to the congressional defense committees briefings on the status of the current missions, operations and activities, manpower requirements, budget and funding requirements, and implementation not later than 60 days after the date of the enactment of this Act and every 60 days thereafter until March 31, 2023.

The conferees note that nothing in this provision is intended to be construed as mandating any changes to the mission or operations of the NRO or NGA.

LEGISLATIVE PROVISIONS NOT ADOPTED

Repeal of conditional designation of Explosive Ordnance Disposal Corps as a basic branch of the Army

The Senate bill contained a provision (sec. 912) that would repeal section 582 of the National Defense Authorization Act for Fiscal Year 2018 (Public Law 115-91), which established the conditional designation of explosive ordnance disposal as a basic branch of the Army.

The House amendment contained no similar provision.

The Senate recesses.

Modernization of certain forms and surveys

The House amendment contained a provision (sec. 913) that would require the Secretary of Defense to conduct a study to identify each form and survey that contains a term or classification that the Secretary determines may be considered racially or ethnically insensitive and provide a plan to modernize those forms.

The Senate bill contained no similar provision.

The House recesses.

The conferees direct the Secretary of Defense to provide an interim briefing, no later than 180 days after the enactment of this Act, to the Committees on Armed Services of the Senate and House of Representatives, regarding efforts to date to review and identify forms and surveys under the purview of the Department of Defense or its components, that contain a term or classification that may be considered racially or ethnically insensitive. Additionally, no later than a year after the date of the enactment of this Act, the conferees direct the Secretary to provide the committees a report setting forth the Department's comprehensive plan to modernize the forms identified, and the progress to date in executing such plan.

TITLE X—GENERAL PROVISIONS

SUBTITLE A—FINANCIAL MATTERS

General transfer authority (sec. 1001)

The Senate bill contained a provision (sec. 1001) that would allow the Secretary of Defense, with certain limitations, to make transfers between amounts authorized for fiscal year 2020 in division A of this Act. The section would limit the total amount transferred under this authority to \$4.0 billion. This section would also require prompt notification to Congress of each transfer made.

The House amendment contained a similar provision (sec. 1001) that would allow the Secretary of Defense to transfer up to \$1.0 billion of fiscal year 2020 funds authorized in division A of this Act. It would also prohibit transfers to the Drug Interdiction and Counter Drug Activities, Defense-wide account and require the Secretary of Defense to certify the transfer was made to higher priority items based on unforeseen military requirements.

The House recesses.

Defense Business Audit Remediation Plan (sec. 1002)

The House amendment contained a provision (sec. 1002) that would amend the annual reporting and semiannual briefing requirements contained in section 240b of title 10, United States Code, to include a current accounting of the defense business systems of the Department of Defense that will be introduced, replaced, updated, modified, or retired in connection with the audit of the full financial statements of the Department, including a comprehensive roadmap displaying in-service, retirement, and other pertinent dates for affected defense business systems as well as current cost-to-complete estimates for each effort.

The Senate bill contained no similar provision.

The Senate recesses with an amendment that would modify the reporting requirements.

Financial improvement and audit remediation plan (sec. 1003)

The House amendment contained a provision (sec. 1003) that would amend section 240b of title 10, United States Code, by updating the elements of annual reports, semiannual briefs, and audit remediation services of financial improvements and audit remediation plans.

The Senate bill contained no similar provision.

The Senate recesses.

Reporting requirements relating to Department of Defense audits (sec. 1004)

The House amendment contained a provision (sec. 1004) that would require an annual report ranking each of the military departments and Defense Agencies in order of how advanced they are in achieving auditable financial statements as required by law. This report would include, for the bottom quartile of departments and agencies ranked in the report, an additional report describing the material weaknesses of the reporting entity, underlying causes of the material weaknesses, and a plan for remediation. The provision would also require a report presenting a plan for achieving an unmodified audit opinion on the Department of Defense-wide consolidated audit within 5 years.

The Senate bill contained no similar provision.

The Senate recedes with an amendment that would remove the limitation on use of funds and would modify the reporting requirement.

Inclusion of certain military construction projects in annual reports on unfunded priorities of the Armed Forces and the combatant commands (sec. 1005)

The Senate bill contained a provision (sec. 1003) that would amend section 222a of title 10, United States Code, to require the military services and combatant commands to submit separate lists of unfunded priorities for military construction. This provision would require the lists to be in priority order.

The House amendment contained no similar provision.

The House recedes with a technical amendment.

Prohibition on delegation of responsibility for submittal to Congress of Out-Year Unconstrained Total Munition Requirements and Out-Year Inventory numbers (sec. 1006)

The Senate bill contained a provision (sec. 1004) that would amend section 222a of U.S.C 10 to prohibit the chief of staff of each of the Services from delegating the reporting requirement outside the service concerned.

The House amendment contained no similar provision.

The House recedes.

Annual budget justification display for service-common and other support and enabling capabilities for special operations forces (sec. 1007)

The House amendment contained a provision (sec. 1005) that would amend chapter 9 of title 10, United States Code, to require the Secretary of Defense to include in the budget materials submitted to Congress under section 1105 of title 31, United States Code, for fiscal year 2021 and any subsequent fiscal year, a consolidated budget justification display showing service-common and other support and enabling capabilities for special operations forces requested by a military service or Defense Agency.

The Senate bill contained no similar provision.

The Senate recedes.

Element in annual reports on the Financial Improvement and Audit Remediation Plan on activities with respect to classified programs (sec. 1008)

The Senate bill contained a provision (sec. 1005) that would amend section 240b(b)(1) of title 10, United States Code, to include audit results and activities for classified programs in the Financial Improvement and Audit Remediation Plan. The plan shall remain unclassified and include a classified annex, if required.

The House amendment contained no similar provision.

The House recesses.

Plan of the Department of Defense for financial management information (sec. 1009)

The Senate bill contained a provision (sec. 1006) that would require the Under Secretary of Defense (Comptroller) to track the costs of the audit corrective action plans.

The House amendment contained no similar provision.

The House recesses with an amendment that would modify the reporting requirements.

The conferees direct the Secretary of Defense not later than 90 days after the date of the enactment of this Act, to submit to the congressional defense committees a report containing the following Department-Wide audit metrics:

(1) Total number of open audit notices of findings and recommendations (NFRs) for the most recent fiscal year and the preceding two fiscal years where applicable;

(2) Number of repeat or reissued NFRs from the most recent fiscal year;

(3) Number of NFRs that were previously forecasted to be closed in the most recently completed fiscal year that remain open;

(4) Number of closed NFRs in the current fiscal year and prior fiscal years;

(5) Number of material weaknesses that were validated by external auditors as fully resolved or downgraded in the current fiscal year over prior fiscal years;

(6) Breakdown by fiscal years in which open NFRs are forecasted to be closed; and

(7) Explanations for unfavorable trends in these categories.

Update of authorities and renaming of Department of Defense Acquisition Workforce Development Fund (sec. 1010)

The Senate bill contained a provision (sec. 1007) that would amend section 1705 of title 10, United States Code, to rename the Defense Acquisition Workforce Development Fund to the

Defense Acquisition Workforce Development Account in recognition that it is funded by appropriations.

The House amendment contained no similar provision.

The House recesses.

Transparency of accounting firms used to support Department of Defense audit (sec. 1011)

The House amendment contained a provision (sec. 1008) that would require audit firms to report fully adjudicated disciplinary proceedings to the Department of Defense, ensure the details of such disciplinary proceedings are kept confidential, and would provide a definition of "associated person".

The Senate bill contained no similar provision.

The Senate recesses with an amendment that would eliminate the insertion of "fully adjudicated" and the definition of associated persons.

The conferees direct the Secretary of Defense to provide a briefing, in conjunction with the Financial Improvement and Audit Remediation Plan, on the implementation of section 1006 of John S. McCain National Defense Authorization Act for Fiscal Year 2019 no later than June 30, 2020.

Modification of required elements of annual reports on emergency and extraordinary expenses of the Department of Defense (sec.)

The Senate bill contained a provision (sec.1002) that would amend section 127 of title 10, United States Code, to modify the annual reporting requirement on emergency and extraordinary expenses of the Department of Defense.

The House amendment contained no similar provision.

The House recesses with a technical amendment.

SUBTITLE B—COUNTERDRUG ACTIVITIES

Modification of authority to support a unified counterdrug and counterterrorism campaign in Colombia (sec. 1021)

The Senate bill contained a provision (sec.1011) that would amend section 1021 of the Ronald W. Reagan National Defense Authorization Act for Fiscal Year 2005 (Public Law 108-375), as most recently amended by section 1011 of the National Defense Authorization Act for Fiscal Year 2018 (Public Law 115-91), to modify authorized assistance to the Government of Colombia to address the emergence of new threats.

The House amendment contained no similar provision.

The House recesses with an amendment that would modify the organizations with respect to which assistance may be provided under this authority.

Extension of authority for joint task forces to provide support to law enforcement agencies conducting counter-terrorism activities (sec. 1022)

The Senate bill contained a provision (sec. 1012) that would extend for two years section 1022 of the National Defense Authorization Act for Fiscal Year 2004 (Public Law 108-136).

The House amendment contained a similar provision (sec. 1031) that would extend for two years section 1022 of the National Defense Authorization Act for Fiscal Year 2004 (Public Law 108-136).

The Senate recesses.

Sense of Congress regarding Department of Defense counterdrug activities in the transit zone and Caribbean basin (sec. 1023)

The House amendment contained a provision (sec. 1014) that would express the Sense of Congress that counterdrug activities in the transit zone and Caribbean basin are critical to national security.

The Senate bill contained no similar provision.

The Senate recesses with a clarifying amendment.

Assessment of impact of proposed border wall on volume of illegal narcotics (sec. 1024)

The House amendment contained a provision (sec. 1015) that would require the Secretary of Defense, in consultation with the Secretary of Homeland Security, to conduct an assessment of the impact that any planned or proposed border wall construction would have on the volume of illegal narcotics entering the United States.

The Senate bill contained no similar provision.

The Senate recesses with a technical amendment.

SUBTITLE C—NAVAL VESSELS

Modification of authority to purchase vessels using funds in National Defense Sealift Fund (sec. 1031)

The Senate bill contained a provision (sec. 1016) that would amend section 2218(f)(3) of title 10, United States Code, in subparagraph (E) by striking "10 new sealift vessels" and inserting "10 new sealift vessels, auxiliary vessels, or a combination of such vessels".

The House amendment contained no similar provision.

The House recedes.

Use of National Defense Sealift Fund for procurement of two used vessels (sec. 1032)

The House amendment contained a provision (sec. 1022) that would require the Secretary of the Navy to seek to enter into a contract for two used vessels for mobilization purposes.

The Senate bill contained no similar provision.

The Senate recedes.

Transportation by sea of supplies for the Armed Forces and Defense Agencies (sec. 1033)

The House amendment contained a provision (sec. 1021) that would modify section 2631 of title 10, United States Code, to expand application of cargo transported by the Department of Defense to include Defense Agencies. Additionally, this provision would require additional latitude in the transportation of fuel products to better expand opportunities for U.S. flagged resources.

The Senate bill contained no similar provision.

The Senate recedes.

Senior Technical Authority for each naval vessel class (sec. 1034)

The Senate bill contained a provision (sec. 1017) that would require the designation of a Senior Technical Authority (STA) for each class of naval vessels.

The House amendment contained no similar provision.

The House recedes with an amendment that would remove the prohibition on delegation of the authority to designate STAs and adjust STA tenure requirements.

The conferees' intent is that STAs are primarily or entirely employees of the Naval Sea Systems Command engineering directorate (code 05) with the STA designation and associated duties as primary or collateral responsibilities.

Permanent authority for sustaining operational readiness of littoral combat ships on extended deployment (sec. 1035)

The Senate bill contained a provision (sec. 1018) that would amend section 8680 of title 10, United States Code, to provide the Secretary of the Navy with additional flexibility to maintain Littoral Combat Ships (LCSs) by allowing government or contractor personnel to conduct maintenance on deployed LCS vessels regardless of ship location.

The House amendment contained no similar provision.

The House recedes with an amendment that would specify allowable maintenance activities.

The conferees note the two classes of LCS have significantly different maintenance requirements and sustainment models as compared to other classes of Navy surface ships.

Accordingly, the conferees direct the Secretary of the Navy to submit to the congressional defense committees, no later than March 1, 2020, comprehensive LCS class maintenance plans for each LCS class. Each such plan shall contain the following elements for such class: (1) An assessment of the implications of extended LCS deployments on material readiness and operational availability; (2) A comprehensive sustainment strategy necessary to support the total number of LCSs, including maintenance requirements, sustainment concepts, and estimated life cycle costs; (3) A description of the permanent and temporary facilities required to support LCSs operating on extended deployments at overseas locations; (4) A description of all contracting strategies for LCS ship repair and maintenance, including short- and long-term; (5) A summary of projected LCS maintenance costs, by fiscal year, for fiscal years 2020 through 2025 and the extent to which actual costs have deviated from prior estimates; and (6) Other related matters the Secretary deems appropriate.

Formal training for shipboard system programs of record (sec. 1036)

The House amendment contained a provision (sec. 1023) that would require the Secretary of the Navy to ensure there is a formal schoolhouse for all shipboard systems that are current programs of record in the fleet.

The Senate bill contained no similar provision.

The Senate recedes with an amendment that would require formal training for such systems, but not require the training occur at a schoolhouse.

Report on shipbuilder training and the defense industrial base (sec. 1037)

The House amendment contained a provision (sec. 1024) that would require the Secretary of the Defense to submit a report on how the Navy plans to manage the need to grow the shipbuilding workforce as it builds to a 355-ship Navy.

The Senate bill contained no similar provision.

The Senate recesses with an amendment that would require the Secretary of Defense to submit the report in coordination with the Secretary of Labor.

Use of competitive procedures for CVN-80 and CVN-81 dual aircraft carrier contract (sec. 1038)

The House amendment contained a provision (sec. 1025) that would require to the extent practicable and unless otherwise required by law, the Secretary of the Navy to ensure that competitive procedures are used with respect to any task order or delivery order issued under a dual aircraft carrier contract relating to the CVN-80 and CVN-81.

The Senate bill contained no similar provision.

The Senate recesses.

Report on expanding naval vessel maintenance (sec. 1039)

The House amendment contained a provision (sec. 1026) that would require the Secretary of the Navy to submit to the congressional defense committees a report on allowing maintenance to be performed on naval vessels at shipyards other than shipyards in the vessels' homeports.

The Senate bill contained no similar provision.

The Senate recesses with an amendment that would require the report to include a description of the ability of non-homeport firms to maintain surge capacity when homeport shipyards lack the capacity or capability to meet homeport requirements and make other technical changes.

SUBTITLE D—COUNTERTERRORISM

Modification of support of special operations to combat terrorism (sec. 1041)

The House amendment contained a provision (sec. 1037) that would amend section 127e of title 10, United States Code, to modify the notification required pursuant to this authority.

The Senate bill contained no similar provision.

The Senate recesses with a technical amendment.

Extension of prohibition on use of funds for transfer or release of individuals detained at United States Naval Station, Guantanamo Bay, Cuba, to certain countries (sec. 1042)

The Senate bill contained a provision (sec. 1023) that would extend until December 31, 2020, the prohibition on the use of funds provided to the Department of Defense to transfer or release individuals detained at United States Naval Station, Guantanamo Bay, Cuba, to Libya, Somalia, Syria, and Yemen.

The House amendment contained a similar provision (sec. 1032) that would prohibit the use of funding authorized to be appropriated or otherwise made available for the Department of Defense during the period beginning on the date of the enactment of this Act and ending on December 31, 2020, to transfer, release, or assist in the transfer or release of any individual detained at United States Naval Station, Guantanamo Bay, Cuba, to Libya, Somalia, Syria, Yemen, Cuba, Iran, Russia, North Korea, Mexico, Guatemala, Honduras, El Salvador, or Venezuela.

The House recesses.

Extension of prohibition on use of funds for transfer or release of individuals detained at United States Naval Station, Guantanamo Bay, Cuba, to the United States (sec. 1043)

The Senate bill contained a provision (sec. 1021) that would extend until December 31, 2020, the prohibition on the use of funds provided to the Department of Defense to transfer or release individuals detained at United States Naval Station, Guantanamo Bay, Cuba, to the United States.

The House amendment contained no similar provision.

The House recesses.

Extension of prohibition on use of funds to construct or modify facilities in the United States to house detainees transferred from United States Naval Station, Guantanamo Bay, Cuba (sec. 1044)

The Senate bill contained a provision (sec. 1022) that would extend until December 31, 2020, the prohibition on the use of funds provided to the Department of Defense to construct or modify facilities in the United States to house detainees transferred from United States Naval Station, Guantanamo Bay, Cuba.

The House amendment contained no similar provision.

The House recesses.

Extension of prohibition on use of funds to close or relinquish control of United States Naval Station, Guantanamo Bay, Cuba (sec. 1045)

The Senate bill contained a provision (sec. 1024) that would extend through fiscal year 2020, the prohibition on the use of funds provided to close or abandon United States Naval Station, Guantanamo Bay, Cuba; to relinquish control of Guantanamo Bay to the Republic of Cuba; or to implement a material modification to the Treaty between the United States of America and Cuba signed at Washington, D.C., on May 29, 1934, which modification would constructively close United States Naval Station, Guantanamo Bay.

The House amendment contained no similar provision.
The House recedes.

Chief Medical Officer at United States Naval Station, Guantanamo Bay, Cuba (sec. 1046)

The Senate bill contained a provision (sec. 1026) that would require the establishment of a Chief Medical Officer (CMO) at the United States Naval Station, Guantanamo Bay, Cuba, to conduct oversight of medical care provided to individuals detained at Guantanamo Bay, and to ensure that such medical care meets the defined standard of care. The CMO would report directly to the Assistant Secretary of Defense for Health Affairs and hold a grade not below that of colonel, or captain in the Navy. The CMO would make medical determinations, including: (1) Decisions regarding assessment, diagnosis, and treatment of detainees; and (2) Medical accommodations to detainee living conditions and operating procedures for detention facilities. In the event the commander of Joint Task Force-Guantanamo declined to follow a determination of the CMO, the provision would require the Assistant Secretary of Defense for Special Operations and Low Intensity Conflict and the Assistant Secretary of Defense for Health Affairs to resolve the matter jointly, within 7 days of receipt of the notification of such declination. Additionally, the provision would authorize the CMO to secure access to any individual, information, or assistance that the CMO considered necessary to carry out the duties of the position.

The Senate bill also contained a provision (sec. 1025) that would authorize the temporary transfer of individuals detained at United States Naval Station, Guantanamo Bay, Cuba, to the United States for emergency or critical medical treatment not available at Guantanamo.

The House amendment contained a similar provision (sec. 1034) that would express the sense of Congress that the increasing age of detainees at the United States Naval Station, Guantanamo Bay, Cuba, poses challenges for the provision of medical care, and that the United States has an ongoing obligation to provide medical care that meets appropriate standards of care to the detainees at Guantanamo. This provision would also express the sense of Congress that the Secretary of Defense should take into account the standards of care provided at other relevant facilities, including those administered by the Federal Bureau of Prisons, when determining the policies regarding medical care for detainees at Guantanamo.

The House recedes to Senate section 1026, with technical and clarifying amendments.

The Senate recedes to Senate section 1025.

The House recedes to House section 1034.

Independent assessment on gender and countering violent extremism (sec. 1047)

The House amendment contained a provision (sec. 1035) that would require the Secretary of Defense to enter into contract with a nonprofit entity or federally funded research and development center independent of the Department of Defense to conduct research and analysis on the intersection of gender and violent extremism and terrorism and provide a report to the congressional defense committees on the result of such assessment.

The Senate bill contained no similar provision.

The Senate recedes with a clarifying amendment.

SUBTITLE E—MISCELLANEOUS AUTHORITIES AND LIMITATIONS

Scheduling of Department of Defense executive aircraft controlled by Secretaries of military departments (sec. 1051)

The House amendment contained a provision (sec. 1041) that would require the Secretary of Defense to ensure there is coordination in scheduling executive airlift across the entire Department of Defense.

The Senate bill contained no similar provision.

The Senate recedes with a clarifying amendment.

Explosive ordnance defense disposal program (sec. 1052)

The House amendment contained a provision (sec. 1042) that would amend section 2284 of title 10, United States Code, to make technical changes regarding the responsibilities of the executive agent for the explosive ordnance disposal training and technology program. The provision would also eliminate the requirement to designate a combat support agency to manage a Defense-wide program element for certain explosive ordnance disposal activities.

The Senate bill contained no similar provision.

The Senate recedes with a technical amendment.

Technical correction and extension of reporting requirement regarding enhancement of information sharing and coordination of military training between Department of Homeland Security and Department of Defense (sec. 1053)

The House amendment contained a provision (sec. 1012) that would provide a technical correction to and extend until December 31, 2022, a report required by section 1014 of the National Defense Authorization Act for Fiscal Year 2017 (Public Law 114-328).

The Senate bill no similar provision.

The Senate recedes.

Notification on the provision of defense sensitive support (sec. 1054)

The House amendment contained a provision (sec. 1043) that would modify section 1055 of the National Defense Authorization Act for Fiscal Year 2017 (Public Law 114-328) to provide additional Defense Sensitive Support reporting requirements.

The Senate bill contained no similar provision.

The Senate recedes with a technical amendment.

Revision to authorities relating to mail service for members of the Armed Forces and Department of Defense civilians overseas (sec. 1055)

The Senate bill contained a provision (sec. 1081) that would amend section 3401 of title 39, United States Code, to clarify that Active-Duty servicemembers and Department of Defense civilian employees providing support to military operations are authorized to mail personal correspondence at no cost when deployed for a contingency operation in an area designated by the President. The provision also would extend the free mail program to all hospitalized servicemembers wounded in a designated area. Finally, the provision would allow certain

mail between military post offices or from a military post office to a point of entry into the United States to be transported by surface shipment.

The House amendment contained no similar provision.
The House recesses.

Access to and use of military post offices by United States citizens employed overseas by the North Atlantic Treaty Organization who perform functions in support of military operations of the Armed Forces (sec. 1056)

The Senate bill contained a provision (sec. 1082) that would modify section 406 of title 39, United States Code, to permit the Secretary of Defense to authorize the use of military post offices in locations outside the United States by citizens of the United States who are employed by the North Atlantic Treaty Organization and who perform functions in support of the Armed Forces.

The House amendment contained no similar provision.
The House recesses.

Expenditure of funds for Department of Defense intelligence and counterintelligence activities (sec. 1057)

The House amendment contained a provision (sec. 1047) that would authorize the expenditure of no more than 5 percent of Military Intelligence Program funds for Department of Defense recurring or anticipated intelligence and counterintelligence activities for each of the fiscal years 2020 through 2025. Further, this section would require the Secretary of Defense to provide a report of the expenditures covered by this authorization for each of the fiscal years 2020 through 2025. This section would provide additional authorization in response to section 1041 of the National Defense Authorization Act for Fiscal Year 2018 (Public Law 115-91), which required the Secretary of Defense to clarify use of emergency and extraordinary expenses for intelligence and counterintelligence activities that were determined not to be of an emergent or extraordinary nature.

The Senate bill contained no similar provision.
The Senate recesses with a technical amendment.

Limitation on use of funds for the inactivation of Army watercraft units (sec. 1058)

The House amendment contained a provision (sec. 1045) that would prohibit any funds authorized or appropriated by this Act

to be used for the inactivation of any Army watercraft unit until the Secretary of Defense submits to Congress a certification on the Army Watercraft Requirements Review and a federally funded research and development center has reviewed and validated the Army's ability to meet watercraft requirements of the combatant commanders.

The Senate bill contained no similar provision.

The Senate recedes with a technical amendment.

LEGISLATIVE PROVISIONS NOT ADOPTED

Independent public accountant audit of financial systems of the Department of Defense

The House amendment contained a provision (sec. 1007) that would direct the Secretary of Defense to ensure financial systems of the Department of Defense are reviewed by an independent public accountant to validate the financial system will meet applicable Federal requirements.

The Senate bill contained no similar provision.

The House recedes.

The conferees are encouraged by the Department of Defense's completion of the first audit in 2018. In order to improve the Department of Defense's ability to continue audit compliance, the Secretary of Defense shall ensure that each major implementation of, or modification to, a financial system of the Department of Defense meets all applicable Federal statutes, regulations, and policies with regards to auditability.

Modification of authority to provide support to other agencies for counterdrug activities and activities to counter transnational organized crime

The House amendment contained a provision (sec. 1011) that would modify the types of support authorized by section 284 of title 10, United States Code as well as include additional congressional notification requirements.

The Senate bill contained no similar provision.

The House recedes.

Repeal of Secretary of Defense review of curricula and program structures of National Guard counterdrug schools

The House amendment contained a provision (sec. 1013) that would repeal the Secretary of Defense's review of National Guard counterdrug school curricula and program structures.

The Senate bill contained no similar provision.
The House recesses.

The conferees note the importance of the National Guard counterdrug schools in the development, training, and maintenance of skills for Federal, State, local, and foreign government officials to combat illicit trafficking. The conferees direct the Secretary of Defense to provide a briefing to the House and Senate Armed Services Committees no later than 90 days after enactment of this Act on the Department of Defense review of the curricula and program structures of the National Guard counterdrug schools. The briefing shall include the following:

(1) An overview of the National Guard counterdrug schools.
(2) An overview of the Department's guidance related to the National Guard counterdrug program.

(3) An explanation of the Department's guidance specifically related to the curricula and program structures of the National Guard counterdrug schools.

(4) A description of the Department's goals, objectives, and effect-based measures of performance related to the National Guard counterdrug schools.

(5) An initial evaluation of the establishment of the National Guard Bureau counterdrug schools executive steering committees, the committees' progress toward implementing guidance, and the structure to incorporate feedback regarding such guidance from the States.

(6) An initial evaluation of curricula requirements identified by State counterdrug coordinators.

(7) An initial evaluation of the National Guard counterdrug schools activity plans received from States.

(8) A cost analysis of the metrics used to explain how any savings and efficiencies will be achieved by any changes made, including an analysis of the elimination of contracted positions.

(9) Any other matters the Secretary considers appropriate.

Clarification of authority of military commissions under chapter 47A of title 10, United States Code, to punish contempt

The Senate bill contained a provision (sec. 1031) that would amend subchapter IV of chapter 47A of title 10, United States Code, to permit a judge of the United States Court of Military Commission Review or a military judge detailed to a military commission to punish contempt. The provision also would provide that the punishment for contempt may not exceed confinement for 30 days, a fine of \$1,000, or both and would

establish the conditions under which punishment for contempt is reviewable.

The House amendment contained no similar provision.

The Senate recesses.

Prohibition on use of funds for transfer to and detention of additional individuals, including United States citizens, at United States Naval Station, Guantanamo Bay, Cuba

The House amendment contained a provision (sec. 1033) that would prohibit the use of funding authorized to be appropriated or otherwise made available for the Department of Defense during the period beginning on the date of the enactment of this Act and ending on December 31, 2020, to detain any additional individuals including United States citizens, under the law of war or pursuant to military commission proceedings, at the detention facility at the United States Naval Station, Guantanamo Bay, Cuba. The provision also would require a plan identifying a disposition other than continued law of war detention at United States Naval Station, Guantanamo Bay, Cuba, for each individual currently detained at Guantanamo.

The Senate bill contained no similar provision.

The House recesses.

Enhancement of authorities on forfeiture of Federal benefits by the National Guard

The Senate bill contained a provision (sec. 1037) that would amend section 108 of title 32, United States Code, to provide that the availability of Federal funds provided to the National Guard of individual States is contingent upon compliance with Federal law and policy applicable to the National Guard. The provision would also authorize the President to withdraw Federal recognition of National Guard units and members for failure to comply with Federal law and policy and would authorize the President to bar units and individuals from receiving Federal funds if the unit or individuals fail to comply with Federal law and policy.

The House amendment contained no similar provision.

The Senate recesses.

Public availability of military commission proceedings

The House amendment contained a provision (sec. 1038) that would amend title 10, United States Code, to provide that, as to any proceeding of a military commission that is made open to the public, the military commission judge may order that the

proceedings be made available to be watched remotely by the public through the internet.

The Senate bill contained no similar provision.

The House recesses.

Limitation on placement by the Under Secretary of Defense for Personnel and Readiness of work with federally funded research and development centers

The Senate bill contained a provision (sec. 1039) that would amend would prohibit the Under Secretary of Defense for Personnel and Readiness from placing any work with a federally funded research and development center (FFRDC) until a report containing a list of all studies, reports, and other analyses being undertaken for the Under Secretary is submitted to the Committees on Armed Services of the Senate and the House of Representatives.

The House amendment contained no similar provision.

The Senate recesses.

Modification and technical correction of authority for deployment of members of the Armed Forces to the southern land border of the United States

The House amendment contained a provision (sec. 1044) that would modify the authority under section 1059 of the National Defense Authorization Act for Fiscal Year 2016 (Public Law 114-92) by requiring a certification and notification requirement prior to the provision of assistance to the United States Custom and Border Protection at the U.S. southern land border. Additionally, this section would amend and add reporting requirements, require that the support be on a reimbursable basis, and terminate the authority on September 30, 2023.

The Senate bill contained no similar provision.

The House recesses.

Use of funds for defense of the Armed Forces and United States citizens against attack by foreign hostile forces

The Senate bill contained a provision (sec. 1045) that would allow funds authorized to be appropriated by this Act to be used to ensure the ability of the Armed Forces to defend themselves, and the United States, against attack.

The House amendment contained no similar provisions.

The Senate recesses.

Prohibition on use of funds for construction of a wall, fence, or other physical barrier along the southern border of the United States

The House amendment contained a provision (sec. 1046) that would prohibit the obligation, expense, or use of funds, that have been authorized to be appropriated for national defense in fiscal years 2015 through 2020, to design or carry out a project to construct, replace, or modify a wall, fence or other physical barrier along the international border between the United States and Mexico.

The Senate bill contained no similar provision.

The House recesses.

Limitation on use of funds to house children separated from parents

The Senate bill contained a provision (sec. 1044) that would prohibit the use of funds authorized to be appropriated by this Act to house a child separated from a parent, unless the Department of Homeland Security demonstrated in a hearing that the parent or legal guardian was unfit or presented a danger to the child.

The House amendment contained a similar provision (sec. 1048) that would prohibit amounts made available to the Department of Defense for fiscal year 2020 from being used to house children separated from their parent or legal guardian by Customs and Border Protection near a port of entry or within 100 miles of the border of the United States, unless a state court, an official with the state or county child welfare agency, or a Custom and Border Protection chief patrol agent or the area port director determines that the separation is in the best interest of the child because the child is in danger of abuse or neglect.

The conference agreement does not include either provision.

Limitation on use of funds for providing housing for unaccompanied alien children

The House amendment contained a provision (sec. 1049) that would require the Department of Defense to submit a congressional certification that any housing provided to unaccompanied alien children meets the standards of the Department of Health and Human Services, including those provided in the Flores settlement agreement.

The Senate bill contained no similar provision.

The House recesses.

Transfer of certain items included in categories I, II, and III of the United States Munitions List to the Commerce Control List

The House amendment contained a provision (sec. 1050) that would prohibit the President from removing from the United States Munitions List any item that was included in category I, II, or III of the United States Munitions List, as in effect on August 31, 2017.

Senate bill contained no similar provision.

The House recesses.

Limitation on use of funds for reimbursement of expenses at certain properties

The House amendment contained a provision (sec. 1050A) that would prohibit the obligation or expenditure of funds made available for the Department of Defense at a list of properties or to an entity with an ownership interest in such properties.

The Senate bill contained no similar provision.

The House recesses.

Limitation on use of funds for exhibition of parade of military forces and hardware for review by the President

The House amendment contained a provision (sec. 1050B) that would prohibit the use of funds authorized by this Act or otherwise appropriated for Fiscal Year 2020 for the Department of Defense from being obligated or expended for any exhibition or parade of military forces and hardware, with the exception of ceremonial honors and customary ceremonial duties, for review by the President outside authorized military operations.

The Senate bill contained no similar provision.

The House recesses.

Prohibition on use of DOD equipment, personnel, and facilities for ICE detention

The House amendment contained a provision (sec. 1050C) that would prohibit the use of facilities, equipment, or personnel of the Department of Defense to house or to construct housing for foreign nationals in the custody of U.S. Immigration and Customs Enforcement.

The Senate bill contained no similar provision.

The House recesses.

Report on joint force plan for implementation of strategies of the Department of Defense for the Arctic

The Senate bill contained a provision (sec. 1054) that would require the Secretary of Defense, in coordination with Secretaries of the military departments, to submit a joint force plan for implementing the Department of Defense's December 2016 Report to Congress on the Strategy to Protect United States National Security Interests in the Arctic Region and the updated Arctic strategy to improve and enhance joint operations, which was mandated in the John S. McCain National Defense Authorization Act for Fiscal Year 2019 (Public Law 115-232).

The House amendment contained no similar provision.

The Senate recesses.

The conferees note the increasing involvement of near-peer competitors in the Arctic region and direct the Secretary of Defense, in coordination with Secretaries of the military departments, to submit a plan for implementing the June 2019 Department of Defense Arctic Strategy.

Report on use of Northern Tier bases in implementation of Arctic strategy of the United States

The Senate bill contained a provision (sec. 1055) that would direct the Secretary of Defense to submit a report to the congressional defense committees on the use of bases in the northern latitudes, including Northern Tier bases, for implementing the recommendations in the December 2016 "Report to Congress on Strategy to Protect United States National Security Interests in the Arctic Region" and the updated Arctic strategy required to be submitted to the congressional defense committees under section 1071 of the John S. McCain National Defense Authorization Act for Fiscal Year 2019 (Public Law 115-232).

The House amendment contained no similar provision.

The Senate recesses.

The conferees direct the Secretary of Defense to submit a report to the congressional defense committees on the use of bases in the northern latitudes, including Northern Tier bases, for implementing the recommendations in the June 2019 Department of Defense Arctic Strategy no later than 180 days after the enactment of this Act.

Comptroller General of the United States report on post-government employment of former Department of Defense officials

The Senate bill contained a provision (sec. 1060) that would require the Comptroller General of the United States to update a prior report on the post-government employment of former Department of Defense officials.

The House amendment contained no similar provision.

The Senate recesses.

The conferees direct the Comptroller General of the United States to initiate a review, not later than 90 days after the date of the enactment of this Act, updating the information and findings set forth in the Government Accountability Office report entitled "Defense Contracting: Post-Government Employment of Former DOD Officials Needs Greater Transparency" (GAO-08-485), and to provide an interim briefing on the status of the review to the Committees on Armed Services of the Senate and the House of Representatives not later than December 31, 2020, with a report to follow by a date agreed upon with the committees.

Elimination of requirement to submit reports to Congress in paper format

The House amendment contained a provision (sec. 1062) that would enable the Department of Defense to provide reports required by the Congress in an electronic format rather than a paper format.

The Senate bill contained no similar provision.

The House recesses.

The conferees direct the Secretary of Defense to deliver to the Committee on Armed Services of the House of Representatives reports required by Congress in electronic format only. This practice will begin on a date mutually agreed upon by the Secretary and the committee. This change does not apply to the Committee on Armed Services of the Senate. By eliminating the requirement of the delivery of congressional reports in paper format, the conferees believe the Department of Defense will be able to streamline the reporting process both within the Department and in delivery of its reports to the Congress. This process would only apply to unclassified reports.

Additionally, the conferees note that the Department is required by section 122a of title 10, United States Code, to ensure that reports are made available to the public, to the maximum extent practicable, by posting the reports on a publicly accessible website. The Committee on Armed Services of the Senate continues to explore means of reducing the administrative burden to the Department associated with generating and delivering hard copy paper reports to the U.S. Senate, however success in this endeavor is contingent on the Department's compliance with section 122a of title 10, United States Code.

Sense of Congress regarding modular airborne fire fighting system

The House amendment contained a provision (sec. 1075) that would require the Secretary of Defense to submit a report to the congressional defense committees regarding plans of the Secretary to fund long-term sustainment and operation and maintenance of MAFFS capabilities, including plans for the National Guard Bureau to submit program objective memoranda for funding for lifetime costs to the Department of Defense to be included in future Department of Defense Budget Requests, including the feasibility of establishing a dedicated program-of-record.

The Senate bill contained no similar provision.

The House recesses.

Report on policies relating to small farms

The House amendment contained a provision (sec. 1077) that would require the Defense Logistics Agency (DLA) and the Defense Commissary Agency (DeCA) to submit to the congressional defense committees a report on policies relating to small farms.

The Senate bill contained no similar provision.

The House recesses.

The conferees direct the DLA and DeCA to submit a report on the programs, policies, and practices of the DLA and DeCA relating to small farms, farms owned by new and beginning farmers, and farmers who are veterans or minorities not later than 90 days after the date of the enactment of this Act to the congressional defense committees. The report should include a description of opportunities and barriers to expanding the use of such programs, policies, or practices.

Report on financial costs of overseas United States military posture and operations

The House amendment contained a provision (sec. 1079) that would require the Secretary of Defense to submit a report to the congressional defense committees on the financial costs of U.S. military posture and operations overseas.

The Senate bill contained no similar provision.

The House recesses.

The conferees note that the Department of Defense currently provides an annual budget exhibit that describes the country-by-country costs of maintaining overseas posture, which estimated worldwide posture costs of just over \$24.0 billion in fiscal year 2019. However, the exhibit excludes considerable costs such as those borne in overseas contingency accounts and does not account for host nation contributions, either cash or

in-kind, or contributions from the North Atlantic Treaty Organization (NATO).

Therefore, the conferees direct the Secretary of Defense to submit a comprehensive report with the budget submission, or not later than February 15, 2020, to the congressional defense committees on the actual costs of maintaining the overseas posture and presence of the U.S. Armed Forces in fiscal year 2019. The report should address the financial costs incurred by the United States, as well as financial and in-kind contributions made by host-countries and multilateral organizations like NATO, related to overseas enduring and contingency infrastructure and the presence of permanent and rotational U.S. Armed Forces.

Additionally, the conferees direct the Comptroller General of the United States to review the Department's report to determine whether it accurately captures the full costs of overseas posture and host nation contributions and to submit a report to the congressional defense committees not later than 180 days after the Department's report is submitted to the committees.

Public availability of Chief Management Office annual budget reports

The House amendment contained a provision (sec. 1080B) that would amend section 132a(c)(1)(B) of title 10, United States Code, to require that the Chief Management Officer's reports on Defense Agency and Department of Defense Field Activity proposed budgets for enterprise business operations be made publicly available on an internet website in a searchable format.

The Senate bill contained no similar provision.
The House recedes.

Plan to increase and expand cold weather training

The House amendment contained a provision (sec. 1080D) that would require the Secretary of the Army to conduct an assessment of cold weather training requirements in light of increased operations and vulnerability to great power competition in the Arctic; and develop a plan to increase and expand cold weather training opportunities.

The Senate bill contained no similar provision.
The House recedes.

The conferees directed the Secretary of Defense to submit a report to the congressional defense committees not later than 180 days after the date of enactment of the National Defense

Authorization Act for Fiscal Year 2019. The conferees note that the Department has not provided this report to the committees and direct the Secretary to expedite completion and submission of the report by not later than January 31, 2020.

Comptroller General review of Department of Defense support for the Department of Homeland Security operations on the southwest border of the United States

The House amendment contained a provision (sec. 1080E) that would require the Comptroller General of the United States to conduct a review and provide a report and a briefing on ongoing and future Department of Defense support for Department of Homeland Security border security operations.

The Senate bill contained no similar provision.

The House recesses.

Disposal of IPv4 addresses

The House amendment contained a provision (sec. 1088) that would require the Department of Defense to sell several blocks of internet protocol version 4 addresses over a period of ten years.

The Senate bill contained no similar provision.

The House recesses.

Prohibition on denial of Department of Veterans Affairs home loans for veterans who legally work in the marijuana industry

The House amendment contained a provision (sec. 1093) that would prohibit the Secretary of Veterans Affairs from using as a factor in determining whether to guarantee, issue, or make a housing loan the fact that an individual's income is derived from working in the marijuana industry.

The Senate bill contained no similar provision.

The House recesses.

Inclusion on the Vietnam Veterans Memorial Wall of the names of the lost crew members of the U.S.S. Frank E. Evans killed on June 3, 1969

The House amendment contained a provision (sec. 1094) that would require the Secretary of Defense, in consultation with the Secretary of the Interior, the American Battlefield Monuments Commission, and other applicable authorities, to authorize the inclusion on the Vietnam Veterans Memorial Wall in the District

of Columbia, of the names of the 74 crew members of the U.S.S. Frank E. Evans, killed on June 3, 1969.

The House amendment also contained a similar provision (sec. 10990).

The Senate bill contained no similar provision.

The House recesses.

The conferees honor the service of the 74 crew members of the U.S.S. Frank E. Evans, who made the ultimate sacrifice on June 3, 1969, and express their respect and regard for the family members of the crew, and their unflagging dedication to sustaining the memory of their Fallen loved ones.

The conferees note that there is an established process for adding the names of servicemembers to the Vietnam Veterans Memorial Wall. The conferees believe this process should be followed to preserve the integrity of the Wall.

Report on executive helicopter flights in the National Capital Region

The House amendment contained a provision (sec. 1097) that would require the Secretary of Defense to submit a publicly available report on the number of helicopter trips used for executive transport by service branch in the national capital region for a period of 90 days after enactment of this Act.

The Senate bill contained no similar provision.

The House recesses.

The conferees direct the Secretary of Defense to submit a report to the congressional defense committees, not later than 90 days after enactment of this Act, which shall be made publicly available, and shall detail the number of helicopter missions used for executive transport in the National Capital Region. The report shall also include a consolidated listing of all such flights executed from the date of enactment through 90 calendar days thereafter and a list of the number of helicopters utilized by each service branch.

Review of foreign currency exchange rates and analysis of Foreign Currency Fluctuations Appropriation

The House amendment contained a provision (sec. 1099A) that would require the Under Secretary of Defense (Comptroller) to review exchange rates to determine whether cost savings opportunities exist in disbursements pursuant to contracts in foreign currencies.

The Senate bill contained no similar provision.

The House recesses.

The conferees recognize the difficulty in predicting exchange rate fluctuations and urge the Department to continue investigating methodologies to decrease the magnitude of fluctuations in the Foreign Currency Fluctuations, Defense account.

Contracts by the President or Vice President

The House amendment contained a provision (sec. 1099B) that would amend the federal criminal code (18 U.S.C. 431) to prohibit the President, Vice President, and members of the President's Cabinet, or anyone acting on their behalf or for their benefit, from holding or entering into a contract or agreement with the United States or any agency of the United States. Violations would be subject to a fine. Any contract in violation of the provision would be void automatically, and any monies advanced by the United States or its agency pursuant to such a contract or agreement would be subject to immediate repayment to the government. Absent immediate repayment, the law would provide that suit should be brought immediately for the recovery of the advanced monies.

The Senate bill contained no similar provision.

The House recesses.

Interoperability of communications between military installations and adjacent jurisdictions

The House amendment contained a provision (sec. 1099E) that would require the Department of Defense Fire and Emergency Services Working Group to submit a report on military installations that provide emergency services to areas outside their installations and the interoperability of military installations and adjacent civilian agencies.

The Senate bill contained no similar provision.

The House recesses.

The conferees direct the Department of Defense Fire and Emergency Services Working Group, not later than 12 months after the date of the enactment of this Act, to submit a report to the congressional defense committees on military installations that provide emergency services to areas outside their installations and the interoperability of military installations and adjacent civilian agencies.

Chinese language and culture studies within the Defense Language and National Security Education Office

The House amendment contained a provision (sec. 1099G) that would increase the funds authorized for the Defense Human Resources Activity by \$13,404,000 for use by the Defense Language and National Security Education Office to provide support for studies related to Chinese language and culture.

The Senate bill contained no similar provision.

The House recesses.

Modification of prohibition on availability of funds for Chinese language programs at certain institutions of higher education

The House amendment contained a provision (sec. 1099H) that would modify section 1091(b) of the John S. McCain National Defense Authorization Act for Fiscal Year 2019 (Public Law 115-232) to require the Secretary of Defense to develop a transition plan for each institution of higher education subject to the limitation under paragraph (1) of such section.

The Senate bill contained no similar provision.

The House recesses.

The conferees note that they appreciate the Department of Defense's effort to ensure that institutions of higher education, which no longer host a Confucius Institute, may regain eligibility to receive funds from the Department for Chinese language instruction.

Lessons learned and best practices on progress of gender integration implementation in the Armed Forces

The House amendment contained a provision (sec. 1099I) that would require the Secretary of Defense to direct each component of the Armed Force to share lessons learned and best practices on the progress of their gender integration implementation plans.

The Senate bill contained no similar provision.

The House recesses.

Strategies for recruitment and retention of women in the Armed Forces

The House amendment contained a provision (sec. 1099J) that would direct the Secretary of each military department to examine successful strategies used by foreign military services to recruit and retain women and consider implementing those best practices in the United States Armed Forces.

The Senate bill contained no similar provision.

The House recesses.

The conferees note that many of the United States' closest allies have long been successful in recruiting and retaining women into their militaries. The Secretary of Defense is encouraged to examine the techniques used by these countries and, where possible, implement them in the United States military.

Honoring last surviving Medal of Honor recipient of Second World War

The House amendment contained a provision (sec. 1099L) that would allow the last surviving Medal of Honor recipient of World War II to lie in honor in the rotunda of the U.S. Capitol upon death if elected by the individual or next of kin.

The Senate bill contained no similar provision.

The House recesses.

Credit monitoring

The House amendment contained a provision (sec. 1099M) that would amend the Fair Credit Reporting Act (Public Law 91-508).

The Senate bill contained no similar provision.

The House recesses.

Sense of Congress regarding Army Contracting Command-New Jersey

The House amendment contained a provision (sec. 1099P) that would express the sense of Congress about the vital role played by Army Contracting Command-New Jersey.

The Senate bill contained no similar provision.

The House recesses.

Review and report on experimentation with ticks and insects

The House bill contained a provision (sec. 1099Q) that required the Department of Defense to review whether the Department experimented with ticks and other insects regarding use as a biological weapon between the years of 1950 and 1975.

The Senate amendment contained no similar provision.

The House recesses.

The conferees note the Department's prioritization of addressing tick-borne illnesses as a threat to military forces and their dependents. The conferees support the Department's research efforts to prevent the occurrence, diagnoses, and treatment of tick-borne illnesses, including through the Tick-Borne Disease Research Program established in Fiscal Year 2016.

The conferees note the importance of continued compliance with the Biological Weapons Convention which bans the development, production, and stockpiling of biological weapons of mass destruction.

Pilot program to provide broadband access to military families and medical facilities on remote and isolated bases

The House amendment contained a provision (sec. 1099R) that would direct the Secretary of Defense, in coordination with the Federal Communication Commission, to conduct a pilot program under which the Secretary would enter into agreements with broadband internet providers to extend residential broadband internet access to families on military installations located in unserved rural areas in the United States.

The Senate bill contained no similar provision.

The House recesses.

Sense of Congress regarding military working dogs and soldier handlers

The House amendment contained a provision (sec. 1099S) that would provide the sense of Congress on the importance of tactical explosive detection dogs and their soldier handlers in combat.

The Senate bill contained no similar provision.

The House recesses.

The conferees recognize the service of military working dogs and soldier handlers from the tactical explosive detection program and honor the sacrifices made by them in combat. The conferees also acknowledge that not all tactical explosive detection dogs were adopted by their former soldier handlers and encourage the Army and other government agencies, including law enforcement agencies, with such dogs to prioritize adoption to their former handlers. Lastly, the conferees recognize the efforts of Congressman Walter B. Jones to promote military working dogs as unsung heroes on the battlefield and in helping wounded warriors recover from physical and mental injuries.

Funding limitation for the Erie Canalway National Heritage Corridor

The House amendment contained a provision (sec. 1099U) that would amend section 810(a)(1) of the Erie Canalway National Heritage Corridor Act (Public Law 106-554; 114 Stat. 2763A-303) by striking ``\$12,000,000`` and inserting ``\$14,000,000``.

The Senate bill contained no similar provision.

The House recesses.

Inspection of facilities used to house, detain, screen, and review migrants and refugees

The House amendment contained a provision (sec. 1099V) that would require the Secretary of Defense, in coordination with the Comptroller General of the United States and the Secretary of Health and Human Services, to establish a process to conduct surprise inspections at Government-owned or Department of Defense-owned installations where migrants are housed, detained, screened, or reviewed.

The Senate bill contained no similar provision.

The House recesses.

Sense of Congress regarding the 2001 Authorization for Use of Military Force

The House amendment contained a provision (sec. 1099W) that would express the sense of Congress that the 2001 Authorization for Use of Military Force (Public Law 107-40; 50 U.S.C. 1541 note) enacted by Congress to authorize the use of force against those responsible for the terrorist attacks of September 11, 2001, has been cited 41 times as the legal basis for the use of force in 19 countries, well beyond the scope that Congress initially intended. Further, the provision would convey the sense of Congress that any new authorization for the use of force should include: (1) A sunset clause and timeframe within which Congress should revisit the authority provided; (2) A clear and specific expression of mission objectives, targets, and geographic scope; and (3) Reporting requirements to increase transparency and ensure proper Congressional oversight.

The Senate bill contained no similar provision.

The House recesses.

Prohibition on export of air to ground munitions, related components and parts of such munitions, and related services to Saudi Arabia and the United Arab Emirates

The House amendment contained a provision (sec. 1099X) that would prohibit, for the one-year period beginning on the date of the enactment of this Act, the President from issuing any license, and require the President to suspend any license or other approval for the export to the Government of Saudi Arabia or the Government of the United Arab Emirates any air to ground munitions, components, or related services.

The Senate bill contained no similar provision.

The House recesses.

Reporting regarding cancelled appropriations

The Senate bill contained a provision (sec. 6002) that would require the Comptroller General of the United States to provide a report to the congressional defense committees on cancelled appropriations across the federal government.

The House amendment contained no similar provision.

The Senate recesses.

The conferees note the importance of understanding why appropriations are cancelled and therefore direct the Comptroller General of the United States to conduct a review of cancelled federal appropriations and to provide a briefing to the congressional defense committees and the Budget Committees of the Senate and the House of Representatives no later than March 1, 2020, with a report to follow by a date agreed at the time of the briefing.

The review shall include (1) an assessment of the amount of appropriations across federal agencies cancelled under section 1552 of title 31, United States Code, during each of the fiscal years 2009 through 2018; (2) identifying information about each cancelled appropriation, including its type and period of availability; (3) the percentage of each fiscal year's total appropriations canceled broken down by agency; (4) an assessment of the extent to which cancelled appropriations differed significantly across agencies or over time, the extent to which cancelled appropriations are correlated with obligation rates, and the extent to which cancelled appropriations are correlated with the length of continuing resolutions in the original year of the appropriation.

Inclusion of progress of the Department of Defense in achieving auditable financial statements in annual reports on the Financial Improvement and Audit Remediation Plan

The Senate bill contained a provision (sec. 6003) that would amend section 240b(b)(1)(B) of title 10, United States Code, by requiring that a ranking of each military department and Defense Agency be included in the annual report in order of its current progress in achieving auditable financial statements. The provision further requires that additional information be provided for each military department or Defense Agency ranked in the bottom quartile.

The House amendment contained no similar provision.

The Senate recesses.

Silver Star Service Banner Day

The Senate bill contained a provision (sec. 6005) that would amend Chapter 1 of title 36, United States Code, to designate May 1 as Silver Star Service Banner Day.

The House amendment contained no similar provision.
The Senate recesses.

Comptroller General of the United States report on the effects of continuing resolutions on readiness and planning of the Department of Defense

The Senate bill contained a provision (sec. 6011) that would require the Comptroller General of the United States to provide a report to the congressional defense committees on the effects of continuing resolutions on the readiness and financial efficiency of the Department of Defense.

The House amendment contained no similar provision.
The Senate recesses.

The conferees note that the Department of Defense has spent more than 1,000 days under continuing resolutions over the past 10 years. Despite strong anecdotal evidence of negative readiness effects and significant financial waste created by continuing resolutions, a comprehensive tally of their costs, direct and indirect, has not yet been performed. Therefore, the conferees direct the Comptroller General of the United States to deliver a briefing to the congressional defense committees and the Budget Committees of the Senate and the House of Representatives no later than March 1, 2020, with a report to follow by a date agreed at the time of the briefing.

The report shall examine (1) the extent to which continuing resolutions impact Department of Defense purchasing power; (2) the extent to which preparing for and operating under continuing resolutions negatively affect the efficient usage of personnel time, including that of Senior Executive Service personnel and general and flag officers; (3) the extent to which continuing resolutions negatively affect the Department's ability to hire; (4) the extent to which the Department has requested and received anomalies for continuing resolutions since 2010; (5) the extent to which continuing resolutions have delayed acquisition programs; (5) the extent to which the Department has experienced funding misalignments between appropriations accounts due to continuing resolutions.

Sense of Congress on the naming of a naval vessel in honor of Senior Chief Petty Officer Shannon Kent

The Senate bill contained a provision (sec. 6016) that would express the sense of the Congress on the naming of a naval vessel in honor of Senior Chief Petty Officer Shannon Kent. The House amendment contained no similar provision. The Senate recesses.

TITLE XI—CIVILIAN PERSONNEL MATTERS

SUBTITLE A—GENERAL PROVISIONS

Defense Advanced Research Projects Agency personnel management authority (sec. 1101)

The Senate bill contained a provision (sec. 1102) that would increase the number of personnel eligible to be hired under the personnel management authority to attract experts in science and engineering under section 1599h of title 10, United States Code, in the Defense Advanced Research Projects Agency (DARPA) by 30, bringing the total for DARPA from 100 to 130, and decreasing the number of such positions available to the laboratories of the military departments by 30, from 40 to 10.

The House amendment contained a similar provision (sec. 1101) that would increase the number of these positions available to DARPA by 40, bringing its total to 140, with no decrease in the number of positions available to the laboratories.

The Senate recesses.

Report on the probationary period for Department of Defense employees (sec. 1102)

The House amendment contained a provision (sec. 1102) that would amend section 1599e of title 10, United States Code, to change the probationary period for Department of Defense civilian employees from 2 years to 1 year.

The Senate bill contained no similar provision.

The Senate recesses with an amendment that would require the Secretary of Defense to conduct an independent review of the probationary periods applicable to Department of Defense employees. The amendment would also require the Secretary of Defense to submit a report detailing the results of the review to the Committees on Armed Services of the Senate and House of Representatives, the Committee on Oversight and Reform of the House of Representatives, and the Committee on Homeland Security and Governmental Affairs of the Senate.

Civilian personnel management (sec. 1103)

The House amendment contained a provision (sec. 1103) that would amend section 129 of title 10, United States Code, to clarify that civilian personnel of the Department of Defense may not be managed on the basis of man-years, end strength, or full-time equivalent positions, or maximum number of employees, and instead will be managed based on the total force management policies and procedures established under section 129a of title 10, United States Code, the workload required to carry out the functions and activities of the Department, and the funds made available to the Department for each fiscal year.

The Senate bill contained no similar provision.

The Senate recedes with an amendment that would prohibit the Secretary of Defense from managing Department of Defense civilian personnel primarily on the basis of man-years or end strength.

One-year extension of temporary authority to grant allowances, benefits, and gratuities to civilian personnel on official duty in a combat zone (sec. 1104)

The Senate bill contained a provision (sec. 1103) that would extend by 1 year the discretionary authority of the head of a Federal agency to provide allowances, benefits, and gratuities comparable to those provided to members of the Foreign Service to the agency's civilian employees on official duty in a combat zone.

The House bill contained an identical provision (sec.1104).

The conference agreement contains this provision.

One-year extension of authority to waive annual limitation on premium pay and aggregate limitation on pay for Federal civilian employees working overseas (sec. 1105)

The Senate bill contained a provision (sec. 1104) that would amend section 1101 of the Duncan Hunter National Defense Authorization Act for Fiscal Year 2009 (Public Law 110-417), as most recently amended by section 1104 of the John S. McCain National Defense Authorization Act for Fiscal Year 2019 (Public Law 115-232), to extend through 2020 the authority of heads of executive agencies to waive limitations on the aggregate of basic and premium pay of employees who perform work in an overseas location that is in the area of responsibility of the commander of U.S. Central Command (CENTCOM), or a location that was formerly in CENTCOM but is now in the area of responsibility

of the Commander, U.S. Africa Command, in support of a military operation or an operation in response to a declared emergency.

The House amendment contained a similar provision (sec. 1105).

The House recesses.

Performance of civilian functions by military personnel (sec. 1106)

The House amendment contained a provision (sec. 1106) that would amend section 129a of title 10, United States Code, to ensure that before the Secretary of a military department directs military personnel to perform the functions of civilian personnel, the military department concerned is in compliance with section 129 of title 10, United States Code.

The Senate bill contained no similar provision.

The Senate recesses.

Extension of direct hire authority for domestic industrial base facilities and Major Range and Test Facilities Base (sec. 1107)

The House amendment contained a provision (sec. 1107) that would amend section 1125 of the National Defense Authorization Act for Fiscal Year 2017 (Public Law 114-328) to extend the authority of the Secretary of Defense to use direct hire procedures for civilian personnel at domestic defense industrial base facilities and the Major Range and Test Facilities Base until 2025.

The Senate bill contained no similar provision.

The Senate recesses.

The conferees note Section 1111 of the National Defense Authorization Act for Fiscal Year 2017 (Public Law 114-328) repealed the authority of the Secretaries of the military departments to waive the restriction on the appointment of retired members of the Armed Forces to positions in the civil service in the Department of Defense within 180 days of a servicemember's retirement based on a state of national emergency.

The conferees remain supportive of this change and note the relevant statute provides a straightforward process to the Secretaries of the military departments in the event that they wish to hire retired servicemembers within the 180-day post-retirement timeframe. The conferees urge the Department of Defense to make full use of the existing, and longstanding, process for hiring recently retired servicemembers, consistent with applicable law, policy, and merit principles.

Authority to provide additional allowances and benefits for certain Defense Clandestine Service employees (sec. 1108)

The House amendment contained a provision (sec. 1108) that would authorize the provision of additional allowances and benefits for certain Defense Intelligence Agency, Defense Clandestine Service employees located in the United States, limited to 125 covered employees per year for locations with living costs determined by the Secretary of Defense to be equal to or higher than the District of Columbia.

The Senate bill contained no similar provision.

The Senate recedes.

Modification of direct hire authorities for the Department of Defense (sec. 1109)

The House amendment contained a provision (sec. 1111) that would amend section 9905 of title 5, United States Code, by consolidating direct hiring authorities for the following positions:

- (1) scientific, technical, engineering, mathematics positions within the defense acquisition workforce;
- (2) scientific, technical, engineering, mathematics positions working outside a scientific and technology reinvention laboratory;
- (3) medical or health professional positions;
- (4) childcare services positions;
- (5) financial management, accounting, auditing, actuarial, cost estimation, operational research, or business or business administration positions; and
- (6) Department of Defense business transformation and management innovation positions.

The consolidation of these direct hiring authorities would sunset on September 30, 2025. In addition, this provision would require the Secretary of Defense, in coordination with the Director of the Office of Personnel Management, to contract with a federally funded research and development center and submit a report to Congress by February 1, 2021, on improving competitive hiring at the Department of Defense.

The Senate bill contained no similar provision.

The Senate recedes with an amendment that would remove the requirement for the Department of Defense to contract with a Federally Funded Research and Development Center to complete the required report.

Designating certain FEHBP and FEGLI services provided by Federal employees as excepted services under the Anti-Deficiency Act (sec. 1110)

The House amendment contained a provision (sec. 1113) that would amend sections 8905 and 8702 of title 5, United States Code, to designate certain Federal Employees Health Benefits Program (FEHBP) and Federal Employees Group Life Insurance (FEGLI) Program services provided by Federal employees as excepted services under the Anti-Deficiency Act.

The Senate bill contained no similar provision.

The Senate recesses.

Continuing supplemental dental and vision benefits and long-term care insurance coverage during a Government shutdown (sec. 1111)

The House amendment contained a provision (sec. 1114) that would amend sections 8956, 8986, and 9003 of title 5, United States Code, to authorize continuing coverage of supplemental dental and vision benefits and long-term care insurance during a government shutdown.

The Senate bill contained no similar provision.

The Senate recesses.

Limitation on transfer of Office of Personnel Management (sec. 1112)

The House amendment contained a provision (sec. 1116) that would prohibit the President or his designee from transferring, transitioning, merging, or consolidating any functions, responsibilities, information technology systems, staff, resources, or records of the Office of Personnel Management (OPM) with the General Services Administration, the Office of Management and Budget, or the Executive Office of the President.

The Senate bill contained no similar provision.

The Senate recesses with an amendment that would direct OPM to contract with the National Academy of Public Administration (NAPA) for the conduct of a comprehensive study and report on the full panoply of OPM missions and functions; the challenges associated with the Office's execution of same; and options and recommended courses of action for addressing those challenges. Not later than 180 days subsequent to its receipt of the NAPA report, OPM would be required to submit to the appropriate Committees of Congress its views on the report, any recommendations for change in the structure, functions, responsibilities, and authorities of OPM, a business case analysis setting forth the operational efficiencies and cost

savings associated with any such change, and a proposal for legislative or administrative actions required to effect the change proposed. The amendment would preclude the assignment, transfer, transition, merger, or consolidation of any function, responsibility, authority, service, system, or program assigned in law to OPM, to or with the General Services Administration, the Office of Management and Budget, or the Executive Office of the President, until on or after the date that is 180 days after the date on which OPM submits its views on the NAPA report to Congress, and subject to the enactment of any legislation required.

Assessment of Accelerated Promotion Program suspension (sec. 1113)

The House amendment contained a provision (sec. 1118) that would require the Secretary of the Navy to enter into an agreement with a federally funded research and development center to conduct an assessment of the impacts resulting from the Navy's suspension in 2016 of the Accelerated Promotion Program.

The Senate bill contained no similar provision.

The Senate recedes with a technical amendment.

Reimbursement for Federal, State, and local income taxes incurred during travel, transportation, and relocation (sec. 1114)

The Senate bill contained a provision (sec. 1105) that would amend section 5724b of title 5, United States Code, to authorize Federal agencies to reimburse individuals associated with the Federal civil service for all taxes incurred as a result of travel, transportation, or relocation expenses reimbursed, or furnished in-kind, by the agency concerned.

The House amendment contained a similar provision (sec. 1119).

The House recedes with an amendment that would authorize the Federal agencies to reimburse individuals for taxes incurred on or after January 1, 2018.

Clarification of limitation on expedited hiring authority for post-secondary students (sec. 1115)

The House amendment contained a provision (sec. 1120) that would amend section 3116(d) of title 5, United States Code, to limit the total number of students eligible to be appointed under the expedited hiring authority for post-secondary students

to no more than 15 percent of the number of students that the agency head appointed during the previous fiscal year at the GS-11 level or below.

The Senate bill contained no similar provision.

The Senate recesses.

Modification of temporary assignments of Department of Defense employees to a private-sector organization (sec. 1116)

The Senate bill contained a provision (sec. 1101) that would amend section 1599g (e)(2)(A) of title 10, United State Code, to allow the Department of Defense to temporarily transfer or reassign other personnel within the Department to perform the normal duties and functions of employees who are participating in a public-private talent exchange.

The House amendment contained no similar provision.

The House recesses.

Extension of authority for part-time reemployment (sec. 1117)

The conference agreement includes a provision that would extend, for 5 years, the authority of federal agencies to reemploy retired federal civilian employees under limited conditions, without offset of annuity against salary, for certain specified purposes.

SUBTITLE B—FAIR CHANCE ACT

Short title (sec. 1121-1124)

The House amendment contained several provisions (sec. 1131 through sec. 1134) that would prohibit Federal agencies and contractors from making inquiries regarding a job applicants' criminal history before extending a conditional offer of employment.

The Senate bill contained no similar provision.

The Senate recesses.

SUBTITLE C—ATC HIRING REFORM

ATC Hiring Reform (secs. 1131-1135)

The conference agreement includes several provisions (secs. 1131-1135) that would require the Federal Aviation Administration (FAA) to give hiring preference to veterans and graduates of FAA Certified Collegiate Training Initiative (CTI)

schools and remove the 10 percent limitation between the hiring pools created by the FAA Extension Safety and Security Act of 2016.

LEGISLATIVE PROVISIONS NOT ADOPTED

Prohibited personnel practices

The House amendment contained a provision (sec. 1109) that would amend section 2302 of title 5, United States Code, to prohibit Federal employees from discriminating for or against interns or applicants for internships on the basis of race, color, religion, sex, national origin, age, or handicapping condition.

The Senate bill contained no similar provision.

The House recesses.

Enhancement of antidiscrimination protections for Federal employees

The House amendment contained a provision (sec. 1110) that would amend section 2301 of title 5, United States Code, to require Federal agencies to display publicly any findings of discrimination or retaliation within the agency concerned. The provision would modify congressional reporting requirements related to Federal employee antidiscrimination and retaliation by authorizing electronic submittal of reports and requiring a report of disciplinary actions initiated against Federal employees as a result of a violation of applicable antidiscrimination or retaliation policies. The provision would also require each Federal agency to establish a discrimination complaint tracking system. The provision would also require notations in employee personnel records of any adverse action taken as a result of an act of discrimination or retaliation. The provision would also require each Federal agency to establish an impartial Equal Employment Opportunity Program that is independent of the agency's Human Capital or General Counsel and reports directly to the head of the agency. The provision would also require the Equal Employment Opportunity Commission to refer any findings of discrimination or retaliation within a Federal agency to the Office of Special Counsel within 30 days.

The Senate bill contained no similar provision.

The House recesses.

Permitted disclosures by whistleblowers

The House amendment contained a provision that would amend section 2302(b)(8)(B) of title 5, United States Code, to permit whistleblowers to report fraud, waste, or abuse to the Inspector General of an agency, a supervisor in the employee's direct chain of command, or to an employee designated to receive such disclosures.

The Senate bill contained no similar provision.
The House recesses.

Interim stay authority to protect whistleblowers

The House amendment contained a provision (sec. 1115) that would authorize the General Counsel of the Merit Systems Protection Board to order a 45-day stay of any personnel action, given grounds to believe the action is a prohibited personnel practice (including agency reprisal against a whistleblower). The General Counsel could take such action during the period beginning on the date of the enactment of this Act and ending on the first day thereafter that an individual is confirmed by the Senate as a member of the Board. Further, under circumstances in which the Board lacks the number of properly appointed members required to comprise a quorum, any remaining member of the Board would be authorized to execute certain Board functions.

The Senate bill contained no similar provision.
The House recesses.

Review of Standard Occupational Classification System

The House amendment contained a provision (sec. 1117) that would require the Director of the Office of Management and Budget to categorize public safety telecommunicators as a protective service occupation under the Standard Occupational Classification System.

The Senate bill contained no similar provision.
The House recesses.

TITLE XII—MATTERS RELATING TO FOREIGN NATIONS

SUBTITLE A—ASSISTANCE AND TRAINING

Modification of authority to build capacity of foreign security forces (sec. 1201)

The House amendment contained a provision (sec. 1201) that would modify section 333 of title 10, United States Code, to clarify the eligibility of support for international coalition operations as well as modify the congressional notification requirements for support provided pursuant to such section.

The Senate bill contained no similar provision.

The Senate recedes with a technical amendment.

Modification and extension of cross servicing agreements for loan of personnel protection and personnel survivability equipment in coalition operations (sec. 1202)

The Senate bill contained a provision (sec. 1202) that would extend the authority for cross-servicing agreements for loan of personnel protection and survivability equipment in coalition operations in Afghanistan through 2024.

The House amendment contained a similar provision (sec. 1202) that would extend section 1207 of the Carl Levin and Howard P. "Buck" McKeon National Defense Authorization Act for Fiscal Year 2015 (Public Law 113-291) through December 31, 2024. This authority allows the Secretary of Defense, with the concurrence of the Secretary of State, to loan personnel protection and personnel survivability equipment to military forces of other nations for their use in coalition operations with the United States as part of a contingency operation or a peacekeeping operation under the United Nations Charter or another international agreement.

The Senate recedes.

Modifications of authorities relating to acquisition and cross-servicing agreements (sec. 1203)

The Senate bill contained a provision (sec. 1282) that would amend section 2342 of title 10, United States Code relating to acquisition and cross-servicing agreements (ACSA). Specifically, the provision would include new requirements for reimbursement for cost of logistic support, supplies, and services pursuant to such section. The provision would also add new requirements for designation of a non-NATO country under such section by the Secretary of Defense as well as add new oversight and monitoring responsibilities to the Under Secretary of Defense for Policy and to the Director of the Defense Security Cooperation Agency. The provision would also require the Secretary to prescribe regulations regarding ACSA and direct the Comptroller General of the United States to conduct a review of the implementation by the Secretary of such regulations.

Lastly, the provision would modify the annual reporting requirements required under such section.

The House amendment contained no similar provision.

The House recedes with an amendment that clarifies the requirements in section 2342 of title 10, United States Code for designation of a non-NATO country under such section by the Secretary of Defense. Further, the amendment adds a requirement for the Secretary to designate an existing senior civilian or military official with primary responsibility for oversight and management of ACSA. Lastly, the provision clarifies the annual reporting requirements required under such section.

Modification of quarterly report on obligation and expenditure of funds for security cooperation programs and activities (sec. 1204)

The Senate bill contained a provision (sec. 1204) that would amend section 381(b) of title 10, United States Code, to change the deadline for submission of the quarterly report on the use of security cooperation funds from 30 days after the end of each calendar quarter to 60 days after the end of each calendar quarter.

The House amendment contained a similar provision (sec. 1203) that would modify the quarterly reporting requirement on obligation and expenditure of funds for security cooperation programs and activities from 30 days after the calendar quarter to 60 days.

The Senate recedes.

Gender perspectives and participation by women in security cooperation activities (sec. 1205)

The House amendment contained a provision (sec. 1204) that would modify section 333 of title 10, United States Code, to require the inclusion of gender perspectives and meaningful participation by women.

The Senate bill contained no similar provision.

The Senate recedes with an amendment that would encourage, consistent with the Women, Peace, and Security Act of 2017 (Public Law 115-68), the Secretary of Defense, in coordination with the Secretary of State, to incorporate gender perspectives and participation by women in security cooperation activities to the maximum extent practicable.

Plan to provide consistency of administration of authorities relating to vetting of units of security forces of foreign countries; modification of assessment, monitoring, and

evaluation of security cooperation programs and activities (sec. 1206)

The House amendment contained a provision (sec. 1206) that would require, not later than 180 days after the date of the enactment of this Act, the Secretary of Defense and the Secretary of State, to jointly develop, implement, and submit to the appropriate congressional committees, a plan to provide consistency in administration of section 362 of title 10, United States Code, and section 620M of the Foreign Assistance Act of 1961 (22 U.S.C. 2378d).

The Senate bill contained no similar provision.

The Senate recesses with a technical amendment.

Extension of authority for support of special operations for irregular warfare (sec. 1207)

The Senate bill contained a provision (sec. 1201) that would extend for 5 years section 1202 of the National Defense Authorization Act for Fiscal Year 2018 (Public Law 115-91).

The House amendment contained a similar provision (sec. 1208) that would extend for 3 years section 1202 of the National Defense Authorization Act for Fiscal Year 2018.

The Senate recesses.

Extension and modification of Commanders' Emergency Response Program and elimination of certain payments to redress injury and loss (sec. 1208)

The Senate bill contained a provision (sec. 1213) that would extend the authorization for the Commanders' Emergency Response Program in Afghanistan through December 31, 2020, and would authorize \$5.0 million for use during calendar year 2020.

The House amendment contained no similar provision.

The House recesses with an amendment that would authorize \$2.5 million for the Commanders' Emergency Response Program, and eliminate the authority for certain payments to redress injury and loss in Afghanistan, Iraq, Syria, Somalia, Libya, and Yemen, which is addressed elsewhere in this act.

Two-year extension of program authority for Global Security Contingency Fund (sec. 1209)

The Senate bill contained a provision (sec. 1203) that would amend section 1207 of the National Defense Authorization Act for Fiscal Year 2012 (22 U.S.C. 2151) to extend for 2 years the funding for the Global Security Contingency Fund. The Senate

bill contained another provision (sec. 6203) that would add an exception to the funds, allowing amounts appropriated and transferred to the Fund before September 30, 2019, to remain available for obligation and expenditure after that date, but only for programs under subsection (b).

The House amendment contained no similar provision.

The House recesses with a technical amendment.

Legal institutional capacity building initiative for foreign defense institutions (sec. 1210)

The Senate bill contained a provision (sec. 1205) that would authorize the Secretary of Defense to carry out, consistent with section 332 of title 10, United States Code, a program of legal institutional capacity building with one or more foreign countries to enhance the capacity to organize and administer the legal institutions of such country or countries.

The House amendment contained no similar provision.

The House recesses with an amendment that would modify the elements of the authorized initiative as well the annual reporting requirements.

Department of Defense support for stabilization activities in national security interest of the United States (sec. 1210A)

The Senate bill contained a provision (sec. 1206) that would authorize the Secretary of Defense, with the concurrence of the Secretary of State and in consultation with the Administrator of the United States Agency for International Development, to provide certain support for the stabilization activities of other Federal agencies.

The House amendment contained no similar provision.

The House recesses with an amendment that would modify the types and amounts of support authorized to be provided as well as the countries in which such support may be provided.

SUBTITLE B—MATTERS RELATING TO AFGHANISTAN AND PAKISTAN

Extension of authority to transfer defense articles and provide defense services to the military and security forces of Afghanistan (sec. 1211)

The Senate bill contained a provision (sec. 1211) that would extend the authority to transfer defense articles and

provide defense services to the military and security forces of Afghanistan through December 31, 2021.

The House amendment contained a similar provision (sec. 1213) that would extend the authority through December 31, 2022.

The Senate recesses.

Extension and modification of authority to acquire products and services produced in countries along a major route of supply to Afghanistan (sec. 1212)

The Senate bill contained a provision (sec. 804) that would extend the authority under section 801(f) of the National Defense Authorization Act for Fiscal Year 2010 (Public Law 111-84) for the acquisition of products and services produced in countries along a major route of supply to Afghanistan through December 31, 2021.

The House amendment contained a similar provision (sec. 1214) that would extend this authority through December 31, 2021 and require the Secretary of Defense to submit a report on the use of the authority.

The Senate recesses.

Authority for certain payments to redress injury and loss (sec. 1213)

The House amendment contained a provision (sec. 1215) that would authorize \$5.0 million from the Office of the Secretary of Defense under the Operation and Maintenance, Defense-wide account, for ex gratia payments for damage, personal injury, or death that is incident to combat operations of the United States Armed Forces in certain countries, through December 31, 2020.

The Senate bill contained no similar provision.

The Senate recesses with an amendment that would authorize \$3.0 million for this authority for each calendar year through December 31, 2022 and strike the specific country designations.

Extension and modification of semiannual report on enhancing security and stability in Afghanistan (sec. 1214)

The Senate bill contained a provision (sec. 6217) that would amend section 1225(b) of the Carl Levin and Howard P. "Buck" McKeon National Defense Authorization Act for Fiscal Year 2015 (Public Law 113-291) to incorporate the August 2017 Strategy of the United States into the reporting requirement and require an assessment of the United States counterterrorism mission, Department of Defense efforts in support of

reconciliation, and the expansion of the Afghan Government's reach throughout Afghanistan.

The House amendment contained a similar provision (sec. 1216) that would extend the report through December 15, 2022 and modify certain elements.

The Senate recedes with an amendment that would require the report include the assessment of the United States counterterrorism mission and efforts to support reconciliation and expand the reach of the Government of Afghanistan throughout Afghanistan.

Special Immigrant Visa Program reporting requirement (sec. 1215)

The House amendment contained a provision (sec. 1217) that would require the Inspector General of the Department of State to submit a report that evaluates the obstacles to effective protection of Afghan and Iraqi allies through the Special Immigrant Visa Program and suggestions for improvements in future programs.

The Senate bill contained no similar provision.

The Senate recedes.

Meaningful inclusion of Afghan women in peace negotiations (sec. 1216)

The Senate bill contained a provision (sec. 6215) that would require the Secretary of State, in coordination with the Secretary of Defense, to carry out activities to ensure the meaningful participation of Afghan women in the ongoing peace process in Afghanistan consistent with the Women, Peace, and Security Act of 2017 (22 U.S.C. 2151 note; Public Law 115-68), and to submit a report to the appropriate congressional committees on such activities.

The House amendment contained a similar provision (sec. 1218) that would require the Secretary of Defense, in coordination with the Secretary of State, to seek to ensure the meaningful participation of Afghan women in the ongoing peace process in Afghanistan, consistent with Public Law 115-68.

The House recedes with an amendment that would require the Secretary of State, in coordination with the Secretary of Defense, to advocate for the inclusion of Afghan women in ongoing and future negotiations to end the conflict in Afghanistan.

Extension and modification of authority for reimbursement of certain coalition nations for support provided to United States military operations (sec. 1217)

The Senate bill contained a provision (sec. 1214) that would extend the authority for reimbursement of certain coalition nations for support provided to United States military operations through December 31, 2020. The provision would also eliminate reimbursements for Pakistan under this authority, as reimbursements for Pakistan's efforts to sustain security along its border with Afghanistan are already authorized under section 1213 of the John S. McCain National Defense Authorization Act for Fiscal Year 2019 (Public Law 115-232).

The House amendment contained a similar provision (sec. 1211) that would extend the authority through December 31, 2020.

The House recesses with an amendment that would authorize \$450.0 million for use under this authority.

Support for reconciliation activities led by the Government of Afghanistan (sec. 1218)

The Senate bill contained a provision (sec. 1215) that would authorize the Department of Defense, with the concurrence of the Department of State, to provide support for local level, Government of Afghanistan-led reconciliation activities with the Taliban.

The House amendment contained no similar provision.

The House recesses with a clarifying amendment. The conferees note that this provision does not authorize direct reimbursements to members or elements of the Taliban.

Modification and Extension of the Afghan Special Immigrant Visa Program (sec. 1219)

The Senate bill contained a provision (sec. 1216) that would express support for the Special Immigrant Visa Program for Afghan allies.

The House amendment contained a provision (sec. 1212) that would modify and extend the Afghan Allies Protection Act of 2009 (Public Law 111-8) by adjusting the number of visas available and individual eligibility requirements. It would not modify the length of employment or security criteria that an applicant must meet.

The Senate recesses with an amendment that would make an additional 4,000 visas available through the Afghan Special Immigrant Visa Program.

**SUBTITLE C—MATTERS RELATING TO SYRIA, IRAQ,
AND IRAN**

Modification of authority and limitation on use of funds to provide assistance to counter the Islamic State of Iraq and Syria (sec. 1221)

The Senate bill contained a provision (sec. 1222) that would extend the authority to provide assistance to counter the Islamic State of Iraq and Syria under section 1236 of the Carl Levin and Howard P. "Buck" National Defense Authorization Act for Fiscal Year 2015 (Public Law 113-291) through December 31, 2021, and provide \$645 million for use under the authority. Additionally, the section would limit certain funds under this authority until the Secretary of Defense submits a report to the congressional defense committees.

The House amendment contained a provision (sec. 1221) that would provide \$663 million for use under the authority, modify existing report requirements, and make clarifying and technical corrections. Additionally, the provision would limit certain funds under this authority until the Secretary of Defense submits a report on the use of the authority and other matters.

The Senate recesses with an amendment that would extend the authority and modify associated reporting requirements.

The conferees note the importance of an all-of-government approach in securing the lasting defeat of the Islamic State of Iraq and Syria, extinguishing the drivers of future insurgency and instability, and advancing U.S. interests in Iraq. The conferees believe that non-military lines of effort must be appropriately resourced and staffed for the U.S. strategy for Iraq to be successful.

Extension and modification of authority to provide assistance to the vetted Syrian groups and individuals (sec. 1222)

The Senate bill contained a provision (sec. 1221) that would modify section 1209 of the Carl Levin and Howard P. "Buck" McKeon National Defense Authorization Act for Fiscal Year 2015 (FY 2015 NDAA (Public Law 113-291)) by extending the authority to provide assistance to vetted Syrian groups through 2020. The provision would additionally modify the authority to support the temporary detention and repatriation of Islamic State of Iraq and Syria (ISIS) foreign terrorist fighters in accordance with the Laws of Armed Conflict and Geneva Conventions. The provision would also expand certain reporting requirements.

The House amendment contained a provision (sec. 1222) that would extend and modify section 1209 of the FY 2015 NDAA by extending the authority to support vetted Syrian opposition through December 30, 2020.

The Senate recedes with an amendment that would modify the purposes of the authority. Further, the amendment would modify the notification before provision of assistance, the matters to be included in quarterly progress reports, the authority to accept contributions, and the limitation on the cost of construction and repair projects. Finally, the amendment would place a limitation on the obligation of funds pending submission of the first quarterly report.

Modification of authority to support operations and activities of the Office of Security Cooperation in Iraq (sec. 1223)

The Senate bill contained a provision (sec. 1223) that would extend the authorization for the Office of Security Cooperation in Iraq through fiscal year 2020 and would amend the Office's authority to support security cooperation activities in Iraq. The provision would reduce the funds available for this authority from \$45.3 million to \$30.0 million.

The House amendment contained a similar provision (sec. 1223) that would extend the authority for the Office of Security Cooperation in Iraq through fiscal year 2020. The provision would also limit the amount of authorized funds available to be obligated or expended to not more than 50 percent until the Secretary of Defense certifies that certain reforms are completed.

The Senate recedes with an amendment that would combine the two provisions and make technical edits.

The conferees note the challenges attendant in effective security cooperation and believe the Department should seek to staff security cooperation offices with more foreign area officers, particularly in the U.S. Central Command area of responsibility.

Establishing a coordinator for detained ISIS members and relevant displaced populations in Syria (sec. 1224)

The Senate bill contained a provision (sec. 1224) that would require the President, in consultation with the Secretary of Defense, the Secretary of State, the Director of National Intelligence, and the Attorney General, to designate an existing official within the Executive Branch as senior-level coordinator to coordinate all matters for the United States Government relating to the long-term disposition of members of the Islamic State of Iraq and Syria (ISIS) and associated forces.

The House amendment contained a similar provision (sec. 1036).

The Senate recedes with an amendment that would require, not later than 60 days after the date of the enactment of this Act, the President, in consultation with the Secretary of Defense, the Secretary of State, the Director of National Intelligence, the Secretary of the Treasury, and the Attorney General, to submit to appropriate committees of Congress a report identifying whether there exists a senior-level coordinator for all matters for the United States Government relating to ISIS members in the custody of Syrian Democratic Forces. If the President is unable to identify a senior-level coordinator for such matters, the President, in consultation with the officials enumerated above, shall designate an existing official within the executive branch to serve in that capacity. The amendment further provides that not later than 180 days after the date of the enactment of this Act, and not less frequently than once each year thereafter through January 31, 2021, the senior-level coordinator shall submit to appropriate committees of Congress a detailed report on certain high-value ISIS detainees.

The conferees believe that the coordinator identified pursuant to this provision should be empowered by the President and of sufficient seniority to adequately leverage and coordinate the expertise and capabilities of the State Department, Department of Defense, Department of Justice, Department of Treasury, intelligence community, and other relevant entities engaged in the repatriation, transfer, and prosecution of members of ISIS.

Report on lessons learned from efforts to liberate Mosul and Raqqa from control of the Islamic State of Iraq and Syria (sec. 1225)

The Senate bill contained a provision (sec. 1225) that would require the Secretary of Defense to submit a report to the congressional defense committees on lessons learned from coalition operations to liberate Mosul, Iraq, and Raqqa, Syria, from control of the Islamic State of Iraq and Syria.

The House amendment contained no similar provision.

The House recedes.

Expansion of availability of financial assets of Iran to victims of terrorism (sec. 1226)

The Senate bill contained a provision (sec. 6206) that would amend section 502 of the Iran Threat Reduction and Syria Human Rights Act of 2012 (22 U.S.C. 8772) to expand the

availability of financial assets of Iran to victims of terrorism.

The House amendment contained no similar provision.

The House recedes with a technical amendment.

Report on the status of deconfliction channels with Iran (sec. 1227)

The House amendment contained a provision (sec. 1228) that would require, not later than 30 days after the enactment of this Act, the President to submit a report on the status of deconfliction channels with Iran.

The Senate bill contained no similar provision.

The Senate recedes with a clarifying amendment.

Prohibition on provision of weapons and other forms of support to certain organizations (sec. 1228)

The House amendment contained a provision (sec. 1224) that would prohibit the use of funds authorized to be appropriated by this Act or otherwise made available for the Department of Defense for fiscal year 2020 to provide weapons or any form of support to al-Qaeda, the Islamic State of Iraq and Syria, Jabhat Fateh al Sham, any individual or group associated with these organizations, or any entity the Secretary of Defense determined may trade or sell arms to terrorist organizations.

The Senate bill contained no similar provision.

The Senate recedes with an amendment that adds Hamas, Hizballah, Palestine Islamic Jihad, al-Shabaab, and Islamic Revolutionary Guard Corps to the list of organizations to which the provision of weapons or any form of support is proscribed.

SUBTITLE D—MATTERS RELATING TO THE RUSSIAN FEDERATION

Extension of limitation on military cooperation between the United States and Russia (sec. 1231)

The Senate bill contained provisions (sec. 1233 and sec. 6210) that would extend through fiscal year 2020 the prohibition established in section 1232 of the National Defense Authorization Act for Fiscal Year 2017 (Public Law 114-328) as most recently amended by the John S. McCain National Defense Authorization Act for Fiscal Year 2019 (Public Law 115-232), which prohibits funds authorized to be appropriated for the Department of Defense from being used for bilateral military-to-

military cooperation between the United States and the Russian Federation without certain certifications by the Secretary of Defense, made in coordination with the Secretary of State, or unless certain waiver conditions are met.

The House amendment contained a similar provision (sec. 1232) that would extend through fiscal year 2020 the prohibition established in section 1232 of the National Defense Authorization Act for Fiscal Year 2017 (Public Law 114-328).

The Senate recesses.

The conferees note that, as established in Section 1232, nothing in the limitation shall be construed to limit bilateral military-to-military dialogue between the United States and the Russian Federation for the purpose of reducing the risk of conflict.

Prohibition on availability of funds relating to sovereignty of Russia over Crimea (sec. 1232)

The Senate bill contained two provisions (sec. 1231 and sec. 6231) that would prohibit funds authorized to be appropriated by this Act for fiscal year 2020 for the Department of Defense to be obligated or expended to implement any activity that recognizes the sovereignty of the Russian Federation over Crimea. The provisions would also prohibit the Department to otherwise implement any such activity.

The House amendment contained a similar provision (sec. 1233) that would prohibit funds authorized to be appropriated by this Act or otherwise made available for fiscal year 2020 for the Department of Defense to be obligated or expended to implement any activity that recognizes the sovereignty of Russia over Crimea.

The House recesses with an amendment that would prohibit funds authorized to be appropriated by this Act or otherwise made available for fiscal year 2020 for the Department of Defense to be obligated or expended to implement any activity that recognizes the sovereignty of Russia over Crimea. The amendment would allow the Secretary of Defense, with the concurrence of the Secretary of State, to waive the prohibition if the Secretary determines that a waiver is in the national security interest of the United States; and on the date on which the waiver is invoked, submits a notification of the waiver and a justification of the reason for seeking the waiver to specified congressional committees.

Sense of Congress on updating and modernizing existing agreements to avert miscalculation between the United States and Russia (sec. 1233)

The House amendment contained a provision (sec. 1236) that would express the sense of the Congress that the Secretary of Defense and Secretary of State should explore steps for updating and modernizing existing agreements between the United States and Russia to avert the risk of miscalculation and unintended escalation.

The Senate bill contained no similar provision.

The Senate recedes with an amendment that would express the sense of the Congress that: (1) conventional arms control and confidence and security building measures have played an important role in helping to increase military transparency and reduce the risk of miscalculation; (2) Russia's violations of the sovereignty and territorial integrity of Georgia and Ukraine, and Russia's ongoing destabilizing and aggressive behavior, have undermined peace, security, and stability in Europe and beyond; (3) Russia's unilateral suspension and violation of the Treaty on Conventional Armed Forces in Europe, done at Vienna November 19, 1990, and entered into force November 9, 1992, and selective implementation of the Vienna Document of the Organization for Security and Cooperation in Europe 2011 have contributed to a greater risk of miscalculation; (4) Russia's unsafe and unprofessional interactions with United States aircraft and vessels are contrary to the spirit of specified existing agreements and erode military transparency, predictability, and trust; (5) the United States remains committed to upholding its current treaty obligations and commitments with respect to conventional arms control and confidence and security building measures; and (6) the Secretary of Defense and the Secretary of State should explore options, as practicable, for updated or new frameworks for increasing military transparency, stability, and reducing the risk of miscalculation, including through enhanced diplomatic engagement and military-to-military dialogue.

United States participation in Open Skies Treaty (sec. 1234)

The Senate bill contained a provision (sec. 1242) that would realign the requirement contained in section 1235(a) of the National Defense Authorization Act for Fiscal Year 2018 (Public Law 115-91) from fiscal year to calendar year. The provision would also reduce the frequency of the reporting requirement in section 1236 of the National Defense Authorization Act for Fiscal Year 2017 (Public Law 114-328) from quarterly to annual.

The House amendment contained a provision (sec. 1231) that would make a series of findings and express the sense of Congress relating to the Open Skies Treaty. The provision would

also prohibit the obligation or expenditure of any funds authorized to be appropriated by this Act for the Department of Defense to take any action to suspend, terminate, or withdraw the United States from the treaty. This prohibition would not apply if the Secretary of Defense and Secretary of State jointly certify that Russia is in material breach of its obligations under the treaty, and that all other states parties to the treaty concur with this assessment; or, that withdrawing from the treaty is in the best interests of U.S. national security and all other states parties have been consulted with respect to this decision. The provision would also repeal the limitation on the use of funds to vote to approve or otherwise adopt an implementing decision of the Open Skies Consultative Commission in section 1236 of the National Defense Authorization Act for Fiscal Year 2017. The provision would also modify the reporting requirement in section 1236 to include assessments of data collected on U.S. observation flights under the treaty, and reduce the reporting frequency from quarterly to biannual. Finally, the provision would make the same realignment to section 1235(a) of the National Defense Authorization Act for Fiscal Year 2018 but would change the report to a briefing.

The Senate recedes with amendments that would strike the findings, sense of Congress, and prohibition on obligation or expenditure of funds for suspension, termination, or withdraw from the treaty, and replace with a requirement to notify the appropriate congressional committees no less than 120 days before such actions. The amendments would also reduce the frequency of the section 1236 reporting requirement from quarterly to annual, and retain the section 1235(a) requirement for a report instead of a briefing.

Modifications of briefing, notification, and reporting requirements relating to non-compliance by the Russian Federation with its obligations under the INF Treaty (sec. 1235)

The Senate bill contained a provision (sec. 1237) that would terminate four recurring reporting requirements relating to the Intermediate-Range Nuclear Forces Treaty if the treaty is no longer in force.

The House amendment contained no similar provision.

The House recedes with a technical amendment.

Report on treaties relating to nuclear arms control (sec. 1236)

The House amendment contained a provision (sec. 1235) that would note that the Committees on Armed Services and Foreign Affairs of the House of Representatives sent a letter to the

Secretary of Defense in October 2018 requesting information on several aspects of U.S. policy related to nuclear arms control, and that the Secretary of Defense did not respond to that letter. The provision would also require the Secretary of Defense, in consultation with the Secretary of State and the Director of National Intelligence, to submit to the appropriate congressional committees a report on similar subjects. The provision would withhold 20 percent of funds authorized to be appropriated for operations and maintenance, defense-wide, for the Office of the Secretary of Defense for travel until such report is submitted.

The Senate bill contained no similar provision.

The Senate recesses.

The conferees believe that reliable communication between the congressional defense committees and the Department is essential for the conduct of effective oversight.

Reports relating to the New START Treaty (sec. 1237)

The House amendment contained a provision (sec. 1240A) that would express the sense of Congress that the United States should seek to extend New START, and prohibit the use of funds authorized to be appropriated for the Department of Defense by this Act for any actions to withdraw from the treaty. The provision would also require the Director of National Intelligence, the Secretary of State, and the Secretary of Defense to each submit several reports to the appropriate congressional committees on subjects relating to the treaty and its potential expiration.

The Senate bill contained no similar provision.

The Senate recesses with amendments that would strike the prohibition on the use of funds, express the sense of Congress that legally binding, verifiable limits on Russian strategic nuclear forces are in the national security interest of the United States, and modify the number and required elements of the reports.

Report on military activities of the Russian Federation and the People's Republic of China in the Arctic region (sec. 1238)

The Senate bill contained a provision (sec. 6214) that would require not later than 180 days after the date of the enactment of this Act, the Secretary of Defense, in consultation with the Secretary of State and the Director of National Intelligence, to submit to the appropriate congressional committees a report on the activities of the Russian Federation and the People's Republic of China in the Arctic region.

The House amendment contained no similar provision.

The House recesses with an amendment containing technical clarifications.

Updated strategy to counter the threat of malign influence by the Russian Federation and other countries (sec. 1239)

The Senate bill contained a provision (sec. 6216) that would require the Secretary of Defense and the Secretary of State to jointly update the comprehensive strategy to counter the threat of malign influence developed pursuant to section 1239A of the National Defense Authorization Act for Fiscal Year 2018 (Public Law 115-91; 131 Stat. 1667) and to submit a report detailing the updated strategy to the appropriate congressional committees not later than 180 days after the date of the enactment of this Act.

The House amendment contained no similar provision.

The House recesses.

SUBTITLE E—MATTERS RELATING TO EUROPE AND NATO

Sense of Congress on support for the North Atlantic Treaty Organization (sec. 1241)

The Senate bill contained multiple provisions (sec. 1244 - 1246) that would express the sense of the Senate regarding the North Atlantic Treaty Organization and European security matters.

The House amendment contained multiple similar provisions (sec. 1237, 1238, 1254, 1257, and 1261).

The House recesses with an amendment that would express the sense of the Congress that the North Atlantic Treaty Organization is the most successful military alliance in history, founded on the principles of democracy, individual liberty, and the rule of law, and its contributions to the collective defense are indispensable to the security, prosperity, and freedom of its members. The amendment would also express that the United States must remain ironclad in its commitment to uphold its obligations under the North Atlantic Treaty, including Article 5 of such treaty.

Prohibition on the use of funds to suspend, terminate, or provide notice of denunciation of the North Atlantic Treaty (sec. 1242)

The Senate bill contained a provision (sec. 1232) that would prohibit funds authorized to be appropriated by this Act to be obligated, expended, or reprogrammed for the withdrawal of the United States Armed Forces from Europe during the 1-year period beginning on the date that the President should ever provide notice of withdrawal of the United States from the North Atlantic Treaty, done at Washington, D.C. on April 4, 1949, pursuant to Article 13 of the treaty.

The House amendment contained a similar provision (sec. 1260A) that would make a series of findings related to the North Atlantic Treaty Organization (NATO), state the policy of the United States with respect to NATO, and prohibit funds authorized to be appropriated, obligated, or expended to take any action to withdraw the United States from the North Atlantic Treaty, done at Washington, D.C. on April 4, 1949.

The Senate recedes with an amendment that would provide that, notwithstanding any other provision of law, no funds may be obligated, expended, or otherwise made available during the period beginning on the date of enactment of this Act and ending on December 31, 2020, to take any action to suspend, terminate, or provide notice of denunciation of the North Atlantic Treaty, done at Washington, D.C. on April 4, 1949. The conferees strongly support membership in NATO, the most successful military alliance in history, as a cornerstone of the security and national defense of the United States.

The conferees affirm the ironclad commitment of the United States to uphold its obligations under the North Atlantic Treaty, including under Article 5 of such treaty. Therefore, the conferees oppose in the strongest possible terms any action to effectuate withdrawal of the United States from NATO, including suspension, termination, or denunciation of the North Atlantic Treaty.

Future years plans and planning transparency for European Deterrence Initiative (sec. 1243)

The Senate bill contained a provision (sec. 1241) that would require the Secretary of Defense, in consultation with the Commander of the United States European Command, to submit to the congressional defense committees a future years plan on activities and resources of the European Deterrence Initiative (EDI) for fiscal year 2020 and not fewer than the 4 succeeding fiscal years.

The House amendment contained a provision (sec. 1252) that would require an annual "Future Years Plan" for EDI as previously required by section 1237(a) of the National Defense Authorization Act for Fiscal Year 2018 (Public Law 115-91), and

require the Department's budget request materials for EDI to include a display that clearly and concisely communicates to Congress, at an appropriate level of detail, which budget lines constitute EDI.

The House amendment also contained a provision (sec. 1253) that would require a congressional report for each obligation of EDI funds above a threshold of \$10.0 million and a report at the end of each fiscal year detailing how EDI funds were spent during the fiscal year in comparison to their intended uses.

The Senate recedes with an amendment that would require the Secretary of Defense to submit to the congressional defense committees a future years plan on activities and resources of EDI for fiscal year 2020 and not fewer than the 4 succeeding fiscal years. The amendment would also require, not later than the date on which the Secretary of Defense submits to Congress the budget request for the Department of Defense for fiscal year 2021 and each fiscal year after thereafter, the Secretary to submit to the congressional defense committees a future years plan on activities and resources of EDI for such fiscal year and not fewer than the four succeeding fiscal years. The amendment would also require an annual report on the obligation of EDI funds in a given fiscal year.

Modification and extension of Ukraine Security Assistance Initiative (sec. 1244)

The Senate bill contained a provision (sec. 1234) that would extend through December 31, 2022, the authority under section 1250 of the National Defense Authorization Act for Fiscal Year 2016 (Public Law 114-92), as amended by section 1246 of the John S. McCain National Defense Authorization Act for Fiscal Year 2019 (Public Law 115-232), for the Secretary of Defense, with the concurrence of the Secretary of State, to provide security assistance, including defensive lethal assistance, and intelligence support to military and other security forces of the Government of Ukraine. The provision would also add coastal defense cruise missiles and anti-ship missiles to the categories of appropriate security assistance and intelligence support. The provision would authorize up to \$300.0 million in fiscal year 2020 to provide security assistance to Ukraine, of which \$100.0 million would be available only for lethal assistance.

The House amendment contained a similar provision that would authorize \$250.0 million for the Ukraine Security Assistance Initiative. The provision would also require concurrence by the Secretary of State in the provision of assistance.

The Senate recesses with an amendment that would authorize \$300.0 million for the Ukraine Security Assistance Initiative, of which \$50.0 million would be available only for lethal assistance. The amendment would add coastal defense cruise missiles and anti-ship missiles to the categories of appropriate security assistance and intelligence support. The amendment would also require concurrence by the Secretary of State in the provision of assistance and extend the authority to December 31, 2022.

Limitation on transfer of F-35 aircraft to Turkey (sec. 1245)

The Senate bill contained provisions (sec. 1236, 6218, and 6236) that would, among other things, place limitations on the transfer of F-35 aircraft to the territory of the Republic of Turkey, provide a waiver to such limitations subject to a certification of certain conditions met by the Government of Turkey, and express the sense of the Senate regarding the Government of Turkey's purchase of the S-400 air defense system.

The House amendment contained similar provisions (sec. 1255 and 1267) that would, among other things, place limitations on the transfer of F-35 aircraft to Turkey, provide a waiver to such limitations subject to a certification of certain conditions met by the Government of Turkey, and express the sense of Congress on Turkey's potential acquisition of the Patriot system from the United States.

The Senate recesses with an amendment that would provide that none of the funds authorized to be appropriated or otherwise made available for the Department of Defense may be used to do the following, and the Department may not otherwise do the following: transfer, facilitate the transfer, or authorize the transfer of, any F-35 aircraft or related support equipment or parts to Turkey; transfer intellectual property, technical data, or material support necessary for, or related to, any maintenance or support of the F-35 aircraft necessary to establish Turkey's indigenous F-35 capability; or construct a storage facility for, or otherwise facilitate the storage in Turkey of, any F-35 aircraft transferred to Turkey. The amendment would allow the Secretary of Defense, jointly with the Secretary of State, to waive such limitation if the Secretaries submit to the appropriate committees of Congress a written certification that contains a determination by the Secretaries, and any relevant documentation on which the determination is based, that the Government of Turkey, having previously accepted delivery of the S-400 air and missile defense system from the Russian Federation: no longer possesses the S-400 air and missile defense system or any other equipment, materials, or

personnel association with such system; has provided credible assurances that the Government of Turkey will not in the future accept delivery of such system; and has not, since July 31, 2019, purchased or accepted delivery of defense equipment from the Russian Federation in addition to the S-400 air and missile defense system that would increase the risk of compromising the capabilities of the F-35 aircraft and its associated systems. The amendment would not allow the Secretary of Defense and Secretary of State to waive the limitation until 90 days after the date on which the Secretaries submit the required certification. The amendment would also express the sense of Congress that, among other things, the acceptance of the S-400 air and missile defense system by Turkey constitutes a significant transaction within the meaning of section 231(a) of the Countering Russian Influence in Europe and Eurasia Act of 2017 (Public Law 115-44). The amendment would further express that the President should implement sanctions under section 235 of that Act with respect to any individual or entity determined to have engaged in such significant transaction as if such person were a sanctioned person for purposes of such section. The amendment would also authorize the Secretary of Defense to fly up to six Turkish F-35 aircraft to a storage location in the United States and to induct these aircraft into a long-term storage condition. The amendment would further authorize the Secretary of Defense to expend up to \$30.0 million of funds authorized to be appropriated for fiscal year 2020 for the Department of Defense to conduct activities associated with storage, preservation, and developing a plan for the final disposition of such F-35 aircraft and Turkish F-35 aircraft equipment. The amendment would also require a report and notification of expenditure of funds under specified conditions.

Baltic defense assessment; extension and modification of security assistance for Baltic countries for joint program for interoperability and deterrence against aggression (sec. 1246)

The Senate bill contained a provision (sec. 1238) that would amend section 1279D of the National Defense Authorization Act for Fiscal Year 2018 (Public Law 115-91) by modifying and extending the authority of the Secretary of Defense, with the concurrence of the Secretary of State, to conduct or support a single joint program of the Baltic nations to improve interoperability and build their capacity to deter and resist aggression by the Russian Federation. The provision would modify the authority by: adding command, control, communications, computers, intelligence, surveillance, and reconnaissance equipment to defense articles and services eligible for a joint

program; increasing the total amount of assistance that may be provided under the authority to \$125.0 million; requiring that the amount of assistance provided may not exceed the aggregate amount contributed to the joint program by the Baltic nations; and extending the date of termination of the authority to December 31, 2022. The House amendment contained a similar provision (sec. 1260B) that would modify and extend the authority by: adding intelligence, surveillance, and reconnaissance equipment to defense articles and services eligible for a joint program, increasing the amount of assistance to \$125.0 million; extending the date to December 31, 2021; and requiring a report on the use of funding.

The House amendment also contained provisions (secs. 1271-1274) that would establish findings with regard to the Baltic nations; express the sense of the Congress that the United States is committed to the security of the Baltic nations; and require the Secretary of Defense and Secretary of State to jointly conduct an assessment of the military requirements of the Baltic countries to deter and resist aggression by Russia and to submit a report related to such assessment.

The Senate recedes with an amendment that would combine both the Senate and House sections to extend and modify the authority to conduct or support a single joint program of the Baltic nations. The amendment would also require the defense assessment as provided in the House amendment.

Extension of authority for and report on training for Eastern European national security forces in the course of multilateral exercises (sec. 1247)

The Senate bill contained a provision (sec. 1235) that would extend through December 31, 2022, the authority provided in section 1251 of the National Defense Authorization Act for Fiscal Year 2016 (Public Law 114-92), as amended by section 1205 of the National Defense Authorization Act for Fiscal Year 2018 (Public Law 115-91), for the Secretary of Defense, with the concurrence of the Secretary of State, to provide multilateral or regional training, and pay the incremental expenses of participating in such training, for countries in Eastern Europe that are signatories to the Partnership for Peace Framework Documents but not members of the North Atlantic Treaty Organization (NATO) or that became NATO members after January 1, 1999.

The House amendment contained no similar provision.

The House recedes with an amendment that would extend the authority for training Eastern European national security forces in the course of multilateral exercises through December 31,

2021. Not later than 180 days after the date of the enactment of this Act, the amendment would require the Secretary of Defense, in consultation with the Commander of United States European Command, to submit to the congressional defense committees a report on the authority.

Extension and modification of NATO Special Operations Headquarters (sec. 1248)

The Senate bill contained a provision (sec. 1281) that would extend for 5 years the authority established in section 1244 of the National Defense Authorization Act for Fiscal Year 2010 (Public Law 111-84), as most recently amended by section 1280 of the National Defense Authorization Act for Fiscal Year 2016 (Public Law 114-92).

The House amendment contained a similar provision (sec. 1251) that would extend through fiscal year 2023 section 1244 of the National Defense Authorization Act for Fiscal Year 2010 (Public Law 111-84), as most recently amended by section 1280 of the National Defense Authorization Act for Fiscal Year 2016 (Public Law 114-92), for the NATO Special Operations Headquarters (NSHQ) and also limit funding for the NSHQ until the Secretary of Defense, acting through the Assistant Secretary of Defense for Special Operations and Low Intensity Conflict, provides a report on the decision to realign responsibilities for overseeing and supporting NSHQ from U.S. Special Operations Command to U.S. European Command.

The Senate recedes with a technical amendment.

North Atlantic Treaty Organization Joint Force Command (sec. 1249)

The Senate bill contained a provision (sec. 6213) that would authorize the establishment of, and participation of members of the armed forces in, the North Atlantic Treaty Organization Joint Force Command, including the use of Department of Defense facilities and equipment as well as funds authorized to be appropriated to the Department of Defense for fiscal year 2020.

The House amendment contained no similar provision.

The House recedes with an amendment that would make available amounts authorized to be appropriated to the Department of Defense to support the North Atlantic Treaty Organization Joint Force Command to be established in the United States.

Report on North Atlantic Treaty Organization Readiness Initiative (sec. 1250)

The Senate bill contained a provision (sec.1239) that would require the Secretary of Defense to submit a report to the congressional defense committees on the North Atlantic Treaty Organization Readiness Initiative not later than October 1, 2020.

The House amendment contained no similar provision. The House recesses.

Repeal of prohibition on transfer of articles on the United States Munitions List to the Republic of Cyprus (sec. 1250A)

The Senate bill contained a provision (sec. 6204) that would, among other things, make a series of changes to allow for the export, re-export, and the transfer of defense articles and defense services, including those subject to the United States Munitions List, to the Republic of Cyprus if the President determines and certifies to the appropriate congressional committees not less than annually that: the Government of the Republic of Cyprus is continuing to cooperate with the United States Government in efforts to implement reforms on anti-money laundering regulations and financial regulatory oversight; and the Government of the Republic of Cyprus has made and is continuing to take the steps necessary to deny Russian military vessels access to ports for refueling and servicing.

The House amendment contained a similar provision (sec. 1270I).

The House recesses with an amendment that would express the sense of Congress that: allowing for the export, re-export or transfer of arms subject to the United States Munitions List to the Republic of Cyprus would advance United States security interests in Europe by helping to reduce the dependence of the Government of the Republic of Cyprus on other countries, including countries that pose challenges to United States interests around the world, for defense-related materiel; and it is in the interest of the United States to continue to support United Nations-facilitated efforts toward a comprehensive solution to the division of Cyprus.

SUBTITLE F—MATTERS RELATING TO THE INDO-PACIFIC REGION

Modification of Indo-Pacific Maritime Security Initiative (sec. 1251)

The House amendment contained a provision (sec. 1241) that would modify the authority for the Indo-Pacific Maritime Security Initiative to include additional elements of assistance and training, require additional information for congressional notifications, mandate an annual report, and incorporate an assessment, monitoring, and evaluation program. The provision would also require a one-time report on the initiative.

The Senate bill contained no similar provision.

The Senate recedes with an amendment that would, among other modifications, make clarifying changes to the required annual report on the initiative and strike the requirement for a one-time report. The conferees note that units to receive assistance under the Indo-Pacific Maritime Security Initiative undergo required "Leahy Law" human rights vetting before such assistance is provided.

Expansion of Indo-Pacific Maritime Security Initiative and limitation on use of funds (sec. 1252)

The Senate bill contained a provision (sec. 1252) that would modify section 1263(b) of the National Defense Authorization Act for Fiscal Year 2016 (Public Law 114-92) to include as recipient countries for assistance and training under the Indo-Pacific Maritime Security Initiative the following: the Federated States of Micronesia, the Kingdom of Tonga, Papua New Guinea, the Republic of Fiji, the Republic of the Marshall Islands, the Republic of Palau, the Republic of Vanuatu, and the Solomon Islands.

The House amendment contained a provision (sec. 1250A) that would require a report on the current status of security cooperation and assistance with Pacific Island countries and the feasibility of expanding such cooperation and assistance.

The House recedes with an amendment that would include the following as recipient countries under in the initiative: the Federated States of Micronesia, the Independent State of Samoa, the Kingdom of Tonga, Papua New Guinea, the Republic of Fiji, the Republic of Kiribati, the Republic of the Marshall Islands, the Republic of Nauru, the Republic of Palau, the Republic of Vanuatu, and the Solomon Islands, and Tuvalu. The amendment would also provide that none of the funds authorized to be appropriated for the initiative shall be used to provide training or assistance to the additional recipient countries until the Secretary of Defense, with the concurrence of the Secretary of State, submits to the appropriate congressional committees a report regarding security cooperation and assistance with such countries.

Report on resourcing United States defense requirements for the Indo-Pacific region and study on competitive strategies (sec. 1253)

The Senate bill contained a provision (sec. 1254) that would require the Commander, United States Indo-Pacific Command, to submit to the congressional defense committees a report containing the independent assessment of the Commander with respect to the activities and resources required for fiscal years 2022 through 2026 to achieve certain objectives.

The House amendment contained no similar provision.

The House recedes with an amendment that would require specific cost estimates, as practicable, to be included in the required assessment. The amendment would clarify the role of elements of the Office of the Secretary of Defense in providing a briefing related to the required assessment. The amendment would also require, not later than 1 year after the date of enactment of this Act, the Secretary of Defense, acting through the Office of Net Assessment, to provide the results of a study on at least three possible long-term competitive strategies with respect to the People's Republic of China with a focus on identifying opportunities to shape strategic competition to the advantage of the United States.

Limitation on use of funds to reduce the total number of members of the Armed Forces serving on active duty who are deployed to South Korea (sec. 1254)

The Senate bill contained a provision (sec. 1251) that would prohibit the use of funds authorized to be appropriated by this Act to reduce the total number of members of the Armed Forces in the territory of the Republic of Korea (ROK) below 28,500 until 90 days after the date on which the Secretary of Defense certifies to the congressional defense committees that: such a reduction is in the national security interests of the United States and will not significantly undermine the security of United States allies in the region; such a reduction is commensurate with a reduction in the threat posed to the security of the United States and its allies in the region by the conventional military forces of the Democratic People's Republic of Korea (DPRK); and the Secretary has appropriately consulted with allies of the United States, including the ROK and Japan, regarding such a reduction.

The House amendment contained a similar provision (sec. 1243) that would prohibit the use of funds authorized to be appropriated by this Act to reduce the number of members of the Armed Forces serving on Active Duty in the Republic of Korea

below 28,500 unless the Secretary of Defense first provides certification to the congressional defense committees that such a reduction is in the national security interest of the United States and will not significantly undermine the security of the United States' allies in the region.

The Senate recedes with an amendment that would prohibit funds authorized to be appropriated by this Act to be used to reduce the total number of members of the Armed Forces serving Active Duty who are deployed to South Korea below 28,500 until 90 days after the date on which the Secretary of Defense certified to the congressional defense committees the following: such a reduction is in the national security interest of the United States and will not significantly undermine the security of United States allies in the region; and the Secretary has appropriately consulted with allies of the United States, including South Korea and Japan, regarding such a reduction.

The conferees recognize that United States military forces deployed on the Korean Peninsula remain vital to deterring, and if necessary, defeating aggression by the Democratic People's Republic of Korea, which continues to threaten the national security interests of the United States and the peace and stability of the Indo-Pacific region through both its conventional forces and weapons of mass destruction. While the conferees support diplomatic efforts to achieve the complete and fully verified denuclearization of the Democratic People's Republic of Korea, the conferees believe the removal of United States military forces from the Korean Peninsula is a non-negotiable item in such negotiations.

Report on direct, indirect, and burden-sharing contributions of Japan and South Korea (sec. 1255)

The House amendment contained a provision (sec. 1244) that would require the Secretary of Defense to provide a report to the congressional defense committees, Senate Committee on Foreign Relations, and House Committee on Foreign Affairs, not later than March 1, 2020, and March 1, 2021, on the direct, indirect, and burden-sharing contributions of Japan and South Korea to support overseas military installations of the United States and U.S. Armed Forces deployed to or permanently stationed in Japan and South Korea.

The Senate bill contained no similar provision.

The Senate recedes with an amendment that, among other changes clarifying the process of preparing and delivering the aforementioned report, would require the Comptroller General of the United States to provide the report to the congressional committees described.

The conferees note that Japan and the Republic of Korea have made significant contributions to common security, including through direct, indirect, and burden-sharing contributions. Therefore, the conferees believe that upcoming negotiations concerning new Special Measures Agreements with Japan and the Republic of Korea should be conducted in a spirit consistent with prior negotiations on the basis of common interest and mutual respect.

Sense of Congress on security commitments to the Governments of Japan and the Republic of Korea and trilateral cooperation among the United States, Japan, and the Republic of Korea (sec. 1256)

The Senate bill contained a provision (sec. 1259) that would express the sense of the Senate with respect to security commitments to the Governments of Japan and the Republic of Korea and trilateral cooperation between the United States, Japan, and the Republic of Korea.

The House amendment contained no similar provision.

The House recedes with an amendment that would express the sense of Congress that the United States strongly encourages strengthened bilateral security ties between Japan and the Republic of Korea as well as deeper trilateral defense coordination and cooperation, including through expanded exercises, training, senior-level exchanges, and information sharing. The amendment would also express that the following bilateral and trilateral agreements are critical to regional security, and should be maintained: the bilateral military intelligence-sharing pact between Japan and the Republic of Korea, signed on November 23, 2016; and the trilateral intelligence sharing agreement among the United States, Japan, and the Republic of Korea, signed on December 29, 2015.

Sense of Congress on North Korea (sec. 1257)

The House amendment contained a provision (sec. 1250K) that would express the sense of the Congress concerning North Korea and diplomatic efforts to achieve the denuclearization of North Korea.

The Senate bill contained no similar provision.

The Senate recedes with an amendment that would express the sense of Congress that, among other things, a sustained credible diplomatic process based on concrete measures to achieve the denuclearization of North Korea and an eventual end to the Korean War should be pursued. The amendment would also express that continued actions by North Korea that run counter

to diplomatic negotiations call into question North Korea's intentions and commitment to a diplomatic solution.

Statement of policy and sense of Congress on, and strategy to fulfill obligations under, Mutual Defense Treaty with the Republic of the Philippines (sec. 1258)

The Senate bill contained a provision (sec. 6201) that would state the policy of the United States that, among other things, an attack on the armed forces, public vessels, or aircraft of the Republic of the Philippines in the Pacific, including the South China Sea, would trigger the mutual defense obligations of the United States under Article IV of the Mutual Defense Treaty between the Republic of the Philippines and the United States of America, done at Washington August 30, 1951, "to meet common dangers in accordance with its constitutional processes". The provision would also express the sense of the Senate that the Secretary of State and the Secretary of Defense should: affirm the commitment of the United States to the Mutual Defense Treaty between the United States and the Republic of the Philippines; preserve and strengthen the alliance of the United States with the Republic of the Philippines; prioritize efforts to develop a shared understanding of alliance commitments and defense planning; and provide appropriate support to the Republic of the Philippines to strengthen the self-defense capabilities of the Republic of the Philippines, particularly in the maritime domain.

The House amendment contained no similar provision.

The House recedes with an amendment that would include the statement of policy from the Senate provision, express the sense of the Congress with the respect to the objectives of the Secretary of State and Secretary of Defense as described in the Senate provision, and require, not later than 1 year after the date of enactment of this Act, the Secretary of Defense, in consultation with the Secretary of State, to submit to the appropriate committees of Congress a report that sets forth the strategy of the Department of Defense for achieving such objectives.

Report on security cooperation with the Philippine National Police (sec. 1259)

The House amendment contained a provision (sec. 1245) that would require the Secretary of Defense, in consultation with the Secretary of State, to provide a report to the congressional defense committees, Senate Committee on Foreign Relations, and House Committee on Foreign Affairs, not later than 120 days

after the date of the enactment of this Act on the Department of Defense's objectives and strategy for achieving such objectives for the Philippines.

The Senate bill contained no similar provision.

The Senate recedes with an amendment that would require, not later than 150 days after the date of the enactment of this Act, the Secretary of Defense, in concurrence with the Secretary of State, to submit to the appropriate congressional committees a report concerning security sector assistance programs with the Philippine National Police.

Modification of annual report on military and security developments involving the People's Republic of China (sec. 1260)

The House amendment contained two provisions (secs. 1246 and 1247) that would amend section 1202 of the National Defense Authorization Act for Fiscal Year 2000 (Public Law 106-65) by requiring the Secretary of Defense to consult with the heads of other Federal departments and agencies as appropriate in developing the Annual Report to Congress on Military and Security Developments Involving the People's Republic of China. The provisions would also modify the specified congressional committees that receive the annual report, and add certain elements to the annual report.

The Senate bill contained a similar provision (sec. 1253) that would amend paragraph 26 of section 1202(b) of the National Defense Authorization Act for Fiscal Year 2000 (Public Law 106-65) by requiring the annual report to address the relationship between Chinese overseas investment, including the Belt and Road Initiative and the Digital Silk Road, and Chinese security and military objectives.

The Senate recedes with an amendment that would add certain elements to the annual report.

Report on foreign military activities in Pacific Island countries (sec. 1260A)

The House amendment contained a provision (sec. 1250B) that would require, not later than 120 days after the date of the enactment of this Act, the Under Secretary of Defense for Intelligence, in coordination with the Director of the Defense Intelligence Agency and the Director of National Intelligence, to submit to the congressional defense committees a report concerning foreign military activities in Pacific Island countries.

The Senate bill contained no similar provision.

The Senate recesses.

Report on cybersecurity activities with Taiwan (sec. 1260B)

The House amendment contained a provision (sec. 1250G) that would direct, not later than 180 days after the enactment of this Act, the Secretary of Defense to submit to the congressional defense committees a report on cybersecurity activities with Taiwan.

The Senate bill contained no similar provision.

The Senate recesses.

Review and report related to the Taiwan Relations Act (sec. 1260C)

The Senate bill contained a provision (sec. 6211) that would express the sense of the Congress concerning the Taiwan Relations Act (Public Law 96-8). The provision would also direct the Secretary of Defense, in coordination with the Secretary of State, to conduct a review of coercive behavior by the Government of the People's Republic of China directed at Taiwan, as well as the role of United States policy toward Taiwan with respect to the implementation of the 2017 National Security Strategy and the 2018 National Defense Strategy. The provision would direct a report to be delivered to the appropriate committees of Congress on the results of the review.

The House amendment contained no similar provision.

The House recesses with an amendment that would make clarifying changes to the content of the required report.

Sense of Congress on enhancement of the United States-Taiwan defense relationship (sec. 1260D)

The Senate bill contained a provision (sec. 1257) that would express the sense of the Senate concerning the enhancement of the United States-Taiwan defense relationship.

The House amendment contained a similar provision (sec. 1248).

The House recesses with an amendment that would express the sense of the Congress that Taiwan is a vital partner of the United States, and that the United States should continue to strengthen defense and security cooperation in support of Taiwan maintaining a sufficient self-defense capability.

In light of the fortieth anniversary of the Taiwan Relations Act (Public Law 96-8), the conferees encourage the Department of Defense to focus attention and resources on the future of the United States-Taiwan defense relationship,

particularly in relation to implementation of the National Defense Strategy and strategic competition with China.

Chinese foreign direct investment in countries of the Arctic region (sec. 1260E)

The House amendment contained a provision (sec. 1250J) that would make a series of findings and direct an independent study of Chinese foreign direct investment in countries of the Arctic region, with a focus on the effects of such foreign direct investment on United States national security and near-peer competition in the Arctic region.

The Senate bill contained no similar provision.

The Senate recedes with an amendment that would strike the findings in the provision.

Sense of Congress on policy toward Hong Kong (sec. 1260F)

The Senate bill contained a provision (sec. 6209) that would express the sense of the Congress regarding United States policy concerning Hong Kong.

The House amendment contained no similar provision.

The House recedes with an amendment that would express the sense of the Congress that, among other things, Congress stands unequivocally with the people of Hong Kong as they defend their rights and freedoms and preserve their autonomy against the People's Republic of China. The amendment would call for efforts to resolve the remaining demands raised by protestors, who represent a broad cross-section of Hong Kong. The amendment would also express that in the event of use of force by the Government of the People's Republic of China against protestors in Hong Kong, Congress will recommend swift action by the United States, including: a fundamental reevaluation of the special treatment of Hong Kong under the Hong Kong Policy Act of 1992 (Public Law 102-383) and other United States law; and coordinated actions with like-minded countries to impose meaningful costs on the People's Republic of China, including the imposition of sanctions, travel restrictions, and other actions against responsible senior officials in the Chinese Communist Party, the People's Liberation Army, and the People's Armed Police.

Sense of Congress on enhancing defense and security cooperation with the Republic of Singapore (sec. 1260G)

The Senate bill contained a provision (sec. 1261) that would express the sense of the Senate concerning defense and security cooperation with the Republic of Singapore.

The House amendment contained a similar provision (sec. 1249).

The House recesses with an amendment that would express the sense of the Congress that robust defense and security cooperation between the United States and the Republic of Singapore is crucial to promoting peace and stability in the Indo-Pacific region.

Authority to transfer funds for Bien Hoa dioxin cleanup (sec. 1260H)

The Senate bill contained a provision (sec. 1043) that would allow the Secretary of Defense to transfer not more than \$15.0 million in fiscal year 2020 to the Secretary of State, for use by the United States Agency for International Development, funds to be used for the Bien Hoa dioxin cleanup in Vietnam.

The House amendment contained no similar provision.

The House recesses with an amendment that would require the Secretary of Defense to notify the congressional defense committees prior to such a transfer of funds.

Limitation on removal of Huawei Technologies Co. Ltd. from entity list of Bureau of Industry and Security (1260I)

The House amendment contained a provision (sec. 1250D) that would prohibit the removal of Huawei Technologies Co. Ltd. from the entity list maintained by the Bureau of Industry and Security until the Secretary of Commerce certifies to Congress that a number of conditions have been met.

The Senate bill contained no similar provision.

The Senate recesses with an amendment that would modify the conditions for removal from the entity list and add a reporting requirement for licenses issued for exports to Huawei.

Report on ZTE compliance with Superseding Settlement Agreement and Superseding Order (sec. 1260J)

The House amendment contained a provision (sec. 1250C) that would require the President to submit annual reports to Congress on the compliance of Zhongxing Telecommunications Equipment Corporation (ZTE) and ZTE Kangxun Telecommunications Ltd. with the Superseding Settlement Agreement and Superseding Order reached with the Department of Commerce on June 8, 2018.

The Senate bill contained no similar provision.

The Senate recesses.

Report on the lay-down of United States Marines in the Indo-Pacific region (sec. 1260K)

The Senate bill contained a provision (sec. 1255) that would require a review of, certification, and report on the current status of the distributed laydown of forces in the Indo-Pacific region in support of the joint statement of the United States-Japan Security Consultative Committee issued April 26, 2012, in the District of Columbia (April 27, 2012, in Tokyo, Japan) and revised on October 3, 2013, in Tokyo. The provision would also require the Comptroller General to submit to the congressional defense committees a report containing an analysis of the current status of the distributed laydown.

The House amendment contained no similar provision.

The House recesses with an amendment that would add certain elements of the report to focus its contents on the implementation of the planned distributed lay-down of U.S. Marines in the Indo-Pacific region and strikes the requirement for a Comptroller General report.

The conferees note that nothing in this provision shall be construed to change the current distributed lay-down of U.S. Marines in the Indo-Pacific region or to express support for any such change. Any potential changes to the distributed lay-down should be considered only after consultation and agreement of impacted countries, especially the Government of Japan.

SUBTITLE G—OTHER MATTERS

Modification to report on legal and policy frameworks for the use of military force (sec. 1261)

The House amendment contained a provision (sec. 1262) that would modify section 1264 of the National Defense Authorization Act for Fiscal Year 2018 (Public Law 115-91) to require the President to submit an annual report to the appropriate committees of Congress on the legal and policy frameworks for the use of military force and related national security operations.

The Senate bill contained no similar provision.

The Senate recesses.

Independent review of sufficiency of resources available to United States Southern Command and United States Africa Command (sec. 1262)

The House amendment contained a provision (sec. 1264) that would direct the Secretary of Defense to seek to enter into a contract with an entity independent of the Department of Defense to conduct an assessment of the sufficiency of resources available to U.S. Southern Command and U.S. Africa Command.

The Senate bill contained no similar provision.

The Senate recedes with technical amendment.

United States Central Command posture assessment and review (sec. 1263)

The Senate bill contained a provision (sec. 1287) that would mandate a comprehensive United States Central Command (CENTCOM) posture review, which would assess the extent to which the United States possesses the force posture and capabilities for countering threats emanating from and affecting CENTCOM's area of responsibilities.

The House amendment contained no similar provision.

The House recedes with an amendment that would require the Secretary of Defense to seek to enter into a contract with a federally funded research and development center to conduct an independent assessment and comprehensive review of United States military force posture and capabilities for countering threats emanating from and affecting CENTCOM's area of responsibilities.

The conferees note that the United States' military presence, posture, and basing in the Middle East region was constituted iteratively over decades to support a range of regional partners, operations, tasks, and activities, against an evolving spectrum of threats and contingencies. The conferees are concerned that the proportion of Department of Defense resources deployed to the CENTCOM area of responsibility no longer reflects departmental priorities, as articulated in the National Defense Strategy. Furthermore, the conferees believe CENTCOM must be appropriately postured in order to maintain resilience and deterrence toward regional adversaries whose doctrine and capabilities continue to evolve. However, the conferees believe CENTCOM must pursue a more resource efficient approach in order to support Department-wide efforts to recover readiness, lethality, and strategic competitiveness with Russia and China, in accordance with National Defense Strategy priorities.

Limitation on production of nuclear proliferation assessment statements (sec. 1264)

The House amendment contained a provision (sec. 1269) that would prohibit the Secretary of State from providing to the

President a Nuclear Proliferation Assessment Statement, in accordance with section 123 of the Atomic Energy Act of 1954 (42 U.S.C. 2153), with respect to a proposed cooperation agreement with any country that has not signed and implemented an Additional Protocol with the International Atomic Energy Agency. The provision would make an exception for a country that already had in effect an agreement under section 123 as of June 19, 2019. The provision would allow for a waiver of such prohibition if the President submits a report to the appropriate congressional committees, and the Congress enacts a joint resolution of approval of the waiver.

The Senate bill contained no similar provision.

The Senate recedes with an amendment that would remove the requirement for a joint resolution of approval of the waiver. The waiver would instead take effect 90 days after the submission of the report to the appropriate congressional committees.

Western hemisphere resource assessment (sec. 1265)

The House amendment contained a provision (sec. 1270D) that would require, not later than 180 days after the date of the enactment of this Act, the President, acting through the Secretary of Defense, the Secretary of State, and the Administrator of the United States Agency for International Development, to submit a report to the appropriate congressional committees assessing the sufficiency of resources available to the United States Southern Command, United States Northern Command, Department of State, and United States Agency for International Development, to carry out their respective missions in the Western hemisphere.

The Senate bill contained no similar provision.

The Senate recedes with an amendment that would modify the elements of the required assessment.

Human rights in Brazil (sec. 1266)

The House amendment contained a provision (sec. 1080) that would require, not later than 180 days after the enactment of this Act, the Secretary of Defense and the Secretary of State to jointly submit a report to the appropriate congressional committees that assesses the human rights climate in Brazil; whether Brazilian security-force units that are engaged in human rights abuses may have received or purchased United States equipment or training; and a strategy to address the human rights abuses found.

The Senate bill contained no similar provision.

The Senate recedes with an amendment that, among other changes, would require the Secretary of Defense to coordinate with the Secretary of State on the report and add additional elements to the report, including U.S.-Brazil security cooperation and related matters.

Certification relating to assistance for Guatemala (sec. 1267)

The House amendment contained a provision (sec. 1270S) that would prohibit the use of funds authorized to be appropriated or otherwise made available to transfer or purchase vehicles for any joint task force including the Ministry of Defense or the Ministry of the Interior of Guatemala unless the Secretary of Defense certifies that such ministries have made a credible commitment to use such equipment solely for the purposes intended.

The Senate bill contained no similar provision.

The Senate recedes with an amendment that would require that prior to the transfer of vehicles by the Department of Defense to a joint task force of the Ministry of Defense or the Ministry of Interior of Guatemala during fiscal year 2020, the Secretary of Defense must certify to the appropriate congressional committees that such ministries have made a credible commitment to use such equipment only for the uses for which they were intended.

Independent analysis of human rights situation in Honduras (sec. 1268)

The Senate bill contained a provision (sec. 1286) that would require the Secretary of Defense to enter into an agreement with an independent think tank or a federally funded research and development center to conduct an analysis and assessment of the compliance of the military and security forces of Honduras with international human rights laws and standards.

The House amendment contained no similar provision.

The House recedes with a clarifying amendment.

Briefing on strategy to improve the efforts of the Nigerian military to prevent, mitigate, and respond to civilian harm (sec. 1269)

The House amendment contained a provision (sec. 1270E) that would require, not later than 180 days after the date of the enactment of this Act, the President to submit to the appropriate congressional committees a report on plans to assist the Nigerian military in improving its efforts to prevent,

mitigate, and respond to civilian harm arising from its military presence and operations. The provision would also require the President to provide annual updates on progress made with respect to the plan contained in such report.

The Senate bill contained no similar provision.

The Senate recedes with an amendment that would require not later than 180 days after the date of enactment of this Act the Secretary of Defense and the Secretary of State to jointly provide a briefing to specified congressional committees on the current strategy to improve defense institutions and security sector forces in Nigeria.

The conferees expect the briefing to discuss steps, if any, that the Departments are taking to increase the ability of the Nigerian military to minimize civilian harm when using equipment provided by the United States, to include the A-29 Super Tucano and related munitions.

Report on implications of Chinese military presence in Djibouti (sec. 1270)

The House amendment contained a provision (sec. 1270K) that would require, not later than 180 days after the date of the enactment of this Act, the Secretary of Defense to submit to the appropriate congressional committees a report containing a comprehensive strategy to address security concerns posed by the Chinese People's Liberation Army Support Base in Djibouti to United States military installations and logistics chains in sub-Saharan Africa and the Middle East.

The Senate bill contained no similar provision.

The Senate recedes with a technical amendment.

Rule of construction on the permanent stationing of United States Armed Forces in Somalia (sec. 1271)

The House amendment contained a provision (sec. 1270T) that would prohibit the use of funds authorized to be appropriated by this Act or otherwise made available to the Department of Defense for fiscal year 2020 to establish any military installation or base for the purpose of providing for the permanent stationing of United States Armed Forces in Somalia.

The Senate bill contained no similar provision.

The Senate recedes with an amendment to include a rule of construction that states that nothing in this Act may be construed to authorize the permanent stationing of members of the United States Armed Forces in Somalia.

Defense and diplomatic strategy for Libya (sec. 1272)

The House amendment contained a provision (sec. 12700) that would require, not later than 120 days after the date of the enactment of this Act, the President submit to the appropriate congressional committees a report that contains a strategy for Libya.

The Senate bill contained no similar provision.

The Senate recesses with an amendment that modifies the elements of the required strategy.

Prohibition on in-flight refueling to non-United States aircraft that engage in hostilities in the ongoing civil war in Yemen (sec. 1273)

The House amendment contained a provision (sec. 1270N) that would prohibit, for the two-year period beginning on the date of the enactment of this Act, in-flight fueling by the Department of Defense to non-United States aircraft engaged in hostilities in the ongoing civil war in Yemen unless and until a declaration of war or a specific statutory authorization has been enacted.

The Senate bill contained no similar provision.

The Senate recesses.

Report on Saudi led coalition strikes in Yemen (sec. 1274)

The House amendment contained a provision (sec. 1270M) that would require, not later than 90 days after the enactment of this Act and annually thereafter, the Secretary of Defense, in consultation with the Secretary of State, to submit a report detailing the number of civilian casualties caused by the Saudi-led coalition in Yemen, including an assessment of the coalition members' willingness and ability to prevent civilian casualties.

The Senate bill contained no similar provision.

The Senate recesses with a clarifying amendment.

Reports on expenses incurred for in-flight refueling of Saudi coalition aircraft conducting missions relating to civil war in Yemen (sec. 1275)

The Senate bill contained a provision (sec. 1288) that would mandate a report detailing the expenses incurred by the United States in providing in-flight refueling services for Saudi or Saudi-led coalition non-United States aircraft conducting missions as part of the civil war in Yemen from March 1, 2015, to November 11, 2018, and the extent to which such

expenses have been reimbursed by members of the Saudi-led coalition.

The House amendment contained no similar provision.
The House recesses.

Report on Saudi Arabia's human rights record (sec. 1276)

The House amendment contained a provision (sec. 1296B) that would require not later than 30 days after the enactment of this Act, the Secretary of State, in accordance with section 502B(c) of the Foreign Assistance Act of 1961 (22 U.S.C. 2304(c)), to submit to the appropriate congressional committees a report on the protection of human rights within Saudi Arabia.

The Senate bill contained no similar provision.
The Senate recesses with a clarifying amendment.

Report on intelligence community assessment relating to the killing of Washington Post columnist Jamal Khashoggi (sec. 1277)

The House amendment contained a provision (sec. 1296) that would require, not later than 30 days after the date of the enactment of this Act, the Director of National Intelligence to submit a report to the appropriate congressional committees detailing intelligence findings regarding the October 2018 killing of Saudi columnist Jamal Khashoggi.

The Senate bill contained no similar provision.
The Senate recesses.

United States-Israel cooperation to counter unmanned aerial systems (sec. 1278)

The Senate bill contained a provision (sec. 1284) that would authorize the Secretary of Defense to carry out joint research, development, test, and evaluation to establish capabilities for countering unmanned aerial systems (C-UAS) that threaten the United States or Israel.

The House amendment contained no similar provision.
The House recesses.

Extension and modification of authority for United States-Israel anti-tunnel cooperation activities (sec. 1279)

The Senate bill contained a provision (sec. 1283) that would amend section 1279 of the National Defense Authorization Act for Fiscal Year 2016 (Public Law 114-92) to modify the authority for United States-Israel anti-tunnel cooperation activities. The provision would remove countering unmanned

aerial systems from the section 1279 authority. Elsewhere in this Act, the committee recommends a provision that would establish a separate authority for United States-Israel cooperation regarding countering unmanned aerial systems. The provision would also authorize the Secretary of Defense to use amounts available under the section 1279 authority, which are in excess of the amount contributed by the Government of Israel, for costs associated with unique national requirements identified by the United States with respect to anti-tunnel capabilities.

The House amendment contained no similar provision.

The House recedes with an amendment that would extend the section 1279 authority through December 31, 2024.

Report on cost imposition strategy (sec. 1280)

The Senate bill contained a provision (sec. 1271) that would require, not later than 180 days after the date of the enactment of this Act, the Secretary of Defense to submit to the congressional defense committees a report describing the cost imposition strategies of the Department of Defense with respect to the People's Republic of China and the Russian Federation.

The House amendment contained no similar provision.

The House recedes with an amendment that, among other clarifying changes, would require the Secretary of Defense to consult with the heads of other Federal departments and agencies as appropriate in the preparation of the report.

Modification of initiative to support protection of national security academic researchers from undue influence and other security threats (sec. 1281)

The Senate bill contained a provision (sec. 1285) that would amend section 1286 of the John S. McCain National Defense Authorization Act for Fiscal Year 2019 (Public Law 115-232) to require the Secretary of Defense to develop a list of academic institutions of the People's Republic of China and the Russian Federation that are: (1) Associated with a defense program of the People's Republic of China or the Russian Federation, including any university heavily engaged in military research; (2) Known to recruit individuals for the purpose of advancing the talent and capabilities of such a defense program or to provide misleading transcripts or otherwise attempt to conceal the connections of an individual or institution to such a defense program; or (3) Pose a serious risk of intangible transfers of defense or engineering technology and research.

The Senate bill contained another provision (sec. 6219) that would amend section 1286 of the John S. McCain National Defense Authorization Act for Fiscal Year 2019 to specify that the training and support provided under such program shall emphasize best practices for the protection of sensitive national security information and include the dissemination of unclassified publications and resources.

The House amendment contained no similar provision.

The House recedes with an amendment that would: (1) Combine sections 1285 and 6219 with minor modifications; (2) Amend section 1286 of the John S. McCain National Defense Authorization Act for Fiscal Year 2019 to require the Secretary of Defense to establish enhanced information sharing procedures to collect appropriate information on any personnel participating in defense research and development activities other than basic research and to maintain appropriate security controls over research activities, technical information, and intellectual property; and (3) Amend the required report in the same section to be an annual report.

The conferees note the important impact that United States academic institutions have had advancing emerging technologies and contributing to the defense research enterprise. Maintaining an open and collaborative environment for unclassified basic and applied research is fundamental to attracting the world's best students and commercializing their innovations. The conferees, however, note the efforts undertaken by foreign adversaries and competitors to exploit the open academic environment through the theft of intellectual property, improper technology transfer, and espionage.

The conferees encourage the Secretary of Defense to establish a memorandum of understanding with the Secretary of Homeland Security in order to coordinate the implementation of the enhanced information sharing required in this provision. The conferees note, that to greatest extent possible, the Secretary of Defense should streamline information sharing procedures and leverage existing government information systems and repositories, including the Student Exchange Visitor Information System, to reduce the burden on universities and the Department of Defense.

Modification of responsibility for policy on civilian casualty matters (sec. 1282)

The House amendment contained a provision (sec. 1268) that would modify section 1057 of the National Defense Authorization Act for Fiscal Year 2018 (Public Law 115-91) and section 936 of the John S. McCain National Defense Authorization Act for Fiscal

Year 2019 (Public Law 115-232) relating to civilian casualty matters.

The Senate bill contained no similar provision.

The Senate recedes with an amendment that would amend section 936 of the John S. McCain National Defense Authorization Act for Fiscal Year 2019 (Public Law 115-232) to modify the responsibilities of the senior civilian official of the Department of Defense designated to develop, coordinate, and oversee compliance relating to civilian casualties. The conferees direct the senior designated official to coordinate with other relevant U.S. departments and agencies with respect to any other matters related to civilian harm resulting from military operations, including assistance provided to civilians impacted or displaced by such operations.

Report on export of certain satellites to entities with certain beneficial ownership status (sec. 1283)

The Senate bill contained a provision (sec. 6207) that would require a report on addressing the threat posed by the export, reexport, or in-country transfer of certain satellites to certain entities.

The House amendment contained no similar provision.

The House recedes with a technical/clarifying amendment.

Rule of construction relating to use of military force (sec. 1284)

The House amendment contained a provision (sec. 1265) that would establish that nothing in this Act or any amendment made by this Act may be construed to authorize the use of military force.

The Senate bill contained no similar provision.

The Senate recedes with an amendment that would establish that nothing in this Act or any amendment made by this Act may be construed to authorize the use of military force, including the use of military force against Iran or any other country.

Reports and briefings on use of military force and support of partner forces (sec. 1285)

The House amendment contained a provision (sec. 1270V) that would require the President not later than 180 days after the date of the enactment of this Act, and every 180 days thereafter, to submit to the congressional defense committees, the Committee on Foreign Relations of the Senate, and the Committee on Foreign Affairs of the House of Representatives a

report on specific actions taken pursuant to the Authorization for Use of Military Force (Public Law 107-40; 50 U.S.C. 1541 et seq.) and support for partner forces against those nations or organizations described in such law, during the preceding 180-day period.

The Senate bill contained no similar provision.

The Senate recesses with an amendment that would require the President not later than 180 days after the date of the enactment of this Act, and every 180 days thereafter, to submit to the congressional defense committees, the Committee on Foreign Relations of the Senate, and the Committee on Foreign Affairs of the House of Representatives a report on actions taken pursuant to the Authorization for Use of Military Force (Public Law 107-40) against those countries or organizations described in such law, as well as any actions taken to command, coordinate, participate in the movement of, or accompany the regular or irregular military forces of any foreign country or government when such forces are engaged in hostilities or in situations where imminent involvement in hostilities is clearly indicated by the circumstances, during the preceding 180-day period.

LEGISLATIVE PROVISIONS NOT ADOPTED

Report on participants in security cooperation training programs and recipients of security assistance training that have been designated for human rights abuses or terrorist activities

The House amendment contained a provision (sec. 1205) that would require, not later than 180 days after the date of the enactment of this Act, the Secretary of State and the Secretary of Defense, in consultation with the heads of other appropriate Federal departments and agencies, to submit to the appropriate congressional committees a report on individuals and units of security forces of foreign countries that have participated in security cooperation programs or received security assistance training and have been subject to United States sanctions relating to the violation of human rights or terrorist activities. The Secretaries would also be required to submit an annual update of the report.

The Senate bill contained no similar provision.

The House recesses.

The conferees note the importance of adherence to human rights by recipients of Department of Defense (DOD) security cooperation training. The conferees note that section 362 of title 10, United States Code, prohibits DOD from providing assistance to foreign security forces if there is credible

information that gross violations of human rights have been committed. Among the key elements of the security cooperation reforms contained in the National Defense Authorization Act for Fiscal Year 2017 (Public Law 114-328) were an increased emphasis on the integration of human rights training into DOD security cooperation programs and the strengthening of the defense and security institutions of foreign partners in order to more effectively and responsibly train, manage, and employ their forces. The conferees note that DOD faces significant challenges relating to its ability to comprehensively track recipients of DOD security cooperation training in order to identify those who may subsequently have committed gross violations of human rights. The conferees understand that these challenges arise in part from limitations in the Department's ability to collect and maintain data on all individuals who receive security cooperation training under title 10 chapter 16 authorities and in the ability to cross-reference such information with that of other departments and agencies of the United States government. The conferees are aware that the lack of data would result in incomplete information on recipients of security cooperation training that have been designated for human rights abuses or terrorist activities.

Therefore, the conferees direct the Secretary of Defense to provide a briefing to the Armed Services Committees of the House of Representatives and the Senate not later than 30 days after the date of enactment of this Act on the advisability and feasibility of providing Congress with a report on recipients of security cooperation training programs at the unit and individual level that, after such training, go on to commit gross violations of human rights. The briefing should identify any challenges that DOD may encounter in such an effort as well as recommendations for overcoming such challenges.

Prohibition on use of funds to transfer defense articles and services to Azerbaijan

The House amendment contained a provision (sec. 1207) that would prohibit the use of funds authorized by this Act or otherwise made available to the Department of Defense for fiscal year 2020 to transfer defense articles or services to Azerbaijan unless the President certifies to Congress that the transfer of such defense articles or services does not threaten civil aviation.

The Senate bill contained no similar provision.

The House recesses.

The conferees are concerned by any threat or use of force against civilians or actions against a nation's sovereignty,

which would be contrary to international law. The importance of a diplomatic resolution of the Nagorno-Karabakh conflict is addressed in another section of this report.

Multinational regional security education center

The House amendment contained a provision (sec. 1209) that would require, not later than 120 days after the date of the enactment of this Act, the Secretary of Defense to provide a briefing on the utility and feasibility of establishing a multinational regional security education center.

The Senate bill contained no similar provision.

The House recesses.

Not later than 120 days after the date of the enactment of this Act, the conferees direct the Secretary of Defense to provide to the Committee on Armed Services and the Committee on Foreign Affairs of the House of Representatives and the Committee on Armed Services and the Committee on Foreign Relations of the Senate a briefing on the utility and feasibility of establishing a multinational regional security education center, including as a satellite entity of the Daniel K. Inouye Asia-Pacific Center for Security Studies that is located in a member country of the Association for Southeast Asian Nations, to offer year-round training and educational courses to Southeast Asian and Indo-Pacific civilian and military security personnel to enhance engagement of territorial and maritime security, transnational and asymmetric threats, and defense sector governance in the Indo-Pacific region. Training may also include English-language training, human rights training, rule of law and legal studies, security governance and institution-building courses, and budget and procurement training.

The conferees direct the Secretary of Defense to provide a written summary of the briefing to the Committee on Armed Services and the Committee on Foreign Affairs of the House of Representatives and the Committee on Armed Services and the Committee on Foreign Relations of the Senate, within 30 days following the briefing.

Training for participants in professional military education programs

The House amendment contained a provision (sec. 1210) that would require any foreign person participating in professional military education to participate in human rights training.

The Senate bill contained no similar provision.

The House recesses.

The conferees note that every year numerous students from foreign militaries participate in professional military education provided and funded by the United States. These courses should be viewed as a valuable opportunity to foster an appreciation of human rights and the rule of law. The conferees are aware that foreign students in professional military education programs participate in the Department of Defense Field Studies Program, which includes instruction in human rights and law of war, among other topics. The Secretary of Defense is encouraged to continue providing human rights training as a key component of professional military education.

Report on plan to transfer funds in connection with the provision of support under section 385 of title 10, United States Code

The House amendment contained a provision (sec. 1210A) that would require the Secretary of Defense to submit to the appropriate congressional committees a report on Department of Defense plans to transfer funds with the provision of support under section 385 of title 10, United States Code, for fiscal year 2020.

The Senate bill contained no similar provision.

The House recesses.

The conferees direct the Secretary of Defense, Secretary of State, and the Administrator of the U.S. Agency for International Development to provide a briefing not later than December 1, 2019 to the Armed Services Committees of the House of Representatives and the Senate on any plans to use the authority provided by section 385 of title 10, U.S. Code, in fiscal year 2020. The briefing should also include a description of any issues that may impede the use of such authority.

Rule of construction relating to use of military force against Iran

The House amendment contained a provision (sec. 1225) that would establish that nothing in this Act or any amendment made by this Act may be construed to authorize the use of military force against Iran.

The Senate bill contained no similar provision.

The House recesses.

Sense of Congress on support for Ministry of Peshmerga Forces of the Kurdistan Region of Iraq

The House amendment contained a provision (sec. 1226) stating that it was the sense of Congress that the Ministry of Peshmerga forces of the Kurdistan Region of Iraq had made significant contributions and sacrifices in the United States-led campaign to degrade, dismantle, and destroy ISIS, and that the Department of Defense and Department of State should continue to work with and support the non-partisan forces of the Ministry of Peshmerga of the Kurdistan Region of Iraq in order to continue to develop their capabilities, promote security sector reforms, and enhance sustainability and interoperability with the other elements of the Iraqi security forces in order to provide for Iraq's lasting security against terrorist threats.

The Senate bill contained no similar provision.

The House recesses.

The conferees note that the United States-led coalition known as the Combined Joint Task Force-Operation Inherent Resolve (CJTF-OIR) in partnership with the Iraqi Security Forces (ISF), including the Kurdish Peshmerga, successfully liberated significant Iraqi territory from the control of the Islamic State of Iraq and Syria (ISIS). While the conferees applaud this significant achievement, they also express concern that ISIS continues to pose a significant threat to Iraq, the region, and potentially the U.S. homeland.

According to the August 2019 Lead Inspector General report for OIR, CJTF-OIR noted "deep-seated internal Kurdish political divisions and the Kurds' continuing dispute with Iraq's central government over a swath of disputed territory in northern Iraq rich in resources have allowed ISIS insurgents to exploit gaps between ISF and Peshmerga forces, which allows ISIS to regroup and plan attacks in the region." Furthermore, the Lead Inspector General report for OIR stated "that the ISF and the Peshmerga has made progress this quarter in ongoing planning of 'joint security mechanisms'-coordination to effectively combat ISIS in the disputed territories. However, on-the-ground cooperation between the ISF and the Peshmerga remained limited and security gaps remained." The conferees believe a lasting defeat of ISIS is critical to maintaining a stable and tolerant Iraq in which all faiths, sects, and ethnicities are afforded equal protection and full integration into the government and society of Iraq and support the provision of U.S. security and other assistance for such purposes. As part of those efforts, the conferees support continued reform of, and materiel and training assistance to, Kurdish Peshmerga forces with the objective of enabling them to more effectively partner with the ISF, the United States, and other international partners. In furtherance of those objectives, the conferees believe continued efforts by the Peshmerga and ISF to establish joint security

mechanisms are critical to addressing the threat of ISIS in disputed territories.

The conferees strongly support continuation of the partnership between the U.S. military and ISF, including the Kurdish Peshmerga in furtherance of our shared interests. In the coming years, the conferees encourage the Department to normalize its support to the Peshmerga by focusing assistance on the reform and professionalization at the ministerial and unit level and the development of capabilities and interoperability with other ISF elements that contribute to the long-term stability of Iraq.

Sense of Congress on supporting the return and repatriation of religious and ethnic minorities in Iraq to their ancestral homelands

The House amendment contained a provision (sec. 1227) that expressed the sense of Congress that it should remain a policy priority of the United States to support the safe return of displaced indigenous people of the Nineveh Plan and Sinjar to their ancestral homeland and that it should be a priority to ensure reintegration and restoration of fundamental human rights.

The Senate bill contained no similar provision.

The House recesses.

Prohibition of unauthorized military force in or against Iran

The House amendment contained a provision (sec. 1229) that would prohibit the use of Federal funds for any use of military force in or against Iran unless Congress has declared war or enacted a specific statutory authorization.

The Senate bill contained no similar provision.

The House recesses.

Report on Russian military involvement in the AFRICOM AOR

The House amendment contained a provision (sec. 1240) that would require the Secretary of Defense, in coordination with the Secretary of State, not later than 120 days after the date of enactment of this Act to provide a report to the appropriate congressional committees on military assistance provided by the Russian Federation or any private military corporations headquartered or registered in Russia to countries in the U.S. Africa Command area of responsibility (AOR).

The Senate bill contained no similar provision.

The House recesses.

The conferees direct the Secretary of Defense to provide a briefing to the Armed Services Committees of the House of Representatives and the Senate not later than 120 days after the date of enactment of this Act on the presence, activities, and strategic objectives of the Russian Federation in Africa. The briefing shall address, at a minimum, the following:

- 1) A description of the presence, activities, and strategic objectives of the Russian Federation in Africa.
- 2) A description of all known bilateral agreements between Russia and African governments negotiated since 2014, including military and technical cooperation, arms sales, and mineral exploration.
- 3) An analysis of any direct or indirect military support Russia or private military corporations based in Russia are providing to state and non-state armed groups in Africa, including a description of the types of support.
- 4) A description of arms sales within the previous calendar year by the Russian defense sector to African countries, and an analysis of whether any of such arms sales constitute significant transactions within the meaning of section 231 of the Countering America's Adversaries Through Sanctions Act of 2017 (22 U.S.C. 9525).
- 5) An analysis of the extent to which such arms sales may be in violation of United Nations Security Council-imposed arms embargoes in Africa, including with regard to South Sudan, the Democratic Republic of Congo, and the Central African Republic.
- 6) An analysis of Russian disinformation and propaganda operations in African countries, and the extent to which such operations pose a risk to United States interests in Africa.
- 7) A description of any plans to counteract destabilizing Russian activities in Africa.
- 8) Any other matters the Secretary deems relevant.

United States actions relating to Russian interference in elections for Federal office

The House amendment contained a provision (sec. 1240B) that would impose a prohibition on transactions relating to new Russian sovereign debt, require a determination of Russian interference in elections for Federal office, and create procedures for lifting and reimposing the prohibition.

The Senate bill contained no similar provision.
The House recedes.

Extension and modification of report on military and security developments involving North Korea

The House amendment contained a provision (sec. 1242) that would amend section 1236 of the National Defense Authorization Act for Fiscal Year 2012 (Public Law 112-81) to extend and modify the requirement to provide a report on the military and security developments involving the Democratic People's Republic of Korea.

The Senate bill contained no similar provision.

The House recesses.

The conferees note that Congress's ability to evaluate the security threat posed by North Korea and to conduct oversight of United States policy toward North Korea has been impaired by a lack of transparency and associated delays in providing information necessary for such oversight. For example, the report to Congress on the status of North Korea's nuclear program to establish a baseline of progress for negotiations with respect to denuclearization as required by section 1265 of the John S. McCain National Defense Authorization Act for Fiscal Year 2019 (Public Law 115-232) was recently submitted over 300 days late. The conferees reiterate support for diplomatic efforts to achieve the denuclearization of North Korea. The conferees urge the Administration to review its policies related to North Korea to ensure they are consistent with a priority on open and timely communication with the Congress.

Report by Defense Intelligence Agency on certain military capabilities of China and Russia

The House amendment contained a provision (sec. 1250F) that would require the Director of the Defense Intelligence Agency to submit to the Secretary of Defense and the appropriate congressional committees a report on the military capabilities of China and Russia.

The Senate bill contained no similar provision.

The House recesses.

Not later than 180 days after the enactment of this Act, the conferees direct the Director of the Defense Intelligence Agency to provide to the Committees on Armed Services of the House of Representatives and the Senate a briefing concerning the military capabilities of China and Russia, including: (1) an update on the presence, status, and capability of the military with respect to any national training centers similar to the Combat Training Center Program of the United States; (2) an analysis of a readiness deployment cycle of the military, including as compared to such a cycle of the United States and an identification of metrics used in the national training centers of that military; (3) a comprehensive investigation into the capability and readiness of the mechanized logistics of the

army of the military, including an analysis of field maintenance, sustainment maintenance, movement control, intermodal operations, and supply, and how such functions interact with specific echelons of that military; and (4) an assessment of the future of mechanized army logistics of the military.

Modification of report relating to enhancing defense and security cooperation with India

The House amendment contained two provisions (sec. 1250 and sec. 1250I) concerning defense and security cooperation with India.

The Senate bill contained no similar provision.

The House recesses.

In addition to regular briefings and reports on U.S.-India defense relations, the conferees direct the Department of Defense to provide a briefing to the congressional defense committees on U.S.-India defense cooperation in the Western Indian Ocean no later than March 1, 2020. Topics to be covered in the briefing shall include: (1) a description of military activities of the United States and India, separately, in the Western Indian Ocean; (2) a description of military cooperation activities between the United States and India in the Western Indian Ocean; (3) a description of how the relevant geographic combatant commands coordinate their activities with the Indian military in the Western Indian Ocean and the mechanisms in place to ensure such cooperation is maximized; (4) a description of how the major defense partnership with India will be utilized to enhance cooperation in the Western Indian Ocean; and (5) areas of future opportunity to increase military engagement with India in the Western Indian Ocean.

Sense of Congress on the enduring United States commitment to the Freely Associated States

The House amendment contained a provision (sec. 1250E) that would express the sense of the Congress concerning the enduring commitment of the United States to the Freely Associated States.

The Senate bill contained no similar provision.

The House recesses.

The conferees recognize that the United States has strong and enduring interests in the security and prosperity of Oceania and the Western Pacific region, including close relationships with the countries of Palau, the Marshall Islands, and the Federated States of Micronesia, with whom the United States

shares Compacts of Free Association. The United States and the Freely Associated States share values including democracy and human rights, as well as mutual interest in a free, open, and prosperous Indo-Pacific region. Therefore, the conferees believe the United States should expeditiously begin negotiations on the renewal of the Compacts of Free Association and conclude such negotiations prior to the expiration of the current compacts in 2023 and 2024.

Sense of Congress on United States-India defense relationship

The House amendment contained a provision (sec. 1250H) that would express the sense of the Congress on the United States-India defense relationship.

The Senate bill contained no similar provision.

The House recesses.

Report on value of investments in dual use infrastructure projects by NATO member states

The House amendment contained a provision (sec. 1256) that would require the Secretary of Defense to submit a report, not later than June 1, 2020, on the value of investments in dual use infrastructure projects by the member states of the North Atlantic Treaty Organization.

The Senate bill contained no similar provision.

The House recesses.

Sense of Senate on the United States-Japan alliance and defense cooperation

The Senate bill contained a provision (sec. 1256) that would express the sense of the Senate concerning the United States-Japan alliance and opportunities for enhancing defense cooperation.

The House amendment contained no similar provision.

The Senate recesses.

The conferees underscore that the United States-Japan alliance remains the cornerstone of peace and security for a free and open Indo-Pacific region. The conferees also recognize that the Government of Japan has made among the most significant "burden sharing" contributions of any United States ally, including through direct cost sharing, paying for the realignment of United States forces currently stationed in Okinawa, community support, and other alliance-related expenditures.

European Center of Excellence for Countering Hybrid Threats

The House amendment contained a provision (sec. 1258) that would require the Secretary of Defense to provide \$2.0 million for the European Center of Excellence for Countering Hybrid Threats.

The Senate bill contained no similar provision.

The House recesses.

The conferees strongly support the efforts of the European Center of Excellence for Countering Hybrid Threats (henceforth referred to as "the Center"), and encourage the Department of Defense to cooperate fully and actively with the Center. The conferees note that the Center could play an important role in addressing the strategic challenge described by the National Defense Strategy: revisionist powers and rogue regimes increasing "efforts short of armed conflict by expanding coercion to new fronts, violating principles of sovereignty, exploiting ambiguity, and deliberately blurring the lines between civil and military goals." The conferees also anticipate the Center serving as a unique forum to address the common concerns of transatlantic democracies and as a hallmark of cooperation between the North Atlantic Treaty Organization and the European Union.

To better understand the full scope of capability and impact the Center could have to further the strategic and operational objectives of the Department of Defense, the conferees direct the Department of Defense to provide the Committees on Armed Services of the Senate and House of Representatives a briefing, no later than 60 days after the enactment of this Act, on the Center, including the following components: the strategic vision for the Center, associated resources and manpower, planned or current activities, and intended engagement strategy of the Department with the Center.

Sense of Senate on United States-India defense relationship

The Senate bill contained a provision (sec. 1258) that would express the sense of the Senate on the United States-India defense relationship.

The House amendment contained no similar provision.

The Senate recesses.

Sense of Congress on European investments in national security

The House amendment contained a provision (sec. 1259) that would express the sense of Congress that the North Atlantic Treaty Organization (NATO) is central to United States-European

defense matters and that military cooperation and coordination in Europe among NATO member countries should complement NATO efforts and not detract from NATO military system interoperability and burden sharing among NATO allies.

The Senate bill contained no similar provision.

The House recesses.

The conferees note that the importance of NATO is addressed elsewhere in this report.

Briefing on Department of Defense program to protect United States students against foreign assets

The House amendment contained a provision (sec. 1260) that would require the Secretary of Defense to provide a briefing to the congressional defense committees on the program to protect United States students against recruitment efforts by foreign intelligence agents as described in section 1277 of the John S. McCain National Defense Authorization Act for Fiscal Year 2018 (Public Law 115-91).

The Senate bill contained no similar provision.

The House recesses.

The conferees direct the Secretary of Defense to provide a briefing to update the Committees on Armed Services of the Senate and the House no later than March 15, 2019 on the status of the program required in section 1277 of the John S. McCain National Defense Authorization Act for Fiscal Year 2018, including an assessment of whether the program is beneficial to students interning, working part time, or in a program that will result in post-graduation employment with the Department of Defense components or contractors.

Sense of Senate on enhanced cooperation with Pacific Island countries to establish open-source intelligence fusion centers in the Indo-Pacific region

The Senate bill contained two provisions (sec. 1260 and sec. 6202) that would express the sense of the Senate that U.S. Indo-Pacific Command should pursue the establishment of one or more open-source intelligence fusion centers in the Indo-Pacific region to enhance cooperation with Pacific Island countries.

The House amendment contained no similar provision.

The Senate recesses.

Limitation on availability of certain funds until report submitted on Department of Defense awards and disciplinary action as a result of the 2017 incident in Niger

The House amendment contained a provision (sec. 1263) that would prohibit the use of more than 80 percent of any funds authorized to be appropriated by this Act or otherwise made available for fiscal year 2020 for Operations and Maintenance, Defense-Wide, Office of the Secretary of Defense, for Travel of Persons, until the Secretary of Defense submits a report containing a description of each award and disciplinary action issued, by rank, as a result of the AR 15-6 investigation findings relating to the incident in Niger on October 4, 2017.

The Senate bill contained no similar provision.

The House recesses.

The conferees have serious concerns about the executive branch's handling of the ambush in Niger that occurred on October 4, 2017, which led to the death of four U.S. servicemembers. These concerns include the Department of Defense's repeated delays in providing to Congress the report on the investigation into the incident as well as information on the disciplinary actions issued in connection with the incident. The executive branch has a duty to conduct itself with candor and it must act in a way that is transparent and responsive to congressional oversight.

Therefore, the conferees direct the Secretary of Defense to submit to the Armed Services Committees of the House of Representatives and the Senate not later than January 15, 2020 a report containing a description of each disciplinary action issued by rank as a result of the AR 15-6 investigation findings relating to the incident in Niger on October 4, 2017. The report shall be submitted in a format that protects personally identifiable information and is consistent with national security.

Rule of construction relating to use of military force against Venezuela

The House amendment contained a provision (sec. 1266) that would establish that nothing in this Act or any amendment made by this Act may be construed to authorize the use of military force against Venezuela.

The Senate bill contained no similar provision.

The House recesses.

Restriction on emergency authority relating to arms sales under the Arms Export Control Act

The House amendment contained a provision (sec. 1270) that would amend section 36 of the Arms Export Control Act (22 U.S.C. 2776) by modifying a restriction on emergency authority

requiring the President to consult with appropriate congressional committees not later than 3 days after the determination and submit further certifications to Congress. The modifications would also require the delivery of defense articles within 90 days of the issuance of the emergency determination and the submittal of a report to Congress not later than 30 days after the delivery of defense articles. Further, the waiver of congressional review would not apply to begin manufacturing or co-production of articles outside the United States.

The Senate bill contained no similar provision.

The House recedes.

Report on annual defense spending by ally and partner countries

The Senate bill contained a provision (sec. 1240) that would require the Secretary of Defense to submit to certain congressional committees a report containing a summary of the key findings of the annual report of the Secretary General of the North Atlantic Treaty Organization (NATO) as well as assessments of various elements of burden-sharing and defense cooperation with and among NATO allies.

The House amendment contained a similar provision (sec. 1270A) that would require the Secretary of Defense to submit a report concerning defense spending by each mutual defense treaty ally and major non-NATO ally of the United States, as well as other matters.

These legislative provisions were not adopted.

Not later than 60 days after the date on which the next annual report of the Secretary General of the North Atlantic Treaty Organization (NATO) for the preceding calendar year is published, the conferees direct the Secretary of Defense to submit to the Committee on Armed Services and the Committee on Foreign Relations of the Senate, and to the Committee on Armed Services and the Committee on Foreign Affairs of the House of Representatives, a report that includes the following:(1) an assessment, incorporating the key findings of the such annual report of the Secretary General of NATO, of progress toward meeting the Defense Investment Pledge made at the 2014 NATO summit in Wales by member countries of the North Atlantic Treaty Organization; a description of the personnel and financial contributions of each member country of NATO to NATO missions; and a description of NATO initiatives to accelerate the speed of decision, ensure viable military reinforcement, and to support the deployability of North Atlantic Treaty Organization forces. The conferees direct that the report be submitted in an unclassified form, but may include a classified annex.

The conferees note that the contributions of United States allies to collective defense and shared security are critical. The conferees note that reports relating to ally and partner "burden-sharing" contributions are addressed elsewhere in this report.

Reports on contributions to the North Atlantic Treaty Organization

The Senate bill contained a provision (sec. 1240) that would require the Secretary of Defense to submit to certain congressional committees a report containing a summary of the key findings of the annual report of the Secretary General of the North Atlantic Treaty Organization (NATO) as well as assessments of various elements of burden-sharing and defense cooperation with and among NATO allies.

The House amendment contained a similar provision (sec. 1270A) that would require the Secretary of Defense to submit a report concerning defense spending by each mutual defense treaty ally and major non-NATO ally of the United States, as well as other matters.

These legislative provisions were not adopted.

Not later than 60 days after the date on which the next annual report of the Secretary General of the North Atlantic Treaty Organization (NATO) for the preceding calendar year is published, the conferees direct the Secretary of Defense to submit to the Committee on Armed Services and the Committee on Foreign Relations of the Senate, and to the Committee on Armed Services and the Committee on Foreign Affairs of the House of Representatives, a report that includes the following: (1) an assessment, incorporating the key findings of the such annual report of the Secretary General of NATO, of progress toward meeting the Defense Investment Pledge made at the 2014 NATO summit in Wales by member countries of the North Atlantic Treaty Organization; a description of the personnel and financial contributions of each member country of NATO to NATO missions; and a description of NATO initiatives to accelerate the speed of decision, ensure viable military reinforcement, and to support the deployability of North Atlantic Treaty Organization forces. The conferees direct that the report be submitted in an unclassified form, but may include a classified annex.

The conferees note that the contributions of United States allies to collective defense and shared security are critical. The conferees note that reports relating to ally and partner "burden-sharing" contributions are addressed elsewhere in this report.

Sense of Congress on the United States-Israel relationship

The House amendment contained a provision (sec. 1270B) that would express the sense of Congress that Israel has been one of the United States' strongest friends and allies, that the United States should continue to offer full security assistance and related support to Israel, and that such assistance and support is vital as Israel confronts a number of potential challenges, including threats from Iran.

The Senate contained no similar provision.

The House recesses.

The conferees strongly support the enduring strategic partnership between the United States and Israel, which is based on common democratic values and seven decades of strong cooperation. Furthermore, the conferees believe close defense cooperation between the two countries remains a critical component of this partnership given shared security challenges.

Sense of Congress on stability of the Caucasus region and the continuation of the Nagorno Karabakh cease-fire

The House amendment contained a provision (sec. 1270C) that would express the sense of Congress regarding methods to advance United States interests in the stability of the Caucasus region and the continuation of the Nagorno Karabakh cease-fire.

The Senate bill contained no similar provision.

The House recesses.

The conferees underscore the importance of preventing further violence and making progress toward a peaceful resolution of the Nagorno-Karabakh conflict.

Limitation on use of funds from the Special Defense Acquisition Fund

The House amendment contained a provision (sec. 1270F) that would amend section 114(c) of title 10, United States Code, to prohibit the use of funds made available from the Special Defense Acquisition Fund for any fiscal year to provide any assistance to Saudi Arabia or the United Arab Emirates if such assistance could be used by either country to conduct or continue hostilities in Yemen.

The Senate bill contained no similar provision.

The House recesses.

Prohibition on the use of emergency authorities for the sale or transfer of defense articles and services to Saudi Arabia and the United Arab Emirates

The House amendment contained a provision (sec. 1270G) that would prohibit the use of funds authorized to be appropriated or otherwise made available by this or any other Act to process a commercial or foreign military sale, or to transfer, deliver, or facilitate the transfer or delivery, of any defense article or service to Saudi Arabia or the United Arab Emirates pursuant to any certification of emergency circumstances submitted in accordance with section 36(b) of the Armed Export Control Act (22 U.S.C. 2776(b)).

The Senate bill contained no similar provision.

The House recesses.

Prohibition on support for military participation against the Houthis

The House amendment contained a provision (sec. 1270H) that would prohibit the use of funds authorized or otherwise made available by this Act to provide intelligence for the purpose of strikes or logistical support for coalition strikes to the Saudi-led coalitions operations against the Houthis in Yemen.

The Senate bill contained no similar provision.

The House recesses.

Report on efforts to combat Boko Haram in Nigeria and the Lake Chad Basin

The House amendment contained a provision (sec. 1270L) that expresses the sense of Congress on Boko Haram and would require, not later than 90 days after the date of the enactment of this Act, the Secretary of Defense, the Secretary of State, and the Attorney General to jointly submit to Congress a report on efforts to combat Boko Haram in Nigeria and the Lake Chad Basin.

The Senate bill contained no similar provision.

The House recesses.

The conferees direct the Secretary of Defense and the Secretary of State not later than 90 days after the date of enactment of this Act to provide a joint briefing to the Armed Services Committees of the House of Representatives and the Senate on the initiatives undertaken by the Department of Defense (DoD) and the Department of State (DoS) to assist the Government of Nigeria and countries in the Lake Chad Basin to

develop capabilities to combat Boko Haram, the Islamic State in West Africa, and other terrorist organizations that threaten regional security. The briefing shall also include a description of any activities by DoD and DoS to enhance the capacity of Nigeria and countries in the Lake Chad Basin to investigate and prosecute human rights abuses as well as promote respect for the rule of law.

Sense of Congress relating to Mongolia

The House amendment contained a provision (sec. 1270P) that would express the sense of the Congress that the United States and Mongolia have a shared interest in supporting and preserving Mongolia's democracy, including Mongolia's ability to pursue an independent foreign policy, defend against threats to its sovereignty, and maintain territorial integrity.

The Senate bill contained no similar provision.

The House recesses.

The conferees note that defense cooperation, a strong military-to-military relationship, and increased interoperability between the United States and Mongolia are in the interest of both countries, and the United States should continue to take steps to strengthen its security partnership with Mongolia.

Report on relationship between Lebanese armed forces and Hizballah

The House amendment contained a provision (sec. 1270Q) that would require, not later than 90 days after the enactment of this Act, the President to submit a report identifying personnel with influence over the Lebanese Armed Forces who are influenced by Hizballah and describing military activities conducted by the Lebanese Armed Forces to disarm Hizballah.

The Senate bill contained no similar provision.

The House recesses.

The conferees direct the Secretary of Defense to submit a report to the congressional defense committees within 180 days after the date of the enactment of this Act that, at a minimum, assesses whether Hizballah exerts influence over the Lebanese Armed Forces, describes the nature of the Lebanese Armed Forces' communication and interaction with Hizballah, details U.S. and other international efforts to build the capacity of the Lebanese Armed Forces to provide for the security and stability of Lebanon, and outlines efforts by the Lebanese Armed Forces to maintain accountability for U.S.-provided equipment. The report may contain a classified annex if necessary.

Imposition of sanctions relating to Central America

The House amendment contained a provision (sec. 1270R) that would require, not later than 180 days after the date of the enactment of this Act, the President to impose sanctions on individuals listed in the reports provided to Congress pursuant to section 1287 of the John S. McCain National Defense Authorization Act for Fiscal Year 2019 (Public Law 114-232) and section 7019(d) of the Department of State, Foreign Operations, and Relative Programs Appropriations Act, 2019.

The Senate bill contained no similar provision.
The House recesses.

Report on hostilities involving United States Armed Forces

The House amendment contained a provision (sec.1270U) that would require the President to report to the congressional defense committees, the Committee on Foreign Relations of the Senate, and the Committee on Foreign Affairs of the House of Representatives within 48 hours any incident in which United States Armed Forces are involved in an attack or hostilities, including in an offensive or defensive capacity, except in specified circumstances.

The Senate bill contained no similar provision.
The House recesses.

Repeal of Authorization for the Use of Military Force

The House amendment contained a provision (sec. 1270W) that would repeal the Authorization for Use of Military Force Against Iraq Resolution of 2002 (Public Law 107-243; 50 U.S.C. 1541 note).

The Senate bill contained no similar provision.
The House recesses.

Short title

The House amendment contained a provision (sec. 1281) that would allow Subtitle I to be cited as the "Return Expenses Paid and Yielded Act" or "REPAY Act."

The Senate bill contained no similar provision.
The House recesses.

Modification of certification and report requirements relating to sales of major defense equipment with respect to which

nonrecurring costs of research, development, and production are waived or reduced under the Arms Export Control Act

The House amendment contained a provision (sec. 1282) that would amend the Arms Export Control Act (22 U.S.C. 2776(b)) to modify certification and report requirements relating to sales of major defense equipment with respect to which nonrecurring costs of research, development, and production are waived or reduced.

The Senate bill contained no similar provision.

The House recesses.

Review and report on use and management of administrative surcharges under the foreign military sales program

The House amendment contained a provision (sec. 1283) that would require the Secretary of Defense, acting through the Director of the Defense Security Cooperation Agency, to review options for expanding the use of administrative surcharges under the foreign military sales program. The provision would also require, not later than 120 days after the date of the enactment of this Act, the Secretary of Defense, acting through the Director of the Defense Security Cooperation Agency, submit a report on the findings of the review and any legislative changes needed.

The Senate bill contained no similar provision.

The House recesses.

Performance measures to monitor foreign military sales program

The House amendment contained a provision (sec. 1284) that would direct the Secretary of Defense, acting through the Director of the Defense Security Cooperation Agency (DSCA) and in consultation with the heads of other relevant components of the Department of Defense (DOD), to enhance the ability of the DOD to monitor the foreign military sales program. The provision would also require, not later than 180 days after the date of the enactment of this Act, the Secretary of Defense, acting through the Director of the DSCA, to submit a report on plans to enhance the ability of DOD to monitor foreign military sales program performance. The provision would then direct the Comptroller General to provide a briefing on that report within 180 days of its submission.

The Senate bill contained no similar provision.

The House recesses.

Report and briefing on administrative budgeting of foreign military sales program

The House amendment contained a provision (sec. 1285) that would require, not later than one year after the date of the enactment of this Act, the Comptroller General of the United States to brief the congressional defense committees and submit a report on the methodology used by the Department of Defense to determine future-year needs for administrative surcharges under the foreign military sales program.

The Senate bill contained no similar provision.

The House recesses.

Training program for relevant officials and staff of the Defense Security Cooperation Agency

The House amendment contained a provision (sec. 1286) that would direct the Secretary of Defense, acting through the Director of the Defense Security Cooperation Agency, to establish and implement a training program for specified officials and staff related to the foreign military sales program.

The Senate bill contained no similar provision.

The House recesses.

Definitions

The House amendment contained a provision (sec. 1287) that would provide definitions.

The Senate bill contained no similar provision.

The House recesses.

Sense of Senate on security concerns with respect to leasing arrangements for the Port of Haifa in Israel

The Senate bill contained a provision (sec. 1289) that would express the sense of the Senate that the United States has an interest in the future forward presence of United States naval vessels at the Port of Haifa in Israel but has serious security concerns with respect to current the leasing arrangements of the Port of Haifa. Therefore, the provision would express the view that the United States should urge the Government of Israel to consider the security implications of foreign investment in Israel.

The House amendment contained no similar provision.

The Senate recesses.

The conferees note that the United States has an interest in the continued presence of United States naval vessels in the Eastern Mediterranean region, including United States naval vessels continuing to make port calls in Israel. The conferees believe the United States should convey to the Government of Israel the serious security concerns with respect to the leasing arrangements of the Port of Haifa, and urge consideration of the security implications of such foreign investment in Israel.

Matters relating to Burma

The House amendment contained multiple provisions (secs. 1291-1295) that would, among other things: prohibit security assistance or security cooperation with Burma until the Secretary of State certifies that the military and security forces of Burma have demonstrated significant progress in abiding by international human rights standards and are undertaking meaningful and significant security sector reform, including reforms that enhance transparency and accountability, to prevent future abuses; require mandatory sanctions against human rights abusers in Burma; provide private sector guidance related to Burma's mining sector; and require a report and a determination whether events that took place in the Rakhine State starting in August 2017 constitute ethnic cleansing, crimes against humanity, or genocide.

The Senate bill contained no similar provisions.

The House recesses.

Sanctions with respect to foreign persons that engage in activities described in section 1281(a)(2)

The House amendment contained a provision (sec. 1296A) that would require that, not later than 120 days after the date of the enactment of this Act, sanctions be imposed with respect to each foreign person listed in the report described in section 1281(a)(2) of the House-passed bill.

The Senate bill contained no similar provision.

The House recesses.

Stop Financing of Al-Shabaab Act

The House amendment contained two provisions (sec. 1297 and sec. 1297A) that would express a sense of Congress and a statement of policy regarding measures to combat illicit trafficking that finances al-Shabaab. The House amendment also contained a provision (sec. 1297B) that would require a report on illicit trafficking in Somalia.

The Senate bill contained no similar provision.
The House recesses.

The conferees note that the Horn of Africa region remains integral to United States interests in Africa and the Indian Ocean region. The conferees direct the Secretary of Defense, in consultation with the Secretary of State, to submit a report no later than 90 days after the date of enactment of this Act to the Armed Services Committees of the House of Representatives and the Senate on efforts to combat illicit trafficking that finances al-Shabaab. The report shall include an overview of illicit trafficking in the Horn of Africa region; a description of al-Shabaab's sources of income; a description of past, current, and planned efforts by the United States and regional partners to combat illicit trafficking that finances al-Shabaab; and, any other matters the Secretary determines appropriate.

Report on contracts with entities affiliated with the Government of the People's Republic of China or the Chinese Communist Party

The Senate bill contained a provision (sec. 5801) that would require a report concerning Department of Defense contracts with companies or business entities that are owned or operated by, or affiliated with, the Government of the People's Republic of China or the Chinese Communist Party.

The House amendment contained no similar provision.
The Senate recesses.

Not later than 180 days after the date of the enactment of this Act, the conferees direct the Secretary of Defense to submit to the congressional defense committees a report describing all Department of Defense contracts with companies or business entities that are owned or operated by, or affiliated with, the Government of the People's Republic of China or the Chinese Communist Party.

United States-India defense cooperation in the Western Indian Ocean

The Senate bill contained a provision (sec. 6205) concerning United States-India defense cooperation in the Western Indian Ocean.

The House amendment contained no similar provision.
The Senate recesses.

The conferees note this matter is addressed elsewhere in this report.

Sense of Congress on Hong Kong port visits

The Senate bill contained a provision (sec. 6208) that would express the sense of the Congress that the Department of Defense should continue to make regular requests to the Government of the People's Republic of China for the Navy to conduct port calls to Hong Kong, including United States aircraft carrier visits.

The House amendment contained no similar provision.
The Senate recesses.

Implementation of the Asia Reassurance Initiative Act with regard to Taiwan arms sales

The Senate bill contained a provision (sec. 6212) that would, among other things, express the sense of the Congress that the United States should fully implement the provisions of the Asia Reassurance Initiative Act of 2018 (Public Law 115-409) with regard to regular defensive arms sales to Taiwan.

The House amendment contained no similar provision.
The Senate recesses.

The conferees note that the matter of arms sales to Taiwan is addressed elsewhere in this report.

TITLE XIII—COOPERATIVE THREAT REDUCTION

Funding allocations; specification of cooperative threat reduction funds (sec. 1301)

The Senate bill contained a provision (sec. 1301) that would authorize \$338.7 million for the Cooperative Threat Reduction (CTR) program, define the funds as authorized to be appropriated in section 301 of this Act, and authorize CTR funds to be available for obligation for fiscal years 2020, 2021, and 2022.

The House amendment contained similar provisions (secs. 1301 and 1302).
The Senate recesses.

LEGISLATIVE PROVISIONS NOT ADOPTED

Funding for cooperative biological engagement program

The House amendment contained a provision (sec. 1303) that would increase funding for the cooperative biological engagement by \$20.0 million by taking a reduction from Defense-wide Advanced Innovative Technologies funding.

The Senate bill contained no similar provision.

The House recesses.

Cooperative Threat Reduction Program enhancement

The House amendment contained a provision (sec. 1304) that would require the Secretary of Defense, in coordination with the Secretary of State, to submit a report on the Cooperative Threat Reduction Program.

The Senate bill contained no similar provision.

The House recesses.

The conferees direct the Secretary of Defense, in coordination with the Secretary of State, to submit a report on the Cooperative Threat Reduction Program to the congressional defense committees, the Committee on Foreign Relations of the Senate, and the Committee on Foreign Affairs of the House of Representatives not later than 180 days after the date of the enactment of this Act. The report should include recommendations to improve the implementation of the program.

TITLE XIV—OTHER AUTHORIZATIONS

SUBTITLE A—MILITARY PROGRAMS

Working capital funds (sec. 1401)

The Senate bill contained a provision (sec. 1401) that would authorize appropriations for Defense Working Capital Funds at the levels identified in section 4501 of division D of this Act.

The House amendment contained an identical provision (sec. 1401).

The conference agreement includes this provision.

Chemical agents and munitions destruction, defense (sec. 1402)

The Senate bill contained a provision (sec. 1402) that would authorize appropriations for Chemical Agents and Munitions Destruction, Defense at the levels identified in section 4501 of division D of this Act.

The House amendment contained an identical provision (sec. 1402).

The conference agreement includes this provision.

Drug interdiction and counter-drug activities, defense-wide (sec. 1403)

The Senate bill contained a provision (sec. 1403) that would authorize appropriations for Drug Interdiction and Counter-Drug Activities, Defense-wide at the levels identified in section 4501 of division D of this Act.

The House amendment contained an identical provision (sec. 1403).

The conference agreement includes this provision.

Defense inspector general (sec. 1404)

The Senate bill contained a provision (sec. 1404) that would authorize appropriations for the Office of the Inspector General at the levels identified in section 4501 of division D of this Act.

The House amendment contained an identical provision (sec. 1404).

The conference agreement includes this provision.

Defense health program (sec. 1405)

The Senate bill contained a provision (sec. 1405) that would authorize appropriations for the Defense Health Program at the levels identified in section 4501 of division D of this Act.

The House amendment contained a similar provision (sec. 1405).

The Senate recesses.

SUBTITLE B—OTHER MATTERS

Authority for transfer of funds to joint Department of Defense-Department of Veterans Affairs Medical Facility Demonstration Fund for Captain James A. Lovell Health Care Center, Illinois (sec. 1411)

The Senate bill contained a provision (sec. 1431) that would authorize the Secretary of Defense to transfer \$127.0 million from the Defense Health Program to the Joint Department of Defense-Department of Veterans Affairs Medical Facility Demonstration Fund, established by section 1704 of the National Defense Authorization Act for Fiscal Year 2010 (Public Law 111-84), for the operation of the Captain James A. Lovell Federal Health Care Center.

The House amendment contained a similar provision (sec. 1411).

The House recesses.

*Authorization of appropriations for Armed Forces Retirement Home
(sec. 1412)*

The Senate bill contained a provision (sec. 1421) that would authorize an appropriation of \$64.3 million from the Armed Forces Retirement Home Trust Fund for fiscal year 2020 for the operation of the Armed Forces Retirement Home.

The House amendment contained an identical provision (sec. 1412).

The conference agreement includes this provision.

LEGISLATIVE PROVISIONS NOT ADOPTED

National Defense Sealift Fund

The House amendment contained a provision (sec. 1406) that would authorize appropriations for the National Defense Sealift Fund.

The Senate bill contained no similar provision.

The House recedes.

Expansion of eligibility for residence at the Armed Forces Retirement Home

The Senate bill contained a provision (sec. 1422) that would amend section 1512(a) of the Armed Forces Retirement Home Act of 1991 (24 U.S.C. 412(a)) to: (1) Expand eligibility to retired veterans under age 60 and retired members of the National Guard and Reserves (NGR); and (2) Provide parity of fees for veterans eligible for active military service and those newly eligible through NGR service by requiring the income used for fee determination for an NGR-eligible resident to be not less than an Active-Duty resident's military retirement pay at the same grade and length of service. The provision would also amend section 1514(c) of the Armed Forces Retirement Home Act of 1991 (24 U.S.C. 414(c)) to provide parity for monthly withholding from pay of NGR members and Active-Duty members by applying the withholding across the total force, as well as requiring newly eligible NGR residents to pay a fee upon admission for years prior to the date of the enactment of this Act when the withholding was not taken from pay.

The Senate bill contained a provision (sec. 6422) that would cause section 1422 and its amendments to have no force or effect.

The House amendment contained no similar provisions.

The Senate recedes.

TITLE XV—AUTHORIZATION OF ADDITIONAL APPROPRIATIONS FOR OVERSEAS CONTINGENCY OPERATIONS

Purpose (sec. 1501)

The Senate bill contained a provision (sec. 1501) that would establish the purpose of this title and make authorization of appropriations available upon enactment of this Act for the Department of Defense, in addition to amounts otherwise authorized in this Act, to provide for additional authorization of funds due to overseas contingency operations and other additional funding requirements.

The House amendment contained an identical provision (sec. 1501).

The conference agreement includes this provision with a clarifying amendment.

Treatment as additional authorizations (sec. 1502)

The Senate bill contained a provision (sec. 1521) that would state that amounts authorized to be appropriated by this title are in addition to amounts otherwise authorized to be appropriated by this Act.

The House amendment contained an identical provision (sec. 1511).

The conference agreement includes this provision.

SUBTITLE A—AUTHORIZATION OF APPROPRIATIONS FOR OVERSEAS CONTINGENCY OPERATIONS

Overseas contingency operations (sec. 1511)

The Senate bill contained a provision (sec. 1502) that would designate authorization of appropriations in this section as Overseas Contingency Operations.

The House amendment contained no similar provision.
The House recedes.

Procurement (sec. 1512)

The Senate bill contained a provision (sec. 1503) that would authorize additional appropriations for procurement at the levels identified in section 4102 of division D of this Act.

The House amendment contained an identical provision (sec. 1502).

The conference agreement includes this provision.

Research, development, test, and evaluation (sec. 1513)

The Senate bill contained a provision (sec. 1504) that would authorize additional appropriations for research, development, test, and evaluation at the levels identified in section 4202 of division D of this Act.

The House amendment contained an identical provision (sec. 1503).

The conference agreement includes this provision

Operation and maintenance (sec. 1514)

The Senate bill contained a provision (sec. 1505) that would authorize additional appropriations for operation and maintenance programs at the levels identified in section 4302 of division D of this Act.

The House amendment contained an identical provision (sec. 1504).

The conference agreement includes this provision.

Military personnel (sec. 1515)

The Senate bill contained a provision (sec. 1506) that would authorize additional appropriations for military personnel at the levels identified in section 4402 of division D of this Act.

The House amendment contained an identical provision (sec. 1505).

The conference agreement includes this provision.

Working capital funds (sec. 1516)

The Senate bill contained a provision (sec. 1507) that would authorize additional appropriations for Defense Working Capital Funds at the levels identified in section 4502 of division D of this Act.

The House amendment contained an identical provision (sec. 1506).

The conference agreement includes this provision.

Drug interdiction and counter-drug activities, defense-wide (sec. 1517)

The Senate bill contained a provision (sec. 1508) that would authorize additional appropriations for Drug Interdiction and Counter-Drug Activities, Defense-Wide, at the levels identified in section 4502 of division D of this Act.

The House amendment contained an identical provision (sec. 1507).

The conference agreement includes this provision.

Defense inspector general (sec. 1518)

The Senate bill contained a provision (sec. 1509) that would authorize additional appropriations for the Office of the Inspector General at the levels identified in section 4502 of division D of this Act.

The House amendment contained an identical provision (sec. 1508).

The conference agreement includes this provision.

Defense health program (sec. 1519)

The Senate bill contained a provision (sec. 1510) that would authorize additional appropriations for the Defense Health Program at the levels identified in section 4502 of division D of this Act.

The House amendment contained an identical provision (sec. 1510).

The conference agreement includes this provision.

Afghanistan Security Forces Fund (sec. 1520)

The Senate bill contained a provision (sec. 1212) that would extend the authority to continue certain established provisions applicable to the Afghanistan Security Forces Fund (ASFF), including the use of funds, transfer authority, and acceptance of contributions to provide assistance to the security forces of the Ministry of Defense and Ministry of Interior of Afghanistan and to increase the recruitment and integration of women into the Afghan National Defense and Security Forces (ANDSF).

The House amendment contained a similar provision (sec. 1521) that would require the Secretary of Defense, in consultation with the Secretary of State, to submit an assessment of the Government of Afghanistan's ability to meet shared security objectives and manage, employ, and sustain equipment divested under ASFF, and would require the Secretary to withhold \$450,000,000 until such time as the Secretary can certify that the Government of Afghanistan has made sufficient

progress in these areas. It would also set a goal of using \$45.5 million to support efforts to promote the recruitment, training, integration, and retention of Afghan women into the ANDSF.

The Senate recesses with an amendment to the elements of the required assessment.

The conferees understand that the Department recently modified long standing guidance on the use of ASFF to cover program management expenses by transitioning the responsibility for costs associated with Indirect Assistance to the Services. It is the conferees' understanding that ASFF should cover all costs associated with building the ANDSF, including program and security assistance management support. The conferees know of no reason for such a change and encourage the Department to revisit this internal policy decision. The conferees direct the Department to brief the congressional defense committees on its policy regarding program management expenses within 60 days after the enactment of this Act.

Special transfer authority (sec. 1520A)

The Senate bill contained a provision (sec. 1522) that would authorize the transfer of up to \$2.5 billion of additional war-related authorizations in this subtitle among the accounts in this subtitle.

The House amendment contained a similar provision (sec. 1512) that would allow the Secretary of Defense to transfer up to \$500 million.

The House recesses with an amendment that would set the transfer level at \$2.0 billion.

**SUBTITLE B—AUTHORIZATION OF APPROPRIATIONS
FOR EMERGENCY FUNDS FOR RECOVERY AND
RESTORATION**

Procurement (sec. 1521)

The agreement includes a provision that would authorize appropriations for emergency procurement at the levels identified in section 4103 of division D of this Act.

Research, development, test, and evaluation (sec. 1522)

The agreement includes a provision that would authorize appropriations for emergency research, development, test, and

evaluation at the levels identified in section 4203 of division D of this Act.

Operation and maintenance (sec. 1523)

The agreement includes a provision that would authorize appropriations for emergency operation and maintenance at the levels identified in section 4303 of division D of this Act.

Restriction on transfer of funds authorized by this subtitle (sec. 1524)

The agreement includes a provision that would authorize and place restrictions upon the transfer of emergency-designated amounts of authorizations for the recovery and restoration of military installations in California, Florida, North Carolina, and Nebraska impacted by natural disasters.

LEGISLATIVE PROVISIONS NOT ADOPTED

Review of Joint Improvised-Threat Defeat Organization research relating to humanitarian demining efforts

The Senate bill contained a provision (sec. 6501) that would require the Secretary of Defense to conduct a review of Joint Improvised-Threat Defeat Organization research and submit a report identifying information that may be released to United States humanitarian demining organizations for improving the efficiency and effectiveness of humanitarian demining efforts.

The House amendment contained no similar provision.

The Senate recedes.

The conferees direct the Secretary of Defense to submit a report to the congressional defense committees not later than October 1, 2020, identifying Joint Improvised-Threat Defeat Organization research that may be released to United States humanitarian demining organizations for improving the efficiency and effectiveness of humanitarian demining efforts.

TITLE XVI—STRATEGIC PROGRAMS, CYBER, AND INTELLIGENCE MATTERS

BUDGET ITEMS

Standard Missile-3 Block IIA flight test against intercontinental ballistic missile target

The budget request included \$53.8 million across several defense-wide research, development, test and evaluation lines to conduct a flight test of the Standard Missile-3 Block IIA (SM-3 IIA) against an intercontinental ballistic missile (ICBM) target ("FTM-44").

The House amendment would authorize a reduction of \$41.7 million below the request.

The Senate bill would authorize the funding level in the request.

The conference agreement authorizes the funding level in the request.

The conferees note that a Government Accountability Office assessment ("Missile Defense: Delivery Delays Provide Opportunity for Increased Testing to Better Understand Capability," GAO-19-387) found that the SM-3 IIA has not been adequately tested against threats it was designed to intercept, potentially leading to design issues being discovered well into production of interceptors. Further, the Director for Operational Test and Evaluation (DOT&E) stated that flight test failures of the SM-3 IIA in operational testing should have been discovered in developmental testing that was not conducted. The conferees strongly urge the Director of the Missile Defense Agency and DOT&E to look for opportunities to conduct additional tests of the SM-3 IIA against threats it was designed to intercept, adhering to fly-before-you-buy principles. Additionally, the conferees recommend continued engagement with allies to discuss potential policy implications of the planned SM-3 IIA ICBM flight test.

SUBTITLE A—SPACE ACTIVITIES

Repeal of requirement to establish United States Space Command as a subordinate unified command of the United States Strategic Command (sec. 1601)

The Senate bill contained a provision (sec. 1611) that would repeal the requirement to establish U.S. Space Command as a subordinate unified command of U.S. Strategic Command.

The House amendment contained a similar provision (sec. 931).

The Senate recesses with a technical/clarifying amendment.

Coordination of modernization efforts relating to military-code capable GPS receiver cards (sec. 1602)

The House amendment contained a provision (sec. 228) that would require the Secretary of Defense to designate an entity within the Department of Defense to have responsibility for Global Positioning System military code (M-code) receiver card acquisition planning, and take actions to integrate and streamline modernization of the M-code receiver card across the Department.

The Senate bill contained no similar provision.

The Senate recedes with an amendment that would add the provision to existing statute and add a requirement for the Secretary to clarify the role of the Council on Oversight of the Department of Defense Positioning, Navigation, and Timing Enterprise with respect to M-code modernization efforts.

Demonstration of backup and complementary positioning, navigation, and timing capabilities of Global Positioning System (sec. 1603)

The House amendment contained a provision (sec. 1609) that would extend both the authority to carry out a backup Global Positioning System capability demonstration and the due date of the report on such demonstration to December 31, 2020.

The Senate bill contained no similar provision.

The Senate recedes.

Annual determination on plan on full integration and exploitation of overhead persistent infrared capability (sec. 1604)

The House amendment contained a provision (sec. 1603) that would add a sunset clause to the requirement for the annual determination on the plan on full integration and exploitation of overhead persistent infrared capability.

The Senate bill contained no similar amendment.

The Senate recedes with a technical/clarifying amendment.

Space-based environmental monitoring mission requirements (sec. 1605)

The House amendment contained a provision (sec. 1604) that would require the Director of the National Reconnaissance Office (NRO) to competitively procure and launch a modernized pathfinder program satellite to mitigate risks related to cloud characterization and theater weather imagery requirements.

The Senate bill contained no similar amendment.

The Senate recedes with an amendment that would move the requirement to procure such pathfinder program satellite from

the Director, NRO, to the Secretary of the Air Force, specify that such satellite may be a free-flyer or a hosted payload satellite, and withhold 10 percent of the travel funds of the Office of the Secretary of the Air Force until a contract for such satellite procurement is awarded.

Resilient enterprise ground architecture (sec. 1606)

The House amendment contained a provision (sec. 1608) that would require the Secretary of Defense to develop future satellite ground architectures to be compatible with complementary commercial systems that can support uplink and downlink capabilities with dual-band spacecraft. It would also require the Secretary to emphasize that future ground architecture should transition away from stove-piped systems to a service-based platform that provides members of the Armed Forces with flexible and adaptable capabilities.

The Senate bill contained no similar amendment.

The Senate recedes with an amendment that would add a requirement for the Secretary to submit a report to the congressional defense committees on the future satellite ground architectures developed under this provision.

Prototype program for multi-global navigation satellite system receiver development (sec. 1607)

The Senate bill contained a provision (sec. 1613) that would direct the Secretary of the Air Force to ensure that military Global Positioning System (GPS) user equipment terminals can incorporate signals from the European Union's Galileo and Japan's QZSS satellites, while enabling the Secretary to waive this requirement on a case-by-case basis if certain criteria are met. The provision would also require the Secretary to ensure that military GPS terminals can receive allied and non-allied positioning, navigation, and timing (PNT) signals, provided that analysis indicates that the benefits outweigh the risks or that the risks can be appropriately mitigated.

The House amendment contained a provision (sec. 1605) that would require the Secretary of Defense to establish under the Space Development Agency (SDA) a program to prototype an M-code based, multi-global navigation satellite system (GNSS) receiver that would incorporate both allied and non-allied, trusted and open GNSS signals to increase the resilience and capability of military PNT equipment. The provision would require the Secretary to provide an assessment of the benefits and risks of each potential signal and require the Director of the SDA to

provide a relevant briefing and report to the congressional defense committees. Finally, the provision would fence 75 percent of funds for the Military GPS User Equipment Program until the submission of such briefing and report.

The Senate recedes with an amendment that would move responsibility of the M-code multi-GNSS prototype program from the Director of the SDA to the Secretary of the Air Force and clarify the waiver authority for trusted signals capabilities. The amendment would also change the fence from 75 percent to 90 percent.

Commercial space situational awareness capabilities (sec. 1608)

The House amendment contained a provision (sec. 1606) that would require the Director of the Space Development Agency (SDA) to procure commercial space situational awareness (SSA) services by awarding at least two contracts for such services. The provision would limit the obligation or expenditure of funds to 75 percent for the enterprise space battle management command and control until the Secretary of Defense certifies to the congressional defense committees the award of these contracts. The provision would also require a report on using commercial SSA requirements.

The Senate bill contained no similar provision.

The Senate recedes with an amendment that would strike the findings and change the requirement for the Director of the SDA to procure commercial SSA services to a requirement for the Secretary of the Air Force to certify to the congressional defense committees that the Air Force is using commercial SSA services. The amendment would also change the limitation of funds to be obligated or expended until the Secretary makes such certification from 75 percent to 85 percent.

Program to enhance and improve launch support and infrastructure (sec. 1609)

The Senate bill contained a provision (sec. 1612) that would authorize the Secretary of Defense to carry out a program to enhance infrastructure and improve support activities for the processing and launch of Department of Defense small-class to medium-class payloads.

The House amendment contained no similar provision.

The House recedes with an amendment that would require the Secretary to coordinate with the Administrator of the Federal Aviation Administration in carrying out such program and submit the required report to other relevant congressional committees in addition to the defense committees.

Preparation to implement plan for use of allied launch vehicles (sec. 1610)

The House amendment contained a provision (sec. 1602) that would require the Secretary of Defense, in coordination with the Director of National Intelligence, to take actions necessary to prepare to implement the plan developed pursuant to section 1603 of the National Defense Authorization Act for Fiscal Year 2017 (Public Law 114-328) regarding using allied launch vehicles to meet the requirements for achieving the policy relating to assured access to space set forth in section 2273 of title 10, United States Code.

The Senate bill contained no similar provision.

The Senate recesses.

Independent study on plan for deterrence in space (sec. 1611)

The House amendment contained a provision (sec. 1607) that would require the Secretary of Defense to enter into a contract with a federally funded research and development center to conduct a study on deterrence in space, to then be assessed by the Defense Policy Board. The provision would require the Secretary to submit a report and provide a briefing on the plan and assessment.

The Senate bill contained no similar amendment.

The Senate recesses with a technical/clarifying amendment.

Study on leveraging diverse commercial satellite remote sensing capabilities (sec. 1612)

The House amendment contained a provision (sec. 1610A) that would require the Secretary of Defense to conduct a study on the status of the transition from the National Geospatial-Intelligence Agency to the National Reconnaissance Office of the leadership role in acquiring commercial remote sensing data.

The Senate bill contained no similar provision.

The Senate recesses with an amendment that would change the requirement for the Secretary to study the NRO's plans to acquire medium-and high-resolution data to a full range of data at all resolutions.

Annual report on Space Command and Control program (sec. 1613)

The Senate bill contained a provision (sec. 1615) that would require the Secretary of the Air Force to provide annually a report on progress in executing the acquisition strategy and assessment of risk for the Space Command and Control program.

The House amendment contained no similar provision.

The House recedes with an amendment that would add an additional requirement to the annual report and extend the due date of the first report to May 1, 2020, but concurrent with the President's Budget each year thereafter.

The conferees have been informed by the Secretary of the Air Force that the acquisition strategy directed by the Senate bill's report, found under "Acquisition Plan for Space Command and Control Program," may take longer to complete. Accordingly, the conferees direct the Secretary of the Air Force to submit the acquisition strategy not later than February 1, 2020. The time period between February 1, 2020, and May 1, 2020, would give the Comptroller General adequate time to review the strategy and assess any deviations the Secretary should address in the report required in this provision.

Report on Space Debris (sec. 1614)

The House amendment contained a provision (sec. 1610) that would require the Secretary of Defense to submit a report on the risks posed by man-made space debris in low-earth orbit, including recommendations with respect to the remediation of such risks and outlines of plans to reduce the incident of such space debris.

The Senate bill contained no similar provision.

The Senate recedes with a technical amendment.

SUBTITLE B—DEFENSE INTELLIGENCE AND INTELLIGENCE-RELATED ACTIVITIES

Redesignation of Under Secretary of Defense for Intelligence as Under Secretary of Defense for Intelligence and Security (sec. 1621)

The Senate bill contained a provision (sec. 1621) that would redesignate the Under Secretary of Defense for Intelligence and the Deputy Under Secretary of Defense for Intelligence as the Under Secretary of Defense for Intelligence and Security and Deputy Under Secretary of Defense for Intelligence and Security, respectively, and make conforming changes to existing laws.

The House amendment contained no similar provision.

The House recedes with an amendment that would redesignate the Under Secretary of Defense for Intelligence and the Deputy Under Secretary of Defense for Intelligence as the Under Secretary of Defense for Intelligence and Security and Deputy

Under Secretary of Defense for Intelligence and Security. The amendment would also make modifications relating to the responsibilities of the Under Secretary regarding the protection of privacy and civil liberties as well as inclusion of a rule of construction stating that nothing in the section shall be construed to modify or expand the authorities, resources, responsibilities, roles, or missions of the Under Secretary.

The conferees direct the Secretary of Defense to notify the Armed Services Committees of the Senate and House of Representatives within 30 days of assigning any significant new responsibilities to the Under Secretary during Fiscal Year 2020.

Modifications to ISR Integration Council and annual briefing requirements (sec. 1622)

The Senate bill contained a provision (sec. 1622) that would repeal section 426 of title 10, United States Code, which requires the establishment of the Intelligence, Surveillance, and Reconnaissance (ISR) Integration Council.

The House amendment contained a provision (sec. 1611) that would amend section 426 of title 10, United States Code, to modify the ISR Integration Council membership and related annual briefing requirements.

The Senate recesses.

Modification of annual authorization of appropriations for National Flagship Language Initiative (sec. 1623)

The House amendment contained a provision (sec. 1613) that would amend section 1911 of title 50, United States Code, to increase the annual authorized amount for the National Flagship Language Initiative from \$10.0 million to \$16.0 million beginning in fiscal year 2020.

The Senate bill contained no similar provision.

The Senate recesses.

Improving the onboarding methodology for intelligence personnel (sec. 1624)

The Senate bill contained a provision (sec. 1623) that would require the Secretary of Defense and the Director of National Intelligence, consistent with Department of Defense Instruction 1400.25, as in effect on the day before the date of the enactment of this Act, to provide several reports relating to the onboarding methodology for certain intelligence personnel.

The House amendment contained no similar provision.

The House recesses with a technical amendment.

Defense Counterintelligence and Security Agency activities on facilitating access to local criminal records historical data (sec. 1625)

The Senate bill contained a provision (sec.1624) that would authorize the Director of the Defense Counterintelligence and Security Agency to carry out a set of activities relating to facilitating access by the Agency to local criminal records historical data in support of its personnel security mission.

The House amendment contained no similar provision.

The House recesses with an amendment that would limit the commencement of activities authorized by this section until certain reporting requirements are satisfied as well as impose other limitations on the use of the authority.

Survey and report on alignment of intelligence collections capabilities and activities with Department of Defense requirements (sec. 1626)

The House amendment contained a provision (sec. 1612) that would require the Under Secretary of Defense for Intelligence, in coordination with the Chairman of the Joint Chiefs of Staff and the Director of National Intelligence, to review and provide a report to the congressional defense committees and the congressional intelligence committees, not later than 120 days after the date of the enactment of this Act, on the organization, posture, and processes of intelligence collections capabilities and activities, for the purpose of assessing the ability of the intelligence collecting capabilities and activities to support the current and future requirements of the Department of Defense.

The Senate bill contained no similar provision.

The Senate recesses.

Reports on Consolidated Adjudication Facility of the Defense Counterintelligence and Security Agency (sec. 1627)

The Senate bill contained a provision (sec. 1059) that would require the Director of the Defense Counterintelligence and Security Agency to submit to the congressional defense committees on a semi-annual basis a report on the inventory and timeliness metrics relating to the Consolidated Adjudication Facility.

The House amendment contained no similar provision.

The House recesses.

Report on the expanded purview of the Defense Counterintelligence and Security Agency (sec. 1628)

The Senate bill contained a provision (sec. 6606) that would require the Secretary of Defense to submit to Congress a report on the Defense Counterintelligence and Security Agency, including: (1) Identification of Inspector General resources and authorities appropriate to the expanded purview of the Agency; (2) Identification of the resources and authorities needed to perform the civil liberties and privacy officer function of the Agency; (3) An assessment of the Agency's security protocols for personally identifiable information; (4) An assessment of the Agency's governance structure vis-a-vis the Department of Defense; (5) An assessment of the Agency's governance structure relative to interagency partners; and (6) The methodology the Agency will use to prioritize background investigation requests from government agencies and industry. The report must be submitted not later than 90 days after the date of enactment of this Act.

The House amendment contained no similar provision.

The House recesses.

Termination of requirement for Department of Defense facility access clearances for joint ventures composed of previously-cleared entities (sec. 1629)

The Senate bill contained a provision (sec. 1040) that would prohibit the requirement for joint ventures that are composed entirely of entities that already have been granted facility clearances to obtain an additional clearance for the venture.

The House amendment contained no similar provision.

The House recesses.

SUBTITLE C—CYBERSPACE-RELATED MATTERS

Matters relating to military operations in the information environment (sec. 1631)

The Senate bill contained a provision (sec. 1681) that would affirm the authority of the Secretary of Defense to conduct military operations in the information environment, including clandestine operations, to defend the United States, its allies, and its interests, including in response to malicious activities carried out against the United States or a United States person by a foreign power. The provision would

also clarify that military operations in the information environment are traditional military activities for the purposes of section(e)(2) of the National Security Act of 1947 (Public Law 80-253).

The House amendment contained no similar provision.

The House recedes with an amendment that would affirm the authority of the Secretary of Defense to conduct military operations, including clandestine operations, in the information environment as well as clarify that clandestine military operations in the information environment shall be considered a traditional military activity for the purposes of section 503(e)(2) of the National Security Act of 1947 (50 U.S.C. 3093(e)(2)). The amendment would also amend Chapter 19 of title 10, United States Code, to require the Secretary of Defense to designate a Principal Information Operations Advisor with specified responsibilities. Further the amendment includes a rule of construction that would state that nothing may be construed to limit, expand, or otherwise alter the authority of the Secretary to conduct specified military operations in the information environment or to limit, expand, or otherwise alter or affect the War Powers Resolution (50 U.S.C. 1541 et seq.) or an authorization for the use of military force in effect on the day before the date of enactment of this Act. Lastly, the amendment would establish various briefing and reporting requirements.

Notification requirements for sensitive military cyber operations (sec. 1632)

The House amendment contained a provision (sec. 1621) that would modify section 395 of title 10, United States Code, which requires the Secretary of Defense to provide notification of sensitive military cyber operations to the congressional defense committees, to include additional parameters to further define what offensive and defensive operations constitute a sensitive military cyber operation for the purposes of this requirement.

The Senate bill contained no similar provision.

The Senate recedes with an amendment that would allow the Secretary of Defense's designee to provide written notification to the congressional defense committees in the event of an unauthorized disclosure of a sensitive military cyber operation.

Evaluation of cyber vulnerabilities of major weapon systems of the Department of Defense (sec. 1633)

The House amendment contained a provision (sec. 1625) that would modify section 1647 of the National Defense Authorization

Act for Fiscal Year 2016 (Public Law 114-92), which required evaluations of cyber vulnerabilities of each major weapon system of the Department of Defense by December 31, 2019, by requiring notification and justification for not meeting the deadline. The provision would also require a comprehensive report from the Secretary of Defense on the evaluations of cyber vulnerabilities for each major weapon system.

The Senate bill contained no similar provision.

The Senate recedes with an amendment that would add further requirements to the report, including details on the technologies used for vulnerability assessments and the schedule for future vulnerability assessments.

Quarterly assessments of the readiness of Cyber Mission Forces (sec. 1634)

The Senate bill contained a provision (sec. 1636) that would require the Secretary of Defense to develop metrics for the assessment of the readiness of the Cyber Mission Forces and to brief the congressional defense committees on these metrics within 90 days of the enactment of this Act. The provision would also modify section 484 of title 10, United States Code, to require the briefing of readiness of the Cyber Mission Forces, informed by these metrics, as part of the quarterly cyber operations updates, effective 180 days after the enactment of this Act.

The House amendment contained a provision (sec. 1622) that would modify the same section of United States Code to require an overview of the readiness of the Cyber Mission Force to be presented as part of the mandatory cyber operations quarterly briefings.

The House recedes with an amendment that would modify the briefing requirement to include an overview of the readiness of the Cyber Mission Forces and would require quarterly briefings on the required metrics until their finalization.

Cyber posture review (sec. 1635)

The House amendment contained a provision (sec. 1623) that would amend section 1644 of the National Defense Authorization Act for Fiscal Year 2018 (Public Law 115-91) by directing the Secretary of Defense to conduct a review of the cyber posture of the United States on a quadrennial basis to begin not later than December 31, 2022.

The Senate bill contained no similar provision.

The Senate recesses with an amendment that would add recurrent problems or capability gaps that remain unaddressed since the previous posture review to the elements of the review.

Modification of elements of assessment required for termination of dual-hat arrangement for Commander of the United States Cyber Command (sec. 1636)

The Senate bill contained a provision (sec. 1640) that would amend section 1642 of the National Defense Authorization Act for Fiscal Year 2017 (Public Law 114-328) by requiring the Secretary of Defense and Chairman of the Joint Chiefs of Staff, prior to the termination of the dual-hatted arrangement in which the Commander of United States Cyber Command serves as the Director of the National Security Agency, to certify that: (1) Processes to deconflict military cyber operations and national intelligence operations have been put in place; (2) Tools, weapons, and accesses used in and available for military cyber operations are sufficient for achieving required effects and United States Cyber Command is capable of acquiring or developing these tools, weapons, and accesses; and (3) The Cyber Mission Force has demonstrated the capacity to execute the cyber missions of the Department, including the execution of national-level missions through cyberspace, defense of the Department of Defense Information Network, and support for other combatant commands, including targeting of adversary military assets.

The House amendment contained a provision (sec. 1632) that would require the Secretary of Defense to provide quarterly briefings to the congressional defense committees and congressional intelligence committees on the current and future nature of the National Security Agency and United States Cyber Command partnership.

The House recesses with an amendment that would also require the Secretary of Defense to provide annual briefings to the congressional defense committees and congressional intelligence committees on the current and future cooperation of the National Security Agency and United States Cyber Command.

Modification of cyber scholarship program (sec. 1637)

The House amendment contained a provision (sec. 1633) that would amend section 2200a of title 10, United States Code, to allow scholarships granted by the Department of Defense to go toward validated and accredited cyber training programs.

The Senate bill contained no similar provision.

The Senate recesses.

Tier 1 exercise of support to civil authorities for a cyber incident (sec. 1638)

The House amendment contained a provision (sec. 1624) that would amend section 1648 of the John S. McCain National Defense Authorization Act for Fiscal Year 2019 (Public Law 115-232) by directing the Commanders of U.S. Northern Command and U.S. Cyber Command to conduct a Tier 1 exercise by February 1, 2020; the provision would also place a limitation on 10 percent of fiscal year 2020 funds authorized to be appropriated for the White House Communications Agency until the exercise is initiated.

The Senate bill contained no similar provision.

The Senate recedes with an amendment that would change the required by-date for the execution of the Tier 1 exercise.

Extension of the Cyberspace Solarium Commission (sec. 1639)

The Senate bill contained a provision (sec. 1639) that would amend section 1652 of the John S. McCain National Defense Authorization Act for Fiscal Year 2019 (Public Law 115-232) by making a technical correction and changing the final due date for the Cyberspace Solarium Commission's final report to February 1, 2020.

The House amendment contained a provision (sec. 1626) that would extend the Cyberspace Solarium Commission, as established in the John S. McCain National Defense Authorization Act for Fiscal Year 2019 (Public Law 115-232) and its final report by 1 year, from September 1, 2019, to September 1, 2020.

The Senate recedes with an amendment that would change the final due date for the Cyberspace Solarium Commission's final report to April 30, 2020.

Authority to use operation and maintenance funds for cyber operations-peculiar capability development projects (sec. 1640)

The Senate bill contained a provision (sec. 1643) that would allow the Secretaries of the military departments to use money authorized for appropriation for Operation and Maintenance (O&M) to develop cyber operations-peculiar capabilities up to \$3.0 million annually. The provision would allow the Department of Defense to use its O&M funds for the rapid creation, testing, fielding, and operation of cyber capabilities that would be developed and used within the 1-year appropriation period.

The House amendment contained a similar provision (sec. 1627) that would also require a Commander of U.S. Cyber Command certification for each use of the provided authority and the

Secretary of Defense to notify the congressional defense committees within 15 days of exercising the provided authority.

The Senate recedes with an amendment that would remove the certification requirement, allow the Secretary's designee to notify the congressional defense committees of the exercise of the provided authority, and would limit the notification requirement to exercises of the authority in excess of \$500,000.

Role of Chief Information Officer in improving enterprise-wide cybersecurity (sec. 1641)

The Senate bill contained a provision (sec. 1635) that would assign additional responsibilities to the Department of Defense Chief Information Officer (CIO), including the modernization of the Department's cybersecurity architecture, the mandating of cybersecurity data sharing, and the acquisition of additional computing infrastructure to meet the Department's cybersecurity needs.

The House amendment contained no similar provision.

The House recedes with an amendment that would require that the CIO utilize the expertise of the National Security Agency and the Defense Digital Service in improving the Department's cybersecurity.

Notification of delegation of authorities to the Secretary of Defense for military operations in cyberspace (sec. 1642)

The House amendment contained a provision (sec. 1628) that would require the Secretary of Defense to notify the congressional defense committees and describe various operational details within 15 days of any delegation of authorities from the National Command Authority for military cyberspace operations.

The Senate bill contained no similar provision.

The Senate recedes with an amendment that would allow the Secretary to notify the congressional defense committees of delegations of authority and to describe operational details separately to account for the potential immaturity of operational plans as of the initial delegation of authorities.

Limitation of funding for Consolidated Afloat Networks and Enterprise Services (sec. 1643)

The House amendment contained a provision (sec. 1629) that would place a limitation on 15 percent of all funds authorized to be appropriated by this Act for the Navy's Consolidated Afloat Networks and Enterprise Services until the Secretary of

Defense certifies that the Navy has implemented the recommendations of the Office of the Inspector General.

The Senate bill contained no similar provision.

The Senate recesses with a clarifying amendment.

Annual military cyberspace operations report (sec. 1644)

The House amendment contained a provision (sec. 1630) that would require the Secretary of Defense to provide to the congressional defense committees, not later than March 1 of each calendar year, an annual report on military cyberspace operations, to include cyber effects-enabling and cyber effects operations, activities, and missions.

The Senate bill contained no similar provision.

The Senate recesses with an amendment that would modify certain requirements of the report.

Annual report on cyber attacks and intrusions against the Department of Defense by certain foreign entities (sec. 1645)

The House amendment contained a provision (sec. 1239) that would require the Secretary of Defense to submit to the congressional defense committees annual reports on cyberattacks and intrusions in the previous 12 months by agents or associates of the Governments of the Russian Federation, the People's Republic of China, the Islamic Republic of Iran, and the Democratic People's Republic of Korea.

The Senate bill contained no similar provision.

The Senate recesses with an amendment that would modify the report.

Control and analysis of Department of Defense data stolen through cyberspace (sec. 1646)

The Senate bill contained a provision(sec. 1637) that would define requirements for the Department of Defense (DOD) in the event that DOD data have been stolen or are suspected to have been stolen via cyber means. The provision provides a series of requirements for the DOD when it directly controls the data or access to the data. The provision would further require that, when the DOD does not have unilateral control of the data and when law enforcement or intelligence community information controls have been imposed on the handling of and access to the data, the Secretary of Defense coordinate with the Director of the Federal Bureau of Investigation or Director of National Intelligence, as appropriate, to carry out the same series of requirements.

The House contained no similar provision.

The House recedes with an amendment that would modify the requirements to: (1) allow the Department to have consistent access to the relevant data by other means; (2) specify mission critical Department systems should have analytic products developed; (3) modify the mission affected entities definition; (4) modify requirements of the counterintelligence organizations; and (5) modify the requirements for data in possession of or under the controls imposed by the Federal Bureau of Investigation or the Director of National Intelligence.

Use of National Security Agency cybersecurity expertise to support evaluation of commercial cybersecurity products (sec. 1647)

The Senate bill contained a provision (sec. 1641) that would establish as a mission of the National Security Agency the advising and assistance of the Department of Defense in its acquisition and adaptation of cybersecurity products and services from industry, especially the commercial cybersecurity sector.

The House amendment contained no similar provision.

The House recedes with an amendment that would specify that this technical mission would be conducted in support of the Department's selection and adaptation of commercial products rather than the Department's contracting and business-specific acquisition functions.

Framework to enhance cybersecurity of the United States defense industrial base (sec. 1648)

The Senate bill contained a provision (sec. 1634) that would require the Secretary of Defense to develop a consistent, comprehensive framework to enhance the cybersecurity of the U.S. defense industrial base and to provide the congressional defense committees a briefing on the framework not later than March 11, 2020. The framework would include: (1) Identification of cybersecurity standards and requirements imposed on the defense industrial base; (2) Responsibilities of the prime contractor and all subcontractors in the supply chain for implementing those standards and requirements; (3) A plan to provide cybersecurity guidance and assistance to contractors; and (4) Methods and programs for defining and managing controlled unclassified information.

The House amendment contained a provision (sec. 1631) that would require the Secretary of Defense to provide a report to

the congressional defense committees not later than May 1, 2020, on the Department of Defense's efforts related to cybersecurity and the Defense Industrial Base.

The House recedes with an amendment that would modify certain requirements of the framework.

Report on cybersecurity training programs (sec. 1649)

The House amendment contained a provision (sec. 1634) that would require the Secretary of Defense to submit a report to the congressional defense committees detailing all Department of Defense efforts and programs to train elementary, secondary, and post-secondary students in fields related to cybersecurity, cyber defense, and cyber operations.

The Senate bill contained no similar provision.

The Senate recedes with a technical amendment that would limit the report delivery to the Committees on Armed Services of the Senate and House of Representatives.

National Security Presidential Memorandums relating to Department of Defense operations in cyberspace (sec. 1650)

The House amendment contained a provision (sec. 1635) that would require the President to provide the congressional defense committees with copies of all National Security Presidential Memoranda relating to Department of Defense operations in cyberspace.

The Senate bill contained no similar provision.

The Senate recedes with an amendment that would allow the committees to read and return all National Security Presidential Memorandums relating to Department of Defense operations in cyberspace.

Reorientation of Big Data Platform program (sec. 1651)

The Senate bill contained a provision (sec. 1631) that would require the Secretary of Defense to reorient the Department of Defense's Big Data Platform program by establishing a common baseline and security classification scheme for the collection, querying, analysis, and accessibility of a common and comprehensive set of metadata from sensors, applications, and systems deployed across the Department of Defense Information Network.

The House amendment contained no similar provision.

The House recedes with a technical and clarifying amendment.

Zero-based review of Department of Defense cyber and information technology personnel (sec. 1652)

The Senate bill contained a provision (sec. 1632) that would require the heads of Department of Defense departments, agencies, and components to complete zero-based reviews of the cyber and information technology personnel in those departments, agencies, and components.

The House amendment contained no similar provision.

The House recesses.

Study on improving cyber career paths in the Navy (sec. 1653)

The Senate bill contained a provision (sec. 1633) that would require the Secretary of the Navy to conduct a study on improving cyber career paths in the Navy. The provision would also require the Secretary to submit a report to the congressional defense committees, no later than October 1, 2020, on the findings of the study.

The House amendment contained no similar provision.

The House recesses with an amendment that would specify that the report should include an evaluation of the Cyber Warfare Engineer career field for officers.

Accreditation standards and processes for cybersecurity and information technology products and services (sec. 1654)

The Senate bill contained a provision (sec. 1638) that would require the Department of Defense (DOD) Chief Information Officer (CIO) to assess the accreditation standards and processes of the military departments and other components of the DOD for cybersecurity and information technology products and services.

The House amendment contained no similar provision.

The House recesses with an amendment that would specify that this assessment should be carried out in accordance with the CIO's existing responsibilities for cybersecurity and cyber capability architectures of the Department of Defense and with the budget review authority established in section 142 of title 10, United States Code.

Study on future cyber warfighting capabilities of Department of Defense (sec. 1655)

The Senate bill contained a provision (sec. 1642) that would require the Secretary of Defense to direct the Defense Science Board to carry out a study on the future cyber

warfighting capabilities of the Department of Defense (DOD). The Board's study would include: (1) A technical evaluation of the Joint Cyber Warfighting Architecture of the DOD; (2) A technical evaluation of the Department's tool development and acquisition programs; (3) An evaluation of the operational planning and targeting of U.S. Cyber Command; and (4) Recommendations for legislative and administrative action relating to the DOD's future cyber warfighting capabilities.

The House amendment contained no similar provision.

The House recesses.

Study to determine the optimal strategy for structuring and manning elements of the Joint Force Headquarters-Cyber organizations, Joint Mission Operations Centers, and Cyber Operations-Integrated Planning Elements (sec. 1656)

The Senate bill contained a provision (sec. 1646) that would require the Department of Defense Principal Cyber Advisor (PCA) to conduct a study to determine the optimal strategy for structuring and manning elements of the following: (1) Joint Force Headquarters-Cyber organizations; (2) Joint Mission Operations Centers; and (3) Cyber Operations-Integrated Planning Elements.

The House amendment contained no similar provision.

The House recesses with an amendment that would include the Joint Cyber Centers in the study.

Cyber governance structures and Principal Cyber Advisors on military cyber force matters (sec. 1657)

The Senate bill contained a provision (sec. 1647) that would require each secretary of the military departments to designate a Principal Cyber Advisor to act as the principal advisor to the secretary on the cyber forces, cyber programs, and cybersecurity matters of the military department, including matters relating to weapons systems, enabling infrastructure, and the defense industrial base.

The House amendment contained no similar provision.

The House recesses with an amendment that would: (1) Require each secretary of the military departments to appoint a Principal Cyber Advisor for each military service; (2) Require each Principal Cyber Advisor to be a senior civilian, a member of the Senior Executive Service equivalent to a 3-star flag officer, or by exception a military officer; (3) Prohibit the dual-hatting of any existing position as the Principal Cyber Advisor and require each Principal Cyber Advisor to be

independent of the service chief information officers; and (4) Clarify the responsibilities of each Principal Cyber Advisor.

Designation of test networks for testing and accreditation of cybersecurity products and services (sec. 1658)

The Senate bill contained a provision (sec. 1648) that would require the Secretary of Defense to designate three test networks for the testing and accreditation of cybersecurity products and services.

The House amendment contained no similar provision.

The House recedes with an amendment that would make available the information generated to the Office of the Director, Operational Test and Evaluation.

Consortia of universities to advise Secretary of Defense on cybersecurity matters (sec. 1659)

The Senate bill contained a provision (sec. 1649) that would establish one or more consortia of universities to advise and assist the Secretary of Defense on matters relating to cybersecurity. The functions of the consortium or consortia would be: (1) To provide to the Secretary access to the expertise of the members of the consortium on matters relating to cybersecurity; (2) To align the efforts of constituent members to priorities of the Department of Defense; and (3) To act as a facilitator in responding to Department requests relating to advice and assistance on matters relating to cybersecurity and to provide feedback to the Secretary from constituent members.

The House amendment contained no similar provision.

The House recedes with an amendment that would: (1) Clarify the purpose and functions of the consortium or consortia; (2) Require that the consortium or consortia be open to all universities designated as centers of academic excellence by the Department of Homeland Security and National Security Agency; and (3) Require that the Secretary of Defense or a senior level designee meet with the consortium or consortia at least twice per year.

Joint assessment of Department of Defense cyber red team capabilities, capacity, demand, and requirements (sec. 1660)

The Senate bill contained a provision (sec. 6605) that would require the Secretary of Defense to conduct a joint assessment of Department of Defense cyber red team capabilities, capacity, demand, and future requirements that affect the

Department's ability to develop, test, and maintain secure systems in a cyber environment.

The House amendment contained no similar provision.
The House recesses.

SUBTITLE D—NUCLEAR FORCES

Conforming amendment to Council on Oversight of the National Leadership Command, Control, and Communications System (sec. 1661)

The Senate bill contained a provision (sec. 1663) that would make several conforming changes to the governing statute of the Council on Oversight of the National Leadership Command, Control, and Communications System, section 171a of Title 10, United States Code.

The House amendment contained no similar provision.
The House recesses.

Modification of authorities relating to nuclear command, control, and communications system (sec. 1662)

The Senate bill contained a provision (sec. 1661) that would reassign principal responsibility within the Office of the Secretary of Defense for nuclear command, control, and communications from the Chief Information Officer to the Under Secretary of Defense for Acquisition and Sustainment.

The House amendment contained a similar provision (sec. 901).

The House recesses.

Briefings on meetings held by Nuclear Weapons Council (sec. 1663)

The House amendment contained a provision (sec. 1642) that would require the Nuclear Weapons Council (NWC) to provide semi-annual briefings to the congressional defense committees covering all NWC meetings in the previous 6 months, including a summary of decisions made at each meeting but excluding decisions relating to the budget submission if the budget request for such fiscal year has not been submitted to Congress as of the date of the briefing. The provision would also require the NWC to submit any decision memoranda used to support decisions made at such meetings, including a summary of the considerations that informed each decision.

The Senate bill contained no similar provision.

The Senate recesses with an amendment that would strike the requirement to submit decision memoranda.

Consideration of budget matters at meetings of Nuclear Weapons Council (sec. 1664)

The House amendment contained a provision (sec. 1651) that would modify the enabling statute of the Nuclear Weapons Council (NWC) as contained in section 179 of title 10, United States Code, to require that certain budget officials attend meetings of the NWC, and that the same officials be members of the Standing and Safety Committee (SSC).

The Senate bill contained no similar provision.

The Senate recesses with amendments that would remove the provision from code, require that the same officials attend meetings of the NWC and SSC, and allow the Chairman of the NWC to exclude an official in exigent circumstances.

Improvement to annual report on the modernization of the nuclear weapons enterprise (sec. 1665)

The House amendment contained a provision (sec. 1641) that would extend the reporting requirement in section 1043(a) of the National Defense Authorization Act for Fiscal Year 2012 (Public Law 112-81) by 1 year to 2024. The provision would also add to the report a requirement to estimate the cost of modernizing and recapitalizing the nuclear enterprise as a relative percentage of acquisition costs of the Department of Defense over the 10 years following the date of the report. It would also add a requirement to provide a 25-year plan, including timelines and acquisition and life cycle costs, for nuclear delivery systems and platforms, nuclear command and control systems, and facilities, infrastructure, and critical skills relating to nuclear weapons that are being modernized or sustained. Finally, the provision would also transfer the complete reporting requirement to title 10, United States Code, redesignating it section 492a.

The Senate bill contained no similar provision.

The Senate recesses with amendments that would strike the requirement for the 25-year plan and change the entity required to report on modernization as a percentage of acquisition costs from the Secretary of Defense to the Director of the Congressional Budget Office, as part of the report previously required as part of section 1043.

Expansion of officials required to conduct biennial assessments of delivery platforms for nuclear weapons and nuclear command and control system (sec. 1666)

The Senate bill contained a provision (sec. 1662) that would add the Commander of the United States Air Forces in Europe to a list of officials required to report biennially on the safety, security, reliability, sustainability, performance, and military effectiveness of the delivery platforms for nuclear weapons and nuclear command and control systems for which each official has responsibility.

The House amendment contained no similar provision.

The House recesses.

Extension of annual briefing on costs of forward-deploying nuclear weapons in Europe (sec. 1667)

The House amendment contained a provision (sec. 1644) that would extend by 3 years the requirement contained in section 1656 of the National Defense Authorization Act for Fiscal Year 2016 (Public Law 114-92) for the Secretary of Defense to provide an annual briefing to the congressional defense committees on the cost of forward-deploying U.S. nuclear weapons in Europe, and add additional committees to those receiving the briefing.

The Senate bill contained no similar provision.

The Senate recesses with an amendment that would retain the list of committees from section 1656.

Elimination of conventional requirement for long-range standoff weapon (sec. 1668)

The House amendment contained a provision (sec. 1643) that would repeal the requirement in section 217(a) of the National Defense Authorization Act for Fiscal Year 2014 (Public Law 113-66) for the Air Force to develop a conventional variant of the long-range standoff weapon.

The Senate bill contained no similar provision.

The Senate recesses.

Briefing on long-range standoff weapon and sea-launched cruise missile (sec. 1669)

The Senate bill contained a provision (sec. 1665) that would require the Under Secretary of Defense for Acquisition and Sustainment, in consultation with the Administrator for Nuclear Security, to provide a briefing to the Committees on Armed Services of the Senate and the House of Representatives on

opportunities to increase commonality between the long-range standoff weapon (LRSO) and the nuclear sea-launched cruise missile (SLCM-N), and to leverage technology developed for LRSO in the development of the SLCM-N.

The House amendment contained no similar provision.

The House recesses with a clarifying amendment.

Extension of prohibition on availability of funds for mobile variant of ground-based strategic deterrent missile (sec. 1670)

The House amendment contained a provision (sec. 1645) that would extend until 2030 the prohibition contained in the National Defense Authorization Act for Fiscal Year 2017 (Public Law 114-328) on availability of funds for development of a mobile variant of the ground-based strategic deterrent program.

The Senate bill contained no similar provision.

The Senate recesses with an amendment that would extend the prohibition through 2024.

Reports on development of ground-based strategic deterrent weapon (sec. 1671)

The Senate bill contained a provision (sec. 6601) that would require the Secretary of the Air Force, in coordination with the Administrator for Nuclear Security and the Chairman of the Nuclear Weapons Council, to submit an annual report to the congressional defense committees on the joint development of the ground-based strategic deterrent (GBSD) and the W87-1 warhead modification program.

The House amendment contained no similar provision.

The House recesses with an amendment that would add an additional required report if the Air Force receives only one bid for the engineering and manufacturing development phase of the GBSD program, assessing plans to mitigate any risks or costs resulting from the submission of a single bid. Such report would be due 60 days after award of the contract for that phase.

Prohibition on reduction of the intercontinental ballistic missiles of the United States (sec. 1672)

The Senate bill contained a provision (sec. 1664, as modified by sec. 6664) that would prohibit the Department of Defense from reducing, or preparing to reduce, the responsiveness, alert level, or quantity deployed of U.S. intercontinental ballistic missiles. The provision would provide an exception for activities required for maintenance or

sustainment, or to ensure the safety, security, or reliability of such missiles.

The House amendment contained no similar provision.

The House recesses.

Independent study on policy of no-first-use of nuclear weapons (sec. 1673)

The House amendment contained a provision (sec. 1649) that would require the Secretary of Defense to enter into a contract with a federally funded research and development center to conduct a study on the United States' adopting a policy to not use nuclear weapons first.

The Senate bill contained no similar provision.

The Senate recesses with amendments that would modify some elements of the required study, move the deadlines for submission 30 days later, and add a requirement for an interim briefing not later than 120 days after the date of enactment of this Act.

Independent study on risks of nuclear terrorism and nuclear war (sec. 1674)

The House amendment contained a provision (sec. 1650) that would require the Secretary of Defense to enter into a contract with the National Academy of Sciences to conduct a study on the potential risks of nuclear terrorism and nuclear war.

The Senate bill contained no similar provision.

The Senate recesses with amendments that would modify a number of elements of the required study.

Report on military-to-military dialogue to reduce risks of miscalculation leading to nuclear war (sec. 1675)

The House amendment contained a provision (sec. 1646) that would require the Secretary of Defense, in coordination with the Secretary of State, to submit to the appropriate congressional committees a report describing current military-to-military dialogue between the United States and other countries to reduce the risk of miscalculation, unintended consequences, or accidents that could precipitate a nuclear war, as well as bilateral or multilateral agreements to which the United States is a party that address the same risks. The report would also contain a joint assessment by the Secretary and the Chairman of the Joint Chiefs of Staff of the policy and operational necessity, risks, benefits, and costs of establishing military-

to-military discussions with Russia, China, Iran, and North Korea.

The Senate bill contained no similar provision.

The Senate recesses with several clarifying amendments, as well as an amendment that would add consideration of other efforts conducted between the U.S. government and foreign governments, or between nongovernmental organizations and foreign counterparts, to reduce such risks. The amendments would also require assessment of the willingness of the above governments to engage in such discussions.

Report on nuclear forces of the United States and near-peer countries (sec. 1676)

The Senate bill contained a provision (sec. 1243) that would require the Secretary of Defense, in coordination with the Director of National Intelligence (DNI) and the Secretary of State, to submit a report on Russian nuclear systems deployed or under development not covered by New START, Russian non-deployed strategic nuclear systems, nuclear modernization programs of China, and the implications of these assessments on the New START central limits.

The House amendment contained a similar provision (sec. 1652) that would require the Secretary of Defense, in coordination with the DNI, to submit a report to the congressional defense committees on current and planned nuclear systems of the United States, Russia, and China, including projections through 2040.

The Senate recesses with an amendment that would change the report's deadline to February 15, 2020, and specify the inclusion of Russian nuclear systems deployed or under development not covered by New START and Russian non-deployed strategic nuclear systems.

Report on operation of conventional forces of military departments under employment or threat of employment of nuclear weapons (sec. 1677)

The Senate bill contained a provision (sec. 6603) that would require the secretaries of the military departments, and the Commandant of the Marine Corps, to each submit to the congressional defense committees a report detailing measures taken to ensure the ability of conventional forces to operate under employment or threat of employment of nuclear weapons.

The House amendment contained no similar provision.

The House recesses with amendments that would consolidate the four reports into a single report by the Secretary of

Defense, in coordination with the service secretaries, and modify elements of the report's contents.

Report on operation of conventional forces of certain combatant commands under employment or threat of employment of nuclear weapons (sec. 1678)

The Senate bill contained a provision (sec. 6604) that would require the Commander, U.S. European Command, and the Commander, U.S. Indo-Pacific Command, to each submit a report to the congressional defense committees detailing measures taken to ensure the ability of conventional forces to operate under employment or threat of employment of nuclear weapons.

The House amendment contained no similar provision.

The House recedes with amendments that would consolidate the two reports into a single report from the Chairman of the Joint Chiefs of Staff, in coordination with the Commanders of U.S. European Command, U.S. Indo-Pacific Command, and U.S. Strategic Command, and modify elements of the report's contents.

Briefings on plan for future-systems-level architecture of nuclear command, control, and communications systems (sec. 1679)

The House amendment contained a provision (sec. 1648) that would require the Secretary of Defense, in coordination with the Commander of U.S. Strategic Command, to submit a plan on the future of nuclear command, control, and communications systems within 270 days of the date of enactment of this Act. The provision would also require the Secretary to provide an interim briefing within 90 days of the date of enactment.

The Senate bill contained no similar provision.

The Senate recedes with amendments that would change the requirement to a series of biannual briefings beginning in February 2020 through 2025, and modify some elements contained within the plan, including the addition of an assessment of personnel required to evaluate and execute the architecture.

Sense of Congress on nuclear deterrence commitments of the United States (sec. 1680)

The Senate bill contained a provision (sec. 1667) that would express the sense of the Senate on the importance of the extended nuclear deterrence commitments of the United States, including forward deployment of U.S. dual-capable aircraft.

The House amendment contained no similar provision.

The House recedes with several clarifying amendments.

SUBTITLE E—MISSILE DEFENSE PROGRAMS

National missile defense policy (sec. 1681)

The Senate bill contained a provision (sec. 1672) that would express the sense of the Senate regarding the need for a comprehensive U.S. missile defense policy and program. It would also modify national missile defense policy as established by section 1681 of the National Defense Authorization Act for Fiscal Year 2017 (Public Law 114-328) to add defense against cruise and hypersonic missile threats. Finally, the provision would require the Secretary of Defense to redesignate all Department of Defense strategies, policies, programs, and systems to reflect that U.S. missile defense programs defend against ballistic, cruise, and hypersonic missiles in all phases of flight.

The House amendment contained a provision (sec. 1661) that would modify section 1681 to reflect the principles governing U.S. missile defense as outlined by the 2019 Missile Defense Review (MDR), and would require the Director of Cost Assessment and Program Evaluation (CAPE) to provide a briefing to the Committees on Armed Services of the House and Senate.

The Senate recedes with several clarifying amendments, as well as amendments that would strike the briefing requirement and retain the redesignation requirement from the Senate bill.

The conferees direct the CAPE Director to provide to the congressional defense committees, no later than January 31, 2020, a briefing on the programmatic impacts of implementation of the 2019 MDR across the Department.

Development of space-based ballistic missile intercept layer (sec. 1682)

The House amendment contained a provision (sec. 1664) that would repeal the requirement contained in section 1688(c) of the National Defense Authorization Act for Fiscal Year 2018 (Public Law 115-91) for the Director of the Missile Defense Agency to establish a space test bed to conduct research on a space-based missile intercept layer.

The Senate bill contained no similar provision.

The Senate recedes.

Development of hypersonic and ballistic missile tracking space sensor payload (sec. 1683)

The Senate bill contained a provision (sec. 1673) that would require the Secretary of Defense to assign primary responsibility for the development and deployment of a hypersonic and ballistic tracking space sensor (HBTSS) to the Director of the Missile Defense Agency (MDA). The provision would also require the Comptroller and the Director of Cost Assessment and Program Evaluation to certify to the congressional defense committees whether this program is fully funded through the future years defense program submitted with the fiscal year 2021 budget request, and require the Director of the MDA to begin on-orbit testing of the system no later than December 31, 2021. Finally, the provision would require the Secretary to submit a report on efforts relating to space-based sensing and tracking capabilities for missile defense at the MDA, the Defense Advanced Research Projects Agency (DARPA), the Air Force, and the Space Development Agency (SDA).

The House amendment contained a provision (sec. 1662) that would require the Director of the MDA, in coordination with the Director of the SDA and the Secretary of the Air Force, to develop an HBTSS payload and integrate it into the broader space-based sensing architecture in support of the ballistic missile defense system. The provision would also require the Director of the MDA to submit to the appropriate congressional committees a plan for how the Director, in coordination with the Director of the SDA and the Secretary of the Air Force, will develop and integrate such a payload, how such a payload will address the U.S. Strategic Command requirement, and estimated costs to develop, acquire, deploy, operate, and sustain this payload.

The Senate recedes with an amendment that would make the Secretary of Defense responsible for submitting the plan, and include the requirement to report on efforts across the MDA, DARPA, the Air Force, and SDA. The amendment would also retain the requirement from the Senate bill for the Secretary to assign primary responsibility for development of an HBTSS payload to the Director of the MDA, and to submit to the congressional defense committees a certification of such assignment.

Modifications to required testing by Missile Defense Agency of ground-based midcourse defense element of ballistic missile defense system (sec. 1684)

The Senate bill contained a provision (sec. 1677) that would express the sense of the Senate on a highly successful 2018 Missile Defense Agency (MDA) flight test campaign.

The House amendment contained a provision (sec. 1671) that would modify requirements for flight testing of the ground-based

midcourse defense (GMD) element of the ballistic missile defense system pursuant to section 1689 of the National Defense Authorization Act for Fiscal Year 2017 (Public Law 114-328), including by eliminating the ability for the Director of the MDA to forgo a test of the GMD in any given year due to any condition not specified in subsection (c) of section 1689.

The Senate recedes with an amendment that would strike the elimination of such ability but retain the other modifications in the House amendment.

The conferees commend the MDA and all other Department components involved on a successful 2018 flight test campaign, especially on FTG-11, the first salvo test of the GMD system.

Iron Dome short-range rocket defense system and Israeli cooperative missile defense program co-development and co-production (sec. 1685)

The Senate bill contained a provision (sec. 1671) that would authorize funds for the Missile Defense Agency to provide to the Government of Israel to procure components for the Iron Dome short-range rocket defense system, the David's Sling Weapon System, and the Arrow 3 Upper Tier Interceptor Program, including through co-production of such components in the United States. The provision would also provide a series of certification requirements relating to implementation of the relevant bilateral agreements before disbursement of these funds, consistent with previous legislative requirements.

The House amendment contained no similar provision.

The House recedes with a technical amendment.

Limitation on availability of funds for lower tier air and missile defense sensor (sec. 1686)

The House amendment contained a provision (sec. 1668) that would limit obligation or expenditure of funds for fiscal year 2020 to 75 percent for the Army for the lower tier air and missile defense sensor until the Secretary of the Army provides a report to the congressional defense committees on the results of the test events held in the third quarter of fiscal year 2019, and on the decision of the Army to award a contract for initial operational capability based on those test events.

The Senate bill contained no similar provision.

The Senate recedes with a technical amendment.

Plan for the redesigned kill vehicle replacement (sec. 1687)

The Senate bill contained a provision (sec. 1675) that would require the Director of the Missile Defense Agency (MDA) to submit a report to the congressional defense committees on the delay in the Redesigned Kill Vehicle (RKV) program.

The Senate bill also contained a provision (sec. 1676) that would require the Director to submit a report on options to increase the capability, capacity, and reliability of the ground-based midcourse defense system, including the infrastructure requirements for increasing the number of ground-based interceptors.

The House amendment contained a provision (sec. 1663) that would express the sense of Congress that the Director of the MDA must address the technical issues with the RKV program before moving forward with development, procurement, and fielding of the vehicle. The provision would also modify the waiver contained in section 1683(b) of the John S. McCain National Defense Authorization Act for Fiscal Year 2019 (Public Law 115-232), which prohibited a lot production decision for the RKV until after a successful intercept flight test, such that the Secretary of Defense would also need to conduct an assessment of the missile developments of both North Korea and Iran during the 18-month period preceding the date of the waiver.

The House recedes with amendments that would add a sense of Congress addressing the termination by the Department of the RKV contract in August 2019 and encouraging the Director to proceed with a follow-on program guided by principles of responsible acquisition, including conducting a successful flight test before making production decisions. The amendments would also modify certain elements of the reporting requirement to reflect the program replacing the RKV, and include elements of the report from section 1676 of the Senate bill. Finally, the amendments would prohibit the obligation or expenditure of more than 50 percent of fiscal year 2020 funds for the next-generation improved homeland defense interceptor until the Secretary of Defense submits such report.

Organization, authorities, and billets of the Missile Defense Agency (sec. 1688)

The Senate bill contained a provision (sec. 1674) that would express the sense of the Senate in support of the nonstandard acquisition processes used by the Missile Defense Agency (MDA). It would also prohibit obligation or expenditure of funds to change these processes until the Secretary of Defense has consulted with a number of senior defense officials with responsibility for aspects of missile defense, submitted a

report to the congressional defense committees, and allowed 270 days to elapse after submittal.

The House amendment contained a provision (sec. 1665) that would contain a similar prohibition on obligation or expenditure of funds until the Secretary notifies the congressional defense committees of the proposed changes to the nonstandard acquisition processes, and allows 90 days to elapse after such notification. The provision would also require the Secretary of Defense to enter into a contract with a federally funded research and development center (FFRDC) to assess the organization of the MDA under the Under Secretary of Defense for Research and Engineering, in comparison with alternative organizational structures, and assess the risks and benefits of transitioning the MDA to the standard Department of Defense acquisition process. Finally, the provision would prohibit the Secretary of Defense from transferring civilian or military billets from the MDA to any element of the Department under the authority of the Under Secretary of Defense for Research and Engineering until the Secretary notifies the congressional defense committees of the proposed transfer, and allows 90 days to elapse after such notification.

The Senate recedes with an amendment that would extend the deadline for submission of the FFRDC assessment by 30 days, retain the report required in the notice in the Senate provision with the addition of the Under Secretary of Defense for Acquisition and Sustainment as a consulted official, and change the waiting period after the notification of any change to the acquisition processes to 120 days.

Annual assessment of ballistic missile defense system (sec. 1689)

The House amendment contained a provision (sec. 1670) that would express the sense of Congress that operational test and evaluation of the ballistic missile defense system (BMDS) should be conducted thoroughly in accordance with title 10, United States Code. The provision would also require the Director of Operational Test and Evaluation to include in the annual report to Congress under section 139 of title 10, United States Code, an assessment of the BMDS, including all elements of the system that are fielded or are planned to be fielded.

The Senate bill contained no similar provision.

The Senate recedes with an amendment that would strike the sense of Congress.

Command and control, battle management, and communications program (sec. 1690)

The House amendment contained a provision (sec. 1669) that would prohibit the Missile Defense Agency (MDA) from releasing the command and control, battle management, and communications (C2BMC) program to foreign partners until the Director of the MDA submits a report to the appropriate congressional committees.

The Senate bill contained no similar provision.

The Senate recesses with a clarifying amendment.

Missile defense interceptor site in contiguous United States (sec. 1691)

The Senate bill contained a provision (sec. 1679) that would require the Secretary of Defense to make available to the public the Environmental Impact Statement (EIS) prepared in accordance with section 227(b) of the National Defense Authorization Act for Fiscal Year 2013 (Public Law 112-239).

The House amendment contained a provision (sec. 1666) that would require the Secretary of Defense to designate the preferred location of a missile defense site in the contiguous United States from among the locations evaluated pursuant to section 227. The provision would also require the Secretary to submit to the congressional defense committees a report on such designation.

The Senate recesses with an amendment that would strike the requirement to designate a preferred location but retain the requirement for a report.

The conferees note that the EIS was made available to the public in August 2019. The conferees also note that the Secretary identified a preferred location in June 2019, while maintaining the determination made in the Missile Defense Review that there is no operational requirement to develop a third site in the contiguous United States at this time.

Independent study on impacts of missile defense development and deployment (sec. 1692)

The House amendment contained a provision (sec. 1672) that would require the Secretary of Defense to enter into an agreement with the National Academy of Sciences to conduct a study on the impacts of the development and deployment of U.S. long-range missile defenses on the security of the United States as a whole.

The Senate bill contained no similar provision.

The Senate recesses with several clarifying amendments and an amendment that would change the entity conducting the study to a federally funded research and development center.

Report and briefing on multi-volume kill capability (sec. 1693)

The House amendment contained a provision (sec. 1673) that would require the Under Secretary of Defense for Research and Engineering to submit to the congressional defense committees a report on the potential need for a multi-object kill vehicle in future architecture of the ballistic missile defense system.

The Senate bill contained no similar provision.

The Senate recesses with several technical and clarifying amendments, as well as an amendment that would require the Under Secretary to coordinate such report with the Director of the Missile Defense Agency, the Under Secretary of Defense for Acquisition and Sustainment, and the Director of Cost Assessment and Program Evaluation.

SUBTITLE F—OTHER MATTERS

Extension of authorization for protection of certain facilities and assets from unmanned aircraft (sec. 1694)

The Senate bill contained a provision (sec. 1682) that would provide an extension of the authority that exists in Title 10, United States Code, section 130i, for protection of Department of Defense facilities and assets associated with certain mission areas from unauthorized operation of unmanned aircraft.

The House amendment contained no similar provision.

The House recesses with an amendment that would extend the existing authority to the year 2023.

The conferees also direct the Secretary of Defense to provide a report to the congressional defense committees not later than April 1, 2020 that details how the Secretary plans to protect Department of Defense ammunition manufacturing facilities that are government-owned and contractor-operated from unauthorized overflight of unmanned aircraft not covered by the protection authority provided under Title 10, United States Code, section 130i, concerning protection of certain facilities and assets from unmanned aircraft. The report should also include recommendations, if appropriate, regarding any legislative authorities that may be required to protect these facilities.

Repeal of requirement for commission on electromagnetic pulse attacks and similar events (sec. 1695)

The House amendment contained a provision (sec. 1683) that would acknowledge the release of the Executive Order dated March 26, 2019, on coordinating national resilience to electromagnetic pulses (EMP), and repeal the requirement in section 1691 of the National Defense Authorization Act for Fiscal Year 2018 (Public Law 115-91) for a congressional commission on EMP.

The Senate bill contained no similar provision.

The Senate recesses with an amendment that would strike the findings.

Repeal of review requirement for ammonium perchlorate report (sec. 1696)

The House amendment contained a provision (sec. 1682) that would repeal the requirement for the Comptroller General of the United States to review the report required by section 1684(c) of the National Defense Authorization Act for Fiscal Year 2018 (Public Law 115-91).

The Senate bill contained no similar provision.

The Senate recesses.

Transferability of conventional prompt global strike weapon system technologies to surface-launched platforms (sec. 1697)

The House amendment contained a provision (sec. 1684) that would express the sense of Congress related to hypersonic weapon systems, prohibit any fiscal year 2020 funds for a submarine-launched conventional prompt global strike capability unless such capability is transferable to a surface-launched platform, and require the Secretary of the Navy to submit a report to the congressional defense committees on the programmatic changes required to integrate such a system into surface ships.

The Senate bill contained no similar provision.

The Senate recesses with amendments that would strike the sense of Congress and change the prohibition to a requirement that the Secretary of the Navy ensure that technologies developed for such a system are transferable to surface-launched platforms.

Prohibition on availability of funds for certain offensive ground-launched ballistic or cruise missile systems (sec. 1698)

The House amendment contained a provision (sec. 1270J) that would make a series of findings related to the U.S. withdrawal from the Intermediate-Range Nuclear Forces (INF) Treaty. The provision would also prohibit the use of any funds authorized to be appropriated by this Act for research and

development, procurement, or deployment of a ground-launched intermediate-range ballistic or cruise missile system, unless the Secretary of Defense submits a report to Congress related to the termination of the INF Treaty and the development or deployment of INF-range missile systems.

The Senate bill contained no similar provision.

The Senate recedes with amendments that would strike the findings and modify the prohibition to apply only to fiscal year 2020 funds for procurement or deployment of such systems. The amendments would also separate the report from the prohibition, modify the required contents of the report, and apply a deadline of January 31, 2020.

Hard and deeply buried targets (sec. 1699)

The Senate bill contained a provision (sec. 1683) that would require the Chairman of the Joint Chiefs of Staff, in consultation with the Commander of U.S. Strategic Command, to submit to the congressional defense committees a classified report on hard and deeply buried targets associated with U.S. military operations plans, including an assessment of the ability of the United States to hold such targets at risk currently and as projected in 2030. The provision would also require the Secretary of Defense to develop a plan to ensure the United States possesses capabilities to pose a credible deterrent threat against such targets by 2025, and submit a recurring certification that such plan is being implemented.

The House amendment contained no similar provision.

The House recedes with amendments that would change the report to a briefing, strike the certification requirement, and add certain elements to the content of the briefing.

LEGISLATIVE PROVISIONS NOT ADOPTED

Intelligence assessment of relationship between women and violent extremism

The House amendment contained a provision (sec. 1614) that would require, not later than 180 days after the date of the enactment of this Act, and annually thereafter, the Director of National Intelligence, in consultation with the Secretary of Defense, the Secretary of State, and the head of any element of the intelligence community the Director determines appropriate, shall submit an intelligence assessment on the relationship between women and violent extremism and terrorism.

The Senate bill contained no similar provision.

The House recedes.

The conferees note that elsewhere in this Act is a provision that would require the Secretary of Defense to seek to enter into a contract with an independent research and development center to conduct an independent analysis on gender and violent extremism.

Modification of term of Commander of Air Force Space Command

The Senate bill contained a provision (sec. 1614) that would change the term of the Commander, Air Force Space Command, from 6 years to 4 years.

The House amendment contained no similar provision.

The Senate recesses.

Funding for Defense Counterintelligence and Security Agency

The House amendment contained a provision (sec. 1615) that would increase, by \$5,206,997 the amounts available in section 301 for Operation and Maintenance for Defense Security Service for the purposes of acquiring advanced cyber threat detection sensors, hunt and response mechanisms, and commercial cyber threat intelligence. The provision would include an offset in section 4101, for Integrated personnel and pay system.

The Senate amendment contained no similar provision.

The House recesses.

Report on potential Defense Intelligence Polygraph Examination Military Transition Program

The House amendment contained a provision (sec. 1616) that would require, not later than one year after the date of the enactment of this Act, the Comptroller General of the United States to submit a report assessing the feasibility of establishing a Defense Intelligence Polygraph Examination Military Transition Program for members of the Armed Services transitioning to civilian employment.

The Senate bill contained no similar provision.

The House recesses.

The conferees direct the Comptroller General of the United States to submit a report not later than one year after the date of enactment of this Act to the Armed Services Committees of the House of Representatives and the Senate that assesses the advisability and feasibility of establishing a Defense Intelligence Polygraph Examination Military Transition Program for members of the Armed Forces transitioning to civilian employment. The report shall include, at a minimum, the following:

(1) A review of the feasibility of establishing a program in the Department of Defense under which members of the Armed Forces with an active top secret security clearance that provides for access to sensitive compartmented information and a current counterintelligence scope polygraph examination can be provided an opportunity to obtain an expanded scope polygraph (ESP) if the member receives a written offer of employment, subject to suitability or security vetting, with an element of the intelligence community or a contractor of such an element;

(2) The cost to the Department of Defense for implementing such program and whether such cost could be shared by other departments or agencies of the Federal Government or the private sector;

(3) The factors the Department needs to consider in determining whether such program would be viable;

(4) The obstacles that exist in implementing such program;

(5) Whether such a program could increase workforce diversity in the intelligence community;

(6) Whether such a program could increase or decrease retention among members of the Armed Forces serving in defense intelligence roles;

(7) Whether any changes are required to be made to policies of the Department or to Federal law to implement such a program;

(8) Identification of the current average length of time in the intelligence community to investigate and adjudicate an initial and a periodic update top secret security clearance that provides for access to sensitive compartmented information and conduct an expanded scope polygraph;

(9) Any other matters the Comptroller General deems relevant.

National Security Space Launch Program

The Senate bill contained a provision (sec. 1616) that would prohibit the Secretary of the Air Force from modifying the acquisition schedule for phase 2 of the National Security Space Launch (NSSL) program or from awarding missions to more than two launch service providers.

The House amendment contained a similar provision (sec. 1601) that would require the Secretary of the Air Force to stay on schedule for Phase 2 of the NSSL program, but would reopen competition after the first 29 launches of phase 2 and award \$500 million to providers that have not entered into a phase 2 contract for launch services occurring before fiscal year 2022, or have entered into a phase 2 contract but have not entered into a Launch Services Agreement, or both. The provision would

require the Secretary of the Air Force to notify Congress of its down select decision before the public announcement, and require a report on the total defense investments made for each awardee and how such investments were accounted for in the evaluation of the offers.

The conference agreement does not include either provision.

Cybersecurity Defense Academy pilot program

The House amendment contained a provision (sec. 1636) that would require the Secretary of Defense to carry out a pilot program to create a public-private partnership that would train and place veterans as cybersecurity personnel within the Department of Defense.

The Senate bill contained no similar provision.

The House recedes.

Expansion of authority for access and information relating to cyberattacks on Department of Defense operationally critical contractors

The Senate bill contained a provision (sec. 1644) that would amend section 391 of title 10, United States Code, to extend the ability of the Department of Defense (DOD) to react immediately to reports of intrusions that may affect critical DOD data.

The House amendment contained no similar provision.

The Senate recedes.

The conferees are sympathetic to the need for this additional authority, which the Department already has in the case of cleared defense contractors and which the Department requested via a legislative proposal. The Department relies on operationally critical contractors to move troops and supplies across the world, in peacetime and during conflict, and adversaries' cyberattacks on these critical contractors pose a genuine threat to the Department's conduct of operations. The conferees, however, are concerned that the Department's legislative proposal was not scoped in such a way that this authority would be operationalized through contractual mechanisms. The conferees are also concerned that the Department's broader efforts to improve the cybersecurity of its contractors and the Department's ability to respond in the event of a cyberattack are primarily focused on the defense industrial base as traditionally conceived of—namely, those companies that supply the Department's weapons systems. The cybersecurity of operationally critical contractors is at least as important as

that of traditional defense industrial base contractors, and the conferees seek greater clarity as to what efforts are underway to ensure their cybersecurity.

The conferees therefore direct the Commander of U.S. Transportation Command, the Under Secretary of Defense for Acquisition and Sustainment, the Chief Information Officer, and the Director of the Protecting Critical Technologies Task Force to brief the Committees on Armed Services of the Senate and House of Representatives, no later than 90 days after the enactment of this Act, on: (1) The expected use-case for the requested authority; (2) The expected implementation through contractual mechanisms of such an authority; (3) The need for and purpose of subsections (2) and (3) of the legislative proposal; and (4) How the Department is treating operationally critical contractors within its broader efforts to secure the defense industrial base against cyber attacks and respond, in the event of a cyberattack, more aggressively in its investigatory and counterintelligence actions.

The conferees look forward to this briefing and to legislating on this issue in the Fiscal Year 2021 National Defense Authorization Act.

Briefing on memorandum of understanding relating to joint operational planning and control of cyberattacks of national scale

The Senate bill contained a provision (sec. 1645) that would require the Secretary of Defense to provide a briefing, not later than March 1, 2020, to the congressional defense and homeland security committees on the Joint Department of Defense and Department of Homeland Security Memorandum of Understanding, signed by the Secretary of Defense on October 6, 2018.

The House amendment contained no similar provision.

The Senate recedes. The conferees direct the Secretary of Defense to provide to the Committees on Armed Services of the Senate and House of Representatives a briefing on the Joint Department of Defense and Department of Homeland Security Memorandum of Understanding signed by the Secretary of Defense on October 6, 2018.

The briefing shall include information on the following: (1) The number of planners assigned by the Department of Defense to line of effort three and line of effort four and the areas of expertise of those planners; (2) Whether these planners are physically co-located with their counterparts in the Department of Homeland Security and are assigned full-time or part-time to line of effort three and line of effort four; (3) Under what authority these planners have been assigned; (4) The status of

the development of operational plans and playbooks that will be implemented in response to actual cyberattacks of national scale; (5) The standing arrangements for interagency coordination and orchestration of response in the event of a cyberattack of national scale, including the status of the process established in Presidential Policy Directive-41 and the relevant principal, organization, and staff tasked with orchestrating a whole-of-government response; (6) The charter and implementation plan of the Joint Department of Defense and Department of Homeland Security Cyber Protection and Defense Steering Group; (7) The status of any Department of Defense cyber intelligence activities and operational preparation of the environment intended specifically to deter and disrupt adversary cyberattacks on United States critical infrastructure and planned in coordination with the Department of Homeland Security; (8) The current operational planning activities and standing arrangements between the Department of Defense and Department of Energy, including a determination as to whether the Secretary of Energy can directly request Defense Support of Civil Authorities; and (9) The status of implementing section 1650 of the John S. McCain National Defense Authorization Act for Fiscal Year 2019 (Public Law 115-232) on the pilot program authority to enhance cybersecurity and resilience of critical infrastructure.

Prohibition on availability of funds for deployment of low-yield ballistic missile warhead

The House amendment contained a provision (sec. 1646) that would prohibit the use of any funds authorized to be appropriated for fiscal year 2020 by this Act for deployment of the W76-2 warhead.

The Senate bill contained no similar provision.

The House recedes.

Sense of the Senate on industrial base for ground-based strategic deterrent program

The Senate bill contained a provision (sec. 1666) that would express the sense of the Senate on the importance of ensuring the viability of the industrial base for large solid rocket motors for the ground-based strategic deterrent program.

The House amendment contained no similar provision.

The Senate recedes.

The conferees encourage the Secretary of Defense to continue to consider the long-term health and viability of the

industrial base when structuring and awarding major procurement or development contracts.

Missile defense radar in Hawaii

The House amendment contained a provision (sec. 1667) that would allow the Missile Defense Agency to use research, development, test, and evaluation (RDT&E) funds for fiscal year 2020 to construct portions of the Homeland Defense Radar-Hawaii (HDR-H).

The Senate bill contained no similar provision.

The House recesses.

The conferees note that the Missile Defense Agency notified Congress that the HDR-H project has been delayed due to activities regarding the environmental impact statement. Due to these delays, the Department's previous legislative proposal requesting use of RDT&E funds for HDR-H radar elements would not be executable in fiscal year 2020.

Sense of the Senate on missile defense technology development priorities

The Senate bill contained a provision (sec. 1678) that would express the sense of the Senate on the importance of advanced missile defense technologies in preventing and defeating the rapidly expanding offensive missile threat.

The House amendment contained no similar provision.

The Senate recesses.

Modification to reports on certain solid rocket motors

The House amendment contained a provision (sec. 1681) that would modify the reporting requirement contained in section 1696 of the John S. McCain National Defense Authorization Act for Fiscal Year 2019 (Public Law 115-232) to include the provision of space launch services, and to require coordination with the Administrator of the National Aeronautics and Space Administration.

The Senate bill contained no similar provision.

The House recesses.

Sense of Senate on support for a robust and modern ICBM force to maximize the value of the nuclear triad of the United States

The Senate bill contained a provision (sec. 6602) that would express the sense of the Senate in support of a robust and modern intercontinental ballistic missile (ICBM) force.

The House amendment contained no similar provision.
The Senate recesses.

The conferees note that, while the United States has reduced the number of deployed ICBMs in order to comply with New START limits, other countries have continued to enhance, enlarge, or modernize their ICBM forces.

TITLE XVII—REPORTS AND OTHER MATTERS

SUBTITLE A—STUDIES AND REPORTS

Modification of annual reporting requirement on defense manpower (sec. 1701)

The Senate bill contained a provision (sec. 1051) that would amend section 115a of title 10, United States Code, to rename, change the due date of, and modify the elements of the Defense Manpower Requirements Report. The provision would also require that the (renamed) Defense Manpower Profile Report be delivered to the Congress each year by April 1. Additionally, the provision would repeal reporting requirements related to contractor personnel, major military force unit justifications, support and overhead manpower functions, overseas manpower, medical personnel, and the military technician program. Finally, the provision would set separate due dates for reporting requirements related to major Department of Defense headquarters activities and the diversity of the Armed Forces.

The House amendment contained no similar provision.

The House recesses with an amendment that would repeal reporting requirements related to contractor personnel, major military force unit justifications, support and overhead manpower functions, and overseas manpower. Reports related to medical personnel and the military technician program would continue to be required to be submitted to the Congress.

Termination of requirement for submittal to Congress of certain recurring reports (sec. 1702)

The House amendment contained a provision (sec. 1073) that, effective on December 30, 2021, would terminate the requirement that the Department of Defense submit to the Congress any a recurring report required by an annual national defense authorization act enacted on or after December 30, 2016.

The Senate bill contained no similar provision.

The Senate recesses with an amendment that would eliminate the requirement for the Department of Defense to submit to

Congress the 10 reports specifically enumerated. In addition, the amendment would provide that except as expressly provided in the law, any report submitted to Congress pursuant to a provision of the National Defense Authorization Act shall be written by a civilian employee of the Federal Government, a member of the Armed Forces, or both, and not by a contractor. This limitation will take effect for reports enacted in law on or after the date that is three years after the date of the enactment of this Act. Not later than one year after the date of the enactment of this Act, the Secretary of Defense shall provide a briefing to the Committees on Armed Services of the Senate and the House of Representatives on the actions to be taken to implement this limitation.

Modification of annual report on civilian casualties in connection with United States military operations (sec. 1703)

The Senate bill contained a provision (sec.1053) that would extend through December 31, 2025, the reporting requirement established by section 1057 of the National Defense Authorization Act for Fiscal Year 2018 (Public Law 115-91), as most recently amended by section 1062 of the John S. McCain National Defense Authorization Act for Fiscal Year 2019 (Public Law 115-232).

The House amendment contained a similar provision (sec. 1063) that would modify and extend for ten years section 1057 of the fiscal year 2018 National Defense Authorization Act, as most recently amended by section 1062 of the John S. McCain National Defense Authorization Act for Fiscal Year 2019 (Public Law 115-232).

The Senate recedes with an amendment that would extend for 7 years section 1057 of the National Defense Authorization Act for Fiscal Year 2018 (Public Law 115-91), as most recently amended by section 1062 of the John S. McCain National Defense Authorization Act for Fiscal Year 2019 (Public Law 115-232) and add elements to the required report.

The conferees direct the Secretary of Defense to submit a report to the congressional defense committees not later than 45 days following the enactment of this Act identifying any instances from the preceding year in which an individual was determined to be a combatant solely based upon proximity to the intended target or location of a strike or other United States military direct action operation.

Extension of requirement for briefings on the national biodefense strategy (sec. 1704)

The Senate bill contained a provision (sec. 1084) that would amend section 1086(d) of the National Defense Authorization Act for Fiscal Year 2017 (Public Law 114-328) by extending to March 1, 2025, the requirement for annual briefings on the status and implementation plan of the National Biodefense Strategy.

The House amendment contained no similar provision.

The House recesses.

Authorization of appropriations for title III of the Defense Production Act of 1950 (sec. 1705)

The Senate bill contained a provision (sec. 6017) that would amend section 711 of the Defense Production Act of 1950 (50 U.S.C. 4561) to designate, for each of fiscal years 2020 through 2024, an additional \$117.0 million above the current authorization level of \$133.0 million for carrying out the provisions and purposes of the Defense Production Act.

The House amendment contained no similar provision.

The House recesses with an amendment that would make technical changes and require an annual briefing to congressional committees on such activities.

Report on the Department of Defense plan for mass-casualty disaster response operations in the Arctic (sec. 1706)

The Senate bill contained a provision (sec. 1056) that would require the Secretary of Defense, in coordination with the Secretary of Homeland Security, to submit a report on the plan of the Department of Defense for assisting mass-casualty disaster response operations in the Arctic.

The House amendment contained no similar provision.

The House recesses.

Transmittal to Congress of requests for assistance from other departments of the Federal Government that are approved by the Department of Defense (sec. 1707)

The Senate bill contained a provision (sec. 1058) that would require the Secretary of Defense to transmit electronically requests for assistance received from the Department of Homeland Security or the Department of Health and Human Services to the Committees on Armed Services of the Senate and the House of Representatives not later than 7 calendar days after receiving those requests. The provision also requires the Secretary to transmit any responses to such requests.

The House amendment contained no similar provision.

The House recesses with a technical amendment.

Report and briefing on implementation of national defense strategy (sec. 1708)

The House amendment contained two provisions (secs. 1052 and 1074) that would facilitate implementation of the National Defense Strategy (NDS) by requiring the Department of Defense to review its operational concepts and plans regarding strategic competitors on matters identified in the NDS.

The Senate recesses with an amendment that would require two independent studies, to be performed by a federally funded research and development center and an independent, non-governmental institute, on the development of joint operational concepts within the Department of Defense.

The conferees note the pivotal importance of NDS implementation to national security and strongly encourage the Department of Defense to continue to construct and validate new joint operational concepts to accomplish the objective of deterring and, if necessary, defeating strategic competitors.

Actions to increase analytic support (sec. 1709)

The House amendment contained a provision (sec. 1053) that would require the Department to provide an assessment of the decision support capacity, specifically the analytic expertise resident within the Department, to link National Defense Strategy (NDS) objectives to innovative approaches to meet future challenges.

The Senate bill contained a provision (sec. 1052) that would require a report from the Department of Defense on the plan and processes the Department is setting forth to provide analytic support to senior leaders for force planning, as it relates to implementing the NDS.

The Senate recesses with a clarifying amendment.

The conferees note the fundamental importance of underlying analytic capability to the effective implementation of the NDS as well as to making fully-informed and timely decisions regarding national security.

Inclusion of certain individuals investigated by Inspectors General in the semiannual report (sec. 1710)

The House amendment contained a provision (sec. 1064) that would require the Office of the Inspector General of the Department of Defense to include in its quarterly reports, the already-public names of senior officials who commit misconduct.

The Senate bill contained no similar provision.

The Senate recedes with an amendment that would modify section 5(a)(19) of the Inspector General Act of 1978 (Public Law 95-452), to require an Inspector General to include in semiannual reports, a report on each investigation conducted by the Office involving a senior Government employee against whom allegations of misconduct were substantiated, including the name of the senior government official (as that term is defined by the department or agency), if already made public, together with: (1) The facts and circumstances of the investigation; and (2) The status and disposition of the matter, including if it was referred to the Department of Justice and that department's action on the referral.

Annual report on Joint Military Information Support Operations Web Operations Center (sec. 1711)

The House amendment contained a provision (sec. 1065) that would require the Commander of U.S. Special Operations Command to provide an annual report to the congressional defense committees not later than March 1 of each year on the Joint Military Information Support Operations Web Operations Center.

The Senate bill contained no similar provision.

The Senate recedes with a technical amendment.

Mobility capability requirements study (sec. 1712)

The House amendment contained a provision (sec. 1066) that would require the Assistant Secretary of Defense for Special Operations/Low-Intensity Conflict and the Commander, U.S. Transportation Command, to submit a report and a briefing to the House Committee on Armed Services by January 1, 2021, with an interim update by June 1, 2020, assessing the operational risk for meeting the mobility requirements of the geographic combatant commanders.

The Senate bill contained no similar provision.

The Senate recedes with a technical amendment.

Assessment of special operations force structure (sec. 1713)

The House amendment contained a provision (sec. 1067) that would require the Secretary of Defense not later than 30 days after the date of enactment of this Act to enter into an agreement with a federally funded research and development center for the conduct of an independent assessment of the force structure and roles and responsibilities of special operations forces.

The Senate bill contained no similar provision.
The Senate recedes with a technical amendment.

Army aviation strategic plan and modernization roadmap (sec. 1714)

The House amendment contained a provision (sec. 1068) that would require the Secretary of the Army to develop a comprehensive strategic plan for Army aviation and to provide a report to Congress containing the required comprehensive strategic plan and an analysis of sustainment and modernization decisions to meet such plan.

The Senate bill contained no similar provision.
The Senate recedes with a technical amendment.

Report on ground based long-range artillery to counter land and maritime threats (sec. 1715)

The House amendment contained a provision (sec. 1069) that would require the Secretary of Defense to provide a report to the Committees on Armed Services of the Senate and House of Representatives on the efforts of the Army and Marine Corps to develop and deploy ground-based long-range rocket and cannon artillery to counter land and maritime threats.

The Senate bill contained no similar provision.
The Senate recedes with a technical amendment.

Independent review of transportation working-capital fund (sec. 1716)

The House amendment contained a provision (sec. 1070) that would require the Secretary of Defense, in coordination with the Secretaries of the military departments, to contract with an independent federally funded research and development center to conduct a review of the Transportation Working Capital Fund of the U.S. Transportation Command.

The Senate bill contained no similar provision.
The Senate recedes.

Geographic command risk assessment of proposed use of certain aircraft capabilities (sec. 1717)

The House amendment contained a provision (sec. 1071) that would require selected commanders of geographic combatant commands to provide a report to the congressional defense committees not later than March 31, 2020, that assesses the level of operational risk posed by the plans of the Department

of the Air Force and the Department of the Navy to provide a mix of fifth generation and advanced fourth generation tactical aircraft capabilities to meet each commanders' contingency and steady-state operational requirements.

The Senate bill contained no similar provision.

The Senate recesses with a clarifying amendment.

Report on the backlog of personnel security clearance adjudications (sec. 1718)

The House amendment contained a provision (sec. 1076) that would require the Suitability Executive Agent to submit a report to Congress on the backlog of personnel security clearance adjudications.

The Senate bill contained no similar provision.

The Senate recesses with an amendment that would require the Security Executive Agent, in coordination with members of the Performance Accountability Council, to submit a report to Congress on the backlog of personnel security clearance adjudications conducted by all Government agencies that adjudicate decisions for security clearances.

Report regarding outstanding Government Accountability Office recommendations (sec. 1719)

The House amendment contained a provision (sec. 1080C) that would direct the Secretary of Defense to report to Congress on the priority recommendations of the Comptroller General of the United States regarding matters of the Department of Defense.

The Senate bill contained no similar provision.

The Senate recesses with an amendment that would require the Secretary of Defense to report on priority recommendations that have not yet been implemented due to funding limitations and the estimated costs associated with implementing such recommendations.

Report on National Guard and United States Northern Command capacity to meet homeland defense and security incidents (sec. 1720)

The Senate bill contained a provision (sec. 6010) that would require, not later than September 30, 2020, the Chief of the National Guard Bureau, in consultation with the Commander of United States Northern Command (NORTHCOM), to provide a report that assesses National Guard and NORTHCOM resources and readiness.

The House amendment contained an identical provision (sec. 520C).

The conference agreement includes this provision.

Assessment of standards, processes, procedures, and policy relating to civilian casualties (sec. 1721)

The House amendment contained a provision (sec. 1087) that would require the Secretary of Defense to enter into an agreement with a federally funded research and development center for conduct of an independent assessment of the sufficiency of Department of Defense standards, processes, procedures, and policy relating to civilian casualties resulting from United States military operations.

The Senate bill contained no similar provision.

The Senate recedes with a technical amendment.

When conducting the assessment required by this provision, the conferees encourage the selected federally funded research and development center to consider whether and how pre-strike Collateral Damage Estimates are factored in to post-strike analysis and investigations. The conferees also commend the Department for their ongoing efforts to engage and consider the views of non-governmental organizations on issues surrounding civilian casualties and potential methods to mitigate such events, and encourage this necessary engagement to continue as the results of this assessment are considered and incorporated into Department of Defense policy.

Report on transfers of equipment to prohibited entities (sec. 1722)

The House amendment contained a provision (sec.1061) that would amend chapter 16 of title 10, United States Code, to require an annual report on transfers of equipment to prohibited entities. The provision would also require the Secretary of Defense not later than March 1, 2020 to submit a report to specified congressional committees on the transfer of defense articles during the period beginning on January 1, 2015 and ending on the date of enactment of this Act.

The Senate bill contained no similar provision.

The Senate recedes with an amendment that would require not later than March 1, 2021 and each subsequent year through 2025, the Secretary of Defense, in coordination with the Secretary of State, to submit a report to specified congressional committees on transfers of equipment to prohibited entities.

Annual report on strikes undertaken by the United States against terrorist targets outside areas of active hostilities (sec. 1723)

The House amendment contained a provision (sec. 1072) that would require an annual report to congress not later than May 1 of each year on the number of strikes undertaken by the United States against terrorist targets outside areas of active hostilities during the preceding calendar year, as well as assessments of combatant and non-combatant deaths resulting from those strikes.

The Senate bill contained no similar provision.

The Senate recedes with an amendment that would require the Director of National Intelligence and the Secretary of Defense to jointly submit to congress an annual report not later than May 1, 2020 and for two years thereafter on the number of strikes undertaken by the United States against terrorist targets outside areas of active hostilities during the preceding calendar year, as well as assessments of combatant and non-combatant deaths resulting from those strikes.

Review and assessment of mitigation of military helicopter noise (sec. 1724)

The House amendment contained a provision (sec. 1096) that would require the Secretary of Defense to develop a noise inquiry website to assist in directing mitigation efforts.

The Senate bill contained no similar provision.

The Senate recedes with an amendment that would require the Secretary of Defense to conduct a study on the causes and effects of military helicopter noise on the National Capital Region.

SUBTITLE B—OTHER MATTERS

Technical, conforming, and clerical amendments (sec. 1731)

The House amendment contained a provision (sec. 1081) that would make a number of technical, conforming, and clerical amendments of a non-substantive nature to existing law.

The Senate bill contained no similar provision.

The Senate recedes with technical amendments.

Establishment of lead Inspector General for an overseas contingency operation based on Secretary of Defense notification (sec. 1732)

The Senate Bill contained a provision (sec. 6511) that would amend section 113 of title 10, United States Code, to require the Secretary of Defense to provide written notification to the Chair of the Council of Inspectors General on Integrity and Efficiency of the commencement or designation of a military operation as an overseas contingency operation, so as to facilitate the Chair's timely designation of a Lead Inspector General for that overseas contingency operation.

The House amendment contained no similar provision.

The House recesses.

Clarification of authority of Inspectors General for overseas contingency operations (sec. 1733)

The Senate bill contained a provision (sec. 6512) that would amend section 8L(d)(2) of the Inspector General Act of 1978 (5 U.S.C. App), to enhance cooperation among Inspectors General and encourage comprehensive oversight of any contingency operation. The provision provides that upon request by the Inspector General with principal jurisdiction over a matter with respect to a contingency operation, and with the approval of the lead Inspector General, an Inspector General specified in the Act may provide investigative support or conduct an independent investigation of any allegation of criminal activity by any United States person or agent in the applicable theater of operations.

In the case of a determination by the lead Inspector General that no Inspector General has principal jurisdiction over a matter with respect to a contingency operation, the lead Inspector General may conduct an independent investigation of such criminal allegations, or request that an Inspector General specified in the Act do so.

Finally, the provision clarifies that any Inspector General responsible for conducting oversight of any program or operation performed in support of a contingency operation may coordinate such activities with, and provide information requested by the lead Inspector General.

The House amendment contained no similar provision.

The House recesses.

Employment status of annuitants for Inspectors General for overseas contingency operations (sec. 1734)

The Senate bill contained a provision (sec. 6513) that would amend section 8L(d) of the Inspector General Act of 1978 (5 U.S.C. App.) to permit an annuitant receiving an annuity under the Foreign Service Retirement and Disability System or

the Foreign Service Pension System to continue to receive a foreign service annuity while reemployed by an Inspector General for an overseas contingency operation.

Further, the provision establishes that upon completion of 2 years of continuous service in the employ of a lead Inspector General for an overseas contingency operation, an employee acquires competitive status for appointment to any position in the competitive service for which he or she possesses the requisite qualifications. This enhanced appointment authority will sunset as to persons first employed by a lead Inspector General for an overseas contingency operation more than 2 years after the date of the enactment of this Act.

The House amendment contained no similar provision.

The House recedes.

Extension of National Security Commission on Artificial Intelligence (sec. 1735)

The Senate bill contained a provision (sec. 1042) that would delay the termination of the National Security Commission on Artificial Intelligence to March 1, 2021, and amend the due dates of the Commission's reports.

The House amendment contained a provision (sec. 1083) that would delay the termination of the National Security Commission on Artificial Intelligence to March 1, 2021, and amend the due date of the Commission's first report.

The House recedes with an amendment that would modify the termination date and add an authority to accept gifts.

The conferees are pleased that the National Security Commission on Artificial Intelligence has begun executing its critical mandate with resolve and purpose. The original intent of the conferees was to create a Commission with limited duration and minimal staffing and with status as an independent entity. The conferees acknowledge the President of the United States' signing statement of August 13, 2018, that the Commission will be treated as an independent entity, separate from the executive branch due to its legislative branch appointees and the necessity to uphold the separation of powers. The conferees direct the Secretary of Defense to provide appropriate resources to enable the Commission to process and support security classification and administrative related issues as well as comply with other legal requirements.

Exemption from calculation of monthly income, for purposes of bankruptcy laws, of certain payments from the Department of Veterans Affairs and the Department of Defense (sec. 1736)

The Senate bill contained a provision (sec. 6004) that would amend section 101(10A) of title 11, United States Code, by exempting payments provided by the Department of Veterans Affairs and the Department of Defense in connection with a disability, combat-related injury or disability, or death of a member of the uniformed services from being included in bankruptcy calculations.

The House amendment contained an identical provision (sec. 1099K).

The conference agreement includes this provision.

Extension of postage stamp for breast cancer research (sec. 1737)

The House amendment contained a provision (sec. 1085) that would amend section 414(h) of title 39, United States Code, by extending the postage stamp for breast cancer research to 2027.

The Senate bill contained no similar provision.

The Senate recesses.

National Commission on Military Aviation Safety (sec. 1738)

The Senate bill contained a provision (sec. 1085) that would extend the reporting date for the National Commission on Aviation Safety from March 1, 2020, until December 1, 2020. It would also authorize an additional \$3.0 million for the Commission to conduct its work.

The House amendment included a similar provision (sec. 1084) that would extend the reporting date and provide an additional authorization of \$3.0 million.

In addition, the House provision would require a report from the Secretary of Defense within 120 days after the Commission submits its report that would include: (1) an assessment of the findings and conclusions of the Commission; (2) the plan of the Secretaries for implementing the recommendations of the Commission; and (3) any other actions taken or planned by the Secretary of Defense or the Secretary of any of the military departments to improve military aviation safety.

The Senate recesses.

The conferees understand that the Commission is relying heavily on the services' safety centers for data, which is appropriate. However, the conferees also understand that the Commission may be intending to rely solely on the safety centers for analysis of that data. The conferees believe it is important for the Commission to conduct its own independent

analysis of the data in order to develop its own set of conclusions and recommendations.

Guarantee of residency for spouses of members of uniformed services (sec. 1739)

The Senate bill contained a provision (sec. 1083) that would amend title VI of the Servicemembers Civil Relief Act (50 U.S.C. 4021 et seq.) to allow a spouse of a servicemember to elect the same residence as the servicemember for any purpose regardless of the date on which the marriage occurred.

The House amendment contained no similar provision.

The House recedes with an amendment that would allow a spouse of a servicemember to elect the same residence as the servicemember for any purpose, to include the registration of a business, regardless of the date on which the marriage occurred.

Electromagnetic pulses and geomagnetic disturbances (sec. 1740)

The Senate bill contained a provision (sec. 6006) that would make a series of modifications to section 320 of the Homeland Security Act of 2002 (6 U.S.C. 195f), to improve preparedness for and resilience to the effects of electromagnetic pulses and geomagnetic disturbances. The provision would also require the Secretary of Homeland Security, in coordination with other relevant agency officials, to submit several reports to the appropriate congressional committees.

The House amendment contained no similar provision.

The House recedes with a series of technical and clarifying amendments.

Improvements to Manufacturing USA Program (sec. 1741)

The Senate bill contained a provision (sec. 6008) that would amend section 34 of the National Institute of Standards and Technology Act (15 U.S.C. 278s) to provide various improvements in the Manufacturing USA program, including eliminating funding limits for high performing institutes, adding new networks in innovate sectors such as advanced sensors, increasing interagency collaboration, and facilitating the development of standards-based certifications.

The House amendment contained no similar provision.

The House recedes with a clarifying amendment.

The conferees note the importance of the Hollings Manufacturing Extension Partnership Program in providing education, guidance, and technical assistance to strengthen the cybersecurity of small- and medium-sized manufacturers that

provide goods or services in the supply chain for the Department of Defense and encourage the Secretary of Defense to continue work with this program to strengthen the industrial base.

Regional innovation program (sec. 1742)

The Senate bill contained a provision (sec. 6009) that would amend section 3722 of title 15, United States Code, to revise the regional innovation program, including replacing regional innovation clusters with regional innovation initiatives and authorizing the Secretary of Commerce to use up to \$50.0 million of appropriated funds to carry out the program in each of the fiscal years 2020 through 2024.

The House amendment contained no similar provision.

The House recedes with clarifying amendments.

Aviation workforce development (sec. 1743)

The Senate bill contained a provision (sec. 6019) that would amend Section 625(c)(1) of the FAA Reauthorization Act of 2018 (P.L. 115-254).

The House amendment contained no similar provision.

The House recedes.

Oversight of Department of Defense execute orders (sec. 1744)

The Senate bill contained a provision (sec. 1033) that would require the Secretary of Defense, except in extraordinary circumstances, to provide the congressional defense committees with an execute order approved by the Secretary of Defense or a combatant commander for review within 30 days of receiving a written request from the Chairman or Ranking Member of any such committee.

The House amendment contained a provision (sec. 1082) that would add a new section in chapter 2 of title 10, United States Code, requiring the Secretary of Defense to provide to the Chairman and Ranking Member of each of the congressional defense committees, and their designated staff with the appropriate security clearance, copies of each execute order issued by the Secretary or by a commander of a combatant command before the date of the enactment of this Act, and within 30 days of issuing an execute order after the date of the enactment of this Act.

The House recedes with an amendment that would require the Secretary of Defense, except in extraordinary circumstances, to provide to the congressional defense committees an execute order that has been approved by the Secretary of Defense or a combatant commander for review and a detailed briefing on the

requested execute order within 30 days of receiving written request from the Chairman or Ranking Member of any such committee. The provision would also require that, not later than 30 days after the date on which the budget of the President is submitted to Congress under section 1105(a) of title 31, United States Code, and every 90 days thereafter, the Secretary of Defense submit to the congressional defense committees a comprehensive report identifying and summarizing all execute orders approved by the Secretary or the commander of a combatant command in effect for the Department of Defense as of the date of the report.

Processes and procedures for notifications regarding special operations forces (sec. 1745)

The House amendment contained a provision (sec. 1086) that would mandate the Secretary of Defense establish and submit processes and procedures for providing notifications to the congressional defense committees regarding members of special operations forces. This section would also mandate that the processes and procedures include clarification of the roles and responsibilities of the Secretaries of the military departments, the Assistance Secretary of Defense for Special Operations and Low Intensity Conflict, and the Commander of U.S. Special Operations Command in providing such notifications to Congress.

The Senate bill contained no similar provision.

The Senate recedes.

Securing American science and technology (sec. 1746)

The House amendment contained a provision (sec. 1089) that would establish an interagency working group to coordinate activities for the protection of federally funded research and development from foreign interference while accounting for an exchange of ideas and for the international talent required for scientific progress and American leadership in science.

The Senate bill contained no similar provision.

The Senate recedes with an amendment that would: (1) Modify the membership of the working group; (2) Modify the responsibilities of the working group; (3) Require the Director of the Office of Science and Technology Policy to develop and issue policy guidance; and (4) Establish a roundtable sunset.

Standardized policy guidance for calculating aircraft operation and sustainment costs (sec. 1747)

The House amendment contained a provision (sec. 1090) that would require the Under Secretary of Defense for Acquisition and Sustainment to develop and implement standardized policy guidance for calculating aircraft operation and sustainment costs for the Department of Defense.

The Senate bill contained no similar provision.

The Senate recedes with an amendment that would require the standardized policy guidance to include a calculation of the average annual operational and sustainment cost per aircraft and other cost metrics as considered appropriate by the Under Secretary.

Special Federal Aviation Regulation Working Group (sec. 1748)

The House amendment contained a provision (sec. 1091) that would require the Secretary of Defense, the Secretary of Transportation, and the Secretary of State to establish a Special Federal Aviation Regulation interagency working group to review the current options for the Department of Defense to use contracted U.S. civil aviation to provide support for Department of Defense missions in areas where a Federal Aviation Administration Special Federal Aviation Regulation is in effect.

The Senate bill contained no similar provision.

The Senate recedes.

Prohibition on names related to the Confederacy (sec. 1749)

The House amendment contained a provision (sec. 1092) that would prohibit the Secretary of Defense from naming any asset that refers to, or include a term referring to, the Confederate States of America.

The Senate bill contained no similar provision.

The Senate recedes with an amendment that would explicitly state that nothing in this provision may be construed as requiring the Secretary concerned to initiate a review of previously named assets.

Support for National Maritime Heritage Grants program (sec. 1750)

The House amendment contained a provision (sec. 1099F) that would allow the Secretary of Defense to contribute up to \$5.0 million to provide support for the National Maritime Heritage Grants program under section 308703 of title 54, United States Code.

The Senate bill contained no similar provision.

The Senate recesses.

Support for world language advancement and readiness (sec. 1751)

The House amendment contained a provision (sec. 1099N) that would authorize the Secretary of Defense to make grants to eligible entities to carry out innovative model programs providing for the establishment, improvement, or expansion of world language study for elementary school and secondary schools.

The Senate bill contained no similar provision.

The Senate recesses with an amendment that would authorize the Secretary of Defense to provide support to eligible entities for the establishment, improvement, or expansion of world language study for elementary school and secondary school students.

Designation of Department of Defense strategic Arctic ports (sec. 1752)

The Senate bill contained a provision (sec. 1041) that would require the Secretary of Defense, in consultation with the Chairman of the Joint Chiefs of Staff, the Commanding General of the United States Army Corps of Engineers, the Commandant of the Coast Guard, and the Administrator of the Maritime Administration, to submit a report to the congressional defense committees evaluating potential sites for one or more strategic ports in the Arctic region. The provision would also require the Secretary of Defense to designate one or more ports as Department of Defense Strategic Arctic Ports not later than 90 days after the submission of the report.

The House amendment contained a similar provision (sec. 1099T) that would require the same report outlined in the Senate bill, and based on that report the Secretary of Defense may designate one or more ports as Department of Defense Strategic Arctic Ports not later than 90 days after the submission of the report.

The Senate recesses.

Independent studies regarding potential cost savings with respect to the nuclear security enterprise and force structure (sec. 1753)

The House amendment contained a provision (sec. 1099Y) that would require the Comptroller General of the United States to conduct a report with cost analyses on options for reducing the nuclear security enterprise, options for reductions in

services contracts, options for rebalancing force structure and the force mix between active and reserve components, options for reducing or realigning overseas military presence, options for the use of pre-award audits, and options for replacing military personnel with civilian employees.

The Senate bill contained no similar provision.

The Senate recedes with an amendment that would require the Secretary of Defense enter into contracts with two federally funded research centers to conduct independent reviews of alternative defense postures that achieve U.S national security objectives and could produce cost savings. These reviews will examine alternative nuclear deterrence postures with increased and decreased force posture levels, changes to conventional force structure and posture, alterations to the mix of military and civilian workforces, and options for reducing services contracts. The amendment also requires a briefing by the Comptroller General of the United States on open recommendations for cost savings at the Department of Defense.

Comprehensive Department of Defense policy on collective self-defense (sec. 1754)

The Senate bill contained a provision (sec. 1032) that would require the Secretary of Defense to prescribe a comprehensive written policy for the Department of Defense on the issuance of authorization of, and the provision by members and units of the United States Armed Forces of, collective self-defense to designated foreign nationals, their facilities, and their property.

The House amendment contained no similar provision.

The House recedes.

Policy regarding the transition of data and applications to the cloud (sec. 1755)

The Senate bill contained a provision (sec. 1035) that would require the Chief Information and Chief Data Officers of the Department of Defense to develop and implement a policy relating to the transition of data and applications to the cloud under the Department's cloud strategy.

The House amendment contained no similar provision.

The House recedes.

Integrated public alert and warning system (sec. 1756)

The Senate bill contained a provision (sec. 6012) that would require the Administrator of the Federal Emergency

Management Agency to develop minimum requirements for State, Tribal, and local governments to participate in the public alert and warning system.

The House amendment contained no similar provision.

The House recesses with an amendment to clarify the definition of "appropriate congressional committees" and to include a false alert reporting requirement.

Improving quality of information in background investigation request packages (sec. 1757)

The Senate bill contained a provision (sec.6014) that would require, not later than 180 days after the date of the enactment of this Act, the Director of the Defense Counterintelligence and Security Agency, in consultation with the Security, Suitability, and Credentialing Performance Accountability Council, submit a report on metrics and best practices in the background investigation process. The provision would also require, not later than 270 days after the date of the enactment of this Act, and annually thereafter, the Security, Suitability, and Credentialing Performance Accountability Council to report on performance against the metrics and return rates identified in the provision. The provision would also require the subsequent identification of agencies in need of improvement and plans to improve performance.

The House amendment contained no similar provision.

The House recesses.

Parole in place for members of the Armed Forces and certain military dependents (sec. 1758)

The House amendment contained a provision (sec. 1099C) that would establish the eligibility of a non-citizen member of the Armed Forces, as well as that servicemember's spouse, widow, widower, parent, son, or daughter, for "parole in place" under section 212(d)(5) of the Immigration and Nationality Act. Further, the provision would express the sense of Congress as to the value of family unity in promoting the readiness and mission accomplishment in the Armed Forces, and reaffirm the parole in place authority of the Secretary of Homeland Security.

The Senate bill contained no similar provision.

The Senate recesses with an amendment that would require the Secretary of Homeland Security to consider, on a case-by-case basis, whether granting the request of a member of the Armed Forces for parole in place would enable military family unity that would constitute a significant public benefit. The

Secretary of Homeland Security would apply like consideration to parole in place requests from the spouse, son, daughter, or parent of a member of the Armed Forces, and from the widow, son, daughter, or parent of a member of the Armed Forces who is deceased. Further, the amendment sets forth the sense of Congress that: (1) parole in place reinforces the objective of military family unity; (2) except as required in furtherance of the missions of the Armed Forces, disruption to military family unity should be minimized in order to enhance military readiness; and (3) the importance of the parole in place authority of the Secretary of Homeland Security is reaffirmed.

Report on reducing the backlog in legally required historical declassification obligations of the Department of Defense (sec. 1759)

The House amendment contained a provision (sec. 1098) that would require that not later than 120 days after the date of the enactment of this Act, the Secretary of Defense, the Secretary of State, and the Director of the Central Intelligence Agency each shall submit to the appropriate congressional committees, a report detailing progress made by the Secretary or the Director, as the case may be, toward reducing the backlog in legally required historical declassification obligations.

The Senate bill contained no similar provision.

The Senate recedes with an amendment that would scope the requirement such that only the Secretary of Defense need submit a report, and that the Secretary's report would be submitted only to the Committees on Armed Services of the Senate and the House of Representatives.

Military type certification for light attack experimentation aircraft (sec. 1760)

The House amendment contained a provision (sec. 1095) that would require the Secretary of the Air Force to make available and conduct military type certifications for light attack aircraft participating in the experiment as needed.

The Senate bill contained a similar provision (sec. 146) that would require the Secretary of the Air Force to conduct a Military Type Certification for AT-6 and A-29 Light Attack Experimentation Aircraft.

The Senate recedes.

LEGISLATIVE PROVISIONS NOT ADOPTED

Short title

The House amendment contained provisions (sec. 1051) that would establish that this subtitle may be cited as "the National Defense Strategy Implementation Act."

The Senate bill contained no similar provision.

The House recesses.

Definitions

The House amendment contained a provision (sec. 1054) that would define the terms "operational challenges" and "strategic competitors" for the purposes of this subtitle.

The Senate bill contained no similar provision.

The House recesses.

No Force and Effect

The Senate bill contained two provisions (secs. 5546 and 5585) that would provide respectively that: (1) Part III of subtitle D of title V of the bill, and the amendments made by that part, would have no force and effect; and (2) Section 585 of the bill would have no force and effect.

The House amendment contained no similar provisions.

The Senate recesses.

DIVISION B—MILITARY CONSTRUCTION AUTHORIZATIONS

Summary and explanation of funding tables

Division B of this Act authorizes funding for military construction projects of the Department of Defense. It includes funding authorizations for the construction and operation of military family housing as well as military construction for the reserve components, the defense agencies, and the North Atlantic Treaty Organization Security Investment Program. It also provides authorization for the base closure accounts that fund military construction, environmental cleanup, and other activities required to implement the decisions in base closure rounds. The tables contained in this Act provide the project-level authorizations for the military construction funding authorized in Division B of this Act and summarize that funding by account.

The conferees continue to believe in the value and appropriateness of providing a full authorization but incremental authorization of appropriations for certain military construction projects. The conferees believe incremental funding of large and complex military construction projects enables the Department to execute additional infrastructure projects in a fiscal year, enables continuous congressional oversight, and provides opportunities to adjust the authorization of appropriations level for projects should issues arise or requirements change over the course of construction. In instances where the conference agreement provides full authorization but incremental authorization of appropriations for certain military construction projects, the committee expects the Department to award these projects in the year of authorization and not defer award until the full appropriation amount is received.

Short title (sec. 2001)

The Senate bill contained a provision (sec. 2001) that would designate division B of this Act as the ``Military Construction Authorization Act for Fiscal Year 2020.``

The House amendment contained an identical provision (sec. 2001).

The conference agreement includes this provision.

Expiration of authorizations and amounts required to be specified by law (sec. 2002)

The Senate bill contained a provision (sec. 2002) that would establish the expiration date for authorizations in this Act for military construction projects, land acquisition, family housing projects, and contributions to the North Atlantic Treaty Organization Security Investment Program as of October 1, 2024, or the date of the enactment of an act authorizing funds for military construction for fiscal year 2025, whichever is later.

The House amendment contained a similar provision (sec. 2002).

The House recedes.

Effective date (sec. 2003)

The Senate bill contained a provision (sec. 2003) that would provide an effective date for titles XXI through XXVII and title XXIX of October 1, 2019, or the date of the enactment of this Act, whichever is later.

The House amendment contained a similar provision (sec. 2003).

The House recesses.

TITLE XXI—ARMY MILITARY CONSTRUCTION

Summary

The budget request included \$1,453,499,000 for Army military construction and \$499,279,000 for family housing for fiscal year 2020. The conference agreement includes authorization of appropriations of \$1,270,999,000 for military construction and \$604,012,000 for family housing for the Army in fiscal year 2020.

The agreement includes authorization and authorization of appropriations for 3 military construction projects that were not included in the budget request but submitted to the congressional defense committees as part of the Army's unfunded requirements list. These projects include: \$40.0 million for an Air Traffic Control Tower and Terminal at Kwajalein Atoll; \$21.0 million for a Railhead at Fort Drum, New York; and \$18.5 million for a Vehicle Bridge at Fort Hood, Texas.

The agreement also includes authorization and authorization of appropriations of \$27.0 million for the Secretary of the Army to carry out Child Development Center projects, with prior notification to the congressional defense committees. The conferees recommend the Secretary use this authority to alleviate issues with the condition and capacity of Child Development Centers in support of military families.

The agreement provides for full authorization and incremental authorization of appropriations in an amount equal to the Department's ability to execute in the year of the authorization of appropriations for the following projects: Cyber Instruction Facility (Admin/Command) at Fort Gordon, Georgia; and the General Instruction Building at Carlisle Barracks, Pennsylvania.

The agreement provides an additional \$5,000,000 for Family Housing, Construction Army Planning and Design for the housing pilot program mandated in this Act.

Finally, the conferees note that the budget request included \$211.0 million in Army military construction as a placeholder to support the Army, Navy, Marine Corps, and Air Force response to the challenges facing the management and oversight of Military Housing Privatization Initiative developments. The conferees support additional resources to hire additional civilian personnel at the headquarters and installation level to improve the management and oversight of

MHPI developments. The conferees also support applying additional resources towards improved maintenance of government-owned and operated housing units. However, the conferees believe these resources should be directed to the appropriate military departments' family housing accounts. Therefore, the agreement recommends a reduction of \$211.0 million from the placeholder, but an increase of \$54.7 million for Army Family Housing Maintenance and \$45.0 million for Army Housing Privatization Support.

Authorized Army construction and land acquisition projects (sec. 2101)

The Senate bill contained a provision (sec. 2101) that would authorize military construction projects for the active component of the Army for fiscal year 2020. The authorized amount is listed on an installation-by-installation basis.

The House amendment contained a similar provision (sec. 2101) that would also require the Secretary of Defense to provide a study of near-term facility alternatives to house high value detainees current detained at Naval Station Guantanamo Bay, Cuba.

The Senate recesses with a technical amendment.

Family housing (sec. 2102)

The Senate bill contained a provision (sec. 2102) that would authorize new construction, planning, and design of family housing units for the Army for fiscal year 2020. This provision would also authorize funds for facilities that support family housing, including housing management offices, housing maintenance, and storage facilities.

The House amendment contained a similar provision (sec. 2102).

The Senate recesses.

Authorization of appropriations, Army (sec. 2103)

The Senate bill contained a provision (sec. 2103) that would authorize appropriations for the active component military construction and family housing projects of the Army authorized for construction for fiscal year 2020. This provision would also provide an overall limit on the amount authorized for military construction and family housing projects for the active component of the Army. The state list contained in this report

is the binding list of the specific projects authorized at each location.

The House amendment contained an identical provision (sec. 2103).

The conference agreement includes this provision.

Modification of authority to carry out certain fiscal year 2019 projects (sec. 2104)

The Senate bill contained a provision (sec. 2104) that would modify the authorization contained in section 2101(a) of the Military Construction Authorization Act for Fiscal Year 2019 (division B of Public Law 115-232) for the construction of a weapon maintenance shop at Anniston Army Depot, Alabama.

The House bill contained a similar provision (sec. 2104).

The Senate recedes.

TITLE XXII—NAVY MILITARY CONSTRUCTION

Summary

The budget request included \$2,805,743,000 for Navy and Marine Corps military construction and \$365,531,000 for family housing for fiscal year 2020. The conference agreement includes authorization of appropriations of \$2,774,961,000 for military construction and \$479,864,000 for family housing for the Navy and Marine Corps in fiscal year 2020.

The agreement includes authorization and authorization of appropriations for 13 military construction projects that were not included in the budget request but submitted to the congressional defense committees as part of the United States Indo-Pacific Command, Navy, and Marine Corps' unfunded requirements list. These projects include: \$99.6 million for a Bachelor Enlisted Quarters at Yuma, Arizona; \$79.0 million for an Aircraft Paint Complex at Coronado, California; \$74.6 million for a Machinery Control Development Center at Philadelphia, Pennsylvania; \$60.0 million for a MH-60 & CMV-22B Corrosion Control and Paint Facility at Norfolk, Virginia; \$59.0 million for NMC Ordnance Facilities Recapitalization, Phase 1 at Yorktown, Virginia; \$50.0 million for the first increment of an Aircraft Parking Apron at Darwin, Australia; \$48.0 million for the Seawolf Service Pier Cost-to-Complete at Kitsap, Washington; \$37.4 million for a Child Development Center at Miramar, California; \$37.2 million for Range Improvements & Modernization Phase 3 at Parris Island, South Carolina; \$28.0 million for a Missile Magazine at Seal Beach, California; \$18.7 million for a Police Station and EOC Facility at Blount Island, Florida; \$15.0

million for an Air Traffic Control Tower at Saint Inigoes, Maryland; and \$9.9 million for a PMO Facility Repair at San Diego, California.

The agreement provides for full authorization and incremental authorization of appropriations in an amount equal to the Department's ability to execute in the year of the authorization of appropriations for the following projects: I MEF Consolidated Information Center at Camp Pendleton, California; Ammunition Pier at Seal Beach, California; Master Time Clocks & Operations Facility at the Naval Observatory in the District of Columbia; Bachelor Enlisted Quarters at Joint Region Marianas, Guam; Bachelor Enlisted Quarters at Kaneohe Bay, Hawaii; Pier 5 (Berths 2 and 3) at Yokosuka, Japan; II MEF Operations Center Replacement at Camp Lejeune, North Carolina; and Wargaming Center at Quantico, Virginia.

The agreement also includes authorization and authorization of appropriations of \$62.4 million for the Secretary of the Navy to carry out Child Development Center projects at Navy and Marine Corps installations, with prior notification to the congressional defense committees. The conferees recommend the Secretary use this authority to alleviate issues with the condition and capacity of Child Development Centers in support of military families.

The agreement includes an increase of \$54.7 million for Navy and Marine Corps Family Housing Maintenance and \$59.6 million for Navy and Marine Corps Housing Privatization Support. The conferees support using these additional resources to hire additional civilian personnel at the headquarters and installation level to improve the management and oversight of MHPI developments towards improved maintenance of government-owned and operated housing units.

Finally, the agreement transfers the following two military construction projects from the base budget request to Title XXIX, Overseas Contingency Operations Military Construction: \$53.3 million for Electrical System Upgrades in Bahrain and \$77.4 million for a Communication Station at Sigonella, Italy.

Authorized Navy construction and land acquisition projects (sec. 2201)

The Senate bill contained a provision (sec. 2201) that would authorize Navy and Marine Corps military construction projects for fiscal year 2020. The authorized amounts are listed on an installation-by-installation basis.

The House amendment contained a similar provision (sec. 2201).

The Senate recesses with a technical amendment.

Family housing (sec. 2202)

The Senate bill contained a provision (sec. 2202) that would authorize new construction, planning, and design of family housing units for the Navy for fiscal year 2020. This provision would also authorize funds for facilities that support family housing, including housing management offices, housing maintenance, and storage facilities.

The House amendment contained an identical provision (sec. 2202).

The conference agreement includes this provision.

Improvements to military family housing units (sec. 2203)

The Senate bill contained a provision (sec. 2203) that would authorize the Secretary of the Navy to improve existing family housing units of the Department of the Navy in an amount not to exceed \$41.8 million.

The House amendment contained a similar provision (sec. 2203).

The Senate recesses.

Authorization of appropriations, Navy (sec. 2204)

The Senate bill contained a provision (sec. 2204) that would authorize appropriations for the active component military construction and family housing projects of the Department of the Navy authorized for construction for fiscal year 2020. This provision would also provide an overall limit on the amount authorized for military construction and family housing projects for the active components of the Navy and the Marine Corps. The state list contained in this report is the binding list of the specific projects authorized at each location.

The House amendment contained an identical provision (sec. 2204).

The conference agreement includes this provision.

Modification of authority to carry out certain fiscal year 2017 project (sec. 2205)

The House amendment contained a provision (sec. 2205) that would modify the authority provided by section 2201 of the Military Construction Authorization Act for Fiscal Year 2017 (division B of Public Law 114-328) and authorize the Secretary

of the Navy to make certain modifications to the authorized cost of a previously authorized construction project.

The Senate bill contained no similar provision.

The Senate recesses.

TITLE XXIII—AIR FORCE MILITARY CONSTRUCTION

Summary

The budget request included \$2,179,230,000 for Air Force military construction and \$398,647,000 for family housing for fiscal year 2020. The conference agreement includes authorization of appropriations of \$1723,579,000 for military construction and \$484,580,000 for family housing for the Air Force in fiscal year 2020.

The agreement includes authorization and authorization of appropriations for 10 military construction projects that were not included in the budget request but submitted to the congressional defense committees as part of the Air Force's unfunded requirements list. These projects include: \$7.0 million for Dormitory Cost-to-Complete at Little Rock Air Force Base, Arkansas; \$17.0 million for ADAL Aerial Port Squadron Materiel Warehouse at Travis Air Force Base, California; \$49.0 for Consolidate Cadet Prep School Dormitory at the United States Air Force Academy, Colorado; \$54.0 million for SOCNORTH Theater Operational Support Facility at Peterson Air Force Base, Colorado; \$12.5 million for 41 RQS HH-60W Apron at Moody Air Force Base, Georgia; \$27.0 million for Consolidated Vehicle Ops and MX Facility at Whiteman Air Force Base, Missouri; \$20.0 million for NC3 Support WRM Storage/Shipping Facility at Holloman Air Force Base, New Mexico; \$3.1 million for F-35 Munitions Maintenance Facilities Cost-to-Complete at Nellis Air Force Base, Nevada; \$36.0 million for AFPC B-Wing at Joint Base San Antonio, Texas; and \$4.8 million for SERE Pipeline Dormitory Cost-to-Complete at Fairchild Air Force Base, Washington.

The agreement provides for full authorization and incremental authorization of appropriations in an amount equal to the Department's ability to execute in the year of the authorization of appropriations for the following projects: Consolidated Space Operations Facility at Schriever Air Force Base, Colorado; MIT-Lincoln Lab (West Lab CSL/MIF) Increment 2 at Hanscom Air Force Base, Massachusetts; Fuel Tanks w/ Pipeline/Hydrant System at Tinian, Commonwealth of the Northern Mariana Islands; Airfield Development Phase 1 at Tinian, Commonwealth of the Northern Mariana Islands; Parking Apron at Tinian, Commonwealth of the Northern Mariana Islands; Weapons Storage and Maintenance Facility at Malmstrom Air Force Base,

Montana; and GBSD Mission Integration Facility at Hill Air Force Base, Utah.

The agreement also includes authorization and authorization of appropriations of \$31.5 million for the Secretary of the Air Force to carry out Child Development Center projects at Air Force installations, with prior notification to the congressional defense committees. The conferees recommend the Secretary use this authority to alleviate issues with the condition and capacity of Child Development Centers in support of military families.

The agreement includes an increase of \$54.7 million for Air Force Family Housing Maintenance and \$31.2 million for Air Force Housing Privatization Support. The conferees support using these additional resources to hire additional civilian personnel at the headquarters and installation level to improve the management and oversight of MHPI developments towards improved maintenance of government-owned and operated housing units.

Finally, the agreement transfers the following two military construction projects from the base budget request to Title XXIX, Overseas Contingency Operations Military Construction: \$42.0 million Munitions Storage Area at Azraq, Jordan and \$24.0 million for an Air Traffic Control Tower at Azraq, Jordan.

Authorized Air Force construction and land acquisition projects (sec. 2301)

The Senate bill contained a provision (sec. 2301) would authorize Air Force military construction projects for fiscal year 2020. The authorized amounts are listed on an installation-by-installation basis.

The House amendment contained a similar provision (sec. 2301).

The Senate recedes with a technical amendment.

Family housing (sec. 2302)

The Senate bill contained a provision (sec. 2302) that would authorize new construction, planning, and design of family housing units for the Air Force for fiscal year 2020. The provision would also authorize funds for facilities that support family housing, including housing management offices, housing maintenance, and storage facilities.

The House amendment contained a similar provision (sec. 2302).

The House recedes.

Improvements to military family housing units (sec. 2303)

The Senate bill contained a provision (sec. 2303) that would authorize the Secretary of the Air Force to improve existing family housing units of the Department of the Air Force in an amount not to exceed \$53.6 million.

The House amendment contained an identical provision (sec. 2303).

The conference agreement includes this provision.

Authorization of appropriations, Air Force (sec. 2304)

The Senate bill contained a provision (sec. 2304) that would authorize appropriations for the active component military construction and family housing projects of the Air Force authorized for construction for fiscal year 2020. This provision would also provide an overall limit on the amount authorized for military construction and family housing projects for the active component of the Air Force. The state list contained in this report is the binding list of the specific projects authorized at each location.

The House amendment contained an identical provision (sec. 2304).

The conference agreement includes this provision.

Modification of authorities to carry out phased Joint Intelligence Analysis Complex consolidation (sec. 2305)

The Senate bill contained a provision (sec. 2305) that would modify the authorization contained in section 2301(b) of the Military Construction Authorization Act for Fiscal Year 2015 (division B of Public Law 113-291; 128 Stat. 3679) for Royal Air Force Croughton, for Joint Intelligence Analysis Complex Consolidation Phase 1, to change the location to Royal Air Force Molesworth, United Kingdom.

The House amendment contained a similar provision (sec. 2305).

The Senate recedes.

Modification of authority to carry out certain fiscal year 2016 project (sec. 2306)

The Senate bill contained a provision (sec. 2306) that would modify the authorization contained in section 2301(b) of the Military Construction Authorization Act for Fiscal Year 2016 (division B of Public Law 114-92; 129 Stat. 1153) for Joint Intelligence Analysis Complex Consolidation Phase 2 at an

unspecified location in the United Kingdom, as modified by section 2305 of the Military Construction Authorization Act for Fiscal Year 2019 (division B of Public Law 115-232).

The House amendment contained a similar provision (sec. 2306).

The Senate recesses.

Modification of authority to carry out certain fiscal year 2017 project (sec. 2307)

The Senate bill contained a provision (sec. 2307) that would modify the authorization contained in section 2301(b) of the Military Construction Authorization Act for Fiscal Year 2017 (division B of Public Law 114-328; 130 Stat. 2697) for Joint Intelligence Analysis Complex Consolidation Phase 3 at an unspecified location in the United Kingdom, as modified by section 2305 of the Military Construction Authorization Act for Fiscal Year 2019 (division B of Public Law 115-32).

The House amendment contained a similar provision (sec. 2307).

The Senate recesses.

Modification of authority to carry out certain fiscal year 2018 projects (sec. 2308)

The Senate bill contained a provision (sec. 2308) that would modify the authority contained in section 2301(a) of the Military Construction Authorization Act for Fiscal Year 2018 (division B of Public Law 115-91; 131 Stat. 1826) for the construction of a dining and classroom facility at Joint Base San Antonio, Texas, and for the construction of an air traffic control tower. Additionally this provision would modify the authorization contained in section 2903 of the Military Construction Authorization Act for Fiscal Year 2018 (division B of Public Law 115-91; 131 Stat. 1876) for repairing and expanding a quick reaction alert pad at Rygge, Norway.

The House amendment contained a similar provision (sec. 2308).

The Senate recesses with a technical amendment.

Modification of authority to carry out certain fiscal year 2019 projects (sec. 2309)

The Senate bill contained a provision (sec. 2309) that would modify the authorization contained in section 2301(a) of the Military Construction Authorization Act for Fiscal Year 2019 (division B of Public Law 115-232) for the construction of a

semiconductor or microelectronics lab facility at Hanscom Air Force Base, Massachusetts. This provision would also modify the authorization contained in section 2301(b) of the Military Construction Authorization Act for Fiscal Year 2019 (division B of Public Law 115-232) for the construction of an F-35 dormitory at Royal Air Force Lakenheath, United Kingdom.

The House amendment contained a similar provision (sec. 2309).

The Senate recesses.

TITLE XXIV—DEFENSE AGENCIES MILITARY CONSTRUCTION

Summary

The budget request included \$2,504,190,000 for military construction and \$60,545,000 for family housing for defense agencies for fiscal year 2020. The conference agreement includes authorization of appropriations of \$2,202,910,000 for military construction and \$60,545,000 for family housing for defense agencies in fiscal year 2020.

The agreement includes authorization and authorization of appropriations for 12 Energy Resiliency Conservation Investment Program (ERCIP) projects that were not included in the budget request but submitted to the congressional defense committees as part of the Department's unfunded requirements list. These projects include: \$8.9 million for an Energy Storage System at Naval Air Weapons Station China Lake, California; \$9.7 million to Install Microgrid Controller, 75 kw PV and 750 Kwh Battery at Mountain View, California; \$10.5 million for a Cogeneration Plant B236 at Monterey, California; \$16.9 million for Smart Grid and ICS Infrastructure at Naval Base Guam, Guam; \$4.0 million to Install 500kw Covered Parking PV System & Electric Vehicle Charging Stations B479 at Joint Base Pearl Harbor-Hickam, Hawaii; \$13.8 million for Chiller 3-9 Replacement at Bethesda, Maryland; \$18.4 million for IH Water Project - CBIRF/IHEODTD/Housing at South Potomac, Maryland; \$5.8 million to Install Microgrid, 700kw PV, 150 Kw Generator, and Batteries at White Sands Missile Range, New Mexico; \$4.5 million to Install Microgrid, 650Kw PV, & 500 Kw Generator at Camp Swift, Texas; \$16.5 million to Install a Central Energy Plant at Fort Hood, Texas; \$66,000 for Integration Systems Upgrades at NRO Headquarters, Virginia; and \$23.6 million for Keyport Main Substation Replacement at Naval Base Kitsap, Washington.

The agreement includes authorization and authorization of appropriations for the following project that was not included

in the budget request but submitted to the congressional defense committees as part of the Department's unfunded requirements list: \$66.8 million for Landstuhl Elementary School at Ramstein, Germany.

The agreement includes an authorization of appropriations for \$30.0 million for Planning and Design: Military Installations Resiliency at unspecified worldwide locations. As noted elsewhere in this report, the conferees believe it is critical for the Department of Defense to appropriately account for the impacts of extreme weather and natural disasters, energy resiliency, a cyber-security threats when planning and designing infrastructure investments at military installations. Therefore, the conferees expect the Department to utilize this authorization of appropriations to conduct appropriate planning when developing resilient infrastructure masterplans and military construction projects.

The agreement provides for full authorization and incremental authorization of appropriations in an amount equal to the Department's ability to execute in the year of the authorization of appropriations for the following projects: Kinnick High School, Increment 2 at Yokosuka, Japan; Bulk Storage Tanks Phase 1 at Yokota Air Base, Japan; MEDCEN Addition/Alteration Increment 3 at Bethesda Naval Hospital, Maryland; Next NGA West (N2W) Complex, Phase 2, Increment 2 at St. Louis, Missouri; and Operations Center Phase 2, Defense Distribution Depot Richmond, Virginia.

Authorized Defense Agencies construction and land acquisition projects (sec. 2401)

The Senate bill contained a provision (sec. 2401) would authorize military construction projects for the Defense Agencies for fiscal year 2020. The authorized amounts are listed on an installation-by-installation basis.

The House amendment contained a similar provision (sec. 2401).

The Senate recedes with a technical amendment.

Authorized Energy Resilience and Conservation Investment Program projects (sec. 2402)

The Senate bill contained a provision (sec. 2402) that would authorize the Secretary of Defense to carry out energy conservation projects. The authorized amounts are listed on an installation-by-installation basis.

The House amendment contained a similar provision (sec. 2402).

The House recedes with a technical amendment.

Authorization of appropriations, Defense Agencies (sec. 2403)

The Senate bill contained a provision (sec. 2403) that would authorize appropriations for the military construction and family housing projects of the Defense Agencies authorized for construction for fiscal year 2020. This provision would also provide an overall limit on the amount authorized for military construction and family housing projects for the Defense Agencies. The state list contained in this report is the binding list of the specific projects authorized at each location.

The House amendment contained an identical provision (sec. 2403).

The conference agreement includes this provision.

TITLE XXV—INTERNATIONAL PROGRAMS

**SUBTITLE A—NORTH ATLANTIC TREATY
ORGANIZATION SECURITY INVESTMENT PROGRAM**

Summary

The budget request included \$144,040,000 for military construction in fiscal year 2020 for the North Atlantic Treaty Organization Security Investment Program. In addition, pursuant to agreement with the Republic of Korea, the budget request included a list of military construction projects to be funded as in-kind contributions by the Republic of Korea.

The conference agreement includes this amount for the North Atlantic Treaty Organization Security Investment Program projects and the authorization to accept the military construction projects funded by the Republic of Korea.

Authorized NATO construction and land acquisition projects (sec. 2501)

The Senate bill contained a provision (sec. 2501) that would authorize the Secretary of Defense to make contributions to the North Atlantic Treaty Organization Security Investment Program in an amount equal to the sum of the amount specifically authorized in section 2502 of this title and the amount of recoupment due to the United States for construction previously financed by the United States.

The House amendment contained an identical provision (sec. 2501).

The conference agreement includes this provision.

Authorization of appropriations, NATO (sec. 2502)

The Senate bill contained a provision (sec. 2502) that would authorize appropriations of \$144.0 million for the U.S. contribution to the North Atlantic Treaty Organization (NATO) Security Investment Program (NSIP) for fiscal year 2020. This provision would also allow the Department of Defense construction agent to recognize the NATO project authorization amounts as budgetary resources to incur obligations when the United States is designated as the host nation for the purposes of executing a project under NSIP.

The House amendment contained an identical provision (sec. 2502).

The conference agreement includes this provision.

SUBTITLE B—HOST COUNTRY IN-KIND CONTRIBUTIONS

Republic of Korea funded construction projects (sec. 2511)

The Senate bill contained a provision (sec. 2511) that would authorize the Secretary of Defense to accept four military construction projects totaling \$542.2 million from the Republic of Korea as in-kind contributions.

The House amendment contained a similar provision (sec. 2511).

The Senate recesses.

TITLE XXVI—GUARD AND RESERVE FORCES FACILITIES

Summary

The budget request included \$552,423,000 for military construction of National Guard and Reserve facilities for fiscal year 2020. The conference agreement includes authorization of appropriations of \$787,723,000 for military construction of National Guard and Reserve facilities in fiscal year 2020.

The conference includes authorization and authorization of appropriations for of 6 military construction projects that were not included in the budget request but submitted to the

congressional defense committees as part of the services unfunded requirements list. These projects include: \$34.0 million for an Enlisted Transient Barracks at Anniston, Alabama; \$57.0 million for Fuels/Corrosion Control Hangar and Shops at Moffett Air National Guard Base, California; \$15.0 million for a AES Training Admin Facility at Joint Base Andrews, Maryland; \$9.8 million for a Aerial Port Facility at Minneapolis-St. Paul IAP, Minnesota; \$91.0 million for a National Guard Readiness Center at the Jamaica Armory, New York; and \$30.0 million for a General Instruction Building at Jericho, Vermont.

Authorized Army National Guard construction and land acquisition projects (sec. 2601)

The Senate bill contained a provision (sec. 2601) that would authorize military construction projects for the Army National Guard for fiscal year 2020. The authorized amounts are listed on an installation-by-installation basis.

The House amendment contained an identical provision (sec. 2601).

The conference agreement includes this provision.

Authorized Army Reserve construction and land acquisition projects (sec. 2602)

The Senate bill contained a provision (sec. 2602) that would authorize military construction projects for the Army Reserve for fiscal year 2020. The authorized amounts are listed on an installation-by-installation basis.

The House amendment contained an identical provision (sec. 2602).

The conference agreement includes this provision.

Authorized Navy Reserve and Marine Corps Reserve construction and land acquisition projects (sec. 2603)

The Senate bill contained a provision (sec. 2603) that would authorize military construction projects for the Navy Reserve and Marine Corps Reserve for fiscal year 2020. The authorized amounts are listed on an installation-by-installation basis.

The House amendment contained an identical provision (sec. 2603).

The conference agreement includes this provision.

Authorized Air National Guard construction and land acquisition projects (sec. 2604)

The Senate bill contained a provision (sec. 2604) that would authorize military construction projects for the Air National Guard for fiscal year 2020. The authorized amounts are listed on an installation-by-installation basis.

The House amendment contained an identical provision (sec. 2604).

The conference agreement includes this provision.

Authorized Air Force Reserve construction and land acquisition projects (sec. 2605)

The Senate bill contained a provision (sec. 2605) that would authorize military construction projects for the Air Force Reserve for fiscal year 2020. The authorized amounts are listed on an installation-by-installation basis.

The House amendment contained an identical provision (sec. 2605).

The conference agreement includes this provision.

Authorization of appropriations, National Guard and Reserve (sec. 2606)

The Senate bill contained a provision (sec. 2606) that would authorize appropriations for the reserve component military construction projects authorized for construction for fiscal year 2020 in this Act. This provision would also provide an overall limit on the amount authorized for military construction projects for each of the reserve components of the military departments. The state list contained in this report is the binding list of the specific projects authorized at each location.

The House amendment contained an identical provision (sec. 2606).

The conference agreement includes this provision.

LEGISLATIVE PROVISIONS NOT ADOPTED

Review and report on construction of new, or maintenance of existing, direct fuel pipeline connections at Air National Guard and Air Force Reserve installations

The House amendment contained a provision (sec. 2607) that would require the Secretary of the Air Force, in conjunction with the Defense Logistics Agency (DLA), to complete a review on the construction of new, or maintenance of existing, direct fuel pipeline connections at Air National Guard (ANG) and Air Force Reserve (AFRES) installations.

The Senate bill contained no similar provision.

The House recedes.

The conferees direct the Secretary of the Air Force, in conjunction with the DLA, to complete a review on the construction of new, or maintenance of existing, direct fuel pipeline connections at ANG and AFRES installations not later than 180 days after the date of the enactment of this Act. The review should contain the following elements:

(1) An analysis of the extent to which the Air Force and DLA have identified direct fuel pipeline projects as an effective and efficient way to enhance the ability of regular component, ANG, and AFRES installations to improve the readiness of affected units and help them to meet their mission requirements. This should include an assessment of how the ANG and AFRES facilities, across all States and territories, can leverage such connections to better support current and emerging air refueling requirements.

(2) An assessment of how direct fuel pipeline connections enhance the resiliency and efficiency of the installations and help meet existing DLA requirements for secondary storage and other fuel requirements.

(3) A list of ANG and AFRES installations that do not currently have a direct connection pipeline but have access to such a pipeline within reasonable proximity (less than 5 miles) to the facility.

(4) An overview and summary of the current process for considering such proposals, including the factors used to consider requests, the weight provided to each factor, and a list of ANG and AFRES installations that have sought funding for projects to create direct access to a national fuel pipeline or to maintain access to such pipelines over the last 5 years.

(5) A list of the total instances in the past 5 years in which projects for direct fuel pipeline connections have been approved for regular component, ANG, or AFRES installations, including the costs of each project and the justification for such approval.

(6) A list of ANG and AFFRES installations with current pipeline connections that the Air Force or DLA has determined should no longer be used, including:

(A) An analysis of the justifications for each determination, such as decisions to switch from pipelines to trucks as the primary fuel delivery method;

(B) An assessment of whether these determinations fairly weigh the costs and benefits of building or maintaining a pipeline tap as a practical primary or secondary fuel delivery method for the installation compared to railroad, barge terminal, or truck delivery; and

(C) An assessment of whether these determinations fairly consider or weigh how direct fuel pipeline connections increase security for the fuel supply by reducing the threat of interruption, how the connections enhance mission reliability by providing access to greater fuel storage capability, and the ability of such projects once completed to better support the domestic and global operations of the ANG or AFRES installation.

(7) An assessment of how costs associated with each direct fuel pipeline connection project is considered by the Air Force or DLA and the weight given to such costs in the final analysis.

(8) An assessment of the effectiveness or usefulness of guidance or technical assistance provided to installations that request or propose direct fuel pipeline connection projects and recommendations for additional ways to provide assistance to ensure the Air Force and DLA receive the most up-to-date information about the costs and benefits of proposed projects from installations.

(9) An assessment of the available funding sources through the Air Force, DLA, other Department of Defense entities, or other mechanisms, such as a public-private partnership or enhanced use lease, that can support direct fuel pipeline connection projects either in whole or in part.

(10) An assessment of the extent to which direct fuel pipeline connection projects have been incorporated in any comprehensive plan the Air Force has developed or will develop regarding investments needed to improve regular component, ANG, and AFRES installations to meet the Department's needs.

The conferees further direct the Secretary to provide a final report containing the results of the review to the congressional defense committees not later than 1 year after the date of enactment of this Act. The report should include recommendations on how the Air Force can better expedite and support the use of fuel pipelines at ANG and AFRES installations. The recommendations should include options for accelerating the development and consideration of such projects where most feasible and appropriate, including whether costs savings could be obtained by including such projects as part of other related projects already authorized at an installation.

TITLE XXVII—BASE REALIGNMENT AND CLOSURE ACTIVITIES

Summary

The budget request included \$278,526,000 for Base Realignment and Closure (BRAC) activities related to previous

BRAC rounds. The conference agreement includes authorization of appropriations of \$392,526,000 for Base Realignment and Closure (BRAC) activities related to previous BRAC rounds in fiscal year 2020.

Authorization of appropriations for base realignment and closure activities funded through Department of Defense base closure account (sec. 2701)

The Senate bill contained a provision (sec. 2701) that would authorize appropriations for fiscal year 2020 for ongoing activities that are required to implement the decisions of the 1988, 1991, 1993, 1995, and 2005 base realignment and closure rounds.

The House amendment contained an identical provision (sec. 2701).

The conference agreement includes this provision.

Prohibition on conducting additional base realignment and closure (BRAC) round (sec. 2702)

The Senate bill contained a provision (sec. 2702) that would prohibit the Department of Defense from conducting another base realignment and closure (BRAC) round.

The House amendment contained no similar provision.

The House recedes.

TITLE XXVIII—MILITARY CONSTRUCTION AND GENERAL PROVISIONS

SUBTITLE A—MILITARY CONSTRUCTION PROGRAM

Military installation resilience plans and projects (sec. 2801)

The Senate bill contained a provision (sec. 2801) that would amend subchapter I of chapter 169 of title 10, United States Code, to require the Secretaries of the military departments to develop and implement military installation resilience plans for installations in coastal areas.

The House amendment contained a similar provision (sec. 2803) that would amend section 2864 of title 10, United States Code, to provide additional clarity on the required elements of military installation resilience plans; encourage coordination with relevant local, State, and Federal entities in the development of plans; and require an assessment of resiliency

gaps and best practices. This section would further require the Secretary of Defense to provide a report to the House Committee on Armed Services by March 1, 2020, listing the installation master plans completed or in progress during the previous 12 months.

The Senate recedes with an amendment that would allow the Secretary of Defense to carry out military construction projects for military installation resilience.

Improved consultation with tribal governments when proposed military construction projects potentially impact Indian tribes (sec. 2802)

The House amendment contained a provision (sec. 2804) that would require the military departments to assess whether any military construction project has the potential to significantly affect tribal lands, sacred sites, or tribal treaty rights. Additionally, the Secretary concerned shall include a description of the current status of consultation with the tribal government of each impacted Indian tribe on military construction projects proposed to Congress.

The Senate bill contained no similar provision.

The Senate recedes with a clarifying amendment.

Increased authority for use of certain appropriations amounts for restoration or replacement of damaged or destroyed facilities (sec. 2803)

The Senate bill contained a provision (sec. 2804) that would allow the Secretary of the military department concerned to carry out unspecified minor military construction projects, not to exceed \$12.0 million with an area cost factor of \$19.0 million, at the following installations: (1) Tyndall Air Force Base, Florida; (2) Camp Ashland, Nebraska; (3) Offutt Air Force Base, Nebraska; (4) Camp Lejeune, North Carolina; and (5) Marine Corps Air Station Cherry Point, North Carolina. This provision would include a termination clause of 5 years after the enactment of this Act.

The House amendment contained no similar provision.

The House recedes with an amendment that would instead amend section 2854(c)(3) of title 10, United States Code, by striking "\$50,000,000" and inserting "\$100,000,000".

Amendment of Unified Facilities Criteria to promote military installation resilience, energy resilience, energy and climate resiliency, and cyber resilience (sec. 2804)

The House amendment contained a provision (sec. 2805) that would prohibit the Department of Defense from spending more than 25 percent of the funds available for military construction planning and design until the Secretary of Defense submits a certification to Congress that the Tri-Service Engineering Senior Executive Board has initiated the process of updating the Unified Facility Criteria to ensure building practices and standards promote military installation resilience, energy resilience, energy and climate resiliency, and cyber resilience. The Secretary of Defense would further certify that the review and revision process will be complete by September 1, 2020.

The Senate bill contained no similar provision.

The Senate recesses with a clarifying amendment.

Modification to Department of Defense Form 1391 regarding consideration of potential long-term adverse environmental effects (sec. 2805)

The House amendment contained a provision (sec. 2806) that would require the Secretary of Defense or Secretary of the military department concerned to certify, prior to submitting a military construction project for consideration, construction takes into account known extreme weather risks and employs best practices and local building code requirements for resiliency in the face of those risks.

The Senate bill contained no similar provision.

The Senate recesses.

Improved flood risk disclosure for military construction (sec. 2806)

The House amendment contained a provision (sec. 2807) that would amend section 2805(a)(1) of the Military Construction Authorization Act for Fiscal Year 2019 (division B of Public Law 115-232; 132 Stat. 2262; 10 U.S.C. 2802 note) to ensure sea level fluctuation is considered when evaluating military construction projects.

The Senate bill contained no similar provision.

The Senate recesses.

Prioritization of projects in annual report on unfunded requirements for laboratory military construction projects (sec. 2807)

The Senate bill contained a provision (sec. 7801) that would amend section 2806 of the National Defense Authorization Act for Fiscal Year 2018 (Public Law 115-91; 10 U.S.C. 222a

note) by, among other things, requiring that the projects in the annual report on unfunded requirements for laboratory military construction projects are listed in prioritized order, with specific amounts and elements identified.

The House amendment contained no similar provision.

The House recesses.

Technical corrections and improvements to defense access road resilience (sec. 2808)

The Senate bill contained a provision (sec. 2805) that would amend section 210 of title 23, United States Code, to improve the construction and reconstruction of defense access roads subject to weather conditions. Additionally, this provision would update the United Facilities Criteria to ensure that the Department of Defense accounts for weather and population projections during the construction projects.

The House amendment contained a similar provision (sec. 2808).

The Senate recesses.

Military construction projects for child development centers at military installations (sec. 2809)

The Senate bill contained a provision (sec. 7804) that would require the Under Secretary of Defense for Personnel and Readiness, in coordination with the Assistant Secretary for Energy, Installations, and Environment for each military department, to submit to the congressional defense committees an annual report listing, in priority order, unfunded requirements for major and minor military construction projects for Department of Defense child development centers (CDCs). This provision would also increase the maximum amounts applicable to minor construction projects for CDCs to \$15.0 million for no more than 3 years after the date of the enactment of this Act.

The House amendment contained no similar provision.

The House recesses with an amendment that would authorize specific funds for CDCs as delineated in the funding table in section 4601 with specific conditions for authorization.

The conferees direct the Undersecretary of Defense, in coordination with the Assistant Secretary for Energy, Installations, and Environment for each military department, to submit a report to the congressional defense committees by February 15, 2020, listing unfunded requirements for major and minor military construction projects for CDCs of the Department of Defense in priority order. The report shall include appropriate DD Form 1391 documentation for each project.

Prohibition on use of funds to reduce air base resiliency or demolish protected aircraft shelters in the European theater without creating a similar protection from attack (sec. 2810)

The Senate bill contained a provision (sec. 2802, as amended by sec. 7802) that would prohibit funds authorized to be appropriated by this Act or otherwise made available for the Department of Defense to be obligated or expended to implement any activity that reduces air base resiliency or demolishes protected aircraft shelters in the European theater without creating similar protection from attack until such time as the Secretary of Defense certifies that protected aircraft shelters are not required in the European theater.

The House amendment contained no similar provision.
The House recedes.

Prohibition on use of funds to close or return certain bases to the host nation (sec. 2811)

The Senate bill contained a provision (sec. 2803, as amended by sec. 7803) that would prohibit funds authorized to be appropriated by this Act or otherwise made available for the Department of Defense to be obligated or expended to implement any activity that closes or returns to host nations any existing airbases until such time as the Secretary of Defense certifies that there is no longer a need for a rotational military presence in the European theater.

The House amendment contained no similar provision.
The House recedes with a technical amendment.

SUBTITLE B—REAL PROPERTY AND FACILITIES ADMINISTRATION

*Improved energy security for main operating bases in Europe
(sec. 2821)*

The House amendment contained a provision (sec. 2831) that would prohibit the use of Russian Federation sourced natural gas at main operating bases in Europe.

The Senate bill contained no similar provision.
The Senate recedes.

Access to Department of Defense installations for credentialed transportation workers (sec. 2822)

The House amendment contained a provision (sec. 2832) that would enable the Transportation Worker Identification Credential card to be accepted as a valid credential for unescorted access to a work site at a maritime terminal of the Department of Defense (DOD) and other DOD facilities.

The Senate bill contained no similar provision.

The Senate recedes with a technical amendment.

Improved recording and maintaining of Department of Defense real property data (sec. 2823)

The House amendment contained a provision (sec. 2835) that would require the Undersecretary of Defense for Acquisition and Sustainment to submit a report evaluating service-level best practices for recording and maintaining real property data to Congress not later than 150 days after the date of the enactment of this Act. This provision would also require the Undersecretary to issue service-wide guidance on the best practices described in the report not later than 300 days after the date of the enactment of this Act.

The Senate bill contained no similar provision.

The Senate recedes with a technical amendment.

SUBTITLE C—LAND CONVEYANCES

Land conveyance, Hill Air Force Base, Ogden, Utah (sec. 2831)

The House amendment contained a provision (sec. 2841) that would authorize the Secretary of the Air Force to convey 35 acres on Hill Air Force Base to the State of Utah for the purposes of permitting the State to construct a new interchange for Highway 15.

The Senate bill contained no similar provision.

The Senate recedes with a technical amendment that would include a savings provision.

Release of interests retained in Camp Joseph T. Robinson, Arkansas, for use of such land as a veterans cemetery (sec. 2832)

The Senate bill contained a provision (sec. 2811) that would allow the Secretary of the Army to release the terms and conditions and reversionary interests retained on approximately 141.5 acres previously owned by the United States government. The provision would also require that the transferred land be

used for the sole purpose of expanding the Arkansas State Veterans Cemetery.

The House amendment contained a similar provision (sec. 2842).

The House recesses.

Modification of authorized uses of certain property conveyed by the United States in Los Angeles, California (sec. 2833)

The Senate amendment contained a provision (sec. 7805) that would modify the authorized uses of a certain property conveyed by the United States to the State of California.

The House amendment contained a similar provision (sec. 2843).

The Senate recesses with a technical amendment.

Transfer of administrative jurisdiction over certain parcels of Federal land in Arlington, Virginia (sec. 2834)

The Senate bill contained a provision (sec. 2812) that would require the Secretary of the Interior to transfer a specified 16.09 acres parcel to the Secretary of the Army and for the Secretary of the Army to transfer a specified 1.04 acre parcel to the Secretary of the Interior. The provision would not require any form of payment or consideration from either party. The provision would require that the 16.09 acre parcel transferred to the Army be managed as part of Arlington National Cemetery.

The House amendment contained no similar provision.

The House recesses with an amendment that would require the Secretary of the Army to seek to enter into a memorandum of understanding with the Women in Military Service for America Memorial Foundation to define roles and responsibilities for the shared responsibility and resources for operation and maintenance of the Women's Memorial and surrounding grounds.

SUBTITLE D—MILITARY LAND WITHDRAWALS

Public notice regarding upcoming periods of Secretary of the Navy management of Shared Use Area of the Johnson Valley Off-Highway Vehicle Recreation Area (sec. 2841)

The House amendment contained a provision (sec. 2851) that would amend section 2942 of the Military Land Withdrawals Act of 2013 to require the Secretary of the Navy to provide public

notice prior to the use of the Shared Use Area for military training purposes.

The Senate bill contained no similar provision.

The Senate recesses.

SUBTITLE E—WHITE SANDS NATIONAL PARK AND WHITE SANDS MISSILE RANGE

White Sands Missile Range Land Enhancements (sec. 2851)

The Senate bill contained a provision (sec. 2814) that would establish White Sands National Park and abolish White Sands National Monument. The establishment of a national park would increase the public recognition of the significant resources of White Sands. This provision would modify the boundary of White Sands National Park and convey 3,737 acres of land from the Secretary of the Interior to the Secretary of the Army. This provision would also convey 8,592 acres of land from the Secretary of the Army to the Secretary of the Interior.

The House amendment contained a series of similar provisions (secs. 2861-2866).

The House recesses with an amendment that would remove the findings and provide for technical changes.

SUBTITLE F—OTHER MATTERS

Installation and maintenance of fire extinguishers in Department of Defense facilities (sec. 2861)

The House amendment contained a provision (sec. 2871) that would require the Secretary of Defense to ensure that portable fire extinguishers are installed and maintained at Department of Defense facilities in accordance with the requirements of national model fire codes.

The Senate bill contained no similar provision.

The Senate recesses.

Definition of community infrastructure for purposes of military base reuse studies and community planning assistance (sec. 2862)

The House amendment contained a provision (sec. 2872) that would amend section 2391(c)(4) of title 10, United States Code, to add not-for-profit, member-owned utility services to the definition of community infrastructure.

The Senate bill contained no similar provision.

The Senate recesses.

Temporary authority for acceptance and use of contributions for certain design and construction projects mutually beneficial to the Department of Defense and the Republic of Korea (sec. 2863)

The Senate bill contained a provision (sec. 2822) that would amend section 2804 of the Military Construction Authorization Act for Fiscal Year 2016, Division B of the National Defense Authorization Act for Fiscal Year 2016 (Public Law 114-92), to include the Government of the Republic of Korea.

The House amendment contained no similar provision.

The House recesses with an amendment that would allow the Secretary concerned to accept cash contributions for two specific military construction projects in the Republic of Korea and allow for a cost-sharing agreement for said projects as long as the projects are in support of a bilateral defense cooperation agreement between the United States and the Republic of Korea or if the Secretary concerned determines that the United States may derive a benefit from the project.

Black start exercises at military installations (sec. 2864)

The House amendment contained a provision (sec. 2874) that would require the Department of Defense to conduct three additional black start exercises at joint bases to test installation energy resiliency systems. This section would also require the Secretary of Defense to provide a report to the defense committees by June 1, 2020, on lessons learned from black start exercises concluded prior to December 31, 2019.

The Senate bill contained no similar provision.

The Senate recesses with an amendment that would modify the exercise requirements.

Pilot program to extend service life of roads and runways under the jurisdiction of the Secretary of Defense (sec. 2865)

The Senate bill contained a provision (sec. 2825) that would authorize the Secretaries of the military departments to carry out a pilot program to design, build, and test technologies in order to extend the service life of roads and runways under their jurisdiction. Further, this provision would require that, not later than 2 years after the commencement of the pilot program, the Secretaries of the military departments submit a report on the program to the congressional defense committees.

The House amendment contained no similar provision.

The House recesses with a technical amendment.

Restrictions on rehabilitation of Over-the-Horizon Backscatter Radar System receiving station, Modoc County, California (sec. 2866)

The House amendment contained a provision (sec. 2880) that would prohibit the use of funds to rehabilitate the Over-the-Horizon Backscatter Radar system receiving location in Modoc National Forest.

The Senate bill contained no similar provision.

The Senate recesses with an amendment that would extend the sunset on the provision to 2025.

Designation of Sumpter Smith Joint National Guard Base (sec. 2867)

The Senate bill contained a provision (sec. 2823) that would designate the Sumpter Smith Air National Guard Base in Birmingham, Alabama, as the ``Sumpter Smith Joint National Guard Base.``

The House amendment contained no similar provision.

The House recesses.

Santa Ynez Band of Chumash Indians land affirmation (sec. 2868)

The House amendment contained a provision (sec. 2876) that would place land into trust for the benefit of the Santa Ynez Band of Chumash Mission Indians.

The Senate bill contained no similar provision.

The Senate recesses.

Lands to be taken into trust as part of the reservation of the Lytton Rancheria (sec. 2869)

The House amendment contained a provision (sec. 1099D) that would take into trust land owned by the Lytton Rancheria of California.

The Senate bill contained no similar provision.

The Senate recesses.

Little Shell Tribe of Chippewa Indians of Montana (sec. 2870)

The Senate amendment contained a provision (sec. 6020) that would extend federal recognition of the Little Shell Tribe of Chippewa Indians of Montana, make the tribe and its members

eligible for services and benefits provided to federally recognized tribes, and take land into trust.

The House bill contained no similar provision.

The House recesses.

Sense of Congress on restoration of Tyndall Air Force Base (sec. 2871)

The Senate bill contained a provision (sec. 5306) that would express the sense of Congress that the Secretary of the Air Force should restore Tyndall Air Force Base to achieve military installation resilience.

The House amendment contained no similar provision.

The House recesses.

LEGISLATIVE PROVISIONS NOT ADOPTED

Prohibition on use of military construction funds for construction of a wall, fence, or other physical barrier along the southern border of the United States

The House amendment contained a provision (sec. 2801) that would prohibit the obligation, expense, or use of funds that have been authorized to be appropriated for military construction projects in fiscal years 2015 through 2020 to design or carry out a project to construct, replace, or modify a wall, fence, or other physical barrier along the international border between the United States and Mexico.

The Senate bill contained no similar provision.

The House recesses.

Modification and clarification of construction authority in the event of a declaration of war or national emergency

The House amendment contained a provision (sec. 2802) that would amend section 2808 of title 10, United States Code, to limit the total cost of military construction projects undertaken during a national emergency to \$500.0 million, with a further limit of \$100.0 million for construction projects within the United States, clarify the ability to waive any other provision of law, and add elements to required congressional notifications.

The Senate bill contained no similar provision.

The House recesses.

Modification of requirements relating to land acquisition in Arlington County, Virginia

The Senate bill contained a provision (sec. 2813) that would amend section 2829A of the National Defense Authorization Act for Fiscal Year 2017 (Public Law 114-328) to require the Secretary of the Army to expend amounts up to fair market value for cemetery expansion and include an in-kind consideration clause.

The House amendment contained no similar provision.
The Senate recesses.

Equal treatment of insured depository institutions and credit unions operating on military installations

The Senate bill contained a provision (sec. 2821) that would amend section 2667 of title 10, United States Code, to require the Department of Defense (DOD) to ensure that policies governing depository institutions and credit unions operating on military installations are equally applied to all relevant institutions. Additionally, the provision would prohibit any requirement for Secretaries of the military departments to provide no-cost office space or no-cost land lease to any insured depository institution or insured credit union.

The House amendment contained no similar provision.
The Senate recesses.

Prohibition on use of funds to privatize temporary lodging on installations of Department of Defense

The Senate bill contained a provision (sec. 2824) that would prohibit the Department of Defense for fiscal year 2020 to privatize temporary lodging on installations of the Department.

The House amendment contained no similar provision.
The Senate recesses.

The conferees note that the significant management shortfalls in the privatized family housing program may cast doubt regarding the efficacy of future privatization initiatives.

Report on encroachment challenges on military installations posed by non-military aircraft

The House amendment contained a provision (sec. 2833) that would require the Assistant Secretary of Defense for Sustainment to submit a report on encroachment challenges and mitigation strategies posed by non-military aircraft overflying military installations.

The Senate bill contained no similar provision.
The House recesses.

The conferees direct the Assistant Secretary of Defense for Sustainment to submit a report, not later than 180 days after the enactment of this act, which would describe:

(1) The encroachment challenges and security risks posed by non-military aircraft overflying military installations inside the United States, to include operational impacts, installation and personnel security, and intelligence concerns, and

(2) Practicable strategies and recommendations for mitigation of any such challenges and risks, to include an increased military regulatory authority and distinctions, if any, among government/first responder, commercial, civil and recreational aviation.

The term ``aircraft`` does not include unmanned aerial vehicles known as drones, whether used for military or non-military purposes, except that the Assistant Secretary of Defense for Sustainment may make reference in the report to the use of such unmanned aerial vehicles if the Secretary considers reference to such use relevant to the subject of the report.

Report on capacity of Department of Defense to provide survivors of natural disasters with emergency short-term housing

The House amendment contained a provision (sec. 2834) that would require the Secretary of Defense to submit a report on the capacity of the Department of Defense to provide survivors of natural disasters with emergency short-term housing.

The Senate bill contained no similar provision.

The House recesses.

The conferees direct the Secretary of Defense to submit a report analyzing the capacity of the Department of Defense to provide survivors of natural disasters with emergency short-term housing to the congressional defense committees not later than 220 days after the date of enactment of this Act.

Continued Department of Defense use of heating, ventilation, and air conditioning systems utilizing variable refrigerant flow

The House amendment contained a provision (sec. 2836) that would allow the Department of Defense to continue to consider and select heating, ventilation, and air conditioning systems that utilize variable refrigerant flow as an option for use in Department facilities.

The Senate bill contained no similar provision.

The House recesses.

Report on Department of Defense use of intergovernmental support agreements

The House amendment contained a provision (sec. 2837) that would require the Secretary of Defense to submit a report on the Department of Defense's use of intergovernmental support agreements to the congressional defense committees.

The Senate bill contained no similar provision.

The House recesses.

The conferees direct the Secretary of Defense to submit a report containing a plan to improve the collection and monitoring of information regarding the consideration and use of intergovernmental support agreements, as authorized by section 2679 of title 10, United States Code, including information regarding the financial and nonfinancial benefits derived from the use of such agreements.

The report should be submitted to the congressional defense committees not later than July 31, 2020.

Report on vulnerabilities from sea level rise to certain military installations located outside the continental United States

The House amendment contained a provision (sec. 2873) that would require the Secretary of Defense to submit a report to the congressional defense committees on vulnerabilities from sea level rise at certain installations.

The Senate bill contained no similar provision.

The House recesses.

The conferees direct the Secretary of Defense to submit a report to the congressional defense committees on vulnerabilities from sea level fluctuation to covered installations located outside of the continental United States. For each covered installation, the report should include the following:

(1) An analysis of the impacts to the operations, contingency plans, and readiness of such installation from sea level fluctuation.

(2) A discussion of mitigation efforts, including dredging, reclaiming land, and island building, that may be necessary due to a sea level fluctuation to ensure the continued operational viability of such installation and to increase the resiliency of such installation. The estimated costs of such efforts should be included in the report.

(4) An identification of alternative locations for the continuance of operations of such installation if such installation is rendered inoperable.

The report should be submitted in unclassified form but may contain a classified annex. For the purposes of this report, the term "covered installation" means Naval Support Facility Diego Garcia and Ronald Reagan Ballistic Missile Defense Test Site, Kwajalein.

Report on projects awaiting approval from the Realty Governance Board

The House amendment contained a provision (sec. 2875) that would require that the Secretary of Defense submit a report describing the projects that are awaiting approval from the Realty Governance Board to Congress.

The Senate bill contained no similar provision.

The House recesses.

The conferees direct the Secretary of Defense to submit a report describing the projects that, as of the date of the report, are awaiting approval from the Realty Governance Board. The report should include the following:

(1) A list of projects awaiting evaluation for a Major Land Acquisition Waiver; and

(2) An assessment of the impact a project described above would have on the security of physical assets and personnel at the military installation requesting the Major Land Acquisition Waiver.

The report should be submitted to the congressional defense committees not later than 180 days after the date of the enactment of this Act.

Report on lead service lines at military installations

The House amendment contained a provision (sec. 2877) that would require the Secretary of Defense to submit to the congressional defense committees a report on lead services lines at military installations.

The Senate bill contained no similar provision.

The House recesses.

The conferees direct the Secretary of Defense to submit a report on lead service lines at military installations to the congressional defense committees not later than January 1, 2021. The report should contain the following:

(1) The number of military installations at which lead service lines are connected to schools, childcare centers and facilities, buildings, and other facilities of the installation as the Secretary determines appropriate.

(2) The total number of members of the Armed Forces affected by the presence of lead service lines at military installations and the number of such members with dependents.

(4) Actions, if any, undertaken by the Secretary to inform individuals affected by the presence of lead service lines at military installations of such presence.

(5) Recommendations for legislative action relating to the replacement of lead service lines at military installations.

Renaming of Lejeune High School in honor of Congressman Walter B. Jones

The House amendment contained a provision (sec. 2878) that would rename Lejeune High School at Camp Lejeune, North Carolina, "Walter B. Jones Camp Lejeune High School."

The Senate bill contained no similar provision.

The House recesses.

The conferees note Congressman Walter B. Jones' years of service in support of servicemembers in the United States Armed Forces and encourage the Secretary of the Navy and the Commandant of the Marine Corps to rename a suitable building or other infrastructure in honor and memoriam of Congressman Jones.

Operation, maintenance, and preservation of Mare Island Naval Cemetery, Vallejo, California

The House amendment contained a provision (sec. 2879) that would allow the Secretary of Defense to provide not more than \$250,000 per fiscal year to aid in the operation, maintenance, and preservation of the Mare Island Naval Cemetery in Vallejo, California, if certain criteria, such as the city entering into an agreement with a nonprofit historical preservation organization, are met within 1 year after the date of the enactment of this Act. The provision would further allow the Secretary to reduce or forgo assistance in a fiscal year and require the organization to submit to the Secretary an annual report containing an audit of its financial revenues and expenditures and describing how funds were used.

The Senate bill contained no similar provision.

The House recesses.

**TITLE XXIX—AUTHORIZATION OF OVERSEAS
CONTINGENCY OPERATIONS MILITARY
CONSTRUCTION AND EMERGENCY MILITARY
CONSTRUCTION**

SUBTITLE A—OVERSEAS CONTINGENCY OPERATIONS MILITARY CONSTRUCTION

Summary

The budget request included \$9,844,526,000 for Overseas Contingency Operations military construction for fiscal year 2020. The conference agreement includes \$921,420,000 for Overseas Contingency Operations military construction for fiscal year 2020. In addition, the conference agreement includes \$4,119,813,000 in emergency designated funding required for military construction projects in support of disaster recovery efforts at several military installations.

The agreement includes a \$60.0 million increase in the authorization of appropriations for Air Force Planning and Design in support of overseas infrastructure requirements. In addition, the agreement includes an increase of \$36.2 million for the Army, \$36.2 million for the Navy and Marine Corps, and \$36.2 million for the Air Force in support of unspecified military construction projects, with prior notification to the congressional defense committees, that support the European Deterrence Initiative.

As noted earlier in this report, the conferees recommend the transfer of certain military constructions from the Base budget request to the Overseas Contingency Operations title of this Act. Specifically, these projects include:

- (1) \$53.3 million for an Electrical System Upgrade in Bahrain;
- (2) \$77.4 million for a Communications Station at Sigonella, Italy;
- (3) \$24.0 million for an Air Traffic Control Tower at Azraq, Jordan; and
- (4) \$42.0 million for a Munitions Storage Area at Azraq, Jordan.

Finally, the conference agreement does not include an authorization or an authorization of appropriation for a High-Value Detainee Facility at Guantanamo Bay, Cuba. The conferees continue to have questions about the need to construct a new permanent detention facility with increased capacity and capabilities. Furthermore, the conferees believe the Department has not adequately assessed alternative options to support current and foreseeable detention requirements.

Authorized Army construction and land acquisition projects (sec. 2901)

The Senate bill contained a provision (sec. 2901) that would authorize Army military construction projects for fiscal year 2020 for overseas contingency operations. The authorized amounts are listed on an installation-by-installation basis.

The House amendment contained a similar provision (sec. 2901).

The Senate recedes with a technical amendment.

Authorized Navy construction and land acquisition projects (sec. 2902)

The Senate bill contained a provision (sec. 2902) that would authorize Navy military construction projects for fiscal year 2020 for overseas contingency operations. The authorized amounts are listed on an installation-by-installation basis.

The House amendment contained a similar provision (sec. 2902).

The Senate recedes with a technical amendment.

Authorized Air Force construction and land acquisition projects (sec. 2903)

The Senate bill contained a provision (sec. 2903) that would authorize Air Force military construction projects for fiscal year 2020 for overseas contingency operations. The authorized amounts are listed on an installation-by-installation basis.

The House amendment contained a similar provision (sec. 2903).

The Senate recedes with a technical amendment.

Authorized Defense Agencies construction and land acquisition projects (sec. 2904)

The Senate bill contained a provision (sec. 2904) that would authorize Defense Agencies military construction projects for fiscal year 2020 for overseas contingency operations. The authorized amounts are listed on an installation-by-installation basis.

The House amendment contained an identical provision (sec. 2904).

The conference agreement includes this provision.

Authorization of appropriations (sec. 2905)

The Senate bill contained a provision (sec. 2907) that would authorize appropriations for military construction in the overseas contingency operations account for fiscal year 2020.

The House amendment contained an identical provision (sec. 2905).

The conference agreement includes this provision.

SUBTITLE B—EMERGENCY MILITARY CONSTRUCTION

Authorization of emergency Navy construction and land acquisition projects (sec. 2911)

The House amendment contained a provision (sec. 3001) that would authorize emergency military construction projects for the Department of the Navy to support recovery of military facilities and infrastructure damaged by natural disasters.

The Senate bill contained a similar provision (sec. 2905) that would authorize emergency construction projects for the Department of the Navy, Air Force, Defense-wide Agencies, and Reserve Components.

The Senate recedes with an amendment that would authorize Department of Navy emergency construction projects.

Authorization of emergency Air Force construction and land acquisition projects (sec. 2912)

The House amendment contained a provision (sec. 3002) that would authorize emergency military construction projects for the Air Force to support recovery of military facilities and infrastructure damaged by natural disasters.

The Senate bill contained a similar provision (sec. 2905) that would authorize emergency construction projects for the Department of the Navy, Air Force, Defense-wide Agencies, and Reserve Components.

The Senate recedes with an amendment that would authorize Air Force emergency construction projects.

Authorization of emergency Army National Guard construction and land acquisition projects (sec. 2913)

The Senate bill contained a provision (sec. 2905) that would authorize emergency construction projects for the Department of the Navy, Air Force, Defense Agencies, and Reserve Components.

The House amendment contained a provision (sec. 3004) that would authorize emergency military construction projects for the

Army National Guard and Army Reserve to support recovery of military facilities and infrastructure damaged by natural disasters.

The House recedes with an amendment that would authorize Army National Guard and Army Reserve emergency construction projects.

Authorization of emergency Defense Agencies construction and land acquisition projects (sec. 2914)

The House amendment contained a provision (sec. 3003) that would authorize emergency military construction projects for the Army National Guard and Army Reserve to support recovery of military facilities and infrastructure damaged by natural disasters.

The Senate bill contained a similar provision (sec. 2905) that would authorize emergency construction projects for the Department of the Navy, Air Force, Defense-wide Agencies, and Reserve Components.

The Senate recedes with an amendment that would authorize defense agency emergency construction projects.

Authorization of emergency supplemental appropriations for military construction projects (sec. 2915)

The agreement includes a provision that would authorize appropriations for emergency military construction at the levels identified in section 4603 of division D of this Act.

LEGISLATIVE PROVISIONS NOT ADOPTED

Replenishment of certain military constructions funds

The Senate bill contained a provision (sec. 2906) that would authorize \$3.6 billion in military construction, overseas contingency operations, for the purposes of replenishing funds for previously authorized military construction projects that were repurposed under section 2808 of title 10, United States Code, from the national emergency declared on the southern border under the National Emergencies Act (Public Law 94-412).

The House amendment contained no similar provision.

The Senate recedes.

**TITLE XXX - MILITARY HOUSING PRIVATIZATION
REFORM**

Definitions (sec. 3001)

The Senate bill contained a provision (sec. 3001) that would provide definitions for specific terms for this title.

The House amendment contained no similar provision.

The House recedes with an amendment that would modify certain definitions and provide for a technical change.

**SUBTITLE A—ADDITION OF NEW REFORM
SUBCHAPTER**

Improved accountability and oversight of privatized military housing and protections and responsibilities for tenants of privatized military housing (sec. 3011)

The Senate bill contained a provision (sec. 3011) that would amend subchapter IV of chapter 169 of title 10, United States Code, by requiring the Secretary of Defense, in coordination with the secretaries of the military departments, to develop a document to be known as the "Tenant Bill of Rights," which would include, but not be limited to, minimum rights, such as homes that meet minimum health and environmental standards, the ability to report inadequate living standards to the military chain of command without fear of reprisal, and the ability to enter into a dispute resolution process for purposes of recouping basic allowance for housing.

The House amendment contained a similar provision (sec. 2811).

The House recedes with an amendment that would include general contract requirements for military housing units, require congressional notification 30 days before changes to the bill of rights are released, and provide for a technical change.

Designation of Chief Housing Officer for privatized military housing (sec. 3012)

The Senate bill contained a provision (sec. 3012) that would amend subchapter IV of chapter 169 of title 10, United States Code, by requiring that the Secretary of Defense designate a Chief Housing Officer, who shall be a presidentially appointed and Senate-confirmed Department of Defense official. The provision would require the Chief Housing Officer to establish and maintain the Office of the Chief Housing Officer, whose purpose would be to conduct oversight of the Military Housing Privatization Initiative (MHPI) by standardizing

policies and conducting audits of contracts, agreements, and work order incentive fees.

The House amendment contained no similar provision.

The House recedes with an amendment that would make the role of Chief Housing Officer non-delegable; change the scope of responsibility to include oversight of any Department-wide policies related to the MHPI; drop the requirement that the Chief Housing Officer conduct audits of contracts, agreements, and work order incentive fees; and provide for a technical change.

Additional requirements relating to contracts for privatized military housing (sec. 3013)

The Senate bill contained a provision (sec. 3044) that would amend subchapter IV of chapter 169 of title 10, United States Code, by requiring the Secretary of Defense to include certain requirements for any contract with a term of more than 10 years for the purpose of privatized military housing. The provision would require that contracts: allow the Department of Defense to renegotiate the contract at minimum every 5 years, prohibit the continued working under the contract of any employee who has committed work order fraud under the contract, and require the private contractor to pay a tenant's relocation fees and living expenses if a tenant is required to move due to health or environmental hazards.

The House amendment contained no similar provision.

The House recedes with an amendment that would remove the 10-year timeframe and requirement that contacts be renegotiated at minimum every 5 years; require that the private management company or private partner reimburse the Department of Defense for the costs of any medical evaluations and treatment provided to a tenant if the landlord is found by the Secretary concerned to have failed to maintain safe and sanitary conditions; require that the Secretary of Defense seek agreement from all property management companies or private partners to participate in the requirements retroactively and submit to the congressional defense committees a list of landlords who decline to participate; and provide for a technical change.

Additional requirements relating to management of privatized military housing (sec. 3014)

The Senate bill contained a provision (sec. 3043) that would amend subchapter IV of chapter 169 of title 10, United States Code, by requiring the Secretary of Defense to ensure that operating agreements for any Department of Defense

installation where on-base housing is managed by a private contractor include certain requirements. The provision would also include requirements for the installation commander, the head of each housing management office, and the private contractor.

The House amendment contained no similar provision.

The House recedes with an amendment that would require the landlord to maintain an electronic work order system that can be accessed by the tenant; prohibit the landlord from imposing a supplemental payment, such as an out-of-pocket fee, on a tenant in addition to rent; require that the Secretary of Defense seek agreement from all property management companies or private partners to participate in the requirements retroactively and submit to the congressional defense committees a list of landlords who decline to participate; and provide for a technical change.

Consideration of contractor history in contracts for privatized military housing (sec. 3015)

The Senate bill contained a provision (sec. 3014) that would amend subchapter IV of chapter 169 of title 10, United States Code, by requiring the Secretary of Defense to consider a private contractor's past performance when deciding whether or not to enter into a new contract or renew an existing contract with that contractor.

The House amendment contained no similar provision.

The House recedes with a technical amendment.

Additional improvements for management of privatized military housing (sec. 3016)

The Senate bill contained a provision (sec. 3019) that would amend chapter 169 of title 10, United States Code, to require the Secretary of Defense to establish a database that makes available to the public complaints from tenants related to privatized military housing units, together with the landlord's response to each such complaint.

The House amendment contained a similar provision (sec. 2820) that would amend subchapter IV of chapter 169 of title 10, United States Code, to require the Secretary of Defense to establish a publicly available database of complaints relating to privatized military family housing. This section would also require an annual audit to be performed by the Comptroller General of the United States of a small, medium, and large military installation with privatized military family housing. This section would also amend section 2884 of title 10, United

States Code, by directing the Secretary of Defense to provide an annual report on military housing to the defense committees.

The Senate recedes with an amendment that would ensure the collected information exclude personally identifiable information and be limited to the installation, management company, and nature of the complaint and provide for a technical change.

Maintenance work order system for privatized military housing (sec. 3017)

The Senate bill contained a provision (sec. 3020) that would amend subchapter IV of chapter 169 of title 10, United States Code, by requiring each private contractor that provides housing under this subchapter to provide the housing management office at each installation access to their maintenance work order system.

The House amendment contained no similar provision.

The House recedes with a technical amendment.

Access by tenants of privatized military housing to maintenance work order system (sec. 3018)

The Senate bill contained a provision (sec. 3021) that would require that each landlord for a privatized military housing unit have an electronic work order system and provide tenants with access to such system.

The House amendment contained no similar provision.

The House recedes.

Access by tenants to historical maintenance information for privatized military housing (sec. 3019)

The Senate bill contained a provision (sec. 3033) that would amend subchapter IV of chapter 169 of title 10, United States Code, by requiring each private contractor that provides housing under this subchapter to provide prospective tenants with information regarding maintenance conducted at prospective housing units for the previous 10 years.

The House amendment contained no similar provision.

The House recedes with an amendment that would change 10 years to 7 years, require any renovations be included in the provided history, and provide for a technical change.

Prohibition on requirement to disclose personally identifiable information in certain requests for maintenance of privatized military housing (sec. 3020)

The Senate bill contained a provision (sec. 3034) that would amend subchapter IV of chapter 169 of title 10, United States Code, by adding a section prohibiting any private contractor who is responsible for military housing from using a maintenance work order call center outside the United States.

The House amendment contained no similar provision.

The House recedes with an amendment that would change the prohibition to a prohibition on requiring tenants to disclose personally identifiable information to call centers and provide for a technical change.

Treatment of incentive fees for landlords of privatized military housing for failure to remedy a health or environmental hazard (sec. 3021)

The Senate bill contained a provision (sec. 3045) that would amend subchapter IV of chapter 169 of title 10, United States Code, to require the Secretary of Defense to withhold incentive fees, which would otherwise be paid to a private contractor under this subchapter, for failure to remedy a health or environmental hazard.

The House amendment contained no similar provision.

The House recedes with a technical amendment.

Dispute resolution process for landlord-tenant disputes regarding privatized military housing and requests to withhold payments during dispute resolution process (sec. 3022)

The Senate bill contained a provision (sec. 3031) that would amend subchapter IV of chapter 169 of title 10, United States Code, to require the Secretary of Defense to implement a formal dispute resolution process on each military installation with privatized military housing units.

The House amendment contained no similar provision.

The House recedes with an amendment that would clarify the dispute resolution process, ensure that tenants entering into such a process have access and assistance from a military housing advocate or military legal assistance attorney, and provide for a technical change.

Investigation of reports of reprisals relating to privatized military housing and congressional notification (sec. 3023)

The House amendment contained a provision (sec. 2824) that would require the Assistant Secretary of Defense for Sustainment to investigate all reports of reprisal against a member of the

Armed Forces for reporting an issue relating to a housing issue under this subchapter.

The Senate bill contained no similar provision.

The Senate recesses with a technical amendment.

Prohibition on use of nondisclosure agreements in connection with leases of privatized military housing (sec. 3024)

The House amendment contained a provision (sec. 2812) that would amend section 2882 of title 10, United States Code, to prohibit the use of non-disclosure agreements in connection with entering into, continuing, or terminating a lease for a housing unit covered under the Military Housing Privatization Initiative.

The Senate bill contained no similar provision.

The Senate recesses.

SUBTITLE B—OTHER AMENDATORY PROVISIONS

Installation of carbon monoxide detectors in military family housing (sec. 3031)

The House amendment contained a provision (sec. 2821) that would amend section 2821 of title 10, United States Code, by requiring the Secretary concerned to provide for the installation and maintenance of carbon monoxide detectors in each unit of military family housing under their jurisdiction.

The Senate bill contained no similar provision.

The Senate recesses.

Authority to furnish certain services in connection with use of alternative authority for acquisition and improvement of military housing (sec. 3032)

The House amendment contained a provision (sec. 2813) that would amend section 2872a of title 10, United States Code, to add street sweeping and tree trimming and removal to the list of reimbursable services that may be furnished under that section.

The Senate bill contained no similar provision.

The Senate recesses.

Treatment of breach of contract for privatized military housing (sec. 3033)

The Senate bill contained a provision (sec. 3015) that would amend subchapter IV of chapter 169 of title 10, United

States Code, by requiring the Secretary of Defense to withhold any amount owed under the contract as well as to rescind the contract if a material breach is found and not remedied within 90 days.

The House amendment contained no similar provision.

The House recesses with a technical amendment.

Modification to requirements for window fall prevention devices in military family housing units (sec. 3034)

The Senate bill contained a provision (sec. 3036) that would amend section 2879(c) of title 10, United States Code, by striking "24 inches" and inserting "42 inches".

The House amendment contained a similar provision (sec. 2814) that would amend section 2879 of title 10, United States Code, to modify the requirements and applicable standards for window fall prevention devices.

The Senate recesses.

Expansion of direct hire authority for Department of Defense for childcare services providers for Department child development centers to include direct hire authority for installation military housing office personnel (sec. 3035)

The Senate bill contained a provision (sec. 3046) that would amend section 559 of the National Defense Authorization Act for Fiscal Year 2018 (Public Law 115-91) to extend direct hire authority to fill civil service position vacancies at installation military housing offices.

The House amendment contained no similar provision.

The House recesses.

Modification of authority to make payments to lessors of privatized military housing (sec. 3036)

The Senate bill contained a provision (sec. 3017) that would amend section 606 of the John S. McCain National Defense Authorization Act for Fiscal Year 2019 (Public Law 115-232), by repealing the requirement that the Secretary of Defense pay an additional 5 percent of the calculated Basic Allowance for Housing (BAH) for residents of Military Housing Privatization Initiative (MHPI) projects to MHPI projects. The provision would require the Secretaries of the military departments to provide additional payments to MHPI projects equivalent to 2 percent of the calculated BAH for residents of MHPI projects. The Secretaries of the military departments would be required to use

3 percent of the calculated BAH for MHPI residents to make improvements to the oversight and management of MHPI projects.

The House amendment contained no similar provision.

The House recesses with an amendment that would require service secretaries to provide additional payments to MHPI projects equivalent to 2.5 percent of the calculated BAH for residents of each MHPI project. Service secretaries would also be required to provide an additional 2.5 percent of the calculated BAH for MHPI residents to MHPI projects that are determined to be underfunded. If the Chief Housing Officer determines no MHPI projects within a particular military department are underfunded, the Secretary of the military department concerned shall use any remaining funds to enhance the quality of life of military families residing in MHPI housing.

Technical correction to definition used to make payments to lessors of privatized military housing (sec. 3037)

The Senate bill contained a provision (sec. 3055) that would amend section 606(d) of the John S. McCain National Defense Authorization Act for Fiscal Year 2019 (Public Law 115-232) to define eligible privatized housing projects as those that were procured, acquired, constructed, or for which any phase or portion of a project was first finalized and signed on or before September 30th, 2014.

The House bill contained no similar provision.

The House recesses.

SUBTITLE C—ONE-TIME REPORTING REQUIREMENTS

Report on civilian personnel shortages for appropriate oversight of management of military housing constructed or acquired using alternative authority for acquisition and improvement of military housing (sec. 3041)

The House amendment contained a provision (sec. 2817) that would require the Secretary of Defense, in coordination with the secretaries of the military departments, to provide a report to the congressional defense committees not later than September 30, 2020, on the manpower requirements and execution plan to staff military housing offices and headquarters to fill gaps in oversight personnel.

The Senate bill contained no similar provision.

The Senate recesses with an amendment that would require a breakdown of requirements by function, such as oversight, home inspectors, and maintenance, for additional personnel required.

Plans for creation of councils on privatized military housing (sec. 3042)

The Senate bill contained a provision (sec. 3042) that would require the Assistant Secretary for energy, installations, and environment of each military department to establish a military housing council to identify and resolve problems with military housing managed by private contractors.

The House amendment contained no similar provision.

The House recedes with an amendment that would instead require each Assistant Secretary concerned to submit a plan for the creation of a privatized military housing council to the congressional defense committees not later than February 1, 2020.

Plan for establishment of Department of Defense jurisdiction over off-base privatized military housing (sec. 3043)

The Senate bill contained a provision (sec. 3047) that would require the Secretary of Defense, in consultation with the secretaries of the military departments, to submit a plan to establish jurisdiction at locations with privatized military housing not located on a military installation to the congressional defense committees not later than 30 days after the enactment of this Act.

The House amendment contained no similar provision.

The House recedes with an amendment that would change the due date for the plan from 30 days to 180 days.

Inspector General review of Department of Defense oversight of privatized military housing (sec. 3044)

The House amendment contained a provision (sec. 2818) that would require the Inspector General of the Department of Defense to conduct an annual review of the Department's oversight of privatized military family housing at 15 randomly selected installations and publish the results on a publicly available website.

The Senate bill contained no similar provision.

The Senate recedes with an amendment that would change the number of installations to be reviewed from 15 to 3.

Information on legal services provided to members of the Armed Forces harmed by health or environmental hazards at military housing (sec. 3045)

The Senate bill contained a provision (sec. 3053) that would require the Secretary of Defense to submit a report not later than 90 days after the enactment of this Act to the congressional defense committees on the legal services available to members of the Armed Forces who have been harmed by health and environmental hazards while living in military housing.

The House amendment contained an identical provision (sec. 550M).

The conference agreement includes this provision.

SUBTITLE D—DEVELOPMENT OF HOUSING REFORM STANDARDS AND PROCESSES

Uniform code of basic standards for privatized military housing and plan to conduct inspections and assessments (sec. 3051)

The Senate bill contained a provision (sec. 3016) that would require the Secretary of Defense to establish a uniform code of basic housing standards for safety, comfort, and habitability for privatized military housing. The provision would also require the Secretary to submit to the congressional defense committees, not later than February 1, 2020, this uniform code and a plan for the Department of Defense to contract with home inspectors to conduct inspections and assessments of habitability and structural integrity of each housing unit as specified under subchapter IV of chapter 169 of title 10, United States Code. Finally, the provision would require that said inspections be completed no later than February 1, 2021.

The House amendment contained a similar provision (sec. 2819).

The House recedes with an amendment that would require that the uniform code of basic housing standards be implemented by February 1, 2021, and meet or exceed requirements informed by a nationally recognized, consensus-based, model property maintenance code.

Tool for assessment of hazards in Department of Defense housing (sec. 3052)

The House amendment contained a provision (sec. 2815) that would require the Secretary of Defense to develop an assessment tool to identify and measure health and safety hazards in Department of Defense housing, to include privatized housing, and provide a report to the Committees on Armed Services of the Senate and the House of Representatives.

The Senate bill contained no similar provision.
The Senate recesses.

Process to identify and address environmental health hazards in Department of Defense housing (sec. 3053)

The House amendment contained a provision (sec. 2816) that would require the Secretary of Defense, in coordination with the secretaries of the military departments, to develop a process to identify, record, and resolve environmental health hazards in Department of Defense housing, to include privatized housing, and to provide a report to the Committees on Armed Services of the Senate and the House of Representatives.

The Senate bill contained no similar provision.
The Senate recesses.

Department of Defense policy on lead-based paint testing on military installations (sec. 3054)

The Senate bill contained a provision (sec. 3051) that would require the Secretary of Defense to establish a policy under which a qualified individual may access a military installation to conduct lead testing, with all results to be shared with the installation civil engineer, housing management office, and major subordinate command with jurisdiction over the installation. Additionally, the provision would require the Secretary of Defense to annually submit a report, not later than February 1 of each year, to the congressional defense committees.

The House amendment contained a similar provision (sec. 2822).

The Senate recesses with a technical amendment that would amend the annual reporting requirement by including it in the annual housing report.

Standard for minimum credentials for health and environmental inspectors of privatized military housing (sec. 3055)

The Senate bill contained a provision (sec. 3018) that would require the Secretary of Defense to submit a report to the congressional defense committees on a standard for common credentials to be used throughout the Department of Defense for purposes of health and environmental hazard inspection to include, at a minimum, categories for lead, mold, and radon.

The House amendment contained no similar provision.
The House recesses with a technical amendment.

Requirements relating to move-in, move-out, and maintenance of privatized military housing (sec. 3056)

The Senate bill contained a provision (sec. 3037) that would require the Secretary of Defense, in consultation with the secretaries of the military departments, to develop a uniform move-out checklist for tenants of privatized military housing. This provision would also require that all maintenance issues and work orders related to health and safety issues at privatized military housing be reported to the commander of the installation at which the housing is located.

The House amendment contained no similar provision.

The House recedes with an amendment that would change the deadline from 30 days to 60 days, among other technical and clarifying changes.

Standardized documentation, templates, and forms for privatized military housing (sec. 3057)

The Senate bill contained a provision (sec. 3041) that would require the Secretary of Defense, in coordination with the secretary of each military department, to develop standard documentation, templates, and forms for privatized military housing. The provision would also require the Secretary of Defense to issue guidance within 30 days of the enactment of this Act and to deliver an implementation plan to the congressional defense committees not later than February 1, 2020.

The House amendment contained no similar provision.

The House recedes with a technical amendment.

Satisfaction survey for tenants of military housing (sec. 3058)

The Senate bill contained a provision (sec. 3052) that would require the Secretary of Defense to ensure that each military department utilizes the same electronic satisfaction survey for all surveys relating to the customer service experience of all military housing residents, those living in both government and privately managed housing units. The committee believes that one standard survey will allow for improved data collection to pinpoint problems and best practices with ease and assist in regaining the trust of military families and servicemembers.

The House amendment contained no similar provision.

The House recedes with a technical amendment.

SUBTITLE E—OTHER HOUSING REFORM MATTERS

Radon testing of privatized military housing (sec. 3061)

The Senate bill contained a provision (sec. 3035) that would require the Secretary of Defense to submit a report not later than March 1, 2020, to the congressional defense committees that identifies all Department of Defense installations that should be monitored for levels of radon in excess of that in the Environmental Protection Agency's recommendations. The provision would also require the Secretary of Defense to establish testing procedures for all privatized military housing at installations that have been identified as requiring radon monitoring and would include a requirement to complete initial testing for all privatized military housing by June 1, 2020. The provision would also require the Secretary of Defense to certify on an annual basis that radon testing is being conducted for privatized military housing.

The House amendment contained no similar provision.

The House recedes with an amendment that would drop the annual testing certification and make technical changes.

Mitigation of risks posed by certain items in military family housing units (sec. 3062)

The Senate bill contained a provision (sec. 3054) that would require the Secretary of Defense to allow a resident of a military family housing unit to anchor any furniture, television, or large appliance to the wall of the unit for purposes of preventing such item from tipping over without incurring a penalty or obligation to repair the wall upon vacating the unit. Further, the provision would require the Secretary to ensure that certain freestanding furniture taller than 27 inches be securely anchored in furnished military family housing units under the jurisdiction of the Department of Defense.

The House amendment contained no similar provision.

The House recedes.

Suspension of Resident Energy Conservation Program and related programs for privatized military housing (sec. 3063)

The Senate bill contained a provision (sec. 3032) that would suspend the Department of Defense's Resident Energy Conservation Program (RECP) until the Secretary of Defense can certify that 100 percent of military housing on installations is

individually metered and certified by an independent entity through an energy audit. Furthermore, the provision would terminate the RECP if the Secretary of Defense is unable to certify the individual usage 2 years after enactment of this Act.

The House amendment contained no similar provision.

The House recedes with an amendment that would remove the term of suspension requirement that the military housing be certified by an independent entity through an energy audit.

Department of the Army pilot program to build and monitor use of single family homes (sec. 3064)

The Senate bill contained a provision (sec. 3056) that would require the Secretary of the Army to carry out a pilot program to build and monitor the use of not fewer than five single family homes for members of the Army and their families.

The House amendment contained a similar provision (sec. 2823).

The Senate recedes with a technical amendment.

LEGISLATIVE PROVISIONS NOT ADOPTED

Command oversight of military privatized housing as element of performance evaluations

The Senate bill contained a provision (sec. 3013) that would require each service secretary to ensure that performance evaluations indicate the extent to which the following individuals have or have not exercised effective oversight and leadership of military privatized housing: (1) Commanders of military installations with privatized military housing; (2) Each officer or senior enlisted member whose duties include facilities or housing management at such installations; and (3) Any other officer or enlisted member as specified by the secretary concerned.

The House amendment contained no similar provision.

The Senate recedes.

The conferees agree that commanders of military installations have an important responsibility for ensuring safe, high quality housing for servicemembers and their families living on such installations. The conferees intend to watch closely how commanders and other senior officer and enlisted personnel oversee the housing conditions on their installations, including such conditions in military barracks and dormitories.

**DIVISION C—DEPARTMENT OF ENERGY
NATIONAL SECURITY AUTHORIZATIONS
AND OTHER AUTHORIZATIONS**

**TITLE XXXI—DEPARTMENT OF ENERGY NATIONAL
SECURITY PROGRAMS**

**SUBTITLE A—NATIONAL SECURITY PROGRAMS
AUTHORIZATIONS**

National Nuclear Security Administration (sec. 3101)

The Senate bill contained a provision (sec. 3101) that would authorize appropriations for the National Nuclear Security Administration for fiscal year 2020.

The House amendment contained a similar provision (sec. 3101).

The House recesses.

Defense environmental cleanup (sec. 3102)

The Senate bill contained a provision (sec. 3102) that would authorize the appropriation of funds for the Department of Energy's defense environmental cleanup activities.

The House amendment contained a similar provision (sec. 3102).

The House recesses.

Other defense activities (sec. 3103)

The Senate bill contained a provision (sec. 3103) that would authorize appropriations for other defense activities of the Department of Energy for fiscal year 2020.

The House amendment contained an identical provision (sec. 3103).

The conference agreement includes this provision.

Nuclear energy (sec. 3104)

The Senate bill contained a provision (sec. 3104) that would authorize appropriations for certain nuclear energy programs of the Department of Energy for fiscal year 2020.

The House amendment contained an identical provision (sec. 3104).

The conference agreement includes this provision.

SUBTITLE B—PROGRAM AUTHORIZATIONS, RESTRICTIONS, AND LIMITATIONS

Personnel matters at National Nuclear Security Administration (sec. 3111)

The Senate bill contained a provision (sec. 3113) that would remove the cap on the use of excepted service hiring authority pursuant to section 3241 of the National Nuclear Security Administration (NNSA) Act (50 U.S.C. 2441).

The House amendment contained a provision (sec. 3111) that would raise the cap on the number of full-time equivalent federal employees of the NNSA from 1,690 to 1,890, and modify the reporting requirement contained in section 3241A(f) of the NNSA Act relating to service support contracts of the NNSA.

The Senate recedes with an amendment that would also raise the cap on the use of excepted service hiring authority pursuant to section 3241 from 600 to 800 employees.

Estimation of costs of meeting defense environmental cleanup milestones required by consent orders (sec. 3112)

The Senate bill contained a provision (sec. 3121) that would require the Secretary of Energy to submit, along with the budget justification materials, a report on the cost of meeting milestones required by a consent order at each defense nuclear facility at which environmental cleanup activities are taking place.

The House amendment contained no similar provision.

The House recedes with a clarifying amendment.

Office of Cost Estimating and Program Evaluation (sec. 3113)

The House amendment contained a provision (sec. 3112) that would express the sense of Congress regarding the persistent under-staffing of the Office of Cost Estimating and Program Evaluation (CEPE) at the National Nuclear Security Administration (NNSA). The provision would also require that the Director of CEPE report directly to the Administrator of the NNSA, and require the Administrator to provide a briefing to the congressional defense committees on the plan to ensure the full staffing of the office.

The Senate bill contained no similar provision.

The Senate recesses with an amendment that would strike the sense of Congress.

Clarification of certain Stockpile Responsiveness Program objectives (sec. 3114)

The House amendment contained a provision (sec. 3113) that would clarify the objectives of the Stockpile Responsiveness Program as defined in section 4220 of the Atomic Energy Defense Act (50 U.S.C. 2538b).

The Senate bill contained no similar provision.

The Senate recesses.

Elimination of limitation on availability of funds relating to submission of annual reports on unfunded priorities (sec. 3115)

The House amendment contained a provision (sec. 3117) that would repeal the limitation on funds authorized to be appropriated for travel and transportation within the Federal salaries and expenses account at the National Nuclear Security Administration until the Administrator for Nuclear Security submits a report to the congressional defense committees containing at least one unfunded priority pursuant to section 4719 of the Atomic Energy Defense Act (50 U.S.C. 2756).

The Senate bill contained no similar provision.

The Senate recesses with an amendment that would add a requirement that, if the Administrator determines that there are no unfunded priorities to include in the report, the Administrator, without delegation, shall certify and explain such determination to the congressional defense committees.

Modification to certain requirements relating to plutonium pit production capacity (sec. 3116)

The Senate bill contained a provision (sec. 8102) that would express the sense of the Senate that rebuilding plutonium pit production infrastructure of the National Nuclear Security Administration (NNSA) with a capacity of up to 80 pits per year is critical to maintaining the viability of the nuclear stockpile, and any further delay to achieving this capability would be unacceptable. The provision would also amend section 4219 of the Atomic Energy Defense Act (50 U.S.C. 2538a) to repeal the requirement for the NNSA to demonstrate for 90 days by 2029 the capability to produce pits at a rate sufficient to produce 80 pits per year, and replace it with a requirement to produce no fewer than 80 pits per year in 2030.

The House amendment contained a provision (sec. 3114) that would express the sense of Congress that the NNSA should prioritize achieving production of 30 plutonium pits per year at Los Alamos National Laboratory, and ensure that efforts to design and construct a second site do not divert resources. The provision would also amend section 4219 of the Atomic Energy Defense Act to repeal the requirement for the 90-day demonstration by 2029.

The House recesses with a technical amendment.

Annual certification of shipments to Waste Isolation Pilot Plant (sec. 3117)

The House amendment contained a provision (sec. 3115) that would extend the certification of shipments of waste to the Waste Isolation Pilot Plant from a 3-year period to a 10-year period.

The Senate bill contained no similar provision.

The Senate recesses.

Extension and modification of pilot program on unavailability for overhead costs of amounts specified for laboratory-directed research and development (sec. 3118)

The Senate bill contained a provision (sec. 3114) that would make permanent the pilot program conducted under section 3119 of the National Defense Authorization Act for Fiscal Year 2017 (Public Law 114-328) that temporarily prohibited the use of laboratory-directed research and development to cover general and administrative overhead costs, including for nuclear weapons production facilities.

The House amendment contained a provision (sec. 3124) that would express the sense of Congress that the Secretary of Energy should ensure that the National Nuclear Security Administration's laboratories, plants, and sites are operated using generally accepted accounting best practices for laboratory-, plant-, or site-directed research and development. The provision would also require the Administrator for Nuclear Security to submit to the congressional defense committees a report assessing the pilot program conducted under section 3119 of the National Defense Authorization Act for Fiscal Year 2017.

The House recesses with an amendment that would extend the pilot program conducted under section 3119 for an additional year, and clarify the deadline for the report required by the same section.

Modification to limitation on availability of funds for acceleration of nuclear weapons dismantlement (sec. 3119)

The House amendment contained a provision (sec. 3116) that would repeal section 3125 of the National Defense Authorization Act for Fiscal Year 2017 (Public Law 114-328), including the limitation on the maximum amount of funding available in a fiscal year for nuclear weapons dismantlement and disposition and the limitation on acceleration of dismantlement activities.

The Senate bill contained no similar provision.

The Senate recesses with an amendment that would, instead of repealing section 3125, increase the limitation on dismantlement funding in that section from \$56.0 million to \$87.0 million.

Implementation of common financial reporting system for nuclear security enterprise (sec. 3120)

The Senate bill contained a provision (sec. 8101) that would prohibit obligation or expenditure of more than 90 percent of fiscal year 2020 funds for the National Nuclear Security Administration's federal salaries and expenses account for travel and transportation until the Administrator for Nuclear Security completes implementation of the common financial reporting system for the nuclear security enterprise as required by section 3113(a) of the National Defense Authorization Act for Fiscal Year 2017 (Public Law 114-328).

The House amendment contained no similar provision.

The House recesses.

Limitation relating to reclassification of high-level waste (sec. 3121)

The House amendment contained a provision (sec. 3128) that would provide that none of the funds authorized to be appropriated by this Act, or otherwise made available for fiscal year 2020 for the Department of Energy, may be obligated or expended by the Secretary of Energy to apply the interpretation of high-level radioactive waste described in the ``Supplemental Notice Concerning U.S. Department of Energy Interpretation of High-Level Radioactive Waste'' (84 Fed. Reg. 26835), or successor notice, with respect to such waste located in the State of Washington.

The Senate bill contained no similar provision.

The Senate recesses with an amendment that would eliminate section (b) Rule of Construction.

The conferees note that the inclusion of the provision does not prejudice how to process high-level waste nor does it discourage the use of the Department of Energy's interpretation of high-level waste in future years or at other locations.

National Laboratory Jobs ACCESS Program (sec. 3122)

The House amendment contained a provision (sec. 3120) that would authorize the Secretary of Energy to establish the Department of Energy National Lab Jobs ACCESS Program.

The Senate bill contained no similar provision.

The Senate recedes with certain clarifying amendments.

SUBTITLE C—REPORTS AND OTHER MATTERS

Civil penalties for violations of certain whistleblower protections (sec. 3131)

The House amendment contained a provision (sec. 3127) that would clarify civil penalties for violations of Department of Energy whistleblower protections, especially for employees of contractors or subcontractors of the National Nuclear Security Administration.

The Senate bill contained no similar provision.

The Senate recedes with several technical amendments.

Repeal of assessments of adequacy of budget requests relating to nuclear weapons stockpile (sec. 3132)

The Senate bill contained a provision (sec. 3122) that would extend the suspension through fiscal year 2023 of the requirement contained in section 3255 of the National Nuclear Security Administration Act (50 U.S.C. 2455) for the Comptroller General of the United States to review the budget submission of the National Nuclear Security Administration.

The House amendment contained no similar provision.

The House recedes with an amendment that would repeal section 3255 and the requirement for Comptroller General review altogether.

The conferees note that, elsewhere in this Act, a similar review requirement originally contained in section 1043 of the National Defense Authorization Act for Fiscal Year 2012 (Public Law 112-81) has been further extended through 2024.

Repeal of requirement for review relating to enhanced procurement authority (sec. 3133)

The Senate bill contained a provision (sec. 3123) that would terminate the requirement for the Comptroller General of the United States to review the Secretary of Energy's enhanced procurement authority after fiscal year 2019.

The House amendment contained no similar provision.

The House recesses.

The conferees note that the Comptroller General recently completed a report required by the same subsection, entitled "Nuclear Supply Chain: NNSA Should Notify Congress of Its Recommendations to Improve the Enhanced Procurement Authority" (GAO-19-606R). According to the report, the National Nuclear Security Administration (NNSA) has not used the enhanced procurement authority since it was authorized in 2013, because of concerns related to the process. The sole recommendation contained in the report is that the Secretary of Energy and the Administrator of the NNSA formally communicate to Congress their suggested changes to the authority in a timely manner; the conferees urge the Secretary and the Administrator to do so in time for consideration in the fiscal year 2021 authorization process.

Improvements to Energy Employees Occupational Illness Compensation Program Act of 2000 (sec. 3134)

The House amendment contained a provision (sec. 3126) that would modify the duties of the Office of the Ombudsman of the Department of Labor, and extend the Office through October 28, 2020. The provision would also make certain modifications to the Advisory Board on Toxic Substances and Worker Health.

The Senate bill contained no similar provision.

The Senate recesses.

Replacement of W78 warhead (sec. 3135)

The House amendment contained a provision (sec. 3119) that would require the Administrator for Nuclear Security to conduct an analysis of alternatives with respect to replacing the W78 warhead, including the technical risks and costs for each option to replace the W78. The provision would require the Director for Cost Estimating and Program Evaluation (CEPE) at the National Nuclear Security Administration to review the analysis. The provision would further require the Administrator to submit a report on the W78 replacement, including the analysis of alternatives and the CEPE review, and would prohibit the obligation or expenditure of more than 75 percent of funds for this program until such report is submitted. Finally, the provision would require the Administrator to arrange for the

JASON advisory group to conduct a study on the W78 replacement, including an assessment of the risks to certification and the need for planned upgrades to the warhead.

The Senate bill contained no similar provision.

The Senate recedes with amendments that would remove the prohibition on obligation or expenditure of funds, and change the analysis of alternatives to a report describing alternatives previously considered, including any changes since January 15, 2014, to the requirements for the program.

Independent review of capabilities for detection, verification, and monitoring of nuclear weapons and fissile material (sec. 3136)

The House amendment contained a provision (sec. 3121) that would require the Secretary of Energy to enter into a contract with the National Academy of Sciences to conduct an independent review and assessment of a plan for nuclear detection and verification and monitoring of nuclear weapons and fissile material. The provision would require the Secretary to submit the resulting study to the congressional defense committees no later than 270 days from the date of enactment of this Act.

The Senate bill contained no similar provision.

The Senate recedes with amendments that would modify some elements of the study, and modify the required date of submission to 1 year from the date of enactment of this Act.

Assessment of high energy density physics (sec. 3137)

The Senate bill contained a provision (sec. 3125) that would require the Administrator for Nuclear Security to enter into an arrangement with the National Academies of Sciences, Engineering, and Medicine to conduct an assessment of the current status of the field of high energy density physics.

The House amendment contained no similar provision.

The House recedes.

Determination of effect of treaty obligations with respect to producing tritium (sec. 3138)

The Senate bill contained a provision (sec. 3124) that would require the Secretary of Energy to determine whether the Agreement for Cooperation on the Uses of Atomic Energy for Mutual Defense Purposes, signed at Washington on July 3, 1958, permits obtaining uranium from the United Kingdom to produce tritium for defense purposes using reactor irradiation.

The House amendment contained no similar provision.

The House recesses.

Technical corrections to National Nuclear Security Administration Act and Atomic Energy Defense Act (sec. 3139)

The Senate bill contained a provision (sec. 3111) that would make certain technical corrections to the National Nuclear Security Administration Act (50 U.S.C. Ch. 41) and the Atomic Energy Defense Act (50 U.S.C. Ch. 42).

The House amendment contained no similar provision.

The House recesses.

LEGISLATIVE PROVISIONS NOT ADOPTED

National Nuclear Security Administration Personnel System

The Senate bill contained a provision (sec. 3112) that would make permanent the personnel demonstration project carried out by the National Nuclear Security Administration since 2008.

The House amendment contained no similar provision.

The Senate recesses.

Program for research and development of advanced naval nuclear fuel system based on low-enriched uranium

The Senate bill contained a provision (sec. 3115) that would prohibit the obligation or expenditure of any funds for fiscal year 2020 or thereafter for the National Nuclear Security Administration to conduct research and development for an advanced naval nuclear fuel system based on low-enriched uranium (LEU) unless the Secretary of Defense, Secretary of Energy, and Secretary of the Navy submit certain certifications to the congressional defense committees.

The House amendment contained a provision (sec. 3118) that would require the Administrator for Nuclear Security to establish a program to assess the viability of using LEU in naval nuclear propulsion reactors, including reactors located on aircraft carriers and submarines, that meet the requirements of the Navy. The provision would require this program to include down-blending of high-enriched uranium (HEU) into LEU, manufacturing of candidate fuels, irradiation tests and post-irradiation examination capabilities, and modification or procurement of equipment and infrastructure related to these activities. Finally, the provision would require the Administrator to submit a plan to carry out this program, including the funding requirements associated.

The House amendment also contained a provision (sec. 3122) that would authorize to be appropriated \$20.0 million for low-enriched uranium research and development within the defense nuclear nonproliferation account.

The conference agreement does not include any of these provisions.

Availability of amounts for denuclearization of Democratic People's Republic of North Korea

The House amendment contained a provision (sec. 3123) that would increase by \$10.0 million the funding authorized for defense nuclear nonproliferation to develop and prepare to implement a monitoring and verification program for the phased denuclearization of the Democratic People's Republic of North Korea.

The Senate bill contained no similar provision.

The House recesses.

Funding for inertial confinement fusion ignition and high yield program

The House amendment contained a provision (sec. 3125) that would increase by \$5.0 million the funding authorized for the inertial confinement fusion ignition and high yield program, facility operations and target production.

The Senate bill contained no similar provision.

The House recesses.

TITLE XXXII—DEFENSE NUCLEAR FACILITIES SAFETY BOARD

Authorization (sec. 3201)

The Senate bill contained a provision (sec. 3201) that would authorize funding for the Defense Nuclear Facilities Safety Board at \$29.5 million, consistent with the budget request.

The House amendment contained an identical provision (sec. 3201).

The conference agreement includes this provision.

Improvements to Defense Nuclear Facilities Safety Board (sec. 3202)

The Senate bill contained a provision (sec. 3202) that would establish an Executive Director for Operations at the Defense Nuclear Facilities Safety Board. It would also authorize the Chairman of the Board to organize the staff as he considers appropriate to accomplish the mission, and repeal a prohibition contained in section 311 of the Atomic Energy Act of 1954 (42 U.S.C. 2286) on the Chairman's withholding of information relating to management of the Board from the other Board members.

The House amendment contained a provision (sec. 3202) that would also establish an Executive Director for Operations and specify that employee's role within the Board staff structure. The provision would require the Board staff to consist of the equivalent of between 110 and 130 full-time employees. The provision would also clarify that the mission of the Board includes provision of recommendations covering adequate protection of employee health and safety at defense nuclear facilities. The provision would also require the Secretary of Energy to provide to the Board prompt and unfettered access to facilities within its purview, regardless of hazard or risk category of such facilities. Finally, the provision would limit the ability of the Secretary of Energy to deny information to Board staff, while clarifying that the Board may not publicly disclose any information that is otherwise protected from disclosure by law.

The Senate recedes with amendments that would retain the Senate bill's authorization for the Chairman to organize the staff as he considers appropriate, and the repeal of the prohibition on withholding information. The amendments would also require that the Board employ no fewer than the equivalent of 100 full-time employees in fiscal year 2020, and clarify the Board's purview of defense nuclear facilities. Finally, the amendments would require the Secretary of Energy to provide written notification of any denial of a written request for access made by the Board; require the Board to provide biannual reports to Congress enumerating requests for access that were denied by the Secretary in the preceding 6 months; and require the Secretary to provide biannual reports to Congress identifying each request denied by the Secretary in the same period, including the reason for such denials.

Membership of Defense Nuclear Facilities Safety Board (sec. 3203)

The Senate bill contained a provision (sec. 3203, as modified by sec. 8202) that would require the National Academy of Sciences to maintain a list of qualified individuals for

consideration for nomination to fill vacancies on the Defense Nuclear Facilities Safety Board. The provision would also prohibit Board members from serving on expired terms, and prohibit Board members from being nominated for two consecutive terms, unless the member was confirmed by the Senate more than 2 years into the member's first term; such changes would take effect on April 1, 2020. Finally, the provision would include measures to encourage the President to promptly submit nominations to fill vacant seats.

The House amendment contained no similar provision.

The House recedes with amendments that would prohibit Board members from serving on expired terms, unless the departure of a member would result in the loss of a quorum for the Board. The amendments would also modify the date of effect from April 1, 2020, to 1 year from the date of enactment of this Act.

TITLE XXXIV—NAVAL PETROLEUM RESERVES

Authorization of Appropriations (sec. 3401)

The House amendment contained a provision (sec. 3401) that would authorize funds for the purpose of carrying out activities under chapter 869 of title 10, United States Code, relating to the naval petroleum reserves.

The Senate bill contained no similar provision.

The Senate recedes.

TITLE XXXV—MARITIME MATTERS

SUBTITLE A—MARITIME ADMINISTRATION

Authorization of the Maritime Administration (sec. 3501)

The Senate bill contained a provision (sec. 8511) that would authorize appropriations for certain aspects of the Maritime Administration for fiscal year 2020.

The House amendment contained a similar provision (sec. 3501).

The House recedes with an amendment that would reduce the amount of appropriations authorized for the Port and Intermodal Improvement Program from \$600.0 million to \$500.0 million for fiscal year 2020. The amendment would also make changes to the determination made by the Secretary of Transportation as it

relates to funds being used for fully automated cargo handling equipment.

Reauthorization of Maritime Security Program (sec. 3502)

The House amendment contained a provision (sec. 3502) that would authorize the Maritime Security Program until 2035. It would authorize a stipend of \$5.3 million for fiscal years 2022-2025, \$5.8 million for fiscal years 2026-2028, \$6.3 million for fiscal years 2029-2031, and \$6.8 million for fiscal years 2032-2035 for each of the 60 vessels in the Maritime Security Program.

The Senate bill contained a similar provision (sec. 8512).
The Senate recesses.

Maritime technical assistance program (sec. 3503)

The Senate bill contained a provision (sec. 8522) that would clarify that the Maritime Administrator shall act on behalf of the Secretary of Transportation for the Maritime Technical Assistance Program. The provision would also broaden the scope of the existing program to include research on propeller cavitation, U.S. maritime environmental performance to meet international standards and guidelines, and improve the efficiency and competitiveness of domestic maritime industries.

The House amendment contained no similar provision.
The House recesses with a technical amendment.

Appointment of candidates attending sponsored preparatory school (sec. 3504)

The Senate bill contained a provision (sec. 8514) that would allow the Secretary of Transportation to appoint no more than 40 qualified cadets per year who have successfully met the terms and conditions of sponsorship at a sponsored preparatory school during the previous academic year to the U.S. Merchant Marine Academy.

The House amendment contained no similar provision.
The House recesses.

General support program (sec. 3505)

The Senate bill contained a provision (sec. 8516) that would require the Secretary of Transportation to designate State Maritime Academies as Centers of Excellence.

The House amendment contained no similar provision.

The House recedes with an amendment that would designate the State Maritime Academies as American Maritime Centers of Excellence.

Improvements to the maritime guaranteed loan program (sec. 3506)

The Senate amendment contained a provision (sec. 8525) that would modify the Maritime Guaranteed Loan Program in certain ways.

The House bill contained no similar provision.

The House recedes with an amendment that would add a requirement for a 45-day public comment period for stakeholder input in the federal register prior to issuing guidance for expedited consideration of applications for maritime guaranteed loans.

Requirement for small shipyard grantees (sec. 3507)

The Senate bill contained a provision (sec. 8523) that would prohibit funds from being obligated for the Maritime Administration's Small Shipyard Grant Program unless the articles, materials, and supplies purchased with grant funds have been mined, produced, or manufactured in the United States, subject to certain exceptions.

The House amendment contained no similar provision.

The House recedes with a technical amendment.

Salvage recoveries of cargoes (sec. 3508)

The Senate bill contained a provision (sec. 8518) that would authorize a Federal entity to transfer funds to the Secretary of Transportation when the Secretary has provided for the use of Department of Transportation vessels, services, or goods to a Federal, State, or local entity in support of the salvage of federally owned cargoes.

The House amendment contained no similar provision.

The House recedes with an amendment that would allow the Secretary of Transportation to enter into reimbursable agreements for the reimbursement of funds for legal services related to the salvaging of federal cargoes.

Salvage recoveries for subrogated ownership of vessels and cargoes (sec. 3509)

The Senate bill contained a provision (sec. 8519) that would authorize the Secretary of Transportation to enter into marine salvage agreements for the recoveries, sale, and disposal

of sunken or damaged vessels or property owned or insured by the Maritime Administration or its predecessor agencies.

The House amendment contained no similar provision.

The House recedes with an amendment that would allocate 50 percent of the proceeds from recoveries to Maritime Academies for maintenance, repair, and modernization and 50 percent of the proceeds to maritime heritage grants.

Maritime Occupational Safety and Health Advisory Committee (sec. 3510)

The House bill contained a provision (sec. 3503) that would amend section 7 of the Occupational Safety and Health Act of 1970 by establishing a Maritime Occupational Safety and Health Advisory Committee to advise the Secretary of Labor on issuing standards for the maritime industry.

The Senate bill contained no similar provision.

The Senate recedes.

Military to mariner (sec. 3511)

The Senate bill contained a provision (sec. 8517) that would provide military to mariner transition assistance.

The House amendment contained a similar provision (sec. 3504).

The House recedes with a technical amendment.

Department of Transportation Inspector General Report (sec. 3512)

The Senate bill contained a provision (sec. 8513) that would require the Department of Transportation Office of Inspector General to conduct an audit and submit a report to Congress on the Maritime Administration's actions to address certain recommendations promulgated by the National Academy of Public Administration in a report entitled "Maritime Administration: Defining its Mission, Aligning its Programs, and Meeting its Objectives."

The House amendment contained no similar provision.

The House recedes.

Independent study on the United States Merchant Marine Academy (sec. 3513)

The Senate bill contained a provision (sec. 8515) that would require the Maritime Administrator to enter into an

agreement with the National Academy of Public Administration to produce a study on the U.S. Merchant Marine Academy.

The House amendment contained no similar provision.

The House recesses.

Port operations, research, and technology (sec. 3514)

The Senate bill contained a provision (sec. 8520) that would amend section 50302 of title 46, United States Code. This provision would establish a competitive grant program for port and intermodal projects.

The House amendment contained no similar provision.

The House recesses with an amendment that would clarify certain requirements associated with eligible projects, reduce the grant request amount for eligible projects covered under the small project set aside, clarify the definition of a port eligible for funding, and make technical changes.

Additionally, the amendment would amend section 533 of the Coast Guard Authorization Act of 2015 (Public Law 114-120) to allow the Coast Guard to complete certain remedial actions required by section 120(h) of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (Public Law 96-510).

Assessment and report on strategic seaports (sec. 3515)

The Senate bill contained a provision (sec. 8521) that would require the Secretary of Defense to submit a report to the congressional defense committees on port facilities used for military purposes at designated strategic ports.

The House amendment contained no similar provision.

The House recesses with a technical amendment.

Technical corrections (sec. 3516)

The Senate bill contained a provision (sec. 8526) that would direct the Director of the Office of Personnel Management to identify key skills and competencies necessary to maintain a balance of expertise in merchant marine seagoing service and strategic sealift military service for certain positions within the Office of the Commandant of the U.S. Merchant Marine Academy. This section would also clarify that criteria for participation in the Sea Year program applies to both domestic and international vessels.

The House amendment contained no similar provision.

The House recesses with a technical amendment.

United States Merchant Marine Academy sexual assault prevention and response program (sec. 3517)

The Senate bill contained a provision (sec. 8527) that would ensure the recommendations of the Inspector General of the Department of Transportation's report on the effectiveness of the Sexual Assault Prevention and Response Program at the U.S. Merchant Marine Academy are implemented within 180 days after the date of enactment of this Act.

The House amendment contained no similar provision.

The House recesses.

Report on vessels for emerging offshore energy infrastructure (sec. 3518)

The Senate bill contained a provision (sec. 8528) that would require the Secretary of Transportation, Secretary of Energy, Secretary of the Interior, and the heads of other relevant agencies to submit a report on the need to install, operate, and maintain emergency offshore energy infrastructure in vessels.

The House amendment contained no similar provision.

The House recesses with an amendment that would require the report to be completed by the Comptroller General of the United States and specify that vessels considered in this report be documented under chapter 121 of title 46, United States Code, and operated under U.S. coastwise laws.

Report on United States flagged fuel tanker vessel capacity (sec. 3519)

The House amendment contained a provision (sec. 3511) that would authorize a tanker security fleet program.

The Senate bill contained no similar provision.

The Senate recesses with an amendment that would require a report on U.S.-flagged fuel tanker vessel capacity.

SUBTITLE B—CABLE SECURITY FLEET

Establishment of cable security fleet (sec. 3521)

The House amendment contained a provision (sec. 3521) that would authorize a cable security fleet program.

The Senate bill contained no similar provision.
The Senate recesses.

SUBTITLE C—MARITIME SAFE ACT

Short titles (sec. 3531)

The Senate bill contained a provision (sec. 8531) that would name a subtitle, "The Maritime Security and Fisheries Enforcement (Maritime SAFE) Act."

The House amendment contained no similar provision.
The House recesses.

Definitions (sec. 3532)

The Senate bill contained a provision (sec. 8532) that would define several terms.

The House amendment contained no similar provision.
The House recesses.

Purposes (sec. 3533)

The Senate bill contained a provision (sec. 8533) that would establish that the purposes of a subtitle are to support a whole-of-government approach to combating illegal, unregulated, and unreported fishing.

The House amendment contained no similar provision.
The House recesses.

Statement of policy (sec. 3534)

The Senate bill contained a provision (sec. 8534) that would establish the policy of the United States to take immediate action against illegal, unregulated, and unreported fishing through diplomatic, military, development, and economic tools.

The House amendment contained no similar provision.
The House recesses.

PART I—PROGRAMS TO COMBAT IUU FISHING AND INCREASE MARITIME SECURITY

Coordination with international organizations (sec. 3541)

The Senate bill contained a provision (sec. 8541) that would direct the Departments of State and Commerce to coordinate with Regional Fisheries Management Organizations, the Food and Agriculture Organization of the United Nations, and other relevant international organizations to enhance regional responses to illegal, unregulated, and unreported fishing and related illegal activity.

The House amendment contained no similar provision.

The House recesses.

Engagement of diplomatic missions of the United States (sec. 3542)

The Senate bill contained a provision (sec. 8542) that would direct each chief of mission to a relevant country in the priority region to convene a working group of stakeholders to examine illegal, unregulated, and unreported (IUU) fishing in the region and to designate a counter-IUU Fishing Coordinator from among existing mission personnel, if the Secretary of State determines such action is appropriate.

The House amendment contained no similar provision.

The House recesses.

Assistance by Federal agencies to improve law enforcement within priority regions and priority flag states (sec. 3543)

The Senate bill contained a provision (sec. 8543) that would direct the Departments of State and Commerce to evaluate opportunities to provide assistance in improving countries' abilities to interdict individuals and vessels engaged in illegal, unregulated, and unreported (IUU) fishing, secure and inspect their ports, investigate and prosecute IUU fishing cases, and securely share information related to maritime enforcement and port security.

The House amendment contained no similar provision.

The House recesses with a technical amendment.

Expansion of existing mechanisms to combat IUU fishing (sec. 3544)

The Senate bill contained a provision (sec. 8544) that would direct relevant agencies to assess opportunities to combat illegal, unregulated, and unreported (IUU) fishing through the use or expansion of certain mechanisms.

The House amendment contained no similar provision.

The House recesses with an amendment that would direct the Director of National Intelligence to develop an enterprise

approach to appropriately share information on IUU fishing and other connected transnational organized illegal activity occurring in priority regions and elsewhere.

Improvement of transparency and traceability programs (sec. 3545)

The Senate bill contained a provision (sec. 8545) that would direct relevant agencies to work with priority flag states and countries in priority regions to increase knowledge about U.S. transparency and traceability standards for imports of seafood and seafood products.

The House amendment contained no similar provision.

The House recedes with an amendment that would remove support for seafood traceability standards in foreign countries.

Technology programs (sec. 3546)

The Senate bill contained a provision (sec. 8546) that would direct relevant agencies to pursue programs to expand the role of technology in combating illegal, unregulated, and unreported fishing.

The House amendment contained no similar provision.

The House recedes with a technical amendment.

Savings clause (sec. 3547)

The Senate bill contained a provision (sec. 8547) that would specify that no part of certain sections of this Act shall impose any obligation on the Department of Defense.

The House amendment contained no similar provision.

The House recedes with a technical amendment.

PART II—ESTABLISHMENT OF INTERAGENCY WORKING GROUP ON IUU FISHING

Interagency working group on IUU Fishing (sec. 3551)

The Senate bill contained a provision (sec. 8551) that would establish a working group to produce an interagency response on illegal, unregulated, and unreported fishing.

The House amendment contained no similar provision.

The House recedes with a technical amendment.

Strategic plan (sec. 3552)

The Senate bill contained a provision (sec. 8552) that would require the illegal, unregulated, and unreported (IUU) working group to submit to Congress a five-year integrated strategic plan on combating the issues of IUU fishing.

The House amendment contained no similar provision.

The House recesses with a technical amendment.

Reports (sec. 3553)

The Senate bill contained a provision (sec. 8553) that would require the working group on illegal, unregulated, and unreported fishing to submit a report to specified committees of the House of Representatives and the Senate.

The House amendment contained no similar provision.

The House recesses with a technical amendment.

Gulf of Mexico IUU Fishing Subworking Group (sec. 3554)

The Senate bill contained a provision (sec. 8554) that would authorize the National Oceanic and Atmospheric Administration, Coast Guard, and the Department of State to establish a sub-working group to address illegal, unregulated, and unreported fishing specifically in the Gulf of Mexico.

The House amendment contained no similar provision.

The House recesses with a technical amendment.

PART III—COMBATING HUMAN TRAFFICKING IN CONNECTION WITH THE CATCHING AND PROCESSING OF SEAFOOD PRODUCTS

Finding (sec. 3561)

The Senate bill contained a provision (sec. 8561) that would provide Congress's findings regarding the issue of human trafficking on the importation of certain seafood products into the United States.

The House amendment contained no similar provision.

The House recesses.

Adding the Secretary of Commerce to the Interagency Task Force to Monitor and Combat Trafficking (sec. 3562)

The Senate bill contained a provision (sec. 8562) that would amend Section 105(b) of the Victims of Trafficking and

Violence Protection Act of 2000 to include the Secretary of Commerce in section 7103(b) of title 22, United States Code.

The House amendment contained no similar provision.

The House recesses.

Human trafficking in the seafood supply chain report (sec. 3563)

The Senate bill contained a provision (sec. 8563) that would require the Administrator of the National Oceanic and Atmospheric Administration and the Commissioner of the Food and Drug Administration to submit a report to Congress detailing the existence of human trafficking in the supply chain of the importation of seafood products to the United States.

The House amendment contained no similar provision.

The House recesses.

PART IV—AUTHORIZATION OF APPROPRIATIONS

Authorization of appropriations (sec. 3571)

The Senate bill contained a provision (sec. 8571) that would require funding for certain programs be derived from the amounts appropriated to relevant agencies.

The House amendment contained no similar provision.

The House recesses.

Accounting of funds (sec. 3572)

The Senate bill contained a provision (sec. 8572) that would require each agency receiving or allocating funds to carry out the activities under this subtitle to submit a report to Congress providing an accounting of all funds made available under this subtitle.

The House amendment contained no similar provision.

The House recesses.

LEGISLATIVE PROVISIONS NOT ADOPTED

Maritime Administration

The Senate bill contained a provision (sec. 3501) that would authorize certain aspects of the Maritime Administration. The Senate bill also contained a provision (sec. 8500) that would strike section 3501.

The House amendment contained no similar provision.

The Senate recesses.

Short title

The Senate bill contained a provision (sec. 8501) that would allow the Maritime Administration title to be cited as the "Maritime Authorization and Enhancement Act of 2019."

The House amendment contained no similar provision.
The Senate recesses.

Improvement of National Oceanographic Partnership Program

The Senate bill contained a provision (sec. 8524) that would provide for certain improvements to the National Ocean Partnership Program.

The House amendment contained no similar provision.
The Senate recesses.

DIVISION D—FUNDING TABLES

Authorization of amounts in funding tables (sec. 4001)

The Senate bill contained a provision (sec. 4001) that would provide for the allocation of funds among programs, projects, and activities in accordance with the tables in division D of this Act, subject to reprogramming guidance in accordance with established procedures. Consistent with the previously expressed views of the committee, the provision would also require that decisions by an agency head to commit, obligate, or expend funds to a specific entity on the basis of such funding tables be based on authorized, transparent, statutory criteria, or merit-based selection procedures in accordance with the requirements of sections 2304(k) and 2374 of title 10, United States Code, and other applicable provisions of law.

The House amendment contained an identical provision (sec. 4001).

The conference agreement includes this provision.

SUMMARY OF NATIONAL DEFENSE AUTHORIZATIONS FOR FISCAL YEAR 2020

(In Thousands of Dollars)

| | FY 2020 Request | Conference Change | Conference Authorized |
|---|--------------------|----------------------|--------------------------|
| DISCRETIONARY AUTHORIZATIONS WITHIN THE JURISDICTION OF THE ARMED SERVICES COMMITTEE | | | |
| National Defense Funding, Base Budget Request | | | |
| Function 051, Department of Defense-Military | | | |
| Division A: Department of Defense Authorizations | | | |
| Title I—Procurement | | | |
| Aircraft Procurement, Army | 3,696,429 | -24,954 | 3,671,475 |
| Missile Procurement, Army | 3,207,697 | -154,469 | 3,053,228 |
| Weapons & Tracked Combat Vehicles, Army | 4,715,566 | 153,411 | 4,868,977 |
| Procurement of Ammunition, Army | 2,694,548 | -115,199 | 2,579,349 |
| Other Procurement, Army | 7,451,301 | -166,329 | 7,284,972 |
| Aircraft Procurement, Navy | 18,522,204 | 439,612 | 18,961,816 |
| Weapons Procurement, Navy | 4,235,244 | -127,339 | 4,107,905 |
| Procurement of Ammunition, Navy & Marine Corps | 981,314 | -89,023 | 892,291 |
| Shipbuilding & Conversion, Navy | 23,783,710 | -193,658 | 23,590,052 |
| Other Procurement, Navy | 9,652,956 | -350,857 | 9,302,099 |
| Procurement, Marine Corps | 3,090,449 | -100,908 | 2,989,541 |
| Aircraft Procurement, Air Force | 16,784,279 | 1,785,439 | 18,569,718 |
| Missile Procurement, Air Force | 2,889,187 | -19,250 | 2,869,937 |
| Space Procurement, Air Force | 2,414,383 | -5,000 | 2,409,383 |
| Procurement of Ammunition, Air Force | 1,667,961 | -50,200 | 1,617,761 |
| Other Procurement, Air Force | 21,342,857 | -39,823 | 21,303,034 |
| Procurement, Defense-Wide | 5,114,416 | -85,689 | 5,028,727 |
| Joint Urgent Operational Needs Fund | 99,200 | -99,200 | 0 |
| Subtotal, Title I—Procurement | 132,343,701 | 756,564 | 133,100,265 |
| Title II—Research, Development, Test and Evaluation | | | |
| Research, Development, Test & Evaluation, Army | 12,192,771 | -335,298 | 11,857,473 |
| Research, Development, Test & Evaluation, Navy | 20,270,499 | -595,895 | 19,674,604 |
| Research, Development, Test & Evaluation, Air Force | 45,938,121 | -353,378 | 45,584,743 |
| Research, Development, Test & Evaluation, Defense- Wide | 24,772,953 | 198,872 | 24,971,825 |
| Operational Test & Evaluation, Defense | 221,200 | 0 | 221,200 |
| Subtotal, Title II—Research, Development, Test and Evaluation | 103,395,544 | -1,085,699 | 102,309,845 |
| Title III—Operation and Maintenance | | | |
| Operation & Maintenance, Army | 42,012,484 | -1,854,198 | 40,158,286 |
| Operation & Maintenance, Army Reserve | 3,029,110 | -40,516 | 2,988,594 |
| Operation & Maintenance, Army National Guard | 7,629,403 | -103,761 | 7,525,642 |
| Operation & Maintenance, Navy | 51,125,751 | -1,174,187 | 49,951,564 |
| Operation & Maintenance, Marine Corps | 7,926,724 | -485,000 | 7,441,724 |
| Operation & Maintenance, Navy Reserve | 1,125,116 | -25,000 | 1,100,116 |
| Operation & Maintenance, Marine Corps Reserve | 292,076 | | 292,076 |
| Operation & Maintenance, Air Force | 44,910,832 | -1,504,566 | 43,406,266 |
| Operation & Maintenance, Space Force | 72,436 | | 72,436 |
| Operation & Maintenance, Air Force Reserve | 3,396,818 | -40,500 | 3,356,318 |

SUMMARY OF NATIONAL DEFENSE AUTHORIZATIONS FOR FISCAL YEAR 2020—Continued

(In Thousands of Dollars)

| | FY 2020 Request | Conference Change | Conference Authorized |
|--|--------------------|----------------------|--------------------------|
| Operation & Maintenance, Air National Guard | 6,727,229 | -70,000 | 6,657,229 |
| Operation & Maintenance, Defense-Wide | 37,479,841 | -557,168 | 36,922,673 |
| US Court of Appeals for the Armed Forces, Defense ... | 14,771 | | 14,771 |
| DOD Acquisition Workforce Development Fund | 400,000 | | 400,000 |
| Overseas Humanitarian, Disaster and Civic Aid | 108,600 | 9,063 | 117,663 |
| Cooperative Threat Reduction | 338,700 | 20,000 | 358,700 |
| Environmental Restoration, Army | 207,518 | 5,000 | 212,518 |
| Environmental Restoration, Navy | 335,932 | 15,000 | 350,932 |
| Environmental Restoration, Air Force | 302,744 | 63,064 | 365,808 |
| Environmental Restoration, Defense | 9,105 | | 9,105 |
| Environmental Restoration, Formerly Used Sites | 216,499 | | 216,499 |
| Subtotal, Title III—Operation and Maintenance | 207,661,689 | -5,742,769 | 201,918,920 |
| Title IV—Military Personnel | | | |
| Military Personnel Appropriations | 143,476,503 | -800,000 | 142,676,503 |
| Medicare-Eligible Retiree Health Fund Contributions ... | 7,816,815 | | 7,816,815 |
| Subtotal, Title IV—Military Personnel | 151,293,318 | -800,000 | 150,493,318 |
| Title XIV—Other Authorizations | | | |
| Working Capital Fund, Army | 89,597 | | 89,597 |
| Working Capital Fund, Air Force | 92,499 | | 92,499 |
| Working Capital Fund, DECA | 995,030 | | 995,030 |
| Working Capital Fund, Defense-Wide | 49,085 | | 49,085 |
| Working Capital Fund, Defense Counterintelligence and Security Fund | 200,000 | | 200,000 |
| National Defense Sealift Fund | 0 | | 0 |
| Chemical Agents & Munitions Destruction | 985,499 | | 985,499 |
| Drug Interdiction and Counter Drug Activities | 799,402 | -18,000 | 781,402 |
| Office of the Inspector General | 363,499 | | 363,499 |
| Defense Health Program | 32,998,687 | -283,650 | 32,715,037 |
| Subtotal, Title XIV—Other Authorizations | 36,573,298 | -301,650 | 36,271,648 |
| Total, Division A: Department of Defense Authoriza- tions | 631,267,550 | -7,173,554 | 624,093,996 |
| Division B: Military Construction Authorizations | | | |
| Military Construction | | | |
| Army | 1,453,499 | -182,500 | 1,270,999 |
| Navy | 2,805,743 | -30,782 | 2,774,961 |
| Air Force | 2,179,230 | -455,651 | 1,723,579 |
| Defense-Wide | 2,504,190 | -236,595 | 2,267,595 |
| NATO Security Investment Program | 144,040 | | 144,040 |
| Army National Guard | 210,819 | 155,000 | 365,819 |
| Army Reserve | 60,928 | | 60,928 |
| Navy and Marine Corps Reserve | 54,955 | | 54,955 |
| Air National Guard | 165,971 | 55,500 | 221,471 |
| Air Force Reserve | 59,750 | 24,800 | 84,550 |
| Unaccompanied Housing Improvement Fund | 500 | | 500 |
| Subtotal, Military Construction | 9,639,625 | -670,228 | 8,969,397 |

SUMMARY OF NATIONAL DEFENSE AUTHORIZATIONS FOR FISCAL YEAR 2020—Continued

(In Thousands of Dollars)

| | FY 2020 Request | Conference Change | Conference Authorized |
|--|--------------------|----------------------|--------------------------|
| Family Housing | | | |
| Construction, Army | 141,372 | 5,000 | 146,372 |
| Operation & Maintenance, Army | 357,907 | 99,733 | 457,640 |
| Construction, Navy and Marine Corps | 47,661 | | 47,661 |
| Operation & Maintenance, Navy and Marine Corps | 317,870 | 114,333 | 432,203 |
| Construction, Air Force | 103,631 | | 103,631 |
| Operation & Maintenance, Air Force | 295,016 | 85,933 | 380,949 |
| Operation & Maintenance, Defense-Wide | 57,000 | | 57,000 |
| Improvement Fund | 3,045 | | 3,045 |
| Subtotal, Family Housing | 1,323,502 | 304,999 | 1,628,501 |
| Base Realignment and Closure | | | |
| Base Realignment and Closure—Army | 66,111 | 28,000 | 94,111 |
| Base Realignment and Closure—Navy | 158,349 | 58,000 | 216,349 |
| Base Realignment and Closure—Air Force | 54,066 | 28,000 | 82,066 |
| Subtotal, Base Realignment and Closure | 278,526 | 114,000 | 392,526 |
| Undistributed Adjustments | | | |
| Prior Year Savings | 0 | -64,685 | -64,685 |
| Subtotal, Base Realignment and Closure | 0 | -64,685 | -64,685 |
| Total, Division B: Military Construction Authoriza- tions | 11,241,653 | -315,914 | 10,925,739 |
| Total, 051, Department of Defense-Military | 642,509,203 | -7,489,468 | 635,019,735 |
| Division C: Department of Energy National Security Authorization and Other Authorizations | | | |
| Function 053, Atomic Energy Defense Activities | | | |
| Environmental and Other Defense Activities | | | |
| Nuclear Energy | 137,808 | | 137,808 |
| Weapons Activities | 12,408,603 | 36,177 | 12,444,780 |
| Defense Nuclear Nonproliferation | 1,993,302 | 27,512 | 2,020,814 |
| Naval Reactors | 1,648,396 | -15,000 | 1,633,396 |
| Federal Salaries and Expenses | 434,699 | | 434,699 |
| Defense Environmental Cleanup | 5,506,501 | 21,231 | 5,527,732 |
| Other Defense Activities | 1,035,339 | -149,500 | 885,839 |
| Defense Nuclear Waste Disposal | 26,000 | -26,000 | 0 |
| Subtotal, Environmental and Other Defense Activi- ties | 23,190,648 | -105,580 | 23,085,068 |
| Independent Federal Agency Authorization | | | |
| Defense Nuclear Facilities Safety Board | 29,450 | | 29,450 |
| Subtotal, Independent Federal Agency Authorization | 29,450 | 0 | 29,450 |
| Subtotal, 053, Atomic Energy Defense Activities | 23,220,098 | -105,580 | 23,114,518 |

SUMMARY OF NATIONAL DEFENSE AUTHORIZATIONS FOR FISCAL YEAR 2020—Continued

(In Thousands of Dollars)

| | FY 2020 Request | Conference Change | Conference Authorized |
|---|--------------------|----------------------|--------------------------|
| Function 054, Defense-Related Activities | | | |
| Other Agency Authorizations | | | |
| Maritime Security Program | 300,000 | | 300,000 |
| Subtotal, Independent Federal Agency Authorization | 300,000 | 0 | 300,000 |
| Subtotal, 054, Defense-Related Activities | 300,000 | 0 | 300,000 |
| Subtotal, Division C: Department of Energy National Security Authorization and Other Authorizations .. | 23,520,098 | -105,580 | 23,414,518 |
| Total, National Defense Funding, Base Budget Request | 666,029,301 | -7,595,048 | 658,434,253 |
| National Defense Funding, Overseas Contingency Operations | | | |
| Function 051, Department of Defense-Military | | | |
| Procurement | | | |
| Aircraft Procurement, Army | 381,541 | | 381,541 |
| Missile Procurement, Army | 1,438,058 | -11,500 | 1,426,558 |
| Weapons & Tracked Combat Vehicles, Army | 353,454 | | 353,454 |
| Procurement of Ammunition, Army | 148,682 | | 148,682 |
| Other Procurement, Army | 1,131,450 | -55,403 | 1,076,047 |
| Aircraft Procurement, Navy | 119,045 | | 119,045 |
| Weapons Procurement, Navy | 97,466 | | 97,466 |
| Procurement of Ammunition, Navy & Marine Corps | 204,814 | | 204,814 |
| Other Procurement, Navy | 357,600 | | 357,600 |
| Procurement, Marine Corps | 20,589 | | 20,589 |
| Aircraft Procurement, Air Force | 309,110 | | 309,110 |
| Missile Procurement, Air Force | 201,671 | | 201,671 |
| Procurement of Ammunition, Air Force | 939,433 | | 939,433 |
| Other Procurement, Air Force | 3,538,098 | | 3,538,098 |
| Procurement, Defense-Wide | 447,047 | -5,000 | 442,047 |
| National Guard & Reserve Equipment | | 265,000 | 265,000 |
| Subtotal, Procurement | 9,688,058 | 193,097 | 9,881,155 |
| Research, Development, Test and Evaluation | | | |
| Research, Development, Test & Evaluation, Army | 204,124 | -6,000 | 198,124 |
| Research, Development, Test & Evaluation, Navy | 164,410 | | 164,410 |
| Research, Development, Test & Evaluation, Air Force | 128,248 | | 128,248 |
| Research, Development, Test & Evaluation, Defense-Wide | 401,950 | | 401,950 |
| Subtotal, Research, Development, Test and Evaluation | 898,732 | -6,000 | 892,732 |
| Operation and Maintenance | | | |
| Operation & Maintenance, Army | 18,772,938 | 1,326,048 | 20,098,986 |
| Operation & Maintenance, Army Reserve | 37,592 | | 37,592 |
| Operation & Maintenance, Army National Guard | 83,291 | | 83,291 |

SUMMARY OF NATIONAL DEFENSE AUTHORIZATIONS FOR FISCAL YEAR 2020—Continued

(In Thousands of Dollars)

| | FY 2020 Request | Conference Change | Conference Authorized |
|---|--------------------|----------------------|--------------------------|
| Afghanistan Security Forces Fund | 4,803,978 | -300,000 | 4,503,978 |
| Counter-ISIS Train and Equip Fund | 1,045,000 | -200,000 | 845,000 |
| Operation & Maintenance, Navy | 6,561,650 | 1,450,000 | 8,011,650 |
| Operation & Maintenance, Marine Corps | 1,124,791 | 400,000 | 1,524,791 |
| Operation & Maintenance, Navy Reserve | 23,036 | | 23,036 |
| Operation & Maintenance, Marine Corps Reserve | 8,707 | | 8,707 |
| Operation & Maintenance, Air Force | 9,396,379 | 1,150,000 | 10,546,379 |
| Operation & Maintenance, Air Force Reserve | 29,758 | | 29,758 |
| Operation & Maintenance, Air National Guard | 176,909 | | 176,909 |
| Operation & Maintenance, Defense-Wide | 8,368,112 | 205,000 | 8,573,112 |
| Ukraine Security Assistance | | 300,000 | 300,000 |
| Subtotal, Operation and Maintenance | 50,432,141 | 4,331,048 | 54,763,189 |
| Military Personnel | | | |
| Military Personnel Appropriations | 4,485,808 | | 4,485,808 |
| Subtotal, Military Personnel | 4,485,808 | 0 | 4,485,808 |
| Other Authorizations | | | |
| Working Capital Fund, Army | 20,100 | | 20,100 |
| Drug Interdiction and Counter Drug Activities | 163,596 | | 163,596 |
| Office of the Inspector General | 24,254 | | 24,254 |
| Defense Health Program | 347,746 | | 347,746 |
| Subtotal, Title XIV—Other Authorizations | 555,696 | 0 | 555,696 |
| Military Construction | | | |
| Army | 9,389,218 | -9,252,288 | 136,930 |
| Navy | 94,570 | 166,971 | 261,541 |
| Air Force | 314,738 | 162,211 | 476,949 |
| Defense-Wide | 46,000 | | 46,000 |
| Subtotal, Military Construction | 9,844,526 | -8,923,106 | 921,420 |
| Subtotal, 051, Department of Defense-Military | 75,904,961 | -4,404,961 | 71,500,000 |
| Total, National Defense Funding, Overseas Contingency Operations Funding | 75,904,961 | -4,404,961 | 71,500,000 |
| Total, National Defense | 741,934,262 | -12,000,009 | 729,934,253 |
| MEMORANDUM: DISASTER RECOVERY AUTHORIZATIONS | | | |
| Procurement | | 566,422 | 566,422 |
| Research and Development | | 114,496 | 114,496 |
| Operations and Maintenance | | 535,900 | 535,900 |
| Military Construction | | 4,119,813 | 4,119,813 |
| MEMORANDUM: NON-DEFENSE AUTHORIZATIONS | | | |
| Title XIV—Armed Forces Retirement Home (Function 600) | | | 64,300 |
| Title XXXIV—Naval Petroleum and Oil Shale Reserves (Function 270) | | | 14,000 |

SUMMARY OF NATIONAL DEFENSE AUTHORIZATIONS FOR FISCAL YEAR 2020—Continued

(In Thousands of Dollars)

| | FY 2020 Request | Conference Change | Conference Authorized |
|--|----------------------------|------------------------------|----------------------------------|
| MEMORANDUM: TRANSFER AUTHORITIES (NON-ADD) | | | |
| Title X—General Transfer Authority | | | [4,000,000] |
| Title XV—Special Transfer Authority | | | [2,000,000] |
| MEMORANDUM: DEFENSE AUTHORIZATIONS NOT UNDER THE JURISDICTION OF THE ARMED SERVICES COMMITTEE (NON-ADD) | | | |
| Defense Production Act | [34,000] | | [34,000] |

NATIONAL DEFENSE BUDGET AUTHORITY IMPLICATION

(In Thousands of Dollars)

| | FY 2020 Request | Conference Change | Conference Authorized |
|---|--------------------|----------------------|--------------------------|
| Summary, Discretionary Authorizations Within the Jurisdiction of the Armed Services Committee | | | |
| SUBTOTAL, DEPARTMENT OF DEFENSE (051) | 642,509,203 | -7,489,468 | 635,019,735 |
| SUBTOTAL, ATOMIC ENERGY DEFENSE PROGRAMS (053) | 23,220,098 | -105,580 | 23,114,518 |
| SUBTOTAL, DEFENSE-RELATED ACTIVITIES (054) | 300,000 | | 300,000 |
| TOTAL, NATIONAL DEFENSE (050)—BASE BILL | 666,029,301 | -7,595,048 | 658,434,253 |
| TOTAL, OVERSEAS CONTINGENCY OPERATIONS | 75,904,961 | -4,404,961 | 71,500,000 |
| GRAND TOTAL, NATIONAL DEFENSE | 741,934,262 | -12,000,009 | 729,934,253 |
| Scoring adjustments | | | |
| Transfers to non-Defense budget functions already credited to 050 by OMB | -142,000 | | -142,000 |
| Assumed reductions to previously enacted funding levels | -25,000 | | -25,000 |
| Adjustments for revised BCA caps | 10,000 | | 10,000 |
| Subtotal, Scoring Adjustments | -157,000 | | -157,000 |
| Base National Defense Discretionary Programs that are Not In the Jurisdiction of the Armed Services Committee or Do Not Require Additional Authorization (CBO Estimates) | | | |
| Defense Production Act Purchases | 34,000 | | 34,000 |
| Indefinite Account: Disposal Of DOD Real Property | 8,000 | | 8,000 |
| Indefinite Account: Lease Of DOD Real Property | 34,000 | | 34,000 |
| Subtotal, Budget Sub-Function 051 | 76,000 | | 76,000 |
| Other Discretionary Programs | 8,146,000 | | 8,146,000 |
| Subtotal, Budget Sub-Function 054 | 8,146,000 | | 8,146,000 |
| Total Defense Discretionary Adjustments (050) | 8,222,000 | | 8,222,000 |
| Budget Authority Implication, National Defense Discretionary | | | |
| Department of Defense--Military (051) | 718,414,165 | -11,894,429 | 706,519,735 |
| Atomic Energy Defense Activities (053) | 23,220,098 | -105,580 | 23,114,518 |
| Defense-Related Activities (054) | 8,522,000 | | 8,522,000 |
| Total BA Implication, National Defense Discretionary | 749,999,263 | -12,000,009 | 737,999,253 |
| National Defense Mandatory Programs, Current Law (CBO Baseline) | | | |
| Concurrent receipt accrual payments to the Military Retirement Fund | 8,577,000 | | 8,577,000 |
| Revolving, trust and other DOD Mandatory | 1,818,000 | | 1,818,000 |
| Offsetting receipts | -1,869,000 | | -1,869,000 |
| Subtotal, Budget Sub-Function 051 | 8,526,000 | | 8,526,000 |
| Energy employees occupational illness compensation programs and other | 1,495,000 | | 1,495,000 |
| Subtotal, Budget Sub-Function 053 | 1,495,000 | | 1,495,000 |
| Radiation exposure compensation trust fund | 54,000 | | 54,000 |
| Payment to CIA retirement fund and other | 514,000 | | 514,000 |
| Subtotal, Budget Sub-Function 054 | 568,000 | | 568,000 |
| Total National Defense Mandatory (050) | 10,589,000 | | 10,589,000 |
| Budget Authority Implication, National Defense Discretionary and Mandatory | | | |
| Department of Defense--Military (051) | 726,940,165 | -11,894,429 | 715,045,735 |

NATIONAL DEFENSE BUDGET AUTHORITY IMPLICATION—Continued

(In Thousands of Dollars)

| | FY 2020 Request | Conference Change | Conference Authorized |
|---|----------------------------|------------------------------|----------------------------------|
| Atomic Energy Defense Activities (053) | 24,715,098 | -105,580 | 24,609,518 |
| Defense-Related Activities (054) | 9,090,000 | | 9,090,000 |
| Total BA Implication, National Defense Discretionary and Mandatory | 760,745,263 | -12,000,009 | 748,745,253 |
| Memorandum: Disaster Recovery Authorizations | | | |
| Department of Defense--Military (051) | 0 | 5,336,631 | 5,336,631 |

TITLE XLI—PROCUREMENT

SEC. 4101. PROCUREMENT.

| SEC. 4101. PROCUREMENT (In Thousands of Dollars) | | | | | | | | | | | |
|---|---|-----------------|-----------|------------------|-----------|-------------------|------------|-------------------|------|-----------------------|---------|
| Line | Item | FY 2020 Request | | House Authorized | | Senate Authorized | | Conference Change | | Conference Authorized | |
| | | Qty | Cost | Qty | Cost | Qty | Cost | Qty | Cost | Qty | Cost |
| AIRCRAFT PROCUREMENT, ARMY | | | | | | | | | | | |
| FIXED WING | | | | | | | | | | | |
| 002 | UTILITY F/W AIRCRAFT | 1 | 16,000 | | | | | | -1 | -16,000 | |
| | Early to need | | | [-1] | [-16,000] | | | | [-1] | [-16,000] | |
| | Program zeroed out in FYDP | | | | | [-1] | [-16,000] | | | | |
| 004 | RQ-11 (RAVEN) | | 23,510 | | 21,510 | | 23,510 | | | -2,090 | 21,420 |
| | Unit cost growth | | | | [-2,000] | | | | | [-2,090] | |
| ROTARY | | | | | | | | | | | |
| 005 | TACTICAL UNMANNED AIRCRAFT SYSTEM (TUAS) | | 12,100 | | 12,100 | | 12,100 | | | -6,000 | 6,100 |
| | Program reduction | | | | | | | | | [-6,000] | |
| 007 | HELICOPTER, LIGHT UTILITY (LUH) | | | | 11,000 | | | | | 11,000 | 11,000 |
| | Program increase for sustainment improvements | | | | [11,000] | | | | | [11,000] | |
| 008 | AH-64 APACHE BLOCK IIIA REMAN | 48 | 806,849 | 48 | 786,009 | 48 | 806,849 | | | -8,064 | 798,785 |
| | Unjustified cost growth | | | | [-20,840] | | | | | [-8,064] | |
| 009 | AH-64 APACHE BLOCK IIIA REMAN | | 190,870 | | 174,970 | | 190,870 | | | | 190,870 |
| | Unjustified cost growth | | | | [-15,900] | | | | | | |
| 010 | AH-64 APACHE BLOCK IIIB NEW BUILD | | | | | 3 | 105,000 | | | | |
| | | | | | | [3] | [105,000] | | | | |
| 012 | UH-60 BLACKHAWK M MODEL (MYP) | 73 | 1,411,540 | 73 | 1,411,540 | 66 | 1,271,540 | | | -13,800 | 73 |
| | Funding ahead of acquisition strategy | | | | | [-7] | [-140,000] | | | | |
| | Unit cost growth | | | | | | | | | [-13,800] | |
| 013 | UH-60 BLACKHAWK M MODEL (MYP) | | 79,572 | | 79,572 | | 79,572 | | | | 79,572 |
| 014 | UH-60 BLACK HAWK L AND V MODELS | 25 | 169,290 | 25 | 169,290 | 33 | 204,290 | | | | 25 |
| | Increase fielding for ARNG units | | | | | [8] | [35,000] | | | | |
| 015 | CH-47 HELICOPTER | 8 | 140,290 | 8 | 131,290 | 8 | 140,290 | | | -9,000 | 8 |
| | Unit cost growth | | | | [-9,000] | | | | | [-9,000] | |

November 23, 2019 (1:06 a.m.)

| | | | | | | | | | | | |
|-----|---|------------|------------------|------------|------------------|------------|------------------|-----------|----------------|------------|------------------|
| 016 | CH-47 HELICOPTER | 18,186 | | 46,186 | | 18,186 | | 28,000 | | 46,186 | |
| | Advance procurement for CH-47F Block II | | | [28,000] | | | | [28,000] | | | |
| | MODIFICATION OF AIRCRAFT | | | | | | | | | | |
| 019 | UNIVERSAL GROUND CONTROL EQUIPMENT (UAS) | 2,090 | | 2,090 | | 2,090 | | | | 2,090 | |
| 020 | GRAY EAGLE MODS2 | 14,699 | | 14,699 | | 14,699 | | | | 14,699 | |
| 021 | MULTI SENSOR ABN RECON (MIP) | 35,189 | | 35,189 | | 35,189 | | | | 35,189 | |
| 022 | AH-64 MODS | 58,172 | | 58,172 | | 58,172 | | | | 58,172 | |
| 023 | CH-47 CARGO HELICOPTER MODS (MYP) | 11,785 | | 6,785 | | 11,785 | | | | 11,785 | |
| | Unobligated balances | | | [-5,000] | | | | | | | |
| 024 | GRCS SEMA MODS (MIP) | 5,677 | | 5,677 | | 5,677 | | | | 5,677 | |
| 025 | ARL SEMA MODS (MIP) | 6,566 | | 6,566 | | 6,566 | | | | 6,566 | |
| 026 | EMARSS SEMA MODS (MIP) | 3,859 | | 3,859 | | 3,859 | | | | 3,859 | |
| 027 | UTILITY/CARGO AIRPLANE MODS | 15,476 | | 13,476 | | 15,476 | | -2,000 | | 13,476 | |
| | Unit cost discrepancy | | | [-2,000] | | | | [-2,000] | | | |
| 028 | UTILITY HELICOPTER MODS | 6,744 | | 6,744 | | 6,744 | | | | 6,744 | |
| 029 | NETWORK AND MISSION PLAN | 105,442 | | 98,442 | | 105,442 | | -7,000 | | 98,442 | |
| | Cost growth | | | [-7,000] | | | | [-7,000] | | | |
| 030 | COMMS, NAV SURVEILLANCE | 164,315 | | 164,315 | | 164,315 | | | | 164,315 | |
| 032 | GATM ROLLUP | 30,966 | | 30,966 | | 30,966 | | | | 30,966 | |
| 033 | RQ-7 UAV MODS | 8,983 | 2 | 38,983 | | 8,983 | | | | 8,983 | |
| | Program increase | | [2] | [30,000] | | | | | | | |
| 034 | UAS MODS | 10,205 | | 10,205 | | 10,205 | | | | 10,205 | |
| | GROUND SUPPORT AVIONICS | | | | | | | | | | |
| 035 | AIRCRAFT SURVIVABILITY EQUIPMENT | 52,297 | | 52,297 | | 52,297 | | | | 52,297 | |
| 036 | SURVIVABILITY CM | 8,388 | | 8,388 | | 8,388 | | | | 8,388 | |
| 037 | CMWS | 13,999 | | 13,999 | | 13,999 | | | | 13,999 | |
| 038 | COMMON INFRARED COUNTERMEASURES (CIRCM) | 168,784 | | 168,784 | | 168,784 | | | | 168,784 | |
| | OTHER SUPPORT | | | | | | | | | | |
| 039 | AVIONICS SUPPORT EQUIPMENT | 1,777 | | 1,777 | | 1,777 | | | | 1,777 | |
| 040 | COMMON GROUND EQUIPMENT | 18,624 | | 18,624 | | 18,624 | | | | 18,624 | |
| 041 | AIRCREW INTEGRATED SYSTEMS | 48,255 | | 48,255 | | 48,255 | | | | 48,255 | |
| 042 | AIR TRAFFIC CONTROL | 32,738 | | 32,738 | | 32,738 | | | | 32,738 | |
| 044 | LAUNCHER, 2.75 ROCKET | 2,201 | | 2,201 | | 2,201 | | | | 2,201 | |
| 045 | LAUNCHER GUIDED MISSILE: LONGBOW HELLFIRE XM2 | 9 | 991 | 9 | 991 | 9 | 991 | | 9 | 991 | |
| | TOTAL AIRCRAFT PROCUREMENT, ARMY | 164 | 3,696,429 | 165 | 3,687,689 | 167 | 3,680,429 | -1 | -24,954 | 163 | 3,671,475 |
| | MISSILE PROCUREMENT, ARMY | | | | | | | | | | |
| | SURFACE-TO-AIR MISSILE SYSTEM | | | | | | | | | | |
| 001 | SYSTEM INTEGRATION AND TEST PROCUREMENT | | 113,857 | | 113,857 | | 113,857 | | | 113,857 | |
| 002 | M-SHORAD—PROCUREMENT | 17 | 103,800 | 17 | 56,800 | 17 | 103,800 | -32,000 | 17 | 71,800 | |

| SEC. 4101. PROCUREMENT (In Thousands of Dollars) | | | | | | | | | | | |
|---|---|-----------------|---------|------------------|-----------|-------------------|-----------|-------------------|-----------|-----------------------|---------|
| Line | Item | FY 2020 Request | | House Authorized | | Senate Authorized | | Conference Change | | Conference Authorized | |
| | | Qty | Cost | Qty | Cost | Qty | Cost | Qty | Cost | Qty | Cost |
| | Early to need | | | | [-47,000] | | | | [-32,000] | | |
| 003 | MSE MISSILE | 138 | 698,603 | 138 | 698,603 | 138 | 698,603 | | | 138 | 698,603 |
| 004 | INDIRECT FIRE PROTECTION CAPABILITY INC 2-I | | 9,337 | | 9,337 | | 239,237 | | | | 9,337 |
| | Full funding of Iron Dome battery | | | | | | [229,900] | | | | |
| 005A | THAAD | | | | | 37 | 425,900 | | | | |
| | THAAD program transfer from MDA | | | | | [37] | [425,900] | | | | |
| | AIR-TO-SURFACE MISSILE SYSTEM | | | | | | | | | | |
| 006 | HELLFIRE SYS SUMMARY | 1,870 | 193,284 | 1,870 | 173,284 | 1,870 | 193,284 | | -7,200 | 1,870 | 186,084 |
| | Unit cost growth | | | | [-20,000] | | | | [-7,200] | | |
| 007 | JOINT AIR-TO-GROUND MSLS (JAGM) | 609 | 233,353 | 609 | 198,353 | 609 | 233,353 | | -34,058 | 609 | 199,295 |
| | Contract and schedule delays | | | | [-35,000] | | | | [-34,058] | | |
| | ANTI-TANK/ASSAULT MISSILE SYS | | | | | | | | | | |
| 008 | JAVELIN (AAWS-M) SYSTEM SUMMARY | 672 | 138,405 | 672 | 138,405 | 672 | 138,405 | | | 672 | 138,405 |
| 009 | TOW 2 SYSTEM SUMMARY | 1,460 | 114,340 | 1,460 | 110,340 | 1,460 | 114,340 | | -6,382 | 1,460 | 107,958 |
| | Unit cost growth | | | | [-4,000] | | | | [-6,382] | | |
| 010 | TOW 2 SYSTEM SUMMARY | | 10,500 | | 10,500 | | 10,500 | | | | 10,500 |
| 011 | GUIDED MLRS ROCKET (GMLRS) | 6,489 | 797,213 | 6,489 | 767,213 | 6,489 | 797,213 | | -30,000 | 6,489 | 767,213 |
| | Program adjustment | | | | [-30,000] | | | | [-30,000] | | |
| 012 | MLRS REDUCED RANGE PRACTICE ROCKETS (RRPR) | 2,982 | 27,555 | 2,982 | 27,555 | 2,982 | 27,555 | | | 2,982 | 27,555 |
| 014 | ARMY TACTICAL MSL SYS (ATACMS)—SYS SUM | 146 | 209,842 | 146 | 184,842 | 146 | 209,842 | | -39,829 | 146 | 170,013 |
| | Excess to need | | | | [-25,000] | | | | [-39,829] | | |
| | MODIFICATIONS | | | | | | | | | | |
| 016 | PATRIOT MODS | | 279,464 | | 279,464 | | 279,464 | | | | 279,464 |
| 017 | ATACMS MODS | | 85,320 | | 80,320 | | 85,320 | | -5,000 | | 80,320 |
| | Unit cost growth | | | | [-5,000] | | | | [-5,000] | | |
| 018 | GMLRS MOD | | 5,094 | | 5,094 | | 5,094 | | | | 5,094 |
| 019 | STINGER MODS | | 81,615 | | 81,615 | | 81,615 | | | | 81,615 |
| 020 | AVENGER MODS | | 14,107 | | 14,107 | | 14,107 | | | | 14,107 |
| 021 | ITAS/TOW MODS | | 3,469 | | 3,469 | | 3,469 | | | | 3,469 |
| 022 | MLRS MODS | | 39,019 | | 39,019 | | 39,019 | | | | 39,019 |
| 023 | HIMARS MODIFICATIONS | | 12,483 | | 12,483 | | 12,483 | | | | 12,483 |
| | SPARES AND REPAIR PARTS | | | | | | | | | | |
| 024 | SPARES AND REPAIR PARTS | | 26,444 | | 26,444 | | 26,444 | | | | 26,444 |

| | | | | | | | | | | |
|--|--|---------------|------------------|---------------|------------------|---------------|------------------|-----------------|---------------|------------------|
| SUPPORT EQUIPMENT & FACILITIES | | | | | | | | | | |
| 025 | AIR DEFENSE TARGETS | | 10,593 | | 10,593 | | 10,593 | | 10,593 | |
| | TOTAL MISSILE PROCUREMENT, ARMY | 14,383 | 3,207,697 | 14,383 | 3,041,697 | 14,420 | 3,863,497 | -154,469 | 14,383 | 3,053,228 |
| PROCUREMENT OF W&TCV, ARMY | | | | | | | | | | |
| TRACKED COMBAT VEHICLES | | | | | | | | | | |
| 002 | ARMORED MULTI PURPOSE VEHICLE (AMPV) | 65 | 264,040 | 65 | 259,040 | 65 | 264,040 | -33,733 | 65 | 230,307 |
| | Program reduction | | | | [-5,000] | | | [-33,733] | | |
| MODIFICATION OF TRACKED COMBAT VEHICLES | | | | | | | | | | |
| 003 | STRYKER (MOD) | | 144,387 | | 393,587 | | 393,587 | 249,200 | | 393,587 |
| | Accelerate Stryker medium caliber weapon system—Army unfunded priority | | | | [249,200] | | | [249,200] | | |
| | UPL Stryker lethality 30 mm cannon | | | | | | [249,200] | | | |
| 004 | STRYKER UPGRADE | 152 | 550,000 | 152 | 550,000 | 152 | 550,000 | -27,038 | 152 | 522,962 |
| | Unit cost growth | | | | | | | [-27,038] | | |
| 005 | BRADLEY PROGRAM (MOD) | | 638,781 | | 546,781 | | 598,781 | -65,000 | | 573,781 |
| | Excess to need due to termination of subprogram | | | | | | [-40,000] | | | |
| | Program decrease | | | | [-27,000] | | | [-65,000] | | |
| | Program delay | | | | [-65,000] | | | | | |
| 006 | M109 FOV MODIFICATIONS | | 25,756 | | 25,756 | | 25,756 | | | 25,756 |
| 007 | PALADIN INTEGRATED MANAGEMENT (PIM) | 53 | 563,425 | 53 | 563,425 | 53 | 563,425 | | 53 | 563,425 |
| 009 | ASSAULT BRIDGE (MOD) | | 2,821 | | 2,821 | | 2,821 | | | 2,821 |
| 010 | ASSAULT BREACHER VEHICLE | 6 | 31,697 | 6 | 31,697 | 6 | 31,697 | | 6 | 31,697 |
| 011 | M88 FOV MODS | | 4,500 | | 4,500 | | 4,500 | | | 4,500 |
| 012 | JOINT ASSAULT BRIDGE | 44 | 205,517 | 44 | 205,517 | 44 | 205,517 | | 44 | 205,517 |
| 013 | M1 ABRAMS TANK (MOD) | | 348,800 | | 408,800 | | 348,800 | 53,000 | | 401,800 |
| | Test support excess to need | | | | | | | [-7,000] | | |
| | Vehicle protection system for one armored brigade | | | | [60,000] | | | [60,000] | | |
| 014 | ABRAMS UPGRADE PROGRAM | 165 | 1,752,784 | 165 | 1,752,784 | 165 | 1,717,784 | | 165 | 1,752,784 |
| | Early to need | | | | | | [-35,000] | | | |
| WEAPONS & OTHER COMBAT VEHICLES | | | | | | | | | | |
| 016 | MULTI-ROLE ANTI-ARMOR ANTI-PERSONNEL WEAPONS | | 19,420 | | 19,420 | | 19,420 | | | 19,420 |
| 017 | GUN AUTOMATIC 30MM M230 | | 20,000 | | 20,000 | | 20,000 | -14,958 | | 5,042 |
| | Program reduction | | | | | | | [-14,958] | | |
| 019 | MORTAR SYSTEMS | | 14,907 | | 14,907 | | 14,907 | | | 14,907 |
| 020 | XM320 GRENADE LAUNCHER MODULE (GLM) | | 191 | | 191 | | 191 | | | 191 |
| 021 | PRECISION SNIPER RIFLE | | 7,977 | | 7,977 | | 7,977 | | | 7,977 |
| 022 | COMPACT SEMI-AUTOMATIC SNIPER SYSTEM | | 9,860 | | 9,860 | | 9,860 | | | 9,860 |
| 023 | CARBINE | | 30,331 | | 30,331 | | 30,331 | | | 30,331 |
| 024 | SMALL ARMS—FIRE CONTROL | | 8,060 | | 60 | | 8,060 | -8,060 | | |

| SEC. 4101. PROCUREMENT (In Thousands of Dollars) | | | | | | | | | | | |
|---|---|-----------------|------------------|------------------|------------------|-------------------|------------------|-------------------|----------------|-----------------------|------------------|
| Line | Item | FY 2020 Request | | House Authorized | | Senate Authorized | | Conference Change | | Conference Authorized | |
| | | Qty | Cost | Qty | Cost | Qty | Cost | Qty | Cost | Qty | Cost |
| | Late contract award | | | | [-8,000] | | | | | [-8,060] | |
| 025 | COMMON REMOTELY OPERATED WEAPONS STATION | | 24,007 | | 24,007 | | 24,007 | | | | 24,007 |
| 026 | HANDGUN | | 6,174 | | 6,174 | | 6,174 | | | | 6,174 |
| | MOD OF WEAPONS AND OTHER COMBAT VEH | | | | | | | | | | |
| 028 | MK-19 GRENADE MACHINE GUN MODS | | 3,737 | | 3,737 | | 3,737 | | | | 3,737 |
| 029 | M777 MODS | | 2,367 | | 2,367 | | 2,367 | | | | 2,367 |
| 030 | M4 CARBINE MODS | | 17,595 | | 17,595 | | 17,595 | | | | 17,595 |
| 033 | M240 MEDIUM MACHINE GUN MODS | | 8,000 | | 8,000 | | 8,000 | | | | 8,000 |
| 034 | SNIPER RIFLES MODIFICATIONS | | 2,426 | | 2,426 | | 2,426 | | | | 2,426 |
| 035 | M119 MODIFICATIONS | | 6,269 | | 6,269 | | 6,269 | | | | 6,269 |
| 036 | MORTAR MODIFICATION | | 1,693 | | 1,693 | | 1,693 | | | | 1,693 |
| 037 | MODIFICATIONS LESS THAN \$5.0M (WOCV-WTCV) | | 4,327 | | 4,327 | | 4,327 | | | | 4,327 |
| | SUPPORT EQUIPMENT & FACILITIES | | | | | | | | | | |
| 038 | ITEMS LESS THAN \$5.0M (WOCV-WTCV) | | 3,066 | | 3,066 | | 3,066 | | | | 3,066 |
| 039 | PRODUCTION BASE SUPPORT (WOCV-WTCV) | | 2,651 | | 2,651 | | 2,651 | | | | 2,651 |
| | TOTAL PROCUREMENT OF W&TCV, ARMY | 485 | 4,715,566 | 485 | 4,919,766 | 485 | 4,889,766 | | 153,411 | 485 | 4,868,977 |
| | PROCUREMENT OF AMMUNITION, ARMY | | | | | | | | | | |
| | SMALL/MEDIUM CAL AMMUNITION | | | | | | | | | | |
| 001 | CTG, 5.56MM, ALL TYPES | | 68,949 | | 63,949 | | 68,949 | | | -3,429 | 65,520 |
| | Prior-year carryover | | | | [-5,000] | | | | | [-3,429] | |
| 002 | CTG, 7.62MM, ALL TYPES | | 114,228 | | 111,228 | | 114,228 | | | -2,000 | 112,228 |
| | Prior-year carryover | | | | [-3,000] | | | | | [-2,000] | |
| 003 | CTG, HANDGUN, ALL TYPES | | 17,807 | | 12,807 | | 17,807 | | | | 17,807 |
| | Program adjustment | | | | [-5,000] | | | | | | |
| 004 | CTG, .50 CAL, ALL TYPES | | 63,966 | | 63,966 | | 63,966 | | | | 63,966 |
| 005 | CTG, 20MM, ALL TYPES | | 35,920 | | 27,920 | | 35,920 | | | -8,000 | 27,920 |
| | Unit cost growth | | | | [-8,000] | | | | | [-8,000] | |
| 006 | CTG, 25MM, ALL TYPES | | 8,990 | | 8,990 | | 8,990 | | | | 8,990 |
| 007 | CTG, 30MM, ALL TYPES | | 68,813 | | 57,229 | | 68,813 | | | -3,476 | 65,337 |
| | Prior-year carry over | | | | [-1,134] | | | | | [-1,134] | |
| | Program adjustment | | | | [-10,450] | | | | | [-2,342] | |
| 008 | CTG, 40MM, ALL TYPES | | 103,952 | | 103,952 | | 103,952 | | | | 103,952 |

| | | | | | | | |
|--------------------------------|--|------------|-----|--|------------|-----------|------------|
| MORTAR AMMUNITION | | | | | | | |
| 009 | 60MM MORTAR, ALL TYPES | 50,580 | | | 50,580 | -1,000 | 49,580 |
| | Unit cost discrepancy | | | | | [-1,000] | |
| 010 | 81MM MORTAR, ALL TYPES | 59,373 | | | 59,373 | -14,700 | 44,673 |
| | Contract delays | | | | | [-14,700] | |
| 011 | 120MM MORTAR, ALL TYPES | 125,452 | | | 125,452 | -2,000 | 123,452 |
| | Unit cost growth | | | | | [-2,000] | |
| TANK AMMUNITION | | | | | | | |
| 012 | CARTRIDGES, TANK, 105MM AND 120MM, ALL TYPES | 171,284 | | | 171,284 | -50,820 | 120,464 |
| | Unit cost growth | | | | | [-50,820] | |
| ARTILLERY AMMUNITION | | | | | | | |
| 013 | ARTILLERY CARTRIDGES, 75MM & 105MM, ALL TYPES | 44,675 | | | 44,675 | | 44,675 |
| 014 | ARTILLERY PROJECTILE, 155MM, ALL TYPES | 266,037 | | | 266,037 | | 266,037 |
| 015 | PROJ 155MM EXTENDED RANGE M982 | 441 57,434 | 441 | | 441 57,434 | | 441 57,434 |
| 016 | ARTILLERY PROPELLANTS, FUZES AND PRIMERS, ALL | 271,602 | | | 271,602 | -3,580 | 268,022 |
| | Cost growth and unjustified product improvements | | | | | [-3,580] | |
| MINES | | | | | | | |
| 017 | MINES & CLEARING CHARGES, ALL TYPES | 55,433 | | | 55,433 | -16,194 | 39,239 |
| | Contract delay | | | | | [-16,194] | |
| ROCKETS | | | | | | | |
| 018 | SHOULDER LAUNCHED MUNITIONS, ALL TYPES | 74,878 | | | 74,878 | | 74,878 |
| 019 | ROCKET, HYDRA 70, ALL TYPES | 175,994 | | | 175,994 | -10,000 | 165,994 |
| | Excess support costs | | | | | [-10,000] | |
| OTHER AMMUNITION | | | | | | | |
| 020 | CAD/PAD, ALL TYPES | 7,595 | | | 7,595 | | 7,595 |
| 021 | DEMOLITION MUNITIONS, ALL TYPES | 51,651 | | | 51,651 | | 51,651 |
| 022 | GRENADAES, ALL TYPES | 40,592 | | | 40,592 | | 40,592 |
| 023 | SIGNALS, ALL TYPES | 18,609 | | | 18,609 | | 18,609 |
| 024 | SIMULATORS, ALL TYPES | 16,054 | | | 16,054 | | 16,054 |
| MISCELLANEOUS | | | | | | | |
| 025 | AMMO COMPONENTS, ALL TYPES | 5,261 | | | 5,261 | | 5,261 |
| 026 | NON-LETHAL AMMUNITION, ALL TYPES | 715 | | | 715 | | 715 |
| 027 | ITEMS LESS THAN \$5 MILLION (AMMO) | 9,213 | | | 9,213 | | 9,213 |
| 028 | AMMUNITION PECULIAR EQUIPMENT | 10,044 | | | 10,044 | | 10,044 |
| 029 | FIRST DESTINATION TRANSPORTATION (AMMO) | 18,492 | | | 18,492 | | 18,492 |
| 030 | CLOSEOUT LIABILITIES | 99 | | | 99 | | 99 |
| PRODUCTION BASE SUPPORT | | | | | | | |
| 031 | INDUSTRIAL FACILITIES | 474,511 | | | 474,511 | | 474,511 |
| 032 | CONVENTIONAL MUNITIONS DEMILITARIZATION | 202,512 | | | 202,512 | | 202,512 |
| 033 | ARMS INITIATIVE | 3,833 | | | 3,833 | | 3,833 |

| SEC. 4101. PROCUREMENT (In Thousands of Dollars) | | | | | | | | | | | |
|---|--|-----------------|------------------|------------------|------------------|-------------------|------------------|-------------------|-----------------|-----------------------|------------------|
| Line | Item | FY 2020 Request | | House Authorized | | Senate Authorized | | Conference Change | | Conference Authorized | |
| | | Qty | Cost | Qty | Cost | Qty | Cost | Qty | Cost | Qty | Cost |
| | TOTAL PROCUREMENT OF AMMUNITION, ARMY | 441 | 2,694,548 | 441 | 2,554,064 | 441 | 2,694,548 | | -115,199 | 441 | 2,579,349 |
| | OTHER PROCUREMENT, ARMY | | | | | | | | | | |
| | TACTICAL VEHICLES | | | | | | | | | | |
| 001 | TACTICAL TRAILERS/DOLLY SETS | | 12,993 | | 12,993 | | 12,993 | | | | 12,993 |
| 002 | SEMITRAILERS, FLATBED: | | 102,386 | | 102,386 | | 102,386 | | | | 102,386 |
| 003 | AMBULANCE, 4 LITTER, 5/4 TON, 4X4 | | 127,271 | | 127,271 | | 127,271 | | | | 127,271 |
| 004 | GROUND MOBILITY VEHICLES (GMV) | | 37,038 | | 35,038 | | 37,038 | | -2,000 | | 35,038 |
| | Unit cost growth | | | | [-2,000] | | | | [-2,000] | | |
| 006 | JOINT LIGHT TACTICAL VEHICLE | 2,530 | 996,007 | 2,530 | 976,507 | 2,530 | 956,507 | | -19,500 | 2,530 | 976,507 |
| | Army requested realignment | | | | | | [-4,500] | | | | |
| | Army requested transfer to RDTE, A line 169 | | | | [-4,500] | | | | [-4,500] | | |
| | Early to need | | | | | | [-35,000] | | | | |
| | Simulator delay | | | | [-15,000] | | | | [-15,000] | | |
| 007 | TRUCK, DUMP, 20T (CCE) | | 10,838 | | 10,838 | | 10,838 | | | | 10,838 |
| 008 | FAMILY OF MEDIUM TACTICAL VEH (FMTV) | | 72,057 | | 138,057 | | 72,057 | | 66,000 | | 138,057 |
| | Program increase | | | | [66,000] | | | | [66,000] | | |
| 009 | FIRETRUCKS & ASSOCIATED FIREFIGHTING EQUIP | | 28,048 | | 28,048 | | 28,048 | | | | 28,048 |
| 010 | FAMILY OF HEAVY TACTICAL VEHICLES (FHTV) | | 9,969 | | 9,969 | | 9,969 | | | | 9,969 |
| 011 | PLS ESP | | 6,280 | | 6,280 | | 6,280 | | | | 6,280 |
| 012 | HVY EXPANDED MOBILE TACTICAL TRUCK EXT SERV | | 30,841 | | 131,841 | | 30,841 | | 64,344 | | 95,185 |
| | Program increase | | | | [101,000] | | | | [64,344] | | |
| 013 | HMMWV RECAPITALIZATION PROGRAM | | 5,734 | | 5,734 | | 5,734 | | | | 5,734 |
| 014 | TACTICAL WHEELED VEHICLE PROTECTION KITS | | 45,113 | | 45,113 | | 45,113 | | | | 45,113 |
| 015 | MODIFICATION OF IN SVC EQUIP | | 58,946 | | 58,946 | | 58,946 | | | | 58,946 |
| | NON-TACTICAL VEHICLES | | | | | | | | | | |
| 017 | HEAVY ARMORED VEHICLE | | 791 | | 791 | | 791 | | | | 791 |
| 018 | PASSENGER CARRYING VEHICLES | | 1,416 | | 1,416 | | 1,416 | | | | 1,416 |
| 019 | NONTACTICAL VEHICLES, OTHER | | 29,891 | | 29,891 | | 29,891 | | | | 29,891 |
| | COMM—JOINT COMMUNICATIONS | | | | | | | | | | |
| 021 | SIGNAL MODERNIZATION PROGRAM | | 153,933 | | 148,933 | | 153,933 | | -10,000 | | 143,933 |
| | Excess funding for spares | | | | [-5,000] | | | | [-10,000] | | |
| 022 | TACTICAL NETWORK TECHNOLOGY MOD IN SVC | | 387,439 | | 411,439 | | 387,439 | | 24,000 | | 411,439 |

| | | | | | | |
|-----|---|---------|-----------|---------|-----------|---------|
| | ITN-M for one armored brigade combat team | | [24,000] | | [24,000] | |
| 023 | SITUATION INFORMATION TRANSPORT | 46,693 | 46,693 | 46,693 | | 46,693 |
| 025 | JCSE EQUIPMENT (USRDECOM) | 5,075 | 5,075 | 5,075 | | 5,075 |
| | COMM—SATELLITE COMMUNICATIONS | | | | | |
| 028 | DEFENSE ENTERPRISE WIDEBAND SATCOM SYSTEMS | 101,189 | 101,189 | 101,189 | | 101,189 |
| 029 | TRANSPORTABLE TACTICAL COMMAND COMMUNICATIONS | 77,141 | 77,141 | 77,141 | | 77,141 |
| 030 | SHF TERM | 16,054 | 16,054 | 16,054 | | 16,054 |
| 031 | ASSURED POSITIONING, NAVIGATION AND TIMING | 41,074 | 24,914 | 41,074 | -7,400 | 33,674 |
| | Contract delays | | [-28,760] | | | |
| | Program cancellation | | [-7,400] | | [-7,400] | |
| | Program increase | | [20,000] | | | |
| 032 | SMART-T (SPACE) | 10,515 | 10,515 | 10,515 | | 10,515 |
| 033 | GLOBAL BRDCST SVC—GBS | 11,800 | 11,800 | 11,800 | | 11,800 |
| 034 | ENROUTE MISSION COMMAND (EMC) | 8,609 | 8,609 | 8,609 | | 8,609 |
| | COMM—C3 SYSTEM | | | | | |
| 038 | COE TACTICAL SERVER INFRASTRUCTURE (TSI) | 77,533 | 77,533 | 77,533 | -20,000 | 57,533 |
| | Program reduction | | | | [-20,000] | |
| | COMM—COMBAT COMMUNICATIONS | | | | | |
| 039 | HANDHELD MANPACK SMALL FORM FIT (HMS) | 468,026 | 468,026 | 468,026 | 20,000 | 488,026 |
| | Program delay | | [-25,000] | | | |
| | SFAB technology refresh | | [25,000] | | [20,000] | |
| 040 | RADIO TERMINAL SET, MIDS LVT(2) | 23,778 | 23,778 | 23,778 | | 23,778 |
| 044 | SPIDER FAMILY OF NETWORKED MUNITIONS INCR | 10,930 | 10,930 | 10,930 | | 10,930 |
| 046 | UNIFIED COMMAND SUITE | 9,291 | 8,291 | 9,291 | | 9,291 |
| | Excess program management costs | | [-1,000] | | | |
| 047 | COTS COMMUNICATIONS EQUIPMENT | 55,630 | 55,630 | 55,630 | | 55,630 |
| 048 | FAMILY OF MED COMM FOR COMBAT CASUALTY CARE | 16,590 | 16,590 | 16,590 | | 16,590 |
| 049 | ARMY COMMUNICATIONS & ELECTRONICS | 43,457 | 43,457 | 43,457 | | 43,457 |
| | COMM—INTELLIGENCE COMM | | | | | |
| 051 | CI AUTOMATION ARCHITECTURE (MIP) | 10,470 | 10,470 | 10,470 | | 10,470 |
| 052 | DEFENSE MILITARY DECEPTION INITIATIVE | 3,704 | 3,704 | 3,704 | | 3,704 |
| | INFORMATION SECURITY | | | | | |
| 053 | FAMILY OF BIOMETRICS | 1,000 | 1,000 | 1,000 | | 1,000 |
| 054 | INFORMATION SYSTEM SECURITY PROGRAM-ISSP | 3,600 | 3,600 | 3,600 | | 3,600 |
| 055 | COMMUNICATIONS SECURITY (COMSEC) | 160,899 | 141,899 | 160,899 | -13,802 | 147,097 |
| | Unit cost growth | | [-19,000] | | [-13,802] | |
| 056 | DEFENSIVE CYBER OPERATIONS | 61,962 | 61,962 | 61,962 | | 61,962 |
| 057 | INSIDER THREAT PROGRAM—UNIT ACTIVITY MONITO | 756 | 756 | 756 | | 756 |
| 058 | PERSISTENT CYBER TRAINING ENVIRONMENT | 3,000 | 3,000 | 3,000 | | 3,000 |
| | COMM—LONG HAUL COMMUNICATIONS | | | | | |

| SEC. 4101. PROCUREMENT (In Thousands of Dollars) | | | | | | | | | | | |
|---|---|-----------------|---------|------------------|-----------|-------------------|---------|-------------------|-----------|-----------------------|---------|
| Line | Item | FY 2020 Request | | House Authorized | | Senate Authorized | | Conference Change | | Conference Authorized | |
| | | Qty | Cost | Qty | Cost | Qty | Cost | Qty | Cost | Qty | Cost |
| 059 | BASE SUPPORT COMMUNICATIONS | | 31,770 | | 26,770 | | 31,770 | | | | 31,770 |
| | Insufficient budget justification | | | | [-5,000] | | | | | | |
| | COMM—BASE COMMUNICATIONS | | | | | | | | | | |
| 060 | INFORMATION SYSTEMS | | 159,009 | | 139,009 | | 159,009 | | | | 159,009 |
| | Unjustified growth | | | | [-15,000] | | | | | | |
| | Unjustified growth in SRM HW | | | | [-5,000] | | | | | | |
| 061 | EMERGENCY MANAGEMENT MODERNIZATION PROGRAM | | 4,854 | | 4,854 | | 4,854 | | | | 4,854 |
| 062 | HOME STATION MISSION COMMAND CENTERS (HSMCC) | | 47,174 | | 47,174 | | 47,174 | | | | 47,174 |
| 063 | INSTALLATION INFO INFRASTRUCTURE MOD PROGRAM | | 297,994 | | 234,590 | | 297,994 | | -32,500 | | 265,494 |
| | Insufficient budget justification | | | | [-50,000] | | | | [-32,500] | | |
| | Program decrease | | | | [-13,404] | | | | | | |
| | ELECT EQUIP—TACT INT REL ACT (TIARA) | | | | | | | | | | |
| 066 | JTT/CIBS-M (MIP) | | 7,686 | | 7,686 | | 7,686 | | | | 7,686 |
| 068 | DCGS-A (MIP) | | 180,350 | | 180,350 | | 180,350 | | | | 180,350 |
| 070 | TROJAN (MIP) | | 17,368 | | 17,368 | | 17,368 | | | | 17,368 |
| 071 | MOD OF IN-SVC EQUIP (INTEL SPT) (MIP) | | 59,052 | | 59,052 | | 59,052 | | | | 59,052 |
| | ELECT EQUIP—ELECTRONIC WARFARE (EW) | | | | | | | | | | |
| 077 | LIGHTWEIGHT COUNTER MORTAR RADAR | | 5,400 | | 5,400 | | 5,400 | | | | 5,400 |
| 078 | EW PLANNING & MANAGEMENT TOOLS (EWPMT) | | 7,568 | | 7,568 | | 7,568 | | | | 7,568 |
| 079 | AIR VIGILANCE (AV) (MIP) | | 8,953 | | 8,953 | | 8,953 | | | | 8,953 |
| 081 | MULTI-FUNCTION ELECTRONIC WARFARE (MFEW) SYST | | 6,420 | | 6,420 | | 6,420 | | -3,200 | | 3,220 |
| | Program reduction | | | | | | | | [-3,200] | | |
| 083 | COUNTERINTELLIGENCE/SECURITY COUNTERMEASURES | | 501 | | 501 | | 501 | | | | 501 |
| 084 | CI MODERNIZATION (MIP) | | 121 | | 121 | | 121 | | | | 121 |
| | ELECT EQUIP—TACTICAL SURV. (TAC SURV) | | | | | | | | | | |
| 085 | SENTINEL MODS | | 115,210 | | 114,210 | | 115,210 | | -1,000 | | 114,210 |
| | Excess support costs | | | | [-1,000] | | | | [-1,000] | | |
| 086 | NIGHT VISION DEVICES | | 236,604 | | 160,604 | | 236,604 | | -76,225 | | 160,379 |
| | Insufficient justification (IVAS) | | | | [-76,000] | | | | [-76,225] | | |
| 088 | SMALL TACTICAL OPTICAL RIFLE MOUNTED MLRF | | 22,623 | | 22,623 | | 22,623 | | | | 22,623 |
| 090 | INDIRECT FIRE PROTECTION FAMILY OF SYSTEMS | | 29,127 | | 29,127 | | 29,127 | | | | 29,127 |
| 091 | FAMILY OF WEAPON SIGHTS (FWS) | | 120,883 | | 81,541 | | 120,883 | | -39,342 | | 81,541 |
| | Excess unit cost growth | | | | [-39,342] | | | | [-39,342] | | |

| | | | | | | |
|-----|--|---------|-----------|-----------|-----------|---------|
| 094 | JOINT BATTLE COMMAND—PLATFORM (JBC-P) | 265,667 | 240,167 | 265,667 | -9,100 | 256,567 |
| | Program adjustment | | [-25,500] | | [-9,100] | |
| 095 | JOINT EFFECTS TARGETING SYSTEM (JETS) | 69,720 | 44,720 | 69,720 | -25,000 | 44,720 |
| | Program delay | | [-25,000] | | [-25,000] | |
| 096 | MOD OF IN-SVC EQUIP (LLDR) | 6,044 | 6,044 | 6,044 | | 6,044 |
| 097 | COMPUTER BALLISTICS: LHMCB XM32 | 3,268 | 3,268 | 3,268 | | 3,268 |
| 098 | MORTAR FIRE CONTROL SYSTEM | 13,199 | 13,199 | 13,199 | | 13,199 |
| 099 | MORTAR FIRE CONTROL SYSTEMS MODIFICATIONS | 10,000 | 10,000 | 10,000 | | 10,000 |
| 100 | COUNTERFIRE RADARS | 16,416 | 16,416 | 13 | 78,916 | 16,416 |
| | UPL Retrofits systems with GaN tech for ER | | | [13] | [62,500] | |
| | ELECT EQUIP—TACTICAL C2 SYSTEMS | | | | | |
| 102 | FIRE SUPPORT C2 FAMILY | 13,197 | 13,197 | 13,197 | | 13,197 |
| 103 | AIR & MSL DEFENSE PLANNING & CONTROL SYS | 24,730 | 24,730 | 24,730 | | 24,730 |
| 104 | IAMD BATTLE COMMAND SYSTEM | 29,629 | 29,629 | 29,629 | | 29,629 |
| 105 | LIFE CYCLE SOFTWARE SUPPORT (LCSS) | 6,774 | 6,774 | 6,774 | | 6,774 |
| 106 | NETWORK MANAGEMENT INITIALIZATION AND SERVICE | 24,448 | 24,448 | 24,448 | | 24,448 |
| 107 | MANEUVER CONTROL SYSTEM (MCS) | 260 | 260 | 260 | | 260 |
| 108 | GLOBAL COMBAT SUPPORT SYSTEM-ARMY (GCSS-A) | 17,962 | 17,962 | 17,962 | | 17,962 |
| 109 | INTEGRATED PERSONNEL AND PAY SYSTEM-ARMY (IPP) | 18,674 | 18,674 | | -10,000 | 8,674 |
| | Poor business process reengineering | | | [-18,674] | [-10,000] | |
| 110 | RECONNAISSANCE AND SURVEYING INSTRUMENT SET | 11,000 | 11,000 | 11,000 | | 11,000 |
| 111 | MOD OF IN-SVC EQUIPMENT (ENFIRE) | 7,317 | 15,317 | 7,317 | 8,000 | 15,317 |
| | Program increase—land surveying systems | | [8,000] | | [8,000] | |
| | ELECT EQUIP—AUTOMATION | | | | | |
| 112 | ARMY TRAINING MODERNIZATION | 14,578 | 14,578 | 14,578 | | 14,578 |
| 113 | AUTOMATED DATA PROCESSING EQUIP | 139,342 | 129,342 | 147,342 | -10,000 | 129,342 |
| | JIOCEUR at RAF Molesworth | | | [8,000] | | |
| | Program decrease | | [-5,000] | | [-5,000] | |
| | Unjustified growth | | [-5,000] | | [-5,000] | |
| 114 | GENERAL FUND ENTERPRISE BUSINESS SYSTEMS FAM | 15,802 | 15,802 | 15,802 | | 15,802 |
| 115 | HIGH PERF COMPUTING MOD PGM (HPCMP) | 67,610 | 67,610 | 67,610 | | 67,610 |
| 116 | CONTRACT WRITING SYSTEM | 15,000 | 15,000 | | -9,000 | 6,000 |
| | Program duplication | | | [-15,000] | [-9,000] | |
| 117 | CSS COMMUNICATIONS | 24,700 | 24,700 | 24,700 | | 24,700 |
| 118 | RESERVE COMPONENT AUTOMATION SYS (RCAS) | 27,879 | 27,879 | 27,879 | | 27,879 |
| | ELECT EQUIP—AUDIO VISUAL SYS (A/V) | | | | | |
| 120 | ITEMS LESS THAN \$5M (SURVEYING EQUIPMENT) | 5,000 | 5,000 | 5,000 | | 5,000 |
| | ELECT EQUIP—SUPPORT | | | | | |
| 122 | BCT EMERGING TECHNOLOGIES | 22,302 | 22,302 | 22,302 | -12,000 | 10,302 |
| | Program reduction | | | | [-12,000] | |

| SEC. 4101. PROCUREMENT (In Thousands of Dollars) | | | | | | | | | | | |
|---|---|-----------------|---------|------------------|-----------|-------------------|----------|-------------------|-----------|-----------------------|---------|
| Line | Item | FY 2020 Request | | House Authorized | | Senate Authorized | | Conference Change | | Conference Authorized | |
| | | Qty | Cost | Qty | Cost | Qty | Cost | Qty | Cost | Qty | Cost |
| | CLASSIFIED PROGRAMS | | | | | | | | | | |
| 122A | CLASSIFIED PROGRAMS | | 11,910 | | 11,910 | | 11,910 | | | | 11,910 |
| | CHEMICAL DEFENSIVE EQUIPMENT | | | | | | | | | | |
| 126 | CBRN DEFENSE | | 25,828 | | 25,828 | | 25,828 | | | | 25,828 |
| 127 | SMOKE & OBSCURANT FAMILY: SOF (NON AAO ITEM) | | 5,050 | | 5,050 | | 5,050 | | | | 5,050 |
| | BRIDGING EQUIPMENT | | | | | | | | | | |
| 128 | TACTICAL BRIDGING | | 59,821 | | 57,821 | | 59,821 | | -2,000 | | 57,821 |
| | Contract delays | | | | [-2,000] | | | | [-2,000] | | |
| 129 | TACTICAL BRIDGE, FLOAT-RIBBON | | 57,661 | | 57,661 | | 57,661 | | | | 57,661 |
| 130 | BRIDGE SUPPLEMENTAL SET | | 17,966 | | 17,966 | | 17,966 | | | | 17,966 |
| 131 | COMMON BRIDGE TRANSPORTER (CBT) RECAP | | 43,155 | | 43,155 | | 43,155 | | | | 43,155 |
| | ENGINEER (NON-CONSTRUCTION) EQUIPMENT | | | | | | | | | | |
| 132 | HANDHELD STANDOFF MINEFIELD DETECTION SYS-HST | | 7,570 | | 7,570 | | 7,570 | | | | 7,570 |
| 133 | GRND STANDOFF MINE DETECTN SYSM (GSTAMIDS) | | 37,025 | | 37,025 | | 37,025 | | | | 37,025 |
| 135 | HUSKY MOUNTED DETECTION SYSTEM (HMDS) | | 83,082 | | 54,082 | | 83,082 | | -35,183 | | 47,899 |
| | Unjustified unit cost growth | | | | [-29,000] | | | | [-35,183] | | |
| 136 | ROBOTIC COMBAT SUPPORT SYSTEM (RCSS) | | 2,000 | | 2,000 | | 2,000 | | | | 2,000 |
| 137 | EOD ROBOTICS SYSTEMS RECAPITALIZATION | | 23,115 | | 23,115 | | 23,115 | | | | 23,115 |
| 138 | ROBOTICS AND APPLIQUE SYSTEMS | | 101,056 | | 101,056 | | 113,856 | | | | 101,056 |
| | Army requested realignment | | | | | | [12,800] | | | | |
| 140 | RENDER SAFE SETS KITS OUTFITS | | 18,684 | | 18,684 | | 18,684 | | | | 18,684 |
| 142 | FAMILY OF BOATS AND MOTORS | | 8,245 | | 6,245 | | 8,245 | | -2,000 | | 6,245 |
| | Unit cost growth | | | | [-2,000] | | | | [-2,000] | | |
| | COMBAT SERVICE SUPPORT EQUIPMENT | | | | | | | | | | |
| 143 | HEATERS AND ECU'S | | 7,336 | | 7,336 | | 7,336 | | | | 7,336 |
| 145 | PERSONNEL RECOVERY SUPPORT SYSTEM (PRSS) | | 4,281 | | 4,281 | | 4,281 | | | | 4,281 |
| 146 | GROUND SOLDIER SYSTEM | | 111,955 | | 111,955 | | 111,955 | | | | 111,955 |
| 147 | MOBILE SOLDIER POWER | | 31,364 | | 29,364 | | 31,364 | | -1,421 | | 29,943 |
| | Unit cost growth | | | | [-2,000] | | | | [-1,421] | | |
| 149 | FIELD FEEDING EQUIPMENT | | 1,673 | | 1,673 | | 1,673 | | | | 1,673 |
| 150 | CARGO AERIAL DEL & PERSONNEL PARACHUTE SYSTEM | | 43,622 | | 43,622 | | 43,622 | | | | 43,622 |
| 151 | FAMILY OF ENGR COMBAT AND CONSTRUCTION SETS | | 11,451 | | 11,451 | | 11,451 | | | | 11,451 |
| 152 | ITEMS LESS THAN \$5M (ENG SPT) | | 5,167 | | 5,167 | | 5,167 | | | | 5,167 |

| | | | | | | |
|-----|---|---------|----------|---------|----------|---------|
| | PETROLEUM EQUIPMENT | | | | | |
| 154 | DISTRIBUTION SYSTEMS, PETROLEUM & WATER | 74,867 | 74,867 | 74,867 | | 74,867 |
| | MEDICAL EQUIPMENT | | | | | |
| 155 | COMBAT SUPPORT MEDICAL | 68,225 | 68,225 | 68,225 | | 68,225 |
| | MAINTENANCE EQUIPMENT | | | | | |
| 156 | MOBILE MAINTENANCE EQUIPMENT SYSTEMS | 55,053 | 55,053 | 55,053 | | 55,053 |
| 157 | ITEMS LESS THAN \$5.0M (MAINT EQ) | 5,608 | 5,608 | 5,608 | | 5,608 |
| | CONSTRUCTION EQUIPMENT | | | | | |
| 161 | HYDRAULIC EXCAVATOR | 500 | 500 | 500 | | 500 |
| 162 | TRACTOR, FULL TRACKED | 4,835 | 4,835 | 4,835 | | 4,835 |
| 163 | ALL TERRAIN CRANES | 23,936 | 23,936 | 23,936 | | 23,936 |
| 164 | HIGH MOBILITY ENGINEER EXCAVATOR (HMEE) | 27,188 | 27,188 | 27,188 | | 27,188 |
| 166 | CONST EQUIP ESP | 34,790 | 34,790 | 34,790 | | 34,790 |
| 167 | ITEMS LESS THAN \$5.0M (CONST EQUIP) | 4,381 | 4,381 | 4,381 | | 4,381 |
| | RAIL FLOAT CONTAINERIZATION EQUIPMENT | | | | | |
| 168 | ARMY WATERCRAFT ESP | 35,194 | 35,194 | 35,194 | | 35,194 |
| 169 | MANEUVER SUPPORT VESSEL (MSV) | 14,185 | 14,185 | 14,185 | | 14,185 |
| 170 | ITEMS LESS THAN \$5.0M (FLOAT/RAIL) | 6,920 | 6,920 | 6,920 | | 6,920 |
| | GENERATORS | | | | | |
| 171 | GENERATORS AND ASSOCIATED EQUIP | 58,566 | 58,566 | 58,566 | | 58,566 |
| 172 | TACTICAL ELECTRIC POWER RECAPITALIZATION | 14,814 | 14,814 | 14,814 | | 14,814 |
| | MATERIAL HANDLING EQUIPMENT | | | | | |
| 173 | FAMILY OF FORKLIFTS | 14,864 | 14,864 | 14,864 | | 14,864 |
| | TRAINING EQUIPMENT | | | | | |
| 174 | COMBAT TRAINING CENTERS SUPPORT | 123,411 | 123,411 | 123,411 | | 123,411 |
| 175 | TRAINING DEVICES, NONSYSTEM | 220,707 | 220,707 | 220,707 | | 220,707 |
| 176 | SYNTHETIC TRAINING ENVIRONMENT (STE) | 20,749 | 15,749 | 20,749 | -5,000 | 15,749 |
| | Program adjustment | | [-5,000] | | [-5,000] | |
| 178 | AVIATION COMBINED ARMS TACTICAL TRAINER | 4,840 | 4,840 | 4,840 | | 4,840 |
| 179 | GAMING TECHNOLOGY IN SUPPORT OF ARMY TRAINING | 15,463 | 15,463 | 15,463 | | 15,463 |
| | TEST MEASURE AND DIG EQUIPMENT (TMD) | | | | | |
| 180 | CALIBRATION SETS EQUIPMENT | 3,030 | 3,030 | 3,030 | | 3,030 |
| 181 | INTEGRATED FAMILY OF TEST EQUIPMENT (IFTE) | 76,980 | 76,980 | 76,980 | | 76,980 |
| 182 | TEST EQUIPMENT MODERNIZATION (TEMOD) | 16,415 | 13,415 | 16,415 | -3,000 | 13,415 |
| | Historical underexecution | | [-3,000] | | [-3,000] | |
| | OTHER SUPPORT EQUIPMENT | | | | | |
| 184 | RAPID EQUIPPING SOLDIER SUPPORT EQUIPMENT | 9,877 | 9,877 | 9,877 | | 9,877 |
| 185 | PHYSICAL SECURITY SYSTEMS (OPA3) | 82,158 | 82,158 | 82,158 | | 82,158 |
| 186 | BASE LEVEL COMMON EQUIPMENT | 15,340 | 15,340 | 15,340 | | 15,340 |
| 187 | MODIFICATION OF IN-SVC EQUIPMENT (OPA-3) | 50,458 | 50,458 | 50,458 | | 50,458 |

| SEC. 4101. PROCUREMENT (In Thousands of Dollars) | | | | | | | | | | | |
|---|---|-----------------|------------------|------------------|------------------|-------------------|------------------|-------------------|-----------------|-----------------------|------------------|
| Line | Item | FY 2020 Request | | House Authorized | | Senate Authorized | | Conference Change | | Conference Authorized | |
| | | Qty | Cost | Qty | Cost | Qty | Cost | Qty | Cost | Qty | Cost |
| 189 | BUILDING, PRE-FAB, RELOCATABLE | | 14,400 | | 14,400 | | 14,400 | | | | 14,400 |
| 190 | SPECIAL EQUIPMENT FOR USER TESTING | | 9,821 | | 9,821 | | 9,821 | | | | 9,821 |
| | OPA2 | | | | | | | | | | |
| 192 | INITIAL SPARES—C&E | | 9,757 | | 9,757 | | 9,757 | | | | 9,757 |
| | TOTAL OTHER PROCUREMENT, ARMY | 2,530 | 7,451,301 | 2,530 | 7,279,395 | 2,543 | 7,461,427 | | -166,329 | 2,530 | 7,284,972 |
| | AIRCRAFT PROCUREMENT, NAVY | | | | | | | | | | |
| | COMBAT AIRCRAFT | | | | | | | | | | |
| 001 | F/A-18E/F (FIGHTER) HORNET | 24 | 1,748,934 | 24 | 1,730,934 | 24 | 1,748,934 | | -18,574 | 24 | 1,730,360 |
| | ECO and ancillary equipment excess growth | | | | [-18,000] | | | | [-18,574] | | |
| 002 | F/A-18E/F (FIGHTER) HORNET | | 55,128 | | 51,128 | | 55,128 | | -3,948 | | 51,180 |
| | Excess engine cost growth | | | | [-4,000] | | | | [-3,948] | | |
| 003 | JOINT STRIKE FIGHTER CV | 20 | 2,272,301 | 20 | 2,162,301 | 22 | 2,487,301 | | -54,480 | 20 | 2,217,821 |
| | Target cost savings | | | | [-110,000] | | | | [-54,480] | | |
| | UPL USMC additional quantities | | | | | [2] | [215,000] | | | | |
| 004 | JOINT STRIKE FIGHTER CV | | 339,053 | | 339,053 | | 339,053 | | | | 339,053 |
| 005 | JSF STOVL | 10 | 1,342,035 | 10 | 1,256,035 | 12 | 1,591,135 | | -75,734 | 10 | 1,266,301 |
| | Target cost savings | | | | [-86,000] | | | | [-75,734] | | |
| | UPL USMC additional quantities | | | | | [2] | [249,100] | | | | |
| 006 | JSF STOVL | | 291,804 | | 291,804 | | 291,804 | | | | 291,804 |
| 007 | CH-53K (HEAVY LIFT) | 6 | 807,876 | 6 | 807,876 | 6 | 807,876 | | | 6 | 807,876 |
| 008 | CH-53K (HEAVY LIFT) | | 215,014 | | 215,014 | | 215,014 | | | | 215,014 |
| 009 | V-22 (MEDIUM LIFT) | 10 | 966,666 | 14 | 1,184,766 | 10 | 966,666 | 4 | 248,100 | 14 | 1,214,766 |
| | Program increase | | | [4] | [248,100] | | | [4] | [248,100] | | |
| | Support cost growth | | | | [-30,000] | | | | | | |
| 010 | V-22 (MEDIUM LIFT) | | 27,104 | | 27,104 | | 27,104 | | | | 27,104 |
| 011 | H-1 UPGRADES (UH-1Y/AH-1Z) | | 62,003 | | 62,003 | | 62,003 | | -9,000 | | 53,003 |
| | Production line shutdown excess to need | | | | | | | | [-9,000] | | |
| 013 | MH-60R (MYP) | | 894 | | 894 | | 894 | | | | 894 |
| 014 | P-8A POSEIDON | 6 | 1,206,701 | 9 | 1,636,601 | 6 | 1,206,701 | 3 | 473,900 | 9 | 1,680,601 |
| | Contract negotiations savings | | | | [-42,900] | | | | | | |
| | Line shutdown costs early to need | | | | [-68,400] | | | | [-67,300] | | |
| | Navy unfunded priority | | | [3] | [541,200] | | | [3] | [541,200] | | |

| | | | | | | | | | | | |
|-----|---|----|-----------|-----|-----------|-------|-----------|-----|-----------|----|-----------|
| 016 | E-2D ADV HAWKEYE | 4 | 744,484 | 5 | 896,784 | 4 | 744,484 | 1 | 155,800 | 5 | 900,284 |
| | GFE excess cost growth | | | | [-3,500] | | | | | | |
| | Navy unfunded priority | | | [1] | [173,000] | | | [1] | [173,000] | | |
| | NRE excess cost growth | | | | [-17,200] | | | | [-17,200] | | |
| 017 | E-2D ADV HAWKEYE | | 190,204 | | 190,204 | | 190,204 | | | | 190,204 |
| | TRAINER AIRCRAFT | | | | | | | | | | |
| 019 | ADVANCED HELICOPTER TRAINING SYSTEM | 32 | 261,160 | 32 | 261,160 | 32 | 261,160 | | | 32 | 261,160 |
| | OTHER AIRCRAFT | | | | | | | | | | |
| 020 | KC-130J | 3 | 240,840 | 3 | 221,840 | 3 | 240,840 | | -18,936 | 3 | 221,904 |
| | Unit cost growth | | | | [-19,000] | | | | [-18,936] | | |
| 021 | KC-130J | | 66,061 | | 66,061 | | 66,061 | | | | 66,061 |
| 022 | F-5 | 22 | 39,676 | 22 | 39,676 | | | | | 22 | 39,676 |
| | Program cancellation | | | | | [-22] | [-39,676] | | | | |
| 023 | MQ-4 TRITON | 2 | 473,134 | 2 | 448,134 | 2 | 473,134 | | -25,000 | 2 | 448,134 |
| | PGSE excess cost growth | | | | [-25,000] | | | | [-25,000] | | |
| 024 | MQ-4 TRITON | | 20,139 | | 20,139 | | 20,139 | | | | 20,139 |
| 025 | MQ-8 UAV | | 44,957 | | 44,957 | | 44,957 | | | | 44,957 |
| 026 | STUASLO UAV | | 43,819 | | 43,819 | | 43,819 | | | | 43,819 |
| 028 | VH-92A EXECUTIVE HELO | 6 | 658,067 | 6 | 658,067 | 6 | 658,067 | | -10,716 | 6 | 647,351 |
| | Program reduction | | | | | | | | [-10,716] | | |
| | MODIFICATION OF AIRCRAFT | | | | | | | | | | |
| 029 | AEA SYSTEMS | | 44,470 | | 44,470 | | 44,470 | | -5,300 | | 39,170 |
| | Program reduction | | | | | | | | [-5,300] | | |
| 030 | AV-8 SERIES | | 39,472 | | 39,472 | | 39,472 | | | | 39,472 |
| 031 | ADVERSARY | | 3,415 | | 3,415 | | 3,415 | | | | 3,415 |
| 032 | F-18 SERIES | | 1,207,089 | | 1,138,089 | | 1,207,089 | | -79,000 | | 1,128,089 |
| | Accelerate RWR modernization | | | | [10,000] | | | | | | |
| | Early to need | | | | [-79,000] | | | | [-79,000] | | |
| 033 | H-53 SERIES | | 68,385 | | 68,385 | | 68,385 | | | | 68,385 |
| 034 | MH-60 SERIES | | 149,797 | | 152,297 | | 149,797 | | -2,500 | | 147,297 |
| | Demonstrate alternative low frequency active sonars | | | | [2,500] | | | | | | |
| | NRE prior year carryover (OSIP 018-12) | | | | | | | | [-2,500] | | |
| 035 | H-1 SERIES | | 114,059 | | 114,059 | | 114,059 | | | | 114,059 |
| 036 | EP-3 SERIES | | 8,655 | | 8,655 | | 8,655 | | | | 8,655 |
| 038 | E-2 SERIES | | 117,059 | | 117,059 | | 117,059 | | | | 117,059 |
| 039 | TRAINER A/C SERIES | | 5,616 | | 5,616 | | 5,616 | | | | 5,616 |
| 040 | C-2A | | 15,747 | | 15,747 | | 15,747 | | | | 15,747 |
| 041 | C-130 SERIES | | 122,671 | | 122,671 | | 122,671 | | -5,885 | | 116,786 |
| | B kit cost growth (OSIP 019-14) | | | | | | | | [-3,009] | | |
| | GFE excess growth (OSIP 019-14) | | | | | | | | [-2,876] | | |

| SEC. 4101. PROCUREMENT (In Thousands of Dollars) | | | | | | | | | | | |
|---|---|-----------------|---------|------------------|-----------|-------------------|---------|-------------------|------|-----------------------|-----------|
| Line | Item | FY 2020 Request | | House Authorized | | Senate Authorized | | Conference Change | | Conference Authorized | |
| | | Qty | Cost | Qty | Cost | Qty | Cost | Qty | Cost | Qty | Cost |
| 042 | FEWSG | | 509 | | 509 | | 509 | | | | 509 |
| 043 | CARGO/TRANSPORT A/C SERIES | | 8,767 | | 8,767 | | 8,767 | | | | 8,767 |
| 044 | E-6 SERIES | | 169,827 | | 169,827 | | 169,827 | | | | 167,216 |
| | Program reduction | | | | | | | | | | [-2,611] |
| 045 | EXECUTIVE HELICOPTERS SERIES | | 8,933 | | 8,933 | | 8,933 | | | | 8,933 |
| 047 | T-45 SERIES | | 186,022 | | 184,314 | | 186,022 | | | | 184,314 |
| | NRE previously funded | | | | [-1,708] | | | | | | [-1,708] |
| 048 | POWER PLANT CHANGES | | 16,136 | | 16,136 | | 16,136 | | | | 16,136 |
| 049 | JPATS SERIES | | 21,824 | | 21,824 | | 21,824 | | | | 21,824 |
| 050 | AVIATION LIFE SUPPORT MODS | | 39,762 | | 39,762 | | 39,762 | | | | 39,762 |
| 051 | COMMON ECM EQUIPMENT | | 162,839 | | 159,565 | | 162,839 | | | | 152,839 |
| | Program decrease | | | | [-3,274] | | | | | | [-10,000] |
| 052 | COMMON AVIONICS CHANGES | | 102,107 | | 75,107 | | 102,107 | | | | 75,107 |
| | Computing and displays concurrency and equipment growth early to need. | | | | [-27,000] | | | | | | [-27,000] |
| 053 | COMMON DEFENSIVE WEAPON SYSTEM | | 2,100 | | 2,100 | | 2,100 | | | | 2,100 |
| 054 | ID SYSTEMS | | 41,437 | | 33,637 | | 41,437 | | | | 41,437 |
| | Unjustified unit cost growth | | | | [-7,800] | | | | | | |
| 055 | P-8 SERIES | | 107,539 | | 107,539 | | 107,539 | | | | 96,563 |
| | Increment 3 ECP 6 early to need (OSIP 006-18) | | | | | | | | | | [-10,976] |
| 056 | MAGTF EW FOR AVIATION | | 26,536 | | 26,536 | | 26,536 | | | | 26,536 |
| 057 | MQ-8 SERIES | | 34,686 | | 34,686 | | 34,686 | | | | 34,686 |
| 058 | V-22 (TILT/ROTOR ACFT) OSPREY | | 325,367 | | 325,367 | | 325,367 | | | | 325,367 |
| 059 | NEXT GENERATION JAMMER (NGJ) | | 6,223 | | 6,223 | | 6,223 | | | | 3,111 |
| | Program reduction | | | | | | | | | | [-3,112] |
| 060 | F-35 STOVL SERIES | | 65,585 | | 65,585 | | 65,585 | | | | 65,585 |
| 061 | F-35 CV SERIES | | 15,358 | | 15,358 | | 15,358 | | | | 15,358 |
| 062 | QRC | | 165,016 | | 146,558 | | 165,016 | | | | 146,558 |
| | Program decrease | | | | [-18,458] | | | | | | [-18,458] |
| 063 | MQ-4 SERIES | | 27,994 | | 27,994 | | 27,994 | | | | 27,994 |
| 064 | RQ-21 SERIES | | 66,282 | | 66,282 | | 66,282 | | | | 61,032 |
| | EO/IR turret upgrades unit cost growth (OSIP 004-20) | | | | | | | | | | [-5,250] |
| | AIRCRAFT SPARES AND REPAIR PARTS | | | | | | | | | | |

| | | | | | | | | | | | |
|-----|--|------------|-------------------|------------|-------------------|------------|-------------------|-----------|----------------|------------|-------------------|
| 067 | SPARES AND REPAIR PARTS | 2,166,788 | | 2,102,788 | 1 | 2,235,088 | | -20,000 | | 2,146,788 | |
| | F-35B spares | | | | | [14,900] | | | | | |
| | F-35C spares | | | | | [24,600] | | | | | |
| | MQ-4 Triton spares excess growth | | | [-64,000] | | | | [-20,000] | | | |
| | UPL F-35B engine | | | | [1] | [28,800] | | | | | |
| | AIRCRAFT SUPPORT EQUIP & FACILITIES | | | | | | | | | | |
| 068 | COMMON GROUND EQUIPMENT | 491,025 | | 470,025 | | 491,025 | | -21,000 | | 470,025 | |
| | Other flight training previously funded | | | [-21,000] | | | | [-21,000] | | | |
| 069 | AIRCRAFT INDUSTRIAL FACILITIES | 71,335 | | 71,335 | | 71,335 | | | | 71,335 | |
| 070 | WAR CONSUMABLES | 41,086 | | 32,086 | | 41,086 | | -9,000 | | 32,086 | |
| | BRU-61 previously funded | | | [-9,000] | | | | [-9,000] | | | |
| 072 | SPECIAL SUPPORT EQUIPMENT | 135,740 | | 115,740 | | 135,740 | | | | 135,740 | |
| | Program decrease | | | [-20,000] | | | | | | | |
| 073 | FIRST DESTINATION TRANSPORTATION | 892 | | 892 | | 892 | | | | 892 | |
| | TOTAL AIRCRAFT PROCUREMENT, NAVY | 145 | 18,522,204 | 153 | 18,821,764 | 128 | 19,014,928 | 8 | 439,612 | 153 | 18,961,816 |
| | WEAPONS PROCUREMENT, NAVY | | | | | | | | | | |
| | MODIFICATION OF MISSILES | | | | | | | | | | |
| 001 | TRIDENT II MODS | 1,177,251 | | 1,157,651 | | 1,177,251 | | | | 1,177,251 | |
| | W76-2 low-yield deployment | | | [-19,600] | | | | | | | |
| | SUPPORT EQUIPMENT & FACILITIES | | | | | | | | | | |
| 002 | MISSILE INDUSTRIAL FACILITIES | 7,142 | | 7,142 | | 7,142 | | | | 7,142 | |
| | STRATEGIC MISSILES | | | | | | | | | | |
| 003 | TOMAHAWK | 90 | 386,730 | 90 | 386,730 | 90 | 330,430 | -42,082 | 90 | 344,648 | |
| | Unjustified tooling and facilitization costs | | | | | | [-56,300] | [-42,082] | | | |
| | TACTICAL MISSILES | | | | | | | | | | |
| 004 | AMRAAM | 169 | 224,502 | 169 | 191,502 | 169 | 224,502 | -23,000 | 169 | 201,502 | |
| | Unit cost growth | | | [-33,000] | | | | [-23,000] | | | |
| 005 | SIDEWINDER | 292 | 119,456 | 292 | 119,456 | 292 | 119,456 | -2,052 | 292 | 117,404 | |
| | Program reduction | | | | | | | [-2,052] | | | |
| 007 | STANDARD MISSILE | 125 | 404,523 | 125 | 379,523 | 125 | 404,523 | | 125 | 404,523 | |
| | SM-6 multi-year procurement savings | | | [-25,000] | | | | | | | |
| 008 | STANDARD MISSILE | | 96,085 | | 96,085 | | 96,085 | | | 96,085 | |
| 009 | SMALL DIAMETER BOMB II | 750 | 118,466 | 750 | 118,466 | 750 | 118,466 | -2,638 | 750 | 115,828 | |
| | Program reduction | | | | | | | [-2,638] | | | |
| 010 | RAM | 120 | 106,765 | 120 | 106,765 | 120 | 106,765 | | 120 | 106,765 | |
| 012 | HELLFIRE | 29 | 1,525 | 29 | 1,525 | 29 | 1,525 | | 29 | 1,525 | |
| 015 | AERIAL TARGETS | | 145,880 | | 145,880 | | 145,880 | | | 145,880 | |
| 016 | DRONES AND DECOYS | 30 | 20,000 | 30 | 20,000 | 30 | 20,000 | -1,479 | 30 | 18,521 | |
| | Excess to need | | | | | | | [-1,479] | | | |

| SEC. 4101. PROCUREMENT (In Thousands of Dollars) | | | | | | | | | | | |
|---|--|-----------------|---------|------------------|-----------|-------------------|-----------|-------------------|-----------|-----------------------|---------|
| Line | Item | FY 2020 Request | | House Authorized | | Senate Authorized | | Conference Change | | Conference Authorized | |
| | | Qty | Cost | Qty | Cost | Qty | Cost | Qty | Cost | Qty | Cost |
| 017 | OTHER MISSILE SUPPORT | | 3,388 | | 3,388 | | 3,388 | | | | 3,388 |
| 018 | LRASM | 48 | 143,200 | 48 | 168,200 | 48 | 143,200 | | | 48 | 143,200 |
| | Navy unfunded priority | | | | [25,000] | | | | | | |
| 019 | LCS OTH MISSILE | 18 | 38,137 | 18 | 38,137 | 8 | 18,137 | | | 18 | 38,137 |
| | Unjustified accelerated acquisition strategy | | | | | [-10] | [-20,000] | | | | |
| | MODIFICATION OF MISSILES | | | | | | | | | | |
| 020 | ESSM | 60 | 128,059 | 60 | 118,059 | 60 | 128,059 | | -18,000 | 60 | 110,059 |
| | Production support excess to need | | | | [-10,000] | | | | [-18,000] | | |
| 021 | HARPOON MODS | | 25,447 | | 25,447 | | 25,447 | | | | 25,447 |
| 022 | HARM MODS | | 183,740 | | 183,740 | | 183,740 | | | | 183,740 |
| 023 | STANDARD MISSILES MODS | | 22,500 | | 22,500 | | 22,500 | | -20,000 | | 2,500 |
| | Early to need | | | | | | | | [-20,000] | | |
| | SUPPORT EQUIPMENT & FACILITIES | | | | | | | | | | |
| 024 | WEAPONS INDUSTRIAL FACILITIES | | 1,958 | | 1,958 | | 1,958 | | | | 1,958 |
| 025 | FLEET SATELLITE COMM FOLLOW-ON | | 67,380 | | 67,380 | | 67,380 | | | | 67,380 |
| | ORDNANCE SUPPORT EQUIPMENT | | | | | | | | | | |
| 027 | ORDNANCE SUPPORT EQUIPMENT | | 109,427 | | 109,427 | | 109,427 | | -23,710 | | 85,717 |
| | Insufficient budget justification | | | | | | | | [-23,710] | | |
| | TORPEDOES AND RELATED EQUIP | | | | | | | | | | |
| 028 | SSTD | | 5,561 | | 5,561 | | 5,561 | | | | 5,561 |
| 029 | MK-48 TORPEDO | 58 | 114,000 | 71 | 130,000 | 71 | 130,000 | 13 | 16,000 | 71 | 130,000 |
| | Program increase | | | [13] | [16,000] | [13] | [16,000] | [13] | [16,000] | | |
| 030 | ASW TARGETS | | 15,095 | | 15,095 | | 15,095 | | | | 15,095 |
| | MOD OF TORPEDOES AND RELATED EQUIP | | | | | | | | | | |
| 031 | MK-54 TORPEDO MODS | | 119,453 | | 111,453 | | 119,453 | | -7,440 | | 112,013 |
| | HAAWC cost growth | | | | [-8,000] | | | | [-7,440] | | |
| 032 | MK-48 TORPEDO ADCAP MODS | | 39,508 | | 39,508 | | 39,508 | | | | 39,508 |
| 033 | QUICKSTRIKE MINE | | 5,183 | | 5,183 | | 5,183 | | | | 5,183 |
| | SUPPORT EQUIPMENT | | | | | | | | | | |
| 034 | TORPEDO SUPPORT EQUIPMENT | | 79,028 | | 79,028 | | 79,028 | | | | 79,028 |
| 035 | ASW RANGE SUPPORT | | 3,890 | | 3,890 | | 3,890 | | | | 3,890 |
| | DESTINATION TRANSPORTATION | | | | | | | | | | |
| 036 | FIRST DESTINATION TRANSPORTATION | | 3,803 | | 3,803 | | 3,803 | | | | 3,803 |

| | | | | | | | | | | |
|--|--|--------------|------------------|--------------|------------------|--------------|------------------|-----------|-----------------|------------------|
| GUNS AND GUN MOUNTS | | | | | | | | | | |
| 037 | SMALL ARMS AND WEAPONS | | 14,797 | | 14,797 | | 14,797 | | -1,190 | 13,607 |
| | Program reduction | | | | | | | | [-1,190] | |
| MODIFICATION OF GUNS AND GUN MOUNTS | | | | | | | | | | |
| 038 | CIWS MODS | | 44,126 | | | | 44,126 | | | 44,126 |
| | Unjustified OCO request | | | | [-44,126] | | | | | |
| 039 | COAST GUARD WEAPONS | | 44,980 | | 44,980 | | 44,980 | | | 44,980 |
| 040 | GUN MOUNT MODS | | 66,376 | | 66,376 | | 66,376 | | | 66,376 |
| 041 | LCS MODULE WEAPONS | 120 | 14,585 | | | 120 | 14,585 | | | 14,585 |
| | Program decrease | | | | [-120] | | | | | [-14,585] |
| 043 | AIRBORNE MINE NEUTRALIZATION SYSTEMS | | 7,160 | | 7,160 | | 7,160 | | | 7,160 |
| SPARES AND REPAIR PARTS | | | | | | | | | | |
| UNDISTRIBUTED | | | | | | | | | | |
| 045 | SPARES AND REPAIR PARTS | | 126,138 | | 126,138 | | 126,138 | | -1,748 | 124,390 |
| | Program reduction | | | | | | | | [-1,748] | |
| | TOTAL WEAPONS PROCUREMENT, NAVY | 1,909 | 4,235,244 | 1,802 | 4,121,933 | 1,912 | 4,174,944 | 13 | -127,339 | 4,107,905 |
| PROCUREMENT OF AMMO, NAVY & MC | | | | | | | | | | |
| NAVY AMMUNITION | | | | | | | | | | |
| 001 | GENERAL PURPOSE BOMBS | | 36,028 | | 20,028 | | 36,028 | | -1,031 | 34,997 |
| | Fuze contract delay and unit cost growth | | | | [-16,000] | | | | [-1,031] | |
| 002 | JDAM | 2,844 | 70,413 | 2,844 | 62,913 | 2,844 | 70,413 | | | 70,413 |
| | JDAM tail kit unit cost growth | | | | [-7,500] | | | | | |
| 003 | AIRBORNE ROCKETS, ALL TYPES | | 31,756 | | 22,256 | | 31,756 | | -4,049 | 27,707 |
| | Unit cost growth | | | | [-9,500] | | | | [-4,049] | |
| 004 | MACHINE GUN AMMUNITION | | 4,793 | | 4,793 | | 4,793 | | | 4,793 |
| 005 | PRACTICE BOMBS | | 34,708 | | 27,208 | | 34,708 | | -7,500 | 27,208 |
| | Q1300 LGTR unit cost growth | | | | [-7,500] | | | | [-7,500] | |
| 006 | CARTRIDGES & CART ACTUATED DEVICES | | 45,738 | | 38,738 | | 45,738 | | -7,000 | 38,738 |
| | Contract and schedule delays | | | | [-7,000] | | | | [-7,000] | |
| 007 | AIR EXPENDABLE COUNTERMEASURES | | 77,301 | | 67,801 | | 77,301 | | -9,447 | 67,854 |
| | Unit cost growth | | | | [-9,500] | | | | [-9,447] | |
| 008 | JATOS | | 7,262 | | 7,262 | | 7,262 | | | 7,262 |
| 009 | 5 INCH/54 GUN AMMUNITION | | 22,594 | | 22,594 | | 22,594 | | -1,428 | 21,166 |
| | MK187 mod 0 projectile unit cost growth | | | | | | | | [-1,428] | |
| 010 | INTERMEDIATE CALIBER GUN AMMUNITION | | 37,193 | | 37,193 | | 37,193 | | | 37,193 |
| 011 | OTHER SHIP GUN AMMUNITION | | 39,491 | | 29,491 | | 39,491 | | -200 | 39,291 |
| | CART 20MM contract award delay | | | | [-10,000] | | | | [-200] | |
| 012 | SMALL ARMS & LANDING PARTY AMMO | | 47,896 | | 47,896 | | 47,896 | | | 47,896 |
| 013 | PYROTECHNIC AND DEMOLITION | | 10,621 | | 10,621 | | 10,621 | | | 10,621 |

| SEC. 4101. PROCUREMENT (In Thousands of Dollars) | | | | | | | | | | | |
|---|--|-----------------|----------------|------------------|----------------|-------------------|----------------|-------------------|----------------|-----------------------|----------------|
| Line | Item | FY 2020 Request | | House Authorized | | Senate Authorized | | Conference Change | | Conference Authorized | |
| | | Qty | Cost | Qty | Cost | Qty | Cost | Qty | Cost | Qty | Cost |
| 015 | AMMUNITION LESS THAN \$5 MILLION | | 2,386 | | 2,386 | | 2,386 | | | | 2,386 |
| | MARINE CORPS AMMUNITION | | | | | | | | | | |
| 016 | MORTARS | | 55,543 | | 50,543 | | 55,543 | | -5,000 | | 50,543 |
| | Prior year underexecution | | | | [-5,000] | | | | [-5,000] | | |
| 017 | DIRECT SUPPORT MUNITIONS | | 131,765 | | 131,765 | | 131,765 | | | | 131,765 |
| 018 | INFANTRY WEAPONS AMMUNITION | | 78,056 | | 74,556 | | 78,056 | | -25,968 | | 52,088 |
| | Underexecution and schedule delays | | | | [-3,500] | | | | [-25,968] | | |
| 019 | COMBAT SUPPORT MUNITIONS | | 40,048 | | 34,048 | | 40,048 | | -6,000 | | 34,048 |
| | Unit cost growth | | | | [-6,000] | | | | [-6,000] | | |
| 020 | AMMO MODERNIZATION | | 14,325 | | 14,325 | | 14,325 | | | | 14,325 |
| 021 | ARTILLERY MUNITIONS | | 188,876 | | 167,476 | | 188,876 | | -21,400 | | 167,476 |
| | DA 54 contract delay | | | | [-21,400] | | | | [-21,400] | | |
| 022 | ITEMS LESS THAN \$5 MILLION | | 4,521 | | 4,521 | | 4,521 | | | | 4,521 |
| | TOTAL PROCUREMENT OF AMMO, NAVY & MC | 2,844 | 981,314 | 2,844 | 878,414 | 2,844 | 981,314 | | -89,023 | 2,844 | 892,291 |
| | SHIPBUILDING AND CONVERSION, NAVY | | | | | | | | | | |
| | FLEET BALLISTIC MISSILE SHIPS | | | | | | | | | | |
| 001 | OHIO REPLACEMENT SUBMARINE | | 1,698,907 | | 1,823,907 | | 1,823,907 | | 123,000 | | 1,821,907 |
| | Submarine industrial base expansion | | | | | | [125,000] | | | | |
| | Submarine supplier development | | | | [125,000] | | | | [123,000] | | |
| | OTHER WARSHIPS | | | | | | | | | | |
| 002 | CARRIER REPLACEMENT PROGRAM | 1 | 2,347,000 | | 1,952,000 | 1 | 2,347,000 | -1 | -1,305,000 | | 1,042,000 |
| | Basic construction/conversion excess cost growth | | | | [-302,000] | | | | [-20,000] | | |
| | CVN-81 previously authorized | | | [-1] | | | | [-1] | | | |
| | Propulsion equipment excess cost growth | | | | [-93,000] | | | | | | |
| | Restoring acquisition accountability: Transfer CVN-81 only to line 2X. | | | | | | | | [-1,285,000] | | |
| 002A | CARRIER REPLACEMENT PROGRAM | | | | | | | | 1,285,000 | | 1,285,000 |
| | For CVN-81 only | | | | | | | | [1,285,000] | | |
| 003 | VIRGINIA CLASS SUBMARINE | 3 | 7,155,946 | 3 | 6,605,946 | 2 | 4,691,946 | -1 | -1,710,000 | 2 | 5,445,946 |
| | Block V MYP savings redirected to fund USS Boise, USS Hartford, and USS Columbus availabilities. | | | | [-550,000] | | | | | | |
| | Block V program increase | | | | | | | | [1,490,000] | | |

| | | | | | | | | | | |
|-----|---|-----------|-----------|-----|------|------------|--------------|------|--------------|-----------|
| | | | | | | | [522,100] | | | |
| | | | | | | | [−2,986,100] | | | |
| 004 | VIRGINIA CLASS SUBMARINE ADVANCE PROCUREMENT | 2,769,552 | 2,769,552 | | [−1] | | | [−1] | [−3,200,000] | 2,969,552 |
| | Advance Procurement in support of a 10th multi-year procurement contract ship only. | | | | | | 4,269,552 | | 200,000 | |
| | | | | | | | [1,500,000] | | [200,000] | |
| 005 | CVN REFUELING OVERHAULS | 1 | 647,926 | 1 | | 453,926 | 597,926 | | −16,000 | 631,926 |
| | CVN-74 RCOH basic construction/conversion excess cost growth. | | | | | [−165,000] | | | | |
| | | | | | | | | | | |
| | CVN-74 RCOH ordnance excess cost growth | | | | | [−46,000] | | | | |
| | CVN-74 RCOH unjustified cost growth | | | | | | [−50,000] | | [−16,000] | |
| | CVN-75 RCOH restoration | | | | | [17,000] | | | | |
| 006 | CVN REFUELING OVERHAULS ADVANCE PROCUREMENT | | | | | | 16,900 | | 16,900 | 16,900 |
| | Restore CVN-75 RCOH | | | | | | [16,900] | | [16,900] | |
| 007 | DDG 1000 | | 155,944 | | | 155,944 | 155,944 | | | 155,944 |
| 008 | DDG-51 | 3 | 5,099,295 | 3 | | 5,013,295 | 5,079,295 | | −66,000 | 5,033,295 |
| | Available prior year funds | | | | | | [−20,000] | | | |
| | Basic Construction excess growth | | | | | | | | [−66,000] | |
| | Basic ship construction excess cost growth | | | | | [−86,000] | | | | |
| 009 | DDG-51 ADVANCE PROCUREMENT | | 224,028 | | | 224,028 | 484,028 | | 260,000 | 484,028 |
| | Accelerate LLTM for FY21 Flight III destroyers | | | | | | [260,000] | | [260,000] | |
| 011 | FFG-FRIGATE | 1 | 1,281,177 | 1 | | 1,266,177 | 1,281,177 | | | 1,281,177 |
| | Change order early to need | | | | | [−15,000] | | | | |
| | AMPHIBIOUS SHIPS | | | | | | | | | |
| 012 | LPD FLIGHT II | | | 1 | | 100,000 | 525,000 | 1 | 525,000 | 525,000 |
| | LPD-31 program increase | | | | | | [1] | [1] | [277,900] | |
| | Quantity increase | | | [1] | | | | | | |
| | Transfer from line 13 | | | | | [100,000] | | | | |
| | Transfer from SCN line 13 | | | | | | [247,100] | | [247,100] | |
| 013 | LPD FLIGHT II ADVANCE PROCUREMENT | | 247,100 | | | 147,100 | | | −247,100 | |
| | Transfer to line 12 | | | | | [−100,000] | | | [−247,100] | |
| | Transfer to SCN line 12 | | | | | | [−247,100] | | | |
| 015 | LHA REPLACEMENT | | | | | | 650,000 | 1 | 650,000 | 650,000 |
| | LHA-9 program increase | | | | | | [1] | [1] | [650,000] | |
| 017 | EXPEDITIONARY FAST TRANSPORT (EPF) | | | | | 49,000 | | | | |
| | Medical transport modification for EPF-14 Navy unfunded priority. | | | | | [49,000] | | | | |
| | AUXILIARIES, CRAFT AND PRIOR YR PROGRAM COST | | | | | | | | | |
| 018 | TAO FLEET OILER | 2 | 981,215 | 1 | | 607,215 | 981,215 | | | 981,215 |
| | Full funding early to need | | | | | [−1] | [−447,000] | | | |
| | Transfer from Line 19 | | | | | | [73,000] | | | |

| | | | | | | |
|-----|--|---------|-----------|----------|-----------|---------|
| 004 | SUB PERISCOPE, IMAGING AND SUPT EQUIP PROG | 160,803 | 160,803 | 160,803 | | 160,803 |
| 005 | DDG MOD | 566,140 | 566,140 | 566,140 | -12,650 | 553,490 |
| | Aegis modernization testing excess to need | | | | [-5,000] | |
| | Combat system ship qualification trials excess to need ... | | | | [-7,650] | |
| 006 | FIREFIGHTING EQUIPMENT | 18,223 | 18,223 | 18,223 | | 18,223 |
| 007 | COMMAND AND CONTROL SWITCHBOARD | 2,086 | 2,086 | 2,086 | | 2,086 |
| 008 | LHA/LHD MIDLIFE | 95,651 | 64,651 | 95,651 | -16,088 | 79,563 |
| | Excess cost growth | | [-31,000] | | [-16,088] | |
| 009 | POLLUTION CONTROL EQUIPMENT | 23,910 | 23,910 | 23,910 | | 23,910 |
| 010 | SUBMARINE SUPPORT EQUIPMENT | 44,895 | 25,300 | 44,895 | | 44,895 |
| | Acoustic superiority early to need | | [-11,855] | | | |
| | Excess cost growth | | [-7,740] | | | |
| 011 | VIRGINIA CLASS SUPPORT EQUIPMENT | 28,465 | 28,465 | 28,465 | | 28,465 |
| 012 | LCS CLASS SUPPORT EQUIPMENT | 19,426 | 19,426 | 19,426 | | 19,426 |
| 013 | SUBMARINE BATTERIES | 26,290 | 26,290 | 26,290 | -993 | 25,297 |
| | Virginia class unit cost growth | | | | [-993] | |
| 014 | LPD CLASS SUPPORT EQUIPMENT | 46,945 | 46,945 | 46,945 | | 46,945 |
| 015 | DDG 1000 CLASS SUPPORT EQUIPMENT | 9,930 | 9,930 | 9,930 | | 9,930 |
| 016 | STRATEGIC PLATFORM SUPPORT EQUIP | 14,331 | 14,331 | 14,331 | | 14,331 |
| 017 | DSSP EQUIPMENT | 2,909 | 2,909 | 2,909 | | 2,909 |
| 018 | CG MODERNIZATION | 193,990 | 193,990 | 193,990 | | 193,990 |
| 019 | LCAC | 3,392 | 3,392 | 3,392 | | 3,392 |
| 020 | UNDERWATER EOD PROGRAMS | 71,240 | 71,240 | 82,240 | | 71,240 |
| | Program increase for four ExMCM companies | | | [11,000] | | |
| 021 | ITEMS LESS THAN \$5 MILLION | 102,543 | 102,543 | 102,543 | | 102,543 |
| 022 | CHEMICAL WARFARE DETECTORS | 2,961 | 2,961 | 2,961 | | 2,961 |
| 023 | SUBMARINE LIFE SUPPORT SYSTEM | 6,635 | 6,635 | 6,635 | | 6,635 |
| | REACTOR PLANT EQUIPMENT | | | | | |
| 024 | REACTOR POWER UNITS | 5,340 | 5,340 | 5,340 | | 5,340 |
| 025 | REACTOR COMPONENTS | 465,726 | 465,726 | 465,726 | -2,977 | 462,749 |
| | Program decrease—unit cost growth | | | | [-2,977] | |
| | OCEAN ENGINEERING | | | | | |
| 026 | DIVING AND SALVAGE EQUIPMENT | 11,854 | 10,706 | 11,854 | | 11,854 |
| | Excess cost growth | | [-1,148] | | | |
| | SMALL BOATS | | | | | |
| 027 | STANDARD BOATS | 79,102 | 73,967 | 79,102 | | 79,102 |
| | Excess cost growth | | [-5,135] | | | |
| | PRODUCTION FACILITIES EQUIPMENT | | | | | |
| 028 | OPERATING FORCES IPE | 202,238 | 202,238 | 202,238 | | 202,238 |
| | OTHER SHIP SUPPORT | | | | | |

| SEC. 4101. PROCUREMENT (In Thousands of Dollars) | | | | | | | | | | | |
|---|---|-----------------|---------|------------------|------------|-------------------|------------|-------------------|-----------|-----------------------|---------|
| Line | Item | FY 2020 Request | | House Authorized | | Senate Authorized | | Conference Change | | Conference Authorized | |
| | | Qty | Cost | Qty | Cost | Qty | Cost | Qty | Cost | Qty | Cost |
| 029 | LCS COMMON MISSION MODULES EQUIPMENT | | 51,553 | | 33,237 | | 51,553 | | | | 51,553 |
| | Excess cost growth | | | | [-18,316] | | | | | | |
| 030 | LCS MCM MISSION MODULES | | 197,129 | | 77,129 | | 67,329 | | -62,972 | | 134,157 |
| | Excess cost growth | | | | [-120,000] | | | | [-62,972] | | |
| | Procurement ahead of satisfactory testing | | | | | | [-129,800] | | | | |
| 031 | LCS ASW MISSION MODULES | | 27,754 | | 25,254 | | 27,754 | | | | 27,754 |
| | Demonstrate alternate low frequency active sonar | | | | [2,500] | | | | | | |
| | Excess cost growth | | | | [-5,000] | | | | | | |
| 032 | LCS SUW MISSION MODULES | | 26,566 | | 14,566 | | 26,566 | | | | 26,566 |
| | Excess cost growth | | | | [-12,000] | | | | | | |
| 033 | LCS IN-SERVICE MODERNIZATION | | 84,972 | | 84,972 | | 84,972 | | -2,972 | | 82,000 |
| | Habitability mod (Freedom variant) unit cost growth | | | | | | | | [-2,972] | | |
| 034 | SMALL & MEDIUM UUV | | 40,547 | | 10,601 | | 10,647 | | -29,900 | | 10,647 |
| | Knifefish early to need | | | | [-29,946] | | | | [-29,900] | | |
| | Knifefish procurement ahead of satisfactory testing | | | | | | [-29,900] | | | | |
| | LOGISTIC SUPPORT | | | | | | | | | | |
| 035 | LSD MIDLIFE & MODERNIZATION | | 40,269 | | 40,269 | | 40,269 | | | | 40,269 |
| | SHIP SONARS | | | | | | | | | | |
| 036 | SPQ-9B RADAR | | 26,195 | | 26,195 | | 26,195 | | | | 26,195 |
| 037 | AN/SQQ-89 SURF ASW COMBAT SYSTEM | | 125,237 | | 125,237 | | 125,237 | | | | 125,237 |
| 038 | SSN ACOUSTIC EQUIPMENT | | 366,968 | | 354,968 | | 366,968 | | -10,015 | | 356,953 |
| | Low cost conformal array contract delay | | | | [-12,000] | | | | [-10,015] | | |
| 039 | UNDERSEA WARFARE SUPPORT EQUIPMENT | | 8,967 | | 8,967 | | 8,967 | | | | 8,967 |
| | ASW ELECTRONIC EQUIPMENT | | | | | | | | | | |
| 040 | SUBMARINE ACOUSTIC WARFARE SYSTEM | | 23,545 | | 23,545 | | 23,545 | | | | 23,545 |
| 041 | SSTD | | 12,439 | | 12,439 | | 12,439 | | | | 12,439 |
| 042 | FIXED SURVEILLANCE SYSTEM | | 128,441 | | 128,441 | | 128,441 | | | | 128,441 |
| 043 | SURTASS | | 21,923 | | 21,923 | | 21,923 | | | | 21,923 |
| | ELECTRONIC WARFARE EQUIPMENT | | | | | | | | | | |
| 044 | AN/SLQ-32 | | 420,154 | | 420,154 | | 358,154 | | -69,468 | | 350,686 |
| | Block 3 kit early to need | | | | | | | | [-65,758] | | |
| | Early to need | | | | | | [-62,000] | | | | |
| | FMP block 1B3 for SLQ-32(V) 6 previously funded | | | | | | | | [-2,300] | | |

| | | | | | | | |
|-----|--|---------|-----------|---------|--|-----------|---------|
| | SEWIP block 1B2 for USCG ship forward fit contract delays. | | | | | [-1,410] | |
| | RECONNAISSANCE EQUIPMENT | | | | | | |
| 045 | SHIPBOARD IW EXPLOIT | 194,758 | 194,758 | 202,758 | | -1,318 | 193,440 |
| | SSEE modifications kits unit cost growth | | | | | [-1,318] | |
| | UPL SSEE expansion on Flight I DDGs | | | [8,000] | | | |
| 046 | AUTOMATED IDENTIFICATION SYSTEM (AIS) | 5,368 | 5,368 | 5,368 | | | 5,368 |
| | OTHER SHIP ELECTRONIC EQUIPMENT | | | | | | |
| 047 | COOPERATIVE ENGAGEMENT CAPABILITY | 35,128 | 35,128 | 35,128 | | | 35,128 |
| 048 | NAVAL TACTICAL COMMAND SUPPORT SYSTEM (NTCSS) | 15,154 | 15,154 | 15,154 | | | 15,154 |
| 049 | ATDLS | 52,753 | 52,753 | 52,753 | | | 52,753 |
| 050 | NAVY COMMAND AND CONTROL SYSTEM (NCCS) | 3,390 | 3,390 | 3,390 | | | 3,390 |
| 051 | MINESWEEPING SYSTEM REPLACEMENT | 19,448 | 19,448 | 19,448 | | | 19,448 |
| 052 | SHALLOW WATER MCM | 8,730 | 8,730 | 8,730 | | | 8,730 |
| 053 | NAVSTAR GPS RECEIVERS (SPACE) | 32,674 | 32,674 | 32,674 | | | 32,674 |
| 054 | AMERICAN FORCES RADIO AND TV SERVICE | 2,617 | 2,617 | 2,617 | | | 2,617 |
| 055 | STRATEGIC PLATFORM SUPPORT EQUIP | 7,973 | 7,973 | 7,973 | | | 7,973 |
| | AVIATION ELECTRONIC EQUIPMENT | | | | | | |
| 056 | ASHORE ATC EQUIPMENT | 72,406 | 72,406 | 72,406 | | | 72,406 |
| 057 | AFLOAT ATC EQUIPMENT | 67,410 | 67,410 | 67,410 | | -1,631 | 65,779 |
| | ACLS mod kits installations cost growth | | | | | [-1,631] | |
| 058 | ID SYSTEMS | 26,059 | 15,464 | 26,059 | | | 26,059 |
| | OE-120/UPX antenna insufficient budget justification | | [-10,595] | | | | |
| 059 | JOINT PRECISION APPROACH AND LANDING SYSTEM (..... | 92,695 | 61,348 | 92,695 | | -14,500 | 78,195 |
| | Early to need | | [-31,347] | | | [-14,500] | |
| 060 | NAVAL MISSION PLANNING SYSTEMS | 15,296 | 15,296 | 15,296 | | | 15,296 |
| | OTHER SHORE ELECTRONIC EQUIPMENT | | | | | | |
| 061 | TACTICAL/MOBILE C4I SYSTEMS | 36,226 | 36,226 | 36,226 | | | 36,226 |
| 062 | DCGS-N | 21,788 | 21,788 | 21,788 | | -361 | 21,427 |
| | DCGS-N increment 2 kit unit cost discrepancy | | | | | [-361] | |
| 063 | CANES | 426,654 | 396,654 | 426,654 | | -31,500 | 395,154 |
| | Program decrease | | [-30,000] | | | [-31,500] | |
| 064 | RADIAC | 6,450 | 6,450 | 6,450 | | | 6,450 |
| 065 | CANES-INTELL | 52,713 | 52,713 | 52,713 | | | 52,713 |
| 066 | GPETE | 13,028 | 13,028 | 13,028 | | | 13,028 |
| 067 | MASF | 5,193 | 5,193 | 5,193 | | | 5,193 |
| 068 | INTEG COMBAT SYSTEM TEST FACILITY | 6,028 | 6,028 | 6,028 | | | 6,028 |
| 069 | EMI CONTROL INSTRUMENTATION | 4,209 | 4,209 | 4,209 | | | 4,209 |
| 070 | ITEMS LESS THAN \$5 MILLION | 168,436 | 151,593 | 144,636 | | -23,800 | 144,636 |
| | Excess cost growth | | [-16,843] | | | | |

| SEC. 4101. PROCUREMENT (In Thousands of Dollars) | | | | | | | | | | | |
|---|--|-----------------|---------|------------------|-----------|-------------------|----------|-------------------|-----------|-----------------------|---------|
| Line | Item | FY 2020 Request | | House Authorized | | Senate Authorized | | Conference Change | | Conference Authorized | |
| | | Qty | Cost | Qty | Cost | Qty | Cost | Qty | Cost | Qty | Cost |
| | NGSSR early to need | | | | | | | [-23,800] | | [-23,800] | |
| | SHIPBOARD COMMUNICATIONS | | | | | | | | | | |
| 071 | SHIPBOARD TACTICAL COMMUNICATIONS | | 55,853 | | 55,853 | | 55,853 | | -5,800 | | 50,053 |
| | DMR IW and MUOS system procurement afloat previously funded. | | | | | | | | [-5,800] | | |
| 072 | SHIP COMMUNICATIONS AUTOMATION | | 137,861 | | 117,861 | | 137,861 | | -15,481 | | 122,380 |
| | STACC cost growth | | | | [-20,000] | | | | [-15,481] | | |
| 073 | COMMUNICATIONS ITEMS UNDER \$5M | | 35,093 | | 35,093 | | 35,093 | | -3,600 | | 31,493 |
| | Improving funds management: prior year carryover | | | | | | | | [-3,600] | | |
| | SUBMARINE COMMUNICATIONS | | | | | | | | | | |
| 074 | SUBMARINE BROADCAST SUPPORT | | 50,833 | | 50,833 | | 50,833 | | | | 50,833 |
| 075 | SUBMARINE COMMUNICATION EQUIPMENT | | 69,643 | | 60,643 | | 69,643 | | -8,849 | | 60,794 |
| | Buoy shape improvement unjustified request | | | | [-9,000] | | | | [-8,849] | | |
| | SATELLITE COMMUNICATIONS | | | | | | | | | | |
| 076 | SATELLITE COMMUNICATIONS SYSTEMS | | 45,841 | | 45,841 | | 45,841 | | | | 45,841 |
| 077 | NAVY MULTIBAND TERMINAL (NMT) | | 88,021 | | 88,021 | | 88,021 | | -5,873 | | 82,148 |
| | Afloat ship kit cost growth | | | | | | | | [-4,055] | | |
| | Assured C2 modems installation cost excess growth | | | | | | | | [-1,818] | | |
| | SHORE COMMUNICATIONS | | | | | | | | | | |
| 078 | JOINT COMMUNICATIONS SUPPORT ELEMENT (JCSE) | | 4,293 | | 4,293 | | 4,293 | | | | 4,293 |
| | CRYPTOGRAPHIC EQUIPMENT | | | | | | | | | | |
| 079 | INFO SYSTEMS SECURITY PROGRAM (ISSP) | | 166,540 | | 166,540 | | 166,540 | | | | 166,540 |
| 080 | MIO INTEL EXPLOITATION TEAM | | 968 | | 968 | | 968 | | | | 968 |
| | CRYPTOLOGIC EQUIPMENT | | | | | | | | | | |
| 081 | CRYPTOLOGIC COMMUNICATIONS EQUIP | | 13,090 | | 13,090 | | 13,090 | | | | 13,090 |
| | OTHER ELECTRONIC SUPPORT | | | | | | | | | | |
| 083 | COAST GUARD EQUIPMENT | | 61,370 | | 61,370 | | 61,370 | | | | 61,370 |
| | SONOBUOYS | | | | | | | | | | |
| 085 | SONOBUOYS—ALL TYPES | | 260,644 | | 296,344 | | 310,644 | | 50,000 | | 310,644 |
| | Navy unfunded priority | | | | [35,700] | | | | | | |
| | UPL sonobuoy increase | | | | | | [50,000] | | [50,000] | | |
| | AIRCRAFT SUPPORT EQUIPMENT | | | | | | | | | | |
| 086 | MINOTAUR | | 5,000 | | 5,000 | | 5,000 | | | | 5,000 |

| | | | | | | |
|-----|---|---------|-----------|---------|-----------|---------|
| 087 | WEAPONS RANGE SUPPORT EQUIPMENT | 101,843 | 94,843 | 101,843 | | 101,843 |
| | Excess cost growth | | [-7,000] | | | |
| 088 | AIRCRAFT SUPPORT EQUIPMENT | 145,601 | 112,181 | 145,601 | -10,390 | 135,211 |
| | Excess cost growth | | [-20,000] | | [-10,390] | |
| | Program decrease | | [-13,420] | | | |
| 089 | ADVANCED ARRESTING GEAR (AAG) | 4,725 | 4,725 | 4,725 | | 4,725 |
| 090 | METEOROLOGICAL EQUIPMENT | 14,687 | 14,687 | 14,687 | -2,280 | 12,407 |
| | ASOS upgrades unit cost growth | | | | [-2,280] | |
| 092 | LEGACY AIRBORNE MCM | 19,250 | 19,250 | 19,250 | -332 | 18,918 |
| | Modifications unjustified growth | | | | [-332] | |
| 093 | LAMPS EQUIPMENT | 792 | 792 | 792 | | 792 |
| 094 | AVIATION SUPPORT EQUIPMENT | 55,415 | 52,415 | 55,415 | -3,000 | 52,415 |
| | Contract delay | | [-3,000] | | [-3,000] | |
| 095 | UMCS-UNMAN CARRIER AVIATION(UCA)MISSION CNTRL | 32,668 | 32,668 | 32,668 | | 32,668 |
| | SHIP GUN SYSTEM EQUIPMENT | | | | | |
| 096 | SHIP GUN SYSTEMS EQUIPMENT | 5,451 | 5,451 | 5,451 | | 5,451 |
| | SHIP MISSILE SYSTEMS EQUIPMENT | | | | | |
| 097 | HARPOON SUPPORT EQUIPMENT | 1,100 | 1,100 | 1,100 | | 1,100 |
| 098 | SHIP MISSILE SUPPORT EQUIPMENT | 228,104 | 243,304 | 228,104 | 40,200 | 268,304 |
| | Excess cost growth | | [-25,000] | | | |
| | Program increase | | [40,200] | | [40,200] | |
| 099 | TOMAHAWK SUPPORT EQUIPMENT | 78,593 | 78,593 | 78,593 | | 78,593 |
| | FBM SUPPORT EQUIPMENT | | | | | |
| 100 | STRATEGIC MISSILE SYSTEMS EQUIP | 280,510 | 280,510 | 280,510 | | 280,510 |
| | ASW SUPPORT EQUIPMENT | | | | | |
| 101 | SSN COMBAT CONTROL SYSTEMS | 148,547 | 138,547 | 148,547 | -4,869 | 143,678 |
| | Excess cost growth | | [-10,000] | | [-4,869] | |
| 102 | ASW SUPPORT EQUIPMENT | 21,130 | 21,130 | 21,130 | | 21,130 |
| | OTHER ORDNANCE SUPPORT EQUIPMENT | | | | | |
| 103 | EXPLOSIVE ORDNANCE DISPOSAL EQUIP | 15,244 | 15,244 | 15,244 | | 15,244 |
| 104 | ITEMS LESS THAN \$5 MILLION | 5,071 | 5,071 | 5,071 | | 5,071 |
| | OTHER EXPENDABLE ORDNANCE | | | | | |
| 105 | ANTI-SHIP MISSILE DECOY SYSTEM | 41,962 | 41,962 | 41,962 | | 41,962 |
| 106 | SUBMARINE TRAINING DEVICE MODS | 75,057 | 75,057 | 75,057 | | 75,057 |
| 107 | SURFACE TRAINING EQUIPMENT | 233,175 | 189,253 | 233,175 | -10,528 | 222,647 |
| | BFFT ship sets excess to need | | | | [-1,515] | |
| | LCS trainer equipment early to need | | [-43,922] | | [-9,013] | |
| | CIVIL ENGINEERING SUPPORT EQUIPMENT | | | | | |
| 108 | PASSENGER CARRYING VEHICLES | 4,562 | 4,562 | 4,562 | | 4,562 |
| 109 | GENERAL PURPOSE TRUCKS | 10,974 | 10,974 | 10,974 | | 10,974 |

| SEC. 4101. PROCUREMENT (In Thousands of Dollars) | | | | | | | | | | | |
|---|--|-----------------|---------|------------------|-----------|-------------------|----------|-------------------|-----------|-----------------------|---------|
| Line | Item | FY 2020 Request | | House Authorized | | Senate Authorized | | Conference Change | | Conference Authorized | |
| | | Qty | Cost | Qty | Cost | Qty | Cost | Qty | Cost | Qty | Cost |
| 110 | CONSTRUCTION & MAINTENANCE EQUIP | | 43,191 | | 43,191 | | 43,191 | | | | 43,191 |
| 111 | FIRE FIGHTING EQUIPMENT | | 21,142 | | 11,642 | | 21,142 | | -9,500 | | 11,642 |
| | Contract delays | | | | [-9,500] | | | | [-9,500] | | |
| 112 | TACTICAL VEHICLES | | 33,432 | | 32,032 | | 33,432 | | | | 33,432 |
| | JLTV contract delay | | | | [-1,400] | | | | | | |
| 114 | POLLUTION CONTROL EQUIPMENT | | 2,633 | | 2,633 | | 2,633 | | | | 2,633 |
| 115 | ITEMS UNDER \$5 MILLION | | 53,467 | | 53,467 | | 53,467 | | | | 53,467 |
| 116 | PHYSICAL SECURITY VEHICLES | | 1,173 | | 1,173 | | 1,173 | | | | 1,173 |
| | SUPPLY SUPPORT EQUIPMENT | | | | | | | | | | |
| 117 | SUPPLY EQUIPMENT | | 16,730 | | 16,730 | | 16,730 | | | | 16,730 |
| 118 | FIRST DESTINATION TRANSPORTATION | | 5,389 | | 5,389 | | 5,389 | | | | 5,389 |
| 119 | SPECIAL PURPOSE SUPPLY SYSTEMS | | 654,674 | | 654,674 | | 654,674 | | -37,152 | | 617,522 |
| | Insufficient budget justification | | | | | | | | [-37,152] | | |
| | TRAINING DEVICES | | | | | | | | | | |
| 120 | TRAINING SUPPORT EQUIPMENT | | 3,633 | | 3,633 | | 3,633 | | | | 3,633 |
| 121 | TRAINING AND EDUCATION EQUIPMENT | | 97,636 | | 82,536 | | 97,636 | | -3,100 | | 94,536 |
| | Excess growth | | | | | | | | [-3,100] | | |
| | Reduction in one Training Support Vessel | | | | [-15,100] | | | | | | |
| | COMMAND SUPPORT EQUIPMENT | | | | | | | | | | |
| 122 | COMMAND SUPPORT EQUIPMENT | | 66,102 | | 50,102 | | 59,779 | | -15,668 | | 50,434 |
| | Prior year underexecution | | | | [-16,000] | | | | [-15,668] | | |
| | Program duplication | | | | | | [-6,323] | | | | |
| 123 | MEDICAL SUPPORT EQUIPMENT | | 3,633 | | 3,633 | | 3,633 | | | | 3,633 |
| 125 | NAVAL MIP SUPPORT EQUIPMENT | | 6,097 | | 6,097 | | 6,097 | | | | 6,097 |
| 126 | OPERATING FORCES SUPPORT EQUIPMENT | | 16,905 | | 16,905 | | 16,905 | | | | 16,905 |
| 127 | CAISR EQUIPMENT | | 30,146 | | 30,146 | | 30,146 | | | | 30,146 |
| 128 | ENVIRONMENTAL SUPPORT EQUIPMENT | | 21,986 | | 21,986 | | 21,986 | | | | 21,986 |
| 129 | PHYSICAL SECURITY EQUIPMENT | | 160,046 | | 160,046 | | 160,046 | | | | 160,046 |
| 130 | ENTERPRISE INFORMATION TECHNOLOGY | | 56,899 | | 56,899 | | 56,899 | | | | 56,899 |
| | OTHER | | | | | | | | | | |
| 133 | NEXT GENERATION ENTERPRISE SERVICE | | 122,832 | | 122,832 | | 122,832 | | | | 122,832 |
| | CLASSIFIED PROGRAMS | | | | | | | | | | |
| 133A | CLASSIFIED PROGRAMS | | 16,346 | | 16,346 | | 16,346 | | | | 16,346 |

| | | | | | | | | | |
|---|---|-----|------------------|-----|------------------|-----|------------------|-----|------------------|
| SPARES AND REPAIR PARTS | | | | | | | | | |
| 134 | SPARES AND REPAIR PARTS | | 375,608 | | 352,140 | | 375,608 | | 352,140 |
| | JPALS spares early to need | | | | [-8,137] | | | | [-8,137] |
| | LCS spares early to need | | | | [-15,331] | | | | [-15,331] |
| | TOTAL OTHER PROCUREMENT, NAVY | | 9,652,956 | | 9,146,967 | | 9,489,133 | | 9,302,099 |
| | | | | | | | | | -350,857 |
| PROCUREMENT, MARINE CORPS | | | | | | | | | |
| TRACKED COMBAT VEHICLES | | | | | | | | | |
| 001 | AAV7A1 PIP | | 39,495 | | 39,495 | | 39,495 | | 39,495 |
| 002 | AMPHIBIOUS COMBAT VEHICLE 1.1 | 56 | 317,935 | 56 | 313,135 | 56 | 317,935 | 56 | 313,131 |
| | Excess engineering change orders | | | | [-4,800] | | | | [-4,804] |
| 003 | LAV PIP | | 60,734 | | 60,734 | | 60,734 | | 60,734 |
| ARTILLERY AND OTHER WEAPONS | | | | | | | | | |
| 004 | 155MM LIGHTWEIGHT TOWED HOWITZER | | 25,065 | | 25,065 | | 25,065 | | 25,065 |
| 005 | ARTILLERY WEAPONS SYSTEM | | 100,002 | | 90,002 | | 100,002 | | 90,002 |
| | Equipment previously funded and cost growth | | | | [-10,000] | | | | [-10,000] |
| 006 | WEAPONS AND COMBAT VEHICLES UNDER \$5 MILLION | | 31,945 | | 31,945 | | 31,945 | | 31,945 |
| OTHER SUPPORT | | | | | | | | | |
| 007 | MODIFICATION KITS | | 22,760 | | 22,760 | | 22,760 | | 22,760 |
| GUIDED MISSILES | | | | | | | | | |
| 008 | GROUND BASED AIR DEFENSE | | 175,998 | | 175,998 | | 175,998 | | 175,998 |
| 009 | ANTI-ARMOR MISSILE-JAVELIN | 97 | 20,207 | 97 | 20,207 | 97 | 20,207 | 97 | 20,207 |
| 010 | FAMILY ANTI-ARMOR WEAPON SYSTEMS (FOAAWS) | | 21,913 | | 21,913 | | 21,913 | | 21,913 |
| 011 | ANTI-ARMOR MISSILE-TOW | | 60,501 | | 60,501 | | 60,501 | | 60,501 |
| 012 | GUIDED MLRS ROCKET (GMLRS) | 210 | 29,062 | 210 | 28,062 | 210 | 29,062 | 210 | 28,062 |
| | Unit cost discrepancy | | | | [-1,000] | | | | [-1,000] |
| COMMAND AND CONTROL SYSTEMS | | | | | | | | | |
| 013 | COMMON AVIATION COMMAND AND CONTROL SYSTEM (C | | 37,203 | | 32,203 | | 37,203 | | 32,203 |
| | AN/MRQ-13 communications subsystems upgrades un-justified growth. | | | | [-5,000] | | | | [-5,000] |
| REPAIR AND TEST EQUIPMENT | | | | | | | | | |
| 014 | REPAIR AND TEST EQUIPMENT | | 55,156 | | 55,156 | | 55,156 | | 55,156 |
| OTHER SUPPORT (TEL) | | | | | | | | | |
| 015 | MODIFICATION KITS | | 4,945 | | 4,945 | | 4,945 | | 4,945 |
| COMMAND AND CONTROL SYSTEM (NON-TEL) | | | | | | | | | |
| 016 | ITEMS UNDER \$5 MILLION (COMM & ELEC) | | 112,124 | | 83,124 | | 112,124 | | 82,424 |
| | Unit cost growth | | | | [-29,000] | | | | [-29,700] |
| 017 | AIR OPERATIONS C2 SYSTEMS | | 17,408 | | 17,408 | | 17,408 | | 17,408 |
| RADAR + EQUIPMENT (NON-TEL) | | | | | | | | | |
| 018 | RADAR SYSTEMS | | 329 | | 329 | | 329 | | 329 |

SEC. 4101. PROCUREMENT
(In Thousands of Dollars)

| Line | Item | FY 2020 Request | | House Authorized | | Senate Authorized | | Conference Change | | Conference Authorized | |
|------|---|-----------------|---------|------------------|-----------|-------------------|---------|-------------------|-----------|-----------------------|---------|
| | | Qty | Cost | Qty | Cost | Qty | Cost | Qty | Cost | Qty | Cost |
| 019 | GROUND/AIR TASK ORIENTED RADAR (G/ATOR) | 8 | 273,022 | 8 | 273,022 | 8 | 273,022 | | | 8 | 273,022 |
| | INTELL/COMM EQUIPMENT (NON-TEL) | | | | | | | | | | |
| 021 | GCSS-MC | | 4,484 | | 4,484 | | 4,484 | | | | 4,484 |
| 022 | FIRE SUPPORT SYSTEM | | 35,488 | | 35,488 | | 35,488 | | | | 35,488 |
| 023 | INTELLIGENCE SUPPORT EQUIPMENT | | 56,896 | | 54,396 | | 56,896 | | -2,500 | | 54,396 |
| | Unjustified growth | | | | [-2,500] | | | | [-2,500] | | |
| 025 | UNMANNED AIR SYSTEMS (INTEL) | | 34,711 | | 34,711 | | 34,711 | | | | 34,711 |
| 026 | DCGS-MC | | 32,562 | | 32,562 | | 32,562 | | | | 32,562 |
| | OTHER SUPPORT (NON-TEL) | | | | | | | | | | |
| 030 | NEXT GENERATION ENTERPRISE NETWORK (NGEN) | | 114,901 | | 114,901 | | 114,901 | | | | 114,901 |
| 031 | COMMON COMPUTER RESOURCES | | 51,094 | | 51,094 | | 51,094 | | | | 51,094 |
| 032 | COMMAND POST SYSTEMS | | 108,897 | | 108,897 | | 108,897 | | | | 108,897 |
| 033 | RADIO SYSTEMS | | 227,320 | | 212,320 | | 227,320 | | -15,000 | | 212,320 |
| | Cost growth and early to need | | | | [-15,000] | | | | [-15,000] | | |
| 034 | COMM SWITCHING & CONTROL SYSTEMS | | 31,685 | | 23,685 | | 31,685 | | -7,904 | | 23,781 |
| | ECP small form factor previously funded | | | | [-8,000] | | | | [-7,904] | | |
| 035 | COMM & ELEC INFRASTRUCTURE SUPPORT | | 21,140 | | 21,140 | | 21,140 | | | | 21,140 |
| 036 | CYBERSPACE ACTIVITIES | | 27,632 | | 27,632 | | 27,632 | | | | 27,632 |
| | CLASSIFIED PROGRAMS | | | | | | | | | | |
| 036A | CLASSIFIED PROGRAMS | | 5,535 | | 5,535 | | 5,535 | | | | 5,535 |
| | ADMINISTRATIVE VEHICLES | | | | | | | | | | |
| 037 | COMMERCIAL CARGO VEHICLES | | 28,913 | | 28,913 | | 28,913 | | | | 28,913 |
| | TACTICAL VEHICLES | | | | | | | | | | |
| 038 | MOTOR TRANSPORT MODIFICATIONS | | 19,234 | | 19,234 | | 19,234 | | | | 19,234 |
| 039 | JOINT LIGHT TACTICAL VEHICLE | 1,398 | 558,107 | 1,398 | 556,107 | 1,398 | 558,107 | | -2,000 | 1,398 | 556,107 |
| | ECP previously funded | | | | [-2,000] | | | | [-2,000] | | |
| 040 | FAMILY OF TACTICAL TRAILERS | | 2,693 | | 2,693 | | 2,693 | | | | 2,693 |
| | ENGINEER AND OTHER EQUIPMENT | | | | | | | | | | |
| 041 | ENVIRONMENTAL CONTROL EQUIP ASSORT | | 495 | | 495 | | 495 | | | | 495 |
| 042 | TACTICAL FUEL SYSTEMS | | 52 | | 52 | | 52 | | | | 52 |
| 043 | POWER EQUIPMENT ASSORTED | | 22,441 | | 22,441 | | 22,441 | | | | 22,441 |
| 044 | AMPHIBIOUS SUPPORT EQUIPMENT | | 7,101 | | 7,101 | | 7,101 | | | | 7,101 |
| 045 | EOD SYSTEMS | | 44,700 | | 44,700 | | 44,700 | | | | 44,700 |

| | | | | | | | | | | | |
|--|--|--------------|------------------|--------------|------------------|--------------|------------------|-----------------|--------------|------------------|-----------|
| MATERIALS HANDLING EQUIPMENT | | | | | | | | | | | |
| 046 | PHYSICAL SECURITY EQUIPMENT | | 15,404 | | 15,404 | | 15,404 | | | 15,404 | |
| GENERAL PROPERTY | | | | | | | | | | | |
| 047 | FIELD MEDICAL EQUIPMENT | | 2,898 | | 2,898 | | 2,898 | | | 2,898 | |
| 048 | TRAINING DEVICES | | 149,567 | | 126,567 | | 149,567 | | -23,000 | 126,567 | |
| | ODS unjustified request | | | | [-23,000] | | | | [-23,000] | | |
| 049 | FAMILY OF CONSTRUCTION EQUIPMENT | | 35,622 | | 35,622 | | 35,622 | | | 35,622 | |
| 050 | ULTRA-LIGHT TACTICAL VEHICLE (ULTV) | | 647 | | 647 | | 647 | | | 647 | |
| OTHER SUPPORT | | | | | | | | | | | |
| 051 | ITEMS LESS THAN \$5 MILLION | | 10,956 | | 10,956 | | 10,956 | | | 10,956 | |
| SPARES AND REPAIR PARTS | | | | | | | | | | | |
| 052 | SPARES AND REPAIR PARTS | | 33,470 | | 33,470 | | 33,470 | | | 33,470 | |
| | TOTAL PROCUREMENT, MARINE CORPS | 1,769 | 3,090,449 | 1,769 | 2,990,149 | 1,769 | 3,090,449 | -100,908 | 1,769 | 2,989,541 | |
| AIRCRAFT PROCUREMENT, AIR FORCE | | | | | | | | | | | |
| TACTICAL FORCES | | | | | | | | | | | |
| 001 | F-35 | 48 | 4,274,359 | 60 | 5,126,409 | 60 | 5,364,359 | 12 | 1,292,050 | 60 | 5,566,409 |
| | Program increase | | | [12] | [1,042,800] | | | [12] | [1,042,800] | | |
| | Program increase: Turkish F-35A Reallocation Initiative .. | | | | | | | | [440,000] | | |
| | Target cost savings | | | | [-190,750] | | | | [-190,750] | | |
| | UPL additional quantities | | | | | [12] | [1,090,000] | | | | |
| 002 | F-35 | | 655,500 | | 655,500 | | 811,500 | | 156,000 | | 811,500 |
| | UPL Increase | | | | | | [156,000] | | [156,000] | | |
| 003 | F-15E | 8 | 1,050,000 | 8 | 941,000 | 8 | 888,000 | | -64,500 | 8 | 985,500 |
| | NRE cost on a non-developmental A/C | | | | | | [-162,000] | | | | |
| | Unjustified non-recurring engineering | | | | [-109,000] | | | | [-64,500] | | |
| TACTICAL AIRLIFT | | | | | | | | | | | |
| 005 | KC-46A MDAP | 12 | 2,234,529 | 12 | 2,199,705 | 15 | 2,705,529 | | -36,000 | 12 | 2,198,529 |
| | Excess to need | | | | [-34,824] | | | | [-36,000] | | |
| | UPL additional quantities | | | | | [3] | [471,000] | | | | |
| OTHER AIRLIFT | | | | | | | | | | | |
| 006 | C-130J | | 12,156 | 4 | 404,156 | | 12,156 | 4 | 392,000 | 4 | 404,156 |
| | Program increase | | | [4] | [392,000] | | | [4] | [392,000] | | |
| 008 | MC-130J | 8 | 871,207 | 8 | 871,207 | 8 | 871,207 | | -13,600 | 8 | 857,607 |
| | Excess to need | | | | | | | | [-13,600] | | |
| 009 | MC-130J | | 40,000 | | 40,000 | | 40,000 | | | | 40,000 |
| HELICOPTERS | | | | | | | | | | | |
| 010 | COMBAT RESCUE HELICOPTER | 12 | 884,235 | 12 | 876,235 | 12 | 884,235 | | -8,200 | 12 | 876,035 |
| | Excess to need | | | | [-8,000] | | | | [-8,200] | | |
| MISSION SUPPORT AIRCRAFT | | | | | | | | | | | |

SEC. 4101. PROCUREMENT
(In Thousands of Dollars)

| Line | Item | FY 2020 Request | | House Authorized | | Senate Authorized | | Conference Change | | Conference Authorized | |
|------|---|-----------------|---------|------------------|------------|-------------------|-----------|-------------------|-----------|-----------------------|---------|
| | | Qty | Cost | Qty | Cost | Qty | Cost | Qty | Cost | Qty | Cost |
| 011 | C-37A | 2 | 161,000 | 2 | 161,000 | 2 | 161,000 | | -13,500 | 2 | 147,500 |
| | Unit cost growth | | | | | | | | [-13,500] | | |
| 012 | CIVIL AIR PATROL A/C | 4 | 2,767 | 4 | 2,767 | 4 | 2,767 | | | 4 | 2,767 |
| | OTHER AIRCRAFT | | | | | | | | | | |
| 014 | TARGET DRONES | 37 | 130,837 | 37 | 130,837 | 37 | 130,837 | | | 37 | 130,837 |
| 015 | COMPASS CALL | 1 | 114,095 | 1 | 114,095 | 1 | 114,095 | | | 1 | 114,095 |
| 017 | MQ-9 | 3 | 189,205 | 15 | 313,005 | 3 | 189,205 | | -14,000 | 3 | 175,205 |
| | Program increase | | | [12] | [137,800] | | | | | | |
| | Unit cost growth | | | | [-14,000] | | | | [-14,000] | | |
| | STRATEGIC AIRCRAFT | | | | | | | | | | |
| 019 | B-2A | | 9,582 | | 9,582 | | 9,582 | | | | 9,582 |
| 020 | B-1B | | 22,111 | | 22,111 | | 22,111 | | -9,000 | | 13,111 |
| | ADS-B ahead of need | | | | | | | | [-9,000] | | |
| 021 | B-52 | | 69,648 | | 69,648 | | 69,648 | | | | 69,648 |
| 022 | LARGE AIRCRAFT INFRARED COUNTERMEASURES | | 43,758 | | 43,758 | | 43,758 | | | | 43,758 |
| | TACTICAL AIRCRAFT | | | | | | | | | | |
| 023 | A-10 | | 132,069 | | 132,069 | | 132,069 | | | | 132,069 |
| 024 | E-11 BACN/HAG | | 70,027 | 1 | 90,027 | | 70,027 | | | | 70,027 |
| | Aircraft increase | | | [1] | [20,000] | | | | | | |
| 025 | F-15 | | 481,073 | | 480,443 | | 328,073 | | -13,306 | | 467,767 |
| | ADCP unnecessary due to F-15X | | | | | | [-75,100] | | [-13,306] | | |
| | F-15C MUOS ahead of need | | | | [-630] | | | | | | |
| | IFF unnecessary due to F-15X | | | | | | [-29,600] | | | | |
| | Longerons unnecessary due to F-15X | | | | | | [-24,600] | | | | |
| | Radar unnecessary due to F-15X | | | | | | [-23,700] | | | | |
| 026 | F-16 | | 234,782 | | 234,782 | 30 | 309,782 | 30 | 75,000 | 30 | 309,782 |
| | Additional radars | | | | | [30] | [75,000] | [30] | [75,000] | | |
| 028 | F-22A | | 323,597 | | 323,597 | | 323,597 | | | | 323,597 |
| 030 | F-35 MODIFICATIONS | | 343,590 | | 343,590 | | 343,590 | | | | 343,590 |
| 031 | F-15 EPAW | | 149,047 | | 25,047 | | 81,847 | | -23,630 | | 125,417 |
| | Not required because of F-15X | | | | | | [-67,200] | | [-23,630] | | |
| | Prior-year carryover | | | | [-124,000] | | | | | | |
| 032 | INCREMENT 3.2B | | 20,213 | | 20,213 | | 20,213 | | | | 20,213 |

November 23, 2019 (1:06 a.m.)

| | | | | | | |
|-----|--|---------|------------|-----------|------------|---------|
| 033 | KC-46A MDAP | 10,213 | 3,639 | 10,213 | -5,000 | 5,213 |
| | Excess to need | | [-6,574] | | | |
| | Funding ahead of need | | | | [-5,000] | |
| | AIRLIFT AIRCRAFT | | | | | |
| 034 | C-5 | 73,550 | 73,550 | 73,550 | | 73,550 |
| 036 | C-17A | 60,244 | 60,244 | 60,244 | | 60,244 |
| 037 | C-21 | 216 | 216 | 216 | | 216 |
| 038 | C-32A | 11,511 | 11,511 | 11,511 | | 11,511 |
| 039 | C-37A | 435 | 435 | 435 | | 435 |
| | TRAINER AIRCRAFT | | | | | |
| 040 | GLIDER MODS | 138 | 138 | 138 | | 138 |
| 041 | T-6 | 11,826 | 11,826 | 11,826 | | 11,826 |
| 042 | T-1 | 26,787 | 26,787 | 26,787 | | 26,787 |
| 043 | T-38 | 37,341 | 45,041 | 37,341 | | 37,341 |
| | T-38 A/B ejection seat safety | | [7,700] | | | |
| | OTHER AIRCRAFT | | | | | |
| 044 | U-2 MODS | 86,896 | 119,896 | 86,896 | 20,000 | 106,896 |
| | Increase for U-2 enhancements | | [33,000] | | [20,000] | |
| 045 | KC-10A (ATCA) | 2,108 | 2,108 | 2,108 | | 2,108 |
| 046 | C-12 | 3,021 | 3,021 | 3,021 | | 3,021 |
| 047 | VC-25A MOD | 48,624 | 48,624 | 48,624 | | 48,624 |
| 048 | C-40 | 256 | 256 | 256 | | 256 |
| 049 | C-130 | 52,066 | 186,066 | 52,066 | 134,000 | 186,066 |
| | 3.5 Engine Enhancement Package | | [79,000] | | [79,000] | |
| | NP-2000 prop blade upgrades | | [55,000] | | [55,000] | |
| 050 | C-130J MODS | 141,686 | 141,686 | 141,686 | | 141,686 |
| 051 | C-135 | 124,491 | 124,491 | 124,491 | -1,875 | 122,616 |
| | Low cost mods slow execution | | | | [-1,000] | |
| | RPI installs | | | | [-875] | |
| 053 | COMPASS CALL | 110,754 | 110,754 | 110,754 | | 110,754 |
| 054 | COMBAT FLIGHT INSPECTION—CFIN | 508 | 508 | 508 | | 508 |
| 055 | RC-135 | 227,673 | 398,673 | 227,673 | | 227,673 |
| | Program increase | | [171,000] | | | |
| 056 | E-3 | 216,299 | 216,299 | 216,299 | -87,307 | 128,992 |
| | NATO AWACS—Air Force requested transfer to line 88 | | | | [-87,307] | |
| 057 | E-4 | 58,477 | 58,477 | 58,477 | | 58,477 |
| 058 | E-8 | 28,778 | 56,778 | 28,778 | 20,000 | 48,778 |
| | Increase for re-engining | | [28,000] | | [20,000] | |
| | SATCOM radios | | | [30,000] | | |
| 059 | AIRBORNE WARNING AND CNTRL SYS (AWACS) 40/45 | 36,000 | 36,000 | 36,000 | | 36,000 |

| SEC. 4101. PROCUREMENT (In Thousands of Dollars) | | | | | | | | | | | |
|---|--|-----------------|-----------|------------------|------------|-------------------|-----------|-------------------|------------|-----------------------|-----------|
| Line | Item | FY 2020 Request | | House Authorized | | Senate Authorized | | Conference Change | | Conference Authorized | |
| | | Qty | Cost | Qty | Cost | Qty | Cost | Qty | Cost | Qty | Cost |
| 060 | FAMILY OF BEYOND LINE-OF-SIGHT TERMINALS | | 7,910 | | 7,910 | | 7,910 | | | | 7,910 |
| 061 | H-1 | | 3,817 | | 3,817 | | 3,817 | | | | 3,817 |
| 062 | H-60 | | 20,879 | | 20,879 | | 20,879 | | | | 20,879 |
| 063 | RQ-4 MODS | | 1,704 | | 1,704 | | 1,704 | | | | 1,704 |
| 064 | HC/MC-130 MODIFICATIONS | | 51,482 | | 51,482 | | 51,482 | | | | 51,482 |
| 065 | OTHER AIRCRAFT | | 50,098 | | 50,098 | | 50,098 | | | | 50,098 |
| 066 | MQ-9 MODS | | 383,594 | | 251,594 | | 383,594 | | -132,000 | | 251,594 |
| | Production rate adjustment of DAS-4 sensor | | | | [-132,000] | | | | [-132,000] | | |
| 068 | CV-22 MODS | | 65,348 | | 65,348 | | 65,348 | | | | 65,348 |
| | AIRCRAFT SPARES AND REPAIR PARTS | | | | | | | | | | |
| 069 | INITIAL SPARES/REPAIR PARTS | | 708,230 | | 544,830 | | 970,230 | | 91,000 | | 799,230 |
| | F-35 spares | | | | | | [96,000] | | [96,000] | | |
| | KC-46 spares | | | | | | [141,000] | | | | |
| | Program decrease | | | | [-40,000] | | | | [-30,000] | | |
| | RQ-4 | | | | | | [25,000] | | [25,000] | | |
| | Unjustified F-15C requirements | | | | [-123,400] | | | | | | |
| | COMMON SUPPORT EQUIPMENT | | | | | | | | | | |
| 072 | AIRCRAFT REPLACEMENT SUPPORT EQUIP | | 84,938 | | 84,938 | | 84,938 | | | | 84,938 |
| | POST PRODUCTION SUPPORT | | | | | | | | | | |
| 073 | B-2A | | 1,403 | | 1,403 | | 1,403 | | | | 1,403 |
| 074 | B-2B | | 42,234 | | 42,234 | | 42,234 | | | | 42,234 |
| 075 | B-52 | | 4,641 | | 4,641 | | 4,641 | | | | 4,641 |
| 076 | C-17A | | 124,805 | | 124,805 | | 124,805 | | | | 124,805 |
| 079 | F-15 | | 2,589 | | 2,589 | | 2,589 | | | | 2,589 |
| 081 | F-16 | | 15,348 | | 14,748 | | 15,348 | | | | 15,348 |
| | Line shutdown early to need | | | | [-600] | | | | | | |
| 084 | RQ-4 POST PRODUCTION CHARGES | | 47,246 | | 47,246 | | 47,246 | | | | 47,246 |
| | INDUSTRIAL PREPAREDNESS | | | | | | | | | | |
| 086 | INDUSTRIAL RESPONSIVENESS | | 17,705 | | 17,705 | | 17,705 | | | | 17,705 |
| | WAR CONSUMABLES | | | | | | | | | | |
| 087 | WAR CONSUMABLES | | 32,102 | | 32,102 | | 32,102 | | | | 32,102 |
| | OTHER PRODUCTION CHARGES | | | | | | | | | | |
| 088 | OTHER PRODUCTION CHARGES | | 1,194,728 | | 1,073,728 | | 1,194,728 | | 27,307 | | 1,222,035 |

| | | | | | | | | | |
|--|--|-----------------------|-----------------------|-----------------------|---------------------|-----------------------|---------------|-----------|---------|
| | F-22 NGEN lab excess | | | [-72,000] | | | | [-60,000] | |
| | NATO AWACS—Air Force requested transfer from line 56 | | | | | | | [87,307] | |
| | Program decrease | | | [-33,000] | | | | | |
| | RQ-4 delayed obligations | | | [-16,000] | | | | | |
| CLASSIFIED PROGRAMS | | | | | | | | | |
| 090A | CLASSIFIED PROGRAMS | 34,193 | 34,193 | 34,193 | 34,193 | | | | 34,193 |
| | TOTAL AIRCRAFT PROCUREMENT, AIR FORCE | 135 16,784,279 | 164 17,845,801 | 180 18,486,079 | 46 1,785,439 | 181 18,569,718 | | | |
| MISSILE PROCUREMENT, AIR FORCE | | | | | | | | | |
| MISSILE REPLACEMENT EQUIPMENT—BALLISTIC | | | | | | | | | |
| 001 | MISSILE REPLACEMENT EQ-BALLISTIC | 55,888 | 55,888 | 55,888 | | | | | 55,888 |
| TACTICAL | | | | | | | | | |
| 002 | REPLAC EQUIP & WAR CONSUMABLES | 9,100 | 9,100 | 9,100 | | | | | 9,100 |
| 003 | JOINT AIR-TO-GROUND MUNITION | 60 15,000 | 60 | 15,000 | -30 | -7,500 | 30 | 7,500 | |
| | Unjustified requirement (JAGM-F) | | | [-15,000] | [-30] | [-7,500] | | | |
| 004 | JOINT AIR-SURFACE STANDOFF MISSILE | 411 482,525 | 411 482,525 | 411 482,525 | | | 411 482,525 | | 482,525 |
| 006 | SIDEWINDER (AIM-9X) | 355 160,408 | 355 160,408 | 355 160,408 | | | 355 160,408 | | 160,408 |
| 007 | AMRAAM | 220 332,250 | 220 332,250 | 220 332,250 | | | 220 332,250 | | 332,250 |
| 008 | PREDATOR HELLFIRE MISSILE | 1,531 118,860 | 1,531 111,160 | 1,531 118,860 | | | 1,531 118,860 | | 118,860 |
| | Unit cost savings | | | [-7,700] | | | | | |
| 009 | SMALL DIAMETER BOMB | 7,078 275,438 | 7,078 275,438 | 7,078 275,438 | | | 7,078 275,438 | | 275,438 |
| 010 | SMALL DIAMETER BOMB II | 1,175 212,434 | 1,175 201,434 | 1,175 212,434 | | -11,750 | 1,175 200,684 | | |
| | Unit cost growth | | | [-11,000] | | [-11,750] | | | |
| INDUSTRIAL FACILITIES | | | | | | | | | |
| 011 | INDUSTRI'L PREPAREDNS/POL PREVENTION | 801 | 801 | 801 | | | | | 801 |
| CLASS IV | | | | | | | | | |
| 012 | ICBM FUZE MOD | 6 5,000 | 6 5,000 | 6 5,000 | | | 6 5,000 | | 5,000 |
| 013 | ICBM FUZE MOD | 14,497 | 14,497 | 14,497 | | | | | 14,497 |
| 014 | MM III MODIFICATIONS | 50,831 | 50,831 | 59,731 | | 8,874 | | | 59,705 |
| | Air Force requested transfer | | | [8,900] | | [8,874] | | | |
| 015 | AGM-65D MAVERICK | 294 | 294 | 294 | | | | | 294 |
| 016 | AIR LAUNCH CRUISE MISSILE (ALCM) | 77,387 | 77,387 | 68,487 | | -8,874 | | | 68,513 |
| | Air Force requested transfer | | | [-8,900] | | [-8,874] | | | |
| MISSILE SPARES AND REPAIR PARTS | | | | | | | | | |
| 018 | MSL SPRS/REPAIR PARTS (INITIAL) | 1,910 | 1,910 | 1,910 | | | | | 1,910 |
| 019 | REPLEN SPARES/REPAIR PARTS | 82,490 | 82,490 | 82,490 | | | | | 82,490 |
| SPECIAL PROGRAMS | | | | | | | | | |
| 023 | SPECIAL UPDATE PROGRAMS | 144,553 | 144,553 | 144,553 | | | | | 144,553 |
| CLASSIFIED PROGRAMS | | | | | | | | | |
| 023A | CLASSIFIED PROGRAMS | 849,521 | 849,521 | 849,521 | | | | | 849,521 |

| SEC. 4101. PROCUREMENT (In Thousands of Dollars) | | | | | | | | | | | |
|---|---|-----------------|------------------|------------------|------------------|-------------------|------------------|-------------------|----------------|-----------------------|------------------|
| Line | Item | FY 2020 Request | | House Authorized | | Senate Authorized | | Conference Change | | Conference Authorized | |
| | | Qty | Cost | Qty | Cost | Qty | Cost | Qty | Cost | Qty | Cost |
| | TOTAL MISSILE PROCUREMENT, AIR FORCE | 10,836 | 2,889,187 | 10,836 | 2,855,487 | 10,836 | 2,889,187 | -30 | -19,250 | 10,806 | 2,869,937 |
| | SPACE PROCUREMENT, AIR FORCE | | | | | | | | | | |
| | SPACE PROGRAMS | | | | | | | | | | |
| 001 | ADVANCED EHF | | 31,894 | | 31,894 | | 31,894 | | | | 31,894 |
| 002 | AF SATELLITE COMM SYSTEM | | 56,298 | | 56,298 | | 56,298 | | | | 56,298 |
| 004 | COUNTERSPACE SYSTEMS | | 5,700 | | 5,700 | | 5,700 | | | | 5,700 |
| 005 | FAMILY OF BEYOND LINE-OF-SIGHT TERMINALS | | 34,020 | | 24,020 | | 34,020 | | -5,000 | | 29,020 |
| | Unjustified growth | | | | [-10,000] | | | | [-5,000] | | |
| 007 | GENERAL INFORMATION TECH—SPACE | | 3,244 | | 3,244 | | 3,244 | | | | 3,244 |
| 008 | GPSIII FOLLOW ON | 1 | 414,625 | 1 | 414,625 | 1 | 414,625 | | | 1 | 414,625 |
| 009 | GPS III SPACE SEGMENT | | 31,466 | | 31,466 | | 31,466 | | | | 31,466 |
| 012 | SPACEBORNE EQUIP (COMSEC) | | 32,031 | | 32,031 | | 32,031 | | | | 32,031 |
| 013 | MILSATCOM | | 11,096 | | 11,096 | | 11,096 | | | | 11,096 |
| 015 | EVOLVED EXPENDABLE LAUNCH VEH(SPACE) | 4 | 1,237,635 | 4 | 1,237,635 | 4 | 1,237,635 | | | 4 | 1,237,635 |
| 016 | SBIR HIGH (SPACE) | | 233,952 | | 218,012 | | 233,952 | | | | 233,952 |
| | Unjustified growth | | | | [-15,940] | | | | | | |
| 017 | NUDET DETECTION SYSTEM | | 7,432 | | 7,432 | | 7,432 | | | | 7,432 |
| 018 | ROCKET SYSTEMS LAUNCH PROGRAM | | 11,473 | | 11,473 | | 11,473 | | | | 11,473 |
| 019 | SPACE FENCE | | 71,784 | | 50,284 | | 71,784 | | | | 71,784 |
| | Unjustified growth | | | | [-21,500] | | | | | | |
| 020 | SPACE MODS | | 106,330 | | 86,330 | | 106,330 | | | | 106,330 |
| | Unjustified growth | | | | [-20,000] | | | | | | |
| 021 | SPACELIFT RANGE SYSTEM SPACE | | 118,140 | | 118,140 | | 118,140 | | | | 118,140 |
| | SPACE PROCUREMENT, AIR FORCE | | | | | | | | | | |
| | SPARES | | | | | | | | | | |
| 022 | SPARES AND REPAIR PARTS | | 7,263 | | 7,263 | | 7,263 | | | | 7,263 |
| | TOTAL SPACE PROCUREMENT, AIR FORCE | 5 | 2,414,383 | 5 | 2,346,943 | 5 | 2,414,383 | -5,000 | | 5 | 2,409,383 |
| | PROCUREMENT OF AMMUNITION, AIR FORCE | | | | | | | | | | |
| | ROCKETS | | | | | | | | | | |
| 001 | ROCKETS | | 133,268 | | 115,268 | | 133,268 | | -18,200 | | 115,068 |
| | APKWS Mk 66 rocket motor price adjustment | | | | [-18,000] | | | | [-18,200] | | |

November 23, 2019 (1:06 a.m.)

| | | | | | | | | | | |
|-----|--|---------------|------------------|---------------|------------------|---------------|------------------|----------------|---------------|------------------|
| | CARTRIDGES | | | | | | | | | |
| 002 | CARTRIDGES | | 140,449 | | 140,449 | | 140,449 | | | 140,449 |
| | BOMBS | | | | | | | | | |
| 003 | PRACTICE BOMBS | | 29,313 | | 29,313 | | 29,313 | | | 29,313 |
| 004 | GENERAL PURPOSE BOMBS | | 85,885 | | 85,885 | | 85,885 | | | 85,885 |
| 006 | JOINT DIRECT ATTACK MUNITION | 37,000 | 1,066,224 | 37,000 | 1,019,224 | 37,000 | 1,066,224 | -32,000 | 37,000 | 1,034,224 |
| | LJDAM sensor cost adjustment | | | | [-10,000] | | | | | |
| | Tailkit unit cost adjustment | | | | [-37,000] | | | [-32,000] | | |
| 007 | B61 | 533 | 80,773 | 533 | 80,773 | 533 | 80,773 | | 533 | 80,773 |
| | OTHER ITEMS | | | | | | | | | |
| 009 | CAD/PAD | | 47,069 | | 47,069 | | 47,069 | | | 47,069 |
| 010 | EXPLOSIVE ORDNANCE DISPOSAL (EOD) | | 6,133 | | 6,133 | | 6,133 | | | 6,133 |
| 011 | SPARES AND REPAIR PARTS | | 533 | | 533 | | 533 | | | 533 |
| 012 | MODIFICATIONS | | 1,291 | | 1,291 | | 1,291 | | | 1,291 |
| 013 | ITEMS LESS THAN \$5,000,000 | | 1,677 | | 1,677 | | 1,677 | | | 1,677 |
| | FLARES | | | | | | | | | |
| 015 | FLARES | | 36,116 | | 22,116 | | 36,116 | | | 36,116 |
| | Program decrease | | | | [-14,000] | | | | | |
| | FUZES | | | | | | | | | |
| 016 | FUZES | | 1,734 | | 1,734 | | 1,734 | | | 1,734 |
| | SMALL ARMS | | | | | | | | | |
| 017 | SMALL ARMS | | 37,496 | | 32,496 | | 37,496 | | | 37,496 |
| | Program decrease | | | | [-5,000] | | | | | |
| | TOTAL PROCUREMENT OF AMMUNITION, AIR FORCE | 37,533 | 1,667,961 | 37,533 | 1,583,961 | 37,533 | 1,667,961 | -50,200 | 37,533 | 1,617,761 |
| | OTHER PROCUREMENT, AIR FORCE | | | | | | | | | |
| | PASSENGER CARRYING VEHICLES | | | | | | | | | |
| 001 | PASSENGER CARRYING VEHICLES | | 15,238 | | 15,238 | | 15,238 | | | 15,238 |
| | CARGO AND UTILITY VEHICLES | | | | | | | | | |
| 002 | MEDIUM TACTICAL VEHICLE | | 34,616 | | 29,616 | | 34,616 | | | 34,616 |
| | Unjustified unit cost increases | | | | [-5,000] | | | | | |
| 003 | CAP VEHICLES | | 1,040 | | 3,567 | | 1,040 | 2,527 | | 3,567 |
| | Program increase—communications | | | | [1,867] | | | [1,867] | | |
| | Program increase—vehicles | | | | [660] | | | [660] | | |
| 004 | CARGO AND UTILITY VEHICLES | | 23,133 | | 18,588 | | 23,133 | | | 23,133 |
| | Program increase | | | | [455] | | | | | |
| | Program reduction | | | | [-5,000] | | | | | |
| | SPECIAL PURPOSE VEHICLES | | | | | | | | | |
| 005 | JOINT LIGHT TACTICAL VEHICLE | | 32,027 | | 22,027 | | 32,027 | | | 32,027 |
| | Program reduction | | | | [-10,000] | | | | | |

| SEC. 4101. PROCUREMENT (In Thousands of Dollars) | | | | | | | | | | | |
|---|---|-----------------|--------|------------------|----------|-------------------|--------|-------------------|----------|-----------------------|--------|
| Line | Item | FY 2020 Request | | House Authorized | | Senate Authorized | | Conference Change | | Conference Authorized | |
| | | Qty | Cost | Qty | Cost | Qty | Cost | Qty | Cost | Qty | Cost |
| 006 | SECURITY AND TACTICAL VEHICLES | | 1,315 | | 1,315 | | 1,315 | | | | 1,315 |
| 007 | SPECIAL PURPOSE VEHICLES | | 14,593 | | 9,593 | | 14,593 | | | | 14,593 |
| | Program reduction—prior year carryover | | | | [-5,000] | | | | | | |
| | FIRE FIGHTING EQUIPMENT | | | | | | | | | | |
| 008 | FIRE FIGHTING/CRASH RESCUE VEHICLES | | 28,604 | | 28,604 | | 28,604 | | | | 28,604 |
| | MATERIALS HANDLING EQUIPMENT | | | | | | | | | | |
| 009 | MATERIALS HANDLING VEHICLES | | 21,848 | | 21,848 | | 21,848 | | | | 21,848 |
| | BASE MAINTENANCE SUPPORT | | | | | | | | | | |
| 010 | RUNWAY SNOW REMOV AND CLEANING EQU | | 2,925 | | 3,259 | | 2,925 | | | | 2,925 |
| | Program increase | | | | [334] | | | | | | |
| 011 | BASE MAINTENANCE SUPPORT VEHICLES | | 55,776 | | 52,876 | | 55,776 | | | | 55,776 |
| | Program increase | | | | [2,100] | | | | | | |
| | Program reduction | | | | [-5,000] | | | | | | |
| | COMM SECURITY EQUIPMENT(COMSEC) | | | | | | | | | | |
| 013 | COMSEC EQUIPMENT | | 91,461 | | 91,461 | | 91,461 | | | | 91,461 |
| | INTELLIGENCE PROGRAMS | | | | | | | | | | |
| 014 | INTERNATIONAL INTEL TECH & ARCHITECTURES | | 11,386 | | 11,386 | | 11,386 | | | | 11,386 |
| 015 | INTELLIGENCE TRAINING EQUIPMENT | | 7,619 | | 7,619 | | 7,619 | | | | 7,619 |
| 016 | INTELLIGENCE COMM EQUIPMENT | | 35,558 | | 32,058 | | 35,558 | | -3,500 | | 32,058 |
| | IMAD unjustified procurement | | | | [-3,500] | | | | [-3,500] | | |
| | ELECTRONICS PROGRAMS | | | | | | | | | | |
| 017 | AIR TRAFFIC CONTROL & LANDING SYS | | 17,939 | | 17,939 | | 17,939 | | | | 17,939 |
| 019 | BATTLE CONTROL SYSTEM—FIXED | | 3,063 | | 3,063 | | 3,063 | | | | 3,063 |
| 021 | WEATHER OBSERVATION FORECAST | | 31,447 | | 31,447 | | 31,447 | | | | 31,447 |
| 022 | STRATEGIC COMMAND AND CONTROL | | 5,090 | | 5,090 | | 5,090 | | | | 5,090 |
| 023 | CHEYENNE MOUNTAIN COMPLEX | | 10,145 | | 10,145 | | 10,145 | | | | 10,145 |
| 024 | MISSION PLANNING SYSTEMS | | 14,508 | | 14,508 | | 14,508 | | | | 14,508 |
| 026 | INTEGRATED STRAT PLAN & ANALY NETWORK (ISPAN) | | 9,901 | | 9,901 | | 9,901 | | | | 9,901 |
| | SPCL COMM-ELECTRONICS PROJECTS | | | | | | | | | | |
| 027 | GENERAL INFORMATION TECHNOLOGY | | 26,933 | | 26,933 | | 26,933 | | | | 26,933 |
| 028 | AF GLOBAL COMMAND & CONTROL SYS | | 2,756 | | 2,756 | | 2,756 | | | | 2,756 |
| 029 | BATTLEFIELD AIRBORNE CONTROL NODE (BACN) | | 48,478 | | 48,478 | | 48,478 | | | | 48,478 |
| 030 | MOBILITY COMMAND AND CONTROL | | 21,186 | | 21,186 | | 21,186 | | | | 21,186 |

| | | | | | | | | | |
|-----|---|---------|-----|-----------|-----|-----------|-----|-----------|---------|
| 031 | AIR FORCE PHYSICAL SECURITY SYSTEM | 178,361 | | 158,361 | | 178,361 | | | 178,361 |
| | Program reduction | | | [-20,000] | | | | | |
| 032 | COMBAT TRAINING RANGES | 233,993 | 2 | 247,593 | 4 | 261,993 | 4 | 28,000 | 261,993 |
| | Joint threat emitter increase | | [2] | [13,600] | | | | | |
| | Joint threat emitters | | | | [4] | [28,000] | [4] | [28,000] | |
| 033 | MINIMUM ESSENTIAL EMERGENCY COMM N | 132,648 | | 132,648 | | | | | 132,648 |
| 034 | WIDE AREA SURVEILLANCE (WAS) | 80,818 | | 47,929 | | 80,818 | | -38,700 | 42,118 |
| | Program decrease | | | [-12,889] | | | | [-38,700] | |
| | Program decrease—realignment to RDAF-155 | | | [-20,000] | | | | | |
| 035 | C3 COUNTERMEASURES | 25,036 | | 25,036 | | 25,036 | | | 25,036 |
| 036 | INTEGRATED PERSONNEL AND PAY SYSTEM | 20,900 | | 15,693 | | | | -20,900 | |
| | Poor agile implementation | | | | | [-20,900] | | [-20,900] | |
| | Program decrease | | | [-5,207] | | | | | |
| 037 | GCSS-AF FOS | 11,226 | | 11,226 | | 11,226 | | | 11,226 |
| 038 | DEFENSE ENTERPRISE ACCOUNTING & MGT SYS | 1,905 | | 1,905 | | 1,905 | | | 1,905 |
| 039 | MAINTENANCE REPAIR & OVERHAUL INITIATIVE | 1,912 | | 1,912 | | 1,912 | | | 1,912 |
| 040 | THEATER BATTLE MGT C2 SYSTEM | 6,337 | | 6,337 | | 6,337 | | | 6,337 |
| 041 | AIR & SPACE OPERATIONS CENTER (AOC) | 33,243 | | 33,243 | | 33,243 | | | 33,243 |
| | AIR FORCE COMMUNICATIONS | | | | | | | | |
| 043 | BASE INFORMATION TRANSPT INFRAS (BIT) WIRED | 69,530 | | 59,530 | | 69,530 | | -7,250 | 62,280 |
| | Program decrease | | | [-10,000] | | | | | |
| | Restoring acquisition accountability | | | | | | | [-7,250] | |
| 044 | AFNET | 147,063 | | 147,063 | | 147,063 | | | 147,063 |
| 045 | JOINT COMMUNICATIONS SUPPORT ELEMENT (JCSE) | 6,505 | | 6,505 | | 6,505 | | | 6,505 |
| 046 | USCENTCOM | 20,190 | | 20,190 | | 20,190 | | | 20,190 |
| 047 | USSTRATCOM | 11,244 | | 11,244 | | 11,244 | | | 11,244 |
| | ORGANIZATION AND BASE | | | | | | | | |
| 048 | TACTICAL C-E EQUIPMENT | 143,757 | | 143,757 | | 143,757 | | | 143,757 |
| 050 | RADIO EQUIPMENT | 15,402 | | 15,402 | | 15,402 | | | 15,402 |
| 051 | CCTV/AUDIOVISUAL EQUIPMENT | 3,211 | | 3,211 | | 3,211 | | | 3,211 |
| 052 | BASE COMM INFRASTRUCTURE | 43,123 | | 43,123 | | 43,123 | | | 43,123 |
| | MODIFICATIONS | | | | | | | | |
| 053 | COMM ELECT MODS | 14,500 | | 14,500 | | 14,500 | | | 14,500 |
| | PERSONAL SAFETY & RESCUE EQUIP | | | | | | | | |
| 054 | PERSONAL SAFETY AND RESCUE EQUIPMENT | 50,634 | | 47,634 | | 50,634 | | | 50,634 |
| | Unit cost increase and early to need | | | [-3,000] | | | | | |
| | DEPOT PLANT+MTRLS HANDLING EQ | | | | | | | | |
| 055 | POWER CONDITIONING EQUIPMENT | 11,000 | | 11,000 | | 11,000 | | | 11,000 |
| 056 | MECHANIZED MATERIAL HANDLING EQUIP | 11,901 | | 11,901 | | 11,901 | | | 11,901 |
| | BASE SUPPORT EQUIPMENT | | | | | | | | |

| SEC. 4101. PROCUREMENT (In Thousands of Dollars) | | | | | | | | | | | |
|---|---|-----------------|-------------------|------------------|-------------------|-------------------|-------------------|-------------------|----------------|-----------------------|-------------------|
| Line | Item | FY 2020 Request | | House Authorized | | Senate Authorized | | Conference Change | | Conference Authorized | |
| | | Qty | Cost | Qty | Cost | Qty | Cost | Qty | Cost | Qty | Cost |
| 057 | BASE PROCURED EQUIPMENT | | 23,963 | | 23,963 | | 23,963 | | | | 23,963 |
| 058 | ENGINEERING AND EOD EQUIPMENT | | 34,124 | | 34,124 | | 34,124 | | | | 34,124 |
| 059 | MOBILITY EQUIPMENT | | 26,439 | | 26,439 | | 26,439 | | | | 26,439 |
| 060 | FUELS SUPPORT EQUIPMENT (FSE) | | 24,255 | | 24,255 | | 24,255 | | | | 24,255 |
| 061 | BASE MAINTENANCE AND SUPPORT EQUIPMENT | | 38,986 | | 38,986 | | 38,986 | | | | 38,986 |
| | SPECIAL SUPPORT PROJECTS | | | | | | | | | | |
| 063 | DARP RC135 | | 26,716 | | 55,716 | | 26,716 | | | | 26,716 |
| | Program increase | | | | [29,000] | | | | | | |
| 064 | DCGS-AF | | 116,055 | | 116,055 | | 116,055 | | | | 116,055 |
| 066 | SPECIAL UPDATE PROGRAM | | 835,148 | | 835,148 | | 835,148 | | | | 835,148 |
| | CLASSIFIED PROGRAMS | | | | | | | | | | |
| 066A | CLASSIFIED PROGRAMS | | 18,292,807 | | 18,292,807 | | 18,292,807 | | | | 18,292,807 |
| | SPARES AND REPAIR PARTS | | | | | | | | | | |
| 067 | SPARES AND REPAIR PARTS | | 81,340 | | 81,340 | | 81,340 | | | | 81,340 |
| | TOTAL OTHER PROCUREMENT, AIR FORCE | | 21,342,857 | 2 | 21,286,277 | 4 | 21,349,957 | 4 | -39,823 | 4 | 21,303,034 |
| | PROCUREMENT, DEFENSE-WIDE | | | | | | | | | | |
| | MAJOR EQUIPMENT, OSD | | | | | | | | | | |
| 022 | MAJOR EQUIPMENT, DPAA | 32 | 1,504 | 32 | 1,504 | 32 | 1,504 | | | 32 | 1,504 |
| 045 | MAJOR EQUIPMENT, OSD | | 43,705 | | 43,705 | | 43,705 | | | | 43,705 |
| | MAJOR EQUIPMENT, NSA | | | | | | | | | | |
| 044 | INFORMATION SYSTEMS SECURITY PROGRAM (ISSP) | | 1,533 | | 133 | | 133 | | -1,400 | | 133 |
| | Realignment to DISA for Sharkseer | | | | [-1,400] | | | | [-1,400] | | |
| | Sharkseer transfer | | | | | | [-1,400] | | | | |
| | MAJOR EQUIPMENT, WHS | | | | | | | | | | |
| 049 | MAJOR EQUIPMENT, WHS | | 507 | | 507 | | 507 | | | | 507 |
| | MAJOR EQUIPMENT, DISA | | | | | | | | | | |
| 008 | INFORMATION SYSTEMS SECURITY | | 3,318 | | 4,718 | | 4,718 | | 1,400 | | 4,718 |
| | Realignment for Sharkseer | | | | [1,400] | | | | [1,400] | | |
| | Sharkseer transfer | | | | | | [1,400] | | | | |
| 009 | TELEPORT PROGRAM | | 25,103 | | 25,103 | | 25,103 | | | | 25,103 |
| 010 | ITEMS LESS THAN \$5 MILLION | | 26,416 | | 26,416 | | 26,416 | | | | 26,416 |
| 012 | DEFENSE INFORMATION SYSTEM NETWORK | | 17,574 | | 17,574 | | 17,574 | | | | 17,574 |

| | | | | | | | | | | |
|------|---|---------|---------|----------|---------|---------|------------|-----------|---------|---------|
| 014 | WHITE HOUSE COMMUNICATION AGENCY | 45,079 | | 45,079 | | 45,079 | | 45,079 | | |
| 015 | SENIOR LEADERSHIP ENTERPRISE | 78,669 | | 78,669 | | 78,669 | | 78,669 | | |
| 016 | JOINT REGIONAL SECURITY STACKS (JRSS) | 88,000 | | 83,000 | | 88,000 | | 88,000 | | |
| | Program decrease | | | [-5,000] | | | | | | |
| 017 | JOINT SERVICE PROVIDER | 107,907 | | 107,907 | | 107,907 | | 107,907 | | |
| | MAJOR EQUIPMENT, DLA | | | | | | | | | |
| 019 | MAJOR EQUIPMENT | 8,122 | | 8,122 | | 8,122 | | 8,122 | | |
| | MAJOR EQUIPMENT, DSS | | | | | | | | | |
| 023 | MAJOR EQUIPMENT | 496 | | 496 | | 496 | | 496 | | |
| | MAJOR EQUIPMENT, TJS | | | | | | | | | |
| 046 | MAJOR EQUIPMENT, TJS | 6,905 | | 6,905 | | 6,905 | | 6,905 | | |
| 047 | MAJOR EQUIPMENT—TJS CYBER | 1,458 | | 1,458 | | 1,458 | | 1,458 | | |
| | MAJOR EQUIPMENT, MISSILE DEFENSE AGENCY | | | | | | | | | |
| 028 | THAAD | 37 | 425,863 | 37 | 425,863 | | -37,320 | 37 | 388,543 | |
| | THAAD program transfer to Army | | | | | [-37] | [-425,863] | | | |
| | Unit cost savings | | | | | | | [-37,320] | | |
| 029 | GROUND BASED MIDCOURSE | | 9,471 | | 9,471 | | | | 9,471 | |
| 031 | AEGIS BMD | 37 | 600,773 | 37 | 600,773 | 37 | 600,773 | -35,399 | 37 | 565,374 |
| | SM-3 Block IB multiyear unit cost savings | | | | | | | [-35,399] | | |
| 032 | AEGIS BMD | | 96,995 | | 96,995 | | | | | 96,995 |
| 033 | BMDS AN/TPY-2 RADARS | | 10,046 | | 10,046 | | | | | 10,046 |
| 034 | ARROW 3 UPPER TIER SYSTEMS | 1 | 55,000 | 1 | 55,000 | 1 | 55,000 | | 1 | 55,000 |
| 035 | SHORT RANGE BALLISTIC MISSILE DEFENSE (SRBMD) | 1 | 50,000 | 1 | 50,000 | 1 | 50,000 | | 1 | 50,000 |
| 036 | AEGIS ASHORE PHASE III | 1 | 25,659 | 1 | 25,659 | 1 | 25,659 | | 1 | 25,659 |
| 037 | IRON DOME | 1 | 95,000 | 1 | 95,000 | 1 | 95,000 | | 1 | 95,000 |
| 038 | AEGIS BMD HARDWARE AND SOFTWARE | 36 | 124,986 | 36 | 124,986 | 36 | 124,986 | | 36 | 124,986 |
| | MAJOR EQUIPMENT, DHRA | | | | | | | | | |
| 003 | PERSONNEL ADMINISTRATION | | 5,030 | | 5,030 | | 5,030 | | | 5,030 |
| | MAJOR EQUIPMENT, DEFENSE THREAT REDUCTION AGENCY | | | | | | | | | |
| 025 | VEHICLES | | 211 | | 211 | | 211 | | | 211 |
| 026 | OTHER MAJOR EQUIPMENT | | 11,521 | | 11,521 | | 11,521 | | | 11,521 |
| | MAJOR EQUIPMENT, DODEA | | | | | | | | | |
| 021 | AUTOMATION/EDUCATIONAL SUPPORT & LOGISTICS | | 1,320 | | 1,320 | | 1,320 | | | 1,320 |
| | MAJOR EQUIPMENT, DCMA | | | | | | | | | |
| 002 | MAJOR EQUIPMENT | | 2,432 | | 2,432 | | 2,432 | | | 2,432 |
| | MAJOR EQUIPMENT, DMACT | | | | | | | | | |
| 020 | MAJOR EQUIPMENT | | 10,961 | | 10,961 | | 10,961 | | | 10,961 |
| | CLASSIFIED PROGRAMS | | | | | | | | | |
| 049A | CLASSIFIED PROGRAMS | | 589,366 | | 589,366 | | 589,366 | | | 589,366 |
| | AVIATION PROGRAMS | | | | | | | | | |

| SEC. 4101. PROCUREMENT (In Thousands of Dollars) | | | | | | | | | | | |
|---|---|-----------------|---------|------------------|----------|-------------------|----------|-------------------|----------|-----------------------|---------|
| Line | Item | FY 2020 Request | | House Authorized | | Senate Authorized | | Conference Change | | Conference Authorized | |
| | | Qty | Cost | Qty | Cost | Qty | Cost | Qty | Cost | Qty | Cost |
| 053 | ROTARY WING UPGRADES AND SUSTAINMENT | | 172,020 | | 172,020 | | 172,020 | | | | 172,020 |
| 054 | UNMANNED ISR | | 15,208 | | 15,208 | | 15,208 | | | | 15,208 |
| 055 | NON-STANDARD AVIATION | | 32,310 | | 32,310 | | 32,310 | | | | 32,310 |
| 056 | U-28 | | 10,898 | | 10,898 | | 10,898 | | | | 10,898 |
| 057 | MH-47 CHINOOK | | 173,812 | | 170,312 | | 173,812 | | | | 173,812 |
| | Excess growth | | | | [-3,500] | | | | | | |
| 058 | CV-22 MODIFICATION | | 17,256 | | 17,256 | | 17,256 | | | | 17,256 |
| 059 | MQ-9 UNMANNED AERIAL VEHICLE | | 5,338 | | 5,338 | | 5,338 | | | | 5,338 |
| 060 | PRECISION STRIKE PACKAGE | | 232,930 | | 232,930 | | 232,930 | | | | 232,930 |
| 061 | AC/MC-130J | | 173,419 | | 153,119 | | 164,619 | | -8,400 | | 165,019 |
| | Realignment to Future Vertical Lift | | | | [-8,800] | | | | | | |
| | RFCM excess to need | | | | [-3,000] | | | | | | |
| | RFCM realignment to RDAF FVL | | | | [-8,500] | | | | [-8,400] | | |
| | RFCM schedule delay | | | | | | [-8,800] | | | | |
| 062 | C-130 MODIFICATIONS | | 15,582 | | 15,582 | | 15,582 | | | | 15,582 |
| | SHIPBUILDING | | | | | | | | | | |
| 063 | UNDERWATER SYSTEMS | | 58,991 | | 58,991 | | 58,991 | | | | 58,991 |
| | AMMUNITION PROGRAMS | | | | | | | | | | |
| 064 | ORDNANCE ITEMS <\$5M | | 279,992 | | 279,992 | | 279,992 | | | | 279,992 |
| | OTHER PROCUREMENT PROGRAMS | | | | | | | | | | |
| 065 | INTELLIGENCE SYSTEMS | | 100,641 | | 100,641 | | 100,641 | | | | 100,641 |
| 066 | DISTRIBUTED COMMON GROUND/SURFACE SYSTEMS | | 12,522 | | 12,522 | | 12,522 | | | | 12,522 |
| 067 | OTHER ITEMS <\$5M | | 103,910 | | 103,910 | | 103,910 | | | | 103,910 |
| 068 | COMBATANT CRAFT SYSTEMS | | 33,088 | | 33,088 | | 33,088 | | | | 33,088 |
| 069 | SPECIAL PROGRAMS | | 63,467 | | 63,467 | | 63,467 | | | | 63,467 |
| 070 | TACTICAL VEHICLES | | 77,832 | | 77,832 | | 77,832 | | | | 77,832 |
| 071 | WARRIOR SYSTEMS <\$5M | | 298,480 | | 298,480 | | 298,480 | | | | 298,480 |
| 072 | COMBAT MISSION REQUIREMENTS | | 19,702 | | 19,702 | | 19,702 | | | | 19,702 |
| 073 | GLOBAL VIDEO SURVEILLANCE ACTIVITIES | | 4,787 | | 4,787 | | 4,787 | | | | 4,787 |
| 074 | OPERATIONAL ENHANCEMENTS INTELLIGENCE | | 8,175 | | 8,175 | | 8,175 | | | | 8,175 |
| 075 | OPERATIONAL ENHANCEMENTS | | 282,532 | | 282,532 | | 282,532 | | | | 282,532 |
| | CBDP | | | | | | | | | | |
| 076 | CHEMICAL BIOLOGICAL SITUATIONAL AWARENESS | | 162,406 | | 162,406 | | 162,406 | | | | 162,406 |

| | | | | | | | | | | | |
|-----|--|---------------|--------------------|---------------|--------------------|---------------|--------------------|-----------|----------------|---------------|--------------------|
| 077 | CB PROTECTION & HAZARD MITIGATION | | 188,188 | | 188,188 | | 188,188 | | -4,570 | | 183,618 |
| | Unjustified growth | | | | | | | | [-4,570] | | |
| | TOTAL PROCUREMENT, DEFENSE-WIDE | 146 | 5,114,416 | 146 | 5,085,616 | 109 | 4,679,753 | | -85,689 | 146 | 5,028,727 |
| | JOINT URGENT OPERATIONAL NEEDS FUND | | | | | | | | | | |
| 001 | JOINT URGENT OPERATIONAL NEEDS FUND | | 99,200 | | | | 99,200 | | -99,200 | | |
| | Program decrease | | | | [-99,200] | | | | [-99,200] | | |
| | TOTAL JOINT URGENT OPERATIONAL NEEDS FUND | | 99,200 | | | | 99,200 | | -99,200 | | |
| | TOTAL PROCUREMENT | 73,342 | 132,343,701 | 73,275 | 130,640,508 | 73,394 | 135,071,365 | 41 | 756,564 | 73,383 | 133,100,265 |

SEC. 4102. PROCUREMENT FOR OVERSEAS CONTINGENCY OPERATIONS.

SEC. 4102. PROCUREMENT FOR OVERSEAS CONTINGENCY OPERATIONS
(In Thousands of Dollars)

| Line | Item | FY 2020 Request | | House Authorized | | Senate Authorized | | Conference Change | | Conference Authorized | |
|--------------------------------------|---|-----------------|----------------|------------------|----------------|-------------------|----------------|-------------------|------|-----------------------|----------------|
| | | Qty | Cost | Qty | Cost | Qty | Cost | Qty | Cost | Qty | Cost |
| AIRCRAFT PROCUREMENT, ARMY | | | | | | | | | | | |
| FIXED WING | | | | | | | | | | | |
| 003 | MQ-1 UAV | 6 | 54,000 | 6 | 54,000 | 6 | 54,000 | | | 6 | 54,000 |
| ROTARY | | | | | | | | | | | |
| 015 | CH-47 HELICOPTER | | 25,000 | | 25,000 | | 25,000 | | | | 25,000 |
| MODIFICATION OF AIRCRAFT | | | | | | | | | | | |
| 021 | MULTI SENSOR ABN RECON (MIP) | | 80,260 | | 80,260 | | 80,260 | | | | 80,260 |
| 024 | GRCS SEMA MODS (MIP) | | 750 | | 750 | | 750 | | | | 750 |
| 026 | EMARSS SEMA MODS (MIP) | | 22,180 | | 22,180 | | 22,180 | | | | 22,180 |
| 027 | UTILITY/CARGO AIRPLANE MODS | | 8,362 | | 8,362 | | 8,362 | | | | 8,362 |
| 029 | NETWORK AND MISSION PLAN | | 10 | | 10 | | 10 | | | | 10 |
| 031 | DEGRADED VISUAL ENVIRONMENT | | 49,450 | | | | 49,450 | | | | 49,450 |
| | Early to need | | | | [-49,450] | | | | | | |
| GROUND SUPPORT AVIONICS | | | | | | | | | | | |
| 037 | CMWS | | 130,219 | | 130,219 | | 130,219 | | | | 130,219 |
| 038 | COMMON INFRARED COUNTERMEASURES (CIRCM) | | 9,310 | | 9,310 | | 9,310 | | | | 9,310 |
| OTHER SUPPORT | | | | | | | | | | | |
| 045 | LAUNCHER GUIDED MISSILE: LONGBOW HELLFIRE XM2 | 12 | 2,000 | 12 | 2,000 | 12 | 2,000 | | | 12 | 2,000 |
| | TOTAL AIRCRAFT PROCUREMENT, ARMY | 18 | 381,541 | 18 | 332,091 | 18 | 381,541 | | | 18 | 381,541 |
| MISSILE PROCUREMENT, ARMY | | | | | | | | | | | |
| SURFACE-TO-AIR MISSILE SYSTEM | | | | | | | | | | | |
| 002 | M-SHORAD—PROCUREMENT | 27 | 158,300 | 27 | 158,300 | 27 | 158,300 | | | 27 | 158,300 |
| 003 | MSE MISSILE | 9 | 37,938 | 9 | 37,938 | 9 | 37,938 | | | 9 | 37,938 |
| AIR-TO-SURFACE MISSILE SYSTEM | | | | | | | | | | | |
| 006 | HELLFIRE SYS SUMMARY | 3,242 | 236,265 | 3,242 | 236,265 | 3,242 | 236,265 | | | 3,242 | 236,265 |
| ANTI-TANK/ASSAULT MISSILE SYS | | | | | | | | | | | |
| 008 | JAVELIN (AAWS-M) SYSTEM SUMMARY | 25 | 4,389 | 25 | 4,389 | 25 | 4,389 | | | 25 | 4,389 |
| 011 | GUIDED MLRS ROCKET (GMLRS) | 3,364 | 431,596 | 3,364 | 431,596 | 3,364 | 431,596 | | | 3,364 | 431,596 |
| 014 | ARMY TACTICAL MSL SYS (ATACMS)—SYS SUM | 94 | 130,770 | 94 | 130,770 | 94 | 130,770 | | | 94 | 130,770 |

| | | | | | | | | | |
|-----|--|--------------|------------------|--------------|------------------|--------------|------------------|----------------|------------------|
| 015 | LETHAL MINIATURE AERIAL MISSILE SYSTEM (LMAMS) | 1,835 | 83,300 | 1,835 | 83,300 | 1,835 | 83,300 | 1,835 | 83,300 |
| | MODIFICATIONS | | | | | | | | |
| 019 | STINGER MODS | | 7,500 | | 7,500 | | 7,500 | | 7,500 |
| 022 | MLRS MODS | | 348,000 | | 325,000 | | 348,000 | -11,500 | 336,500 |
| | Excess to need | | | | [-23,000] | | | [-11,500] | |
| | TOTAL MISSILE PROCUREMENT, ARMY | 8,596 | 1,438,058 | 8,596 | 1,415,058 | 8,596 | 1,438,058 | -11,500 | 1,426,558 |
| | PROCUREMENT OF W&TCV, ARMY | | | | | | | | |
| | TRACKED COMBAT VEHICLES | | | | | | | | |
| 002 | ARMORED MULTI PURPOSE VEHICLE (AMPV) | 66 | 221,638 | 66 | 221,638 | 66 | 221,638 | 66 | 221,638 |
| | MODIFICATION OF TRACKED COMBAT VEHICLES | | | | | | | | |
| 003 | STRYKER (MOD) | | 4,100 | | 4,100 | | 4,100 | | 4,100 |
| 008 | IMPROVED RECOVERY VEHICLE (M88A2 HERCULES) | 16 | 80,146 | 16 | 80,146 | 16 | 80,146 | 16 | 80,146 |
| 013 | M1 ABRAMS TANK (MOD) | | 13,100 | | 13,100 | | 13,100 | | 13,100 |
| | WEAPONS & OTHER COMBAT VEHICLES | | | | | | | | |
| 015 | M240 MEDIUM MACHINE GUN (7.62MM) | | 900 | | 900 | | 900 | | 900 |
| 016 | MULTI-ROLE ANTI-ARMOR ANTI-PERSONNEL WEAPONS | | 2,400 | | 2,400 | | 2,400 | | 2,400 |
| 019 | MORTAR SYSTEMS | | 18,941 | | 18,941 | | 18,941 | | 18,941 |
| 020 | XM320 GRENADE LAUNCHER MODULE (GLM) | | 526 | | 526 | | 526 | | 526 |
| 023 | CARBINE | | 1,183 | | 1,183 | | 1,183 | | 1,183 |
| 025 | COMMON REMOTELY OPERATED WEAPONS STATION | | 4,182 | | 4,182 | | 4,182 | | 4,182 |
| 026 | HANDGUN | | 248 | | 248 | | 248 | | 248 |
| | MOD OF WEAPONS AND OTHER COMBAT VEH | | | | | | | | |
| 031 | M2 50 CAL MACHINE GUN MODS | | 6,090 | | 6,090 | | 6,090 | | 6,090 |
| | TOTAL PROCUREMENT OF W&TCV, ARMY | 82 | 353,454 | 82 | 353,454 | 82 | 353,454 | 82 | 353,454 |
| | PROCUREMENT OF AMMUNITION, ARMY | | | | | | | | |
| | SMALL/MEDIUM CAL AMMUNITION | | | | | | | | |
| 001 | CTG, 5.56MM, ALL TYPES | | 567 | | 567 | | 567 | | 567 |
| 002 | CTG, 7.62MM, ALL TYPES | | 40 | | 40 | | 40 | | 40 |
| 003 | CTG, HANDGUN, ALL TYPES | | 17 | | 17 | | 17 | | 17 |
| 004 | CTG, .50 CAL, ALL TYPES | | 189 | | 189 | | 189 | | 189 |
| 007 | CTG, 30MM, ALL TYPES | | 24,900 | | 24,900 | | 24,900 | | 24,900 |
| | ARTILLERY AMMUNITION | | | | | | | | |
| 015 | PROJ 155MM EXTENDED RANGE M982 | 304 | 36,052 | 304 | 36,052 | 304 | 36,052 | 304 | 36,052 |
| 016 | ARTILLERY PROPELLANTS, FUZES AND PRIMERS, ALL | | 7,271 | | 7,271 | | 7,271 | | 7,271 |
| | ROCKETS | | | | | | | | |
| 018 | SHOULDER LAUNCHED MUNITIONS, ALL TYPES | | 176 | | 176 | | 176 | | 176 |
| 019 | ROCKET, HYDRA 70, ALL TYPES | | 79,459 | | 79,459 | | 79,459 | | 79,459 |
| | MISCELLANEOUS | | | | | | | | |

SEC. 4102. PROCUREMENT FOR OVERSEAS CONTINGENCY OPERATIONS
(In Thousands of Dollars)

| Line | Item | FY 2020 Request | | House Authorized | | Senate Authorized | | Conference Change | | Conference Authorized | |
|------|---|-----------------|----------------|------------------|----------------|-------------------|----------------|-------------------|------|-----------------------|----------------|
| | | Qty | Cost | Qty | Cost | Qty | Cost | Qty | Cost | Qty | Cost |
| 027 | ITEMS LESS THAN \$5 MILLION (AMMO) | | 11 | | 11 | | 11 | | | | 11 |
| | TOTAL PROCUREMENT OF AMMUNITION, ARMY | 304 | 148,682 | 304 | 148,682 | 304 | 148,682 | | | 304 | 148,682 |
| | OTHER PROCUREMENT, ARMY | | | | | | | | | | |
| | TACTICAL VEHICLES | | | | | | | | | | |
| 010 | FAMILY OF HEAVY TACTICAL VEHICLES (FHTV) | | 26,917 | | 26,917 | | 26,917 | | | | 26,917 |
| 011 | PLS ESP | | 16,941 | | 16,941 | | 16,941 | | | | 16,941 |
| 012 | HVY EXPANDED MOBILE TACTICAL TRUCK EXT SERV | | 62,734 | | 62,734 | | 62,734 | | | | 62,734 |
| 014 | TACTICAL WHEELED VEHICLE PROTECTION KITS | | 50,000 | | 50,000 | | 50,000 | | | | 50,000 |
| 015 | MODIFICATION OF IN SVC EQUIP | | 28,000 | | 28,000 | | 28,000 | | | | 28,000 |
| | COMM—JOINT COMMUNICATIONS | | | | | | | | | | |
| 022 | TACTICAL NETWORK TECHNOLOGY MOD IN SVC | | 40,000 | | 40,000 | | 40,000 | | | | 40,000 |
| | COMM—SATELLITE COMMUNICATIONS | | | | | | | | | | |
| 029 | TRANSPORTABLE TACTICAL COMMAND COMMUNICATIONS | | 6,930 | | 6,930 | | 6,930 | | | | 6,930 |
| 031 | ASSURED POSITIONING, NAVIGATION AND TIMING | | 11,778 | | 11,778 | | 11,778 | | | | 11,778 |
| 032 | SMART-T (SPACE) | | 825 | | 825 | | 825 | | | | 825 |
| | COMM—COMBAT COMMUNICATIONS | | | | | | | | | | |
| 040 | RADIO TERMINAL SET, MIDS LVT(2) | | 350 | | 350 | | 350 | | | | 350 |
| 047 | COTS COMMUNICATIONS EQUIPMENT | | 20,400 | | 20,400 | | 20,400 | | | | 20,400 |
| 048 | FAMILY OF MED COMM FOR COMBAT CASUALTY CARE | | 1,231 | | 1,231 | | 1,231 | | | | 1,231 |
| | COMM—INTELLIGENCE COMM | | | | | | | | | | |
| 051 | CI AUTOMATION ARCHITECTURE (MIP) | | 6,200 | | 6,200 | | 6,200 | | | | 6,200 |
| | COMM—LONG HAUL COMMUNICATIONS | | | | | | | | | | |
| 059 | BASE SUPPORT COMMUNICATIONS | | 20,482 | | 15,482 | | 20,482 | | | | 20,482 |
| | Insufficient budget justification | | | | [-5,000] | | | | | | |
| | COMM—BASE COMMUNICATIONS | | | | | | | | | | |
| 060 | INFORMATION SYSTEMS | | 55,800 | | 50,800 | | 55,800 | | | | 55,800 |
| | Unjustified growth | | | | [-5,000] | | | | | | |
| 063 | INSTALLATION INFO INFRASTRUCTURE MOD PROGRAM | | 75,820 | | 75,820 | | 75,820 | | | | 75,820 |
| | ELECT EQUIP—TACT INT REL ACT (TIARA) | | | | | | | | | | |
| 068 | DCGS-A (MIP) | | 38,613 | | 38,613 | | 38,613 | | | | 38,613 |
| 070 | TROJAN (MIP) | | 1,337 | | 1,337 | | 1,337 | | | | 1,337 |
| 071 | MOD OF IN-SVC EQUIP (INTEL SPT) (MIP) | | 2,051 | | 2,051 | | 2,051 | | | | 2,051 |

| | | | | | | |
|-----|---|--------|-----------|--------|-----------|--------|
| 075 | BIOMETRIC TACTICAL COLLECTION DEVICES (MIP) | 1,800 | 1,800 | 1,800 | | 1,800 |
| | ELECT EQUIP—ELECTRONIC WARFARE (EW) | | | | | |
| 082 | FAMILY OF PERSISTENT SURVEILLANCE CAP. (MIP) | 71,493 | 31,493 | 71,493 | -40,000 | 31,493 |
| | Unjustified growth | | [-40,000] | | [-40,000] | |
| 083 | COUNTERINTELLIGENCE/SECURITY COUNTERMEASURES | 6,917 | 6,917 | 6,917 | | 6,917 |
| | ELECT EQUIP—TACTICAL SURV. (TAC SURV) | | | | | |
| 085 | SENTINEL MODS | 20,000 | 20,000 | 20,000 | | 20,000 |
| 086 | NIGHT VISION DEVICES | 3,676 | 3,676 | 3,676 | | 3,676 |
| 094 | JOINT BATTLE COMMAND—PLATFORM (JBC-P) | 25,568 | 25,568 | 25,568 | | 25,568 |
| 097 | COMPUTER BALLISTICS: LHMCB XM32 | 570 | 570 | 570 | | 570 |
| 098 | MORTAR FIRE CONTROL SYSTEM | 15,975 | 15,975 | 15,975 | | 15,975 |
| | ELECT EQUIP—TACTICAL C2 SYSTEMS | | | | | |
| 103 | AIR & MSL DEFENSE PLANNING & CONTROL SYS | 14,331 | 14,331 | 14,331 | | 14,331 |
| | ELECT EQUIP—AUTOMATION | | | | | |
| 112 | ARMY TRAINING MODERNIZATION | 6,014 | 6,014 | 6,014 | | 6,014 |
| 113 | AUTOMATED DATA PROCESSING EQUIP | 32,700 | 32,700 | 32,700 | | 32,700 |
| | CHEMICAL DEFENSIVE EQUIPMENT | | | | | |
| 124 | FAMILY OF NON-LETHAL EQUIPMENT (FNLE) | 25,480 | 25,480 | 25,480 | | 25,480 |
| 125 | BASE DEFENSE SYSTEMS (BDS) | 47,110 | 47,110 | 47,110 | -7,126 | 39,984 |
| | Unjustified growth | | | | [-7,126] | |
| 126 | CBRN DEFENSE | 18,711 | 18,711 | 18,711 | -1,250 | 17,461 |
| | Unit cost discrepancies | | | | [-1,250] | |
| | BRIDGING EQUIPMENT | | | | | |
| 128 | TACTICAL BRIDGING | 4,884 | 4,884 | 4,884 | | 4,884 |
| | ENGINEER (NON-CONSTRUCTION) EQUIPMENT | | | | | |
| 133 | GRND STANDOFF MINE DETECTN SYSM (GSTAMIDS) | 4,500 | 4,500 | 4,500 | -845 | 3,655 |
| | Program reduction | | | | [-845] | |
| 135 | HUSKY MOUNTED DETECTION SYSTEM (HMDS) | 34,253 | 34,253 | 34,253 | -6,182 | 28,071 |
| | Program reduction | | | | [-6,182] | |
| 136 | ROBOTIC COMBAT SUPPORT SYSTEM (RCSS) | 3,300 | 3,300 | 3,300 | | 3,300 |
| 140 | RENDER SAFE SETS KITS OUTFITS | 84,000 | 84,000 | 84,000 | | 84,000 |
| | COMBAT SERVICE SUPPORT EQUIPMENT | | | | | |
| 143 | HEATERS AND ECU'S | 8 | 8 | 8 | | 8 |
| 145 | PERSONNEL RECOVERY SUPPORT SYSTEM (PRSS) | 5,101 | 5,101 | 5,101 | | 5,101 |
| 146 | GROUND SOLDIER SYSTEM | 1,760 | 1,760 | 1,760 | | 1,760 |
| 148 | FORCE PROVIDER | 56,400 | 56,400 | 56,400 | | 56,400 |
| 150 | CARGO AERIAL DEL & PERSONNEL PARACHUTE SYSTEM | 2,040 | 2,040 | 2,040 | | 2,040 |
| | PETROLEUM EQUIPMENT | | | | | |
| 154 | DISTRIBUTION SYSTEMS, PETROLEUM & WATER | 13,986 | 13,986 | 13,986 | | 13,986 |
| | MEDICAL EQUIPMENT | | | | | |

SEC. 4102. PROCUREMENT FOR OVERSEAS CONTINGENCY OPERATIONS
(In Thousands of Dollars)

| Line | Item | FY 2020 Request | | House Authorized | | Senate Authorized | | Conference Change | | Conference Authorized | |
|------|--|-----------------|------------------|------------------|------------------|-------------------|------------------|-------------------|----------------|-----------------------|------------------|
| | | Qty | Cost | Qty | Cost | Qty | Cost | Qty | Cost | Qty | Cost |
| 155 | COMBAT SUPPORT MEDICAL | | 2,735 | | 2,735 | | 2,735 | | | | 2,735 |
| | CONSTRUCTION EQUIPMENT | | | | | | | | | | |
| 159 | SCRAPERS, EARTHMOVING | | 4,669 | | 4,669 | | 4,669 | | | | 4,669 |
| 160 | LOADERS | | 380 | | 380 | | 380 | | | | 380 |
| 162 | TRACTOR, FULL TRACKED | | 8,225 | | 8,225 | | 8,225 | | | | 8,225 |
| 164 | HIGH MOBILITY ENGINEER EXCAVATOR (HMEE) | | 3,000 | | 3,000 | | 3,000 | | | | 3,000 |
| 166 | CONST EQUIP ESP | | 3,870 | | 3,870 | | 3,870 | | | | 3,870 |
| 167 | ITEMS LESS THAN \$5.0M (CONST EQUIP) | | 350 | | 350 | | 350 | | | | 350 |
| | GENERATORS | | | | | | | | | | |
| 171 | GENERATORS AND ASSOCIATED EQUIP | | 2,436 | | 2,436 | | 2,436 | | | | 2,436 |
| | MATERIAL HANDLING EQUIPMENT | | | | | | | | | | |
| 173 | FAMILY OF FORKLIFTS | | 5,152 | | 5,152 | | 5,152 | | | | 5,152 |
| | TRAINING EQUIPMENT | | | | | | | | | | |
| 175 | TRAINING DEVICES, NONSYSTEM | | 2,106 | | 2,106 | | 2,106 | | | | 2,106 |
| | TEST MEASURE AND DIG EQUIPMENT (TMD) | | | | | | | | | | |
| 181 | INTEGRATED FAMILY OF TEST EQUIPMENT (IFTE) | | 1,395 | | 1,395 | | 1,395 | | | | 1,395 |
| | OTHER SUPPORT EQUIPMENT | | | | | | | | | | |
| 184 | RAPID EQUIPPING SOLDIER SUPPORT EQUIPMENT | | 24,122 | | 24,122 | | 24,122 | | | | 24,122 |
| 185 | PHYSICAL SECURITY SYSTEMS (OPA3) | | 10,016 | | 10,016 | | 10,016 | | | | 10,016 |
| 187 | MODIFICATION OF IN-SVC EQUIPMENT (OPA-3) | | 33,354 | | 33,354 | | 33,354 | | | | 33,354 |
| 189 | BUILDING, PRE-FAB, RELOCATABLE | | 62,654 | | 62,654 | | 62,654 | | | | 62,654 |
| | TOTAL OTHER PROCUREMENT, ARMY | | 1,131,450 | | 1,081,450 | | 1,131,450 | | -55,403 | | 1,076,047 |
| | AIRCRAFT PROCUREMENT, NAVY | | | | | | | | | | |
| | OTHER AIRCRAFT | | | | | | | | | | |
| 026 | STUASLO UAV | | 7,921 | | 7,921 | | 7,921 | | | | 7,921 |
| 027 | MQ-9A REAPER | 3 | 77,000 | | | 3 | 77,000 | | | 3 | 77,000 |
| | Unjustified OCO request | | | [-3] | [-77,000] | | | | | | |
| | MODIFICATION OF AIRCRAFT | | | | | | | | | | |
| 036 | EP-3 SERIES | | 5,488 | | 5,488 | | 5,488 | | | | 5,488 |
| 046 | SPECIAL PROJECT AIRCRAFT | | 3,498 | | 3,498 | | 3,498 | | | | 3,498 |
| 051 | COMMON ECM EQUIPMENT | | 3,406 | | 3,406 | | 3,406 | | | | 3,406 |
| 053 | COMMON DEFENSIVE WEAPON SYSTEM | | 3,274 | | 3,274 | | 3,274 | | | | 3,274 |

| | | | | | | | | | |
|-----|---|------------|----------------|------------|----------------|------------|----------------|------------|----------------|
| 062 | QRC | | 18,458 | | 18,458 | | 18,458 | | 18,458 |
| | TOTAL AIRCRAFT PROCUREMENT, NAVY | 3 | 119,045 | | 42,045 | 3 | 119,045 | 3 | 119,045 |
| | WEAPONS PROCUREMENT, NAVY | | | | | | | | |
| | TACTICAL MISSILES | | | | | | | | |
| 011 | JOINT AIR GROUND MISSILE (JAGM) | 382 | 90,966 | 382 | 90,966 | 382 | 90,966 | 382 | 90,966 |
| 015 | AERIAL TARGETS | | 6,500 | | 6,500 | | 6,500 | | 6,500 |
| | TOTAL WEAPONS PROCUREMENT, NAVY | 382 | 97,466 | 382 | 97,466 | 382 | 97,466 | 382 | 97,466 |
| | PROCUREMENT OF AMMO, NAVY & MC | | | | | | | | |
| | NAVY AMMUNITION | | | | | | | | |
| 001 | GENERAL PURPOSE BOMBS | | 26,978 | | 26,978 | | 26,978 | | 26,978 |
| 002 | JDAM | 544 | 12,263 | 544 | 12,263 | 544 | 12,263 | 544 | 12,263 |
| 003 | AIRBORNE ROCKETS, ALL TYPES | | 45,020 | | 45,020 | | 45,020 | | 45,020 |
| 004 | MACHINE GUN AMMUNITION | | 33,577 | | 33,577 | | 33,577 | | 33,577 |
| 005 | PRACTICE BOMBS | | 11,903 | | 11,903 | | 11,903 | | 11,903 |
| 006 | CARTRIDGES & CART ACTUATED DEVICES | | 15,081 | | 15,081 | | 15,081 | | 15,081 |
| 007 | AIR EXPENDABLE COUNTERMEASURES | | 16,911 | | 16,911 | | 16,911 | | 16,911 |
| 011 | OTHER SHIP GUN AMMUNITION | | 3,262 | | 3,262 | | 3,262 | | 3,262 |
| 012 | SMALL ARMS & LANDING PARTY AMMO | | 1,010 | | 1,010 | | 1,010 | | 1,010 |
| 013 | PYROTECHNIC AND DEMOLITION | | 537 | | 537 | | 537 | | 537 |
| | MARINE CORPS AMMUNITION | | | | | | | | |
| 016 | MORTARS | | 1,930 | | 1,930 | | 1,930 | | 1,930 |
| 017 | DIRECT SUPPORT MUNITIONS | | 1,172 | | 1,172 | | 1,172 | | 1,172 |
| 018 | INFANTRY WEAPONS AMMUNITION | | 2,158 | | 2,158 | | 2,158 | | 2,158 |
| 019 | COMBAT SUPPORT MUNITIONS | | 965 | | 965 | | 965 | | 965 |
| 021 | ARTILLERY MUNITIONS | | 32,047 | | 32,047 | | 32,047 | | 32,047 |
| | TOTAL PROCUREMENT OF AMMO, NAVY & MC | 544 | 204,814 | 544 | 204,814 | 544 | 204,814 | 544 | 204,814 |
| | OTHER PROCUREMENT, NAVY | | | | | | | | |
| | OTHER SHIPBOARD EQUIPMENT | | | | | | | | |
| 020 | UNDERWATER EOD PROGRAMS | | 5,800 | | 5,800 | | 5,800 | | 5,800 |
| | ASW ELECTRONIC EQUIPMENT | | | | | | | | |
| 042 | FIXED SURVEILLANCE SYSTEM | | 310,503 | | 310,503 | | 310,503 | | 310,503 |
| | SONOBUOYS | | | | | | | | |
| 085 | SONOBUOYS—ALL TYPES | | 2,910 | | 2,910 | | 2,910 | | 2,910 |
| | AIRCRAFT SUPPORT EQUIPMENT | | | | | | | | |
| 088 | AIRCRAFT SUPPORT EQUIPMENT | | 13,420 | | 13,420 | | 13,420 | | 13,420 |
| 094 | AVIATION SUPPORT EQUIPMENT | | 500 | | 500 | | 500 | | 500 |
| | OTHER ORDNANCE SUPPORT EQUIPMENT | | | | | | | | |

| SEC. 4102. PROCUREMENT FOR OVERSEAS CONTINGENCY OPERATIONS (In Thousands of Dollars) | | | | | | | | | | | |
|---|---|-----------------|----------------|------------------|----------------|-------------------|----------------|-------------------|------|-----------------------|----------------|
| Line | Item | FY 2020 Request | | House Authorized | | Senate Authorized | | Conference Change | | Conference Authorized | |
| | | Qty | Cost | Qty | Cost | Qty | Cost | Qty | Cost | Qty | Cost |
| 103 | EXPLOSIVE ORDNANCE DISPOSAL EQUIP | | 15,307 | | 15,307 | | 15,307 | | | | 15,307 |
| | CIVIL ENGINEERING SUPPORT EQUIPMENT | | | | | | | | | | |
| 108 | PASSENGER CARRYING VEHICLES | | 173 | | 173 | | 173 | | | | 173 |
| 109 | GENERAL PURPOSE TRUCKS | | 408 | | 408 | | 408 | | | | 408 |
| 111 | FIRE FIGHTING EQUIPMENT | | 785 | | 785 | | 785 | | | | 785 |
| | SUPPLY SUPPORT EQUIPMENT | | | | | | | | | | |
| 117 | SUPPLY EQUIPMENT | | 100 | | 100 | | 100 | | | | 100 |
| 118 | FIRST DESTINATION TRANSPORTATION | | 510 | | 510 | | 510 | | | | 510 |
| | COMMAND SUPPORT EQUIPMENT | | | | | | | | | | |
| 122 | COMMAND SUPPORT EQUIPMENT | | 2,800 | | 2,800 | | 2,800 | | | | 2,800 |
| 123 | MEDICAL SUPPORT EQUIPMENT | | 1,794 | | 1,794 | | 1,794 | | | | 1,794 |
| 126 | OPERATING FORCES SUPPORT EQUIPMENT | | 1,090 | | 1,090 | | 1,090 | | | | 1,090 |
| 128 | ENVIRONMENTAL SUPPORT EQUIPMENT | | 200 | | 200 | | 200 | | | | 200 |
| 129 | PHYSICAL SECURITY EQUIPMENT | | 1,300 | | 1,300 | | 1,300 | | | | 1,300 |
| | TOTAL OTHER PROCUREMENT, NAVY | | 357,600 | | 357,600 | | 357,600 | | | | 357,600 |
| | PROCUREMENT, MARINE CORPS | | | | | | | | | | |
| | GUIDED MISSILES | | | | | | | | | | |
| 012 | GUIDED MLRS ROCKET (GMLRS) | 130 | 16,919 | 130 | 16,919 | 130 | 16,919 | | | 130 | 16,919 |
| | ENGINEER AND OTHER EQUIPMENT | | | | | | | | | | |
| 045 | EOD SYSTEMS | | 3,670 | | 3,670 | | 3,670 | | | | 3,670 |
| | TOTAL PROCUREMENT, MARINE CORPS | 130 | 20,589 | 130 | 20,589 | 130 | 20,589 | | | 130 | 20,589 |
| | AIRCRAFT PROCUREMENT, AIR FORCE | | | | | | | | | | |
| | OTHER AIRCRAFT | | | | | | | | | | |
| 017 | MQ-9 | 9 | 172,240 | 9 | 172,240 | 9 | 172,240 | | | 9 | 172,240 |
| 018 | RQ-20B PUMA | 18 | 12,150 | 18 | 12,150 | 18 | 12,150 | | | 18 | 12,150 |
| | STRATEGIC AIRCRAFT | | | | | | | | | | |
| 022 | LARGE AIRCRAFT INFRARED COUNTERMEASURES | | 53,335 | | 53,335 | | 53,335 | | | | 53,335 |
| | OTHER AIRCRAFT | | | | | | | | | | |
| 067 | MQ-9 UAS PAYLOADS | | 19,800 | | 19,800 | | 19,800 | | | | 19,800 |
| | AIRCRAFT SPARES AND REPAIR PARTS | | | | | | | | | | |
| 069 | INITIAL SPARES/REPAIR PARTS | | 44,560 | | 44,560 | | 44,560 | | | | 44,560 |

| | | | | | | | | | |
|---|---|--------------|----------------|--------------|----------------|--------------|----------------|--------------|----------------|
| COMMON SUPPORT EQUIPMENT | | | | | | | | | |
| 072 | AIRCRAFT REPLACEMENT SUPPORT EQUIP | | 7,025 | | 7,025 | | 7,025 | | 7,025 |
| | TOTAL AIRCRAFT PROCUREMENT, AIR FORCE | 27 | 309,110 | 27 | 309,110 | 27 | 309,110 | 27 | 309,110 |
| MISSILE PROCUREMENT, AIR FORCE | | | | | | | | | |
| TACTICAL | | | | | | | | | |
| 004 | JOINT AIR-SURFACE STANDOFF MISSILE | 19 | 20,900 | 19 | 20,900 | 19 | 20,900 | 19 | 20,900 |
| 008 | PREDATOR HELLFIRE MISSILE | 2,328 | 180,771 | 2,328 | 180,771 | 2,328 | 180,771 | 2,328 | 180,771 |
| | TOTAL MISSILE PROCUREMENT, AIR FORCE | 2,347 | 201,671 | 2,347 | 201,671 | 2,347 | 201,671 | 2,347 | 201,671 |
| PROCUREMENT OF AMMUNITION, AIR FORCE | | | | | | | | | |
| ROCKETS | | | | | | | | | |
| 001 | ROCKETS | | 84,960 | | 84,960 | | 84,960 | | 84,960 |
| CARTRIDGES | | | | | | | | | |
| 002 | CARTRIDGES | | 52,642 | | 52,642 | | 52,642 | | 52,642 |
| BOMBS | | | | | | | | | |
| 004 | GENERAL PURPOSE BOMBS | | 545,309 | | 545,309 | | 545,309 | | 545,309 |
| FLARES | | | | | | | | | |
| 015 | FLARES | | 93,272 | | 93,272 | | 93,272 | | 93,272 |
| FUZES | | | | | | | | | |
| 016 | FUZES | | 157,155 | | 157,155 | | 157,155 | | 157,155 |
| SMALL ARMS | | | | | | | | | |
| 017 | SMALL ARMS | | 6,095 | | 6,095 | | 6,095 | | 6,095 |
| | TOTAL PROCUREMENT OF AMMUNITION, AIR FORCE | | 939,433 | | 939,433 | | 939,433 | | 939,433 |
| OTHER PROCUREMENT, AIR FORCE | | | | | | | | | |
| PASSENGER CARRYING VEHICLES | | | | | | | | | |
| 001 | PASSENGER CARRYING VEHICLES | | 1,276 | | 1,276 | | 1,276 | | 1,276 |
| CARGO AND UTILITY VEHICLES | | | | | | | | | |
| 004 | CARGO AND UTILITY VEHICLES | | 9,702 | | 9,702 | | 9,702 | | 9,702 |
| SPECIAL PURPOSE VEHICLES | | | | | | | | | |
| 005 | JOINT LIGHT TACTICAL VEHICLE | | 40,999 | | 40,999 | | 40,999 | | 40,999 |
| 007 | SPECIAL PURPOSE VEHICLES | | 52,502 | | 52,502 | | 52,502 | | 52,502 |
| FIRE FIGHTING EQUIPMENT | | | | | | | | | |
| 008 | FIRE FIGHTING/CRASH RESCUE VEHICLES | | 16,652 | | 16,652 | | 16,652 | | 16,652 |
| MATERIALS HANDLING EQUIPMENT | | | | | | | | | |
| 009 | MATERIALS HANDLING VEHICLES | | 2,944 | | 2,944 | | 2,944 | | 2,944 |
| BASE MAINTENANCE SUPPORT | | | | | | | | | |
| 010 | RUNWAY SNOW REMOV AND CLEANING EQU | | 3,753 | | 3,753 | | 3,753 | | 3,753 |
| 011 | BASE MAINTENANCE SUPPORT VEHICLES | | 11,837 | | 11,837 | | 11,837 | | 11,837 |

| SEC. 4102. PROCUREMENT FOR OVERSEAS CONTINGENCY OPERATIONS (In Thousands of Dollars) | | | | | | | | | | | |
|---|--|-----------------|------------------|------------------|------------------|-------------------|------------------|-------------------|----------|-----------------------|------------------|
| Line | Item | FY 2020 Request | | House Authorized | | Senate Authorized | | Conference Change | | Conference Authorized | |
| | | Qty | Cost | Qty | Cost | Qty | Cost | Qty | Cost | Qty | Cost |
| SPCL COMM-ELECTRONICS PROJECTS | | | | | | | | | | | |
| 027 | GENERAL INFORMATION TECHNOLOGY | | 5,000 | | 5,000 | | 5,000 | | | | 5,000 |
| 031 | AIR FORCE PHYSICAL SECURITY SYSTEM | | 106,919 | | 106,919 | | 106,919 | | | | 106,919 |
| ORGANIZATION AND BASE | | | | | | | | | | | |
| 048 | TACTICAL C-E EQUIPMENT | | 306 | | 306 | | 306 | | | | 306 |
| 052 | BASE COMM INFRASTRUCTURE | | 4,300 | | 4,300 | | 4,300 | | | | 4,300 |
| PERSONAL SAFETY & RESCUE EQUIP | | | | | | | | | | | |
| 054 | PERSONAL SAFETY AND RESCUE EQUIPMENT | | 22,200 | | 22,200 | | 22,200 | | | | 22,200 |
| BASE SUPPORT EQUIPMENT | | | | | | | | | | | |
| 059 | MOBILITY EQUIPMENT | | 26,535 | | 26,535 | | 26,535 | | | | 26,535 |
| 060 | FUELS SUPPORT EQUIPMENT (FSE) | | 4,040 | | 4,040 | | 4,040 | | | | 4,040 |
| 061 | BASE MAINTENANCE AND SUPPORT EQUIPMENT | | 20,067 | | 20,067 | | 20,067 | | | | 20,067 |
| CLASSIFIED PROGRAMS | | | | | | | | | | | |
| 066A | CLASSIFIED PROGRAMS | | 3,209,066 | | 3,209,066 | | 3,209,066 | | | | 3,209,066 |
| | TOTAL OTHER PROCUREMENT, AIR FORCE | | 3,538,098 | | 3,538,098 | | 3,538,098 | | | | 3,538,098 |
| PROCUREMENT, DEFENSE-WIDE | | | | | | | | | | | |
| MAJOR EQUIPMENT, DISA | | | | | | | | | | | |
| 009 | TELEPORT PROGRAM | | 3,800 | | 3,800 | | 3,800 | | | | 3,800 |
| 012 | DEFENSE INFORMATION SYSTEM NETWORK | | 12,000 | | 12,000 | | 12,000 | | | | 12,000 |
| MAJOR EQUIPMENT, DEFENSE THREAT REDUCTION AGENCY | | | | | | | | | | | |
| 027 | COUNTER IED & IMPROVISED THREAT TECHNOLOGIES | | 4,590 | | 4,590 | | 4,590 | | | | 4,590 |
| CLASSIFIED PROGRAMS | | | | | | | | | | | |
| 049A | CLASSIFIED PROGRAMS | | 51,380 | | 51,380 | | 51,380 | | -5,000 | | 46,380 |
| | Program decrease | | | | | | | | [-5,000] | | |
| AVIATION PROGRAMS | | | | | | | | | | | |
| 050 | MANNED ISR | | 5,000 | | 5,000 | | 5,000 | | | | 5,000 |
| 051 | MC-12 | | 5,000 | | 5,000 | | 5,000 | | | | 5,000 |
| 052 | MH-60 BLACKHAWK | | 28,100 | | 28,100 | | 28,100 | | | | 28,100 |
| 054 | UNMANNED ISR | | 8,207 | | 8,207 | | 8,207 | | | | 8,207 |
| 056 | U-28 | | 31,500 | | 31,500 | | 31,500 | | | | 31,500 |
| 057 | MH-47 CHINOOK | | 37,500 | | 34,500 | | 37,500 | | | | 37,500 |
| | Excess growth | | | | [-3,000] | | | | | | |

November 23, 2019 (1:06 a.m.)

| | | | | | | | | |
|-----|---|----------------|------------------|----------------|------------------|----------------|------------------|------------------|
| 059 | MQ-9 UNMANNED AERIAL VEHICLE | 1,900 | | 1,900 | | 1,900 | | 1,900 |
| | AMMUNITION PROGRAMS | | | | | | | |
| 064 | ORDNANCE ITEMS <\$5M | 138,252 | | 138,252 | | 138,252 | | 138,252 |
| | OTHER PROCUREMENT PROGRAMS | | | | | | | |
| 065 | INTELLIGENCE SYSTEMS | 16,500 | | 16,500 | | 16,500 | | 16,500 |
| 067 | OTHER ITEMS <\$5M | 28 | | 28 | | 28 | | 28 |
| 070 | TACTICAL VEHICLES | 2,990 | | 2,990 | | 2,990 | | 2,990 |
| 071 | WARRIOR SYSTEMS <\$5M | 37,512 | | 37,512 | | 37,512 | | 37,512 |
| 072 | COMBAT MISSION REQUIREMENTS | 10,000 | | 10,000 | | 10,000 | | 10,000 |
| 074 | OPERATIONAL ENHANCEMENTS INTELLIGENCE | 7,594 | | 7,594 | | 7,594 | | 7,594 |
| 075 | OPERATIONAL ENHANCEMENTS | 45,194 | | 45,194 | | 45,194 | | 45,194 |
| | TOTAL PROCUREMENT, DEFENSE-WIDE | 447,047 | | 444,047 | | 447,047 | -5,000 | 442,047 |
| | NATIONAL GUARD AND RESERVE EQUIPMENT | | | | | | | |
| | UNDISTRIBUTED | | | | | | | |
| 007 | UNDISTRIBUTED | | | 415,000 | | | 265,000 | 265,000 |
| | Program increase | | | (415,000) | | | (265,000) | |
| | TOTAL NATIONAL GUARD AND RESERVE EQUIPMENT | | | 415,000 | | | 265,000 | 265,000 |
| | TOTAL PROCUREMENT | 12,433 | 9,688,058 | 12,430 | 9,900,608 | 12,433 | 9,688,058 | 193,097 |
| | | | | | | | 12,433 | 9,881,155 |

SEC. 4103. PROCUREMENT FOR EMERGENCY REQUIREMENTS.

SEC. 4103. PROCUREMENT FOR EMERGENCY REQUIREMENTS
(In Thousands of Dollars)

| Line | Item | FY 2020 Request | | House Authorized | | Senate Authorized | | Conference Change | | Conference Authorized | |
|------|--|-----------------|----------|------------------|------|-------------------|------|-------------------|----------------|-----------------------|----------------|
| | | Qty | Cost | Qty | Cost | Qty | Cost | Qty | Cost | Qty | Cost |
| | OTHER PROCUREMENT, NAVY | | | | | | | | | | |
| | COMMAND SUPPORT EQUIPMENT | | | | | | | | | | |
| 122 | COMMAND SUPPORT EQUIPMENT | | 0 | | | | | | 233,000 | | 233,000 |
| | Earthquake damage recovery | | | | | | | | [233,000] | | |
| | TOTAL PROCUREMENT, NAVY | | | | | | | | 233,000 | | 233,000 |
| | AIRCRAFT PROCUREMENT, AIR FORCE | | | | | | | | | | |
| | TACTICAL FORCES | | | | | | | | | | |
| | OTHER AIRCRAFT | | | | | | | | | | |
| 055 | RC-135 | | 0 | | | | | | 204,448 | | 204,448 |
| | Equipment replacement | | | | | | | | [204,448] | | |
| | COMMON SUPPORT EQUIPMENT | | | | | | | | | | |
| 072 | AIRCRAFT REPLACEMENT SUPPORT EQUIP | | | | | | | | 46,000 | | 46,000 |
| | Equipment replacement | | | | | | | | [46,000] | | |
| | TOTAL AIRCRAFT PROCUREMENT, AIR FORCE | | 0 | | | | | | 250,448 | | 250,448 |
| | OTHER PROCUREMENT, AIR FORCE | | | | | | | | | | |
| | PASSENGER CARRYING VEHICLES | | | | | | | | | | |
| 001 | PASSENGER CARRYING VEHICLES | | 0 | | | | | | 994 | | 994 |
| | Equipment replacement | | | | | | | | [994] | | |
| | CARGO AND UTILITY VEHICLES | | | | | | | | | | |
| 004 | CARGO AND UTILITY VEHICLES | | 0 | | | | | | 126 | | 126 |
| | Equipment replacement | | | | | | | | [126] | | |
| | SPECIAL PURPOSE VEHICLES | | | | | | | | | | |
| 007 | SPECIAL PURPOSE VEHICLES | | 0 | | | | | | 306 | | 306 |
| | Equipment replacement | | | | | | | | [306] | | |
| | FIRE FIGHTING EQUIPMENT | | | | | | | | | | |
| 009 | MATERIALS HANDLING VEHICLES | | 0 | | | | | | 276 | | 276 |
| | Equipment replacement | | | | | | | | [994] | | |
| | BASE MAINTENANCE SUPPORT | | | | | | | | | | |

November 23, 2019 (1:06 a.m.)

| | | | | |
|-----|---|----------|----------------|----------------|
| 011 | BASE MAINTENANCE SUPPORT VEHICLES | 0 | 2,400 | 2,400 |
| | Equipment replacement | | [994] | |
| | BASE SUPPORT EQUIPMENT | | | |
| 057 | BASE PROCURED EQUIPMENT | 0 | 49,434 | 49,434 |
| | Equipment replacement | | [49,434] | |
| | SPECIAL SUPPORT PROJECTS | | | |
| 063 | DARP RC135 | 0 | 29,438 | 29,438 |
| | Equipment replacement | | [29,438] | |
| | TOTAL OTHER PROCUREMENT, AIR FORCE | 0 | 82,974 | 82,974 |
| | TOTAL PROCUREMENT | 0 | 566,422 | 566,422 |

TITLE XLII—RESEARCH, DEVELOPMENT, TEST, AND EVALUATION

SEC. 4201. RESEARCH, DEVELOPMENT, TEST, AND EVALUATION.

| SEC. 4201. RESEARCH, DEVELOPMENT, TEST, AND EVALUATION (In Thousands of Dollars) | | | | | | | |
|---|--------------------|--|--------------------|---------------------|----------------------|----------------------|--------------------------|
| Line | Program Element | Item | FY 2020 Request | House Authorized | Senate Authorized | Conference Change | Conference Authorized |
| RESEARCH, DEVELOPMENT, TEST & EVAL, ARMY | | | | | | | |
| BASIC RESEARCH | | | | | | | |
| 002 | 0601102A | DEFENSE RESEARCH SCIENCES | 297,976 | 297,976 | 302,976 | 10,000 | 307,976 |
| | | Counter UAS University Research | | | [5,000] | [5,000] | |
| | | Cyber basic research | | | | [5,000] | |
| 003 | 0601103A | UNIVERSITY RESEARCH INITIATIVES | 65,858 | 80,858 | 65,858 | 10,000 | 75,858 |
| | | Base infrastructure longevity and resilience | | [5,000] | | | |
| | | Program increase | | [10,000] | | [10,000] | |
| 004 | 0601104A | UNIVERSITY AND INDUSTRY RESEARCH CENTERS | 86,164 | 103,164 | 88,164 | 9,000 | 95,164 |
| | | 3D printing | | | [2,000] | | |
| | | Program increase | | [12,000] | | | |
| | | Program increase—artificial intelligence | | | | [5,000] | |
| | | Program increase—military medical innovation | | [5,000] | | | |
| | | University and industry biotechnology research | | | | [4,000] | |
| 005 | 0601121A | CYBER COLLABORATIVE RESEARCH ALLIANCE | 4,982 | 4,982 | 9,982 | | 4,982 |
| | | Cyber basic research | | | [5,000] | | |
| | | SUBTOTAL BASIC RESEARCH | 454,980 | 486,980 | 466,980 | 29,000 | 483,980 |
| APPLIED RESEARCH | | | | | | | |

| | | | | | | | |
|-----|----------|---|---------|---------|----------|----------|---------|
| 010 | 0602141A | LETHALITY TECHNOLOGY | 26,961 | 26,961 | 26,961 | 5,000 | 31,961 |
| | | Program increase—next generation air-breathing propulsion technology. | | | | [5,000] | |
| 011 | 0602142A | ARMY APPLIED RESEARCH | 25,319 | 25,319 | 25,319 | | 25,319 |
| 012 | 0602143A | SOLDIER LETHALITY TECHNOLOGY | 115,274 | 125,274 | 118,274 | 13,000 | 128,274 |
| | | Expeditionary mobile base camp technology | | [5,000] | | [5,000] | |
| | | HEROES program | | [5,000] | | [5,000] | |
| | | UPL MDTF for INDOPACOM | | | [3,000] | [3,000] | |
| 013 | 0602144A | GROUND TECHNOLOGY | 35,199 | 45,199 | 41,699 | 19,000 | 54,199 |
| | | Advanced materials manufacturing process | | | [2,000] | [2,000] | |
| | | Biopolymer structural materials | | | [2,000] | [2,000] | |
| | | Cellulose structural materials | | | [2,500] | [5,000] | |
| | | High performance polymers research | | [5,000] | | [5,000] | |
| | | Manufacturing research technology | | [5,000] | | [5,000] | |
| 014 | 0602145A | NEXT GENERATION COMBAT VEHICLE TECHNOLOGY | 219,047 | 225,047 | 234,047 | 6,000 | 225,047 |
| | | Structural thermoplastics | | [6,000] | | [6,000] | |
| | | Support operational energy development and testing | | | [15,000] | | |
| 015 | 0602146A | NETWORK C3I TECHNOLOGY | 114,516 | 120,016 | 114,516 | 2,500 | 117,016 |
| | | Assured PNT lab | | [3,000] | | | |
| | | Next generation SAR small sat | | [2,500] | | [2,500] | |
| 016 | 0602147A | LONG RANGE PRECISION FIRES TECHNOLOGY | 74,327 | 79,327 | 86,327 | 12,000 | 86,327 |
| | | Composite tube and propulsion technology | | | [10,000] | [10,000] | |
| | | NextGen propulsion cycle artillery range extension | | [5,000] | | | |
| | | Novel printed armament components | | | [2,000] | [2,000] | |
| 017 | 0602148A | FUTURE VERTICLE LIFT TECHNOLOGY | 93,601 | 96,601 | 93,601 | 3,000 | 96,601 |
| | | Program increase | | [3,000] | | [3,000] | |
| 018 | 0602150A | AIR AND MISSILE DEFENSE TECHNOLOGY | 50,771 | 50,771 | 50,771 | | 50,771 |
| 020 | 0602213A | C3I APPLIED CYBER | 18,947 | 18,947 | 23,947 | | 18,947 |
| | | Cyber research | | | [5,000] | | |
| 023 | 0602307A | ADVANCED WEAPONS TECHNOLOGY | | 5,000 | | | |
| | | Directed energy test range workloads | | [5,000] | | | |
| 037 | 0602784A | MILITARY ENGINEERING TECHNOLOGY | | 5,000 | | | |

| SEC. 4201. RESEARCH, DEVELOPMENT, TEST, AND EVALUATION (In Thousands of Dollars) | | | | | | | |
|---|-----------------|--|-----------------|------------------|-------------------|-------------------|-----------------------|
| Line | Program Element | Item | FY 2020 Request | House Authorized | Senate Authorized | Conference Change | Conference Authorized |
| | | Cellulose nanocomposites research | | [5,000] | | | |
| 038 | 0602785A | MANPOWER/PERSONNEL/TRAINING TECHNOLOGY | 20,873 | 20,873 | 20,873 | | 20,873 |
| 040 | 0602787A | MEDICAL TECHNOLOGY | 99,155 | 106,955 | 102,155 | 9,800 | 108,955 |
| | | Female warfighter performance research | | | [3,000] | [2,000] | |
| | | Musculoskeletal injury prevention research | | [4,800] | | | |
| | | Musculoskeletal injury risk mitigation | | | | [4,800] | |
| | | Program increase | | [3,000] | | [3,000] | |
| | | SUBTOTAL APPLIED RESEARCH | 893,990 | 951,290 | 938,490 | 70,300 | 964,290 |
| ADVANCED TECHNOLOGY DEVELOPMENT | | | | | | | |
| 041 | 0603001A | WARFIGHTER ADVANCED TECHNOLOGY | | 5,000 | | | |
| | | Expeditionary maneuver support technologies | | [5,000] | | | |
| 042 | 0603002A | MEDICAL ADVANCED TECHNOLOGY | 42,030 | 42,030 | 42,030 | | 42,030 |
| 047 | 0603007A | MANPOWER, PERSONNEL AND TRAINING ADVANCED TECHNOLOGY | 11,038 | 11,038 | 11,038 | | 11,038 |
| 050 | 0603117A | ARMY ADVANCED TECHNOLOGY DEVELOPMENT | 63,338 | 63,338 | 63,338 | | 63,338 |
| 051 | 0603118A | SOLDIER LETHALITY ADVANCED TECHNOLOGY | 118,468 | 128,468 | 118,468 | 10,000 | 128,468 |
| | | Improvement of combat helmet suspension systems | | [5,000] | | [5,000] | |
| | | Thermal mitigation technologies | | [5,000] | | [5,000] | |
| 052 | 0603119A | GROUND ADVANCED TECHNOLOGY | 12,593 | 17,593 | 32,593 | 23,000 | 35,593 |
| | | 100 hour battery | | | [10,000] | [10,000] | |
| | | Computational manufacturing engineering | | | [2,000] | | |
| | | Ground advanced technology for cold regions | | [5,000] | | [5,000] | |
| | | Lightweight protective and hardening materials | | | [3,000] | [3,000] | |
| | | Robotic construction research | | | [5,000] | [5,000] | |
| 059 | 0603457A | C3I CYBER ADVANCED DEVELOPMENT | 13,769 | 13,769 | 13,769 | | 13,769 |
| 060 | 0603461A | HIGH PERFORMANCE COMPUTING MODERNIZATION PROGRAM | 184,755 | 224,755 | 184,755 | 40,000 | 224,755 |
| | | Program increase | | [40,000] | | [40,000] | |

| | | | | | | | |
|-----|----------|---|------------------|------------------|------------------|---------------|------------------|
| 061 | 0603462A | NEXT GENERATION COMBAT VEHICLE ADVANCED TECHNOLOGY | 160,035 | 170,035 | 185,035 | 14,000 | 174,035 |
| | | Ground vehicle sustainment research | | | [5,000] | [4,000] | |
| | | Hydrogen fuel cell propulsion & autonomous driving controls | | | [20,000] | | |
| | | Program increase—hydrogen fuel cells | | [10,000] | | [10,000] | |
| 062 | 0603463A | NETWORK C3I ADVANCED TECHNOLOGY | 106,899 | 103,899 | 106,899 | -3,000 | 103,899 |
| | | Underexecution | | [-3,000] | | [-3,000] | |
| 063 | 0603464A | LONG RANGE PRECISION FIRES ADVANCED TECHNOLOGY | 174,386 | 179,386 | 178,386 | 9,000 | 183,386 |
| | | Hypersonics research | | | [4,000] | [4,000] | |
| | | Program increase missile demonstrations | | [5,000] | | [5,000] | |
| 064 | 0603465A | FUTURE VERTICAL LIFT ADVANCED TECHNOLOGY | 151,640 | 146,640 | 151,640 | | 151,640 |
| | | Excess to need | | [-5,000] | | | |
| 065 | 0603466A | AIR AND MISSILE DEFENSE ADVANCED TECHNOLOGY | 60,613 | 60,613 | 60,613 | | 60,613 |
| | | SUBTOTAL ADVANCED TECHNOLOGY DEVELOPMENT | 1,099,564 | 1,166,564 | 1,148,564 | 93,000 | 1,192,564 |
| | | ADVANCED COMPONENT DEVELOPMENT & PROTOTYPES | | | | | |
| 073 | 0603305A | ARMY MISSILE DEFENSE SYSTEMS INTEGRATION | 10,987 | 30,987 | 10,987 | 8,000 | 18,987 |
| | | Conventional mission capabilities | | [10,000] | | [8,000] | |
| | | System lab integration improvements | | [10,000] | | | |
| 074 | 0603327A | AIR AND MISSILE DEFENSE SYSTEMS ENGINEERING | 15,148 | 15,148 | 15,148 | | 15,148 |
| 075 | 0603619A | LANDMINE WARFARE AND BARRIER—ADV DEV | 92,915 | 92,915 | 92,915 | | 92,915 |
| 077 | 0603639A | TANK AND MEDIUM CALIBER AMMUNITION | 82,146 | 82,146 | 82,146 | | 82,146 |
| 078 | 0603645A | ARMORED SYSTEM MODERNIZATION—ADV DEV | 157,656 | 157,656 | 157,656 | | 157,656 |
| 079 | 0603747A | SOLDIER SUPPORT AND SURVIVABILITY | 6,514 | 6,514 | 6,514 | | 6,514 |
| 080 | 0603766A | TACTICAL ELECTRONIC SURVEILLANCE SYSTEM—ADV DEV | 34,890 | 37,890 | 34,890 | | 34,890 |
| | | Mobile ground terminal | | [3,000] | | | |
| 081 | 0603774A | NIGHT VISION SYSTEMS ADVANCED DEVELOPMENT | 251,011 | 206,011 | 251,011 | -28,220 | 222,791 |
| | | IVAS insufficient justification | | [-45,000] | | [-28,220] | |
| 082 | 0603779A | ENVIRONMENTAL QUALITY TECHNOLOGY—DEM/VAL | 15,132 | 15,132 | 15,132 | | 15,132 |
| 083 | 0603790A | NATO RESEARCH AND DEVELOPMENT | 5,406 | 5,406 | 5,406 | | 5,406 |
| 084 | 0603801A | AVIATION—ADV DEV | 459,290 | 443,340 | 534,890 | 75,600 | 534,890 |
| | | Early to need | | [-15,950] | | | |
| | | Program increase: Future long-range assault aircraft | | | | [75,600] | |

SEC. 4201. RESEARCH, DEVELOPMENT, TEST, AND EVALUATION
(In Thousands of Dollars)

| Line | Program Element | Item | FY 2020 Request | House Authorized | Senate Authorized | Conference Change | Conference Authorized |
|------|-----------------|---|-----------------|------------------|-------------------|-------------------|-----------------------|
| | | UPL FVL CS3 program increase | | | [75,600] | | |
| 085 | 0603804A | LOGISTICS AND ENGINEER EQUIPMENT—ADV DEV | 6,254 | 6,254 | 6,254 | | 6,254 |
| 086 | 0603807A | MEDICAL SYSTEMS—ADV DEV | 31,175 | 31,175 | 31,175 | | 31,175 |
| 087 | 0603827A | SOLDIER SYSTEMS—ADVANCED DEVELOPMENT | 22,113 | 22,113 | 22,113 | | 22,113 |
| 088 | 0604017A | ROBOTICS DEVELOPMENT | 115,222 | 115,222 | 115,222 | -27,000 | 88,222 |
| | | Early to need | | | | [-27,000] | |
| 090 | 0604021A | ELECTRONIC WARFARE TECHNOLOGY MATURATION (MIP) | 18,043 | 18,043 | 18,043 | | 18,043 |
| 091 | 0604100A | ANALYSIS OF ALTERNATIVES | 10,023 | 10,023 | 10,023 | | 10,023 |
| 092 | 0604113A | FUTURE TACTICAL UNMANNED AIRCRAFT SYSTEM (FTUAS) | 40,745 | 40,745 | 40,745 | -5,000 | 35,745 |
| | | Program adjustment | | | | [-5,000] | |
| 093 | 0604114A | LOWER TIER AIR MISSILE DEFENSE (LTAMD) SENSOR | 427,772 | 427,772 | 427,772 | -48,000 | 379,772 |
| | | Rapid prototyping excess funding | | | | [-48,000] | |
| 094 | 0604115A | TECHNOLOGY MATURATION INITIATIVES | 196,676 | 161,676 | 196,676 | -35,000 | 161,676 |
| | | Insufficient schedule detail | | [-35,000] | | [-35,000] | |
| 095 | 0604117A | MANEUVER—SHORT RANGE AIR DEFENSE (M-SHORAD) | 33,100 | 29,100 | 33,100 | -3,700 | 29,400 |
| | | Excess testing cost | | [-4,000] | | [-3,700] | |
| 097 | 0604119A | ARMY ADVANCED COMPONENT DEVELOPMENT & PROTOTYPING | 115,116 | 105,116 | 115,116 | -11,785 | 103,331 |
| | | Early to need | | [-10,000] | | [-11,785] | |
| 099 | 0604121A | SYNTHETIC TRAINING ENVIRONMENT REFINEMENT & PROTOTYPING | 136,761 | 111,761 | 136,761 | -25,000 | 111,761 |
| | | Early to need (IVAS) | | [-25,000] | | [-25,000] | |
| 100 | 0604182A | HYPERSONICS | 228,000 | 259,000 | 358,610 | 161,610 | 389,610 |
| | | Transfer from RDTE Defense-Wide, line 124 | | [31,000] | | [31,000] | |
| | | UPL accelerate Hypersonic Weapons System | | | [130,610] | [130,610] | |
| 102 | 0604403A | FUTURE INTERCEPTOR | 8,000 | 8,000 | 8,000 | -8,000 | |
| | | Early to need | | | | [-8,000] | |
| 103 | 0604541A | UNIFIED NETWORK TRANSPORT | 39,600 | 30,600 | 39,600 | -9,900 | 29,700 |
| | | Early to need | | [-9,000] | | [-9,900] | |

| | | | | | | | |
|-----|----------|--|------------------|------------------|------------------|---------------|------------------|
| 104 | 0604644A | MOBILE MEDIUM RANGE MISSILE | 20,000 | | 20,000 | -10,000 | 10,000 |
| | | Program decrease | | [-20,000] | | [-10,000] | |
| 106 | 0305251A | CYBERSPACE OPERATIONS FORCES AND FORCE SUPPORT | 52,102 | 52,102 | 52,102 | | 52,102 |
| 107 | 1206120A | ASSURED POSITIONING, NAVIGATION AND TIMING (PNT) | 192,562 | 150,062 | 192,562 | -42,500 | 150,062 |
| | | Project cancellation | | [-42,500] | | [-42,500] | |
| 108 | 1206308A | ARMY SPACE SYSTEMS INTEGRATION | 104,996 | 54,996 | 104,996 | | 104,996 |
| | | Program delay | | [-50,000] | | | |
| | | SUBTOTAL ADVANCED COMPONENT DEVELOPMENT & PROTOTYPES | 2,929,355 | 2,726,905 | 3,135,565 | -8,895 | 2,920,460 |
| | | SYSTEM DEVELOPMENT & DEMONSTRATION | | | | | |
| 109 | 0604201A | AIRCRAFT AVIONICS | 29,164 | 29,164 | 29,164 | | 29,164 |
| 110 | 0604270A | ELECTRONIC WARFARE DEVELOPMENT | 70,539 | 70,539 | 70,539 | | 70,539 |
| 113 | 0604601A | INFANTRY SUPPORT WEAPONS | 106,121 | 125,321 | 126,021 | | 106,121 |
| | | Army unfunded priority—NGSW program increase | | [19,200] | | | |
| | | UPL Next Generation Squad Weapon—Automatic Rifle | | | [19,900] | | |
| 114 | 0604604A | MEDIUM TACTICAL VEHICLES | 2,152 | 2,152 | 2,152 | | 2,152 |
| 115 | 0604611A | JAVELIN | 17,897 | 16,397 | 17,897 | -1,842 | 16,055 |
| | | Qualification testing early to need | | [-1,500] | | [-1,842] | |
| 116 | 0604622A | FAMILY OF HEAVY TACTICAL VEHICLES | 16,745 | 16,745 | 16,745 | | 16,745 |
| 117 | 0604633A | AIR TRAFFIC CONTROL | 6,989 | 6,989 | 6,989 | | 6,989 |
| 118 | 0604642A | LIGHT TACTICAL WHEELED VEHICLES | 10,465 | 10,465 | 10,465 | -7,500 | 2,965 |
| | | Program reduction | | | | [-7,500] | |
| 119 | 0604645A | ARMORED SYSTEMS MODERNIZATION (ASM)—ENG DEV | 310,152 | 295,152 | 310,152 | -16,188 | 293,964 |
| | | Program delay | | [-15,000] | | [-16,188] | |
| 120 | 0604710A | NIGHT VISION SYSTEMS—ENG DEV | 181,732 | 166,732 | 181,732 | -15,000 | 166,732 |
| | | Insufficient justification (IVAS) | | [-15,000] | | [-15,000] | |
| 121 | 0604713A | COMBAT FEEDING, CLOTHING, AND EQUIPMENT | 2,393 | 2,393 | 2,393 | | 2,393 |
| 122 | 0604715A | NON-SYSTEM TRAINING DEVICES—ENG DEV | 27,412 | 27,412 | 27,412 | | 27,412 |
| 123 | 0604741A | AIR DEFENSE COMMAND, CONTROL AND INTELLIGENCE—ENG DEV | 43,502 | 38,502 | 43,502 | | 43,502 |
| | | Historical underexecution | | [-5,000] | | | |
| 124 | 0604742A | CONSTRUCTIVE SIMULATION SYSTEMS DEVELOPMENT | 11,636 | 11,636 | 11,636 | | 11,636 |
| 125 | 0604746A | AUTOMATIC TEST EQUIPMENT DEVELOPMENT | 10,915 | 10,915 | 10,915 | | 10,915 |

SEC. 4201. RESEARCH, DEVELOPMENT, TEST, AND EVALUATION
(In Thousands of Dollars)

| Line | Program Element | Item | FY 2020 Request | House Authorized | Senate Authorized | Conference Change | Conference Authorized |
|------|-----------------|--|-----------------|------------------|-------------------|-------------------|-----------------------|
| 126 | 0604760A | DISTRIBUTIVE INTERACTIVE SIMULATIONS (DIS)—ENG DEV | 7,801 | 7,801 | 7,801 | | 7,801 |
| 127 | 0604768A | BRILLIANT ANTI-ARMOR SUBMUNITION (BAT) | 25,000 | 20,000 | 25,000 | -5,000 | 20,000 |
| | | PFAL excess | | [-5,000] | | [-5,000] | |
| 128 | 0604780A | COMBINED ARMS TACTICAL TRAINER (CATT) CORE | 9,241 | 9,241 | 9,241 | | 9,241 |
| 129 | 0604798A | BRIGADE ANALYSIS, INTEGRATION AND EVALUATION | 42,634 | 38,634 | 42,634 | -4,331 | 38,303 |
| | | RCO support excess | | [-4,000] | | [-4,331] | |
| 130 | 0604802A | WEAPONS AND MUNITIONS—ENG DEV | 181,023 | 181,023 | 181,023 | | 181,023 |
| 131 | 0604804A | LOGISTICS AND ENGINEER EQUIPMENT—ENG DEV | 103,226 | 103,226 | 103,226 | | 103,226 |
| 132 | 0604805A | COMMAND, CONTROL, COMMUNICATIONS SYSTEMS—ENG DEV | 12,595 | 12,595 | 12,595 | | 12,595 |
| 133 | 0604807A | MEDICAL MATERIEL/MEDICAL BIOLOGICAL DEFENSE EQUIPMENT—ENG DEV. | 48,264 | 48,264 | 48,264 | | 48,264 |
| 134 | 0604808A | LANDMINE WARFARE/BARRIER—ENG DEV | 39,208 | 39,208 | 39,208 | | 39,208 |
| 135 | 0604818A | ARMY TACTICAL COMMAND & CONTROL HARDWARE & SOFTWARE | 140,637 | 138,137 | 140,637 | -2,500 | 138,137 |
| | | CP12 testing previously funded | | [-2,500] | | [-2,500] | |
| 136 | 0604820A | RADAR DEVELOPMENT | 105,243 | 105,243 | 105,243 | | 105,243 |
| 137 | 0604822A | GENERAL FUND ENTERPRISE BUSINESS SYSTEM (GFEB)S | 46,683 | 41,683 | 46,683 | | 46,683 |
| | | Program decrease | | [-5,000] | | | |
| 138 | 0604823A | FIREFINDER | 17,294 | 17,294 | 17,294 | | 17,294 |
| 139 | 0604827A | SOLDIER SYSTEMS—WARRIOR DEM/VAL | 5,803 | 4,803 | 5,803 | | 5,803 |
| | | Historical underexecution | | [-1,000] | | | |
| 140 | 0604852A | SUITE OF SURVIVABILITY ENHANCEMENT SYSTEMS—EMD | 98,698 | 128,698 | 98,698 | 20,000 | 118,698 |
| | | Program increase for vehicle active protection system evaluation | | [30,000] | | [30,000] | |
| | | Program reduction | | | | [-10,000] | |
| 141 | 0604854A | ARTILLERY SYSTEMS—EMD | 15,832 | 10,832 | 15,832 | | 15,832 |
| | | Mobile howitzer testing early to need | | [-5,000] | | | |
| 142 | 0605013A | INFORMATION TECHNOLOGY DEVELOPMENT | 126,537 | 126,537 | 126,537 | -55,000 | 71,537 |
| | | Historical underexecution | | | | [-10,000] | |

| | | | | | | | |
|-----|----------|---|---------|-----------|------------|-----------|---------|
| | | Program decrease | | | | [-45,000] | |
| 143 | 0605018A | INTEGRATED PERSONNEL AND PAY SYSTEM-ARMY (IPPS-A) | 142,773 | 94,773 | | -50,700 | 92,073 |
| | | Poor business process reengineering | | | [-142,773] | [-50,700] | |
| | | Program decrease | | [-48,000] | | | |
| 144 | 0605028A | ARMORED MULTI-PURPOSE VEHICLE (AMPV) | 96,730 | 96,730 | 96,730 | -4,600 | 92,130 |
| | | Program reduction | | | | [-4,600] | |
| 145 | 0605029A | INTEGRATED GROUND SECURITY SURVEILLANCE RESPONSE CAPABILITY (IGSSR-C). | 6,699 | 6,699 | 6,699 | | 6,699 |
| 146 | 0605030A | JOINT TACTICAL NETWORK CENTER (JTNC) | 15,882 | 15,882 | 15,882 | | 15,882 |
| 147 | 0605031A | JOINT TACTICAL NETWORK (JTN) | 40,808 | 40,808 | 40,808 | | 40,808 |
| 149 | 0605033A | GROUND-BASED OPERATIONAL SURVEILLANCE SYSTEM—EXPEDITIONARY (GBOSS-E). | 3,847 | 3,847 | 3,847 | | 3,847 |
| 150 | 0605034A | TACTICAL SECURITY SYSTEM (TSS) | 6,928 | 6,928 | 6,928 | | 6,928 |
| 151 | 0605035A | COMMON INFRARED COUNTERMEASURES (CIRCM) | 34,488 | 34,488 | 34,488 | | 34,488 |
| 152 | 0605036A | COMBATING WEAPONS OF MASS DESTRUCTION (CWMD) | 10,000 | 10,000 | 10,000 | | 10,000 |
| 154 | 0605038A | NUCLEAR BIOLOGICAL CHEMICAL RECONNAISSANCE VEHICLE (NBCRV) SENSOR SUITE. | 6,054 | 6,054 | 6,054 | | 6,054 |
| 155 | 0605041A | DEFENSIVE CYBER TOOL DEVELOPMENT | 62,262 | 62,262 | 62,262 | -16,600 | 45,662 |
| | | Contract delays | | | | [-10,000] | |
| | | Excess growth | | | | [-6,600] | |
| 156 | 0605042A | TACTICAL NETWORK RADIO SYSTEMS (LOW-TIER) | 35,654 | 28,654 | 35,654 | -6,400 | 29,254 |
| | | Excess growth | | [-7,000] | | [-6,400] | |
| 157 | 0605047A | CONTRACT WRITING SYSTEM | 19,682 | 19,682 | | | 19,682 |
| | | Program duplication | | | [-19,682] | | |
| 158 | 0605049A | MISSILE WARNING SYSTEM MODERNIZATION (MWSM) | 1,539 | 1,539 | 1,539 | | 1,539 |
| 159 | 0605051A | AIRCRAFT SURVIVABILITY DEVELOPMENT | 64,557 | 64,557 | 64,557 | | 64,557 |
| 160 | 0605052A | INDIRECT FIRE PROTECTION CAPABILITY INC 2—BLOCK 1 | 243,228 | 243,228 | 149,628 | -6,800 | 236,428 |
| | | EMAM development ahead of need | | | [-124,200] | [-6,800] | |
| | | Iron Dome testing and delivery | | | [20,600] | | |
| | | UPL Multi-Domain Artillery | | | [10,000] | | |
| 161 | 0605053A | GROUND ROBOTICS | 41,308 | 41,308 | 28,508 | -12,800 | 28,508 |
| | | Army requested realignment | | | [-12,800] | | |

| SEC. 4201. RESEARCH, DEVELOPMENT, TEST, AND EVALUATION (In Thousands of Dollars) | | | | | | | | |
|---|-----------------|--|------------------|------------------|-------------------|-------------------|-----------------------|--|
| Line | Program Element | Item | FY 2020 Request | House Authorized | Senate Authorized | Conference Change | Conference Authorized | |
| | | Excess to requirement | | | | [-12,800] | | |
| 162 | 0605054A | EMERGING TECHNOLOGY INITIATIVES | 45,896 | 41,896 | 45,896 | -14,280 | 31,616 | |
| | | Testing and evaluation excess growth | | [-4,000] | | [-4,280] | | |
| | | Unjustified request | | | | [-10,000] | | |
| 163 | 0605203A | ARMY SYSTEM DEVELOPMENT & DEMONSTRATION | 164,883 | 164,883 | 164,883 | | 164,883 | |
| 165 | 0605450A | JOINT AIR-TO-GROUND MISSILE (JAGM) | 9,500 | 9,500 | 9,500 | | 9,500 | |
| 166 | 0605457A | ARMY INTEGRATED AIR AND MISSILE DEFENSE (AIAMD) | 208,938 | 203,938 | 208,938 | -15,000 | 193,938 | |
| | | Testing and evaluation excess growth | | [-5,000] | | [-15,000] | | |
| 167 | 0605625A | MANNED GROUND VEHICLE | 378,400 | 378,400 | 418,400 | -150,000 | 228,400 | |
| | | Program decrease | | | | [-150,000] | | |
| | | UPL NGCV 50mm gun | | | [40,000] | | | |
| 168 | 0605766A | NATIONAL CAPABILITIES INTEGRATION (MIP) | 7,835 | 9,835 | 7,835 | | 7,835 | |
| | | Mobile ground terminal | | [2,000] | | | | |
| 169 | 0605812A | JOINT LIGHT TACTICAL VEHICLE (JLTV) ENGINEERING AND MANUFACTURING DEVELOPMENT PH. | 2,732 | 7,232 | 7,232 | 4,500 | 7,232 | |
| | | Army requested realignment | | | | [4,500] | | |
| | | Army requested realignment from OPA 7 | | [4,500] | | [4,500] | | |
| 170 | 0605830A | AVIATION GROUND SUPPORT EQUIPMENT | 1,664 | 1,664 | 1,664 | | 1,664 | |
| 172 | 0303032A | TROJAN—RH12 | 3,936 | 3,936 | 3,936 | | 3,936 | |
| 174 | 0304270A | ELECTRONIC WARFARE DEVELOPMENT | 19,675 | 19,675 | 19,675 | | 19,675 | |
| | | SUBTOTAL SYSTEM DEVELOPMENT & DEMONSTRATION | 3,549,431 | 3,482,131 | 3,344,976 | -360,041 | 3,189,390 | |
| | | RDT&E MANAGEMENT SUPPORT | | | | | | |
| 176 | 0604256A | THREAT SIMULATOR DEVELOPMENT | 14,117 | 14,117 | 16,117 | 2,000 | 16,117 | |
| | | Cybersecurity threat simulation | | | [2,000] | [2,000] | | |
| 177 | 0604258A | TARGET SYSTEMS DEVELOPMENT | 8,327 | 8,327 | 8,327 | | 8,327 | |
| 178 | 0604759A | MAJOR T&E INVESTMENT | 136,565 | 136,565 | 136,565 | | 136,565 | |

| | | | | | | | |
|-----|----------|--|------------------|------------------|------------------|--------------|------------------|
| 179 | 0605103A | RAND ARROYO CENTER | 13,113 | 13,113 | 13,113 | | 13,113 |
| 180 | 0605301A | ARMY KWAJALEIN ATOLL | 238,691 | 226,691 | 238,691 | | 238,691 |
| | | Program decrease | | [-12,000] | | | |
| 181 | 0605326A | CONCEPTS EXPERIMENTATION PROGRAM | 42,922 | 42,922 | 42,922 | -6,000 | 36,922 |
| | | Program reduction | | | | [-6,000] | |
| 183 | 0605601A | ARMY TEST RANGES AND FACILITIES | 334,468 | 334,468 | 349,468 | | 334,468 |
| | | Directed energy test capabilities | | | [15,000] | | |
| 184 | 0605602A | ARMY TECHNICAL TEST INSTRUMENTATION AND TARGETS | 46,974 | 51,974 | 46,974 | 5,000 | 51,974 |
| | | Program increase—space and missile cybersecurity | | [5,000] | | [5,000] | |
| 185 | 0605604A | SURVIVABILITY/LETHALITY ANALYSIS | 35,075 | 35,075 | 35,075 | | 35,075 |
| 186 | 0605606A | AIRCRAFT CERTIFICATION | 3,461 | 3,461 | 3,461 | | 3,461 |
| 187 | 0605702A | METEOROLOGICAL SUPPORT TO RDT&E ACTIVITIES | 6,233 | 6,233 | 6,233 | | 6,233 |
| 188 | 0605706A | MATERIEL SYSTEMS ANALYSIS | 21,342 | 21,342 | 21,342 | | 21,342 |
| 189 | 0605709A | EXPLOITATION OF FOREIGN ITEMS | 11,168 | 11,168 | 11,168 | | 11,168 |
| 190 | 0605712A | SUPPORT OF OPERATIONAL TESTING | 52,723 | 52,723 | 52,723 | | 52,723 |
| 191 | 0605716A | ARMY EVALUATION CENTER | 60,815 | 60,815 | 60,815 | | 60,815 |
| 192 | 0605718A | ARMY MODELING & SIM X-CMD COLLABORATION & INTEG | 2,527 | 2,527 | 2,527 | | 2,527 |
| 193 | 0605801A | PROGRAMWIDE ACTIVITIES | 58,175 | 61,175 | 58,175 | | 58,175 |
| | | Program increase for transition costs | | [3,000] | | | |
| 194 | 0605803A | TECHNICAL INFORMATION ACTIVITIES | 25,060 | 25,060 | 25,060 | | 25,060 |
| 195 | 0605805A | MUNITIONS STANDARDIZATION, EFFECTIVENESS AND SAFETY | 44,458 | 49,458 | 44,458 | | 44,458 |
| | | Advanced lightweight small arms and medium caliber ammunition. | | [5,000] | | | |
| 196 | 0605857A | ENVIRONMENTAL QUALITY TECHNOLOGY MGMT SUPPORT | 4,681 | 4,681 | 4,681 | | 4,681 |
| 197 | 0605898A | ARMY DIRECT REPORT HEADQUARTERS—R&D - MHA | 53,820 | 53,820 | 53,820 | | 53,820 |
| 198 | 0606001A | MILITARY GROUND-BASED CREW TECHNOLOGY | 4,291 | 4,291 | 4,291 | | 4,291 |
| 199 | 0606002A | RONALD REAGAN BALLISTIC MISSILE DEFENSE TEST SITE | 62,069 | 62,069 | 62,069 | | 62,069 |
| 200 | 0606003A | COUNTERINTEL AND HUMAN INTEL MODERNIZATION | 1,050 | 1,050 | 1,050 | | 1,050 |
| 201 | 0606942A | ASSESSMENTS AND EVALUATIONS CYBER VULNERABILITIES | 4,500 | 4,500 | 4,500 | | 4,500 |
| | | SUBTOTAL RDT&E MANAGEMENT SUPPORT | 1,286,625 | 1,287,625 | 1,303,625 | 1,000 | 1,287,625 |

OPERATIONAL SYSTEMS DEVELOPMENT

| SEC. 4201. RESEARCH, DEVELOPMENT, TEST, AND EVALUATION (In Thousands of Dollars) | | | | | | | |
|---|-----------------|--|-----------------|------------------|-------------------|-------------------|-----------------------|
| Line | Program Element | Item | FY 2020 Request | House Authorized | Senate Authorized | Conference Change | Conference Authorized |
| UNDISTRIBUTED | | | | | | | |
| 204 | 0603778A | MLRS PRODUCT IMPROVEMENT PROGRAM | 22,877 | 17,877 | 22,877 | -3,000 | 19,877 |
| | | HIMARS excess growth | | | | [-3,000] | |
| 206 | 0605024A | ANTI-TAMPER TECHNOLOGY SUPPORT | 8,491 | 8,491 | 8,491 | | 8,491 |
| 207 | 0607131A | WEAPONS AND MUNITIONS PRODUCT IMPROVEMENT PROGRAMS | 15,645 | 15,645 | 15,645 | | 15,645 |
| 209 | 0607134A | LONG RANGE PRECISION FIRES (LRPF) | 164,182 | 164,182 | 164,182 | | 164,182 |
| 211 | 0607136A | BLACKHAWK PRODUCT IMPROVEMENT PROGRAM | 13,039 | 13,039 | 13,039 | | 13,039 |
| 212 | 0607137A | CHINOOK PRODUCT IMPROVEMENT PROGRAM | 174,371 | 174,371 | 174,371 | -6,000 | 168,371 |
| | | Program reduction | | | | [-6,000] | |
| 213 | 0607138A | FIXED WING PRODUCT IMPROVEMENT PROGRAM | 4,545 | 4,545 | 4,545 | -4,545 | |
| | | Program reduction | | | | [-4,545] | |
| 214 | 0607139A | IMPROVED TURBINE ENGINE PROGRAM | 206,434 | 206,434 | 206,434 | | 206,434 |
| 216 | 0607142A | AVIATION ROCKET SYSTEM PRODUCT IMPROVEMENT AND DEVELOPMENT | 24,221 | 14,221 | 24,221 | -3,091 | 21,130 |
| | | Integrated munitions launcher early to need | | | | [-3,091] | |
| 217 | 0607143A | UNMANNED AIRCRAFT SYSTEM UNIVERSAL PRODUCTS | 32,016 | 32,016 | 32,016 | -6,500 | 25,516 |
| | | Program reduction | | | | [-6,500] | |
| 218 | 0607145A | APACHE FUTURE DEVELOPMENT | 5,448 | 448 | 5,448 | -5,000 | 448 |
| | | Unjustified request | | | | [-5,000] | |
| 219 | 0607312A | ARMY OPERATIONAL SYSTEMS DEVELOPMENT | 49,526 | 49,526 | 49,526 | | 49,526 |
| 220 | 0607665A | FAMILY OF BIOMETRICS | 1,702 | 1,702 | 1,702 | | 1,702 |
| 221 | 0607865A | PATRIOT PRODUCT IMPROVEMENT | 96,430 | 96,430 | 96,430 | -32,800 | 63,630 |
| | | Excess growth | | | | [-32,800] | |
| 222 | 0203728A | JOINT AUTOMATED DEEP OPERATION COORDINATION SYSTEM (JADOCs) .. | 47,398 | 47,398 | 47,398 | | 47,398 |
| 223 | 0203735A | COMBAT VEHICLE IMPROVEMENT PROGRAMS | 334,463 | 324,463 | 334,463 | -43,918 | 290,545 |
| | | Early to need | | | | [-41,918] | |
| | | Program support excess growth | | | | [-2,000] | |
| 225 | 0203743A | 155MM SELF-PROPELLED HOWITZER IMPROVEMENTS | 214,246 | 214,246 | 214,246 | -21,500 | 192,746 |

November 23, 2019 (1:06 a.m.)

| | | | | | | | |
|------|------------|--|------------------|------------------|------------------|-----------------|------------------|
| | | Program reduction | | | | [-21,500] | |
| 226 | 0203744A | AIRCRAFT MODIFICATIONS/PRODUCT IMPROVEMENT PROGRAMS | 16,486 | 11,986 | 16,486 | -2,708 | 13,778 |
| | | Excess to need | | | [-4,500] | [-2,708] | |
| 227 | 0203752A | AIRCRAFT ENGINE COMPONENT IMPROVEMENT PROGRAM | 144 | 144 | 144 | | 144 |
| 228 | 0203758A | DIGITIZATION | 5,270 | 5,270 | 5,270 | | 5,270 |
| 229 | 0203801A | MISSILE/AIR DEFENSE PRODUCT IMPROVEMENT PROGRAM | 1,287 | 1,287 | 1,287 | | 1,287 |
| 230 | 0203802A | OTHER MISSILE PRODUCT IMPROVEMENT PROGRAMS | | | 24,100 | | |
| | | UPL CD ATACMS | | | [24,100] | | |
| 234 | 0205412A | ENVIRONMENTAL QUALITY TECHNOLOGY—OPERATIONAL SYSTEM DEV | 732 | 732 | 732 | | 732 |
| 235 | 0205456A | LOWER TIER AIR AND MISSILE DEFENSE (AMD) SYSTEM | 107,746 | 107,746 | 107,746 | -8,000 | 99,746 |
| | | Testing excess to need | | | | [-8,000] | |
| 236 | 0205778A | GUIDED MULTIPLE-LAUNCH ROCKET SYSTEM (GMLRS) | 138,594 | 128,594 | 138,594 | -10,000 | 128,594 |
| | | Testing excess to need | | | [-10,000] | [-10,000] | |
| 238 | 0303028A | SECURITY AND INTELLIGENCE ACTIVITIES | 13,845 | 13,845 | 13,845 | | 13,845 |
| 239 | 0303140A | INFORMATION SYSTEMS SECURITY PROGRAM | 29,185 | 29,185 | 29,185 | | 29,185 |
| 240 | 0303141A | GLOBAL COMBAT SUPPORT SYSTEM | 68,976 | 58,976 | 68,976 | -20,600 | 48,376 |
| | | Program decrease | | | [-10,000] | [-20,600] | |
| 241 | 0303150A | WWMCCS/GLOBAL COMMAND AND CONTROL SYSTEM | 2,073 | 2,073 | 2,073 | | 2,073 |
| 245 | 0305179A | INTEGRATED BROADCAST SERVICE (IBS) | 459 | 459 | 459 | | 459 |
| 246 | 0305204A | TACTICAL UNMANNED AERIAL VEHICLES | 5,097 | 5,097 | 5,097 | | 5,097 |
| 247 | 0305206A | AIRBORNE RECONNAISSANCE SYSTEMS | 11,177 | 11,177 | 11,177 | | 11,177 |
| 248 | 0305208A | DISTRIBUTED COMMON GROUND/SURFACE SYSTEMS | 38,121 | 38,121 | 38,121 | | 38,121 |
| 250 | 0305232A | RQ-11 UAV | 3,218 | 3,218 | 3,218 | | 3,218 |
| 251 | 0305233A | RQ-7 UAV | 7,817 | 7,817 | 7,817 | | 7,817 |
| 252 | 0307665A | BIOMETRICS ENABLED INTELLIGENCE | 2,000 | 2,000 | 2,000 | | 2,000 |
| 253 | 0708045A | END ITEM INDUSTRIAL PREPAREDNESS ACTIVITIES | 59,848 | 64,848 | 62,848 | 8,000 | 67,848 |
| | | Nanoscale materials manufacturing | | | [3,000] | [3,000] | |
| | | Program increase—additive manufacturing technology insertion | | | [5,000] | [5,000] | |
| 254 | 1203142A | SATCOM GROUND ENVIRONMENT (SPACE) | 34,169 | 34,169 | 34,169 | | 34,169 |
| 255 | 1208053A | JOINT TACTICAL GROUND SYSTEM | 10,275 | 10,275 | 10,275 | | 10,275 |
| 255A | 9999999999 | CLASSIFIED PROGRAMS | 7,273 | 7,273 | 7,273 | | 7,273 |
| | | SUBTOTAL OPERATIONAL SYSTEMS DEVELOPMENT | 1,978,826 | 1,929,326 | 2,005,926 | -159,662 | 1,819,164 |

| SEC. 4201. RESEARCH, DEVELOPMENT, TEST, AND EVALUATION (In Thousands of Dollars) | | | | | | | |
|---|-----------------|---|-------------------|-------------------|-------------------|-------------------|-----------------------|
| Line | Program Element | Item | FY 2020 Request | House Authorized | Senate Authorized | Conference Change | Conference Authorized |
| | | SUBTOTAL UNDISTRIBUTED | | -49,500 | 27,100 | -159,662 | -159,662 |
| | | TOTAL RESEARCH, DEVELOPMENT, TEST & EVAL, ARMY | 12,192,771 | 12,030,821 | 12,344,126 | -335,298 | 11,857,473 |
| | | RESEARCH, DEVELOPMENT, TEST & EVAL, NAVY | | | | | |
| | | BASIC RESEARCH | | | | | |
| 001 | 0601103N | UNIVERSITY RESEARCH INITIATIVES | 116,850 | 136,850 | 131,850 | 30,000 | 146,850 |
| | | Advanced radar research | | [5,000] | | [5,000] | |
| | | Cyber basic research | | | [10,000] | [10,000] | |
| | | Defense University research initiatives | | [5,000] | | [5,000] | |
| | | Digital radar research | | | [5,000] | | |
| | | Program increase | | [10,000] | | [10,000] | |
| 002 | 0601152N | IN-HOUSE LABORATORY INDEPENDENT RESEARCH | 19,121 | 19,121 | 19,121 | | 19,121 |
| 003 | 0601153N | DEFENSE RESEARCH SCIENCES | 470,007 | 470,007 | 470,007 | | 470,007 |
| | | SUBTOTAL BASIC RESEARCH | 605,978 | 625,978 | 620,978 | 30,000 | 635,978 |
| | | APPLIED RESEARCH | | | | | |
| 004 | 0602114N | POWER PROJECTION APPLIED RESEARCH | 18,546 | 25,546 | 18,546 | 7,000 | 25,546 |
| | | Hypersonic testing facilities | | [7,000] | | [7,000] | |
| 005 | 0602123N | FORCE PROTECTION APPLIED RESEARCH | 119,517 | 162,517 | 136,017 | 46,500 | 166,017 |
| | | Autonomous vehicle collaboration across maritime domains | | [10,000] | | | |
| | | Carbon capture | | | [8,000] | [8,000] | |
| | | Cyber-physical research | | [8,000] | | | |
| | | Electric propulsion research | | | [2,500] | [2,500] | |
| | | Energy resilience | | [5,000] | | [5,000] | |
| | | Energy resilience research | | | [3,000] | [3,000] | |
| | | Hybrid composite struct. res. enhanced mobility | | [5,000] | | [5,000] | |

| | | | | | | | |
|-----|----------|---|----------------|------------------|----------------|---------------|------------------|
| | | Navy power and energy systems technology | | [5,000] | | [5,000] | |
| | | Program increase | | [10,000] | | [10,000] | |
| | | Program reduction | | | [-5,000] | | |
| | | Test bed for autonomous ship systems | | | [8,000] | [8,000] | |
| 006 | 0602131M | MARINE CORPS LANDING FORCE TECHNOLOGY | 56,604 | 61,604 | 59,604 | 5,000 | 61,604 |
| | | Interdisciplinary cybersecurity | | | [3,000] | | |
| | | Interdisciplinary expeditionary cybersecurity research | | [5,000] | | [5,000] | |
| 007 | 0602235N | COMMON PICTURE APPLIED RESEARCH | 49,297 | 49,297 | 44,297 | -5,000 | 44,297 |
| | | Coordinate space activities | | | [-5,000] | [-5,000] | |
| 008 | 0602236N | WARFIGHTER SUSTAINMENT APPLIED RESEARCH | 63,825 | 68,825 | 65,825 | | 63,825 |
| | | Warfighter safety and performance | | [5,000] | | | |
| | | Warfighter safety and performance research | | | [2,000] | | |
| 009 | 0602271N | ELECTROMAGNETIC SYSTEMS APPLIED RESEARCH | 83,497 | 83,497 | 78,497 | | 83,497 |
| | | Coordinate EW activities | | | [-5,000] | | |
| 010 | 0602435N | OCEAN WARFIGHTING ENVIRONMENT APPLIED RESEARCH | 63,894 | 63,894 | 63,894 | | 63,894 |
| 011 | 0602651M | JOINT NON-LETHAL WEAPONS APPLIED RESEARCH | 6,346 | 6,346 | 6,346 | | 6,346 |
| 012 | 0602747N | UNDERSEA WARFARE APPLIED RESEARCH | 57,075 | 77,075 | 64,575 | 17,000 | 74,075 |
| | | Academic partnerships for undersea vehicle research | | [10,000] | [7,500] | [10,000] | |
| | | Resident autonomous undersea robotics | | [10,000] | | [7,000] | |
| 013 | 0602750N | FUTURE NAVAL CAPABILITIES APPLIED RESEARCH | 154,755 | 154,755 | 154,755 | | 154,755 |
| 014 | 0602782N | MINE AND EXPEDITIONARY WARFARE APPLIED RESEARCH | 36,074 | 36,074 | 36,074 | | 36,074 |
| 015 | 0602792N | INNOVATIVE NAVAL PROTOTYPES (INP) APPLIED RESEARCH | 153,062 | 153,062 | 153,062 | | 153,062 |
| 016 | 0602861N | SCIENCE AND TECHNOLOGY MANAGEMENT—ONR FIELD ACITIVITIES | 73,961 | 73,961 | 73,961 | | 73,961 |
| | | SUBTOTAL APPLIED RESEARCH | 936,453 | 1,016,453 | 955,453 | 70,500 | 1,006,953 |
| | | ADVANCED TECHNOLOGY DEVELOPMENT | | | | | |
| 017 | 0603123N | FORCE PROTECTION ADVANCED TECHNOLOGY | 35,286 | 35,286 | 35,286 | | 35,286 |
| 018 | 0603271N | ELECTROMAGNETIC SYSTEMS ADVANCED TECHNOLOGY | 9,499 | 9,499 | 9,499 | | 9,499 |
| 019 | 0603640M | USMC ADVANCED TECHNOLOGY DEMONSTRATION (ATD) | 172,847 | 177,847 | 176,847 | 5,000 | 177,847 |
| | | Consolidate efforts in AI/ML with Joint Force | | | [-5,000] | | |
| | | Program increase—modular advanced armed robotic system | | [5,000] | | [5,000] | |
| | | UPL MUDLAN program increase | | | [9,000] | | |

| SEC. 4201. RESEARCH, DEVELOPMENT, TEST, AND EVALUATION (In Thousands of Dollars) | | | | | | | | |
|---|-----------------|--|-----------------|------------------|-------------------|-------------------|-----------------------|----------------|
| Line | Program Element | Item | FY 2020 Request | House Authorized | Senate Authorized | Conference Change | Conference Authorized | |
| 020 | 0603651M | JOINT NON-LETHAL WEAPONS TECHNOLOGY DEVELOPMENT | 13,307 | 13,307 | 13,307 | | | 13,307 |
| 021 | 0603673N | FUTURE NAVAL CAPABILITIES ADVANCED TECHNOLOGY DEVELOPMENT | 231,907 | 231,907 | 231,907 | | | 231,907 |
| 022 | 0603680N | MANUFACTURING TECHNOLOGY PROGRAM | 60,138 | 80,138 | 60,138 | 5,000 | | 65,138 |
| | | Program increase | | [20,000] | | [5,000] | | |
| 023 | 0603729N | WARFIGHTER PROTECTION ADVANCED TECHNOLOGY | 4,849 | 4,849 | 4,849 | | | 4,849 |
| 025 | 0603758N | NAVY WARFIGHTING EXPERIMENTS AND DEMONSTRATIONS | 67,739 | 67,739 | 67,739 | | | 67,739 |
| 026 | 0603782N | MINE AND EXPEDITIONARY WARFARE ADVANCED TECHNOLOGY | 13,335 | 13,335 | 13,335 | | | 13,335 |
| 027 | 0603801N | INNOVATIVE NAVAL PROTOTYPES (INP) ADVANCED TECHNOLOGY DEVELOPMENT. | 133,303 | 176,303 | 128,303 | 17,027 | | 150,330 |
| | | Electromagnetic railgun | | [20,350] | | [10,000] | | |
| | | Funds excess to requirements | | | | [-7,973] | | |
| | | Program increase | | [22,650] | | [15,000] | | |
| | | Reduce electronic maneuver | | | [-5,000] | | | |
| | | SUBTOTAL ADVANCED TECHNOLOGY DEVELOPMENT | 742,210 | 810,210 | 741,210 | 27,027 | | 769,237 |
| | | ADVANCED COMPONENT DEVELOPMENT & PROTOTYPES | | | | | | |
| 028 | 0603207N | AIR/OCEAN TACTICAL APPLICATIONS | 32,643 | 32,643 | 38,643 | 6,000 | | 38,643 |
| | | Program increase for 1 REMUS 600 vehicle | | | [6,000] | [6,000] | | |
| 029 | 0603216N | AVIATION SURVIVABILITY | 11,919 | 11,919 | 11,919 | | | 11,919 |
| 030 | 0603251N | AIRCRAFT SYSTEMS | 1,473 | 1,473 | 1,473 | | | 1,473 |
| 031 | 0603254N | ASW SYSTEMS DEVELOPMENT | 7,172 | 7,172 | 7,172 | | | 7,172 |
| 032 | 0603261N | TACTICAL AIRBORNE RECONNAISSANCE | 3,419 | 3,419 | 3,419 | | | 3,419 |
| 033 | 0603382N | ADVANCED COMBAT SYSTEMS TECHNOLOGY | 64,694 | 64,694 | 64,694 | | | 64,694 |
| 034 | 0603502N | SURFACE AND SHALLOW WATER MINE COUNTERMEASURES | 507,000 | 312,200 | 134,500 | -196,500 | | 310,500 |
| | | Excess procurement ahead of satisfactory testing | | | | [-372,500] | | |
| | | LUSV Design Contracts early to need | | [-29,100] | | | | |
| | | LUSV GFE early to need | | [-79,200] | | | | |

| | | | | | | | | | |
|-----|----------|---|---------|---------|---------|--|--|--|--|
| | | LUSV program decrease | | | | | | | |
| | | MUSV program increase | | | | | | | |
| | | Reduce one LUSV | | | | | | | |
| | | VLS concept design and LLTM early to need | | | | | | | |
| 035 | 0603506N | SURFACE SHIP TORPEDO DEFENSE | 15,800 | 15,800 | 15,800 | | | | |
| | | Excess sundown costs | | | | | | | |
| 036 | 0603512N | CARRIER SYSTEMS DEVELOPMENT | 4,997 | 4,997 | 4,997 | | | | |
| 037 | 0603525N | PILOT FISH | 291,148 | 291,148 | 291,148 | | | | |
| | | Program adjustment | | | | | | | |
| 038 | 0603527N | RETRACT LARCH | 11,980 | 11,980 | 11,980 | | | | |
| 039 | 0603536N | RETRACT JUNIPER | 129,163 | 129,163 | 129,163 | | | | |
| 040 | 0603542N | RADIOLOGICAL CONTROL | 689 | 689 | 689 | | | | |
| 041 | 0603553N | SURFACE ASW | 1,137 | 1,137 | 1,137 | | | | |
| 042 | 0603561N | ADVANCED SUBMARINE SYSTEM DEVELOPMENT | 148,756 | 148,756 | 153,756 | | | | |
| | | Program decrease | | | | | | | |
| | | Project 2033: Test site emergent repairs | | | | | | | |
| | | Project 9710: Unjustified new start | | | | | | | |
| 043 | 0603562N | SUBMARINE TACTICAL WARFARE SYSTEMS | 11,192 | 11,192 | 11,192 | | | | |
| 044 | 0603563N | SHIP CONCEPT ADVANCED DESIGN | 81,846 | 67,846 | 57,846 | | | | |
| | | Early to need | | | | | | | |
| | | Future surface combatant concept development | | | | | | | |
| | | Program increase | | | | | | | |
| | | Program increase—moving target defense | | | | | | | |
| 045 | 0603564N | SHIP PRELIMINARY DESIGN & FEASIBILITY STUDIES | 69,084 | 59,084 | 22,484 | | | | |
| | | Early to need | | | | | | | |
| | | Program decrease | | | | | | | |
| 046 | 0603570N | ADVANCED NUCLEAR POWER SYSTEMS | 181,652 | 181,652 | 181,652 | | | | |
| 047 | 0603573N | ADVANCED SURFACE MACHINERY SYSTEMS | 25,408 | 30,408 | 150,408 | | | | |
| | | Program increase | | | | | | | |
| | | Surface combatant component-level prototyping | | | | | | | |
| 048 | 0603576N | CHALK EAGLE | 64,877 | 64,877 | 64,877 | | | | |
| 049 | 0603581N | LITTORAL COMBAT SHIP (LCS) | 9,934 | 9,934 | 9,934 | | | | |

SEC. 4201. RESEARCH, DEVELOPMENT, TEST, AND EVALUATION
(In Thousands of Dollars)

| Line | Program Element | Item | FY 2020 Request | House Authorized | Senate Authorized | Conference Change | Conference Authorized |
|------|-----------------|--|-----------------|------------------|-------------------|-------------------|-----------------------|
| 050 | 0603582N | COMBAT SYSTEM INTEGRATION | 17,251 | 17,251 | 17,251 | | 17,251 |
| 051 | 0603595N | OHIO REPLACEMENT | 419,051 | 419,051 | 434,051 | 15,000 | 434,051 |
| | | Accelerate advanced propulsor development | | | [15,000] | [15,000] | |
| 052 | 0603596N | LCS MISSION MODULES | 108,505 | 108,505 | 103,505 | -2,910 | 105,595 |
| | | Available prior year funds due to SUW MP testing delay | | | [-5,000] | [-2,910] | |
| 053 | 0603597N | AUTOMATED TEST AND ANALYSIS | 7,653 | 7,653 | 7,653 | | 7,653 |
| 054 | 0603599N | FRIGATE DEVELOPMENT | 59,007 | 59,007 | 59,007 | | 59,007 |
| 055 | 0603609N | CONVENTIONAL MUNITIONS | 9,988 | 9,988 | 9,988 | | 9,988 |
| 056 | 0603635M | MARINE CORPS GROUND COMBAT/SUPPORT SYSTEM | 86,464 | 11,464 | 86,464 | -69,987 | 16,477 |
| | | Insufficient justification and contract delay | | [-75,000] | | [-69,987] | |
| 057 | 0603654N | JOINT SERVICE EXPLOSIVE ORDNANCE DEVELOPMENT | 33,478 | 33,478 | 33,478 | | 33,478 |
| 058 | 0603713N | OCEAN ENGINEERING TECHNOLOGY DEVELOPMENT | 5,619 | 5,619 | 5,619 | | 5,619 |
| 059 | 0603721N | ENVIRONMENTAL PROTECTION | 20,564 | 20,564 | 20,564 | | 20,564 |
| 060 | 0603724N | NAVY ENERGY PROGRAM | 26,514 | 49,514 | 26,514 | 23,000 | 49,514 |
| | | Battery development and safety enterprise | | [13,000] | | [13,000] | |
| | | Marine energy systems for sensors and microgrids | | [10,000] | | [10,000] | |
| 061 | 0603725N | FACILITIES IMPROVEMENT | 3,440 | 3,440 | 3,440 | | 3,440 |
| 062 | 0603734N | CHALK CORAL | 346,800 | 346,800 | 346,800 | -36,400 | 310,400 |
| | | Insufficient budget justification | | | | [-36,400] | |
| 063 | 0603739N | NAVY LOGISTIC PRODUCTIVITY | 3,857 | 3,857 | 3,857 | | 3,857 |
| 064 | 0603746N | RETRACT MAPLE | 258,519 | 258,519 | 258,519 | | 258,519 |
| 065 | 0603748N | LINK PLUMERIA | 403,909 | 403,909 | 403,909 | -7,400 | 396,509 |
| | | Insufficient budget justification | | | | [-7,400] | |
| 066 | 0603751N | RETRACT ELM | 63,434 | 63,434 | 63,434 | | 63,434 |
| 067 | 0603764N | LINK EVERGREEN | 184,110 | 184,110 | 184,110 | | 184,110 |
| 068 | 0603790N | NATO RESEARCH AND DEVELOPMENT | 7,697 | 7,697 | 7,697 | | 7,697 |
| 069 | 0603795N | LAND ATTACK TECHNOLOGY | 9,086 | 9,086 | 9,086 | | 9,086 |

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| | | | | | | | |
|-----|----------|---|---------|-----------|---------|-----------|---------|
| 070 | 0603851M | JOINT NON-LETHAL WEAPONS TESTING | 28,466 | 28,466 | 28,466 | | 28,466 |
| 071 | 0603860N | JOINT PRECISION APPROACH AND LANDING SYSTEMS—DEM/VAL | 51,341 | 51,341 | 51,341 | | 51,341 |
| 072 | 0603925N | DIRECTED ENERGY AND ELECTRIC WEAPON SYSTEMS | 118,169 | 118,169 | 118,169 | | 118,169 |
| 073 | 0604014N | F/A –18 INFRARED SEARCH AND TRACK (IRST) | 113,456 | 112,456 | 113,456 | -1,000 | 112,456 |
| | | Program delay | | [-1,000] | | [-1,000] | |
| 074 | 0604027N | DIGITAL WARFARE OFFICE | 50,120 | 50,120 | 50,120 | -25,000 | 25,120 |
| | | Artificial intelligence development operations unjustified growth ... | | | | [-10,000] | |
| | | Program decrease | | | | [-15,000] | |
| 075 | 0604028N | SMALL AND MEDIUM UNMANNED UNDERSEA VEHICLES | 32,527 | 32,527 | 32,527 | | 32,527 |
| 076 | 0604029N | UNMANNED UNDERSEA VEHICLE CORE TECHNOLOGIES | 54,376 | 54,376 | 54,376 | | 54,376 |
| 077 | 0604030N | RAPID PROTOTYPING, EXPERIMENTATION AND DEMONSTRATION. | 36,197 | 36,197 | 36,197 | | 36,197 |
| 078 | 0604031N | LARGE UNMANNED UNDERSEA VEHICLES | 68,310 | 59,810 | 68,310 | | 68,310 |
| | | Early to need | | [-8,500] | | | |
| 079 | 0604112N | GERALD R. FORD CLASS NUCLEAR AIRCRAFT CARRIER (CVN 78—80) | 121,310 | 121,310 | 121,310 | -9,000 | 112,310 |
| | | Integrated digital shipbuilding insufficient budget justification | | | | [-9,000] | |
| 080 | 0604126N | LITTORAL AIRBORNE MCM | 17,248 | 17,248 | 17,248 | | 17,248 |
| 081 | 0604127N | SURFACE MINE COUNTERMEASURES | 18,735 | 18,735 | 18,735 | | 18,735 |
| 082 | 0604272N | TACTICAL AIR DIRECTIONAL INFRARED COUNTERMEASURES (TADIRCM) .. | 68,346 | 58,346 | 68,346 | -9,897 | 58,449 |
| | | Excess to need | | [-10,000] | | [-9,897] | |
| 084 | 0604289M | NEXT GENERATION LOGISTICS | 4,420 | 4,420 | 13,420 | 9,000 | 13,420 |
| | | Additive manufacturing logistics software pilot | | | [9,000] | [9,000] | |
| 085 | 0604320M | RAPID TECHNOLOGY CAPABILITY PROTOTYPE | 4,558 | 4,558 | 4,558 | | 4,558 |
| 086 | 0604454N | LX (R) | 12,500 | 12,500 | 12,500 | | 12,500 |
| 087 | 0604536N | ADVANCED UNDERSEA PROTOTYPING | 181,967 | 174,437 | 181,967 | | 181,967 |
| | | ORCA XLUUV prior year carryover | | [-7,530] | | | |
| 088 | 0604636N | COUNTER UNMANNED AIRCRAFT SYSTEMS (C-UAS) | 5,500 | 5,500 | 5,500 | | 5,500 |
| 089 | 0604659N | PRECISION STRIKE WEAPONS DEVELOPMENT PROGRAM | 718,148 | 638,148 | 723,148 | -30,000 | 688,148 |
| | | Excess growth | | [-80,000] | | [-30,000] | |
| | | Increase for SLCM-N AOA | | | [5,000] | | |
| 090 | 0604707N | SPACE AND ELECTRONIC WARFARE (SEW) ARCHITECTURE/ENGINEERING SUPPORT. | 5,263 | 5,263 | 5,263 | | 5,263 |
| 091 | 0604786N | OFFENSIVE ANTI-SURFACE WARFARE WEAPON DEVELOPMENT | 65,419 | 65,419 | 65,419 | | 65,419 |

| SEC. 4201. RESEARCH, DEVELOPMENT, TEST, AND EVALUATION (In Thousands of Dollars) | | | | | | | | |
|---|-----------------|--|------------------|------------------|-------------------|-------------------|-----------------------|--|
| Line | Program Element | Item | FY 2020 Request | House Authorized | Senate Authorized | Conference Change | Conference Authorized | |
| 092 | 0303354N | ASW SYSTEMS DEVELOPMENT—MIP | 9,991 | 9,991 | 9,991 | | 9,991 | |
| 093 | 0304240M | ADVANCED TACTICAL UNMANNED AIRCRAFT SYSTEM | 21,157 | 39,657 | 21,157 | 18,500 | 39,657 | |
| | | KMAX Large Unmanned Logistics System USMC unfunded priority | | [18,500] | | [18,500] | | |
| 095 | 0304270N | ELECTRONIC WARFARE DEVELOPMENT—MIP | 609 | 609 | 609 | | 609 | |
| | | SUBTOTAL ADVANCED COMPONENT DEVELOPMENT & PROTOTYPES | 5,559,062 | 5,204,732 | 5,275,962 | -399,182 | 5,159,880 | |
| SYSTEM DEVELOPMENT & DEMONSTRATION | | | | | | | | |
| 096 | 0603208N | TRAINING SYSTEM AIRCRAFT | 15,514 | 15,514 | 15,514 | | 15,514 | |
| 097 | 0604212N | OTHER HELO DEVELOPMENT | 28,835 | 28,835 | 28,835 | | 28,835 | |
| 098 | 0604214M | AV-8B AIRCRAFT—ENG DEV | 27,441 | 27,441 | 27,441 | | 27,441 | |
| 100 | 0604215N | STANDARDS DEVELOPMENT | 3,642 | 3,642 | 3,642 | | 3,642 | |
| 101 | 0604216N | MULTI-MISSION HELICOPTER UPGRADE DEVELOPMENT | 19,196 | 19,196 | 19,196 | | 19,196 | |
| 104 | 0604230N | WARFARE SUPPORT SYSTEM | 8,601 | 8,601 | 8,601 | | 8,601 | |
| 105 | 0604231N | TACTICAL COMMAND SYSTEM | 77,232 | 77,232 | 77,232 | | 77,232 | |
| 106 | 0604234N | ADVANCED HAWKEYE | 232,752 | 232,752 | 232,752 | | 232,752 | |
| 107 | 0604245M | H-1 UPGRADES | 65,359 | 64,859 | 65,359 | | 65,359 | |
| | | Support cost growth | | [-500] | | | | |
| 109 | 0604261N | ACOUSTIC SEARCH SENSORS | 47,013 | 47,013 | 47,013 | | 47,013 | |
| 110 | 0604262N | V-22A | 185,105 | 172,105 | 190,605 | 5,000 | 190,105 | |
| | | Excess to need | | [-13,000] | | | | |
| | | Increase reliability and reduce vibrations of V-22 nacelles | | | [5,500] | [5,000] | | |
| 111 | 0604264N | AIR CREW SYSTEMS DEVELOPMENT | 21,172 | 21,172 | 21,172 | | 21,172 | |
| 112 | 0604269N | EA-18 | 143,585 | 123,585 | 143,585 | -10,000 | 133,585 | |
| | | Unjustified cost growth | | [-20,000] | | [-10,000] | | |
| 113 | 0604270N | ELECTRONIC WARFARE DEVELOPMENT | 116,811 | 109,651 | 116,811 | -7,160 | 109,651 | |
| | | Unjustified request | | [-7,160] | | [-7,160] | | |
| 114 | 0604273M | EXECUTIVE HELO DEVELOPMENT | 187,436 | 187,436 | 187,436 | | 187,436 | |

| | | | | | | | |
|-----|----------|--|---------|-----------|----------|-----------|---------|
| 116 | 0604274N | NEXT GENERATION JAMMER (NGJ) | 524,261 | 443,261 | 524,261 | -76,000 | 448,261 |
| | | Underexecution | | [-81,000] | | [-76,000] | |
| 117 | 0604280N | JOINT TACTICAL RADIO SYSTEM—NAVY (JTRS-NAVY) | 192,345 | 190,845 | 192,345 | -1,500 | 190,845 |
| | | Early to need | | [-1,500] | | [-1,500] | |
| 118 | 0604282N | NEXT GENERATION JAMMER (NGJ) INCREMENT II | 111,068 | 111,068 | 111,068 | -20,146 | 90,922 |
| | | Program reduction | | | | [-20,146] | |
| 119 | 0604307N | SURFACE COMBATANT COMBAT SYSTEM ENGINEERING | 415,625 | 415,625 | 415,625 | -1,941 | 413,684 |
| | | Aegis development support studies and analysis early to need | | | | [-1,941] | |
| 120 | 0604311N | LPD-17 CLASS SYSTEMS INTEGRATION | 640 | 640 | 640 | | 640 |
| 121 | 0604329N | SMALL DIAMETER BOMB (SDB) | 50,096 | 50,096 | 50,096 | | 50,096 |
| 122 | 0604366N | STANDARD MISSILE IMPROVEMENTS | 232,391 | 232,391 | 232,391 | | 232,391 |
| 123 | 0604373N | AIRBORNE MCM | 10,916 | 10,916 | 10,916 | | 10,916 |
| 124 | 0604378N | NAVAL INTEGRATED FIRE CONTROL—COUNTER AIR SYSTEMS ENGINEERING. | 33,379 | 33,379 | 33,379 | | 33,379 |
| 125 | 0604501N | ADVANCED ABOVE WATER SENSORS | 34,554 | 34,554 | 34,554 | | 34,554 |
| 126 | 0604503N | SSN-688 AND TRIDENT MODERNIZATION | 84,663 | 84,663 | 84,663 | | 84,663 |
| 127 | 0604504N | AIR CONTROL | 44,923 | 44,923 | 44,923 | | 44,923 |
| 128 | 0604512N | SHIPBOARD AVIATION SYSTEMS | 10,632 | 10,632 | 10,632 | | 10,632 |
| 129 | 0604518N | COMBAT INFORMATION CENTER CONVERSION | 16,094 | 16,094 | 16,094 | | 16,094 |
| 130 | 0604522N | AIR AND MISSILE DEFENSE RADAR (AMDR) SYSTEM | 55,349 | 55,349 | 55,349 | -3,000 | 52,349 |
| | | Engineering changes testing and evaluation early to need | | | | [-3,000] | |
| 131 | 0604530N | ADVANCED ARRESTING GEAR (AAG) | 123,490 | 123,490 | 123,490 | | 123,490 |
| 132 | 0604558N | NEW DESIGN SSN | 121,010 | 121,010 | 121,010 | 100,000 | 221,010 |
| | | Accelerate capability development | | | | [100,000] | |
| 133 | 0604562N | SUBMARINE TACTICAL WARFARE SYSTEM | 62,426 | 62,426 | 62,426 | | 62,426 |
| 134 | 0604567N | SHIP CONTRACT DESIGN/ LIVE FIRE T&E | 46,809 | 56,809 | 46,809 | | 46,809 |
| | | Program increase | | [10,000] | | | |
| 135 | 0604574N | NAVY TACTICAL COMPUTER RESOURCES | 3,692 | 3,692 | 3,692 | | 3,692 |
| 137 | 0604601N | MINE DEVELOPMENT | 28,964 | 28,964 | 100,264 | | 28,964 |
| | | UPL Quickstrike JDAM ER | | | [71,300] | | |
| 138 | 0604610N | LIGHTWEIGHT TORPEDO DEVELOPMENT | 148,349 | 127,349 | 148,349 | -32,808 | 115,541 |
| | | Excess to need | | [-21,000] | | [-32,808] | |

SEC. 4201. RESEARCH, DEVELOPMENT, TEST, AND EVALUATION
(In Thousands of Dollars)

| Line | Program Element | Item | FY 2020 Request | House Authorized | Senate Authorized | Conference Change | Conference Authorized |
|------|-----------------|--|-----------------|------------------|-------------------|-------------------|-----------------------|
| 139 | 0604654N | JOINT SERVICE EXPLOSIVE ORDNANCE DEVELOPMENT | 8,237 | 8,237 | 8,237 | | 8,237 |
| 140 | 0604657M | USMC GROUND COMBAT/SUPPORTING ARMS SYSTEMS—ENG DEV | 22,000 | 22,000 | 22,000 | | 22,000 |
| 141 | 0604703N | PERSONNEL, TRAINING, SIMULATION, AND HUMAN FACTORS | 5,500 | 5,500 | 5,500 | | 5,500 |
| 142 | 0604727N | JOINT STANDOFF WEAPON SYSTEMS | 18,725 | 16,225 | 18,725 | -2,500 | 16,225 |
| | | Excess to need | | [-2,500] | | [-2,500] | |
| 143 | 0604755N | SHIP SELF DEFENSE (DETECT & CONTROL) | 192,603 | 192,603 | 192,603 | -12,518 | 180,085 |
| | | Project 2178 prior year carryover | | | | [-12,518] | |
| 144 | 0604756N | SHIP SELF DEFENSE (ENGAGE: HARD KILL) | 137,268 | 137,268 | 137,268 | -15,638 | 121,630 |
| | | Project 2070 excess test assets | | | | [-15,638] | |
| 145 | 0604757N | SHIP SELF DEFENSE (ENGAGE: SOFT KILL/EW) | 97,363 | 97,363 | 97,363 | | 97,363 |
| 146 | 0604761N | INTELLIGENCE ENGINEERING | 26,710 | 26,710 | 26,710 | | 26,710 |
| 147 | 0604771N | MEDICAL DEVELOPMENT | 8,181 | 13,181 | 8,181 | | 8,181 |
| | | Enterotoxigenic escherichia coli research | | [5,000] | | | |
| 148 | 0604777N | NAVIGATION/ID SYSTEM | 40,755 | 40,755 | 40,755 | | 40,755 |
| 149 | 0604800M | JOINT STRIKE FIGHTER (JSF)—EMD | 1,710 | 1,710 | 1,710 | | 1,710 |
| 150 | 0604800M | JOINT STRIKE FIGHTER (JSF)—EMD | 1,490 | 1,490 | 1,490 | | 1,490 |
| 153 | 0605013M | INFORMATION TECHNOLOGY DEVELOPMENT | 1,494 | 1,494 | 1,494 | | 1,494 |
| 154 | 0605013N | INFORMATION TECHNOLOGY DEVELOPMENT | 384,162 | 370,662 | 328,762 | -115,798 | 268,364 |
| | | eProcurement program duplication | | | [-55,400] | | |
| | | Program decrease | | | | [-36,000] | |
| | | Unjustified growth over FY19 projection | | [-13,500] | | [-79,798] | |
| 155 | 0605024N | ANTI-TAMPER TECHNOLOGY SUPPORT | 4,882 | 4,882 | 4,882 | | 4,882 |
| 156 | 0605212M | CH-53K RDTE | 516,955 | 496,955 | 506,955 | | 516,955 |
| | | Early to need | | | [-10,000] | | |
| | | Excess to need | | [-20,000] | | | |
| 158 | 0605215N | MISSION PLANNING | 75,886 | 75,886 | 75,886 | | 75,886 |
| 159 | 0605217N | COMMON AVIONICS | 43,187 | 43,187 | 43,187 | | 43,187 |

| | | | | | | | |
|-----|----------|---|------------------|------------------|------------------|-----------------|------------------|
| 160 | 0605220N | SHIP TO SHORE CONNECTOR (SSC) | 4,909 | 4,909 | 19,909 | 15,000 | 19,909 |
| | | Expand development and use of composite materials | | | [15,000] | [15,000] | |
| 161 | 0605327N | T-AO 205 CLASS | 1,682 | 1,682 | 1,682 | | 1,682 |
| 162 | 0605414N | UNMANNED CARRIER AVIATION (UCA) | 671,258 | 671,258 | 671,258 | -14,160 | 657,098 |
| | | UMCS excess to need | | | | [-14,160] | |
| 163 | 0605450M | JOINT AIR-TO-GROUND MISSILE (JAGM) | 18,393 | 12,393 | 18,393 | | 18,393 |
| | | Schedule delays | | [-6,000] | | | |
| 165 | 0605500N | MULTI-MISSION MARITIME AIRCRAFT (MMA) | 21,472 | 21,472 | 21,472 | | 21,472 |
| 166 | 0605504N | MULTI-MISSION MARITIME (MMA) INCREMENT III | 177,234 | 177,234 | 177,234 | | 177,234 |
| 167 | 0605611M | MARINE CORPS ASSAULT VEHICLES SYSTEM DEVELOPMENT & DEMONSTRATION. | 77,322 | 69,121 | 77,322 | -8,201 | 69,121 |
| | | Early to need | | [-2,201] | | [-2,201] | |
| | | Excess growth | | [-6,000] | | [-6,000] | |
| 168 | 0605813M | JOINT LIGHT TACTICAL VEHICLE (JLTV) SYSTEM DEVELOPMENT & DEMONSTRATION. | 2,105 | 2,105 | 2,105 | | 2,105 |
| 169 | 0204202N | DDG-1000 | 111,435 | 111,435 | 111,435 | | 111,435 |
| 172 | 0304785N | TACTICAL CRYPTOLOGIC SYSTEMS | 101,339 | 101,339 | 101,339 | | 101,339 |
| 173 | 0306250M | CYBER OPERATIONS TECHNOLOGY DEVELOPMENT | 26,406 | 26,406 | 26,406 | | 26,406 |
| | | SUBTOTAL SYSTEM DEVELOPMENT & DEMONSTRATION | 6,332,033 | 6,152,672 | 6,358,433 | -201,370 | 6,130,663 |
| | | MANAGEMENT SUPPORT | | | | | |
| 174 | 0604256N | THREAT SIMULATOR DEVELOPMENT | 66,678 | 66,678 | 66,678 | | 66,678 |
| 175 | 0604258N | TARGET SYSTEMS DEVELOPMENT | 12,027 | 12,027 | 12,027 | | 12,027 |
| 176 | 0604759N | MAJOR T&E INVESTMENT | 85,348 | 85,348 | 85,348 | | 85,348 |
| 178 | 0605152N | STUDIES AND ANALYSIS SUPPORT—NAVY | 3,908 | 3,908 | 3,908 | | 3,908 |
| 179 | 0605154N | CENTER FOR NAVAL ANALYSES | 47,669 | 47,669 | 47,669 | | 47,669 |
| 180 | 0605285N | NEXT GENERATION FIGHTER | 20,698 | 20,698 | 20,698 | | 20,698 |
| 182 | 0605804N | TECHNICAL INFORMATION SERVICES | 988 | 988 | 988 | | 988 |
| 183 | 0605853N | MANAGEMENT, TECHNICAL & INTERNATIONAL SUPPORT | 102,401 | 102,401 | 102,401 | | 102,401 |
| 184 | 0605856N | STRATEGIC TECHNICAL SUPPORT | 3,742 | 3,742 | 3,742 | | 3,742 |
| 186 | 0605863N | RDT&E SHIP AND AIRCRAFT SUPPORT | 93,872 | 93,872 | 93,872 | | 93,872 |
| 187 | 0605864N | TEST AND EVALUATION SUPPORT | 394,020 | 394,020 | 394,020 | | 394,020 |

| SEC. 4201. RESEARCH, DEVELOPMENT, TEST, AND EVALUATION (In Thousands of Dollars) | | | | | | | | |
|---|-----------------|--|-----------------|------------------|-------------------|-------------------|-----------------------|--|
| Line | Program Element | Item | FY 2020 Request | House Authorized | Senate Authorized | Conference Change | Conference Authorized | |
| 188 | 0605865N | OPERATIONAL TEST AND EVALUATION CAPABILITY | 25,145 | 25,145 | 25,145 | | 25,145 | |
| 189 | 0605866N | NAVY SPACE AND ELECTRONIC WARFARE (SEW) SUPPORT | 15,773 | 15,773 | 15,773 | | 15,773 | |
| 190 | 0605867N | SEW SURVEILLANCE/RECONNAISSANCE SUPPORT | 8,402 | 8,402 | 8,402 | | 8,402 | |
| 191 | 0605873M | MARINE CORPS PROGRAM WIDE SUPPORT | 37,265 | 29,265 | 37,265 | -8,000 | 29,265 | |
| | | Unjustified growth | | [-8,000] | | [-8,000] | | |
| 192 | 0605898N | MANAGEMENT HQ—R&D | 39,673 | 39,673 | 39,673 | | 39,673 | |
| 193 | 0606355N | WARFARE INNOVATION MANAGEMENT | 28,750 | 28,750 | 28,750 | | 28,750 | |
| 196 | 0305327N | INSIDER THREAT | 2,645 | 2,645 | 2,645 | | 2,645 | |
| 197 | 0902498N | MANAGEMENT HEADQUARTERS (DEPARTMENTAL SUPPORT ACTIVITIES) | 1,460 | 1,460 | 1,460 | | 1,460 | |
| | | SUBTOTAL MANAGEMENT SUPPORT | 990,464 | 982,464 | 990,464 | -8,000 | 982,464 | |
| OPERATIONAL SYSTEMS DEVELOPMENT | | | | | | | | |
| UNDISTRIBUTED | | | | | | | | |
| 202 | 0604227N | HARPOON MODIFICATIONS | 2,302 | 2,302 | 2,302 | | 2,302 | |
| 203 | 0604840M | F-35 C2D2 | 422,881 | 422,881 | 422,881 | | 422,881 | |
| 204 | 0604840N | F-35 C2D2 | 383,741 | 383,741 | 383,741 | | 383,741 | |
| 205 | 0607658N | COOPERATIVE ENGAGEMENT CAPABILITY (CEC) | 127,924 | 127,924 | 127,924 | | 127,924 | |
| 207 | 0101221N | STRATEGIC SUB & WEAPONS SYSTEM SUPPORT | 157,676 | 157,676 | 157,676 | -44,184 | 113,492 | |
| | | D5LE2 unjustified request | | | | [-44,184] | | |
| 208 | 0101224N | SSBN SECURITY TECHNOLOGY PROGRAM | 43,354 | 43,354 | 43,354 | | 43,354 | |
| 209 | 0101226N | SUBMARINE ACOUSTIC WARFARE DEVELOPMENT | 6,815 | 6,815 | 6,815 | | 6,815 | |
| 210 | 0101402N | NAVY STRATEGIC COMMUNICATIONS | 31,174 | 31,174 | 31,174 | | 31,174 | |
| 211 | 0204136N | F/A-18 SQUADRONS | 213,715 | 216,215 | 213,715 | -5,500 | 208,215 | |
| | | Block III support prior year carryover | | [-7,500] | | [-7,500] | | |
| | | Jet noise reduction research | | [10,000] | | [2,000] | | |
| 213 | 0204228N | SURFACE SUPPORT | 36,389 | 45,389 | 36,389 | | 36,389 | |
| | | WSN-12 Technology Insertion | | [9,000] | | | | |

November 23, 2019 (1:06 a.m.)

| | | | | | | | |
|-----|----------|---|---------|-----------|----------|-----------|---------|
| 214 | 0204229N | TOMAHAWK AND TOMAHAWK MISSION PLANNING CENTER (TMPC) | 320,134 | 320,134 | 320,134 | -33,335 | 286,799 |
| | | JMEWS schedule delays | | | | [-12,098] | |
| | | Maritime strike schedule delays | | | | [-21,237] | |
| 215 | 0204311N | INTEGRATED SURVEILLANCE SYSTEM | 88,382 | 88,382 | 103,382 | 15,000 | 103,382 |
| | | Additional TRAPS units | | | [15,000] | [15,000] | |
| 216 | 0204313N | SHIP-TOWED ARRAY SURVEILLANCE SYSTEMS | 14,449 | 14,449 | 14,449 | | 14,449 |
| 217 | 0204413N | AMPHIBIOUS TACTICAL SUPPORT UNITS (DISPLACEMENT CRAFT) | 6,931 | 6,931 | 6,931 | | 6,931 |
| 218 | 0204460M | GROUND/AIR TASK ORIENTED RADAR (G/ATOR) | 23,891 | 23,891 | 23,891 | | 23,891 |
| 219 | 0204571N | CONSOLIDATED TRAINING SYSTEMS DEVELOPMENT | 129,873 | 129,873 | 129,873 | | 129,873 |
| 221 | 0204575N | ELECTRONIC WARFARE (EW) READINESS SUPPORT | 82,325 | 62,325 | 82,325 | -19,891 | 62,434 |
| | | Prior year carryover | | [-20,000] | | [-19,891] | |
| 222 | 0205601N | HARM IMPROVEMENT | 138,431 | 132,431 | 138,431 | -6,060 | 132,371 |
| | | AARGM ER test schedule discrepancy | | [-6,000] | | [-6,060] | |
| 224 | 0205620N | SURFACE ASW COMBAT SYSTEM INTEGRATION | 29,572 | 29,572 | 29,572 | | 29,572 |
| 225 | 0205632N | MK-48 ADCAP | 85,973 | 85,973 | 85,973 | | 85,973 |
| 226 | 0205633N | AVIATION IMPROVEMENTS | 125,461 | 125,461 | 125,461 | | 125,461 |
| 227 | 0205675N | OPERATIONAL NUCLEAR POWER SYSTEMS | 106,192 | 106,192 | 106,192 | | 106,192 |
| 228 | 0206313M | MARINE CORPS COMMUNICATIONS SYSTEMS | 143,317 | 134,317 | 143,317 | -9,000 | 134,317 |
| | | Program delay | | [-9,000] | | [-9,000] | |
| 229 | 0206335M | COMMON AVIATION COMMAND AND CONTROL SYSTEM (CAC2S) | 4,489 | 4,489 | 4,489 | | 4,489 |
| 230 | 0206623M | MARINE CORPS GROUND COMBAT/SUPPORTING ARMS SYSTEMS | 51,788 | 51,788 | 51,788 | | 51,788 |
| 231 | 0206624M | MARINE CORPS COMBAT SERVICES SUPPORT | 37,761 | 37,761 | 42,761 | 5,000 | 42,761 |
| | | Airborne Power Generation Tech Development | | | [5,000] | [5,000] | |
| 232 | 0206625M | USMC INTELLIGENCE/ELECTRONIC WARFARE SYSTEMS (MIP) | 21,458 | 21,458 | 21,458 | | 21,458 |
| 233 | 0206629M | AMPHIBIOUS ASSAULT VEHICLE | 5,476 | 5,476 | 5,476 | | 5,476 |
| 234 | 0207161N | TACTICAL AIM MISSILES | 19,488 | 19,488 | 19,488 | | 19,488 |
| 235 | 0207163N | ADVANCED MEDIUM RANGE AIR-TO-AIR MISSILE (AMRAAM) | 39,029 | 34,529 | 39,029 | | 39,029 |
| | | Prior year carryover | | [-4,500] | | | |
| 239 | 0303109N | SATELLITE COMMUNICATIONS (SPACE) | 34,344 | 34,344 | 34,344 | | 34,344 |
| 240 | 0303138N | CONSOLIDATED AFLOAT NETWORK ENTERPRISE SERVICES (CANES) | 22,873 | 22,873 | 22,873 | | 22,873 |
| 241 | 0303140N | INFORMATION SYSTEMS SECURITY PROGRAM | 41,853 | 41,853 | 41,853 | | 41,853 |
| 243 | 0305192N | MILITARY INTELLIGENCE PROGRAM (MIP) ACTIVITIES | 8,913 | 8,913 | 8,913 | | 8,913 |

| SEC. 4201. RESEARCH, DEVELOPMENT, TEST, AND EVALUATION (In Thousands of Dollars) | | | | | | | | |
|---|-----------------|---|-------------------|-------------------|-------------------|-------------------|-----------------------|--|
| Line | Program Element | Item | FY 2020 Request | House Authorized | Senate Authorized | Conference Change | Conference Authorized | |
| 244 | 0305204N | TACTICAL UNMANNED AERIAL VEHICLES | 9,451 | 9,451 | 9,451 | | 9,451 | |
| 245 | 0305205N | UAS INTEGRATION AND INTEROPERABILITY | 42,315 | 42,315 | 42,315 | | 42,315 | |
| 246 | 0305208M | DISTRIBUTED COMMON GROUND/SURFACE SYSTEMS | 22,042 | 22,042 | 22,042 | | 22,042 | |
| 248 | 0305220N | MQ-4C TRITON | 11,784 | 11,784 | 11,784 | | 11,784 | |
| 249 | 0305231N | MQ-8 UAV | 29,618 | 29,618 | 29,618 | | 29,618 | |
| 250 | 0305232M | RQ-11 UAV | 509 | 509 | 509 | | 509 | |
| 251 | 0305234N | SMALL (LEVEL 0) TACTICAL UAS (STUASLO) | 11,545 | 11,545 | 11,545 | | 11,545 | |
| 252 | 0305239M | RQ-21A | 10,914 | 10,914 | 10,914 | | 10,914 | |
| 253 | 0305241N | MULTI-INTELLIGENCE SENSOR DEVELOPMENT | 70,612 | 70,612 | 70,612 | | 70,612 | |
| 254 | 0305242M | UNMANNED AERIAL SYSTEMS (UAS) PAYLOADS (MIP) | 3,704 | 3,704 | 3,704 | | 3,704 | |
| 255 | 0305421N | RQ-4 MODERNIZATION | 202,346 | 202,346 | 202,346 | -16,900 | 185,446 | |
| | | IFC 5.0 concurrency | | | | [-16,900] | | |
| 256 | 0308601N | MODELING AND SIMULATION SUPPORT | 7,119 | 7,119 | 7,119 | | 7,119 | |
| 257 | 0702207N | DEPOT MAINTENANCE (NON-IF) | 38,182 | 38,182 | 38,182 | | 38,182 | |
| 258 | 0708730N | MARITIME TECHNOLOGY (MARITECH) | 6,779 | 6,779 | 6,779 | | 6,779 | |
| 259 | 1203109N | SATELLITE COMMUNICATIONS (SPACE) | 15,868 | 15,868 | 15,868 | | 15,868 | |
| 259A | 9999999999 | CLASSIFIED PROGRAMS | 1,613,137 | 1,613,137 | 1,613,137 | | 1,613,137 | |
| | | SUBTOTAL OPERATIONAL SYSTEMS DEVELOPMENT | 5,104,299 | 5,076,299 | 5,124,299 | -114,870 | 4,989,429 | |
| | | SUBTOTAL UNDISTRIBUTED | | -28,000 | 20,000 | -114,870 | -114,870 | |
| | | TOTAL RESEARCH, DEVELOPMENT, TEST & EVAL, NAVY | 20,270,499 | 19,868,808 | 20,066,799 | -595,895 | 19,674,604 | |
| | | RESEARCH, DEVELOPMENT, TEST & EVAL, AF | | | | | | |
| | | BASIC RESEARCH | | | | | | |
| 001 | 0601102F | DEFENSE RESEARCH SCIENCES | 356,107 | 356,107 | 356,107 | | 356,107 | |
| 002 | 0601103F | UNIVERSITY RESEARCH INITIATIVES | 158,859 | 163,859 | 158,859 | 5,000 | 163,859 | |
| | | Program increase | | [5,000] | | [5,000] | | |

| | | | | | | | |
|-----|----------|---|----------------|----------------|----------------|--------------|----------------|
| 003 | 0601108F | HIGH ENERGY LASER RESEARCH INITIATIVES | 14,795 | 14,795 | 14,795 | | 14,795 |
| | | SUBTOTAL BASIC RESEARCH | 529,761 | 534,761 | 529,761 | 5,000 | 534,761 |
| | | APPLIED RESEARCH | | | | | |
| 004 | 0602102F | MATERIALS | 128,851 | 143,851 | 122,851 | 24,000 | 152,851 |
| | | Advanced materials high energy x-ray | | | [4,000] | [4,000] | |
| | | Advanced materials manufacturing flexible biosensors | | [5,000] | | [5,000] | |
| | | Advanced thermal protection systems | | [5,000] | | [5,000] | |
| | | Duplicative material research | | | [-10,000] | | |
| | | Program increase | | [5,000] | | [10,000] | |
| 005 | 0602201F | AEROSPACE VEHICLE TECHNOLOGIES | 147,724 | 147,724 | 137,724 | | 147,724 |
| | | Reduce program growth | | | [-10,000] | | |
| 006 | 0602202F | HUMAN EFFECTIVENESS APPLIED RESEARCH | 131,795 | 131,795 | 131,795 | | 131,795 |
| 007 | 0602203F | AEROSPACE PROPULSION | 198,775 | 213,775 | 198,775 | 10,000 | 208,775 |
| | | Educational partnership agreements for aerospace propulsion | | [10,000] | | | |
| | | Educational partnership agreements for next generation liquid propulsion. | | | | [5,000] | |
| | | Electrical power/thermal management systems | | [5,000] | | [5,000] | |
| 008 | 0602204F | AEROSPACE SENSORS | 202,912 | 202,912 | 202,912 | | 202,912 |
| 010 | 0602298F | SCIENCE AND TECHNOLOGY MANAGEMENT— MAJOR HEADQUARTERS ACTIVITIES. | 7,968 | 7,968 | 7,968 | | 7,968 |
| 012 | 0602602F | CONVENTIONAL MUNITIONS | 142,772 | 142,772 | 142,772 | | 142,772 |
| 013 | 0602605F | DIRECTED ENERGY TECHNOLOGY | 124,379 | 124,379 | 124,379 | | 124,379 |
| 014 | 0602788F | DOMINANT INFORMATION SCIENCES AND METHODS | 181,562 | 196,562 | 199,062 | 18,000 | 199,562 |
| | | Counter UAS cyber | | | [2,500] | | |
| | | Cyberspace dominance technology research | | | [10,000] | | |
| | | Detection and countering of adversarial UAS | | [5,000] | | [5,000] | |
| | | Quantum Information Science Innovation Center | | [10,000] | | [8,000] | |
| | | Quantum science | | | [5,000] | [5,000] | |
| 015 | 0602890F | HIGH ENERGY LASER RESEARCH | 44,221 | 44,221 | 49,221 | | 44,221 |
| | | High power microwave research | | | [5,000] | | |
| 016 | 1206601F | SPACE TECHNOLOGY | 124,667 | 124,667 | 124,667 | | 124,667 |

| SEC. 4201. RESEARCH, DEVELOPMENT, TEST, AND EVALUATION (In Thousands of Dollars) | | | | | | | |
|---|-----------------|---|------------------|------------------|-------------------|-------------------|-----------------------|
| Line | Program Element | Item | FY 2020 Request | House Authorized | Senate Authorized | Conference Change | Conference Authorized |
| SUBTOTAL APPLIED RESEARCH | | | 1,435,626 | 1,480,626 | 1,442,126 | 52,000 | 1,487,626 |
| ADVANCED TECHNOLOGY DEVELOPMENT | | | | | | | |
| 017 | 0603112F | ADVANCED MATERIALS FOR WEAPON SYSTEMS | 36,586 | 41,586 | 38,586 | 5,000 | 41,586 |
| | | Metals affordability initiative | | [5,000] | [2,000] | [5,000] | |
| 018 | 0603199F | SUSTAINMENT SCIENCE AND TECHNOLOGY (S&T) | 16,249 | 16,249 | 16,249 | | 16,249 |
| 019 | 0603203F | ADVANCED AEROSPACE SENSORS | 38,292 | 38,292 | 38,292 | | 38,292 |
| 020 | 0603211F | AEROSPACE TECHNOLOGY DEV/DEMO | 102,949 | 122,949 | 307,949 | 100,000 | 202,949 |
| | | Accelerate air breathing hypersonic program | | | [75,000] | | |
| | | Active winglets development | | | [5,000] | | |
| | | Advanced Personnel Recovery | | | [25,000] | | |
| | | High speed vertical lift demonstration | | [5,000] | | | |
| | | LCAAT | | | [100,000] | | |
| | | Low cost attritable aircraft technology | | [15,000] | | [100,000] | |
| 021 | 0603216F | AEROSPACE PROPULSION AND POWER TECHNOLOGY | 113,973 | 118,973 | 123,973 | 15,000 | 128,973 |
| | | Advanced turbine engine gas generator | | | [10,000] | [10,000] | |
| | | Electrical power systems | | [5,000] | | [5,000] | |
| 022 | 0603270F | ELECTRONIC COMBAT TECHNOLOGY | 48,408 | 48,408 | 38,408 | | 48,408 |
| | | Duplicative EW & PNT research | | | [-10,000] | | |
| 023 | 0603401F | ADVANCED SPACECRAFT TECHNOLOGY | 70,525 | 70,525 | 73,525 | 3,000 | 73,525 |
| | | Strategic radiation hardened microelectronic processors | | | [3,000] | [3,000] | |
| 024 | 0603444F | MAUI SPACE SURVEILLANCE SYSTEM (MSSS) | 11,878 | 11,878 | 11,878 | | 11,878 |
| 025 | 0603456F | HUMAN EFFECTIVENESS ADVANCED TECHNOLOGY DEVELOPMENT | 37,542 | 37,542 | 37,542 | | 37,542 |
| 026 | 0603601F | CONVENTIONAL WEAPONS TECHNOLOGY | 225,817 | 225,817 | 225,817 | | 225,817 |
| 027 | 0603605F | ADVANCED WEAPONS TECHNOLOGY | 37,404 | 37,404 | 37,404 | | 37,404 |
| 028 | 0603680F | MANUFACTURING TECHNOLOGY PROGRAM | 43,116 | 59,116 | 50,116 | 23,000 | 66,116 |
| | | Advanced materials and materials manufacturing | | | [7,000] | [7,000] | |

| | | | | | | | |
|-----|----------|--|----------------|----------------|------------------|----------------|----------------|
| | | Aerospace composites manufacturing | | [10,000] | | [10,000] | |
| | | Program increase | | [6,000] | | [6,000] | |
| 029 | 0603788F | BATTLESPACE KNOWLEDGE DEVELOPMENT AND DEMONSTRATION | 56,414 | 56,414 | 66,414 | | 56,414 |
| | | Cyber applied research | | | [10,000] | | |
| | | SUBTOTAL ADVANCED TECHNOLOGY DEVELOPMENT | 839,153 | 885,153 | 1,066,153 | 146,000 | 985,153 |
| | | ADVANCED COMPONENT DEVELOPMENT & PROTOTYPES | | | | | |
| 031 | 0603260F | INTELLIGENCE ADVANCED DEVELOPMENT | 5,672 | 5,672 | 5,672 | | 5,672 |
| 032 | 0603742F | COMBAT IDENTIFICATION TECHNOLOGY | 27,085 | 27,085 | 27,085 | | 27,085 |
| 033 | 0603790F | NATO RESEARCH AND DEVELOPMENT | 4,955 | 4,955 | 4,955 | | 4,955 |
| 034 | 0603851F | INTERCONTINENTAL BALLISTIC MISSILE—DEM/VAL | 44,109 | 44,109 | 44,109 | | 44,109 |
| 036 | 0604002F | AIR FORCE WEATHER SERVICES RESEARCH | 772 | 772 | 772 | | 772 |
| 037 | 0604004F | ADVANCED ENGINE DEVELOPMENT | 878,442 | 849,442 | 878,442 | | 878,442 |
| | | Unjustified budget growth | | [-29,000] | | | |
| 038 | 0604015F | LONG RANGE STRIKE—BOMBER | 3,003,899 | 3,003,899 | 3,003,899 | | 3,003,899 |
| 039 | 0604032F | DIRECTED ENERGY PROTOTYPING | 10,000 | 20,000 | 10,000 | 10,000 | 20,000 |
| | | High-value airborne asset protection | | [10,000] | | [10,000] | |
| 040 | 0604033F | HYPersonics PROTOTYPING | 576,000 | 536,000 | 576,000 | | 576,000 |
| | | Program concurrency | | [-40,000] | | | |
| 041 | 0604201F | PNT RESILIENCY, MODS, AND IMPROVEMENTS | 92,600 | 124,600 | 124,600 | 32,000 | 124,600 |
| | | Program increase | | [32,000] | | [32,000] | |
| | | UPL M-CODE acceleration | | | [32,000] | | |
| 042 | 0604257F | ADVANCED TECHNOLOGY AND SENSORS | 23,145 | 23,145 | 23,145 | | 23,145 |
| 043 | 0604288F | NATIONAL AIRBORNE OPS CENTER (NAOC) RECAP | 16,669 | 16,669 | 16,669 | | 16,669 |
| 044 | 0604317F | TECHNOLOGY TRANSFER | 23,614 | 23,614 | 23,614 | | 23,614 |
| 045 | 0604327F | HARD AND DEEPLY BURIED TARGET DEFEAT SYSTEM (HDBTDS) PRO-GRAM. | 113,121 | 113,121 | 113,121 | | 113,121 |
| 046 | 0604414F | CYBER RESILIENCY OF WEAPON SYSTEMS-ACS | 56,325 | 56,325 | 56,325 | | 56,325 |
| 047 | 0604776F | DEPLOYMENT & DISTRIBUTION ENTERPRISE R&D | 28,034 | 28,034 | 28,034 | | 28,034 |
| 048 | 0604858F | TECH TRANSITION PROGRAM | 128,476 | 128,476 | 134,476 | 6,000 | 134,476 |
| | | Rapid repair | | | [6,000] | [6,000] | |
| 049 | 0605230F | GROUND BASED STRATEGIC DETERRENT | 570,373 | 489,395 | 592,373 | -17,978 | 552,395 |

| SEC. 4201. RESEARCH, DEVELOPMENT, TEST, AND EVALUATION (In Thousands of Dollars) | | | | | | | |
|---|-----------------|--|-----------------|------------------|-------------------|-------------------|-----------------------|
| Line | Program Element | Item | FY 2020 Request | House Authorized | Senate Authorized | Conference Change | Conference Authorized |
| | | Program consolidation | | | [22,000] | | |
| | | Program reduction | | [-103,000] | | [-40,000] | |
| | | Technical adjustment for NC3 | | [22,022] | | [22,022] | |
| 050 | 0207100F | LIGHT ATTACK ARMED RECONNAISSANCE (LAAR) SQUADRONS | 35,000 | 35,000 | 85,000 | | 35,000 |
| | | Light attack experiment | | | [50,000] | | |
| 051 | 0207110F | NEXT GENERATION AIR DOMINANCE | 1,000,000 | 500,000 | 1,000,000 | -45,000 | 955,000 |
| | | Cost-risk associated with development profile | | [-500,000] | | [-45,000] | |
| 052 | 0207455F | THREE DIMENSIONAL LONG-RANGE RADAR (3DELRR) | 37,290 | 37,290 | 37,290 | | 37,290 |
| 053 | 0208099F | UNIFIED PLATFORM (UP) | 10,000 | 10,000 | 10,000 | | 10,000 |
| 054 | 0305236F | COMMON DATA LINK EXECUTIVE AGENT (CDL EA) | 36,910 | 36,910 | 36,910 | | 36,910 |
| 055 | 0305251F | CYBERSPACE OPERATIONS FORCES AND FORCE SUPPORT | 35,000 | 35,000 | 35,000 | | 35,000 |
| 056 | 0305601F | MISSION PARTNER ENVIRONMENTS | 8,550 | 8,550 | 8,550 | | 8,550 |
| 057 | 0306250F | CYBER OPERATIONS TECHNOLOGY DEVELOPMENT | 198,864 | 198,864 | 240,064 | 41,200 | 240,064 |
| | | Accelerate development of Cyber National Mission Force capabilities. | | | [13,600] | [13,600] | |
| | | ETERNALDARKNESS | | | [7,100] | [7,100] | |
| | | Joint Common Access Platform | | | [20,500] | [20,500] | |
| 058 | 0306415F | ENABLED CYBER ACTIVITIES | 16,632 | 16,632 | 16,632 | | 16,632 |
| 060 | 0901410F | CONTRACTING INFORMATION TECHNOLOGY SYSTEM | 20,830 | 20,830 | 20,830 | | 20,830 |
| 061 | 1203164F | NAVSTAR GLOBAL POSITIONING SYSTEM (USER EQUIPMENT) (SPACE) | 329,948 | 329,948 | 329,948 | | 329,948 |
| 062 | 1203710F | EO/IR WEATHER SYSTEMS | 101,222 | 101,222 | 101,222 | | 101,222 |
| 063 | 1206422F | WEATHER SYSTEM FOLLOW-ON | 225,660 | 205,660 | 225,660 | -20,000 | 205,660 |
| | | Unjustified growth | | [-20,000] | | [-20,000] | |
| 064 | 1206425F | SPACE SITUATION AWARENESS SYSTEMS | 29,776 | 29,776 | 29,776 | | 29,776 |
| 065 | 1206427F | SPACE SYSTEMS PROTOTYPE TRANSITIONS (SSPT) | 142,045 | 162,045 | 142,045 | | 142,045 |
| | | Accelerate Blackjack prototype demonstration and tech maturation | | [20,000] | | | |
| 067 | 1206438F | SPACE CONTROL TECHNOLOGY | 64,231 | 58,231 | 64,231 | -5,000 | 59,231 |

| | | | | | | | | | |
|-----|----------|--|------------------|------------------|------------------|--|--|--|------------------|
| | | Unjustified growth | | | | | | | |
| 068 | 1206730F | SPACE SECURITY AND DEFENSE PROGRAM | 56,385 | 56,385 | 56,385 | | | | 56,385 |
| 069 | 1206760F | PROTECTED TACTICAL ENTERPRISE SERVICE (PTES) | 105,003 | 105,003 | 95,003 | | | | 105,003 |
| | | Unjustified growth | | | | | | | |
| 070 | 1206761F | PROTECTED TACTICAL SERVICE (PTS) | 173,694 | 166,194 | 163,694 | | | | 163,694 |
| | | Unjustified growth | | | | | | | |
| 071 | 1206855F | EVOLVED STRATEGIC SATCOM (ESS) | 172,206 | 172,206 | 172,206 | | | | 172,206 |
| 072 | 1206857F | SPACE RAPID CAPABILITIES OFFICE | 33,742 | 30,742 | 33,742 | | | | 23,742 |
| | | Program decrease | | | | | | | |
| | | SUBTOTAL ADVANCED COMPONENT DEVELOPMENT & PROTOTYPES | 8,436,279 | 7,811,801 | 8,567,479 | | | | 8,417,501 |
| | | SYSTEM DEVELOPMENT & DEMONSTRATION | | | | | | | |
| 073 | 0604200F | FUTURE ADVANCED WEAPON ANALYSIS & PROGRAMS | 246,200 | 200 | 97,120 | | | | -246,200 |
| | | ERWn contract delay | | | | | | | |
| | | Excess to need | | | | | | | |
| | | Unjustified requirement | | | | | | | |
| 074 | 0604201F | PNT RESILIENCY, MODS, AND IMPROVEMENTS | 67,782 | 67,782 | 148,782 | | | | 148,782 |
| | | UPL M-Code Acceleration | | | | | | | |
| 075 | 0604222F | NUCLEAR WEAPONS SUPPORT | 4,406 | 4,406 | 4,406 | | | | 4,406 |
| 076 | 0604270F | ELECTRONIC WARFARE DEVELOPMENT | 2,066 | 2,066 | 2,066 | | | | 2,066 |
| 077 | 0604281F | TACTICAL DATA NETWORKS ENTERPRISE | 229,631 | 210,331 | 229,631 | | | | 210,331 |
| | | Prior-year carryover | | | | | | | |
| 078 | 0604287F | PHYSICAL SECURITY EQUIPMENT | 9,700 | 9,700 | 9,700 | | | | 9,700 |
| 079 | 0604329F | SMALL DIAMETER BOMB (SDB)—EMD | 31,241 | 41,241 | 31,241 | | | | 41,241 |
| | | Program efficiency initiative | | | | | | | |
| 080 | 0604429F | AIRBORNE ELECTRONIC ATTACK | 2 | 2 | 2 | | | | 2 |
| 081 | 0604602F | ARMAMENT/ORDNANCE DEVELOPMENT | 28,043 | 22,543 | 28,043 | | | | 28,043 |
| | | Unjustified requirement (JAGM-F) | | | | | | | |
| 082 | 0604604F | SUBMUNITIONS | 3,045 | 3,045 | 3,045 | | | | 3,045 |
| 083 | 0604617F | AGILE COMBAT SUPPORT | 19,944 | 19,944 | 19,944 | | | | 19,944 |
| 084 | 0604706F | LIFE SUPPORT SYSTEMS | 8,624 | 16,624 | 8,624 | | | | 8,624 |
| | | Next-gen ejection seat qualification | | | | | | | |

SEC. 4201. RESEARCH, DEVELOPMENT, TEST, AND EVALUATION
(In Thousands of Dollars)

| Line | Program Element | Item | FY 2020 Request | House Authorized | Senate Authorized | Conference Change | Conference Authorized |
|------|-----------------|---|-----------------|------------------|-------------------|-------------------|-----------------------|
| 085 | 0604735F | COMBAT TRAINING RANGES | 37,365 | 37,365 | 37,365 | | 37,365 |
| 086 | 0604800F | F-35—EMD | 7,628 | 7,628 | 7,628 | | 7,628 |
| 087 | 0604932F | LONG RANGE STANDOFF WEAPON | 712,539 | 712,539 | 712,539 | | 712,539 |
| 088 | 0604933F | ICBM FUZE MODERNIZATION | 161,199 | 156,199 | 161,199 | | 161,199 |
| | | Program decrease | | [-5,000] | | | |
| 089 | 0605030F | JOINT TACTICAL NETWORK CENTER (JTNC) | 2,414 | 2,414 | 2,414 | | 2,414 |
| 091 | 0605056F | OPEN ARCHITECTURE MANAGEMENT | 30,000 | 30,000 | 30,000 | | 30,000 |
| 093 | 0605221F | KC-46 | 59,561 | 59,561 | 59,561 | | 59,561 |
| 094 | 0605223F | ADVANCED PILOT TRAINING | 348,473 | 348,473 | 348,473 | | 348,473 |
| 095 | 0605229F | COMBAT RESCUE HELICOPTER | 247,047 | 246,047 | 247,047 | | 247,047 |
| | | Support cost growth | | [-1,000] | | | |
| 098 | 0605931F | B-2 DEFENSIVE MANAGEMENT SYSTEM | 294,400 | 294,400 | 294,400 | | 294,400 |
| 099 | 0101125F | NUCLEAR WEAPONS MODERNIZATION | 27,564 | 27,564 | 27,564 | | 27,564 |
| 100 | 0101213F | MINUTEMAN SQUADRONS | 1 | 1 | 1 | | 1 |
| 101 | 0207171F | F-15 EPAWSS | 47,322 | 47,322 | 47,322 | | 47,322 |
| 102 | 0207328F | STAND IN ATTACK WEAPON | 162,840 | 127,840 | 162,840 | | 162,840 |
| | | Unjustified program growth | | [-35,000] | | | |
| 103 | 0207701F | FULL COMBAT MISSION TRAINING | 9,797 | 9,797 | 9,797 | | 9,797 |
| 106 | 0401310F | C-32 EXECUTIVE TRANSPORT RECAPITALIZATION | 9,930 | 9,930 | 9,930 | | 9,930 |
| 107 | 0401319F | VC-25B | 757,923 | 757,923 | 757,923 | | 757,923 |
| 108 | 0701212F | AUTOMATED TEST SYSTEMS | 2,787 | 2,787 | 2,787 | | 2,787 |
| 109 | 1203176F | COMBAT SURVIVOR EVADER LOCATOR | 2,000 | 2,000 | 2,000 | | 2,000 |
| 110 | 1203269F | GPS III FOLLOW-ON (GPS IIIF) | 462,875 | 452,875 | 462,875 | -10,000 | 452,875 |
| | | Unjustified growth | | [-10,000] | | [-10,000] | |
| 111 | 1203940F | SPACE SITUATION AWARENESS OPERATIONS | 76,829 | 56,829 | 76,829 | -20,000 | 56,829 |
| | | GBOSS unjustified growth | | [-20,000] | | [-20,000] | |
| 112 | 1206421F | COUNTERSPACE SYSTEMS | 29,037 | 34,037 | 29,037 | | 29,037 |

| | | | | | | |
|-----|----------|--|------------------|------------------|------------------|-----------------|
| | | Counterspace communications systems pre-planned product improvement. | | [5,000] | | |
| 113 | 1206422F | WEATHER SYSTEM FOLLOW-ON | 2,237 | 2,237 | 2,237 | 2,237 |
| 114 | 1206425F | SPACE SITUATION AWARENESS SYSTEMS | 412,894 | 362,894 | 412,894 | 412,894 |
| | | Unexecutable growth | | [-50,000] | | |
| 115 | 1206426F | SPACE FENCE | | | 20,000 | |
| | | Space Fence | | | [20,000] | |
| 116 | 1206431F | ADVANCED EHF MILSATCOM (SPACE) | 117,290 | 117,290 | 117,290 | 117,290 |
| 117 | 1206432F | POLAR MILSATCOM (SPACE) | 427,400 | 427,400 | 427,400 | -26,000 |
| | | Prior year carryover | | | | [-26,000] |
| 118 | 1206433F | WIDEBAND GLOBAL SATCOM (SPACE) | 1,920 | 1,920 | 1,920 | 1,920 |
| 119 | 1206441F | SPACE BASED INFRARED SYSTEM (SBIRS) HIGH EMD | 1 | 1 | 1 | 1 |
| 120 | 1206442F | NEXT GENERATION OPIR | 1,395,278 | 1,018,878 | 1,395,278 | 1,395,278 |
| | | Unexecutable funding profile | | [-293,100] | | |
| | | Unexecutable funding profile (ground) | | [-83,300] | | |
| 121 | 1206445F | COMMERCIAL SATCOM (COMSATCOM) INTEGRATION | | 10,000 | | 5,000 |
| | | Accelerate integration of COMSATCOM capabilities | | [10,000] | | [5,000] |
| 122 | 1206853F | NATIONAL SECURITY SPACE LAUNCH PROGRAM (SPACE)—EMD | 432,009 | 432,009 | 432,009 | 432,009 |
| | | SUBTOTAL SYSTEM DEVELOPMENT & DEMONSTRATION | 6,929,244 | 6,194,044 | 6,881,164 | -225,500 |
| | | MANAGEMENT SUPPORT | | | | |
| 123 | 0604256F | THREAT SIMULATOR DEVELOPMENT | 59,693 | 59,693 | 59,693 | 59,693 |
| 124 | 0604759F | MAJOR T&E INVESTMENT | 181,663 | 183,663 | 232,663 | 38,000 |
| | | Telemetry extension SATCOM relay | | [2,000] | | [2,000] |
| | | UPL M-Code Acceleration | | | [36,000] | [36,000] |
| | | Utah training range instrumentation | | | [15,000] | |
| 125 | 0605101F | RAND PROJECT AIR FORCE | 35,258 | 35,258 | 35,258 | 35,258 |
| 127 | 0605712F | INITIAL OPERATIONAL TEST & EVALUATION | 13,793 | 13,793 | 13,793 | 13,793 |
| 128 | 0605807F | TEST AND EVALUATION SUPPORT | 717,895 | 743,395 | 771,895 | 717,895 |
| | | Accelerate prototype program | | | [5,000] | |
| | | Facilitates 5G test and evaluation | | | [49,000] | |
| | | Overwater range telemetry improvements | | [9,500] | | |

SEC. 4201. RESEARCH, DEVELOPMENT, TEST, AND EVALUATION
(In Thousands of Dollars)

| Line | Program Element | Item | FY 2020 Request | House Authorized | Senate Authorized | Conference Change | Conference Authorized |
|------|-----------------|---|-----------------|------------------|-------------------|-------------------|-----------------------|
| | | Program increase | | [16,000] | | | |
| 129 | 0605826F | ACQ WORKFORCE- GLOBAL POWER | 258,667 | 258,667 | 258,667 | | 258,667 |
| 130 | 0605827F | ACQ WORKFORCE- GLOBAL VIG & COMBAT SYS | 251,992 | 226,992 | 251,992 | | 251,992 |
| | | Program decrease | | [-25,000] | | | |
| 131 | 0605828F | ACQ WORKFORCE- GLOBAL REACH | 149,191 | 149,191 | 149,191 | | 149,191 |
| 132 | 0605829F | ACQ WORKFORCE- CYBER, NETWORK, & BUS SYS | 235,360 | 235,360 | 235,360 | | 235,360 |
| 133 | 0605830F | ACQ WORKFORCE- GLOBAL BATTLE MGMT | 160,196 | 144,196 | 160,196 | | 160,196 |
| | | Program decrease | | [-16,000] | | | |
| 134 | 0605831F | ACQ WORKFORCE- CAPABILITY INTEGRATION | 220,255 | 198,255 | 220,255 | | 220,255 |
| | | Program decrease | | [-22,000] | | | |
| 135 | 0605832F | ACQ WORKFORCE- ADVANCED PRGM TECHNOLOGY | 42,392 | 42,392 | 42,392 | | 42,392 |
| 136 | 0605833F | ACQ WORKFORCE- NUCLEAR SYSTEMS | 133,231 | 133,231 | 133,231 | | 133,231 |
| 137 | 0605898F | MANAGEMENT HQ—R&D | 5,590 | 5,590 | 5,590 | | 5,590 |
| 138 | 0605976F | FACILITIES RESTORATION AND MODERNIZATION—TEST AND EVALUATION SUPPORT. | 88,445 | 88,445 | 88,445 | | 88,445 |
| 139 | 0605978F | FACILITIES SUSTAINMENT—TEST AND EVALUATION SUPPORT | 29,424 | 29,424 | 29,424 | | 29,424 |
| 140 | 0606017F | REQUIREMENTS ANALYSIS AND MATURATION | 62,715 | 62,715 | 62,715 | | 62,715 |
| 141 | 0606398F | MANAGEMENT HQ—T&E | 5,013 | 5,013 | 5,013 | | 5,013 |
| 142 | 0308602F | ENTEPRISE INFORMATION SERVICES (EIS) | 17,128 | 17,128 | 17,128 | | 17,128 |
| 143 | 0702806F | ACQUISITION AND MANAGEMENT SUPPORT | 5,913 | 5,913 | 5,913 | | 5,913 |
| 144 | 0804731F | GENERAL SKILL TRAINING | 1,475 | 1,475 | 1,475 | | 1,475 |
| 146 | 1001004F | INTERNATIONAL ACTIVITIES | 4,071 | 4,071 | 4,071 | | 4,071 |
| 147 | 1206116F | SPACE TEST AND TRAINING RANGE DEVELOPMENT | 19,942 | 14,942 | 19,942 | | 19,942 |
| | | Unjustified growth | | [-5,000] | | | |
| 148 | 1206392F | SPACE AND MISSILE CENTER (SMC) CIVILIAN WORKFORCE | 167,810 | 167,810 | 167,810 | | 167,810 |
| 149 | 1206398F | SPACE & MISSILE SYSTEMS CENTER—MHA | 10,170 | 10,170 | 10,170 | | 10,170 |
| 150 | 1206860F | ROCKET SYSTEMS LAUNCH PROGRAM (SPACE) | 13,192 | 23,192 | 13,192 | | 13,192 |

| | | | | | | | |
|-----|----------|--|------------------|------------------|------------------|---------------|------------------|
| | | Small rockets launch services | | [10,000] | | | |
| 151 | 1206864F | SPACE TEST PROGRAM (STP) | 26,097 | 29,097 | 26,097 | | 26,097 |
| | | Small launch | | [3,000] | | | |
| | | SUBTOTAL MANAGEMENT SUPPORT | 2,916,571 | 2,889,071 | 3,021,571 | 38,000 | 2,954,571 |
| | | OPERATIONAL SYSTEMS DEVELOPMENT | | | | | |
| | | UNDISTRIBUTED | | | | | |
| 152 | 0604003F | ADVANCED BATTLE MANAGEMENT SYSTEM (ABMS) | 35,611 | 20,011 | 84,611 | -2,000 | 33,611 |
| | | Accelerates 5G military use | | | [49,000] | | |
| | | Program increase—sensor fusion and artificial intelligence technology. | | [10,000] | | [8,000] | |
| | | Unjustified request | | [-25,600] | | [-10,000] | |
| 154 | 0604233F | SPECIALIZED UNDERGRADUATE FLIGHT TRAINING | 2,584 | 2,584 | 2,584 | | 2,584 |
| 155 | 0604445F | WIDE AREA SURVEILLANCE | | 20,000 | | | |
| | | Program increase | | [20,000] | | | |
| 156 | 0604776F | DEPLOYMENT & DISTRIBUTION ENTERPRISE R&D | 903 | 903 | 903 | | 903 |
| 157 | 0604840F | F-35 C2D2 | 694,455 | 694,455 | 694,455 | | 694,455 |
| 158 | 0605018F | AF INTEGRATED PERSONNEL AND PAY SYSTEM (AF-IPPS) | 40,567 | 30,567 | | | 40,567 |
| | | Poor agile development | | | [-40,567] | | |
| | | Program decrease | | [-10,000] | | | |
| 159 | 0605024F | ANTI-TAMPER TECHNOLOGY EXECUTIVE AGENCY | 47,193 | 47,193 | 47,193 | | 47,193 |
| 160 | 0605117F | FOREIGN MATERIEL ACQUISITION AND EXPLOITATION | 70,083 | 70,083 | 70,083 | | 70,083 |
| 161 | 0605278F | HC/MC-130 RECAP RDT&E | 17,218 | 17,218 | 4,818 | | 17,218 |
| | | Program delay | | | [-12,400] | | |
| 162 | 0606018F | NC3 INTEGRATION | 25,917 | 25,917 | 25,917 | | 25,917 |
| 164 | 0101113F | B-52 SQUADRONS | 325,974 | 325,974 | 325,974 | | 325,974 |
| 165 | 0101122F | AIR-LAUNCHED CRUISE MISSILE (ALCM) | 10,217 | 10,217 | 10,217 | | 10,217 |
| 166 | 0101126F | B-1B SQUADRONS | 1,000 | 1,000 | 1,000 | | 1,000 |
| 167 | 0101127F | B-2 SQUADRONS | 97,276 | 97,276 | 97,276 | | 97,276 |
| 168 | 0101213F | MINUTEMAN SQUADRONS | 128,961 | 106,939 | 106,961 | | 128,961 |
| | | Program consolidation | | | [-22,000] | | |
| | | Technical adjustment for NC3 | | [-22,022] | | | |

| SEC. 4201. RESEARCH, DEVELOPMENT, TEST, AND EVALUATION (In Thousands of Dollars) | | | | | | | | |
|---|-----------------|---|-----------------|------------------|-------------------|-------------------|-----------------------|---------|
| Line | Program Element | Item | FY 2020 Request | House Authorized | Senate Authorized | Conference Change | Conference Authorized | |
| 170 | 0101316F | WORLDWIDE JOINT STRATEGIC COMMUNICATIONS | 18,177 | 18,177 | 18,177 | | | 18,177 |
| 171 | 0101324F | INTEGRATED STRATEGIC PLANNING & ANALYSIS NETWORK | 24,261 | 24,261 | 24,261 | | | 24,261 |
| 172 | 0101328F | ICBM REENTRY VEHICLES | 75,571 | 75,571 | 75,571 | -34,300 | | 41,271 |
| | | Program delay | | | | [-34,300] | | |
| 174 | 0102110F | UH-1N REPLACEMENT PROGRAM | 170,975 | 170,975 | 170,975 | | | 170,975 |
| 176 | 0205219F | MQ-9 UAV | 154,996 | 154,996 | 154,996 | -27,700 | | 127,296 |
| | | Program reduction | | | | [-27,700] | | |
| 178 | 0207131F | A-10 SQUADRONS | 36,816 | 36,816 | 36,816 | | | 36,816 |
| 179 | 0207133F | F-16 SQUADRONS | 193,013 | 193,013 | 193,013 | | | 193,013 |
| 180 | 0207134F | F-15E SQUADRONS | 336,079 | 317,779 | 336,079 | -16,250 | | 319,829 |
| | | Unjustified F-15C requirements | | [-18,300] | | [-16,250] | | |
| 181 | 0207136F | MANNED DESTRUCTIVE SUPPRESSION | 15,521 | 15,521 | 15,521 | | | 15,521 |
| 182 | 0207138F | F-22A SQUADRONS | 496,298 | 442,498 | 496,298 | | | 496,298 |
| | | Excess to requirements | | [-23,800] | | | | |
| | | Prior-year carryover | | [-30,000] | | | | |
| 183 | 0207142F | F-35 SQUADRONS | 99,943 | 99,943 | 99,943 | | | 99,943 |
| 184 | 0207161F | TACTICAL AIM MISSILES | 10,314 | 10,314 | 10,314 | | | 10,314 |
| 185 | 0207163F | ADVANCED MEDIUM RANGE AIR-TO-AIR MISSILE (AMRAAM) | 55,384 | 55,384 | 55,384 | | | 55,384 |
| 186 | 0207227F | COMBAT RESCUE—PARARESCUE | 281 | 281 | 281 | | | 281 |
| 187 | 0207247F | AF TENCAP | 21,365 | 21,365 | 21,365 | | | 21,365 |
| 188 | 0207249F | PRECISION ATTACK SYSTEMS PROCUREMENT | 10,696 | 10,696 | 10,696 | | | 10,696 |
| 189 | 0207253F | COMPASS CALL | 15,888 | 15,888 | 15,888 | | | 15,888 |
| 190 | 0207268F | AIRCRAFT ENGINE COMPONENT IMPROVEMENT PROGRAM | 112,505 | 107,505 | 112,505 | | | 112,505 |
| | | Prior-year carryover (F-35) | | [-5,000] | | | | |
| 191 | 0207325F | JOINT AIR-TO-SURFACE STANDOFF MISSILE (JASSM) | 78,498 | 78,498 | 78,498 | | | 78,498 |
| 192 | 0207410F | AIR & SPACE OPERATIONS CENTER (AOC) | 114,864 | 104,864 | 114,864 | | | 114,864 |
| | | Unjustified request | | [-10,000] | | | | |

| | | | | | | |
|------|----------|---|--------|----------|----------|-----------|
| 193 | 0207412F | CONTROL AND REPORTING CENTER (CRC) | 8,109 | 8,109 | 8,109 | 8,109 |
| 194 | 0207417F | AIRBORNE WARNING AND CONTROL SYSTEM (AWACS) | 67,996 | 61,209 | 67,996 | 67,996 |
| | | Excess to need | | [-6,787] | | |
| 195 | 0207418F | TACTICAL AIRBORNE CONTROL SYSTEMS | 2,462 | 2,462 | 2,462 | 2,462 |
| 197 | 0207431F | COMBAT AIR INTELLIGENCE SYSTEM ACTIVITIES | 13,668 | 13,668 | 13,668 | 13,668 |
| 198 | 0207444F | TACTICAL AIR CONTROL PARTY-MOD | 6,217 | 6,217 | 6,217 | 6,217 |
| 200 | 0207452F | DCAPES | 19,910 | 19,910 | 19,910 | 19,910 |
| 201 | 0207573F | NATIONAL TECHNICAL NUCLEAR FORENSICS | 1,788 | 1,788 | 1,788 | 1,788 |
| 202 | 0207590F | SEEK EAGLE | 28,237 | 28,237 | 28,237 | 28,237 |
| 203 | 0207601F | USAF MODELING AND SIMULATION | 15,725 | 15,725 | 15,725 | 15,725 |
| 204 | 0207605F | WARGAMING AND SIMULATION CENTERS | 4,316 | 4,316 | 4,316 | 4,316 |
| 205 | 0207610F | BATTLEFIELD ABN COMM NODE (BACN) | 26,946 | 26,946 | 26,946 | 26,946 |
| 206 | 0207697F | DISTRIBUTED TRAINING AND EXERCISES | 4,303 | 4,303 | 4,303 | 4,303 |
| 207 | 0208006F | MISSION PLANNING SYSTEMS | 71,465 | 71,465 | 71,465 | 71,465 |
| 208 | 0208007F | TACTICAL DECEPTION | 7,446 | 7,446 | 7,446 | 7,446 |
| 209 | 0208064F | OPERATIONAL HQ—CYBER | 7,602 | 7,602 | 7,602 | 7,602 |
| 210 | 0208087F | DISTRIBUTED CYBER WARFARE OPERATIONS | 35,178 | 35,178 | 35,178 | 35,178 |
| 211 | 0208088F | AF DEFENSIVE CYBERSPACE OPERATIONS | 16,609 | 16,609 | 16,609 | 16,609 |
| 212 | 0208097F | JOINT CYBER COMMAND AND CONTROL (JCC2) | 11,603 | 11,603 | 11,603 | 11,603 |
| 213 | 0208099F | UNIFIED PLATFORM (UP) | 84,702 | 84,702 | 84,702 | 84,702 |
| 218A | 0301004F | ADVANCED DATA TRANSPORT FLIGHT TEST | | | 21,000 | |
| | | Accelerate prototype test of 5G | | | [21,000] | |
| 219 | 0301025F | GEOBASE | 2,723 | 2,723 | 2,723 | 2,723 |
| 220 | 0301112F | NUCLEAR PLANNING AND EXECUTION SYSTEM (NPES) | 44,190 | 44,190 | 44,190 | 44,190 |
| 226 | 0301401F | AIR FORCE SPACE AND CYBER NON-TRADITIONAL ISR FOR BATTLESPACE AWARENESS. | 3,575 | 3,575 | 3,575 | 3,575 |
| 227 | 0302015F | E-4B NATIONAL AIRBORNE OPERATIONS CENTER (NAOC) | 70,173 | 70,173 | 70,173 | -27,550 |
| | | Unclear acquisition strategy | | | | [-27,550] |
| 228 | 0303131F | MINIMUM ESSENTIAL EMERGENCY COMMUNICATIONS NETWORK (MEECN) Advanced concept development—NC3 demonstration and evalua- tion. | 13,543 | 28,543 | 13,543 | 13,543 |
| | | | | [15,000] | | |
| 229 | 0303133F | HIGH FREQUENCY RADIO SYSTEMS | 15,881 | 1,881 | 15,881 | 15,881 |

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|---|-----------------|---|-----------------|------------------|-------------------|-------------------|-----------------------|
| Line | Program Element | Item | FY 2020 Request | House Authorized | Senate Authorized | Conference Change | Conference Authorized |
| | | Prior-year carryover | | [-14,000] | | | |
| 230 | 0303140F | INFORMATION SYSTEMS SECURITY PROGRAM | 27,726 | 27,726 | 27,726 | | 27,726 |
| 232 | 0303142F | GLOBAL FORCE MANAGEMENT—DATA INITIATIVE | 2,210 | 2,210 | 2,210 | | 2,210 |
| 234 | 0304115F | MULTI DOMAIN COMMAND AND CONTROL (MDC2) | 150,880 | 100,880 | 150,880 | | 150,880 |
| | | Unjustified growth | | [-50,000] | | | |
| 235 | 0304260F | AIRBORNE SIGINT ENTERPRISE | 102,667 | 94,167 | 102,667 | -17,500 | 85,167 |
| | | Common development ahead of need | | [-8,500] | | [-8,500] | |
| | | Program reduction | | | | [-9,000] | |
| 236 | 0304310F | COMMERCIAL ECONOMIC ANALYSIS | 3,431 | 3,431 | 3,431 | | 3,431 |
| 239 | 0305015F | C2 AIR OPERATIONS SUITE—C2 INFO SERVICES | 9,313 | 9,313 | 9,313 | | 9,313 |
| 240 | 0305020F | CCMD INTELLIGENCE INFORMATION TECHNOLOGY | 1,121 | 1,121 | 1,121 | | 1,121 |
| 241 | 0305022F | ISR MODERNIZATION & AUTOMATION DVMT (IMAD) | 19,000 | 3,000 | | -16,000 | 3,000 |
| | | Not mature plan | | | [-19,000] | | |
| | | Unjustified request | | [-16,000] | | [-16,000] | |
| 242 | 0305099F | GLOBAL AIR TRAFFIC MANAGEMENT (GATM) | 4,544 | 4,544 | 4,544 | | 4,544 |
| 243 | 0305111F | WEATHER SERVICE | 25,461 | 27,461 | 25,461 | 2,000 | 27,461 |
| | | Commercial weather data pilot | | [2,000] | | [2,000] | |
| 244 | 0305114F | AIR TRAFFIC CONTROL, APPROACH, AND LANDING SYSTEM (ATCAL) | 5,651 | 5,651 | 5,651 | | 5,651 |
| 245 | 0305116F | AERIAL TARGETS | 7,448 | 7,448 | 7,448 | | 7,448 |
| 248 | 0305128F | SECURITY AND INVESTIGATIVE ACTIVITIES | 425 | 425 | 425 | | 425 |
| 249 | 0305145F | ARMS CONTROL IMPLEMENTATION | 54,546 | 54,546 | 54,546 | | 54,546 |
| 250 | 0305146F | DEFENSE JOINT COUNTERINTELLIGENCE ACTIVITIES | 6,858 | 6,858 | 6,858 | | 6,858 |
| 252 | 0305179F | INTEGRATED BROADCAST SERVICE (IBS) | 8,728 | 8,728 | 8,728 | | 8,728 |
| 253 | 0305202F | DRAGON U-2 | 38,939 | 38,939 | 38,939 | | 38,939 |
| 255 | 0305206F | AIRBORNE RECONNAISSANCE SYSTEMS | 122,909 | 132,909 | 122,909 | 10,000 | 132,909 |
| | | Program increase for Gorgon Stare sensor enhancements | | [10,000] | | [10,000] | |
| 256 | 0305207F | MANNED RECONNAISSANCE SYSTEMS | 11,787 | 11,787 | 11,787 | | 11,787 |

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| | | | | | | |
|-----|----------|---|---------|-----------|---------|-----------|
| 257 | 0305208F | DISTRIBUTED COMMON GROUND/SURFACE SYSTEMS | 25,009 | 25,009 | 25,009 | 25,009 |
| 258 | 0305220F | RQ-4 UAV | 191,733 | 173,883 | 191,733 | 191,733 |
| | | Unjustified request | | [-17,850] | | |
| 259 | 0305221F | NETWORK-CENTRIC COLLABORATIVE TARGETING | 10,757 | 10,757 | 10,757 | 10,757 |
| 260 | 0305238F | NATO AGS | 32,567 | 32,567 | 32,567 | 32,567 |
| 261 | 0305240F | SUPPORT TO DCGS ENTERPRISE | 37,774 | 37,774 | 37,774 | 37,774 |
| 262 | 0305600F | INTERNATIONAL INTELLIGENCE TECHNOLOGY AND ARCHITECTURES | 13,515 | 13,515 | 13,515 | 13,515 |
| 263 | 0305881F | RAPID CYBER ACQUISITION | 4,383 | 4,383 | 4,383 | 4,383 |
| 264 | 0305984F | PERSONNEL RECOVERY COMMAND & CTRL (PRC2) | 2,133 | 2,133 | 2,133 | 2,133 |
| 265 | 0307577F | INTELLIGENCE MISSION DATA (IMD) | 8,614 | 8,614 | 8,614 | 8,614 |
| 266 | 0401115F | C-130 AIRLIFT SQUADRON | 140,425 | 140,425 | 140,425 | 101,425 |
| | | Contract award savings | | | | [-39,000] |
| 267 | 0401119F | C-5 AIRLIFT SQUADRONS (IF) | 10,223 | 10,223 | 10,223 | 10,223 |
| 268 | 0401130F | C-17 AIRCRAFT (IF) | 25,101 | 25,101 | 25,101 | 25,101 |
| 269 | 0401132F | C-130J PROGRAM | 8,640 | 8,640 | 8,640 | 8,640 |
| 270 | 0401134F | LARGE AIRCRAFT IR COUNTERMEASURES (LAIRCM) | 5,424 | 5,424 | 5,424 | 5,424 |
| 272 | 0401219F | KC-10S | 20 | 20 | 20 | 20 |
| 274 | 0401318F | CV-22 | 17,906 | 17,906 | 17,906 | 17,906 |
| 276 | 0408011F | SPECIAL TACTICS / COMBAT CONTROL | 3,629 | 3,629 | 3,629 | 3,629 |
| 277 | 0702207F | DEPOT MAINTENANCE (NON-IF) | 1,890 | 1,890 | 1,890 | 1,890 |
| 278 | 0708055F | MAINTENANCE, REPAIR & OVERHAUL SYSTEM | 10,311 | 10,311 | 10,311 | 10,311 |
| 279 | 0708610F | LOGISTICS INFORMATION TECHNOLOGY (LOGIT) | 16,065 | 16,065 | 16,065 | 16,065 |
| 280 | 0708611F | SUPPORT SYSTEMS DEVELOPMENT | 539 | 539 | 539 | 539 |
| 281 | 0804743F | OTHER FLIGHT TRAINING | 2,057 | 2,057 | 2,057 | 2,057 |
| 282 | 0808716F | OTHER PERSONNEL ACTIVITIES | 10 | 10 | 10 | 10 |
| 283 | 0901202F | JOINT PERSONNEL RECOVERY AGENCY | 2,060 | 2,060 | 2,060 | 2,060 |
| 284 | 0901218F | CIVILIAN COMPENSATION PROGRAM | 3,809 | 3,809 | 3,809 | 3,809 |
| 285 | 0901220F | PERSONNEL ADMINISTRATION | 6,476 | 6,476 | 6,476 | 6,476 |
| 286 | 0901226F | AIR FORCE STUDIES AND ANALYSIS AGENCY | 1,443 | 1,443 | 1,443 | 1,443 |
| 287 | 0901538F | FINANCIAL MANAGEMENT INFORMATION SYSTEMS DEVELOPMENT | 9,323 | 9,323 | 9,323 | 9,323 |
| 288 | 0901554F | DEFENSE ENTERPRISE ACNTNG AND MGT SYS (DEAMS) | 46,789 | 46,789 | 46,789 | 46,789 |
| 289 | 1201017F | GLOBAL SENSOR INTEGRATED ON NETWORK (GSIN) | 3,647 | 3,647 | 3,647 | 3,647 |

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|---|-----------------|---|-------------------|-------------------|-------------------|-------------------|-----------------------|--|
| Line | Program Element | Item | FY 2020 Request | House Authorized | Senate Authorized | Conference Change | Conference Authorized | |
| 290 | 1201921F | SERVICE SUPPORT TO STRATCOM—SPACE ACTIVITIES | 988 | 988 | 988 | | 988 | |
| 291 | 1202140F | SERVICE SUPPORT TO SPACECOM ACTIVITIES | 11,863 | 11,863 | 11,863 | | 11,863 | |
| 293 | 1203001F | FAMILY OF ADVANCED BLOS TERMINALS (FAB-T) | 197,388 | 192,388 | 197,388 | -20,000 | 177,388 | |
| | | FET schedule slip | | | | [-15,000] | | |
| | | Unjustified growth | | [-5,000] | | [-5,000] | | |
| 294 | 1203110F | SATELLITE CONTROL NETWORK (SPACE) | 61,891 | 54,291 | 61,891 | | 61,891 | |
| | | Underexecution of funds and unjustified growth | | [-7,600] | | | | |
| 297 | 1203173F | SPACE AND MISSILE TEST AND EVALUATION CENTER | 4,566 | 4,566 | 4,566 | | 4,566 | |
| 298 | 1203174F | SPACE INNOVATION, INTEGRATION AND RAPID TECHNOLOGY DEVELOPMENT. | 43,292 | 43,292 | 43,292 | | 43,292 | |
| 300 | 1203182F | SPACELIFT RANGE SYSTEM (SPACE) | 10,837 | 10,837 | 10,837 | | 10,837 | |
| 301 | 1203265F | GPS III SPACE SEGMENT | 42,440 | 42,440 | 42,440 | | 42,440 | |
| 302 | 1203400F | SPACE SUPERIORITY INTELLIGENCE | 14,428 | 14,428 | 14,428 | | 14,428 | |
| 303 | 1203614F | JSPOC MISSION SYSTEM | 72,762 | 51,262 | 72,762 | | 72,762 | |
| | | Unjustified growth | | [-21,500] | | | | |
| 304 | 1203620F | NATIONAL SPACE DEFENSE CENTER | 2,653 | 2,653 | 2,653 | | 2,653 | |
| 306 | 1203873F | BALLISTIC MISSILE DEFENSE RADARS | 15,881 | 15,881 | 15,881 | | 15,881 | |
| 308 | 1203913F | NUDET DETECTION SYSTEM (SPACE) | 49,300 | 49,300 | 49,300 | | 49,300 | |
| 309 | 1203940F | SPACE SITUATION AWARENESS OPERATIONS | 17,834 | 17,834 | 17,834 | | 17,834 | |
| 310 | 1206423F | GLOBAL POSITIONING SYSTEM III—OPERATIONAL CONTROL SEGMENT | 445,302 | 445,302 | 445,302 | | 445,302 | |
| 311 | 1206770F | ENTERPRISE GROUND SERVICES | 138,870 | 128,670 | 138,870 | -39,800 | 99,070 | |
| | | Contract award delay | | | | [-39,800] | | |
| | | Unjustified growth | | [-10,200] | | | | |
| 311A | 9999999999 | CLASSIFIED PROGRAMS | 18,351,506 | 17,998,506 | 18,351,506 | -122,000 | 18,229,506 | |
| | | Classified reduction | | [-353,000] | | [-122,000] | | |
| | | SUBTOTAL OPERATIONAL SYSTEMS DEVELOPMENT | 24,851,488 | 24,253,329 | 24,827,521 | -350,100 | 24,501,388 | |
| | | SUBTOTAL UNDISTRIBUTED | | -598,159 | -23,967 | -350,100 | -350,100 | |

| | | | | | | | |
|-----|------------|---|-------------------|-------------------|-------------------|-----------------|-------------------|
| | | TOTAL RESEARCH, DEVELOPMENT, TEST & EVAL, AF | 45,938,122 | 44,048,785 | 46,335,775 | -353,378 | 45,584,744 |
| | | RESEARCH, DEVELOPMENT, TEST & EVAL, DW | | | | | |
| | | BASIC RESEARCH | | | | | |
| 001 | 0601000BR | DTRA BASIC RESEARCH | 26,000 | 26,000 | 26,000 | | 26,000 |
| 002 | 0601101E | DEFENSE RESEARCH SCIENCES | 432,284 | 432,284 | 432,284 | | 432,284 |
| 003 | 0601110D8Z | BASIC RESEARCH INITIATIVES | 48,874 | 58,874 | 58,874 | 20,000 | 68,874 |
| | | DEPSCOR | | | [10,000] | [10,000] | |
| | | Program increase | | [10,000] | | [10,000] | |
| 004 | 0601117E | BASIC OPERATIONAL MEDICAL RESEARCH SCIENCE | 54,122 | 59,122 | 54,122 | | 54,122 |
| | | Brain injury research university partnerships | | [5,000] | | | |
| 005 | 0601120D8Z | NATIONAL DEFENSE EDUCATION PROGRAM | 92,074 | 112,074 | 102,074 | 10,000 | 102,074 |
| | | Civics education grant program | | [20,000] | | [2,000] | |
| | | Submarine industrial base workforce training and education | | | [10,000] | [8,000] | |
| 006 | 0601228D8Z | HISTORICALLY BLACK COLLEGES AND UNIVERSITIES/MINORITY INSTITUTIONS. | 30,708 | 50,708 | 32,708 | 16,000 | 46,708 |
| | | Aerospace research and education | | | [2,000] | [2,000] | |
| | | Program decrease | | [-5,000] | | | |
| | | Program increase | | [25,000] | | [14,000] | |
| 007 | 0601384BP | CHEMICAL AND BIOLOGICAL DEFENSE PROGRAM | 45,238 | 45,238 | 45,238 | | 45,238 |
| | | SUBTOTAL BASIC RESEARCH | 729,300 | 784,300 | 751,300 | 46,000 | 775,300 |
| | | APPLIED RESEARCH | | | | | |
| 008 | 0602000D8Z | JOINT MUNITIONS TECHNOLOGY | 19,306 | 19,306 | 19,306 | | 19,306 |
| 009 | 0602115E | BIOMEDICAL TECHNOLOGY | 97,771 | 97,771 | 97,771 | | 97,771 |
| 011 | 0602234D8Z | LINCOLN LABORATORY RESEARCH PROGRAM | 52,317 | 52,317 | 52,317 | | 52,317 |
| 012 | 0602251D8Z | APPLIED RESEARCH FOR THE ADVANCEMENT OF S&T PRIORITIES | 62,200 | 62,200 | 64,200 | -6,800 | 55,400 |
| | | Computer modeling of PFAS | | | [2,000] | [2,000] | |
| | | Excess growth | | | | [-8,800] | |
| 013 | 0602303E | INFORMATION & COMMUNICATIONS TECHNOLOGY | 442,556 | 442,556 | 442,556 | -5,000 | 437,556 |
| | | Unjustified growth | | | | [-5,000] | |

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|---|-----------------|---|------------------|------------------|-------------------|-------------------|-----------------------|--|
| Line | Program Element | Item | FY 2020 Request | House Authorized | Senate Authorized | Conference Change | Conference Authorized | |
| 014 | 0602383E | BIOLOGICAL WARFARE DEFENSE | 34,588 | 34,588 | 34,588 | | 34,588 | |
| 015 | 0602384BP | CHEMICAL AND BIOLOGICAL DEFENSE PROGRAM | 202,587 | 215,087 | 202,587 | 12,500 | 215,087 | |
| | | Program increase | | [12,500] | | [12,500] | | |
| 016 | 0602668D8Z | CYBER SECURITY RESEARCH | 15,118 | 15,118 | 25,118 | 10,000 | 25,118 | |
| | | Academic cyber institutes | | | [10,000] | [10,000] | | |
| 017 | 0602702E | TACTICAL TECHNOLOGY | 337,602 | 337,602 | 337,602 | | 337,602 | |
| 018 | 0602715E | MATERIALS AND BIOLOGICAL TECHNOLOGY | 223,976 | 223,976 | 223,976 | | 223,976 | |
| 019 | 0602716E | ELECTRONICS TECHNOLOGY | 332,192 | 332,192 | 332,192 | -6,000 | 326,192 | |
| | | Unjustified growth | | | | [-6,000] | | |
| 020 | 0602718BR | COUNTER WEAPONS OF MASS DESTRUCTION APPLIED RESEARCH | 179,096 | 179,096 | 179,096 | -5,000 | 174,096 | |
| | | Unjustified growth | | | | [-5,000] | | |
| 021 | 0602751D8Z | SOFTWARE ENGINEERING INSTITUTE (SEI) APPLIED RESEARCH | 9,580 | 9,580 | 9,580 | | 9,580 | |
| 022 | 1160401BB | SOF TECHNOLOGY DEVELOPMENT | 40,569 | 45,569 | 40,569 | | 40,569 | |
| | | Media forensics | | [5,000] | | | | |
| | | SUBTOTAL APPLIED RESEARCH | 2,049,458 | 2,066,958 | 2,061,458 | -300 | 2,049,158 | |
| | | ADVANCED TECHNOLOGY DEVELOPMENT | | | | | | |
| 023 | 0603000D8Z | JOINT MUNITIONS ADVANCED TECHNOLOGY | 25,779 | 25,779 | 25,779 | | 25,779 | |
| 024 | 0603121D8Z | SO/LIC ADVANCED DEVELOPMENT | 5,000 | 5,000 | 5,000 | | 5,000 | |
| 025 | 0603122D8Z | COMBATING TERRORISM TECHNOLOGY SUPPORT | 70,517 | 79,517 | 70,517 | 5,000 | 75,517 | |
| | | Counterterrorism detection technologies | | [3,000] | | | | |
| | | Program increase | | | | [5,000] | | |
| | | Terrorism studies | | [6,000] | | | | |
| 026 | 0603133D8Z | FOREIGN COMPARATIVE TESTING | 24,970 | 24,970 | 24,970 | | 24,970 | |
| 028 | 0603160BR | COUNTER WEAPONS OF MASS DESTRUCTION ADVANCED TECHNOLOGY DEVELOPMENT. Excess growth | 340,065 | 340,065 | 340,065 | -1,490 | 338,575 | |
| | | | | | | [-1,490] | | |

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|-----|------------|---|---------|-----------|-----------|-----------|---------|
| 029 | 0603176C | ADVANCED CONCEPTS AND PERFORMANCE ASSESSMENT | 14,208 | 14,208 | 14,208 | | 14,208 |
| 030 | 0603178C | WEAPONS TECHNOLOGY | 10,000 | 10,000 | 10,000 | -10,000 | |
| | | MD72 program termination | | | | [-10,000] | |
| 031 | 0603180C | ADVANCED RESEARCH | 20,674 | 27,674 | 20,674 | 7,000 | 27,674 |
| | | Advanced carbon-carbon composites manufacturing | | [7,000] | | [7,000] | |
| 032 | 0603225D8Z | JOINT DOD-DOE MUNITIONS TECHNOLOGY DEVELOPMENT | 18,773 | 18,773 | 18,773 | | 18,773 |
| 033 | 0603286E | ADVANCED AEROSPACE SYSTEMS | 279,741 | 279,741 | 279,741 | | 279,741 |
| 034 | 0603287E | SPACE PROGRAMS AND TECHNOLOGY | 202,606 | 202,606 | 202,606 | -30,000 | 172,606 |
| | | RSGS program delays | | | | [-30,000] | |
| 035 | 0603288D8Z | ANALYTIC ASSESSMENTS | 19,429 | 19,429 | 19,429 | | 19,429 |
| 036 | 0603289D8Z | ADVANCED INNOVATIVE ANALYSIS AND CONCEPTS | 37,645 | 37,645 | 37,645 | | 37,645 |
| 037 | 0603291D8Z | ADVANCED INNOVATIVE ANALYSIS AND CONCEPTS—MHA | 14,668 | 14,668 | 14,668 | | 14,668 |
| 038 | 0603294C | COMMON KILL VEHICLE TECHNOLOGY | 13,600 | 13,600 | 13,600 | | 13,600 |
| 040 | 0603342D8Z | DEFENSE INNOVATION UNIT (DIU) | 29,398 | 29,398 | 36,898 | | 29,398 |
| | | Accelerate artificial intelligence solutions | | | [7,500] | | |
| 041 | 0603375D8Z | TECHNOLOGY INNOVATION | 60,000 | 44,000 | 60,000 | -30,000 | 30,000 |
| | | Insufficient justification | | | | [-30,000] | |
| | | Program decrease | | [-16,000] | | | |
| 042 | 0603384BP | CHEMICAL AND BIOLOGICAL DEFENSE PROGRAM—ADVANCED DEVELOPMENT. | 172,486 | 172,486 | 172,486 | | 172,486 |
| 043 | 0603527D8Z | RETRACT LARCH | 159,688 | 159,688 | 159,688 | | 159,688 |
| 044 | 0603618D8Z | JOINT ELECTRONIC ADVANCED TECHNOLOGY | 12,063 | 17,063 | 12,063 | | 12,063 |
| | | Joint electromagnetic spectrum operations | | [5,000] | | | |
| 045 | 0603648D8Z | JOINT CAPABILITY TECHNOLOGY DEMONSTRATIONS | 107,359 | 107,359 | 89,859 | -17,500 | 89,859 |
| | | Program reduction | | | [-17,500] | [-17,500] | |
| 046 | 0603662D8Z | NETWORKED COMMUNICATIONS CAPABILITIES | 2,858 | 2,858 | 2,858 | | 2,858 |
| 047 | 0603680D8Z | DEFENSE-WIDE MANUFACTURING SCIENCE AND TECHNOLOGY PROGRAM | 96,397 | 116,397 | 96,397 | 20,000 | 116,397 |
| | | Additive manufacturing | | [10,000] | | [10,000] | |
| | | Integrated silicon based lasers | | [5,000] | | [5,000] | |
| | | Program increase | | [5,000] | | [5,000] | |
| 048 | 0603680S | MANUFACTURING TECHNOLOGY PROGRAM | 42,834 | 42,834 | 42,834 | | 42,834 |
| 049 | 0603699D8Z | EMERGING CAPABILITIES TECHNOLOGY DEVELOPMENT | 80,911 | 80,911 | 70,911 | | 80,911 |

| SEC. 4201. RESEARCH, DEVELOPMENT, TEST, AND EVALUATION (In Thousands of Dollars) | | | | | | | | |
|---|-----------------|---|-----------------|------------------|-------------------|-------------------|-----------------------|--|
| Line | Program Element | Item | FY 2020 Request | House Authorized | Senate Authorized | Conference Change | Conference Authorized | |
| | | Program reduction | | | | [-10,000] | | |
| 050 | 0603712S | GENERIC LOGISTICS R&D TECHNOLOGY DEMONSTRATIONS | 10,817 | 10,817 | 10,817 | | 10,817 | |
| 051 | 0603716D8Z | STRATEGIC ENVIRONMENTAL RESEARCH PROGRAM | 66,157 | 66,157 | 76,157 | | 66,157 | |
| | | SERDP | | | | [10,000] | | |
| 052 | 0603720S | MICROELECTRONICS TECHNOLOGY DEVELOPMENT AND SUPPORT | 171,771 | 171,771 | 171,771 | | 171,771 | |
| 053 | 0603727D8Z | JOINT WARFIGHTING PROGRAM | 4,846 | 4,846 | 4,846 | | 4,846 | |
| 054 | 0603739E | ADVANCED ELECTRONICS TECHNOLOGIES | 128,616 | 128,616 | 128,616 | | 128,616 | |
| 055 | 0603760E | COMMAND, CONTROL AND COMMUNICATIONS SYSTEMS | 232,134 | 232,134 | 232,134 | | 232,134 | |
| 056 | 0603766E | NETWORK-CENTRIC WARFARE TECHNOLOGY | 512,424 | 512,424 | 512,424 | -5,000 | 507,424 | |
| | | Unjustified increase | | | | [-5,000] | | |
| 057 | 0603767E | SENSOR TECHNOLOGY | 163,903 | 163,903 | 163,903 | | 163,903 | |
| 058 | 0603769D8Z | DISTRIBUTED LEARNING ADVANCED TECHNOLOGY DEVELOPMENT | 13,723 | 13,723 | 13,723 | | 13,723 | |
| 059 | 0603781D8Z | SOFTWARE ENGINEERING INSTITUTE | 15,111 | 15,111 | 15,111 | | 15,111 | |
| 060 | 0603826D8Z | QUICK REACTION SPECIAL PROJECTS | 47,147 | 47,147 | 47,147 | | 47,147 | |
| 061 | 0603833D8Z | ENGINEERING SCIENCE & TECHNOLOGY | 19,376 | 19,376 | 19,376 | | 19,376 | |
| 062 | 0603924D8Z | HIGH ENERGY LASER ADVANCED TECHNOLOGY PROGRAM | 85,223 | 85,223 | 85,223 | | 85,223 | |
| 063 | 0603941D8Z | TEST & EVALUATION SCIENCE & TECHNOLOGY | 175,574 | 180,574 | 185,574 | 10,000 | 185,574 | |
| | | Program increase to support NDS technologies | | | | [10,000] | | |
| | | UAV hypersonic test range | | [5,000] | | | | |
| 064 | 0603950D8Z | NATIONAL SECURITY INNOVATION NETWORK | 25,000 | 30,000 | 25,000 | | 25,000 | |
| | | Hacking for defense | | [5,000] | | | | |
| 065 | 0604055D8Z | OPERATIONAL ENERGY CAPABILITY IMPROVEMENT | 70,536 | 70,536 | 70,536 | -16,636 | 53,900 | |
| | | Excess growth | | | | [-16,636] | | |
| 066 | 0303310D8Z | CWMD SYSTEMS | 28,907 | 28,907 | 28,907 | | 28,907 | |
| 068 | 1160402BB | SOF ADVANCED TECHNOLOGY DEVELOPMENT | 89,154 | 89,154 | 89,154 | | 89,154 | |
| 069 | 1206310SDA | SPACE SCIENCE AND TECHNOLOGY RESEARCH AND DEVELOPMENT | 20,000 | 41,500 | 20,000 | | 20,000 | |

| | | | | | | | |
|-----|------------|---|------------------|------------------|------------------|----------------|------------------|
| | | Program increase for commercial SSA; funds transferred from JSPOC Mission System. | | [21,500] | | | |
| | | SUBTOTAL ADVANCED TECHNOLOGY DEVELOPMENT | 3,742,088 | 3,798,588 | 3,742,088 | -68,626 | 3,673,462 |
| | | ADVANCED COMPONENT DEVELOPMENT AND PROTOTYPES | | | | | |
| 070 | 0603161D8Z | NUCLEAR AND CONVENTIONAL PHYSICAL SECURITY EQUIPMENT RDT&E ADC&P. | 42,695 | 42,695 | 42,695 | | 42,695 |
| 071 | 0603600D8Z | WALKOFF | 92,791 | 92,791 | 92,791 | | 92,791 |
| 072 | 0603821D8Z | ACQUISITION ENTERPRISE DATA & INFORMATION SERVICES | 5,659 | 5,659 | 5,659 | | 5,659 |
| 073 | 0603851D8Z | ENVIRONMENTAL SECURITY TECHNICAL CERTIFICATION PROGRAM | 66,572 | 66,572 | 76,572 | 2,000 | 68,572 |
| | | ESTCP | | | [10,000] | [2,000] | |
| 074 | 0603881C | BALLISTIC MISSILE DEFENSE TERMINAL DEFENSE SEGMENT | 302,761 | 302,761 | 302,761 | | 302,761 |
| 075 | 0603882C | BALLISTIC MISSILE DEFENSE MIDCOURSE DEFENSE SEGMENT | 1,156,506 | 960,506 | 1,156,506 | 81,100 | 1,237,606 |
| | | Common booster engineering early to need | | | | [-15,000] | |
| | | GBSD booster engineering | | [-15,000] | | | |
| | | Homeland Defense Radar-Hawaii delay | | | | [-30,400] | |
| | | RKV cancellation—on demand communications | | | | [-13,500] | |
| | | RKV Program Termination—Trasfer from RD,DW 109 for SLEP program. | | | | [140,000] | |
| | | Unjustified program growth | | [-181,000] | | | |
| 076 | 0603884BP | CHEMICAL AND BIOLOGICAL DEFENSE PROGRAM—DEM/VAL | 83,662 | 83,662 | 83,662 | | 83,662 |
| 077 | 0603884C | BALLISTIC MISSILE DEFENSE SENSORS | 283,487 | 283,487 | 283,487 | | 283,487 |
| 078 | 0603890C | BMD ENABLING PROGRAMS | 571,507 | 570,476 | 571,507 | | 571,507 |
| | | Rescope FTM-44—Conduct IRBM test | | [-1,031] | | | |
| 079 | 0603891C | SPECIAL PROGRAMS—MDA | 377,098 | 504,098 | 502,098 | 135,000 | 512,098 |
| | | Classified | | | [125,000] | | |
| | | Classified reduction | | [-8,000] | | | |
| | | Classified unfunded priority | | [135,000] | | [135,000] | |
| 080 | 0603892C | AEGIS BMD | 727,479 | 702,479 | 727,479 | -28,000 | 699,479 |
| | | Unjustified cost growth | | [-25,000] | | | |
| | | Unjustified growth | | | | [-28,000] | |

| SEC. 4201. RESEARCH, DEVELOPMENT, TEST, AND EVALUATION (In Thousands of Dollars) | | | | | | | | |
|---|-----------------|---|-----------------|------------------|-------------------|-------------------|-----------------------|--|
| Line | Program Element | Item | FY 2020 Request | House Authorized | Senate Authorized | Conference Change | Conference Authorized | |
| 081 | 0603896C | BALLISTIC MISSILE DEFENSE COMMAND AND CONTROL, BATTLE MANAGEMENT AND COMMUNICATI. | 564,206 | 561,706 | 564,206 | -1,500 | 562,706 | |
| | | IBCS integration delays | | [-1,500] | | [-1,500] | | |
| | | Rescope FTM-44—Conduct IRBM test | | [-1,000] | | | | |
| 082 | 0603898C | BALLISTIC MISSILE DEFENSE JOINT WARFIGHTER SUPPORT | 51,532 | 51,532 | 51,532 | | 51,532 | |
| 083 | 0603904C | MISSILE DEFENSE INTEGRATION & OPERATIONS CENTER (MDIOC) | 56,161 | 56,161 | 56,161 | | 56,161 | |
| 084 | 0603906C | REGARDING TRENCH | 22,424 | 22,424 | 22,424 | | 22,424 | |
| 085 | 0603907C | SEA BASED X-BAND RADAR (SBX) | 128,156 | 128,156 | 128,156 | | 128,156 | |
| 086 | 0603913C | ISRAELI COOPERATIVE PROGRAMS | 300,000 | 300,000 | 300,000 | | 300,000 | |
| 087 | 0603914C | BALLISTIC MISSILE DEFENSE TEST | 395,924 | 393,356 | 395,924 | | 395,924 | |
| | | Rescope FTM-44—Conduct IRBM test | | [-2,568] | | | | |
| 088 | 0603915C | BALLISTIC MISSILE DEFENSE TARGETS | 554,171 | 554,171 | 554,171 | | 554,171 | |
| 089 | 0603920D8Z | HUMANITARIAN DEMINING | 10,820 | 15,820 | 10,820 | 3,880 | 14,700 | |
| | | Program increase | | [5,000] | | [3,880] | | |
| 090 | 0603923D8Z | COALITION WARFARE | 11,316 | 11,316 | 11,316 | | 11,316 | |
| 091 | 0604016D8Z | DEPARTMENT OF DEFENSE CORROSION PROGRAM | 3,365 | 3,365 | 3,365 | | 3,365 | |
| 092 | 0604115C | TECHNOLOGY MATURATION INITIATIVES | 303,458 | 301,122 | 269,458 | -34,000 | 269,458 | |
| | | Cancel Neutral Particle Beam | | [-34,000] | | [-34,000] | | |
| | | Increase to low power laser demonstrator | | [35,000] | | | | |
| | | Neutral particle beam | | | [-34,000] | | | |
| | | Rescope FTM-44—Conduct IRBM test | | [-3,336] | | | | |
| 093 | 0604132D8Z | MISSILE DEFEAT PROJECT | 17,816 | 7,816 | 17,816 | -7,816 | 10,000 | |
| | | Unjustified budget request—program transitioned to services | | [-10,000] | | [-7,816] | | |
| 095 | 0604181C | HYPERSONIC DEFENSE | 157,425 | 157,425 | 157,425 | | 157,425 | |
| 096 | 0604250D8Z | ADVANCED INNOVATIVE TECHNOLOGIES | 1,312,735 | 1,007,585 | 1,343,735 | | 1,312,735 | |
| | | Hypervelocity Gun Weapon System | | | [81,000] | [80,000] | | |
| | | Insufficient justification | | | | [-80,000] | | |

| | | | | | | | | | |
|-----|------------|--|---------|---------|---------|--|----------|--|---------|
| | | Program decrease | | | | | | | |
| | | Realign to 0604011D8Z, Next Generation Information Technology .. | | | | | | | |
| | | Undistributed | | | | | | | |
| | | Unjustified growth to SCO | | | | | | | |
| 097 | 0604294D8Z | TRUSTED & ASSURED MICROELECTRONICS | 542,421 | 542,421 | 547,421 | | 5,000 | | 547,421 |
| | | Trusted and assured microelectronics research | | | | | | | |
| 098 | 0604331D8Z | RAPID PROTOTYPING PROGRAM | 100,957 | 100,957 | 50,957 | | -50,000 | | 50,957 |
| | | Uncoordinated prototyping efforts | | | | | | | |
| 099 | 0604341D8Z | DEFENSE INNOVATION UNIT (DIU) PROTOTYPING | 92,000 | 92,000 | 92,000 | | | | 92,000 |
| | | Insufficient budget justification for national security innovation capital. | | | | | | | |
| | | Program increase—national security innovation capital | | | | | | | |
| 100 | 0604400D8Z | DEPARTMENT OF DEFENSE (DOD) UNMANNED SYSTEM COMMON DEVELOPMENT. | 3,021 | 3,021 | 3,021 | | | | 3,021 |
| 102 | 0604672C | HOMELAND DEFENSE RADAR—HAWAII (HDR-H) | 274,714 | 274,714 | 274,714 | | -101,116 | | 173,598 |
| | | Funding acceleration early to need | | | | | | | |
| | | Radar foundation and thermal control system early to need | | | | | | | |
| 103 | 0604673C | PACIFIC DISCRIMINATING RADAR | 6,711 | 6,711 | 6,711 | | | | 6,711 |
| 104 | 0604682D8Z | WARGAMING AND SUPPORT FOR STRATEGIC ANALYSIS (SSA) | 3,751 | 3,751 | 3,751 | | | | 3,751 |
| 105 | 0604775BR | DEFENSE RAPID INNOVATION PROGRAM | 14,021 | 14,021 | 14,021 | | | | 14,021 |
| 107 | 0604826J | JOINT C5 CAPABILITY DEVELOPMENT, INTEGRATION AND INTEROPERABILITY ASSESSMENTS. | 20,062 | 20,062 | 20,062 | | | | 20,062 |
| 108 | 0604873C | LONG RANGE DISCRIMINATION RADAR (LRDR) | 136,423 | 136,423 | 136,423 | | | | 136,423 |
| 109 | 0604874C | IMPROVED HOMELAND DEFENSE INTERCEPTORS | 412,363 | 262,363 | 412,363 | | -140,000 | | 272,363 |
| | | Program delays | | | | | | | |
| | | RKV Termination – transfer to RD,DW 075 for SLEP program | | | | | | | |
| 110 | 0604876C | BALLISTIC MISSILE DEFENSE TERMINAL DEFENSE SEGMENT TEST | 25,137 | 25,137 | 25,137 | | | | 25,137 |
| 111 | 0604878C | AEGIS BMD TEST | 169,822 | 148,740 | 169,822 | | | | 169,822 |
| | | Rescope FTM-44—Conduct IRBM test | | | | | | | |
| 112 | 0604879C | BALLISTIC MISSILE DEFENSE SENSOR TEST | 105,530 | 94,566 | 105,530 | | | | 105,530 |
| | | Rescope FTM-44—Conduct IRBM test | | | | | | | |
| 113 | 0604880C | LAND-BASED SM-3 (LBSM3) | 38,352 | 38,352 | 38,352 | | | | 38,352 |

| SEC. 4201. RESEARCH, DEVELOPMENT, TEST, AND EVALUATION (In Thousands of Dollars) | | | | | | | | |
|---|-----------------|--|------------------|------------------|-------------------|-------------------|-----------------------|-----------|
| Line | Program Element | Item | FY 2020 Request | House Authorized | Senate Authorized | Conference Change | Conference Authorized | |
| 115 | 0604887C | BALLISTIC MISSILE DEFENSE MIDCOURSE SEGMENT TEST | 98,139 | 96,446 | 98,139 | | 98,139 | |
| | | Rescope FTM-44—Conduct IRBM test | | | | | | [−1,693] |
| 117 | 0300206R | ENTERPRISE INFORMATION TECHNOLOGY SYSTEMS | 1,600 | 1,600 | 1,600 | | 1,600 | |
| 118 | 0303191D8Z | JOINT ELECTROMAGNETIC TECHNOLOGY (JET) PROGRAM | 3,191 | 3,191 | 3,191 | | 3,191 | |
| 119 | 0305103C | CYBER SECURITY INITIATIVE | 1,138 | 1,138 | 1,138 | | 1,138 | |
| 120 | 1206410SDA | SPACE TECHNOLOGY DEVELOPMENT AND PROTOTYPING | 85,000 | 75,000 | 55,000 | −30,000 | 55,000 | |
| | | Increase to SDA for multi-GNSS receiver capability development ... | | | | | | [20,000] |
| | | Missile defense studies realignment | | | | | | [−30,000] |
| | | Space-based discrimination study | | | | | | [−15,000] |
| | | Space-based interceptor study | | | | | | [−15,000] |
| 121 | 1206893C | SPACE TRACKING & SURVEILLANCE SYSTEM | 35,849 | 35,849 | 35,849 | | 35,849 | |
| 122 | 1206895C | BALLISTIC MISSILE DEFENSE SYSTEM SPACE PROGRAMS | 27,565 | 135,565 | 135,565 | 108,000 | 135,565 | |
| | | HBTS unfunded requirement | | | | | | [108,000] |
| | | Hypersonic and Ballistic Tracking Space Sensor | | | | | | [108,000] |
| 122A | 0604011D8Z | NEXT GENERATION INFORMATION COMMUNICATIONS TECHNOLOGY (5G) .. | | 175,000 | 25,000 | 275,000 | 275,000 | |
| | | DOD Spectrum Sharing Program | | | | | | [25,000] |
| | | NTR and additional AF installation 5G network | | | | | | [100,000] |
| | | Program increase | | | | | | [175,000] |
| | | SUBTOTAL ADVANCED COMPONENT DEVELOPMENT AND PROTOTYPES | 9,797,493 | 9,474,169 | 9,987,493 | 217,548 | 10,015,041 | |
| | | SYSTEM DEVELOPMENT AND DEMONSTRATION | | | | | | |
| 123 | 0604161D8Z | NUCLEAR AND CONVENTIONAL PHYSICAL SECURITY EQUIPMENT RDT&E SDD. | 11,276 | 11,276 | 11,276 | | 11,276 | |
| 124 | 0604165D8Z | PROMPT GLOBAL STRIKE CAPABILITY DEVELOPMENT | 107,000 | | 107,000 | −31,000 | 76,000 | |
| | | Lack of justification—awaiting policy | | | | | | [−76,000] |
| | | Transfer to RDTE, Army Line 100 | | | | | | [−31,000] |
| 125 | 0604384BP | CHEMICAL AND BIOLOGICAL DEFENSE PROGRAM—EMD | 384,047 | 384,047 | 384,047 | −10,000 | 374,047 | |

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| | | | | | | | |
|-----|------------|---|----------------|----------------|----------------|----------------|----------------|
| | | Excess growth | | | | [−10,000] | |
| 126 | 0604771D8Z | JOINT TACTICAL INFORMATION DISTRIBUTION SYSTEM (JTIDS) | 40,102 | 43,102 | 40,102 | | 40,102 |
| | | Cyber maturity model certification program | | [3,000] | | | |
| 127 | 0605000BR | COUNTER WEAPONS OF MASS DESTRUCTION SYSTEMS DEVELOPMENT | 13,100 | 13,100 | 13,100 | | 13,100 |
| 128 | 0605013BL | INFORMATION TECHNOLOGY DEVELOPMENT | 3,070 | 3,070 | 3,070 | | 3,070 |
| 129 | 0605021SE | HOMELAND PERSONNEL SECURITY INITIATIVE | 7,295 | 7,295 | 7,295 | | 7,295 |
| 130 | 0605022D8Z | DEFENSE EXPORTABILITY PROGRAM | 17,615 | 7,615 | 17,615 | | 17,615 |
| | | Unjustified growth | | [−10,000] | | | |
| 131 | 0605027D8Z | OUS(D) IT DEVELOPMENT INITIATIVES | 15,653 | 15,653 | 15,653 | | 15,653 |
| 132 | 0605070S | DOD ENTERPRISE SYSTEMS DEVELOPMENT AND DEMONSTRATION | 2,378 | 2,378 | 2,378 | | 2,378 |
| 133 | 0605075D8Z | CMO POLICY AND INTEGRATION | 1,618 | 1,618 | 1,618 | | 1,618 |
| 134 | 0605080S | DEFENSE AGENCY INITIATIVES (DAI)—FINANCIAL SYSTEM | 27,944 | 27,944 | 27,944 | | 27,944 |
| 135 | 0605090S | DEFENSE RETIRED AND ANNUITANT PAY SYSTEM (DRAS) | 6,609 | 6,609 | 6,609 | | 6,609 |
| 136 | 0605210D8Z | DEFENSE-WIDE ELECTRONIC PROCUREMENT CAPABILITIES | 9,619 | 9,619 | 9,619 | | 9,619 |
| 137 | 0605294D8Z | TRUSTED & ASSURED MICROELECTRONICS | 175,032 | 175,032 | 175,032 | | 175,032 |
| 138 | 0303140BL | INFORMATION SYSTEMS SECURITY PROGRAM | 425 | 425 | 425 | | 425 |
| 139 | 0303141K | GLOBAL COMBAT SUPPORT SYSTEM | 1,578 | 1,578 | 1,578 | | 1,578 |
| 140 | 0305304D8Z | DOD ENTERPRISE ENERGY INFORMATION MANAGEMENT (EEIM) | 4,373 | 4,373 | 4,373 | | 4,373 |
| 141 | 0305310D8Z | CWMD SYSTEMS: SYSTEM DEVELOPMENT AND DEMONSTRATION | 12,854 | 12,854 | 12,854 | | 12,854 |
| | | SUBTOTAL SYSTEM DEVELOPMENT AND DEMONSTRATION | 841,588 | 727,588 | 841,588 | −41,000 | 800,588 |
| | | MANAGEMENT SUPPORT | | | | | |
| 142 | 0603829J | JOINT CAPABILITY EXPERIMENTATION | 13,000 | 13,000 | 13,000 | | 13,000 |
| 143 | 0604774D8Z | DEFENSE READINESS REPORTING SYSTEM (DRRS) | 9,724 | 9,724 | 9,724 | | 9,724 |
| 144 | 0604875D8Z | JOINT SYSTEMS ARCHITECTURE DEVELOPMENT | 9,593 | 9,593 | 9,593 | | 9,593 |
| 145 | 0604940D8Z | CENTRAL TEST AND EVALUATION INVESTMENT DEVELOPMENT (CTEIP) | 260,267 | 240,267 | 260,267 | | 260,267 |
| | | Undistributed | | [−20,000] | | | |
| 146 | 0604942D8Z | ASSESSMENTS AND EVALUATIONS | 30,834 | 30,834 | 30,834 | | 30,834 |
| 147 | 0605001E | MISSION SUPPORT | 68,498 | 68,498 | 68,498 | | 68,498 |
| 148 | 0605100D8Z | JOINT MISSION ENVIRONMENT TEST CAPABILITY (JMETC) | 83,091 | 83,091 | 89,091 | 6,000 | 89,091 |
| | | Cyber range development | | | [6,000] | [6,000] | |
| 149 | 0605104D8Z | TECHNICAL STUDIES, SUPPORT AND ANALYSIS | 18,079 | 18,079 | 13,079 | | 18,079 |

| SEC. 4201. RESEARCH, DEVELOPMENT, TEST, AND EVALUATION (In Thousands of Dollars) | | | | | | | | |
|---|-----------------|--|-----------------|------------------|-------------------|-------------------|-----------------------|--|
| Line | Program Element | Item | FY 2020 Request | House Authorized | Senate Authorized | Conference Change | Conference Authorized | |
| | | Program reduction | | | | [-5,000] | | |
| 150 | 0605126J | JOINT INTEGRATED AIR AND MISSILE DEFENSE ORGANIZATION (JIAMDO) | 70,038 | 70,038 | 70,038 | | 70,038 | |
| 152 | 0605142D8Z | SYSTEMS ENGINEERING | 37,140 | 37,140 | 32,140 | | 37,140 | |
| | | Program reduction | | | | [-5,000] | | |
| 153 | 0605151D8Z | STUDIES AND ANALYSIS SUPPORT—OSD | 4,759 | 4,759 | 4,759 | | 4,759 | |
| 154 | 0605161D8Z | NUCLEAR MATTERS-PHYSICAL SECURITY | 8,307 | 8,307 | 8,307 | | 8,307 | |
| 155 | 0605170D8Z | SUPPORT TO NETWORKS AND INFORMATION INTEGRATION | 9,441 | 9,441 | 9,441 | | 9,441 | |
| 156 | 0605200D8Z | GENERAL SUPPORT TO USD (INTELLIGENCE) | 1,700 | 1,700 | 1,700 | | 1,700 | |
| 157 | 0605384BP | CHEMICAL AND BIOLOGICAL DEFENSE PROGRAM | 110,363 | 110,363 | 110,363 | | 110,363 | |
| 166 | 0605790D8Z | SMALL BUSINESS INNOVATION RESEARCH (SBIR)/ SMALL BUSINESS TECHNOLOGY TRANSFER. | 3,568 | 3,568 | 3,568 | | 3,568 | |
| 167 | 0605797D8Z | MAINTAINING TECHNOLOGY ADVANTAGE | 19,936 | 19,936 | 19,936 | | 19,936 | |
| 168 | 0605798D8Z | DEFENSE TECHNOLOGY ANALYSIS | 16,875 | 19,875 | 16,875 | 3,000 | 19,875 | |
| | | National Science, Technology, and Security Roundtable with Academia. | | [3,000] | | [3,000] | | |
| 169 | 0605801KA | DEFENSE TECHNICAL INFORMATION CENTER (DTIC) | 57,716 | 57,716 | 57,716 | | 57,716 | |
| 170 | 0605803SE | R&D IN SUPPORT OF DOD ENLISTMENT, TESTING AND EVALUATION | 34,448 | 34,448 | 34,448 | | 34,448 | |
| 171 | 0605804D8Z | DEVELOPMENT TEST AND EVALUATION | 22,203 | 22,203 | 22,203 | | 22,203 | |
| 172 | 0605898E | MANAGEMENT HQ—R&D | 13,208 | 13,208 | 13,208 | | 13,208 | |
| 173 | 0605998KA | MANAGEMENT HQ—DEFENSE TECHNICAL INFORMATION CENTER (DTIC) | 3,027 | 3,027 | 3,027 | | 3,027 | |
| 174 | 0606100D8Z | BUDGET AND PROGRAM ASSESSMENTS | 8,017 | 8,017 | 8,017 | | 8,017 | |
| 175 | 0606225D8Z | ODNA TECHNOLOGY AND RESOURCE ANALYSIS | 3,194 | 3,194 | 3,194 | | 3,194 | |
| 176 | 0606589D8W | DEFENSE DIGITAL SERVICE (DDS) DEVELOPMENT SUPPORT | 1,000 | 1,000 | 6,000 | | 1,000 | |
| | | Increase | | | | [5,000] | | |
| 179 | 0203345D8Z | DEFENSE OPERATIONS SECURITY INITIATIVE (DOSI) | 3,037 | 3,037 | 3,037 | | 3,037 | |
| 180 | 0204571J | JOINT STAFF ANALYTICAL SUPPORT | 9,216 | 9,216 | 9,216 | | 9,216 | |
| 183 | 0303166J | SUPPORT TO INFORMATION OPERATIONS (IO) CAPABILITIES | 553 | 553 | 553 | | 553 | |

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|------|------------|--|------------------|------------------|------------------|---------------|------------------|
| 184 | 0303260D8Z | DEFENSE MILITARY DECEPTION PROGRAM OFFICE (DMDPO) | 1,014 | 1,014 | 1,014 | | 1,014 |
| 185 | 0305172K | COMBINED ADVANCED APPLICATIONS | 58,667 | 58,667 | 58,667 | -10,000 | 48,667 |
| | | Unjustified growth | | | | [-10,000] | |
| 187 | 0305245D8Z | INTELLIGENCE CAPABILITIES AND INNOVATION INVESTMENTS | 21,081 | 21,081 | 21,081 | | 21,081 |
| 189 | 0307588D8Z | ALGORITHMIC WARFARE CROSS FUNCTIONAL TEAMS | 221,235 | 221,235 | 221,235 | | 221,235 |
| 191 | 0804768J | COCOM EXERCISE ENGAGEMENT AND TRAINING TRANSFORMATION (CE2T2)—NON-MHA. | 40,073 | 40,073 | 40,073 | | 40,073 |
| 192 | 0808709SE | DEFENSE EQUAL OPPORTUNITY MANAGEMENT INSTITUTE (DEOMI) | 100 | 100 | 100 | | 100 |
| 193 | 0901598C | MANAGEMENT HQ—MDA | 27,065 | 27,065 | 27,065 | | 27,065 |
| 194 | 0903235K | JOINT SERVICE PROVIDER (JSP) | 3,090 | 3,090 | 3,090 | | 3,090 |
| 194A | 9999999999 | CLASSIFIED PROGRAMS | 51,471 | 51,471 | 51,471 | | 51,471 |
| | | SUBTOTAL MANAGEMENT SUPPORT | 1,354,628 | 1,337,628 | 1,355,628 | -1,000 | 1,353,628 |
| | | OPERATIONAL SYSTEM DEVELOPMENT | | | | | |
| | | UNDISTRIBUTED | | | | | |
| 195 | 0604130V | ENTERPRISE SECURITY SYSTEM (ESS) | 7,945 | 7,945 | 7,945 | | 7,945 |
| 196 | 0604532K | JOINT ARTIFICIAL INTELLIGENCE | 208,834 | 166,834 | 208,834 | | 208,834 |
| | | Early to need | | [-42,000] | | | |
| 197 | 0605127T | REGIONAL INTERNATIONAL OUTREACH (RIO) AND PARTNERSHIP FOR PEACE INFORMATION MANA. | 1,947 | 1,947 | 1,947 | | 1,947 |
| 198 | 0605147T | OVERSEAS HUMANITARIAN ASSISTANCE SHARED INFORMATION SYSTEM (OHAISIS). | 310 | 310 | 310 | | 310 |
| 199 | 0607210D8Z | INDUSTRIAL BASE ANALYSIS AND SUSTAINMENT SUPPORT | 10,051 | 19,051 | 48,551 | 8,500 | 18,551 |
| | | Advanced systems manufacturing | | | [5,000] | [5,000] | |
| | | Composite manufacturing technologies | | | [15,000] | | |
| | | Composite manufacturing technology | | [5,000] | | | |
| | | Lithium ion batteries | | [4,000] | | | |
| | | Printed circuit boards | | | [15,000] | | |
| | | Rare earth element production | | | [3,500] | [3,500] | |
| 200 | 0607310D8Z | CWMD SYSTEMS: OPERATIONAL SYSTEMS DEVELOPMENT | 12,734 | 12,734 | 12,734 | | 12,734 |
| 201 | 0607327T | GLOBAL THEATER SECURITY COOPERATION MANAGEMENT INFORMATION SYSTEMS (G-TSCMIS). | 14,800 | 14,800 | 14,800 | -4,450 | 10,350 |

| SEC. 4201. RESEARCH, DEVELOPMENT, TEST, AND EVALUATION (In Thousands of Dollars) | | | | | | | | |
|---|-----------------|--|-----------------|------------------|-------------------|-------------------|-----------------------|--|
| Line | Program Element | Item | FY 2020 Request | House Authorized | Senate Authorized | Conference Change | Conference Authorized | |
| | | Excess growth | | | | [-4,450] | | |
| 202 | 0607384BP | CHEMICAL AND BIOLOGICAL DEFENSE (OPERATIONAL SYSTEMS DEVELOPMENT). | 54,023 | 54,023 | 54,023 | | 54,023 | |
| 203 | 0208043J | PLANNING AND DECISION AID SYSTEM (PDAS) | 4,537 | 4,537 | 4,537 | | 4,537 | |
| 204 | 0208045K | C4I INTEROPERABILITY | 64,122 | 64,122 | 64,122 | | 64,122 | |
| 210 | 0302019K | DEFENSE INFO INFRASTRUCTURE ENGINEERING AND INTEGRATION | 15,798 | 15,798 | 15,798 | | 15,798 | |
| 211 | 0303126K | LONG-HAUL COMMUNICATIONS—DCS | 11,166 | 11,166 | 11,166 | | 11,166 | |
| 212 | 0303131K | MINIMUM ESSENTIAL EMERGENCY COMMUNICATIONS NETWORK (MEECN) | 17,383 | 17,383 | 17,383 | | 17,383 | |
| 214 | 0303136G | KEY MANAGEMENT INFRASTRUCTURE (KMI) | 54,516 | 54,516 | 54,516 | | 54,516 | |
| 215 | 0303140D8Z | INFORMATION SYSTEMS SECURITY PROGRAM | 67,631 | 89,631 | 92,631 | 25,000 | 92,631 | |
| | | AI and Cyber Center of Excellence | | | [25,000] | [25,000] | | |
| | | Cyber institutes for senior military colleges | | [12,000] | | | | |
| | | Implementation of Cyber Excepted Service | | [10,000] | | | | |
| 216 | 0303140G | INFORMATION SYSTEMS SECURITY PROGRAM | 289,080 | 287,198 | 287,198 | -1,882 | 287,198 | |
| | | Realignment to DISA for Sharkseer | | [-1,882] | | [-1,882] | | |
| | | Sharkseer transfer | | | [-1,882] | | | |
| 217 | 0303140K | INFORMATION SYSTEMS SECURITY PROGRAM | 42,796 | 44,678 | 44,678 | 1,882 | 44,678 | |
| | | Realignment for Sharkseer | | [1,882] | | [1,882] | | |
| | | Sharkseer transfer | | | [1,882] | | | |
| 218 | 0303150K | GLOBAL COMMAND AND CONTROL SYSTEM | 25,218 | 25,218 | 25,218 | | 25,218 | |
| 219 | 0303153K | DEFENSE SPECTRUM ORGANIZATION | 21,698 | 21,698 | 21,698 | | 21,698 | |
| 220 | 0303228K | JOINT REGIONAL SECURITY STACKS (JRSS) | 18,077 | 18,077 | 18,077 | | 18,077 | |
| 222 | 0303430K | FEDERAL INVESTIGATIVE SERVICES INFORMATION TECHNOLOGY | 44,001 | 44,001 | 44,001 | | 44,001 | |
| 228 | 0305128V | SECURITY AND INVESTIGATIVE ACTIVITIES | 2,400 | 2,400 | 17,400 | | 2,400 | |
| | | Local criminal records access | | | [15,000] | | | |
| 232 | 0305186D8Z | POLICY R&D PROGRAMS | 6,301 | 6,301 | 6,301 | | 6,301 | |
| 233 | 0305199D8Z | NET CENTRICITY | 21,384 | 21,384 | 21,384 | | 21,384 | |

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| | | | | | | | |
|------|------------|---|-------------------|-------------------|-------------------|----------------|-------------------|
| 235 | 0305208BB | DISTRIBUTED COMMON GROUND/SURFACE SYSTEMS | 6,359 | 6,359 | 6,359 | | 6,359 |
| 238 | 0305208K | DISTRIBUTED COMMON GROUND/SURFACE SYSTEMS | 2,981 | 2,981 | 2,981 | | 2,981 |
| 241 | 0305327V | INSIDER THREAT | 1,964 | 1,964 | 1,964 | | 1,964 |
| 242 | 0305387D8Z | HOMELAND DEFENSE TECHNOLOGY TRANSFER PROGRAM | 2,221 | 2,221 | 2,221 | | 2,221 |
| 250 | 0708012K | LOGISTICS SUPPORT ACTIVITIES | 1,361 | 1,361 | 1,361 | | 1,361 |
| 251 | 0708012S | PACIFIC DISASTER CENTERS | 1,770 | 1,770 | 1,770 | | 1,770 |
| 252 | 0708047S | DEFENSE PROPERTY ACCOUNTABILITY SYSTEM | 3,679 | 3,679 | 3,679 | | 3,679 |
| 254 | 1105219BB | MQ-9 UAV | 20,697 | 20,697 | 20,697 | | 20,697 |
| 256 | 1160403BB | AVIATION SYSTEMS | 245,795 | 263,021 | 254,595 | 17,200 | 262,995 |
| | | Program increase—Future Vertical Lift | | [8,800] | | [8,800] | |
| | | Program increase—RFCM | | [8,426] | | | |
| | | UPL Future vertical lift | | | [8,800] | | |
| | | UPL FVL realignment from RFCM | | | | [8,400] | |
| 257 | 1160405BB | INTELLIGENCE SYSTEMS DEVELOPMENT | 15,484 | 15,484 | 15,484 | | 15,484 |
| 258 | 1160408BB | OPERATIONAL ENHANCEMENTS | 166,922 | 166,922 | 166,922 | | 166,922 |
| 259 | 1160431BB | WARRIOR SYSTEMS | 62,332 | 62,332 | 62,332 | | 62,332 |
| 260 | 1160432BB | SPECIAL PROGRAMS | 21,805 | 21,805 | 21,805 | | 21,805 |
| 261 | 1160434BB | UNMANNED ISR | 37,377 | 37,377 | 37,377 | | 37,377 |
| 262 | 1160480BB | SOF TACTICAL VEHICLES | 11,150 | 11,150 | 11,150 | | 11,150 |
| 263 | 1160483BB | MARITIME SYSTEMS | 72,626 | 72,626 | 72,626 | | 72,626 |
| 264 | 1160489BB | GLOBAL VIDEO SURVEILLANCE ACTIVITIES | 5,363 | 5,363 | 5,363 | | 5,363 |
| 265 | 1160490BB | OPERATIONAL ENHANCEMENTS INTELLIGENCE | 12,962 | 12,962 | 12,962 | | 12,962 |
| 266 | 1203610K | TELEPORT PROGRAM | 6,158 | 6,158 | 6,158 | | 6,158 |
| 266A | 9999999999 | CLASSIFIED PROGRAMS | 4,542,640 | 4,542,640 | 4,542,640 | | 4,542,640 |
| | | SUBTOTAL OPERATIONAL SYSTEM DEVELOPMENT | 6,258,398 | 6,383,624 | 6,345,698 | 46,250 | 6,304,648 |
| 267A | 9999999999 | UNDISTRIBUTED | | 119,000 | | | |
| | | Transfer to NRO for weather satellite procurement to mitigate weather capability gaps risk in 2022–2023. | | [119,000] | | | |
| | | SUBTOTAL UNDISTRIBUTED | | 125,226 | 87,300 | 46,250 | 46,250 |
| | | TOTAL RESEARCH, DEVELOPMENT, TEST & EVAL, DW | 24,772,953 | 24,572,855 | 25,085,253 | 198,872 | 24,971,825 |

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| SEC. 4201. RESEARCH, DEVELOPMENT, TEST, AND EVALUATION (In Thousands of Dollars) | | | | | | | |
|---|-----------------|---|--------------------|--------------------|--------------------|-------------------|-----------------------|
| Line | Program Element | Item | FY 2020 Request | House Authorized | Senate Authorized | Conference Change | Conference Authorized |
| OPERATIONAL TEST & EVAL, DEFENSE MANAGEMENT SUPPORT | | | | | | | |
| 001 | 06051180TE | OPERATIONAL TEST AND EVALUATION | 93,291 | 93,291 | 93,291 | | 93,291 |
| 002 | 06051310TE | LIVE FIRE TEST AND EVALUATION | 69,172 | 69,172 | 69,172 | | 69,172 |
| 003 | 06058140TE | OPERATIONAL TEST ACTIVITIES AND ANALYSES | 58,737 | 58,737 | 58,737 | | 58,737 |
| | | SUBTOTAL MANAGEMENT SUPPORT | 221,200 | 221,200 | 221,200 | | 221,200 |
| | | TOTAL OPERATIONAL TEST & EVAL, DEFENSE | 221,200 | 221,200 | 221,200 | | 221,200 |
| | | TOTAL RDT&E | 103,395,545 | 100,742,469 | 104,053,153 | -1,085,699 | 102,309,846 |

SEC. 4202. RESEARCH, DEVELOPMENT, TEST, AND EVALUATION FOR OVERSEAS CONTINGENCY OPERATIONS.

| SEC. 4202. RESEARCH, DEVELOPMENT, TEST, AND EVALUATION FOR OVERSEAS CONTINGENCY OPERATIONS (In Thousands of Dollars) | | | | | | | |
|---|-----------------|---|-----------------|------------------|-------------------|-------------------|-----------------------|
| Line | Program Element | Item | FY 2020 Request | House Authorized | Senate Authorized | Conference Change | Conference Authorized |
| RESEARCH, DEVELOPMENT, TEST & EVAL, ARMY | | | | | | | |
| ADVANCED COMPONENT DEVELOPMENT & PROTOTYPES | | | | | | | |
| 074 | 0603327A | AIR AND MISSILE DEFENSE SYSTEMS ENGINEERING | 500 | 500 | 500 | | 500 |
| 079 | 0603747A | SOLDIER SUPPORT AND SURVIVABILITY | 3,000 | 3,000 | 3,000 | | 3,000 |
| 085 | 0603804A | LOGISTICS AND ENGINEER EQUIPMENT—ADV DEV | 1,085 | 1,085 | 1,085 | | 1,085 |
| 095 | 0604117A | MANEUVER—SHORT RANGE AIR DEFENSE (M-SHORAD) | 6,000 | | 6,000 | –6,000 | |
| | | Unjustified request | | [–6,000] | | [–6,000] | |
| 097 | 0604119A | ARMY ADVANCED COMPONENT DEVELOPMENT & PROTOTYPING | 4,529 | 4,529 | 4,529 | | 4,529 |
| 105 | 0604785A | INTEGRATED BASE DEFENSE (BUDGET ACTIVITY 4) | 2,000 | | 2,000 | | 2,000 |
| | | Unjustified request | | [–2,000] | | | |
| | | SUBTOTAL ADVANCED COMPONENT DEVELOPMENT & PROTOTYPES | 17,114 | 17,114 | 17,114 | | 17,114 |
| SYSTEM DEVELOPMENT & DEMONSTRATION | | | | | | | |
| 151 | 0605035A | COMMON INFRARED COUNTERMEASURES (CIRCM) | 11,770 | 11,770 | 11,770 | | 11,770 |
| 159 | 0605051A | AIRCRAFT SURVIVABILITY DEVELOPMENT | 77,420 | 77,420 | 77,420 | | 77,420 |
| 163 | 0605203A | ARMY SYSTEM DEVELOPMENT & DEMONSTRATION | 19,527 | 19,527 | 19,527 | | 19,527 |
| 174 | 0304270A | ELECTRONIC WARFARE DEVELOPMENT | 3,200 | 3,200 | 3,200 | | 3,200 |
| | | SUBTOTAL SYSTEM DEVELOPMENT & DEMONSTRATION | 111,917 | 111,917 | 111,917 | | 111,917 |
| RDT&E MANAGEMENT SUPPORT | | | | | | | |
| 200 | 0606003A | COUNTERINTEL AND HUMAN INTEL MODERNIZATION | 1,875 | 1,875 | 1,875 | | 1,875 |
| | | SUBTOTAL RDT&E MANAGEMENT SUPPORT | 1,875 | 1,875 | 1,875 | | 1,875 |
| OPERATIONAL SYSTEMS DEVELOPMENT | | | | | | | |
| UNDISTRIBUTED | | | | | | | |

| SEC. 4202. RESEARCH, DEVELOPMENT, TEST, AND EVALUATION FOR OVERSEAS CONTINGENCY OPERATIONS (In Thousands of Dollars) | | | | | | | |
|---|-----------------|---|-----------------|------------------|-------------------|-------------------|-----------------------|
| Line | Program Element | Item | FY 2020 Request | House Authorized | Senate Authorized | Conference Change | Conference Authorized |
| 238 | 0303028A | SECURITY AND INTELLIGENCE ACTIVITIES | 22,904 | 22,904 | 22,904 | | 22,904 |
| 246 | 0305204A | TACTICAL UNMANNED AERIAL VEHICLES | 34,100 | 34,100 | 34,100 | | 34,100 |
| 247 | 0305206A | AIRBORNE RECONNAISSANCE SYSTEMS | 14,000 | 14,000 | 14,000 | | 14,000 |
| 252 | 0307665A | BIOMETRICS ENABLED INTELLIGENCE | 2,214 | 2,214 | 2,214 | | 2,214 |
| | | SUBTOTAL OPERATIONAL SYSTEMS DEVELOPMENT | 73,218 | 73,218 | 73,218 | | 73,218 |
| | | TOTAL RESEARCH, DEVELOPMENT, TEST & EVAL, ARMY | 204,124 | 196,124 | 204,124 | -6,000 | 198,124 |
| | | RESEARCH, DEVELOPMENT, TEST & EVAL, NAVY | | | | | |
| | | ADVANCED COMPONENT DEVELOPMENT & PROTOTYPES | | | | | |
| 028 | 0603207N | AIR/OCEAN TACTICAL APPLICATIONS | 2,400 | 2,400 | 2,400 | | 2,400 |
| 038 | 0603527N | RETRACT LARCH | 22,000 | 22,000 | 22,000 | | 22,000 |
| 057 | 0603654N | JOINT SERVICE EXPLOSIVE ORDNANCE DEVELOPMENT | 14,178 | 14,178 | 14,178 | | 14,178 |
| 069 | 0603795N | LAND ATTACK TECHNOLOGY | 1,428 | 1,428 | 1,428 | | 1,428 |
| | | SUBTOTAL ADVANCED COMPONENT DEVELOPMENT & PROTOTYPES | 40,006 | 40,006 | 40,006 | | 40,006 |
| | | SYSTEM DEVELOPMENT & DEMONSTRATION | | | | | |
| 143 | 0604755N | SHIP SELF DEFENSE (DETECT & CONTROL) | 1,122 | 1,122 | 1,122 | | 1,122 |
| | | SUBTOTAL SYSTEM DEVELOPMENT & DEMONSTRATION | 1,122 | 1,122 | 1,122 | | 1,122 |
| | | OPERATIONAL SYSTEMS DEVELOPMENT | | | | | |
| | | UNDISTRIBUTED | | | | | |
| 228 | 0206313M | MARINE CORPS COMMUNICATIONS SYSTEMS | 15,000 | 15,000 | 15,000 | | 15,000 |
| 259A | 9999999999 | CLASSIFIED PROGRAMS | 108,282 | 108,282 | 108,282 | | 108,282 |
| | | SUBTOTAL OPERATIONAL SYSTEMS DEVELOPMENT | 123,282 | 123,282 | 123,282 | | 123,282 |
| | | TOTAL RESEARCH, DEVELOPMENT, TEST & EVAL, NAVY | 164,410 | 164,410 | 164,410 | | 164,410 |

| | | | | | | |
|------|------------|--|----------------|----------------|----------------|----------------|
| | | RESEARCH, DEVELOPMENT, TEST & EVAL, AF | | | | |
| | | ADVANCED COMPONENT DEVELOPMENT & PROTOTYPES | | | | |
| 048 | 0604858F | TECH TRANSITION PROGRAM | 26,450 | 26,450 | 26,450 | 26,450 |
| 072 | 1206857F | SPACE RAPID CAPABILITIES OFFICE | 17,885 | 17,885 | 17,885 | 17,885 |
| | | SUBTOTAL ADVANCED COMPONENT DEVELOPMENT & PROTOTYPES | 44,335 | 44,335 | 44,335 | 44,335 |
| | | OPERATIONAL SYSTEMS DEVELOPMENT | | | | |
| | | UNDISTRIBUTED | | | | |
| 177 | 0205671F | JOINT COUNTER RCIED ELECTRONIC WARFARE | 4,000 | 4,000 | 4,000 | 4,000 |
| 217 | 0208288F | INTEL DATA APPLICATIONS | 1,200 | 1,200 | 1,200 | 1,200 |
| 311A | 9999999999 | CLASSIFIED PROGRAMS | 78,713 | 78,713 | 78,713 | 78,713 |
| | | SUBTOTAL OPERATIONAL SYSTEMS DEVELOPMENT | 83,913 | 83,913 | 83,913 | 83,913 |
| | | TOTAL RESEARCH, DEVELOPMENT, TEST & EVAL, AF | 128,248 | 128,248 | 128,248 | 128,248 |
| | | RESEARCH, DEVELOPMENT, TEST & EVAL, DW | | | | |
| | | APPLIED RESEARCH | | | | |
| 010 | 0602134BR | COUNTER IMPROVISED-THREAT ADVANCED STUDIES | 1,677 | 1,677 | 1,677 | 1,677 |
| | | SUBTOTAL APPLIED RESEARCH | 1,677 | 1,677 | 1,677 | 1,677 |
| | | ADVANCED TECHNOLOGY DEVELOPMENT | | | | |
| 025 | 0603122D8Z | COMBATING TERRORISM TECHNOLOGY SUPPORT | 25,230 | 25,230 | 25,230 | 25,230 |
| 027 | 0603134BR | COUNTER IMPROVISED-THREAT SIMULATION | 49,528 | 49,528 | 49,528 | 49,528 |
| | | SUBTOTAL ADVANCED TECHNOLOGY DEVELOPMENT | 74,758 | 74,758 | 74,758 | 74,758 |
| | | ADVANCED COMPONENT DEVELOPMENT AND PROTOTYPES | | | | |
| 094 | 0604134BR | COUNTER IMPROVISED-THREAT DEMONSTRATION, PROTOTYPE DEVELOPMENT, AND TESTING. | 113,590 | 113,590 | 113,590 | 113,590 |
| | | SUBTOTAL ADVANCED COMPONENT DEVELOPMENT AND PROTOTYPES | 113,590 | 113,590 | 113,590 | 113,590 |
| | | OPERATIONAL SYSTEM DEVELOPMENT | | | | |

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| SEC. 4202. RESEARCH, DEVELOPMENT, TEST, AND EVALUATION FOR OVERSEAS CONTINGENCY OPERATIONS (In Thousands of Dollars) | | | | | | | |
|---|-----------------|---|-----------------|------------------|-------------------|-------------------|-----------------------|
| Line | Program Element | Item | FY 2020 Request | House Authorized | Senate Authorized | Conference Change | Conference Authorized |
| UNDISTRIBUTED | | | | | | | |
| 258 | 1160408BB | OPERATIONAL ENHANCEMENTS | 726 | 726 | 726 | | 726 |
| 259 | 1160431BB | WARRIOR SYSTEMS | 6,000 | 6,000 | 6,000 | | 6,000 |
| 261 | 1160434BB | UNMANNED ISR | 5,000 | 5,000 | 5,000 | | 5,000 |
| 266A | 9999999999 | CLASSIFIED PROGRAMS | 200,199 | 200,199 | 200,199 | | 200,199 |
| | | SUBTOTAL OPERATIONAL SYSTEM DEVELOPMENT | 211,925 | 211,925 | 211,925 | | 211,925 |
| | | TOTAL RESEARCH, DEVELOPMENT, TEST & EVAL, DW | 401,950 | 401,950 | 401,950 | | 401,950 |
| | | TOTAL RDT&E | 898,732 | 890,732 | 898,732 | -6,000 | 892,732 |

SEC. 4203. RESEARCH, DEVELOPMENT, TEST, AND EVALUATION FOR EMERGENCY REQUIREMENTS.

| SEC. 4203. RESEARCH, DEVELOPMENT, TEST, AND EVALUATION FOR EMERGENCY REQUIREMENTS (In Thousands of Dollars) | | | | | | | |
|--|-----------------|--|-----------------|------------------|-------------------|-------------------|-----------------------|
| Line | Program Element | Item | FY 2020 Request | House Authorized | Senate Authorized | Conference Change | Conference Authorized |
| | | RESEARCH, DEVELOPMENT, TEST & EVAL, NAVY MANAGEMENT SUPPORT | | | | | |
| 187 | 0605864N | TEST AND EVALUATION SUPPORT | 0 | | | 129,000 | 129,000 |
| | | Earthquake damage recovery | | | | [129,000] | |
| | | TOTAL RESEARCH, DEVELOPMENT, TEST & EVAL, NAVY | 0 | | | 129,000 | 129,000 |
| | | RESEARCH, DEVELOPMENT, TEST & EVAL, AF MANAGEMENT SUPPORT | | | | | |
| 128 | 0605807F | TEST AND EVALUATION SUPPORT | 0 | | | 14,436 | 14,436 |
| | | Earthquake damage recovery | | | | [14,436] | |
| 138 | 0605976F | FACILITIES RESTORATION AND MODERNIZATION—TEST AND EVALUA- TION SUPPORT. | 0 | | | 1,060 | 1,060 |
| | | Earthquake damage recovery | | | | [1,060] | |
| | | TOTAL RESEARCH, DEVELOPMENT, TEST & EVAL, AF | 0 | | | 15,496 | 15,496 |
| | | TOTAL RDT&E | 0 | | | 144,496 | 144,496 |

TITLE XLIII—OPERATION AND MAINTENANCE

SEC. 4301. OPERATION AND MAINTENANCE.

| SEC. 4301. OPERATION AND MAINTENANCE (In Thousands of Dollars) | | | | | | |
|---|--|-----------------|------------------|-------------------|-------------------|-----------------------|
| Line | Item | FY 2020 Request | House Authorized | Senate Authorized | Conference Change | Conference Authorized |
| OPERATION & MAINTENANCE, ARMY | | | | | | |
| OPERATING FORCES | | | | | | |
| 010 | MANEUVER UNITS | 1,735,922 | 1,659,222 | 1,735,922 | -337,248 | 1,398,674 |
| | Realignment to OCO | | | | [-260,548] | |
| | Unjustified growth | | [-76,700] | | [-76,700] | |
| 020 | MODULAR SUPPORT BRIGADES | 127,815 | 126,515 | 127,815 | -3,150 | 124,665 |
| | Unjustified growth | | [-1,300] | | [-3,150] | |
| 030 | ECHELONS ABOVE BRIGADE | 716,356 | 709,356 | 716,356 | -7,000 | 709,356 |
| | Unjustified growth | | [-7,000] | | [-7,000] | |
| 040 | THEATER LEVEL ASSETS | 890,891 | 881,991 | 890,891 | -12,000 | 878,891 |
| | Unjustified growth | | [-8,900] | | [-12,000] | |
| 050 | LAND FORCES OPERATIONS SUPPORT | 1,232,477 | 1,215,477 | 1,232,477 | -9,500 | 1,222,977 |
| | Program decrease | | [-15,000] | | | |
| | Unjustified growth | | [-2,000] | | [-9,500] | |
| 060 | AVIATION ASSETS | 1,355,606 | 1,282,106 | 1,355,606 | -86,500 | 1,269,106 |
| | Excess to need | | [-73,500] | | [-86,500] | |
| 070 | FORCE READINESS OPERATIONS SUPPORT | 3,882,315 | 2,644,315 | 3,882,315 | -1,218,000 | 2,664,315 |
| | Excess FTE request | | [-38,000] | | | |
| | Female personal protective equipment | | [2,000] | | [2,000] | |
| | Program decrease | | [-15,000] | | | |
| | Realignment to OCO | | [-1,100,000] | | [-1,100,000] | |
| | Unjustified growth | | [-12,000] | | [-120,000] | |

| | | | | | | |
|-----|---|-------------------|-------------------|-------------------|-------------------|-------------------|
| | Unjustified transfer | | [−75,000] | | | |
| 080 | LAND FORCES SYSTEMS READINESS | 417,069 | 417,069 | 446,269 | 29,200 | 446,269 |
| | UPL MDTF INDOPACOM | | | [29,200] | [29,200] | |
| 090 | LAND FORCES DEPOT MAINTENANCE | 1,633,327 | 1,633,327 | 1,633,327 | −25,000 | 1,608,327 |
| | Unjustified growth | | | | [−25,000] | |
| 100 | BASE OPERATIONS SUPPORT | 8,047,933 | 8,032,933 | 7,951,473 | −45,000 | 8,002,933 |
| | Army Community Services | | [30,000] | | | |
| | Historical underexecution | | | [−46,000] | | |
| | Revised MHPI cost share | | | [−50,460] | | |
| | Unjustified growth | | [−45,000] | | [−45,000] | |
| 110 | FACILITIES SUSTAINMENT, RESTORATION & MODERNIZATION | 4,326,840 | 4,051,840 | 4,326,840 | | 4,326,840 |
| | Unexecutable growth | | [−275,000] | | | |
| 120 | MANAGEMENT AND OPERATIONAL HEADQUARTERS | 405,612 | 405,612 | 405,612 | | 405,612 |
| 160 | US AFRICA COMMAND | 251,511 | 251,511 | 251,511 | −8,500 | 243,011 |
| | Unjustified growth | | | | [−8,500] | |
| 170 | US EUROPEAN COMMAND | 146,358 | 146,358 | 154,158 | | 146,358 |
| | | | | [7,800] | | |
| 180 | US SOUTHERN COMMAND | 191,840 | 218,340 | 191,840 | 18,000 | 209,840 |
| | Multi-Mission Support Vessel | | [18,000] | | [18,000] | |
| | Overland airborne ISR operations | | [8,500] | | | |
| 190 | US FORCES KOREA | 57,603 | 57,603 | 57,603 | | 57,603 |
| 200 | CYBERSPACE ACTIVITIES—CYBERSPACE OPERATIONS | 423,156 | 423,156 | 423,156 | | 423,156 |
| 210 | CYBERSPACE ACTIVITIES—CYBERSECURITY | 551,185 | 551,185 | 551,185 | | 551,185 |
| | SUBTOTAL OPERATING FORCES | 26,393,816 | 24,707,916 | 26,334,356 | −1,704,698 | 24,689,118 |
| | MOBILIZATION | | | | | |
| 220 | STRATEGIC MOBILITY | 380,577 | 380,577 | 380,577 | | 380,577 |
| 230 | ARMY PREPOSITIONED STOCKS | 362,942 | 362,942 | 362,942 | | 362,942 |
| 240 | INDUSTRIAL PREPAREDNESS | 4,637 | 4,637 | 4,637 | 1,000 | 5,637 |
| | Advanced Manufacturing COE Tech Roadmapping | | | | [1,000] | |
| | SUBTOTAL MOBILIZATION | 748,156 | 748,156 | 748,156 | 1,000 | 749,156 |

| SEC. 4301. OPERATION AND MAINTENANCE (In Thousands of Dollars) | | | | | | |
|---|---|------------------|------------------|-------------------|-------------------|-----------------------|
| Line | Item | FY 2020 Request | House Authorized | Senate Authorized | Conference Change | Conference Authorized |
| TRAINING AND RECRUITING | | | | | | |
| 250 | OFFICER ACQUISITION | 157,175 | 157,175 | 157,175 | | 157,175 |
| 260 | RECRUIT TRAINING | 55,739 | 55,739 | 55,739 | | 55,739 |
| 270 | ONE STATION UNIT TRAINING | 62,300 | 62,300 | 62,300 | | 62,300 |
| 280 | SENIOR RESERVE OFFICERS TRAINING CORPS | 538,357 | 538,357 | 538,357 | | 538,357 |
| 290 | SPECIALIZED SKILL TRAINING | 969,813 | 969,813 | 969,813 | | 969,813 |
| 300 | FLIGHT TRAINING | 1,234,049 | 1,209,049 | 1,234,049 | | 1,234,049 |
| | Changes to AH-64E Program | | [-25,000] | | | |
| 310 | PROFESSIONAL DEVELOPMENT EDUCATION | 218,338 | 218,338 | 218,338 | | 218,338 |
| 320 | TRAINING SUPPORT | 554,659 | 550,659 | 554,659 | -2,000 | 552,659 |
| | Excess travel request | | [-4,000] | | [-2,000] | |
| 330 | RECRUITING AND ADVERTISING | 716,056 | 716,056 | 636,056 | -10,000 | 706,056 |
| | Unjustified growth for advertising | | | [-70,000] | | |
| | Unjustified growth for recruiting | | | [-10,000] | [-10,000] | |
| 340 | EXAMINING | 185,034 | 185,034 | 185,034 | | 185,034 |
| 350 | OFF-DUTY AND VOLUNTARY EDUCATION | 214,275 | 214,275 | 214,275 | | 214,275 |
| 360 | CIVILIAN EDUCATION AND TRAINING | 147,647 | 147,647 | 147,647 | | 147,647 |
| 370 | JUNIOR RESERVE OFFICER TRAINING CORPS | 173,812 | 173,812 | 173,812 | | 173,812 |
| | SUBTOTAL TRAINING AND RECRUITING | 5,227,254 | 5,198,254 | 5,147,254 | -12,000 | 5,215,254 |
| ADMIN & SRVWIDE ACTIVITIES | | | | | | |
| 390 | SERVICEWIDE TRANSPORTATION | 559,229 | 559,229 | 559,229 | | 559,229 |
| 400 | CENTRAL SUPPLY ACTIVITIES | 929,944 | 927,944 | 929,944 | -1,000 | 928,944 |
| | Excess personnel | | [-2,000] | | [-1,000] | |
| 410 | LOGISTIC SUPPORT ACTIVITIES | 629,981 | 629,981 | 629,981 | | 629,981 |
| 420 | AMMUNITION MANAGEMENT | 458,771 | 458,771 | 458,771 | -7,000 | 451,771 |
| | Unjustified growth | | | | [-7,000] | |

November 23, 2019 (1:06 a.m.)

| | | | | | | |
|-----|---|-------------------|-------------------|-------------------|-------------------|-------------------|
| 430 | ADMINISTRATION | 428,768 | 428,768 | 428,768 | -10,000 | 418,768 |
| | Unjustified growth | | | | [-10,000] | |
| 440 | SERVICEWIDE COMMUNICATIONS | 1,512,736 | 1,512,736 | 1,512,736 | -40,000 | 1,472,736 |
| | Program decrease unaccounted for | | | | [-40,000] | |
| 450 | MANPOWER MANAGEMENT | 272,738 | 272,738 | 272,738 | | 272,738 |
| 460 | OTHER PERSONNEL SUPPORT | 391,869 | 381,869 | 363,869 | -30,000 | 361,869 |
| | Historical underexecution | | | [-28,000] | | |
| | Unjustified growth | | [-10,000] | | [-30,000] | |
| 470 | OTHER SERVICE SUPPORT | 1,901,165 | 1,896,080 | 1,901,165 | -20,000 | 1,881,165 |
| | Unjustified headquarters growth | | [-5,085] | | [-20,000] | |
| 480 | ARMY CLAIMS ACTIVITIES | 198,765 | 198,765 | 183,765 | -7,500 | 191,265 |
| | Historical underexecution | | | [-15,000] | [-7,500] | |
| 490 | REAL ESTATE MANAGEMENT | 226,248 | 226,248 | 226,248 | | 226,248 |
| 500 | FINANCIAL MANAGEMENT AND AUDIT READINESS | 315,489 | 310,489 | 315,489 | -23,000 | 292,489 |
| | Program decrease unaccounted for | | | | [-23,000] | |
| | Unjustified growth to General Fund Enterprise Business System | | [-5,000] | | | |
| 510 | INTERNATIONAL MILITARY HEADQUARTERS | 427,254 | 427,254 | 427,254 | | 427,254 |
| 520 | MISC. SUPPORT OF OTHER NATIONS | 43,248 | 43,248 | 43,248 | | 43,248 |
| 565 | CLASSIFIED PROGRAMS | 1,347,053 | 1,347,053 | 1,347,053 | | 1,347,053 |
| | SUBTOTAL ADMIN & SRVWIDE ACTIVITIES | 9,643,258 | 9,621,173 | 9,600,258 | -138,500 | 9,504,758 |
| | UNDISTRIBUTED | | | | | |
| 570 | UNDISTRIBUTED | | -110,000 | | | |
| | Overestimation of civilian FTE targets | | [-110,000] | | | |
| | SUBTOTAL UNDISTRIBUTED | | -110,000 | | | |
| | TOTAL OPERATION & MAINTENANCE, ARMY | 42,012,484 | 40,165,499 | 41,830,024 | -1,854,198 | 40,158,286 |
| | OPERATION & MAINTENANCE, ARMY RES | | | | | |
| | OPERATING FORCES | | | | | |
| 010 | MODULAR SUPPORT BRIGADES | 11,927 | 11,927 | 11,927 | | 11,927 |
| 020 | ECHELONS ABOVE BRIGADE | 533,015 | 533,015 | 533,015 | | 533,015 |

SEC. 4301. OPERATION AND MAINTENANCE
(In Thousands of Dollars)

| Line | Item | FY 2020 Request | House Authorized | Senate Authorized | Conference Change | Conference Authorized |
|------|---|------------------|------------------|-------------------|-------------------|-----------------------|
| 030 | THEATER LEVEL ASSETS | 119,517 | 118,101 | 119,517 | -1,416 | 118,101 |
| | Insufficient justification | | [-1,416] | | [-1,416] | |
| 040 | LAND FORCES OPERATIONS SUPPORT | 550,468 | 548,268 | 550,468 | -7,000 | 543,468 |
| | Insufficient justification | | [-2,200] | | [-7,000] | |
| 050 | AVIATION ASSETS | 86,670 | 85,170 | 86,670 | -1,500 | 85,170 |
| | Unjustified growth | | [-1,500] | | [-1,500] | |
| 060 | FORCE READINESS OPERATIONS SUPPORT | 390,061 | 388,661 | 390,061 | -1,400 | 388,661 |
| | Excess civilian increase | | [-400] | | [-1,400] | |
| | Excess travel increase | | [-1,000] | | | |
| 070 | LAND FORCES SYSTEMS READINESS | 101,890 | 101,890 | 101,890 | | 101,890 |
| 080 | LAND FORCES DEPOT MAINTENANCE | 48,503 | 48,503 | 48,503 | | 48,503 |
| 090 | BASE OPERATIONS SUPPORT | 598,907 | 598,907 | 598,907 | -4,200 | 594,707 |
| | Insufficient justification | | | | [-4,200] | |
| 100 | FACILITIES SUSTAINMENT, RESTORATION & MODERNIZATION | 444,376 | 444,376 | 444,376 | | 444,376 |
| 110 | MANAGEMENT AND OPERATIONAL HEADQUARTERS | 22,095 | 22,095 | 22,095 | | 22,095 |
| 120 | CYBERSPACE ACTIVITIES—CYBERSPACE OPERATIONS | 3,288 | 3,288 | 3,288 | | 3,288 |
| 130 | CYBERSPACE ACTIVITIES—CYBERSECURITY | 7,655 | 7,655 | 7,655 | | 7,655 |
| | SUBTOTAL OPERATING FORCES | 2,918,372 | 2,911,856 | 2,918,372 | -15,516 | 2,902,856 |
| | ADMIN & SRVWD ACTIVITIES | | | | | |
| | UNDISTRIBUTED | | | | | |
| 140 | SERVICEWIDE TRANSPORTATION | 14,533 | 14,533 | 14,533 | | 14,533 |
| 150 | ADMINISTRATION | 17,231 | 17,231 | 17,231 | | 17,231 |
| 160 | SERVICEWIDE COMMUNICATIONS | 14,304 | 14,304 | 14,304 | | 14,304 |
| 170 | MANPOWER MANAGEMENT | 6,129 | 6,129 | 6,129 | | 6,129 |
| 180 | RECRUITING AND ADVERTISING | 58,541 | 58,541 | 58,541 | | 58,541 |
| | SUBTOTAL ADMIN & SRVWD ACTIVITIES | 110,738 | 110,738 | 110,738 | | 110,738 |

| | | | | | | |
|-----|---|------------------|------------------|------------------|----------------|------------------|
| 200 | UNDISTRIBUTED | | | | -25,000 | -25,000 |
| | Overestimation of civilian FTE targets | | | | [-25,000] | |
| | SUBTOTAL UNDISTRIBUTED | | | | -25,000 | -25,000 |
| | TOTAL OPERATION & MAINTENANCE, ARMY RES | 3,029,110 | 3,022,594 | 3,029,110 | -40,516 | 2,988,594 |
| | OPERATION & MAINTENANCE, ARNG | | | | | |
| | UNDISTRIBUTED | | | | | |
| 010 | MANEUVER UNITS | 805,671 | 797,671 | 805,671 | -30,000 | 775,671 |
| | Excess growth | | [-8,000] | | [-30,000] | |
| 020 | MODULAR SUPPORT BRIGADES | 195,334 | 193,334 | 195,334 | -2,000 | 193,334 |
| | Excess growth | | [-2,000] | | [-2,000] | |
| 030 | ECHELONS ABOVE BRIGADE | 771,048 | 770,548 | 771,048 | -500 | 770,548 |
| | Excess growth | | [-500] | | [-500] | |
| 040 | THEATER LEVEL ASSETS | 94,726 | 91,826 | 94,726 | -500 | 94,226 |
| | Excess growth | | [-2,900] | | [-500] | |
| 050 | LAND FORCES OPERATIONS SUPPORT | 33,696 | 33,696 | 33,696 | 1,489 | 35,185 |
| | Program increase—advanced trauma training program | | | | [1,489] | |
| 060 | AVIATION ASSETS | 981,819 | 973,819 | 981,819 | -8,000 | 973,819 |
| | Insufficient justification | | [-8,000] | | [-8,000] | |
| 070 | FORCE READINESS OPERATIONS SUPPORT | 743,206 | 743,206 | 743,206 | | 743,206 |
| 080 | LAND FORCES SYSTEMS READINESS | 50,963 | 50,963 | 50,963 | | 50,963 |
| 090 | LAND FORCES DEPOT MAINTENANCE | 258,278 | 249,778 | 258,278 | -4,250 | 254,028 |
| | Insufficient justification | | [-8,500] | | [-4,250] | |
| 100 | BASE OPERATIONS SUPPORT | 1,153,076 | 1,121,576 | 1,153,076 | -20,000 | 1,133,076 |
| | Insufficient justification | | [-31,500] | | [-20,000] | |
| 110 | FACILITIES SUSTAINMENT, RESTORATION & MODERNIZATION | 1,113,475 | 1,033,475 | 1,120,675 | | 1,113,475 |
| | Damage assessment | | | [7,200] | | |
| | Insufficient justification | | [-80,000] | | | |
| 120 | MANAGEMENT AND OPERATIONAL HEADQUARTERS | 1,001,042 | 987,042 | 1,001,042 | -14,000 | 987,042 |
| | Insufficient justification | | [-14,000] | | [-14,000] | |
| 130 | CYBERSPACE ACTIVITIES—CYBERSPACE OPERATIONS | 8,448 | 8,448 | 8,448 | | 8,448 |

| SEC. 4301. OPERATION AND MAINTENANCE (In Thousands of Dollars) | | | | | | |
|---|--|------------------|------------------|-------------------|-------------------|-----------------------|
| Line | Item | FY 2020 Request | House Authorized | Senate Authorized | Conference Change | Conference Authorized |
| 140 | CYBERSPACE ACTIVITIES—CYBERSECURITY | 7,768 | 7,768 | 7,768 | | 7,768 |
| | SUBTOTAL OPERATING FORCES | 7,218,550 | 7,063,150 | 7,225,750 | -77,761 | 7,140,789 |
| 210 | UNDISTRIBUTED | | | | -20,000 | -20,000 |
| | Overestimation of civilian FTE targets | | | | [-20,000] | |
| | SUBTOTAL UNDISTRIBUTED | | | | -20,000 | -20,000 |
| | ADMIN & SRVWD ACTIVITIES | | | | | |
| 150 | SERVICEWIDE TRANSPORTATION | 9,890 | 9,890 | 9,890 | | 9,890 |
| 160 | ADMINISTRATION | 71,070 | 71,070 | 71,070 | | 71,070 |
| 170 | SERVICEWIDE COMMUNICATIONS | 68,213 | 68,213 | 68,213 | -6,000 | 62,213 |
| | Program decrease unaccounted for | | | | [-6,000] | |
| 180 | MANPOWER MANAGEMENT | 8,628 | 8,628 | 8,628 | | 8,628 |
| 190 | OTHER PERSONNEL SUPPORT | 250,376 | 250,376 | 247,376 | | 250,376 |
| | Unjustified growth for marketing | | | [-1,500] | | |
| | Unjustified growth for recruiting | | | [-1,500] | | |
| 200 | REAL ESTATE MANAGEMENT | 2,676 | 2,676 | 2,676 | | 2,676 |
| | SUBTOTAL ADMIN & SRVWD ACTIVITIES | 410,853 | 410,853 | 407,853 | -6,000 | 404,853 |
| | TOTAL OPERATION & MAINTENANCE, ARNG | 7,629,403 | 7,474,003 | 7,633,603 | -103,761 | 7,525,642 |
| | OPERATION & MAINTENANCE, NAVY | | | | | |
| | OPERATING FORCES | | | | | |
| 010 | MISSION AND OTHER FLIGHT OPERATIONS | 5,309,109 | 5,029,734 | 5,309,109 | -650,000 | 4,659,109 |
| | Excess growth | | [-15,000] | | | |
| | Projected underexecution | | [-50,000] | | [-50,000] | |
| | Realignment to OCO | | [-214,375] | | [-600,000] | |
| 020 | FLEET AIR TRAINING | 2,284,828 | 2,234,828 | 2,284,828 | -35,000 | 2,249,828 |

| | | | | | | |
|-----|--|-----------|------------|-----------|------------|-----------|
| | Projected underexecution | | [-50,000] | | [-35,000] | |
| 030 | AVIATION TECHNICAL DATA & ENGINEERING SERVICES | 59,299 | 59,299 | 59,299 | | 59,299 |
| 040 | AIR OPERATIONS AND SAFETY SUPPORT | 155,896 | 155,896 | 155,896 | | 155,896 |
| 050 | AIR SYSTEMS SUPPORT | 719,107 | 719,107 | 719,107 | | 719,107 |
| 060 | AIRCRAFT DEPOT MAINTENANCE | 1,154,181 | 1,154,181 | 1,154,181 | | 1,154,181 |
| 070 | AIRCRAFT DEPOT OPERATIONS SUPPORT | 60,402 | 59,202 | 60,402 | -1,200 | 59,202 |
| | Excess growth | | [-1,200] | | [-1,200] | |
| 080 | AVIATION LOGISTICS | 1,241,421 | 1,219,421 | 1,241,421 | -22,000 | 1,219,421 |
| | Projected underexecution | | [-22,000] | | [-22,000] | |
| 090 | MISSION AND OTHER SHIP OPERATIONS | 4,097,262 | 3,596,262 | 4,097,262 | -550,000 | 3,547,262 |
| | Realignment to OCO | | [-450,000] | | [-450,000] | |
| | Unjustified growth | | [-51,000] | | [-100,000] | |
| 100 | SHIP OPERATIONS SUPPORT & TRAINING | 1,031,792 | 1,029,792 | 1,031,792 | -2,000 | 1,029,792 |
| | Excess civilian growth | | [-2,000] | | [-2,000] | |
| 110 | SHIP DEPOT MAINTENANCE | 8,061,298 | 8,895,298 | 8,875,298 | 653,000 | 8,714,298 |
| | Program increase | | | | [653,000] | |
| | Surface ship maintenance | | [161,000] | | | |
| | UPL SSN and ship maintenance increase | | | [814,000] | | |
| | USS Boise | | [310,000] | | | |
| | USS Columbus | | [57,000] | | | |
| | USS Hartford | | [306,000] | | | |
| 120 | SHIP DEPOT OPERATIONS SUPPORT | 2,073,641 | 2,066,141 | 2,073,641 | -7,500 | 2,066,141 |
| | Insufficient justification | | [-7,500] | | [-7,500] | |
| 130 | COMBAT COMMUNICATIONS AND ELECTRONIC WARFARE | 1,378,856 | 1,378,856 | 1,378,856 | -14,000 | 1,364,856 |
| | Unjustified growth | | | | [-14,000] | |
| 140 | SPACE SYSTEMS AND SURVEILLANCE | 276,245 | 273,745 | 276,245 | -2,500 | 273,745 |
| | Unjustified growth | | [-2,500] | | [-2,500] | |
| 150 | WARFARE TACTICS | 675,209 | 675,209 | 675,209 | | 675,209 |
| 160 | OPERATIONAL METEOROLOGY AND OCEANOGRAPHY | 389,516 | 389,516 | 389,516 | | 389,516 |
| 170 | COMBAT SUPPORT FORCES | 1,536,310 | 1,526,310 | 1,536,310 | -410,000 | 1,126,310 |
| | Realignment to OCO | | | | [-400,000] | |
| | Unjustified growth | | [-10,000] | | [-10,000] | |

| SEC. 4301. OPERATION AND MAINTENANCE (In Thousands of Dollars) | | | | | | |
|---|--|-------------------|-------------------|-------------------|-------------------|-----------------------|
| Line | Item | FY 2020 Request | House Authorized | Senate Authorized | Conference Change | Conference Authorized |
| 180 | EQUIPMENT MAINTENANCE AND DEPOT OPERATIONS SUPPORT | 161,579 | 161,579 | 161,579 | | 161,579 |
| 190 | COMBATANT COMMANDERS CORE OPERATIONS | 59,521 | 59,521 | 59,521 | | 59,521 |
| 200 | COMBATANT COMMANDERS DIRECT MISSION SUPPORT | 93,978 | 93,978 | 98,978 | 5,000 | 98,978 |
| | Posture site assessments INDOPACOM | | | [5,000] | [5,000] | |
| 210 | MILITARY INFORMATION SUPPORT OPERATIONS | 8,641 | 8,641 | 8,641 | | 8,641 |
| 220 | CYBERSPACE ACTIVITIES | 496,385 | 496,385 | 496,385 | | 496,385 |
| 230 | FLEET BALLISTIC MISSILE | 1,423,339 | 1,423,339 | 1,423,339 | | 1,423,339 |
| 240 | WEAPONS MAINTENANCE | 924,069 | 895,032 | 924,069 | -29,037 | 895,032 |
| | Insufficient justification | | [-29,037] | | [-29,037] | |
| 250 | OTHER WEAPON SYSTEMS SUPPORT | 540,210 | 540,210 | 540,210 | | 540,210 |
| 260 | ENTERPRISE INFORMATION | 1,131,627 | 1,081,627 | 1,131,627 | -20,000 | 1,111,627 |
| | Unjustified growth | | [-50,000] | | [-20,000] | |
| 270 | SUSTAINMENT, RESTORATION AND MODERNIZATION | 3,029,634 | 2,929,634 | 3,029,634 | | 3,029,634 |
| | Unexecutable growth | | [-100,000] | | | |
| 280 | BASE OPERATING SUPPORT | 4,414,943 | 4,414,943 | 4,433,783 | | 4,414,943 |
| | Revised MHPI cost share | | | [18,840] | | |
| | SUBTOTAL OPERATING FORCES | 42,788,298 | 42,567,686 | 43,626,138 | -1,085,237 | 41,703,061 |
| MOBILIZATION | | | | | | |
| 290 | SHIP PREPOSITIONING AND SURGE | 942,902 | 668,561 | 942,902 | | 942,902 |
| | Realignment to NDSF (DoD mobilization alterations) | | [-9,590] | | | |
| | Realignment to NDSF (LSMR maintenance) | | [-264,751] | | | |
| 300 | READY RESERVE FORCE | 352,044 | | 352,044 | | 352,044 |
| | Realignment to NDSF | | [-352,044] | | | |
| 310 | SHIP ACTIVATIONS/INACTIVATIONS | 427,555 | 427,555 | 427,555 | | 427,555 |
| 320 | EXPEDITIONARY HEALTH SERVICES SYSTEMS | 137,597 | 40,730 | 137,597 | | 137,597 |
| | Realignment to NDSF (TAH maintenance) | | [-96,867] | | | |

| | | | | | | |
|-----|--|------------------|------------------|------------------|----------------|------------------|
| 330 | COAST GUARD SUPPORT | 24,604 | 24,604 | 24,604 | | 24,604 |
| | SUBTOTAL MOBILIZATION | 1,884,702 | 1,161,450 | 1,884,702 | | 1,884,702 |
| | TRAINING AND RECRUITING | | | | | |
| 340 | OFFICER ACQUISITION | 150,765 | 150,765 | 150,765 | | 150,765 |
| 350 | RECRUIT TRAINING | 11,584 | 11,584 | 11,584 | | 11,584 |
| 360 | RESERVE OFFICERS TRAINING CORPS | 159,133 | 159,133 | 159,133 | | 159,133 |
| 370 | SPECIALIZED SKILL TRAINING | 911,316 | 891,316 | 911,316 | -20,000 | 891,316 |
| | Insufficient justification | | [-20,000] | | [-20,000] | |
| 380 | PROFESSIONAL DEVELOPMENT EDUCATION | 185,211 | 186,261 | 185,211 | 1,050 | 186,261 |
| | Program increase: Sea Cadets | | [1,050] | | [1,050] | |
| 390 | TRAINING SUPPORT | 267,224 | 267,224 | 267,224 | | 267,224 |
| 400 | RECRUITING AND ADVERTISING | 209,252 | 209,252 | 189,252 | -5,000 | 204,252 |
| | Insufficient justification | | | | [-5,000] | |
| | Unjustified growth | | | [-20,000] | | |
| 410 | OFF-DUTY AND VOLUNTARY EDUCATION | 88,902 | 88,902 | 88,902 | | 88,902 |
| 420 | CIVILIAN EDUCATION AND TRAINING | 67,492 | 67,492 | 67,492 | | 67,492 |
| 430 | JUNIOR ROTC | 55,164 | 55,164 | 55,164 | | 55,164 |
| | SUBTOTAL TRAINING AND RECRUITING | 2,106,043 | 2,087,093 | 2,086,043 | -23,950 | 2,082,093 |
| | ADMIN & SRVWD ACTIVITIES | | | | | |
| 440 | ADMINISTRATION | 1,143,358 | 1,096,733 | 1,092,358 | -40,000 | 1,103,358 |
| | Excess civilian growth | | [-14,375] | | | |
| | Insufficient justification—MHA Transfer | | [-25,500] | | | |
| | Program decrease | | | [-1,000] | | |
| | Unjustified audit growth | | | [-50,000] | | |
| | Unjustified growth | | [-6,750] | | [-40,000] | |
| 450 | CIVILIAN MANPOWER AND PERSONNEL MANAGEMENT | 178,342 | 175,342 | 178,342 | -3,000 | 175,342 |
| | Excess civilian growth | | [-3,000] | | [-3,000] | |
| 460 | MILITARY MANPOWER AND PERSONNEL MANAGEMENT | 418,413 | 418,413 | 418,413 | | 418,413 |
| 490 | SERVICEWIDE TRANSPORTATION | 157,465 | 157,465 | 157,465 | | 157,465 |
| 510 | PLANNING, ENGINEERING, AND PROGRAM SUPPORT | 485,397 | 485,397 | 490,397 | 5,000 | 490,397 |

| SEC. 4301. OPERATION AND MAINTENANCE (In Thousands of Dollars) | | | | | | |
|---|--|-------------------|-------------------|-------------------|-------------------|-----------------------|
| Line | Item | FY 2020 Request | House Authorized | Senate Authorized | Conference Change | Conference Authorized |
| | REPO | | | [5,000] | [5,000] | |
| 520 | ACQUISITION, LOGISTICS, AND OVERSIGHT | 654,137 | 654,137 | 654,137 | -7,000 | 647,137 |
| | Unjustified growth | | | | [-7,000] | |
| 530 | INVESTIGATIVE AND SECURITY SERVICES | 718,061 | 718,061 | 718,061 | | 718,061 |
| 645 | CLASSIFIED PROGRAMS | 591,535 | 591,535 | 591,535 | | 591,535 |
| | SUBTOTAL ADMIN & SRVWD ACTIVITIES | 4,346,708 | 4,297,083 | 4,300,708 | -45,000 | 4,301,708 |
| | UNDISTRIBUTED | | | | | |
| 650 | UNDISTRIBUTED | | -30,000 | | -20,000 | -20,000 |
| | Overestimation of civilian FTE targets | | [-30,000] | | [-20,000] | |
| | SUBTOTAL UNDISTRIBUTED | | -30,000 | | -20,000 | -20,000 |
| | TOTAL OPERATION & MAINTENANCE, NAVY | 51,125,751 | 50,083,312 | 51,897,591 | -1,174,187 | 49,951,564 |
| | OPERATION & MAINTENANCE, MARINE CORPS | | | | | |
| | OPERATING FORCES | | | | | |
| 010 | OPERATIONAL FORCES | 968,224 | 927,224 | 968,224 | -241,000 | 727,224 |
| | Excess civilian growth | | [-1,000] | | [-1,000] | |
| | Realignment to OCO | | | | [-200,000] | |
| | Unjustified growth | | [-40,000] | | [-40,000] | |
| 020 | FIELD LOGISTICS | 1,278,533 | 1,269,533 | 1,278,533 | -214,000 | 1,064,533 |
| | Excess civilian growth | | [-2,000] | | | |
| | Realignment to OCO | | | | [-200,000] | |
| | Unjustified growth | | [-7,000] | | [-14,000] | |
| 030 | DEPOT MAINTENANCE | 232,991 | 232,991 | 232,991 | | 232,991 |
| 040 | MARITIME PREPOSITIONING | 100,396 | 100,396 | 100,396 | | 100,396 |
| 050 | CYBERSPACE ACTIVITIES | 203,580 | 201,580 | 203,580 | | 203,580 |

| | | | | | |
|-----|--|------------------|------------------|------------------|-----------------|
| | Excess civilian growth | | [-2,000] | | |
| 060 | SUSTAINMENT, RESTORATION & MODERNIZATION | 1,559,034 | 1,559,034 | 1,559,034 | 1,559,034 |
| 070 | BASE OPERATING SUPPORT | 2,253,776 | 2,213,776 | 2,253,776 | -30,000 |
| | Excess civilian growth | | [-6,000] | | |
| | Unjustified growth | | [-34,000] | | [-30,000] |
| | SUBTOTAL OPERATING FORCES | 6,596,534 | 6,504,534 | 6,596,534 | -485,000 |
| | TRAINING AND RECRUITING | | | | |
| 080 | RECRUIT TRAINING | 21,240 | 21,240 | 21,240 | 21,240 |
| 090 | OFFICER ACQUISITION | 1,168 | 1,168 | 1,168 | 1,168 |
| 100 | SPECIALIZED SKILL TRAINING | 106,601 | 106,601 | 106,601 | 106,601 |
| 110 | PROFESSIONAL DEVELOPMENT EDUCATION | 49,095 | 49,095 | 49,095 | 49,095 |
| 120 | TRAINING SUPPORT | 407,315 | 403,715 | 407,315 | 407,315 |
| | Excess civilian growth | | [-1,300] | | |
| | Unjustified growth | | [-2,300] | | |
| 130 | RECRUITING AND ADVERTISING | 210,475 | 210,475 | 210,475 | 210,475 |
| 140 | OFF-DUTY AND VOLUNTARY EDUCATION | 42,810 | 42,810 | 42,810 | 42,810 |
| 150 | JUNIOR ROTC | 25,183 | 25,183 | 25,183 | 25,183 |
| | SUBTOTAL TRAINING AND RECRUITING | 863,887 | 860,287 | 863,887 | 863,887 |
| | ADMIN & SRVWD ACTIVITIES | | | | |
| 160 | SERVICEWIDE TRANSPORTATION | 29,894 | 29,894 | 29,894 | 29,894 |
| 170 | ADMINISTRATION | 384,352 | 383,002 | 384,352 | 384,352 |
| | Excess civilian growth | | [-750] | | |
| | Unjustified growth | | [-600] | | |
| 225 | CLASSIFIED PROGRAMS | 52,057 | 52,057 | 52,057 | 52,057 |
| | SUBTOTAL ADMIN & SRVWD ACTIVITIES | 466,303 | 464,953 | 466,303 | 466,303 |
| | TOTAL OPERATION & MAINTENANCE, MARINE CORPS | 7,926,724 | 7,829,774 | 7,926,724 | -485,000 |
| | OPERATION & MAINTENANCE, NAVY RES | | | | |
| | OPERATING FORCES | | | | |

| SEC. 4301. OPERATION AND MAINTENANCE (In Thousands of Dollars) | | | | | | |
|---|--|------------------|------------------|-------------------|-------------------|-----------------------|
| Line | Item | FY 2020 Request | House Authorized | Senate Authorized | Conference Change | Conference Authorized |
| 010 | MISSION AND OTHER FLIGHT OPERATIONS | 654,220 | 639,220 | 654,220 | -25,000 | 629,220 |
| | Unjustified growth | | [-15,000] | | [-25,000] | |
| 020 | INTERMEDIATE MAINTENANCE | 8,767 | 8,767 | 8,767 | | 8,767 |
| 030 | AIRCRAFT DEPOT MAINTENANCE | 108,236 | 108,236 | 108,236 | | 108,236 |
| 040 | AIRCRAFT DEPOT OPERATIONS SUPPORT | 463 | 463 | 463 | | 463 |
| 050 | AVIATION LOGISTICS | 26,014 | 26,014 | 26,014 | | 26,014 |
| 060 | SHIP OPERATIONS SUPPORT & TRAINING | 583 | 583 | 583 | | 583 |
| 070 | COMBAT COMMUNICATIONS | 17,883 | 17,883 | 17,883 | | 17,883 |
| 080 | COMBAT SUPPORT FORCES | 128,079 | 128,079 | 128,079 | | 128,079 |
| 090 | CYBERSPACE ACTIVITIES | 356 | 356 | 356 | | 356 |
| 100 | ENTERPRISE INFORMATION | 26,133 | 26,133 | 26,133 | | 26,133 |
| 110 | SUSTAINMENT, RESTORATION AND MODERNIZATION | 35,397 | 35,397 | 35,397 | | 35,397 |
| 120 | BASE OPERATING SUPPORT | 101,376 | 101,376 | 101,376 | | 101,376 |
| | SUBTOTAL OPERATING FORCES | 1,107,507 | 1,092,507 | 1,107,507 | -25,000 | 1,082,507 |
| ADMIN & SRVWD ACTIVITIES | | | | | | |
| 130 | ADMINISTRATION | 1,888 | 1,888 | 1,888 | | 1,888 |
| 140 | MILITARY MANPOWER AND PERSONNEL MANAGEMENT | 12,778 | 12,778 | 12,778 | | 12,778 |
| 150 | ACQUISITION AND PROGRAM MANAGEMENT | 2,943 | 2,943 | 2,943 | | 2,943 |
| | SUBTOTAL ADMIN & SRVWD ACTIVITIES | 17,609 | 17,609 | 17,609 | | 17,609 |
| | TOTAL OPERATION & MAINTENANCE, NAVY RES | 1,125,116 | 1,110,116 | 1,125,116 | -25,000 | 1,100,116 |
| OPERATION & MAINTENANCE, MC RESERVE | | | | | | |
| OPERATING FORCES | | | | | | |
| 010 | OPERATING FORCES | 106,484 | 106,484 | 106,484 | | 106,484 |
| 020 | DEPOT MAINTENANCE | 18,429 | 18,429 | 18,429 | | 18,429 |

| | | | | | | |
|-----|---|----------------|----------------|----------------|------------|----------------|
| 030 | SUSTAINMENT, RESTORATION AND MODERNIZATION | 47,516 | 47,516 | 47,516 | | 47,516 |
| 040 | BASE OPERATING SUPPORT | 106,073 | 106,073 | 106,073 | | 106,073 |
| | SUBTOTAL OPERATING FORCES | 278,502 | 278,502 | 278,502 | | 278,502 |
| | ADMIN & SRVWD ACTIVITIES | | | | | |
| 050 | ADMINISTRATION | 13,574 | 13,574 | 13,574 | | 13,574 |
| | SUBTOTAL ADMIN & SRVWD ACTIVITIES | 13,574 | 13,574 | 13,574 | | 13,574 |
| | TOTAL OPERATION & MAINTENANCE, MC RESERVE | 292,076 | 292,076 | 292,076 | | 292,076 |
| | OPERATION & MAINTENANCE, AIR FORCE | | | | | |
| | OPERATING FORCES | | | | | |
| 010 | PRIMARY COMBAT FORCES | 729,127 | 727,477 | 729,127 | | 729,127 |
| | Excess travel costs | | [-1,650] | | | |
| 020 | COMBAT ENHANCEMENT FORCES | 1,318,770 | 1,318,770 | 1,318,770 | -400,000 | 918,770 |
| | Realignment to OCO | | | | [-400,000] | |
| 030 | AIR OPERATIONS TRAINING (OJT, MAINTAIN SKILLS) | 1,486,790 | 1,446,790 | 1,486,790 | -40,000 | 1,446,790 |
| | Unjustified growth | | [-40,000] | | [-40,000] | |
| 040 | DEPOT PURCHASE EQUIPMENT MAINTENANCE | 3,334,792 | 3,534,792 | 3,334,792 | -35,000 | 3,299,792 |
| | Readiness restoration | | [200,000] | | | |
| | Unjustified growth | | | | [-35,000] | |
| 050 | FACILITIES SUSTAINMENT, RESTORATION & MODERNIZATION | 4,142,435 | 4,142,435 | 4,142,435 | | 4,142,435 |
| 060 | CYBERSPACE SUSTAINMENT | 228,811 | 228,811 | 228,811 | | 228,811 |
| 070 | CONTRACTOR LOGISTICS SUPPORT AND SYSTEM SUPPORT | 8,329,364 | 8,438,364 | 8,329,364 | 18,000 | 8,347,364 |
| | Expansion of Conditions Based Maintenance Plus (CBM+) | | [18,000] | | [18,000] | |
| | Readiness restoration | | [91,000] | | | |
| 080 | FLYING HOUR PROGRAM | 4,048,773 | 3,498,773 | 4,048,773 | -630,000 | 3,418,773 |
| | Realignment to OCO | | [-550,000] | | [-550,000] | |
| | Unjustified growth | | | | [-80,000] | |
| 090 | BASE OPERATIONS SUPPORT | 7,223,982 | 7,073,982 | 7,223,982 | -290,000 | 6,933,982 |
| | Insufficient justification | | [-150,000] | | [-90,000] | |
| | Realignment to OCO | | | | [-200,000] | |

| SEC. 4301. OPERATION AND MAINTENANCE (In Thousands of Dollars) | | | | | | |
|---|---|-------------------|-------------------|-------------------|-------------------|-----------------------|
| Line | Item | FY 2020 Request | House Authorized | Senate Authorized | Conference Change | Conference Authorized |
| 100 | GLOBAL C3I AND EARLY WARNING | 964,553 | 964,553 | 964,553 | | 964,553 |
| 110 | OTHER COMBAT OPS SPT PROGRAMS | 1,032,307 | 1,026,161 | 1,032,307 | -6,146 | 1,026,161 |
| | Unjustified growth | | [-6,146] | | [-6,146] | |
| 120 | CYBERSPACE ACTIVITIES | 670,076 | 670,076 | 670,076 | | 670,076 |
| 140 | LAUNCH FACILITIES | 179,980 | 179,980 | 179,980 | | 179,980 |
| 150 | SPACE CONTROL SYSTEMS | 467,990 | 464,490 | 467,990 | -3,600 | 464,390 |
| | Insufficient justification | | [-3,500] | | [-3,600] | |
| 160 | US NORTHCOM/NORAD | 184,655 | 184,655 | 184,655 | | 184,655 |
| 170 | US STRATCOM | 478,357 | 478,357 | 478,357 | | 478,357 |
| 180 | US CYBERCOM | 323,121 | 323,121 | 347,921 | 24,800 | 347,921 |
| | Accelerate development of Cyber National Mission Force capabilities | | | [1,500] | [1,500] | |
| | Cyber National Mission Force mobile & modular hunt forward kit | | | [5,300] | [5,300] | |
| | ETERNALDARKNESS | | | [18,000] | [18,000] | |
| 190 | US CENTCOM | 160,989 | 160,989 | 160,989 | | 160,989 |
| 200 | US SOCOM | 6,225 | 6,225 | 6,225 | | 6,225 |
| 210 | US TRANSCOM | 544 | 544 | 544 | | 544 |
| 220 | CENTCOM CYBERSPACE SUSTAINMENT | 2,073 | 2,073 | 2,073 | | 2,073 |
| 230 | USSPACECOM | 70,588 | 70,588 | 70,588 | | 70,588 |
| 235 | CLASSIFIED PROGRAMS | 1,322,944 | 1,322,944 | 1,322,944 | -6,250 | 1,316,694 |
| | Unjustified increase | | | | [-6,250] | |
| | SUBTOTAL OPERATING FORCES | 36,707,246 | 36,264,950 | 36,732,046 | -1,368,196 | 35,339,050 |
| MOBILIZATION | | | | | | |
| 240 | AIRLIFT OPERATIONS | 1,158,142 | 1,151,342 | 1,158,142 | | 1,158,142 |
| | Unjustified growth | | [-6,800] | | | |
| 250 | MOBILIZATION PREPAREDNESS | 138,672 | 130,172 | 138,672 | -8,500 | 130,172 |
| | Unjustified growth | | [-8,500] | | [-8,500] | |

| | | | | | | |
|-----|---|------------------|------------------|------------------|----------------|------------------|
| | SUBTOTAL MOBILIZATION | 1,296,814 | 1,281,514 | 1,296,814 | -8,500 | 1,288,314 |
| | TRAINING AND RECRUITING | | | | | |
| 260 | OFFICER ACQUISITION | 130,835 | 130,835 | 130,835 | | 130,835 |
| 270 | RECRUIT TRAINING | 26,021 | 26,021 | 26,021 | | 26,021 |
| 280 | RESERVE OFFICERS TRAINING CORPS (ROTC) | 121,391 | 121,391 | 121,391 | | 121,391 |
| 290 | SPECIALIZED SKILL TRAINING | 454,539 | 449,539 | 454,539 | -40,000 | 414,539 |
| | Insufficient justification | | [-5,000] | | | |
| | Unjustified growth | | | | [-40,000] | |
| 300 | FLIGHT TRAINING | 600,565 | 600,565 | 600,565 | | 600,565 |
| 310 | PROFESSIONAL DEVELOPMENT EDUCATION | 282,788 | 282,788 | 282,788 | | 282,788 |
| 320 | TRAINING SUPPORT | 123,988 | 119,988 | 123,988 | -10,000 | 113,988 |
| | Unjustified growth | | [-4,000] | | [-10,000] | |
| 330 | RECRUITING AND ADVERTISING | 167,731 | 167,731 | 161,731 | -5,000 | 162,731 |
| | Unjustified growth | | | [-6,000] | [-5,000] | |
| 340 | EXAMINING | 4,576 | 4,576 | 4,576 | | 4,576 |
| 350 | OFF-DUTY AND VOLUNTARY EDUCATION | 211,911 | 211,911 | 211,911 | | 211,911 |
| 360 | CIVILIAN EDUCATION AND TRAINING | 219,021 | 219,021 | 219,021 | | 219,021 |
| 370 | JUNIOR ROTC | 62,092 | 62,092 | 62,092 | | 62,092 |
| | SUBTOTAL TRAINING AND RECRUITING | 2,405,458 | 2,396,458 | 2,399,458 | -55,000 | 2,350,458 |
| | ADMIN & SRVWD ACTIVITIES | | | | | |
| | UNDISTRIBUTED | | | | | |
| 380 | LOGISTICS OPERATIONS | 664,926 | 664,926 | 664,926 | | 664,926 |
| 390 | TECHNICAL SUPPORT ACTIVITIES | 101,483 | 101,483 | 101,483 | | 101,483 |
| 400 | ADMINISTRATION | 892,480 | 892,480 | 892,480 | | 892,480 |
| 410 | SERVICEWIDE COMMUNICATIONS | 152,532 | 152,532 | 152,532 | -30,000 | 122,532 |
| | Insufficient justification | | | | [-30,000] | |
| 420 | OTHER SERVICEWIDE ACTIVITIES | 1,254,089 | 1,254,089 | 1,254,089 | -50,000 | 1,204,089 |
| | Program decrease unaccounted for | | | | [-20,000] | |
| | Remove one-time fiscal year 2019 increase | | | | [-30,000] | |
| 430 | CIVIL AIR PATROL | 30,070 | 37,200 | 30,070 | 7,130 | 37,200 |

| SEC. 4301. OPERATION AND MAINTENANCE (In Thousands of Dollars) | | | | | | |
|---|---|-------------------|-------------------|-------------------|-------------------|-----------------------|
| Line | Item | FY 2020 Request | House Authorized | Senate Authorized | Conference Change | Conference Authorized |
| | Improved emergency crew readiness | | [7,130] | | [7,130] | |
| 460 | INTERNATIONAL SUPPORT | 136,110 | 136,110 | 136,110 | | 136,110 |
| 465 | CLASSIFIED PROGRAMS | 1,269,624 | 1,269,624 | 1,269,624 | | 1,269,624 |
| | SUBTOTAL ADMIN & SRVWD ACTIVITIES | 4,501,314 | 4,508,444 | 4,501,314 | -72,870 | 4,428,444 |
| | TOTAL OPERATION & MAINTENANCE, AIR FORCE | 44,910,832 | 44,451,366 | 44,929,632 | -1,504,566 | 43,406,266 |
| | OPERATION & MAINTENANCE, SPACE FORCE UNDISTRIBUTED | | | | | |
| 010 | BASE SUPPORT | 72,436 | 15,000 | 72,436 | | 72,436 |
| | Insufficient justification | | [-57,436] | | | |
| | SUBTOTAL OPERATING FORCES | 72,436 | 15,000 | 72,436 | | 72,436 |
| | TOTAL OPERATION & MAINTENANCE, SPACE FORCE | 72,436 | 15,000 | 72,436 | | 72,436 |
| | OPERATION & MAINTENANCE, AF RESERVE OPERATING FORCES | | | | | |
| 010 | PRIMARY COMBAT FORCES | 1,781,413 | 1,739,288 | 1,781,413 | -25,000 | 1,756,413 |
| | Delay in KC-46 aircraft delivery | | [-31,492] | | [-25,000] | |
| | Excess growth | | [-10,633] | | | |
| 020 | MISSION SUPPORT OPERATIONS | 209,650 | 204,150 | 209,650 | -5,500 | 204,150 |
| | Insufficient justification | | [-5,500] | | | |
| | Unjustified growth | | | | [-5,500] | |
| 030 | DEPOT PURCHASE EQUIPMENT MAINTENANCE | 494,235 | 484,235 | 494,235 | -10,000 | 484,235 |
| | Excess growth | | [-10,000] | | [-10,000] | |
| 040 | FACILITIES SUSTAINMENT, RESTORATION & MODERNIZATION | 128,746 | 128,746 | 128,746 | | 128,746 |
| 050 | CONTRACTOR LOGISTICS SUPPORT AND SYSTEM SUPPORT | 256,512 | 256,512 | 256,512 | | 256,512 |

| | | | | | | |
|-----|---|------------------|------------------|------------------|----------------|------------------|
| 060 | BASE SUPPORT | 414,626 | 414,626 | 414,626 | | 414,626 |
| 070 | CYBERSPACE ACTIVITIES | 1,673 | 1,673 | 1,673 | | 1,673 |
| | SUBTOTAL OPERATING FORCES | 3,286,855 | 3,229,230 | 3,286,855 | -40,500 | 3,246,355 |
| | ADMINISTRATION AND SERVICEWIDE ACTIVITIES | | | | | |
| | UNDISTRIBUTED | | | | | |
| 080 | ADMINISTRATION | 69,436 | 69,436 | 69,436 | | 69,436 |
| 090 | RECRUITING AND ADVERTISING | 22,124 | 22,124 | 22,124 | | 22,124 |
| 100 | MILITARY MANPOWER AND PERS MGMT (ARPC) | 10,946 | 10,946 | 10,946 | | 10,946 |
| 110 | OTHER PERS SUPPORT (DISABILITY COMP) | 7,009 | 7,009 | 7,009 | | 7,009 |
| 120 | AUDIOVISUAL | 448 | 448 | 448 | | 448 |
| | SUBTOTAL ADMINISTRATION AND SERVICEWIDE ACTIVITIES | 109,963 | 109,963 | 109,963 | | 109,963 |
| | TOTAL OPERATION & MAINTENANCE, AF RESERVE | 3,396,818 | 3,339,193 | 3,396,818 | -40,500 | 3,356,318 |
| | OPERATION & MAINTENANCE, ANG | | | | | |
| | OPERATING FORCES | | | | | |
| 010 | AIRCRAFT OPERATIONS | 2,497,967 | 2,414,000 | 2,497,967 | -25,000 | 2,472,967 |
| | Delay in KC-46 aircraft delivery | | [-5,267] | | [-25,000] | |
| | Insufficient justification | | [-78,700] | | | |
| 020 | MISSION SUPPORT OPERATIONS | 600,377 | 585,377 | 600,377 | -15,000 | 585,377 |
| | Insufficient justification | | [-15,000] | | [-15,000] | |
| 030 | DEPOT PURCHASE EQUIPMENT MAINTENANCE | 879,467 | 872,467 | 879,467 | | 879,467 |
| | Excess growth | | [-7,000] | | | |
| 040 | FACILITIES SUSTAINMENT, RESTORATION & MODERNIZATION | 400,734 | 395,134 | 400,734 | | 400,734 |
| | Insufficient justification | | [-5,600] | | | |
| 050 | CONTRACTOR LOGISTICS SUPPORT AND SYSTEM SUPPORT | 1,299,089 | 1,290,089 | 1,299,089 | | 1,299,089 |
| | Excess growth | | [-9,000] | | | |
| 060 | BASE SUPPORT | 911,775 | 901,775 | 911,775 | | 911,775 |
| | Insufficient justification | | [-10,000] | | | |
| 070 | CYBERSPACE SUSTAINMENT | 24,742 | 24,742 | 24,742 | | 24,742 |
| 080 | CYBERSPACE ACTIVITIES | 25,507 | 25,507 | 25,507 | | 25,507 |

| SEC. 4301. OPERATION AND MAINTENANCE (In Thousands of Dollars) | | | | | | |
|---|--|------------------|------------------|-------------------|-------------------|-----------------------|
| Line | Item | FY 2020 Request | House Authorized | Senate Authorized | Conference Change | Conference Authorized |
| | SUBTOTAL OPERATING FORCES | 6,639,658 | 6,509,091 | 6,639,658 | -40,000 | 6,599,658 |
| | ADMINISTRATION AND SERVICE-WIDE ACTIVITIES | | | | | |
| | UNDISTRIBUTED | | | | | |
| 090 | ADMINISTRATION | 47,215 | 47,215 | 47,215 | | 47,215 |
| 100 | RECRUITING AND ADVERTISING | 40,356 | 40,356 | 40,356 | | 40,356 |
| | SUBTOTAL ADMINISTRATION AND SERVICE-WIDE ACTIVITIES | 87,571 | 87,571 | 87,571 | | 87,571 |
| 110 | UNDISTRIBUTED | | | | -30,000 | -30,000 |
| | Maintain program affordability: Overestimation of civilian FTE targets | | | | [-30,000] | |
| | SUBTOTAL UNDISTRIBUTED | | | | -30,000 | -30,000 |
| | TOTAL OPERATION & MAINTENANCE, ANG | 6,727,229 | 6,596,662 | 6,727,229 | -70,000 | 6,657,229 |
| | OPERATION AND MAINTENANCE, DEFENSE-WIDE | | | | | |
| | OPERATING FORCES | | | | | |
| 010 | JOINT CHIEFS OF STAFF | 409,542 | 409,542 | 409,542 | -17,000 | 392,542 |
| | Program decrease unaccounted for | | | | [-12,000] | |
| | Remove one-time fiscal year 2019 costs | | | | [-5,000] | |
| 020 | JOINT CHIEFS OF STAFF—CE2T2 | 579,179 | 579,179 | 579,179 | | 579,179 |
| 030 | JOINT CHIEFS OF STAFF—CYBER | 24,598 | 24,598 | 24,598 | | 24,598 |
| 040 | SPECIAL OPERATIONS COMMAND COMBAT DEVELOPMENT ACTIVITIES | 1,075,762 | 1,075,762 | 1,075,762 | -5,500 | 1,070,262 |
| | Classified adjustment | | | | [-5,500] | |
| 050 | SPECIAL OPERATIONS COMMAND CYBERSPACE ACTIVITIES | 14,409 | 14,409 | 14,409 | | 14,409 |
| 060 | SPECIAL OPERATIONS COMMAND INTELLIGENCE | 501,747 | 486,747 | 501,747 | -14,794 | 486,953 |
| | DCGS—SOF - excess to need | | | | [-5,794] | |
| | Program decrease—SOCRATES | | [-9,000] | | [-9,000] | |
| | Unjustified growth—DCGS | | [-6,000] | | | |

| | | | | | | |
|-----|--|------------------|------------------|------------------|-----------------|------------------|
| 070 | SPECIAL OPERATIONS COMMAND MAINTENANCE | 559,300 | 544,300 | 559,300 | -15,000 | 544,300 |
| | Projected underexecution | | [-15,000] | | [-15,000] | |
| 080 | SPECIAL OPERATIONS COMMAND MANAGEMENT/OPERATIONAL HEADQUARTERS | 177,928 | 167,928 | 177,928 | | 177,928 |
| | Program decrease | | [-10,000] | | | |
| 090 | SPECIAL OPERATIONS COMMAND OPERATIONAL SUPPORT | 925,262 | 889,262 | 925,262 | -25,500 | 899,762 |
| | Base support underexecution | | [-6,000] | | [-5,900] | |
| | Operational support underexecution | | [-10,000] | | [-9,600] | |
| | Program decrease | | [-10,000] | | | |
| | Unjustified growth—C4IAS Saas | | [-10,000] | | [-10,000] | |
| 100 | SPECIAL OPERATIONS COMMAND THEATER FORCES | 2,764,738 | 2,709,738 | 2,764,738 | -514,700 | 2,250,038 |
| | Program decrease | | [-70,000] | | [-14,700] | |
| | Program increase—suicide prevention | | [15,000] | | | |
| | Realignment to OCO | | | | [-500,000] | |
| | SUBTOTAL OPERATING FORCES | 7,032,465 | 6,901,465 | 7,032,465 | -592,494 | 6,439,971 |
| | TRAINING AND RECRUITING | | | | | |
| 120 | DEFENSE ACQUISITION UNIVERSITY | 180,250 | 180,250 | 180,250 | | 180,250 |
| 130 | JOINT CHIEFS OF STAFF | 100,610 | 100,610 | 100,610 | | 100,610 |
| 140 | PROFESSIONAL DEVELOPMENT EDUCATION | 33,967 | 33,967 | 33,967 | | 33,967 |
| | SUBTOTAL TRAINING AND RECRUITING | 314,827 | 314,827 | 314,827 | | 314,827 |
| | ADMIN & SRVWIDE ACTIVITIES | | | | | |
| 160 | CIVIL MILITARY PROGRAMS | 165,707 | 245,707 | 195,007 | 94,300 | 260,007 |
| | IRT Increase | | | [14,300] | [14,300] | |
| | National Guard Youth Challenge Program support | | [50,000] | | [50,000] | |
| | Program increase—STARBASE | | [30,000] | | [30,000] | |
| | Starbase | | | [15,000] | | |
| 180 | DEFENSE CONTRACT AUDIT AGENCY | 627,467 | 627,467 | 627,467 | | 627,467 |
| 190 | DEFENSE CONTRACT AUDIT AGENCY—CYBER | 3,362 | 3,362 | 3,362 | | 3,362 |
| 200 | DEFENSE CONTRACT MANAGEMENT AGENCY | 1,438,068 | 1,413,068 | 1,438,068 | -20,000 | 1,418,068 |
| | Program decrease | | [-25,000] | | [-20,000] | |
| 210 | DEFENSE CONTRACT MANAGEMENT AGENCY—CYBER | 24,391 | 24,391 | 24,391 | | 24,391 |

| SEC. 4301. OPERATION AND MAINTENANCE (In Thousands of Dollars) | | | | | | |
|---|---|-----------------|------------------|-------------------|-------------------|-----------------------|
| Line | Item | FY 2020 Request | House Authorized | Senate Authorized | Conference Change | Conference Authorized |
| 220 | DEFENSE HUMAN RESOURCES ACTIVITY | 892,438 | 911,842 | 892,438 | -10,000 | 882,438 |
| | Chinese language and culture studies within the Defense Language and National Security Education Office | | [13,404] | | | |
| | Defense Manpower Data Center—Excess Growth | | | | [-5,000] | |
| | Enterprise Operations Center—Excess Growth | | | | [-5,000] | |
| | Program increase—national flagship language initiative | | [6,000] | | | |
| 230 | DEFENSE INFORMATION SYSTEMS AGENCY | 2,012,885 | 2,028,022 | 2,007,885 | -20,000 | 1,992,885 |
| | MiiCloud | | | [-5,000] | | |
| | Realignment for Sharkseer | | [35,137] | | | |
| | Unjustified growth | | [-20,000] | | [-20,000] | |
| 240 | DEFENSE INFORMATION SYSTEMS AGENCY—CYBER | 601,223 | 601,223 | 636,360 | 35,137 | 636,360 |
| | Sharkseer transfer | | | [35,137] | [35,137] | |
| 270 | DEFENSE LEGAL SERVICES AGENCY | 34,632 | 34,632 | 34,632 | | 34,632 |
| 280 | DEFENSE LOGISTICS AGENCY | 415,699 | 430,199 | 415,699 | 19,500 | 435,199 |
| | Excess growth | | [-5,000] | | | |
| | Program increase—PTAP | | [19,500] | | [19,500] | |
| 290 | DEFENSE MEDIA ACTIVITY | 202,792 | 196,792 | 202,792 | | 202,792 |
| | Program decrease | | [-6,000] | | | |
| 300 | DEFENSE PERSONNEL ACCOUNTING AGENCY | 144,881 | 144,881 | 144,881 | | 144,881 |
| 310 | DEFENSE SECURITY COOPERATION AGENCY | 696,884 | 667,884 | 696,884 | -30,000 | 666,884 |
| | Assessment, monitoring, and evaluation | | | [11,000] | [11,000] | |
| | Security cooperation account | | | [-11,000] | [-11,000] | |
| | Unjustified growth | | [-29,000] | | [-30,000] | |
| 320 | DEFENSE SECURITY SERVICE | 889,664 | 894,871 | 899,664 | | 889,664 |
| | Advanced cyber threat detection sensors, hunt and response mechanisms, and commercial cyber threat intelligence | | [5,207] | | | |
| | Consolidated Adjudication Facility | | | [10,000] | | |

| | | | | | | |
|-----|---|-----------|-----------|-----------|-----------|-----------|
| 340 | DEFENSE SECURITY SERVICE—CYBER | 9,220 | 9,220 | 9,220 | | 9,220 |
| 360 | DEFENSE TECHNICAL INFORMATION CENTER | 3,000 | 3,000 | 3,000 | | 3,000 |
| 370 | DEFENSE TECHNOLOGY SECURITY ADMINISTRATION | 35,626 | 35,626 | 35,626 | | 35,626 |
| 380 | DEFENSE THREAT REDUCTION AGENCY | 568,133 | 568,133 | 568,133 | | 568,133 |
| 400 | DEFENSE THREAT REDUCTION AGENCY—CYBER | 13,339 | 13,339 | 13,339 | | 13,339 |
| 410 | DEPARTMENT OF DEFENSE EDUCATION ACTIVITY | 2,932,226 | 2,992,226 | 2,982,226 | -20,000 | 2,912,226 |
| | Impact aid for children with severe disabilities | | | [10,000] | | |
| | Impact aid for schools with military dependent students | | | [40,000] | | |
| | Remove one-time fiscal year 2019 increase | | | | [-50,000] | |
| | Overestimation of civilian FTE targets | | | | [-20,000] | |
| | Program increase—impact aid for children with severe disabilities | | [10,000] | | [10,000] | |
| | Program increase—impact aid to schools with military dependents | | [40,000] | | [40,000] | |
| | Program increase—support to local educational agencies that serve military communities and families | | [10,000] | | | |
| 420 | MISSILE DEFENSE AGENCY | 522,529 | 522,529 | 422,729 | -12,670 | 509,859 |
| | THAAD prior year under-execution | | | | [-12,670] | |
| | THAAD Program Transfer to Army | | | [-99,800] | | |
| 450 | OFFICE OF ECONOMIC ADJUSTMENT | 59,513 | 114,913 | 59,513 | 75,000 | 134,513 |
| | Civilian growth | | [400] | | | |
| | Defense Community Infrastructure Program (DCIP) | | [50,000] | | [75,000] | |
| | Program increase—military aviation noise pilot program | | [5,000] | | | |
| 460 | OFFICE OF THE SECRETARY OF DEFENSE | 1,604,738 | 1,491,476 | 1,678,738 | 21,000 | 1,625,738 |
| | Basic Needs Allowance for low-income regular members | | [15,000] | | | |
| | Bien Hoa dioxin cleanup | | | [15,000] | [15,000] | |
| | CDC study | | | [10,000] | [10,000] | |
| | Commission on Synthetic Opioid Trafficking | | [5,000] | | | |
| | Emerging contaminants | | | [1,000] | [1,000] | |
| | European Center of Excellence for Countering Hybrid Threats | | [2,000] | | | |
| | Excess growth | | [-58,839] | | [-37,000] | |
| | Increase to OUSD(A&S)—JASONS | | [7,000] | | | |
| | Industrial policy implementation of EO13806 | | | [15,000] | | |
| | Interstate compacts for licensure and credentialing | | | [4,000] | [4,000] | |

| SEC. 4301. OPERATION AND MAINTENANCE (In Thousands of Dollars) | | | | | | |
|---|--|-------------------|-------------------|-------------------|-------------------|-----------------------|
| Line | Item | FY 2020 Request | House Authorized | Senate Authorized | Conference Change | Conference Authorized |
| | Military aviation safety commission | | [3,000] | [3,000] | [3,000] | |
| | National Commission on Military, National, and Public Service | | | [1,000] | | |
| | Pilot program to fund non-profit organizations supporting military families | | [1,000] | | | |
| | Program decrease | | [-104,000] | | | |
| | Program increase—Defense Suicide Prevention Office and National Guard suicide prevention pilot program | | [5,000] | | | |
| | Readiness and Environmental Protection Initiative increase | | [25,000] | [25,000] | [25,000] | |
| | Reduction to OUSD(R&E)—JASONs | | [-7,000] | | | |
| | Unjustified growth | | [-6,423] | | | |
| 470 | OFFICE OF THE SECRETARY OF DEFENSE—CYBER | 48,783 | 48,783 | 48,783 | | 48,783 |
| 480 | SPACE DEVELOPMENT AGENCY | 44,750 | 44,750 | 44,750 | -10,000 | 34,750 |
| | Insufficient justification | | | | [-10,000] | |
| 500 | WASHINGTON HEADQUARTERS SERVICES | 324,001 | 296,201 | 329,001 | -27,800 | 296,201 |
| | Defense Digital Service Hires | | | [5,000] | | |
| | Insufficient justification | | [-27,800] | | [-27,800] | |
| 505 | CLASSIFIED PROGRAMS | 15,816,598 | 15,755,461 | 15,816,598 | -59,141 | 15,757,457 |
| | Classified adjustment | | [-26,000] | | [-24,004] | |
| | Realignment to DISA for Sharkseer | | [-35,137] | | [-35,137] | |
| | SUBTOTAL ADMIN & SRVWIDE ACTIVITIES | 30,132,549 | 30,119,998 | 30,231,186 | 35,326 | 30,167,875 |
| | TOTAL OPERATION AND MAINTENANCE, DEFENSE-WIDE | 37,479,841 | 37,273,790 | 37,578,478 | -557,168 | 36,922,673 |
| | UNDISTRIBUTED | | | | | |
| 510 | UNDISTRIBUTED | | -62,500 | | | |
| | Undistributed reduction | | [-62,500] | | | |
| | SUBTOTAL UNDISTRIBUTED | | -62,500 | | | |
| | TOTAL OPERATION & MAINTENANCE, DEFENSE-WIDE | | -206,051 | 98,637 | -557,168 | -557,168 |

| | | | | | | |
|-----|---|----------------|----------------|----------------|---------------|----------------|
| | US COURT OF APPEALS FOR ARMED FORCES, DEF ADMINISTRATION AND ASSOCIATED ACTIVITIES | | | | | |
| 010 | US COURT OF APPEALS FOR THE ARMED FORCES, DEFENSE | 14,771 | 14,771 | 14,771 | | 14,771 |
| | SUBTOTAL ADMINISTRATION AND ASSOCIATED ACTIVITIES | 14,771 | 14,771 | 14,771 | | 14,771 |
| | TOTAL US COURT OF APPEALS FOR ARMED FORCES, DEF | 14,771 | 14,771 | 14,771 | | 14,771 |
| | DOD ACQUISITION WORKFORCE DEVELOPMENT FUND ACQUISITION WORKFORCE DEVELOPMENT | | | | | |
| 010 | ACQ WORKFORCE DEV FD | 400,000 | 375,000 | 400,000 | | 400,000 |
| | Program decrease | | [-25,000] | | | |
| | SUBTOTAL ACQUISITION WORKFORCE DEVELOPMENT | 400,000 | 375,000 | 400,000 | | 400,000 |
| | TOTAL DOD ACQUISITION WORKFORCE DEVELOPMENT FUND | 400,000 | 375,000 | 400,000 | | 400,000 |
| | OVERSEAS HUMANITARIAN, DISASTER, AND CIVIC AID HUMANITARIAN ASSISTANCE | | | | | |
| 010 | OVERSEAS HUMANITARIAN, DISASTER AND CIVIC AID | 108,600 | 110,800 | 108,600 | 9,063 | 117,663 |
| | Increase for foreign disaster relief | | | | [6,822] | |
| | Increase for humanitarian mine action program | | [2,200] | | [2,241] | |
| | SUBTOTAL HUMANITARIAN ASSISTANCE | 108,600 | 110,800 | 108,600 | 9,063 | 117,663 |
| | TOTAL OVERSEAS HUMANITARIAN, DISASTER, AND CIVIC AID | 108,600 | 110,800 | 108,600 | 9,063 | 117,663 |
| | COOPERATIVE THREAT REDUCTION ACCOUNT COOPERATIVE THREAT REDUCTION | | | | | |
| 010 | COOPERATIVE THREAT REDUCTION | 338,700 | 358,700 | 338,700 | 20,000 | 358,700 |
| | Cooperative biological engagement | | [20,000] | | [20,000] | |
| | SUBTOTAL COOPERATIVE THREAT REDUCTION | 338,700 | 358,700 | 338,700 | 20,000 | 358,700 |
| | TOTAL COOPERATIVE THREAT REDUCTION ACCOUNT | 338,700 | 358,700 | 338,700 | 20,000 | 358,700 |

| SEC. 4301. OPERATION AND MAINTENANCE (In Thousands of Dollars) | | | | | | |
|---|---|-----------------|------------------|-------------------|-------------------|-----------------------|
| Line | Item | FY 2020 Request | House Authorized | Senate Authorized | Conference Change | Conference Authorized |
| ENVIRONMENTAL RESTORATION, ARMY | | | | | | |
| DEPARTMENT OF THE ARMY | | | | | | |
| 050 | ENVIRONMENTAL RESTORATION, ARMY | 207,518 | 235,809 | 207,518 | 5,000 | 212,518 |
| | Perfluorinated chemicals | | [28,291] | | [5,000] | |
| | SUBTOTAL DEPARTMENT OF THE ARMY | 207,518 | 235,809 | 207,518 | 5,000 | 212,518 |
| | TOTAL ENVIRONMENTAL RESTORATION, ARMY | 207,518 | 353,721 | 207,518 | 83,064 | 290,582 |
| ENVIRONMENTAL RESTORATION, NAVY | | | | | | |
| DEPARTMENT OF THE NAVY | | | | | | |
| 060 | ENVIRONMENTAL RESTORATION, NAVY | 335,932 | 375,883 | 335,932 | 15,000 | 350,932 |
| | Closed detonation chambers | | [10,000] | | | |
| | Perfluorinated chemicals | | [29,951] | | [5,000] | |
| | Unexploded ordnance remediation | | | | [10,000] | |
| | SUBTOTAL DEPARTMENT OF THE NAVY | 335,932 | 375,883 | 335,932 | 15,000 | 350,932 |
| | TOTAL ENVIRONMENTAL RESTORATION, NAVY | 335,932 | 482,135 | 335,932 | 83,064 | 418,996 |
| ENVIRONMENTAL RESTORATION, AIR FORCE | | | | | | |
| DEPARTMENT OF THE AIR FORCE | | | | | | |
| 070 | ENVIRONMENTAL RESTORATION, AIR FORCE | 302,744 | 365,808 | 302,744 | 63,064 | 365,808 |
| | Perfluorinated chemicals | | [63,064] | | [63,064] | |
| | SUBTOTAL DEPARTMENT OF THE AIR FORCE | 302,744 | 365,808 | 302,744 | 63,064 | 365,808 |
| | TOTAL ENVIRONMENTAL RESTORATION, AIR FORCE | 302,744 | 448,947 | 302,744 | 83,064 | 385,808 |
| ENVIRONMENTAL RESTORATION, DEFENSE-WIDE | | | | | | |
| 080 | ENVIRONMENTAL RESTORATION, DEFENSE-WIDE | 9,105 | 24,002 | 9,105 | | 9,105 |

November 23, 2019 (1:06 a.m.)

| | | | | | | |
|-----|--|--------------------|--------------------|--------------------|-------------------|--------------------|
| | Detection of perfluorinated compounds | | [5,000] | | | |
| | Perfluorinated chemicals | | [9,897] | | | |
| | SUBTOTAL DEFENSE-WIDE | 9,105 | 24,002 | 9,105 | | 9,105 |
| | TOTAL ENVIRONMENTAL RESTORATION, DEFENSE-WIDE | 9,105 | 155,308 | 9,105 | 83,064 | 92,169 |
| | ENVIRONMENTAL RESTORATION FORMERLY USED SITES | | | | | |
| | DEFENSE-WIDE | | | | | |
| 090 | ENVIRONMENTAL RESTORATION FORMERLY USED SITES | 216,499 | 216,499 | 216,499 | | 216,499 |
| | SUBTOTAL DEFENSE-WIDE | 216,499 | 216,499 | 216,499 | | 216,499 |
| | TOTAL ENVIRONMENTAL RESTORATION FORMERLY USED SITES | 216,499 | 216,499 | 216,499 | | 216,499 |
| | TOTAL OPERATION & MAINTENANCE | 207,661,689 | 203,963,215 | 208,471,343 | -6,050,745 | 201,610,944 |

SEC. 4302. OPERATION AND MAINTENANCE FOR OVERSEAS CONTINGENCY OPERATIONS.

| SEC. 4302. OPERATION AND MAINTENANCE FOR OVERSEAS CONTINGENCY OPERATIONS (In Thousands of Dollars) | | | | | | |
|---|---|-----------------|------------------|-------------------|-------------------|-----------------------|
| Line | Item | FY 2020 Request | House Authorized | Senate Authorized | Conference Change | Conference Authorized |
| OPERATION & MAINTENANCE, ARMY | | | | | | |
| OPERATING FORCES | | | | | | |
| 010 | MANEUVER UNITS | 1,410,874 | 1,410,874 | 1,410,874 | 260,548 | 1,671,422 |
| | Realignment from base | | | | [260,548] | |
| 030 | ECHELONS ABOVE BRIGADE | 26,502 | 26,502 | 26,502 | | 26,502 |
| 040 | THEATER LEVEL ASSETS | 2,274,490 | 2,274,490 | 2,274,490 | -15,000 | 2,259,490 |
| | Unjustified growth | | | | [-15,000] | |
| 050 | LAND FORCES OPERATIONS SUPPORT | 136,288 | 136,288 | 136,288 | | 136,288 |
| 060 | AVIATION ASSETS | 300,240 | 300,240 | 300,240 | | 300,240 |
| 070 | FORCE READINESS OPERATIONS SUPPORT | 3,415,009 | 4,515,009 | 3,415,009 | 1,095,000 | 4,510,009 |
| | Insufficient justification | | | | [-5,000] | |
| | Realignment from base | | [1,100,000] | | [1,100,000] | |
| 080 | LAND FORCES SYSTEMS READINESS | 29,985 | 29,985 | 29,985 | | 29,985 |
| 090 | LAND FORCES DEPOT MAINTENANCE | 86,931 | 86,931 | 86,931 | | 86,931 |
| 100 | BASE OPERATIONS SUPPORT | 115,706 | 115,706 | 115,706 | | 115,706 |
| 110 | FACILITIES SUSTAINMENT, RESTORATION & MODERNIZATION | 72,657 | 72,657 | 72,657 | | 72,657 |
| 130 | ADDITIONAL ACTIVITIES | 6,397,586 | 6,397,586 | 6,397,586 | -12,000 | 6,385,586 |
| | Insufficient justification | | | | [-12,000] | |
| 140 | COMMANDER'S EMERGENCY RESPONSE PROGRAM | 5,000 | | 5,000 | -2,500 | 2,500 |
| | Insufficient justification | | | | [-2,500] | |
| | Realignment of redress and loss funding | | [-5,000] | | | |
| 150 | RESET | 1,048,896 | 1,048,896 | 1,048,896 | | 1,048,896 |
| 160 | US AFRICA COMMAND | 203,174 | 203,174 | 203,174 | | 203,174 |
| 170 | US EUROPEAN COMMAND | 173,676 | 173,676 | 173,676 | | 173,676 |
| 200 | CYBERSPACE ACTIVITIES—CYBERSPACE OPERATIONS | 188,529 | 188,529 | 188,529 | | 188,529 |

| | | | | | | |
|-----|--|-------------------|-------------------|-------------------|------------------|-------------------|
| 210 | CYBERSPACE ACTIVITIES—CYBERSECURITY | 5,682 | 5,682 | 5,682 | | 5,682 |
| | SUBTOTAL OPERATING FORCES | 15,891,225 | 16,986,225 | 15,891,225 | 1,326,048 | 17,217,273 |
| | MOBILIZATION | | | | | |
| 230 | ARMY PREPOSITIONED STOCKS | 131,954 | 131,954 | 131,954 | | 131,954 |
| | SUBTOTAL MOBILIZATION | 131,954 | 131,954 | 131,954 | | 131,954 |
| | ADMIN & SRVWIDE ACTIVITIES | | | | | |
| 390 | SERVICEWIDE TRANSPORTATION | 721,014 | 721,014 | 721,014 | | 721,014 |
| 400 | CENTRAL SUPPLY ACTIVITIES | 66,845 | 66,845 | 66,845 | | 66,845 |
| 410 | LOGISTIC SUPPORT ACTIVITIES | 9,309 | 9,309 | 9,309 | | 9,309 |
| 420 | AMMUNITION MANAGEMENT | 23,653 | 23,653 | 23,653 | | 23,653 |
| 460 | OTHER PERSONNEL SUPPORT | 109,019 | 109,019 | 109,019 | | 109,019 |
| 490 | REAL ESTATE MANAGEMENT | 251,355 | 251,355 | 251,355 | | 251,355 |
| 565 | CLASSIFIED PROGRAMS | 1,568,564 | 1,568,564 | 1,568,564 | | 1,568,564 |
| | SUBTOTAL ADMIN & SRVWIDE ACTIVITIES | 2,749,759 | 2,749,759 | 2,749,759 | | 2,749,759 |
| | TOTAL OPERATION & MAINTENANCE, ARMY | 18,772,938 | 19,867,938 | 18,772,938 | 1,326,048 | 20,098,986 |
| | OPERATION & MAINTENANCE, ARMY RES | | | | | |
| | OPERATING FORCES | | | | | |
| 020 | ECHELONS ABOVE BRIGADE | 20,440 | 20,440 | 20,440 | | 20,440 |
| 060 | FORCE READINESS OPERATIONS SUPPORT | 689 | 689 | 689 | | 689 |
| 090 | BASE OPERATIONS SUPPORT | 16,463 | 16,463 | 16,463 | | 16,463 |
| | SUBTOTAL OPERATING FORCES | 37,592 | 37,592 | 37,592 | | 37,592 |
| | TOTAL OPERATION & MAINTENANCE, ARMY RES | 37,592 | 37,592 | 37,592 | | 37,592 |
| | OPERATION & MAINTENANCE, ARNG | | | | | |
| | UNDISTRIBUTED | | | | | |
| 010 | MANEUVER UNITS | 45,896 | 45,896 | 45,896 | | 45,896 |
| 020 | MODULAR SUPPORT BRIGADES | 180 | 180 | 180 | | 180 |

| SEC. 4302. OPERATION AND MAINTENANCE FOR OVERSEAS CONTINGENCY OPERATIONS (In Thousands of Dollars) | | | | | | |
|---|--|------------------|------------------|-------------------|-------------------|-----------------------|
| Line | Item | FY 2020 Request | House Authorized | Senate Authorized | Conference Change | Conference Authorized |
| 030 | ECHELONS ABOVE BRIGADE | 2,982 | 2,982 | 2,982 | | 2,982 |
| 040 | THEATER LEVEL ASSETS | 548 | 548 | 548 | | 548 |
| 060 | AVIATION ASSETS | 9,229 | 9,229 | 9,229 | | 9,229 |
| 070 | FORCE READINESS OPERATIONS SUPPORT | 1,584 | 1,584 | 1,584 | | 1,584 |
| 100 | BASE OPERATIONS SUPPORT | 22,063 | 22,063 | 22,063 | | 22,063 |
| 120 | MANAGEMENT AND OPERATIONAL HEADQUARTERS | 606 | 606 | 606 | | 606 |
| | SUBTOTAL OPERATING FORCES | 83,088 | 83,088 | 83,088 | | 83,088 |
| ADMIN & SRVWD ACTIVITIES | | | | | | |
| 170 | SERVICEWIDE COMMUNICATIONS | 203 | 203 | 203 | | 203 |
| | SUBTOTAL ADMIN & SRVWD ACTIVITIES | 203 | 203 | 203 | | 203 |
| | TOTAL OPERATION & MAINTENANCE, ARNG | 83,291 | 83,291 | 83,291 | | 83,291 |
| AFGHANISTAN SECURITY FORCES FUND | | | | | | |
| AFGHAN NATIONAL ARMY | | | | | | |
| 090 | SUSTAINMENT | 1,313,047 | 1,313,047 | 1,313,047 | | 1,313,047 |
| 100 | INFRASTRUCTURE | 37,152 | 37,152 | 37,152 | | 37,152 |
| 110 | EQUIPMENT AND TRANSPORTATION | 120,868 | 120,868 | 120,868 | | 120,868 |
| 120 | TRAINING AND OPERATIONS | 118,591 | 118,591 | 118,591 | | 118,591 |
| | SUBTOTAL AFGHAN NATIONAL ARMY | 1,589,658 | 1,589,658 | 1,589,658 | | 1,589,658 |
| AFGHAN NATIONAL POLICE | | | | | | |
| 130 | SUSTAINMENT | 422,806 | 422,806 | 422,806 | | 422,806 |
| 140 | INFRASTRUCTURE | 2,358 | 2,358 | 2,358 | | 2,358 |
| 150 | EQUIPMENT AND TRANSPORTATION | 127,081 | 127,081 | 127,081 | | 127,081 |
| 160 | TRAINING AND OPERATIONS | 108,112 | 108,112 | 108,112 | | 108,112 |

| | | | | | | |
|-----|--|------------------|------------------|------------------|-----------------|------------------|
| | SUBTOTAL AFGHAN NATIONAL POLICE | 660,357 | 660,357 | 660,357 | | 660,357 |
| | AFGHAN AIR FORCE | | | | | |
| 170 | SUSTAINMENT | 893,829 | 893,829 | 893,829 | | 893,829 |
| 180 | INFRASTRUCTURE | 8,611 | 8,611 | 8,611 | | 8,611 |
| 190 | EQUIPMENT AND TRANSPORTATION | 566,967 | 566,967 | 566,967 | | 566,967 |
| 200 | TRAINING AND OPERATIONS | 356,108 | 356,108 | 356,108 | | 356,108 |
| | SUBTOTAL AFGHAN AIR FORCE | 1,825,515 | 1,825,515 | 1,825,515 | | 1,825,515 |
| | AFGHAN SPECIAL SECURITY FORCES | | | | | |
| 210 | SUSTAINMENT | 437,909 | 437,909 | 437,909 | | 437,909 |
| 220 | INFRASTRUCTURE | 21,131 | 21,131 | 21,131 | | 21,131 |
| 230 | EQUIPMENT AND TRANSPORTATION | 153,806 | 153,806 | 153,806 | | 153,806 |
| 240 | TRAINING AND OPERATIONS | 115,602 | 115,602 | 115,602 | | 115,602 |
| | SUBTOTAL AFGHAN SPECIAL SECURITY FORCES | 728,448 | 728,448 | 728,448 | | 728,448 |
| | UNDISTRIBUTED | | | | | |
| 245 | UNDISTRIBUTED | | -300,000 | | -300,000 | -300,000 |
| | Unjustified request | | [-300,000] | | [-300,000] | |
| | SUBTOTAL UNDISTRIBUTED | | -300,000 | | -300,000 | -300,000 |
| | TOTAL AFGHANISTAN SECURITY FORCES FUND | 4,803,978 | 4,503,978 | 4,803,978 | -300,000 | 4,503,978 |
| | COUNTER ISIS TRAIN AND EQUIP FUND (CTEF) | | | | | |
| | COUNTER ISIS TRAIN AND EQUIP FUND (CTEF) | | | | | |
| 010 | IRAQ | 745,000 | 663,000 | 645,000 | -200,000 | 545,000 |
| | Program decrease | | | | [-100,000] | |
| | Transfer to DSCA Security Cooperation | | | [-100,000] | [-100,000] | |
| | Unjustified growth | | [-82,000] | | | |
| 020 | SYRIA | 300,000 | 300,000 | 300,000 | | 300,000 |
| 030 | BORDER SECURITY | | 250,000 | | | |
| | Realignment of CTEF border security funding | | [250,000] | | | |

| SEC. 4302. OPERATION AND MAINTENANCE FOR OVERSEAS CONTINGENCY OPERATIONS (In Thousands of Dollars) | | | | | | |
|---|--|------------------|------------------|-------------------|-------------------|-----------------------|
| Line | Item | FY 2020 Request | House Authorized | Senate Authorized | Conference Change | Conference Authorized |
| | SUBTOTAL COUNTER ISIS TRAIN AND EQUIP FUND (CTEF) | 1,045,000 | 1,213,000 | 945,000 | -200,000 | 845,000 |
| | TOTAL COUNTER ISIS TRAIN AND EQUIP FUND (CTEF) | 1,045,000 | 1,213,000 | 945,000 | -200,000 | 845,000 |
| | OPERATION & MAINTENANCE, NAVY | | | | | |
| | OPERATING FORCES | | | | | |
| 010 | MISSION AND OTHER FLIGHT OPERATIONS | 373,047 | 587,422 | 373,047 | 600,000 | 973,047 |
| | Realignment from base | | [214,375] | | [600,000] | |
| 030 | AVIATION TECHNICAL DATA & ENGINEERING SERVICES | 816 | 816 | 816 | | 816 |
| 040 | AIR OPERATIONS AND SAFETY SUPPORT | 9,582 | 9,582 | 9,582 | | 9,582 |
| 050 | AIR SYSTEMS SUPPORT | 197,262 | 197,262 | 197,262 | | 197,262 |
| 060 | AIRCRAFT DEPOT MAINTENANCE | 168,246 | 168,246 | 168,246 | | 168,246 |
| 070 | AIRCRAFT DEPOT OPERATIONS SUPPORT | 3,594 | 3,594 | 3,594 | | 3,594 |
| 080 | AVIATION LOGISTICS | 10,618 | 10,618 | 10,618 | | 10,618 |
| 090 | MISSION AND OTHER SHIP OPERATIONS | 1,485,108 | 1,935,108 | 1,485,108 | 450,000 | 1,935,108 |
| | Realignment from base | | [450,000] | | [450,000] | |
| 100 | SHIP OPERATIONS SUPPORT & TRAINING | 20,334 | 20,334 | 20,334 | | 20,334 |
| 110 | SHIP DEPOT MAINTENANCE | 2,365,615 | 2,365,615 | 2,365,615 | | 2,365,615 |
| 130 | COMBAT COMMUNICATIONS AND ELECTRONIC WARFARE | 58,092 | 58,092 | 58,092 | | 58,092 |
| 140 | SPACE SYSTEMS AND SURVEILLANCE | 18,000 | 18,000 | 18,000 | | 18,000 |
| 150 | WARFARE TACTICS | 16,984 | 16,984 | 16,984 | | 16,984 |
| 160 | OPERATIONAL METEOROLOGY AND OCEANOGRAPHY | 29,382 | 29,382 | 29,382 | | 29,382 |
| 170 | COMBAT SUPPORT FORCES | 608,870 | 608,870 | 608,870 | 400,000 | 1,008,870 |
| | Realignment from base | | | | [400,000] | |
| 180 | EQUIPMENT MAINTENANCE AND DEPOT OPERATIONS SUPPORT | 7,799 | 7,799 | 7,799 | | 7,799 |
| 200 | COMBATANT COMMANDERS DIRECT MISSION SUPPORT | 24,800 | 24,800 | 24,800 | | 24,800 |
| 220 | CYBERSPACE ACTIVITIES | 363 | 363 | 363 | | 363 |

| | | | | | | |
|-----|--|------------------|------------------|------------------|------------------|------------------|
| 240 | WEAPONS MAINTENANCE | 486,188 | 486,188 | 486,188 | | 486,188 |
| 250 | OTHER WEAPON SYSTEMS SUPPORT | 12,189 | 12,189 | 12,189 | | 12,189 |
| 270 | SUSTAINMENT, RESTORATION AND MODERNIZATION | 68,667 | 68,667 | 68,667 | | 68,667 |
| 280 | BASE OPERATING SUPPORT | 219,099 | 219,099 | 219,099 | | 219,099 |
| | SUBTOTAL OPERATING FORCES | 6,184,655 | 6,849,030 | 6,184,655 | 1,450,000 | 7,634,655 |
| | MOBILIZATION | | | | | |
| 320 | EXPEDITIONARY HEALTH SERVICES SYSTEMS | 17,580 | 17,580 | 17,580 | | 17,580 |
| 330 | COAST GUARD SUPPORT | 190,000 | 190,000 | 190,000 | | 190,000 |
| | SUBTOTAL MOBILIZATION | 207,580 | 207,580 | 207,580 | | 207,580 |
| | TRAINING AND RECRUITING | | | | | |
| 370 | SPECIALIZED SKILL TRAINING | 52,161 | 52,161 | 52,161 | | 52,161 |
| | SUBTOTAL TRAINING AND RECRUITING | 52,161 | 52,161 | 52,161 | | 52,161 |
| | ADMIN & SRVWD ACTIVITIES | | | | | |
| 440 | ADMINISTRATION | 8,475 | 8,475 | 8,475 | | 8,475 |
| 460 | MILITARY MANPOWER AND PERSONNEL MANAGEMENT | 7,653 | 7,653 | 7,653 | | 7,653 |
| 490 | SERVICEWIDE TRANSPORTATION | 70,683 | 70,683 | 70,683 | | 70,683 |
| 520 | ACQUISITION, LOGISTICS, AND OVERSIGHT | 11,130 | 11,130 | 11,130 | | 11,130 |
| 530 | INVESTIGATIVE AND SECURITY SERVICES | 1,559 | 1,559 | 1,559 | | 1,559 |
| 645 | CLASSIFIED PROGRAMS | 17,754 | 17,754 | 17,754 | | 17,754 |
| | SUBTOTAL ADMIN & SRVWD ACTIVITIES | 117,254 | 117,254 | 117,254 | | 117,254 |
| | TOTAL OPERATION & MAINTENANCE, NAVY | 6,561,650 | 7,226,025 | 6,561,650 | 1,450,000 | 8,011,650 |
| | OPERATION & MAINTENANCE, MARINE CORPS | | | | | |
| | OPERATING FORCES | | | | | |
| 010 | OPERATIONAL FORCES | 714,653 | 714,653 | 714,653 | 200,000 | 914,653 |
| | Realignment from base | | | | [200,000] | |
| 020 | FIELD LOGISTICS | 232,508 | 232,508 | 232,508 | 200,000 | 432,508 |
| | Realignment from base | | | | [200,000] | |

| SEC. 4302. OPERATION AND MAINTENANCE FOR OVERSEAS CONTINGENCY OPERATIONS (In Thousands of Dollars) | | | | | | |
|---|--|------------------|------------------|-------------------|-------------------|-----------------------|
| Line | Item | FY 2020 Request | House Authorized | Senate Authorized | Conference Change | Conference Authorized |
| 030 | DEPOT MAINTENANCE | 54,101 | 54,101 | 54,101 | | 54,101 |
| 050 | CYBERSPACE ACTIVITIES | 2,000 | 2,000 | 2,000 | | 2,000 |
| 060 | SUSTAINMENT, RESTORATION & MODERNIZATION | | | 340,000 | | |
| | Disaster recovery increase | | | [340,000] | | |
| 070 | BASE OPERATING SUPPORT | 24,570 | 24,570 | 24,570 | | 24,570 |
| | SUBTOTAL OPERATING FORCES | 1,027,832 | 1,027,832 | 1,367,832 | 400,000 | 1,427,832 |
| | TRAINING AND RECRUITING | | | | | |
| 120 | TRAINING SUPPORT | 30,459 | 30,459 | 30,459 | | 30,459 |
| | SUBTOTAL TRAINING AND RECRUITING | 30,459 | 30,459 | 30,459 | | 30,459 |
| | ADMIN & SRVWD ACTIVITIES | | | | | |
| 160 | SERVICEWIDE TRANSPORTATION | 61,400 | 61,400 | 61,400 | | 61,400 |
| 225 | CLASSIFIED PROGRAMS | 5,100 | 5,100 | 5,100 | | 5,100 |
| | SUBTOTAL ADMIN & SRVWD ACTIVITIES | 66,500 | 66,500 | 66,500 | | 66,500 |
| | TOTAL OPERATION & MAINTENANCE, MARINE CORPS | 1,124,791 | 1,124,791 | 1,464,791 | 400,000 | 1,524,791 |
| | OPERATION & MAINTENANCE, NAVY RES | | | | | |
| | OPERATING FORCES | | | | | |
| 020 | INTERMEDIATE MAINTENANCE | 510 | 510 | 510 | | 510 |
| 030 | AIRCRAFT DEPOT MAINTENANCE | 11,628 | 11,628 | 11,628 | | 11,628 |
| 080 | COMBAT SUPPORT FORCES | 10,898 | 10,898 | 10,898 | | 10,898 |
| | SUBTOTAL OPERATING FORCES | 23,036 | 23,036 | 23,036 | | 23,036 |
| | TOTAL OPERATION & MAINTENANCE, NAVY RES | 23,036 | 23,036 | 23,036 | | 23,036 |

| | | | | | |
|---|--|--------------|--------------|--------------|--------------|
| OPERATION & MAINTENANCE, MC RESERVE | | | | | |
| OPERATING FORCES | | | | | |
| 010 | OPERATING FORCES | 7,627 | 7,627 | 7,627 | 7,627 |
| 040 | BASE OPERATING SUPPORT | 1,080 | 1,080 | 1,080 | 1,080 |
| | SUBTOTAL OPERATING FORCES | 8,707 | 8,707 | 8,707 | 8,707 |
| | TOTAL OPERATION & MAINTENANCE, MC RESERVE | 8,707 | 8,707 | 8,707 | 8,707 |
| OPERATION & MAINTENANCE, AIR FORCE | | | | | |
| OPERATING FORCES | | | | | |
| 010 | PRIMARY COMBAT FORCES | 163,632 | 163,632 | 163,632 | 163,632 |
| 020 | COMBAT ENHANCEMENT FORCES | 1,049,170 | 1,049,170 | 1,049,170 | 1,449,170 |
| | Realignment from base | | | | [400,000] |
| 030 | AIR OPERATIONS TRAINING (OJT, MAINTAIN SKILLS) | 111,808 | 111,808 | 111,808 | 111,808 |
| 040 | DEPOT PURCHASE EQUIPMENT MAINTENANCE | 408,699 | 408,699 | 408,699 | 408,699 |
| 050 | FACILITIES SUSTAINMENT, RESTORATION & MODERNIZATION | 147,264 | 147,264 | 487,264 | 147,264 |
| | Disaster recovery increase | | | [340,000] | |
| 060 | CYBERSPACE SUSTAINMENT | 10,061 | 10,061 | 10,061 | 10,061 |
| 070 | CONTRACTOR LOGISTICS SUPPORT AND SYSTEM SUPPORT | 953,594 | 953,594 | 953,594 | 953,594 |
| 080 | FLYING HOUR PROGRAM | 2,495,266 | 3,045,266 | 2,495,266 | 3,045,266 |
| | Realignment from base | | [550,000] | | [550,000] |
| 090 | BASE OPERATIONS SUPPORT | 1,538,120 | 1,538,120 | 1,538,120 | 1,738,120 |
| | Realignment from base | | | | [200,000] |
| 100 | GLOBAL C3I AND EARLY WARNING | 13,863 | 13,863 | 13,863 | 13,863 |
| 110 | OTHER COMBAT OPS SPT PROGRAMS | 272,020 | 272,020 | 272,020 | 272,020 |
| 120 | CYBERSPACE ACTIVITIES | 17,657 | 17,657 | 17,657 | 17,657 |
| 130 | TACTICAL INTEL AND OTHER SPECIAL ACTIVITIES | 36,098 | 36,098 | 36,098 | 36,098 |
| 140 | LAUNCH FACILITIES | 391 | 391 | 391 | 391 |
| 150 | SPACE CONTROL SYSTEMS | 39,990 | 39,990 | 39,990 | 39,990 |
| 160 | US NORTHCOM/NORAD | 725 | 725 | 725 | 725 |
| 170 | US STRATCOM | 926 | 926 | 926 | 926 |
| 180 | US CYBERCOM | 35,189 | 35,189 | 35,189 | 35,189 |

| SEC. 4302. OPERATION AND MAINTENANCE FOR OVERSEAS CONTINGENCY OPERATIONS (In Thousands of Dollars) | | | | | | |
|---|---|------------------|------------------|-------------------|-------------------|-----------------------|
| Line | Item | FY 2020 Request | House Authorized | Senate Authorized | Conference Change | Conference Authorized |
| 190 | US CENTCOM | 163,015 | 163,015 | 163,015 | | 163,015 |
| 200 | US SOCOM | 19,000 | 19,000 | 19,000 | | 19,000 |
| | SUBTOTAL OPERATING FORCES | 7,476,488 | 8,026,488 | 7,816,488 | 1,150,000 | 8,626,488 |
| | MOBILIZATION | | | | | |
| 240 | AIRLIFT OPERATIONS | 1,271,439 | 1,271,439 | 1,271,439 | | 1,271,439 |
| 250 | MOBILIZATION PREPAREDNESS | 109,682 | 109,682 | 109,682 | | 109,682 |
| | SUBTOTAL MOBILIZATION | 1,381,121 | 1,381,121 | 1,381,121 | | 1,381,121 |
| | TRAINING AND RECRUITING | | | | | |
| 260 | OFFICER ACQUISITION | 200 | 200 | 200 | | 200 |
| 270 | RECRUIT TRAINING | 352 | 352 | 352 | | 352 |
| 290 | SPECIALIZED SKILL TRAINING | 26,802 | 26,802 | 26,802 | | 26,802 |
| 300 | FLIGHT TRAINING | 844 | 844 | 844 | | 844 |
| 310 | PROFESSIONAL DEVELOPMENT EDUCATION | 1,199 | 1,199 | 1,199 | | 1,199 |
| 320 | TRAINING SUPPORT | 1,320 | 1,320 | 1,320 | | 1,320 |
| | SUBTOTAL TRAINING AND RECRUITING | 30,717 | 30,717 | 30,717 | | 30,717 |
| | ADMIN & SRVWD ACTIVITIES | | | | | |
| | UNDISTRIBUTED | | | | | |
| 380 | LOGISTICS OPERATIONS | 164,701 | 164,701 | 164,701 | | 164,701 |
| 390 | TECHNICAL SUPPORT ACTIVITIES | 11,608 | 11,608 | 11,608 | | 11,608 |
| 400 | ADMINISTRATION | 4,814 | 4,814 | 4,814 | | 4,814 |
| 410 | SERVICEWIDE COMMUNICATIONS | 145,204 | 145,204 | 145,204 | | 145,204 |
| 420 | OTHER SERVICEWIDE ACTIVITIES | 98,841 | 98,841 | 98,841 | | 98,841 |
| 460 | INTERNATIONAL SUPPORT | 29,890 | 29,890 | 29,890 | | 29,890 |
| 465 | CLASSIFIED PROGRAMS | 52,995 | 52,995 | 52,995 | | 52,995 |

| | | | | | | |
|-----|--|------------------|------------------|------------------|------------------|-------------------|
| | SUBTOTAL ADMIN & SRVWD ACTIVITIES | 508,053 | 508,053 | 508,053 | | 508,053 |
| | TOTAL OPERATION & MAINTENANCE, AIR FORCE | 9,396,379 | 9,946,379 | 9,736,379 | 1,150,000 | 10,546,379 |
| | OPERATION & MAINTENANCE, AF RESERVE | | | | | |
| | OPERATING FORCES | | | | | |
| 030 | DEPOT PURCHASE EQUIPMENT MAINTENANCE | 24,188 | 24,188 | 24,188 | | 24,188 |
| 060 | BASE SUPPORT | 5,570 | 5,570 | 5,570 | | 5,570 |
| | SUBTOTAL OPERATING FORCES | 29,758 | 29,758 | 29,758 | | 29,758 |
| | TOTAL OPERATION & MAINTENANCE, AF RESERVE | 29,758 | 29,758 | 29,758 | | 29,758 |
| | OPERATION & MAINTENANCE, ANG | | | | | |
| | OPERATING FORCES | | | | | |
| 020 | MISSION SUPPORT OPERATIONS | 3,666 | 3,666 | 3,666 | | 3,666 |
| 030 | DEPOT PURCHASE EQUIPMENT MAINTENANCE | 66,944 | 66,944 | 66,944 | | 66,944 |
| 050 | CONTRACTOR LOGISTICS SUPPORT AND SYSTEM SUPPORT | 93,620 | 93,620 | 93,620 | | 93,620 |
| 060 | BASE SUPPORT | 12,679 | 12,679 | 12,679 | | 12,679 |
| | SUBTOTAL OPERATING FORCES | 176,909 | 176,909 | 176,909 | | 176,909 |
| | TOTAL OPERATION & MAINTENANCE, ANG | 176,909 | 176,909 | 176,909 | | 176,909 |
| | OPERATION AND MAINTENANCE, DEFENSE-WIDE | | | | | |
| | OPERATING FORCES | | | | | |
| 010 | JOINT CHIEFS OF STAFF | 21,866 | 21,866 | 21,866 | | 21,866 |
| 020 | JOINT CHIEFS OF STAFF—CE2T2 | 6,634 | 6,634 | 6,634 | | 6,634 |
| 040 | SPECIAL OPERATIONS COMMAND COMBAT DEVELOPMENT ACTIVITIES | 1,121,580 | 1,121,580 | 1,121,580 | -10,000 | 1,111,580 |
| | Classified adjustment | | | | [-10,000] | |
| 060 | SPECIAL OPERATIONS COMMAND INTELLIGENCE | 1,328,201 | 1,328,201 | 1,328,201 | | 1,328,201 |
| 070 | SPECIAL OPERATIONS COMMAND MAINTENANCE | 399,845 | 399,845 | 399,845 | | 399,845 |
| 090 | SPECIAL OPERATIONS COMMAND OPERATIONAL SUPPORT | 138,458 | 102,958 | 138,458 | -35,000 | 103,458 |
| | Projected underexecution—communications | | [-35,500] | | [-35,000] | |

| SEC. 4302. OPERATION AND MAINTENANCE FOR OVERSEAS CONTINGENCY OPERATIONS (In Thousands of Dollars) | | | | | | |
|---|---|------------------|------------------|-------------------|-------------------|-----------------------|
| Line | Item | FY 2020 Request | House Authorized | Senate Authorized | Conference Change | Conference Authorized |
| 100 | SPECIAL OPERATIONS COMMAND THEATER FORCES | 808,729 | 808,729 | 808,729 | 500,000 | 1,308,729 |
| | Realignment from base | | | | [500,000] | |
| | SUBTOTAL OPERATING FORCES | 3,825,313 | 3,789,813 | 3,825,313 | 455,000 | 4,280,313 |
| | ADMIN & SRVWIDE ACTIVITIES | | | | | |
| 180 | DEFENSE CONTRACT AUDIT AGENCY | 1,810 | 1,810 | 1,810 | | 1,810 |
| 200 | DEFENSE CONTRACT MANAGEMENT AGENCY | 21,723 | 21,723 | 21,723 | | 21,723 |
| 230 | DEFENSE INFORMATION SYSTEMS AGENCY | 81,133 | 81,133 | 81,133 | | 81,133 |
| 240 | DEFENSE INFORMATION SYSTEMS AGENCY—CYBER | 3,455 | 3,455 | 3,455 | | 3,455 |
| 270 | DEFENSE LEGAL SERVICES AGENCY | 196,124 | 196,124 | 196,124 | | 196,124 |
| 290 | DEFENSE MEDIA ACTIVITY | 14,377 | 14,377 | 14,377 | | 14,377 |
| 310 | DEFENSE SECURITY COOPERATION AGENCY | 1,927,217 | 1,364,427 | 1,977,217 | -250,000 | 1,677,217 |
| | Realignment of CTEF border security funding | | [-250,000] | | | |
| | Security cooperation account, unjustified growth | | | [-100,000] | [-37,030] | |
| | Transfer from CTEF Iraq | | | [100,000] | [100,000] | |
| | Transfer of funds to Ukraine Security Assistance Initiative | | [-250,000] | | [-250,000] | |
| | Ukraine Security Assistance Initiative | | | [50,000] | | |
| | Unjustified growth | | [-62,790] | | [-62,970] | |
| 380 | DEFENSE THREAT REDUCTION AGENCY | 317,558 | 307,558 | 317,558 | | 317,558 |
| | Program decrease | | [-10,000] | | | |
| 410 | DEPARTMENT OF DEFENSE EDUCATION ACTIVITY | 31,620 | 31,620 | 31,620 | | 31,620 |
| 460 | OFFICE OF THE SECRETARY OF DEFENSE | 16,666 | 21,666 | 16,666 | | 16,666 |
| | Realignment of redress and loss funding | | [5,000] | | | |
| 500 | WASHINGTON HEADQUARTERS SERVICES | 6,331 | 6,331 | 6,331 | | 6,331 |
| 505 | CLASSIFIED PROGRAMS | 1,924,785 | 1,924,785 | 1,924,785 | | 1,924,785 |
| | SUBTOTAL ADMIN & SRVWIDE ACTIVITIES | 4,542,799 | 3,975,009 | 4,592,799 | -250,000 | 4,292,799 |

November 23, 2019 (1:06 a.m.)

| | | | | | | |
|-----|--|-------------------|-------------------|-------------------|------------------|-------------------|
| | TOTAL OPERATION AND MAINTENANCE, DEFENSE-WIDE | 8,368,112 | 7,764,822 | 8,418,112 | 205,000 | 8,573,112 |
| | TOTAL OPERATION & MAINTENANCE, DEFENSE-WIDE | | -603,290 | 50,000 | 205,000 | 205,000 |
| | UKRAINE SECURITY ASSISTANCE | | | | | |
| | UKRAINE SECURITY ASSISTANCE | | | | | |
| 010 | UKRAINE SECURITY ASSISTANCE INITIATIVE | | 250,000 | | 300,000 | 300,000 |
| | Program increase | | | | [50,000] | |
| | Transfer of funds from Defense Security Cooperation Agency | | [250,000] | | [250,000] | |
| | SUBTOTAL UKRAINE SECURITY ASSISTANCE | | 250,000 | | 300,000 | 300,000 |
| | TOTAL UKRAINE SECURITY ASSISTANCE | | 250,000 | | 300,000 | 300,000 |
| | TOTAL OPERATION & MAINTENANCE | 50,432,141 | 51,652,936 | 51,112,141 | 4,536,048 | 54,968,189 |

SEC. 4303. OPERATION AND MAINTENANCE FOR EMERGENCY REQUIREMENTS.

| SEC. 4303. OPERATION AND MAINTENANCE FOR EMERGENCY REQUIREMENTS (In Thousands of Dollars) | | | | | | |
|--|--|-----------------|------------------|-------------------|-------------------|-----------------------|
| Line | Item | FY 2020 Request | House Authorized | Senate Authorized | Conference Change | Conference Authorized |
| OPERATION & MAINTENANCE, NAVY | | | | | | |
| OPERATING FORCES | | | | | | |
| 270 | SUSTAINMENT, RESTORATION AND MODERNIZATION | 0 | | | 462,000 | 462,000 |
| | Earthquake damage repair | | | | [370,000] | |
| | Navy Working Capital Fund earthquake recovery losses | | | | [92,000] | |
| 280 | BASE OPERATING SUPPORT | 0 | | | 9,000 | 9,000 |
| | Earthquake damage recovery | | | | [9,000] | |
| | TOTAL OPERATION & MAINTENANCE, NAVY | 0 | | | 471,000 | 471,000 |
| OPERATION & MAINTENANCE, MARINE CORPS | | | | | | |
| OPERATING FORCES | | | | | | |
| 060 | SUSTAINMENT, RESTORATION & MODERNIZATION | 0 | | | 6,000 | 6,000 |
| | Earthquake damage repair | | | | [6,000] | |
| | TOTAL OPERATION & MAINTENANCE, MARINE CORPS | 0 | | | 6,000 | 6,000 |
| OPERATION & MAINTENANCE, ANG | | | | | | |
| OPERATING FORCES | | | | | | |
| 040 | FACILITIES SUSTAINMENT, RESTORATION & MODERNIZATION | 0 | | | 58,900 | 58,900 |
| | Hurricane recovery | | | | [58,900] | |
| | TOTAL OPERATION & MAINTENANCE, ANG | 0 | | | 58,900 | 58,900 |
| | TOTAL OPERATION & MAINTENANCE | 0 | | | 535,900 | 535,900 |

TITLE XLIV—MILITARY PERSONNEL

SEC. 4401. MILITARY PERSONNEL.

| SEC. 4401. MILITARY PERSONNEL (In Thousands of Dollars) | | | | | |
|--|--------------------|---------------------|----------------------|----------------------|--------------------------|
| Item | FY 2020 Request | House Authorized | Senate Authorized | Conference Change | Conference Authorized |
| Military Personnel Appropriations | 143,476,503 | 142,248,503 | 142,557,523 | −800,000 | 142,676,503 |
| Historical unobligated balances | | [−1,228,000] | | [−800,000] | |
| Historical underexecution | | | [−918,980] | | |
| Medicare-Eligible Retiree Health Fund Contributions | 7,816,815 | 7,816,815 | 7,816,815 | | 7,816,815 |

November 23, 2019 (1:06 a.m.)

SEC. 4402. MILITARY PERSONNEL FOR OVERSEAS CONTINGENCY OPERATIONS.

| SEC. 4402. MILITARY PERSONNEL FOR OVERSEAS CONTINGENCY OPERATIONS (In Thousands of Dollars) | | | | |
|--|--------------------|----------------------|--------------------------|--|
| Item | FY 2020 Request | Conference Change | Conference Authorized | |
| Military Personnel Appropriations | 4,485,808 | 0 | 4,485,808 | |
| Total, Military Personnel Appropriations | 4,485,808 | 0 | 4,485,808 | |

TITLE XLV—OTHER AUTHORIZATIONS

SEC. 4501. OTHER AUTHORIZATIONS.

| SEC. 4501. OTHER AUTHORIZATIONS (In Thousands of Dollars) | | | | | |
|--|--------------------|---------------------|----------------------|----------------------|--------------------------|
| Program Title | FY 2020 Request | House Authorized | Senate Authorized | Conference Change | Conference Authorized |
| WORKING CAPITAL FUND, ARMY | | | | | |
| INDUSTRIAL OPERATIONS | 57,467 | 57,467 | 57,467 | | 57,467 |
| SUPPLY MANAGEMENT—ARMY | 32,130 | 32,130 | 32,130 | | 32,130 |
| TOTAL WORKING CAPITAL FUND, ARMY | 89,597 | 89,597 | 89,597 | | 89,597 |
| WORKING CAPITAL FUND, AIR FORCE | | | | | |
| TRANSPORTATION | | | | | |
| SUPPLIES AND MATERIALS | 92,499 | 92,499 | 102,499 | | 92,499 |
| Energy optimization initiatives | | | [10,000] | | |
| TOTAL WORKING CAPITAL FUND, AIR FORCE | 92,499 | 92,499 | 102,499 | | 92,499 |
| WORKING CAPITAL FUND, DEFENSE-WIDE | | | | | |
| SUPPLY CHAIN MANAGEMENT—DEF | 49,085 | 49,085 | 49,085 | | 49,085 |
| TOTAL WORKING CAPITAL FUND, DEFENSE-WIDE | 49,085 | 49,085 | 49,085 | | 49,085 |
| WORKING CAPITAL FUND, DECA | | | | | |
| WORKING CAPITAL FUND, DECA | 995,030 | 995,030 | 995,030 | | 995,030 |
| TOTAL WORKING CAPITAL FUND, DECA | 995,030 | 995,030 | 995,030 | | 995,030 |
| NATIONAL DEFENSE SEALIFT FUND | | | | | |
| LG MED SPD RO/RO MAINTENANCE | | 264,751 | | | |

| SEC. 4501. OTHER AUTHORIZATIONS (In Thousands of Dollars) | | | | | |
|---|-----------------|------------------|-------------------|-------------------|-----------------------|
| Program Title | FY 2020 Request | House Authorized | Senate Authorized | Conference Change | Conference Authorized |
| Realignment from Operations and Maintenance, Navy | | [264,751] | | | |
| TOTAL NATIONAL DEFENSE SEALIFT FUND | | 264,751 | | | |
| NATIONAL DEFENSE SEALIFT FUND | | | | | |
| DOD MOBILIZATION ALTERATIONS | | 9,590 | | | |
| Realignment from Operations and Maintenance, Navy | | [9,590] | | | |
| TOTAL NATIONAL DEFENSE SEALIFT FUND | | 9,590 | | | |
| NATIONAL DEFENSE SEALIFT FUND | | | | | |
| TAH MAINTENANCE | | 96,867 | | | |
| Realignment from Operations and Maintenance, Navy | | [96,867] | | | |
| TOTAL NATIONAL DEFENSE SEALIFT FUND | | 96,867 | | | |
| NATIONAL DEFENSE SEALIFT FUND | | | | | |
| READY RESERVE FORCE | | 352,044 | | | |
| Realignment from Operations and Maintenance, Navy | | [352,044] | | | |
| TOTAL NATIONAL DEFENSE SEALIFT FUND | | 352,044 | | | |
| WCF, DEF COUNTERINTELLIGENCE & SECURITY AGENCY | | | | | |
| DEFENSE COUNTERINTELLIGENCE AND SECURITY AGENCY | 200,000 | 200,000 | 200,000 | | 200,000 |
| TOTAL WCF, DEF COUNTERINTELLIGENCE & SECURITY AGENCY | 200,000 | 200,000 | 200,000 | | 200,000 |
| CHEM AGENTS & MUNITIONS DESTRUCTION | | | | | |
| OPERATION & MAINTENANCE | 107,351 | 107,351 | 107,351 | | 107,351 |
| RDT&E | 875,930 | 865,930 | 875,930 | | 875,930 |
| Unjustified growth | | [-10,000] | | | |
| PROCUREMENT | 2,218 | 2,218 | 2,218 | | 2,218 |

| | | | | | |
|---|----------------|----------------|----------------|----------------|----------------|
| TOTAL CHEM AGENTS & MUNITIONS DESTRUCTION | 985,499 | 975,499 | 985,499 | | 985,499 |
| DRUG INTERDICTION & CTR-DRUG ACTIVITIES, DEF | | | | | |
| COUNTER-NARCOTICS SUPPORT | 581,739 | 542,171 | 581,739 | -48,921 | 532,818 |
| Counter synthetic opioid trafficking | | [25,000] | | | |
| Realignment of National Guard Bureau funding | | [-30,921] | | [-30,921] | |
| Unjustified growth | | [-33,647] | | [-18,000] | |
| DRUG DEMAND REDUCTION PROGRAM | 120,922 | 120,922 | 120,922 | | 120,922 |
| NATIONAL GUARD COUNTER-DRUG PROGRAM | 91,370 | 122,291 | 91,370 | 30,921 | 122,291 |
| Realignment of National Guard Bureau funding | | [30,921] | | [30,921] | |
| NATIONAL GUARD COUNTER-DRUG SCHOOLS | 5,371 | 5,371 | 5,371 | | 5,371 |
| TOTAL DRUG INTERDICTION & CTR-DRUG ACTIVITIES, DEF | 799,402 | 790,755 | 799,402 | -18,000 | 781,402 |
| OFFICE OF THE INSPECTOR GENERAL | | | | | |
| OFFICE OF THE INSPECTOR GENERAL | 359,022 | 359,022 | 359,022 | | 359,022 |
| OFFICE OF THE INSPECTOR GENERAL—CYBER | 1,179 | 1,179 | 1,179 | | 1,179 |
| OFFICE OF THE INSPECTOR GENERAL | 2,965 | 2,965 | 2,965 | | 2,965 |
| OFFICE OF THE INSPECTOR GENERAL | 333 | 333 | 333 | | 333 |
| TOTAL OFFICE OF THE INSPECTOR GENERAL | 363,499 | 363,499 | 363,499 | | 363,499 |
| DEFENSE HEALTH PROGRAM | | | | | |
| IN-HOUSE CARE | 9,570,615 | 9,470,615 | 9,570,615 | -250,000 | 9,320,615 |
| Unjustified growth | | [-100,000] | | [-250,000] | |
| PRIVATE SECTOR CARE | 15,041,006 | 15,038,506 | 15,052,006 | -38,500 | 15,002,506 |
| Contraceptive cost-sharing | | | [11,000] | | |
| Historical underexecution | | | | [-38,500] | |
| Program decrease | | [-2,500] | | | |
| CONSOLIDATED HEALTH SUPPORT | 1,975,536 | 1,986,536 | 1,975,536 | 11,000 | 1,986,536 |
| Wounded Warrior Service Dog program | | [11,000] | | [11,000] | |
| INFORMATION MANAGEMENT | 2,004,588 | 2,004,588 | 2,004,588 | -5,650 | 1,998,938 |
| Historical underexecution | | | | [-5,650] | |
| MANAGEMENT ACTIVITIES | 333,246 | 333,246 | 333,246 | | 333,246 |

| SEC. 4501. OTHER AUTHORIZATIONS (In Thousands of Dollars) | | | | | |
|---|-----------------|------------------|-------------------|-------------------|-----------------------|
| Program Title | FY 2020 Request | House Authorized | Senate Authorized | Conference Change | Conference Authorized |
| EDUCATION AND TRAINING | 793,810 | 796,310 | 793,810 | -500 | 793,310 |
| Other costs excess growth | | | | [-3,000] | |
| Pilot program on partnerships with civilian organizations for specialized surgical training | | [2,500] | | | |
| Program increase—specialized medical pilot program | | | | [2,500] | |
| BASE OPERATIONS/COMMUNICATIONS | 2,093,289 | 2,093,289 | 2,093,289 | | 2,093,289 |
| UNDISTRIBUTED | | 24,500 | | | |
| PFAS exposure blood testing for DoD firefighters | | [2,000] | | | |
| Post-traumatic stress disorder | | [2,500] | | | |
| TRICARE lead level screening and testing for children | | [10,000] | | | |
| Triple negative breast cancer research | | [10,000] | | | |
| R&D RESEARCH | 12,621 | 27,621 | 12,621 | | 12,621 |
| CDC ASTDR PFOS/PFOA health study increment | | [15,000] | | | |
| R&D EXPLORATORY DEVELOPMENT | 84,266 | 84,266 | 84,266 | | 84,266 |
| R&D ADVANCED DEVELOPMENT | 279,766 | 279,766 | 279,766 | | 279,766 |
| R&D DEMONSTRATION/VALIDATION | 128,055 | 128,055 | 128,055 | | 128,055 |
| R&D ENGINEERING DEVELOPMENT | 143,527 | 158,527 | 143,527 | | 143,527 |
| Deployment of mTBI/concussion multi-modal devices | | [10,000] | | | |
| Program increase—freeze dried platelets | | [5,000] | | | |
| R&D MANAGEMENT AND SUPPORT | 67,219 | 67,219 | 67,219 | | 67,219 |
| R&D CAPABILITIES ENHANCEMENT | 16,819 | 16,819 | 16,819 | | 16,819 |
| PROC INITIAL OUTFITTING | 26,135 | 26,135 | 26,135 | | 26,135 |
| PROC REPLACEMENT & MODERNIZATION | 225,774 | 225,774 | 225,774 | | 225,774 |
| PROC JOINT OPERATIONAL MEDICINE INFORMATION SYSTEM | 314 | 314 | 314 | | 314 |
| PROC MILITARY HEALTH SYSTEM—DESKTOP TO DATACENTER | 73,010 | 73,010 | 73,010 | | 73,010 |
| PROC DOD HEALTHCARE MANAGEMENT SYSTEM MODERNIZATION | 129,091 | 129,091 | 99,091 | | 129,091 |
| Prior year availability | | | [-30,000] | | |

| | | | | | |
|---|-------------------|-------------------|-------------------|-----------------|-------------------|
| TOTAL DEFENSE HEALTH PROGRAM | 32,998,687 | 32,964,187 | 32,979,687 | -283,650 | 32,715,037 |
| TOTAL OTHER AUTHORIZATIONS | 36,573,298 | 37,243,403 | 36,564,298 | -301,650 | 36,271,648 |

SEC. 4502. OTHER AUTHORIZATIONS FOR OVERSEAS CONTINGENCY OPERATIONS.

| SEC. 4502. OTHER AUTHORIZATIONS FOR OVERSEAS CONTINGENCY OPERATIONS | | | | | |
|--|------------------------|-------------------------|--------------------------|--------------------------|------------------------------|
| (In Thousands of Dollars) | | | | | |
| Program Title | FY 2020 Request | House Authorized | Senate Authorized | Conference Change | Conference Authorized |
| WORKING CAPITAL FUND, ARMY | | | | | |
| INDUSTRIAL OPERATIONS | | | | | |
| SUPPLY MANAGEMENT—ARMY | 20,100 | 20,100 | 20,100 | | 20,100 |
| TOTAL WORKING CAPITAL FUND, ARMY | 20,100 | 20,100 | 20,100 | | 20,100 |
| DRUG INTERDICTION & CTR-DRUG ACTIVITIES, DEF | | | | | |
| COUNTER-NARCOTICS SUPPORT | 163,596 | 153,100 | 163,596 | | 163,596 |
| Unjustified growth | | [-10,496] | | | |
| TOTAL DRUG INTERDICTION & CTR-DRUG ACTIVITIES, DEF | 163,596 | 153,100 | 163,596 | | 163,596 |
| OFFICE OF THE INSPECTOR GENERAL | | | | | |
| OFFICE OF THE INSPECTOR GENERAL | 24,254 | 24,254 | 24,254 | | 24,254 |
| TOTAL OFFICE OF THE INSPECTOR GENERAL | 24,254 | 24,254 | 24,254 | | 24,254 |
| DEFENSE HEALTH PROGRAM | | | | | |
| IN-HOUSE CARE | 57,459 | 57,459 | 57,459 | | 57,459 |
| PRIVATE SECTOR CARE | 287,487 | 287,487 | 287,487 | | 287,487 |
| CONSOLIDATED HEALTH SUPPORT | 2,800 | 2,800 | 2,800 | | 2,800 |
| TOTAL DEFENSE HEALTH PROGRAM | 347,746 | 347,746 | 347,746 | | 347,746 |
| TOTAL OTHER AUTHORIZATIONS | 555,696 | 545,200 | 555,696 | | 555,696 |

TITLE XLVI—MILITARY CONSTRUCTION

SEC. 4601. MILITARY CONSTRUCTION.

| SEC. 4601. MILITARY CONSTRUCTION (In Thousands of Dollars) | | | | | | | | |
|---|-------------------|--|--|--------------------|---------------------|----------------------|----------------------|--------------------------|
| Account | State/ Country | Installation | Project Title | FY 2020 Request | House Authorized | Senate Authorized | Conference Change | Conference Authorized |
| Army | ALABAMA | Redstone Arsenal | AIRCRAFT AND FLIGHT EQUIPMENT BUILDING | 38,000 | 38,000 | 38,000 | | 38,000 |
| Army | COLORADO | Fort Carson | COMPANY OPERATIONS FACILITY | 71,000 | 71,000 | 71,000 | | 71,000 |
| Army | GEORGIA | Fort Gordon | CYBER INSTRUCTIONAL FAC (ADMIN/COMMAND) | 107,000 | 70,000 | 67,000 | -40,000 | 67,000 |
| Army | GEORGIA | Hunter Army Airfield | AIRCRAFT MAINTENANCE HANGAR | 62,000 | 62,000 | 62,000 | | 62,000 |
| Army | HAWAII | Fort Shafter | COMMAND AND CONTROL FACILITY, INCR 5 | 60,000 | 60,000 | 60,000 | | 60,000 |
| Army | HONDURAS | Soto Cano Air Base | AIRCRAFT MAINTENANCE HANGAR | 34,000 | 34,000 | 34,000 | | 34,000 |
| Army | JAPAN | Kadena Air Base | VEHICLE MAINTENANCE SHOP | 0 | 0 | 15,000 | | 0 |
| Army | KENTUCKY | Fort Campbell | AUTOMATED INFANTRY PLATOON BATTLE COURSE | 7,100 | 7,100 | 7,100 | | 7,100 |
| Army | KENTUCKY | Fort Campbell | EASEMENTS | 3,200 | 3,200 | 3,200 | | 3,200 |
| Army | KENTUCKY | Fort Campbell | GENERAL PURPOSE MAINTENANCE SHOP | 51,000 | 51,000 | 51,000 | | 51,000 |
| Army | KWAJALEIN | Kwajalein Atoll | AIR TRAFFIC CONTROL TOWER AND TERMINAL | 0 | 40,000 | 0 | 40,000 | 40,000 |
| Army | MASSACHUSETTS | U.S. Army Natick Soldier Systems Center | HUMAN ENGINEERING LAB | 50,000 | 50,000 | 50,000 | | 50,000 |
| Army | MICHIGAN | Detroit Arsenal | SUBSTATION | 24,000 | 24,000 | 24,000 | | 24,000 |
| Army | NEW YORK | Fort Drum | RAILHEAD | 0 | 21,000 | 21,000 | 21,000 | 21,000 |
| Army | NEW YORK | Fort Drum | UNMANNED AERIAL VEHICLE HANGAR | 23,000 | 23,000 | 23,000 | | 23,000 |
| Army | NORTH CAROLINA | Fort Bragg | DINING FACILITY | 12,500 | 12,500 | 12,500 | | 12,500 |
| Army | OKLAHOMA | Fort Sill | ADV INDIVIDUAL TRAINING BARRACKS CPLX, PH2 | 73,000 | 73,000 | 73,000 | | 73,000 |
| Army | PENNSYLVANIA | Carlisle Barracks | GENERAL INSTRUCTION BUILDING | 98,000 | 60,000 | 98,000 | -38,000 | 60,000 |
| Army | SOUTH CAROLINA | Fort Jackson | RECEPTION COMPLEX, PH2 | 54,000 | 54,000 | 54,000 | | 54,000 |
| Army | TEXAS | Corpus Christi Army Depot | POWERTRAIN FACILITY (MACHINE SHOP) | 86,000 | 40,000 | 86,000 | | 86,000 |
| Army | TEXAS | Fort Hood | BARRACKS | 32,000 | 32,000 | 32,000 | | 32,000 |
| Army | TEXAS | Fort Hood | VEHICLE BRIDGE | 0 | 18,500 | 18,500 | 18,500 | 18,500 |

SEC. 4601. MILITARY CONSTRUCTION
(In Thousands of Dollars)

| Account | State/ Country | Installation | Project Title | FY 2020 Request | House Authorized | Senate Authorized | Conference Change | Conference Authorized |
|--|------------------------|--------------------------------------|--|--------------------|---------------------|----------------------|----------------------|--------------------------|
| Army | VIRGINIA | Fort Belvoir | SECURE OPERATIONS AND ADMIN FACILITY | 60,000 | 60,000 | 60,000 | | 60,000 |
| Army | VIRGINIA | Joint Base Langley-Eustis | ADV INDIVIDUAL TRAINING BARRACKS CPLX, PH4 | 55,000 | 55,000 | 55,000 | | 55,000 |
| Army | WASHINGTON | Joint Base Lewis-McChord | INFORMATION SYSTEMS FACILITY | 46,000 | 46,000 | 46,000 | | 46,000 |
| Army | WORLDWIDE UN-SPECIFIED | Unspecified Worldwide Locations | CHILD DEVELOPMENT CENTERS | 0 | 0 | 0 | 27,000 | 27,000 |
| Army | WORLDWIDE UN-SPECIFIED | Unspecified Worldwide Locations | HOST NATION SUPPORT | 31,000 | 31,000 | 31,000 | | 31,000 |
| Army | WORLDWIDE UN-SPECIFIED | Unspecified Worldwide Locations | PLANNING AND DESIGN | 94,099 | 85,099 | 94,099 | | 94,099 |
| Army | WORLDWIDE UN-SPECIFIED | Unspecified Worldwide Locations | UNSPECIFIED MINOR CONSTRUCTION | 70,600 | 70,600 | 70,600 | | 70,600 |
| Army | WORLDWIDE UN-SPECIFIED | Unspecified Worldwide Locations | UNSPECIFIED WORLDWIDE CONSTRUCTION | 211,000 | 0 | 0 | -211,000 | 0 |
| Military Construction, Army Total | | | | 1,453,499 | 1,191,999 | 1,256,999 | -182,500 | 1,270,999 |
| Navy | ARIZONA | Marine Corps Air Station Yuma | BACHELOR ENLISTED QUARTERS | 0 | 99,600 | 99,600 | 99,600 | 99,600 |
| Navy | ARIZONA | Marine Corps Air Station Yuma | HANGAR 95 RENOVATION & ADDITION | 90,160 | 90,160 | 90,160 | | 90,160 |
| Navy | AUSTRALIA | Darwin | AIRCRAFT PARKING APRON | 0 | 0 | 50,000 | 50,000 | 50,000 |
| Navy | BAHRAIN ISLAND | SW Asia | ELECTRICAL SYSTEM UPGRADE | 53,360 | 0 | 53,360 | -53,360 | 0 |
| Navy | CALIFORNIA | Camp Pendleton | 62 AREA MESS HALL AND CONSOLIDATED WAREHOUSE | 71,700 | 71,700 | 71,700 | | 71,700 |
| Navy | CALIFORNIA | Camp Pendleton | I MEF CONSOLIDATED INFORMATION CENTER | 113,869 | 63,869 | 23,000 | -75,000 | 38,869 |
| Navy | CALIFORNIA | Marine Corps Air Station Miramar | CHILD DEVELOPMENT CENTER | 0 | 37,400 | 37,400 | 37,400 | 37,400 |
| Navy | CALIFORNIA | Naval Air Weapons Station China Lake | RUNWAY & TAXIWAY EXTENSION | 64,500 | 64,500 | 64,500 | | 64,500 |
| Navy | CALIFORNIA | Naval Air Weapons Station China Lake | UNSPECIFIED MILITARY CONSTRUCTION—EARTHQUAKE DAMAGE RECOVERY | 0 | 100,000 | 0 | | 0 |

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|------|----------------------|---------------------------------------|---|---------|---------|---------|----------|---------|
| Navy | CALIFORNIA | Naval Base Coronado | AIRCRAFT PAINT COMPLEX | 0 | 79,000 | 79,000 | 79,000 | 79,000 |
| Navy | CALIFORNIA | Naval Base Coronado | NAVY V-22 HANGAR | 86,830 | 86,830 | 86,830 | | 86,830 |
| Navy | CALIFORNIA | Naval Base San Diego | PIER 8 REPLACEMENT (INC) | 59,353 | 59,353 | 59,353 | | 59,353 |
| Navy | CALIFORNIA | Naval Base San Diego | PMO FACILITY REPAIR | 0 | 9,900 | 9,900 | 9,900 | 9,900 |
| Navy | CALIFORNIA | Naval Weapons Station Seal Beach | AMMUNITION PIER | 95,310 | 60,310 | 95,310 | -35,000 | 60,310 |
| Navy | CALIFORNIA | Naval Weapons Station Seal Beach | MISSILE MAGAZINE | 0 | 28,000 | 28,000 | 28,000 | 28,000 |
| Navy | CALIFORNIA | Travis Air Force Base | ALERT FORCE COMPLEX | 64,000 | 64,000 | 64,000 | | 64,000 |
| Navy | CONNECTICUT | Naval Submarine Base New London | SSN BERTHING PIER 32 | 72,260 | 72,260 | 72,260 | | 72,260 |
| Navy | DISTRICT OF COLUMBIA | Naval Observatory | MASTER TIME CLOCKS & OPERATIONS FAC (INC) | 75,600 | 0 | 75,600 | -55,600 | 20,000 |
| Navy | FLORIDA | Blount Island | POLICE STATION AND EOC FACILITY | 0 | 18,700 | 18,700 | 18,700 | 18,700 |
| Navy | FLORIDA | Naval Air Station Jacksonville | TARGETING & SURVEILLANCE SYST PROD SUPP FAC | 32,420 | 32,420 | 32,420 | | 32,420 |
| Navy | GUAM | Joint Region Marianas | BACHELOR ENLISTED QUARTERS H | 164,100 | 64,100 | 20,000 | -130,000 | 34,100 |
| Navy | GUAM | Joint Region Marianas | EOD COMPOUND FACILITIES | 61,900 | 61,900 | 61,900 | | 61,900 |
| Navy | GUAM | Joint Region Marianas | MACHINE GUN RANGE (INC) | 91,287 | 91,287 | 91,287 | | 91,287 |
| Navy | HAWAII | Marine Corps Air Station Kaneohe Bay | BACHELOR ENLISTED QUARTERS | 134,050 | 134,050 | 39,000 | -68,560 | 65,490 |
| Navy | HAWAII | Naval Ammunition Depot West Loch | MAGAZINE CONSOLIDATION, PHASE 1 | 53,790 | 53,790 | 53,790 | | 53,790 |
| Navy | ITALY | Naval Air Station Sigonella | COMMUNICATIONS STATION | 77,400 | 0 | 77,400 | -77,400 | 0 |
| Navy | JAPAN | Fleet Activities Yokosuka | PIER 5 (BERTHS 2 AND 3) | 174,692 | 100,000 | 110,000 | -74,692 | 100,000 |
| Navy | JAPAN | Marine Corps Air Station Iwakuni | VTOL PAD—SOUTH | 15,870 | 15,870 | 15,870 | | 15,870 |
| Navy | MARYLAND | Saint Inigoes | AIR TRAFFIC CONTROL TOWER | 0 | 15,000 | 0 | 15,000 | 15,000 |
| Navy | NORTH CAROLINA | Camp Lejeune | 10TH MARINES HIMARS COMPLEX | 35,110 | 35,110 | 35,110 | | 35,110 |
| Navy | NORTH CAROLINA | Camp Lejeune | 2ND MARDIV/2ND MLG OPS CENTER REPLACEMENT | 60,130 | 60,130 | 60,130 | | 60,130 |
| Navy | NORTH CAROLINA | Camp Lejeune | 2ND RADIO BN COMPLEX, PHASE 2 (INC) | 25,650 | 25,650 | 25,650 | | 25,650 |
| Navy | NORTH CAROLINA | Camp Lejeune | ACV-AAV MAINTENANCE FACILITY UPGRADES | 11,570 | 0 | 11,570 | | 11,570 |
| Navy | NORTH CAROLINA | Camp Lejeune | II MEF OPERATIONS CENTER REPLACEMENT | 122,200 | 62,200 | 122,200 | -30,000 | 92,200 |
| Navy | NORTH CAROLINA | Marine Corps Air Station Cherry Point | AIRCRAFT MAINTENANCE HANGAR (INC) | 73,970 | 73,970 | 73,970 | | 73,970 |

| SEC. 4601. MILITARY CONSTRUCTION (In Thousands of Dollars) | | | | | | | | |
|---|----------------------------|--|--|--------------------|---------------------|----------------------|----------------------|--------------------------|
| Account | State/ Country | Installation | Project Title | FY 2020 Request | House Authorized | Senate Authorized | Conference Change | Conference Authorized |
| Navy | NORTH CAROLINA | Marine Corps Air Station Cherry Point | ATC TOWER & AIRFIELD OPERATIONS | 61,340 | 61,340 | 61,340 | | 61,340 |
| Navy | NORTH CAROLINA | Marine Corps Air Station Cherry Point | F-35 TRAINING AND SIMULATOR FACILITY | 53,230 | 53,230 | 53,230 | | 53,230 |
| Navy | NORTH CAROLINA | Marine Corps Air Station Cherry Point | FLIGHTLINE UTILITY MODERNIZATION (INC) | 51,860 | 51,860 | 51,860 | | 51,860 |
| Navy | NORTH CAROLINA | Marine Corps Air Station Cherry Point | SLOCUM ROAD PHYSICAL SECURITY COMPLIANCE | 0 | 0 | 52,300 | | 0 |
| Navy | NORTH CAROLINA | Marine Corps Air Station New River | CH-53K CARGO LOADING TRAINER | 11,320 | 11,320 | 11,320 | | 11,320 |
| Navy | PENNSYLVANIA | Philadelphia | MACHINERY CONTROL DEVELOPMENT CENTER | 0 | 66,000 | 0 | 74,630 | 74,630 |
| Navy | SOUTH CAROLINA | Parris Island | RANGE IMPROVEMENTS & MODERNIZATION PHASE 3 | 0 | 37,200 | 37,200 | 37,200 | 37,200 |
| Navy | UTAH | Hill Air Force Base | D5 MISSILE MOTOR RECEIPT/STORAGE FAC (INC) | 50,520 | 50,520 | 50,520 | | 50,520 |
| Navy | VIRGINIA | Marine Corps Base Quantico | WARGAMING CENTER | 143,350 | 70,000 | 10,000 | -110,000 | 33,350 |
| Navy | VIRGINIA | Naval Station Norfolk | MARINER SKILLS TRAINING CENTER | 79,100 | 79,100 | 0 | | 79,100 |
| Navy | VIRGINIA | Naval Station Norfolk | MH-60 & CMV-22B CORRISON CONTROL AND PAINT FACILITY | 0 | 49,000 | 0 | 60,000 | 60,000 |
| Navy | VIRGINIA | Portsmouth Naval Ship- yard | DRY DOCK FLOOD PROTECTION IMPROVEMENTS | 48,930 | 48,930 | 48,930 | | 48,930 |
| Navy | VIRGINIA | Yorktown Naval Weapons Station | NMC ORDNANCE FACILITIES RECAPITALIZATION PHASE 1 | 0 | 59,000 | 59,000 | 59,000 | 59,000 |
| Navy | WASHINGTON | Bremerton | DRY DOCK 4 & PIER 3 MODERNIZATION | 51,010 | 51,010 | 51,010 | | 51,010 |
| Navy | WASHINGTON | Keyport | UNDERSEA VEHICLE MAINTENANCE FACILITY | 25,050 | 25,050 | 25,050 | | 25,050 |
| Navy | WASHINGTON | Naval Base Kitsap | SEAWOLF SERVICE PIER COST-TO-COMPLETE | 0 | 48,000 | 48,000 | 48,000 | 48,000 |
| Navy | WORLDWIDE UN- SPECIFIED | Unspecified | FAMILY HOUSING MITGATION AND OVERSIGHT | 0 | 0 | 81,000 | | 0 |
| Navy | WORLDWIDE UN- SPECIFIED | Unspecified | PLANNING AND DESIGN | 0 | 0 | 20,400 | | 0 |

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|--|------------------------|---------------------------------|---|------------------|------------------|------------------|----------------|------------------|
| Navy | WORLDWIDE UN-SPECIFIED | Unspecified | PLANNING AND DESIGN | 0 | 0 | 8,000 | | 0 |
| Navy | WORLDWIDE UN-SPECIFIED | Unspecified Worldwide Locations | CHILD DEVELOPMENT CENTERS | 0 | 0 | 0 | 62,400 | 62,400 |
| Navy | WORLDWIDE UN-SPECIFIED | Unspecified Worldwide Locations | EARTHQUAKE FACILITY DAMAGE | 0 | 100,000 | 0 | | 0 |
| Navy | WORLDWIDE UN-SPECIFIED | Unspecified Worldwide Locations | PLANNING AND DESIGN | 167,715 | 168,715 | 167,715 | | 167,715 |
| Navy | WORLDWIDE UN-SPECIFIED | Unspecified Worldwide Locations | UNSPECIFIED MINOR CONSTRUCTION | 81,237 | 81,237 | 81,237 | | 81,237 |
| Military Construction, Navy Total | | | | 2,805,743 | 2,942,571 | 2,827,082 | -30,782 | 2,774,961 |
| AF | ALASKA | Eielson Air Force Base | F-35 AME STORAGE FACILITY | 8,600 | 8,600 | 8,600 | | 8,600 |
| AF | ARKANSAS | Little Rock Air Force Base | C-130H/J FUSELAGE TRAINER FACILITY | 47,000 | 47,000 | 47,000 | | 47,000 |
| AF | ARKANSAS | Little Rock Air Force Base | DORMITORY COST-TO-COMplete | 0 | 7,000 | 0 | 7,000 | 7,000 |
| AF | AUSTRALIA | Tindal | APR-RAAF TINDAL/EARTH COVERED MAGAZINE | 11,600 | 11,600 | 11,600 | | 11,600 |
| AF | AUSTRALIA | Tindal | APR-RAAF TINDAL/BULK STORAGE TANKS | 59,000 | 59,000 | 59,000 | | 59,000 |
| AF | CALIFORNIA | Travis Air Force Base | ADAL AERIAL PORT SQUADRON MATERIEL WAREHOUSE | 0 | 17,000 | 17,000 | 17,000 | 17,000 |
| AF | CALIFORNIA | Travis Air Force Base | KC-46A ALTER B181/B185/B187 SQUAD OPS/AMU | 6,600 | 6,600 | 6,600 | | 6,600 |
| AF | CALIFORNIA | Travis Air Force Base | KC-46A REGIONAL MAINTENANCE TRAINING FACILITY | 19,500 | 19,500 | 19,500 | | 19,500 |
| AF | COLORADO | Peterson Air Force Base | SOCNORTH THEATER OPERATIONAL SUPPORT FACILITY | 0 | 54,000 | 54,000 | 54,000 | 54,000 |
| AF | COLORADO | Schriever Air Force Base | CONSOLIDATED SPACE OPERATIONS FACILITY | 148,000 | 74,000 | 23,000 | -74,551 | 73,449 |
| AF | COLORADO | United States Air Force Academy | CONSOLIDATE CADET PREP SCHOOL DORMITORY | 0 | 49,000 | 0 | 49,000 | 49,000 |
| AF | CYPRUS | Royal Air Force Akrotiri | NEW DORMITORY FOR 1 ERS | 27,000 | 27,000 | 27,000 | | 27,000 |
| AF | GEORGIA | Moody Air Force Base | 41 RQS HH-60W APRON | 0 | 12,500 | 0 | 12,500 | 12,500 |
| AF | GUAM | Joint Region Marianas | MUNITIONS STORAGE IGLOOS III | 65,000 | 65,000 | 65,000 | | 65,000 |
| AF | ILLINOIS | Scott Air Force Base | JOINT OPERATIONS & MISSION PLANNING CENTER | 100,000 | 100,000 | 90,000 | | 100,000 |
| AF | JAPAN | Kadena Air Base | MUNITIONS STORAGE | 0 | 0 | 7,000 | | 0 |
| AF | JAPAN | Misawa AB | FUEL INFRASTRUCTURE RESILIENCY | 0 | 0 | 5,300 | | 0 |
| AF | JAPAN | Yokota Air Base | FUEL RECEIPT & DISTRIBUTION UPGRADE | 12,400 | 12,400 | 12,400 | | 12,400 |
| AF | JORDAN | Azraq | AIR TRAFFIC CONTROL TOWER | 24,000 | 0 | 24,000 | -24,000 | 0 |
| AF | JORDAN | Azraq | MUNITIONS STORAGE AREA | 42,000 | 0 | 42,000 | -42,000 | 0 |

| SEC. 4601. MILITARY CONSTRUCTION (In Thousands of Dollars) | | | | | | | | |
|---|-------------------|---------------------------------|--|--------------------|---------------------|----------------------|----------------------|--------------------------|
| Account | State/ Country | Installation | Project Title | FY 2020 Request | House Authorized | Senate Authorized | Conference Change | Conference Authorized |
| AF | MARIANA ISLANDS | Tinian | AIRFIELD DEVELOPMENT PHASE 1 | 109,000 | 25,000 | 10,000 | -99,000 | 10,000 |
| AF | MARIANA ISLANDS | Tinian | FUEL TANKS W/ PIPELINE/HYDRANT SYSTEM | 109,000 | 25,000 | 10,000 | -99,000 | 10,000 |
| AF | MARIANA ISLANDS | Tinian | PARKING APRON | 98,000 | 25,000 | 98,000 | -73,000 | 25,000 |
| AF | MARYLAND | Joint Base Andrews | PRESIDENTIAL AIRCRAFT RECAP COMPLEX INC 3 | 86,000 | 86,000 | 86,000 | | 86,000 |
| AF | MASSACHUSETTS | Hanscom Air Force Base | MIT-LINCOLN LAB (WEST LAB CSL/MIF) INC 2 | 135,000 | 100,000 | 65,000 | -55,000 | 80,000 |
| AF | MISSOURI | Whiteman Air Force Base | CONSOLIDATED VEHICLE OPS AND MX FACILITY | 0 | 27,000 | 27,000 | 27,000 | 27,000 |
| AF | MONTANA | Malmstrom Air Force Base | WEAPONS STORAGE AND MAINTENANCE FACILITY | 235,000 | 117,500 | 16,000 | -176,000 | 59,000 |
| AF | NEVADA | Nellis Air Force Base | 365TH ISR GROUP FACILITY | 57,000 | 57,000 | 57,000 | | 57,000 |
| AF | NEVADA | Nellis Air Force Base | F-35 MUNITIONS MAINTENANCE FACILITIES COST-TO-COMPLETE | 0 | 3,100 | 0 | 3,100 | 3,100 |
| AF | NEVADA | Nellis Air Force Base | F-35A MUNITIONS ASSEMBLY CONVEYOR FACILITY | 8,200 | 8,200 | 8,200 | | 8,200 |
| AF | NEW MEXICO | Holloman Air Force Base | NC3 SUPPORT WRM STORAGE/SHIPPING FACILITY | 0 | 20,000 | 20,000 | 20,000 | 20,000 |
| AF | NEW MEXICO | Kirtland Air Force Base | COMBAT RESCUE HELICOPTER SIMULATOR (CRH) ADAL | 15,500 | 15,500 | 15,500 | | 15,500 |
| AF | NEW MEXICO | Kirtland Air Force Base | UH-1 REPLACEMENT FACILITY | 22,400 | 22,400 | 22,400 | | 22,400 |
| AF | NORTH DAKOTA | Minot Air Force Base | HELO/TRFOPS/AMU FACILITY | 5,500 | 5,500 | 5,500 | | 5,500 |
| AF | OHIO | Wright-Patterson Air Force Base | ADAL INTELLIGENCE PROD. COMPLEX (NASIC) INC 2 | 120,900 | 120,900 | 74,000 | | 120,900 |
| AF | TEXAS | Joint Base San Antonio | AFPC B-WING | 0 | 36,000 | 0 | 36,000 | 36,000 |
| AF | TEXAS | Joint Base San Antonio | AQUATICS TANK | 69,000 | 69,000 | 69,000 | | 69,000 |
| AF | TEXAS | Joint Base San Antonio | BMT RECRUIT DORMITORY 8 | 110,000 | 110,000 | 17,000 | | 110,000 |
| AF | TEXAS | Joint Base San Antonio | T-X ADAL GROUND BASED TRNG SYS (GBTS) SIM | 9,300 | 9,300 | 9,300 | | 9,300 |
| AF | TEXAS | Joint Base San Antonio | T-X MX TRNG SYS CENTRALIZED TRNG FAC | 19,000 | 19,000 | 19,000 | | 19,000 |
| AF | UNITED KINGDOM | Royal Air Force Lakenheath | F-35A PGM FACILITY | 14,300 | 14,300 | 14,300 | | 14,300 |
| AF | UTAH | Hill Air Force Base | GBSD MISSION INTEGRATION FACILITY | 108,000 | 40,000 | 18,000 | -75,000 | 33,000 |
| AF | UTAH | Hill Air Force Base | JOINT ADVANCED TACTICAL MISSILE STORAGE FAC | 6,500 | 6,500 | 6,500 | | 6,500 |
| AF | WASHINGTON | Fairchild Air Force Base | CONSOLIDATED TFI BASE OPERATIONS | 31,000 | 31,000 | 31,000 | | 31,000 |
| AF | WASHINGTON | Fairchild Air Force Base | SERE PIPELINE DORMITORY COST-TO-COMPLETE | 0 | 4,800 | 0 | 4,800 | 4,800 |

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|---|------------------------|--------------------------------------|--|------------------|------------------|------------------|------------------|------------------|
| AF | WORLDWIDE UN-SPECIFIED | Unspecified CONUS | MILITARY FAMILY HOUSING CIVILIAN PERSONNEL | 0 | 0 | 65,000 | | 0 |
| AF | WORLDWIDE UN-SPECIFIED | Unspecified Worldwide | PLANNING AND DESIGN | 0 | 0 | 40,000 | | 0 |
| AF | WORLDWIDE UN-SPECIFIED | Unspecified Worldwide Locations | CHILD DEVELOPMENT CENTERS | 0 | 0 | 0 | 31,500 | 31,500 |
| AF | WORLDWIDE UN-SPECIFIED | Various Worldwide Locations | COST TO COMPLETE | 0 | 0 | 190,000 | | 0 |
| AF | WORLDWIDE UN-SPECIFIED | Various Worldwide Locations | PLANNING AND DESIGN | 142,148 | 133,148 | 142,148 | | 142,148 |
| AF | WORLDWIDE UN-SPECIFIED | Various Worldwide Locations | UNSPECIFIED MINOR CONSTRUCTION | 79,682 | 79,682 | 79,682 | | 79,682 |
| AF | WYOMING | F. E. Warren Air Force Base | CONSOLIDATED HELO/TRF OPS/AMU AND ALERT FAC | 18,100 | 18,100 | 18,100 | | 18,100 |
| Military Construction, Air Force Total | | | | 2,179,230 | 1,799,130 | 1,752,630 | - 455,651 | 1,723,579 |
| Def-Wide | CALIFORNIA | Beale Air Force Base | HYDRANT FUEL SYSTEM REPLACEMENT | 33,700 | 33,700 | 33,700 | | 33,700 |
| Def-Wide | CALIFORNIA | Camp Pendleton | AMBUL CARE CENTER/DENTAL CLINIC REPLACEMENT | 17,700 | 17,700 | 17,700 | | 17,700 |
| Def-Wide | CALIFORNIA | Mountain View—63 RSC | INSTALL MICROGRID CONTROLLER, 750 KW PV, AND 750 KWH BATTERY STORAGE | 0 | 0 | 9,700 | 9,700 | 9,700 |
| Def-Wide | CALIFORNIA | Naval Air Weapons Station China Lake | ENERGY STORAGE SYSTEM | 0 | 0 | 8,950 | 8,950 | 8,950 |
| Def-Wide | CALIFORNIA | NSA Monterey | COGENERATION PLANT AT B236 | 0 | 0 | 10,540 | 10,540 | 10,540 |
| Def-Wide | CONUS CLASSIFIED | Classified Location | BATTALION COMPLEX, PH 3 | 82,200 | 82,200 | 82,200 | | 82,200 |
| Def-Wide | FLORIDA | Eglin Air Force Base | SOF COMBINED SQUADRON OPS FACILITY | 16,500 | 16,500 | 16,500 | | 16,500 |
| Def-Wide | FLORIDA | Hurlburt Field | SOF AMU & WEAPONS HANGAR | 72,923 | 72,923 | 72,923 | | 72,923 |
| Def-Wide | FLORIDA | Hurlburt Field | SOF COMBINED SQUADRON OPERATIONS FACILITY | 16,513 | 16,513 | 16,513 | | 16,513 |
| Def-Wide | FLORIDA | Hurlburt Field | SOF MAINTENANCE TRAINING FACILITY | 18,950 | 18,950 | 18,950 | | 18,950 |
| Def-Wide | FLORIDA | Naval Air Station Key West | SOF WATERCRAFT MAINTENANCE FACILITY | 16,000 | 16,000 | 16,000 | | 16,000 |
| Def-Wide | GERMANY | Geilenkirchen Air Base | AMBULATORY CARE CENTER/DENTAL CLINIC | 30,479 | 30,479 | 30,479 | | 30,479 |
| Def-Wide | GERMANY | Ramstein | LANDSTUHL ELEMENTARY SCHOOL | 0 | 0 | 66,800 | 66,800 | 66,800 |
| Def-Wide | GUAM | Joint Region Marianas | XRAY WHARF REFUELING FACILITY | 19,200 | 19,200 | 19,200 | | 19,200 |
| Def-Wide | GUAM | Naval Base Guam | NSA ANDERSON SMART GRID AND ICS INFRASTRUCTURE | 0 | 0 | 16,970 | 16,970 | 16,970 |

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| SEC. 4601. MILITARY CONSTRUCTION (In Thousands of Dollars) | | | | | | | | |
|---|-------------------|---|--|--------------------|---------------------|----------------------|----------------------|--------------------------|
| Account | State/ Country | Installation | Project Title | FY 2020 Request | House Authorized | Senate Authorized | Conference Change | Conference Authorized |
| Def-Wide | HAWAII | Joint Base Pearl Harbor- Hickam | INSTALL 500KW COVERED PARKING PV SYSTEM & ELECTRIC VEHICLE CHARGING STATIONS B479 | 0 | 0 | 4,000 | 4,000 | 4,000 |
| Def-Wide | HAWAII | Joint Base Pearl Harbor- Hickam | SOF UNDERSEA OPERATIONAL TRAINING FACILITY | 67,700 | 67,700 | 67,700 | | 67,700 |
| Def-Wide | JAPAN | Yokosuka | KINNICK HIGH SCHOOL INC 2 | 130,386 | 0 | 10,000 | - 130,386 | 0 |
| Def-Wide | JAPAN | Yokota Air Base | BULK STORAGE TANKS PH1 | 116,305 | 20,000 | 21,000 | - 96,305 | 20,000 |
| Def-Wide | JAPAN | Yokota Air Base | PACIFIC EAST DISTRICT SUPERINTENDENT'S OFFICE | 20,106 | 20,106 | 20,106 | | 20,106 |
| Def-Wide | LOUISIANA | Joint Reserve Base Naval Air Station New Orleans | DISTRIBUTION SWITCHGEAR | 0 | 0 | 5,340 | | 0 |
| Def-Wide | MARYLAND | Bethesda Naval Hospital | MEDCEN ADDITION/ALERTION INCR 3 | 96,900 | 33,000 | 96,900 | - 63,900 | 33,000 |
| Def-Wide | MARYLAND | Fort Detrick | MEDICAL RESEARCH ACQUISITION BUILDING | 27,846 | 27,846 | 27,846 | | 27,846 |
| Def-Wide | MARYLAND | Fort Meade | NSAW RECAPITALIZE BUILDING #3 INC 2 | 426,000 | 426,000 | 426,000 | | 426,000 |
| Def-Wide | MARYLAND | NSA Bethesda | CHILLER 3-9 REPLACEMENT | 0 | 0 | 13,840 | 13,840 | 13,840 |
| Def-Wide | MARYLAND | South Potomac | IH WATER PROJECT—CBIRF/IHEODTD/HOUSING | 0 | 0 | 18,460 | 18,460 | 18,460 |
| Def-Wide | MISSISSIPPI | Columbus Air Force Base | FUEL FACILITIES REPLACEMENT | 16,800 | 16,800 | 16,800 | | 16,800 |
| Def-Wide | MISSOURI | Fort Leonard Wood | HOSPITAL REPLACEMENT INCR 2 | 50,000 | 50,000 | 50,000 | | 50,000 |
| Def-Wide | MISSOURI | St. Louis | NEXT NGA WEST (N2W) COMPLEX PHASE 2 INC. 2 | 218,800 | 118,800 | 153,000 | - 100,000 | 118,800 |
| Def-Wide | NEW MEXICO | White Sands Missile Range | INSTALL MICROGRID, 700KW PV, 150 KW GENER- ATOR, AND BATTERIES | 0 | 0 | 5,800 | 5,800 | 5,800 |
| Def-Wide | NORTH CAROLINA | Camp Lejeune | SOF MARINE RAIDER REGIMENT HQ | 13,400 | 13,400 | 13,400 | | 13,400 |
| Def-Wide | NORTH CAROLINA | Fort Bragg | SOF ASSESSMENT AND SELECTION TRAINING COM- PLEX | 12,103 | 12,103 | 12,103 | | 12,103 |
| Def-Wide | NORTH CAROLINA | Fort Bragg | SOF HUMAN PLATFORM-FORCE GENERATION FACIL- ITY | 43,000 | 43,000 | 43,000 | | 43,000 |
| Def-Wide | NORTH CAROLINA | Fort Bragg | SOF OPERATIONS SUPPORT BLDG | 29,000 | 29,000 | 29,000 | | 29,000 |
| Def-Wide | OKLAHOMA | Tulsa IAP | FUELS STORAGE COMPLEX | 18,900 | 18,900 | 18,900 | | 18,900 |
| Def-Wide | RHODE ISLAND | Quonset State Airport | FUELS STORAGE COMPLEX REPLACEMENT | 11,600 | 11,600 | 11,600 | | 11,600 |
| Def-Wide | SOUTH CAROLINA | Joint Base Charleston | MEDICAL CONSOLIDATED STORAGE & DISTRIB CEN- TER | 33,300 | 33,300 | 33,300 | | 33,300 |

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|----------|-----------------------|--|---|---------|---------|---------|----------|---------|
| Def-Wide | SOUTH DAKOTA | Ellsworth Air Force Base | HYDRANT FUEL SYSTEM REPLACEMENT | 24,800 | 24,800 | 24,800 | | 24,800 |
| Def-Wide | TEXAS | Camp Swift | INSTALL MICROGRID, 650KW PV, & 500 KW GENERATOR | 0 | 0 | 4,500 | 4,500 | 4,500 |
| Def-Wide | TEXAS | Fort Hood | INSTALL A CENTRAL ENERGY PLANT | 0 | 0 | 16,500 | 16,500 | 16,500 |
| Def-Wide | VIRGINIA | Defense Distribution Depot Richmond | OPERATIONS CENTER PHASE 2 | 98,800 | 33,000 | 98,800 | - 65,800 | 33,000 |
| Def-Wide | VIRGINIA | Joint Expeditionary Base Little Creek—Fort Story | SOF NSWG-10 OPERATIONS SUPPORT FACILITY | 32,600 | 32,600 | 32,600 | | 32,600 |
| Def-Wide | VIRGINIA | Joint Expeditionary Base Little Creek—Fort Story | SOF NSWG2 JSOTF OPS TRAINING FACILITY | 13,004 | 13,004 | 13,004 | | 13,004 |
| Def-Wide | VIRGINIA | NRO Headquarters | INTERGRATION SYSTEM UPGRADES | 0 | 0 | 66 | 66 | 66 |
| Def-Wide | VIRGINIA | Pentagon | BACKUP GENERATOR | 8,670 | 8,670 | 8,670 | | 8,670 |
| Def-Wide | VIRGINIA | Pentagon | CONTROL TOWER & FIRE DAY STATION | 20,132 | 20,132 | 20,132 | | 20,132 |
| Def-Wide | VIRGINIA | Training Center Dam Neck | SOF DEMOLITION TRAINING COMPOUND EXPANSION | 12,770 | 12,770 | 12,770 | | 12,770 |
| Def-Wide | WASHINGTON | Joint Base Lewis-McChord | SOF 22 STS OPERATIONS FACILITY | 47,700 | 47,700 | 47,700 | | 47,700 |
| Def-Wide | WASHINGTON | Naval Base Kitsap | KEYPORT MAIN SUBSTATION REPLACEMENT | 0 | 0 | 23,670 | 23,670 | 23,670 |
| Def-Wide | WISCONSIN | Gen Mitchell IAP | POL FACILITIES REPLACEMENT | 25,900 | 25,900 | 25,900 | | 25,900 |
| Def-Wide | WORLDWIDE CLASSIFIED | Classified Location | MISSION SUPPORT COMPOUND | 52,000 | 0 | 52,000 | | 52,000 |
| Def-Wide | WORLDWIDE UNSPECIFIED | Unspecified Worldwide | DEFENSE COMMUNITY INFRASTRUCTURE PROGRAM | 0 | 0 | 100,000 | | 0 |
| Def-Wide | WORLDWIDE UNSPECIFIED | Unspecified Worldwide Locations | CONTINGENCY CONSTRUCTION | 10,000 | 0 | 10,000 | - 10,000 | 0 |
| Def-Wide | WORLDWIDE UNSPECIFIED | Unspecified Worldwide Locations | ENERGY RESILIENCE AND CONSERV. INVEST. PROG. | 150,000 | 190,000 | 150,000 | | 150,000 |
| Def-Wide | WORLDWIDE UNSPECIFIED | Unspecified Worldwide Locations | ERICP DESIGN | 10,000 | 10,000 | 10,000 | | 10,000 |
| Def-Wide | WORLDWIDE UNSPECIFIED | Unspecified Worldwide Locations | EXERCISE RELATED MINOR CONSTRUCTION | 11,770 | 11,770 | 11,770 | | 11,770 |
| Def-Wide | WORLDWIDE UNSPECIFIED | Unspecified Worldwide Locations | PLANNING AND DESIGN | 15,000 | 15,000 | 15,000 | | 15,000 |
| Def-Wide | WORLDWIDE UNSPECIFIED | Unspecified Worldwide Locations | PLANNING AND DESIGN | 29,679 | 29,679 | 29,679 | | 29,679 |
| Def-Wide | WORLDWIDE UNSPECIFIED | Unspecified Worldwide Locations | PLANNING AND DESIGN | 35,472 | 35,472 | 35,472 | | 35,472 |

| SEC. 4601. MILITARY CONSTRUCTION (In Thousands of Dollars) | | | | | | | | |
|---|------------------------|---------------------------------|---|--------------------|---------------------|----------------------|----------------------|--------------------------|
| Account | State/ Country | Installation | Project Title | FY 2020 Request | House Authorized | Senate Authorized | Conference Change | Conference Authorized |
| Def-Wide | WORLDWIDE UN-SPECIFIED | Unspecified Worldwide Locations | PLANNING AND DESIGN | 4,890 | 4,890 | 4,890 | | 4,890 |
| Def-Wide | WORLDWIDE UN-SPECIFIED | Unspecified Worldwide Locations | PLANNING AND DESIGN | 14,400 | 14,400 | 14,400 | | 14,400 |
| Def-Wide | WORLDWIDE UN-SPECIFIED | Unspecified Worldwide Locations | UNSPECIFIED MINOR CONSTRUCTION | 3,000 | 3,000 | 3,000 | | 3,000 |
| Def-Wide | WORLDWIDE UN-SPECIFIED | Unspecified Worldwide Locations | UNSPECIFIED MINOR CONSTRUCTION | 31,464 | 31,464 | 31,464 | | 31,464 |
| Def-Wide | WORLDWIDE UN-SPECIFIED | Unspecified Worldwide Locations | UNSPECIFIED MINOR CONSTRUCTION | 3,228 | 3,228 | 3,228 | | 3,228 |
| Def-Wide | WORLDWIDE UN-SPECIFIED | Unspecified Worldwide Locations | UNSPECIFIED MINOR CONSTRUCTION | 10,000 | 10,000 | 10,000 | | 10,000 |
| Def-Wide | WORLDWIDE UN-SPECIFIED | Unspecified Worldwide Locations | UNSPECIFIED MINOR CONSTRUCTION | 8,000 | 8,000 | 8,000 | | 8,000 |
| Def-Wide | WORLDWIDE UN-SPECIFIED | Unspecified Worldwide Locations | UNSPECIFIED MINOR CONSTRUCTION | 4,950 | 4,950 | 4,950 | | 4,950 |
| Def-Wide | WORLDWIDE UN-SPECIFIED | Various Worldwide Locations | PLANNING AND DESIGN | 52,532 | 52,532 | 52,532 | | 52,532 |
| Def-Wide | WORLDWIDE UN-SPECIFIED | Various Worldwide Locations | PLANNING AND DESIGN | 63,382 | 63,382 | 63,382 | | 63,382 |
| Def-Wide | WORLDWIDE UN-SPECIFIED | Various Worldwide Locations | PLANNING AND DESIGN | 27,000 | 27,000 | 27,000 | | 27,000 |
| Def-Wide | WORLDWIDE UN-SPECIFIED | Various Worldwide Locations | PLANNING AND DESIGN | 0 | (40,000) | 0 | | 0 |
| Def-Wide | WORLDWIDE UN-SPECIFIED | Various Worldwide Locations | PLANNING AND DESIGN: MILITARY INSTALLATION RESILIENCY | 0 | 0 | 0 | 30,000 | 30,000 |
| Def-Wide | WORLDWIDE UN-SPECIFIED | Various Worldwide Locations | UNSPECIFIED MINOR CONSTRUCTION | 10,000 | 10,000 | 10,000 | | 10,000 |
| Def-Wide | WORLDWIDE UN-SPECIFIED | Various Worldwide Locations | UNSPECIFIED MINOR CONSTRUCTION | 16,736 | 16,736 | 16,736 | | 16,736 |

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|---|------------------------|----------------------------------|--|------------------|------------------|------------------|------------------|------------------|
| Def-Wide | WORLDWIDE UN-SPECIFIED | Various Worldwide Locations | UNSPECIFIED MINOR CONSTRUCTION | 0 | (10,000) | 0 | | 0 |
| Military Construction, Defense-Wide Total | | | | 2,504,190 | 1,975,799 | 2,527,835 | (236,595) | 2,267,595 |
| NATO | WORLDWIDE UN-SPECIFIED | NATO Security Investment Program | NATO SECURITY INVESTMENT PROGRAM | 144,040 | 172,005 | 144,040 | | 144,040 |
| NATO Security Investment Program Total | | | | 144,040 | 172,005 | 144,040 | | 144,040 |
| Army NG | ALABAMA | Anniston Army Depot | ENLISTED TRANSIENT BARRACKS | 0 | 34,000 | 34,000 | 34,000 | 34,000 |
| Army NG | ALABAMA | Foley | NATIONAL GUARD READINESS CENTER | 12,000 | 12,000 | 12,000 | | 12,000 |
| Army NG | CALIFORNIA | Camp Roberts | AUTOMATED MULTIPURPOSE MACHINE GUN RANGE | 12,000 | 12,000 | 12,000 | | 12,000 |
| Army NG | IDAHO | Orchard Combat Training Center | RAILROAD TRACKS | 29,000 | 29,000 | 29,000 | | 29,000 |
| Army NG | MARYLAND | Havre de Grace | COMBINED SUPPORT MAINTENANCE SHOP | 12,000 | 12,000 | 12,000 | | 12,000 |
| Army NG | MASSACHUSETTS | Camp Edwards | AUTOMATED MULTIPURPOSE MACHINE GUN RANGE | 9,700 | 9,700 | 9,700 | | 9,700 |
| Army NG | MINNESOTA | New Ulm | NATIONAL GUARD VEHICLE MAINTENANCE SHOP | 11,200 | 11,200 | 11,200 | | 11,200 |
| Army NG | MISSISSIPPI | Camp Shelby | AUTOMATED MULTIPURPOSE MACHINE GUN RANGE | 8,100 | 8,100 | 8,100 | | 8,100 |
| Army NG | MISSOURI | Springfield | NATIONAL GUARD READINESS CENTER | 12,000 | 12,000 | 12,000 | | 12,000 |
| Army NG | NEBRASKA | Bellevue | NATIONAL GUARD READINESS CENTER | 29,000 | 29,000 | 29,000 | | 29,000 |
| Army NG | NEW HAMPSHIRE | Concord | NATIONAL GUARD READINESS CENTER | 5,950 | 5,950 | 5,950 | | 5,950 |
| Army NG | NEW YORK | Jamaica Armory | NATIONAL GUARD READINESS CENTER | 0 | 91,000 | 20,000 | 91,000 | 91,000 |
| Army NG | PENNSYLVANIA | Moon Township | COMBINED SUPPORT MAINTENANCE SHOP | 23,000 | 23,000 | 23,000 | | 23,000 |
| Army NG | VERMONT | Jericho | GENERAL INSTRUCTION BUILDING | 0 | 30,000 | 30,000 | 30,000 | 30,000 |
| Army NG | WASHINGTON | Richland | NATIONAL GUARD READINESS CENTER | 11,400 | 11,400 | 11,400 | | 11,400 |
| Army NG | WORLDWIDE UN-SPECIFIED | Unspecified Worldwide Locations | PLANNING AND DESIGN | 20,469 | 20,469 | 20,469 | | 20,469 |
| Army NG | WORLDWIDE UN-SPECIFIED | Unspecified Worldwide Locations | UNSPECIFIED MINOR CONSTRUCTION | 15,000 | 15,000 | 15,000 | | 15,000 |
| Military Construction, Army National Guard Total | | | | 210,819 | 365,819 | 294,819 | 155,000 | 365,819 |
| Army Res | DELAWARE | Newark | ARMY RESERVE CENTER/BMA | 21,000 | 21,000 | 21,000 | | 21,000 |
| Army Res | WISCONSIN | Fort McCoy | TRANSIENT TRAINING BARRACKS | 25,000 | 25,000 | 25,000 | | 25,000 |
| Army Res | WORLDWIDE UN-SPECIFIED | Unspecified Worldwide Locations | PLANNING AND DESIGN | 6,000 | 6,000 | 6,000 | | 6,000 |
| Army Res | WORLDWIDE UN-SPECIFIED | Unspecified Worldwide Locations | UNSPECIFIED MINOR CONSTRUCTION | 8,928 | 8,928 | 8,928 | | 8,928 |

| SEC. 4601. MILITARY CONSTRUCTION (In Thousands of Dollars) | | | | | | | | |
|---|------------------------|---------------------------------|---|--------------------|---------------------|----------------------|----------------------|--------------------------|
| Account | State/ Country | Installation | Project Title | FY 2020 Request | House Authorized | Senate Authorized | Conference Change | Conference Authorized |
| Military Construction, Army Reserve Total | | | | 60,928 | 60,928 | 60,928 | | 60,928 |
| N/MC Res | LOUISIANA | New Orleans | ENTRY CONTROL FACILITY UPGRADES | 25,260 | 25,260 | 25,260 | | 25,260 |
| N/MC Res | WORLDWIDE UN-SPECIFIED | Unspecified Worldwide Locations | PLANNING AND DESIGN | 4,780 | 4,780 | 4,780 | | 4,780 |
| N/MC Res | WORLDWIDE UN-SPECIFIED | Unspecified Worldwide Locations | UNSPECIFIED MINOR CONSTRUCTION | 24,915 | 24,915 | 24,915 | | 24,915 |
| Military Construction, Naval Reserve Total | | | | 54,955 | 54,955 | 54,955 | | 54,955 |
| Air NG | CALIFORNIA | Moffett Air National Guard Base | FUELS/CORROSION CONTROL HANGER AND SHOPS | 0 | 57,000 | 57,000 | 57,000 | 57,000 |
| Air NG | GEORGIA | Savannah/Hilton Head IAP | CONSOLIDATED JOINT AIR DOMINANCE HANGAR/SHOPS | 24,000 | 24,000 | 24,000 | | 24,000 |
| Air NG | MISSOURI | Rosecrans Memorial Airport | C-130 FLIGHT SIMULATOR FACILITY | 9,500 | 9,500 | 9,500 | | 9,500 |
| Air NG | PUERTO RICO | Luis Munoz-Marin IAP | COMMUNICATIONS FACILITY | 12,500 | 0 | 12,500 | | 12,500 |
| Air NG | PUERTO RICO | Luis Munoz-Marin IAP | MAINTENANCE HANGAR | 37,500 | 0 | 37,500 | (1,500) | 36,000 |
| Air NG | WISCONSIN | Truax Field | F-35 SIMULATOR FACILITY | 14,000 | 14,000 | 14,000 | | 14,000 |
| Air NG | WISCONSIN | Truax Field | FIGHTER ALERT SHELTERS | 20,000 | 20,000 | 20,000 | | 20,000 |
| Air NG | WORLDWIDE UN-SPECIFIED | Unspecified Worldwide Locations | UNSPECIFIED MINOR CONSTRUCTION | 31,471 | 31,471 | 31,471 | | 31,471 |
| Air NG | WORLDWIDE UN-SPECIFIED | Various Worldwide Locations | PLANNING AND DESIGN | 17,000 | 17,000 | 17,000 | | 17,000 |
| Military Construction, Air National Guard Total | | | | 165,971 | 172,971 | 222,971 | 55,500 | 221,471 |
| AF Res | GEORGIA | Robins Air Force Base | CONSOLIDATED MISSION COMPLEX PHASE 3 | 43,000 | 43,000 | 43,000 | | 43,000 |
| AF Res | MARYLAND | Joint Base Andrews | AES TRAINING ADMIN FACILITY | 0 | 15,000 | 0 | 15,000 | 15,000 |
| AF Res | MINNESOTA | Minneapolis-St. Paul IAP | AERIAL PORT FACILITY | 0 | 9,800 | 9,800 | 9,800 | 9,800 |
| AF Res | WORLDWIDE UN-SPECIFIED | Unspecified Worldwide Locations | PLANNING AND DESIGN | 4,604 | 4,604 | 4,604 | | 4,604 |

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| AF Res | WORLDWIDE UN-SPECIFIED | Unspecified Worldwide Locations | UNSPECIFIED MINOR CONSTRUCTION | 12,146 | 12,146 | 12,146 | | 12,146 |
| Military Construction, Air Force Reserve Total | | | | 59,750 | 84,550 | 69,550 | 24,800 | 84,550 |
| FH Con Army | GERMANY | Baumholder | FAMILY HOUSING IMPROVEMENTS | 29,983 | 29,983 | 29,983 | | 29,983 |
| FH Con Army | KOREA | Camp Humphreys | FAMILY HOUSING NEW CONSTRUCTION INCR 4 | 83,167 | 83,167 | 83,167 | | 83,167 |
| FH Con Army | PENNSYLVANIA | Tobyhanna Army Depot | FAMILY HOUSING REPLACEMENT CONSTRUCTION | 19,000 | 19,000 | 19,000 | | 19,000 |
| FH Con Army | WORLDWIDE UN-SPECIFIED | Unspecified Worldwide Locations | FAMILY HOUSING P & D | 9,222 | 9,222 | 9,222 | 5,000 | 14,222 |
| | | | | | | | [5,000] | |
| Family Housing Construction, Army Total | | | | 141,372 | 141,372 | 141,372 | 5,000 | 146,372 |
| FH Ops Army | WORLDWIDE UN-SPECIFIED | Unspecified Worldwide Locations | FURNISHINGS | 24,027 | 24,027 | 24,027 | | 24,027 |
| FH Ops Army | WORLDWIDE UN-SPECIFIED | Unspecified Worldwide Locations | HOUSING PRIVITIZATION SUPPORT | 18,627 | 68,627 | 83,627 | 45,000 | 63,627 |
| FH Ops Army | WORLDWIDE UN-SPECIFIED | Unspecified Worldwide Locations | LEASING | 128,938 | 128,938 | 128,938 | | 128,938 |
| FH Ops Army | WORLDWIDE UN-SPECIFIED | Unspecified Worldwide Locations | MAINTENANCE | 81,065 | 81,065 | 81,065 | 54,733 | 135,798 |
| FH Ops Army | WORLDWIDE UN-SPECIFIED | Unspecified Worldwide Locations | MANAGEMENT | 38,898 | 38,898 | 38,898 | | 38,898 |
| FH Ops Army | WORLDWIDE UN-SPECIFIED | Unspecified Worldwide Locations | MISCELLANEOUS | 484 | 484 | 484 | | 484 |
| FH Ops Army | WORLDWIDE UN-SPECIFIED | Unspecified Worldwide Locations | SERVICES | 10,156 | 10,156 | 10,156 | | 10,156 |
| FH Ops Army | WORLDWIDE UN-SPECIFIED | Unspecified Worldwide Locations | UTILITIES | 55,712 | 55,712 | 55,712 | | 55,712 |
| Family Housing Operation And Maintenance, Army Total | | | | 357,907 | 407,907 | 422,907 | 99,733 | 457,640 |
| FH Con Navy | WORLDWIDE UN-SPECIFIED | Unspecified Worldwide Locations | CONSTRUCTION IMPROVEMENTS | 41,798 | 41,798 | 41,798 | | 41,798 |
| FH Con Navy | WORLDWIDE UN-SPECIFIED | Unspecified Worldwide Locations | PLANNING & DESIGN | 3,863 | 3,863 | 3,863 | | 3,863 |
| FH Con Navy | WORLDWIDE UN-SPECIFIED | Unspecified Worldwide Locations | USMC DPRV/GUAM PLANNING AND DESIGN | 2,000 | 2,000 | 2,000 | | 2,000 |

| SEC. 4601. MILITARY CONSTRUCTION (In Thousands of Dollars) | | | | | | | | |
|--|------------------------|---------------------------------|---|--------------------|---------------------|----------------------|----------------------|--------------------------|
| Account | State/ Country | Installation | Project Title | FY 2020 Request | House Authorized | Senate Authorized | Conference Change | Conference Authorized |
| Family Housing Construction, Navy And Marine Corps Total | | | | 47,661 | 47,661 | 47,661 | | 47,661 |
| FH Ops Navy | WORLDWIDE UN-SPECIFIED | Unspecified Worldwide Locations | FURNISHINGS | 19,009 | 19,009 | 19,009 | | 19,009 |
| FH Ops Navy | WORLDWIDE UN-SPECIFIED | Unspecified Worldwide Locations | HOUSING PRIVATIZATION SUPPORT | 21,975 | 81,575 | 81,575 | 59,600 | 81,575 |
| FH Ops Navy | WORLDWIDE UN-SPECIFIED | Unspecified Worldwide Locations | LEASING | 64,126 | 64,126 | 64,126 | | 64,126 |
| FH Ops Navy | WORLDWIDE UN-SPECIFIED | Unspecified Worldwide Locations | MAINTENANCE | 82,611 | 82,611 | 82,611 | 54,733 | 137,344 |
| FH Ops Navy | WORLDWIDE UN-SPECIFIED | Unspecified Worldwide Locations | MANAGEMENT | 50,122 | 50,122 | 50,122 | | 50,122 |
| FH Ops Navy | WORLDWIDE UN-SPECIFIED | Unspecified Worldwide Locations | MISCELLANEOUS | 151 | 151 | 151 | | 151 |
| FH Ops Navy | WORLDWIDE UN-SPECIFIED | Unspecified Worldwide Locations | SERVICES | 16,647 | 16,647 | 16,647 | | 16,647 |
| FH Ops Navy | WORLDWIDE UN-SPECIFIED | Unspecified Worldwide Locations | UTILITIES | 63,229 | 63,229 | 63,229 | | 63,229 |
| Family Housing Operation And Maintenance, Navy And Marine Corps Total | | | | 317,870 | 377,470 | 377,470 | 114,333 | 432,203 |
| FH Con AF | GERMANY | Spangdahlem Air Base | CONSTRUCT DEFICIT MILITARY FAMILY HOUSING | 53,584 | 53,584 | 53,584 | | 53,584 |
| FH Con AF | WORLDWIDE UN-SPECIFIED | Unspecified Worldwide Locations | CONSTRUCTION IMPROVEMENTS | 46,638 | 46,638 | 46,638 | | 46,638 |
| FH Con AF | WORLDWIDE UN-SPECIFIED | Unspecified Worldwide Locations | PLANNING & DESIGN | 3,409 | 3,409 | 3,409 | | 3,409 |
| Family Housing Construction, Air Force Total | | | | 103,631 | 103,631 | 103,631 | | 103,631 |
| FH Ops AF | WORLDWIDE UN-SPECIFIED | Unspecified Worldwide Locations | FURNISHINGS | 30,283 | 30,283 | 30,283 | | 30,283 |

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| | | | | | | | | |
|---|------------------------|---------------------------------|------------------------------|----------------|----------------|----------------|---------------|----------------|
| FH Ops AF | WORLDWIDE UN-SPECIFIED | Unspecified Worldwide Locations | HOUSING PRIVATIZATION | 22,593 | 53,793 | 53,793 | 31,200 | 53,793 |
| FH Ops AF | WORLDWIDE UN-SPECIFIED | Unspecified Worldwide Locations | LEASING | 15,768 | 15,768 | 15,768 | | 15,768 |
| FH Ops AF | WORLDWIDE UN-SPECIFIED | Unspecified Worldwide Locations | MAINTENANCE | 117,704 | 117,704 | 117,704 | 54,733 | 172,437 |
| FH Ops AF | WORLDWIDE UN-SPECIFIED | Unspecified Worldwide Locations | MANAGEMENT | 56,022 | 56,022 | 56,022 | | 56,022 |
| FH Ops AF | WORLDWIDE UN-SPECIFIED | Unspecified Worldwide Locations | MISCELLANEOUS | 2,144 | 2,144 | 2,144 | | 2,144 |
| FH Ops AF | WORLDWIDE UN-SPECIFIED | Unspecified Worldwide Locations | SERVICES | 7,770 | 7,770 | 7,770 | | 7,770 |
| FH Ops AF | WORLDWIDE UN-SPECIFIED | Unspecified Worldwide Locations | UTILITIES | 42,732 | 42,732 | 42,732 | | 42,732 |
| Family Housing Operation And Maintenance, Air Force Total | | | | 295,016 | 326,216 | 326,216 | 85,933 | 380,949 |
| FH Ops DW | WORLDWIDE UN-SPECIFIED | Unspecified Worldwide Locations | FURNISHINGS | 82 | 82 | 82 | | 82 |
| FH Ops DW | WORLDWIDE UN-SPECIFIED | Unspecified Worldwide Locations | FURNISHINGS | 645 | 645 | 645 | | 645 |
| FH Ops DW | WORLDWIDE UN-SPECIFIED | Unspecified Worldwide Locations | LEASING | 12,906 | 12,906 | 12,906 | | 12,906 |
| FH Ops DW | WORLDWIDE UN-SPECIFIED | Unspecified Worldwide Locations | LEASING | 39,222 | 39,222 | 39,222 | | 39,222 |
| FH Ops DW | WORLDWIDE UN-SPECIFIED | Unspecified Worldwide Locations | MAINTENANCE | 32 | 32 | 32 | | 32 |
| FH Ops DW | WORLDWIDE UN-SPECIFIED | Unspecified Worldwide Locations | UTILITIES | 13 | 13 | 13 | | 13 |
| FH Ops DW | WORLDWIDE UN-SPECIFIED | Unspecified Worldwide Locations | UTILITIES | 4,100 | 4,100 | 4,100 | | 4,100 |
| Family Housing Operation And Maintenance, Defense-Wide Total | | | | 57,000 | 57,000 | 57,000 | | 57,000 |
| FHIF | WORLDWIDE UN-SPECIFIED | Unspecified Worldwide Locations | ADMINISTRATIVE EXPENSES—FHIF | 3,045 | 3,045 | 3,045 | | 3,045 |
| DOD Family Housing Improvement Fund Total | | | | 3,045 | 3,045 | 3,045 | | 3,045 |

| SEC. 4601. MILITARY CONSTRUCTION (In Thousands of Dollars) | | | | | | | | |
|---|----------------------------|--------------------------------------|-------------------------------|--------------------|---------------------|----------------------|----------------------|--------------------------|
| Account | State/ Country | Installation | Project Title | FY 2020 Request | House Authorized | Senate Authorized | Conference Change | Conference Authorized |
| UHIF | WORLDWIDE UN- SPECIFIED | Unspecified Worldwide Lo- cations | ADMINISTRATIVE EXPENSES—UHIF | 500 | 500 | 500 | | 500 |
| Unaccompanied Housing Improvement Fund Total | | | | 500 | 500 | 500 | | 500 |
| BRAC | WORLDWIDE UN- SPECIFIED | Worldwide Unspecified Lo- cations | BASE REALIGNMENT AND CLOSURE | 66,111 | 96,111 | 66,111 | 28,000 | 94,111 |
| Base Realignment and Closure—Army Total | | | | 66,111 | 96,111 | 66,111 | 28,000 | 94,111 |
| BRAC | WORLDWIDE UN- SPECIFIED | Unspecified Worldwide Lo- cations | BASE REALIGNMENT & CLOSURE | 158,349 | 218,349 | 158,349 | 58,000 | 216,349 |
| Base Realignment and Closure—Navy Total | | | | 158,349 | 218,349 | 158,349 | 58,000 | 216,349 |
| BRAC | WORLDWIDE UN- SPECIFIED | Unspecified Worldwide Lo- cations | DOD BRAC ACTIVITIES—AIR FORCE | 54,066 | 84,066 | 54,066 | 28,000 | 82,066 |
| Base Realignment and Closure—Air Force Total | | | | 54,066 | 84,066 | 54,066 | 28,000 | 82,066 |
| PYS | PRIOR YEAR SAV- INGS | Prior Year Savings | PRIOR YEAR SAVINGS | 0 | (45,055) | 0 | (64,685) | (64,685) |
| Prior Year Savings Total | | | | 0 | (45,055) | 0 | (64,685) | (64,685) |
| Total, Military Construction | | | | 11,241,653 | 10,639,000 | 10,970,137 | (315,914) | 10,925,739 |

SEC. 4602. MILITARY CONSTRUCTION FOR OVERSEAS CONTINGENCY OPERATIONS.

SEC. 4602. MILITARY CONSTRUCTION FOR OVERSEAS CONTINGENCY OPERATIONS
(In Thousands of Dollars)

| Account | State/ Country | Installation | Project Title | FY 2020 Request | House Authorized | Senate Authorized | Conference Change | Conference Authorized |
|---|----------------------------|--------------------------------------|---|--------------------|---------------------|----------------------|----------------------|--------------------------|
| Army | GUANTANAMO BAY, CUBA | Guantanamo Bay Naval Station | OCO: COMMUNICATIONS FACILITY | 22,000 | 22,000 | 22,000 | | 22,000 |
| Army | GUANTANAMO BAY, CUBA | Guantanamo Bay Naval Station | OCO: DETENTION LEGAL OFFICE AND COMMS CTR | 11,800 | 11,800 | 11,800 | | 11,800 |
| Army | GUANTANAMO BAY, CUBA | Guantanamo Bay Naval Station | OCO: HIGH VALUE DETENTION FACILITY | 88,500 | 0 | 0 | -88,500 | 0 |
| Army | WORLDWIDE UN- SPECIFIED | Unspecified Worldwide Lo- cations | EDI/OCO PLANNING AND DESIGN | 19,498 | 19,498 | 19,498 | | 19,498 |
| Army | WORLDWIDE UN- SPECIFIED | Unspecified Worldwide Lo- cations | EDI: BULK FUEL STORAGE | 36,000 | 36,000 | 36,000 | | 36,000 |
| Army | WORLDWIDE UN- SPECIFIED | Unspecified Worldwide Lo- cations | EDI: INFORMATION SYSTEMS FACILITY | 6,200 | 6,200 | 6,200 | | 6,200 |
| Army | WORLDWIDE UN- SPECIFIED | Unspecified Worldwide Lo- cations | EDI: MINOR CONSTRUCTION | 5,220 | 5,220 | 5,220 | | 5,220 |
| Army | WORLDWIDE UN- SPECIFIED | Unspecified Worldwide Lo- cations | UNSPECIFIED WORLDWIDE CONSTRUCTION | 9,200,000 | 0 | 0 | -9,200,000 | 0 |
| Army | WORLDWIDE UN- SPECIFIED | Various Worldwide Loca- tions | EDI: VARIOUS WORLDWIDE LOCATIONS EUROPE | 0 | 56,142 | 0 | 36,212 | 36,212 |
| Military Construction, Army Total | | | | 9,389,218 | 156,860 | 100,718 | -9,252,288 | 136,930 |
| Navy | BAHRAIN | SW Asia | ELECTRICAL SYSTEM UPGRADE | 0 | 53,360 | 0 | 53,360 | 53,360 |
| Navy | ITALY | Sigonella | COMMUNICATIONS STATION | 0 | 77,400 | 0 | 77,400 | 77,400 |
| Navy | SPAIN | Rota | EDI: IN-TRANSIT MUNITIONS FACILITY | 9,960 | 9,960 | 9,960 | | 9,960 |
| Navy | SPAIN | Rota | EDI: JOINT MOBILITY CENTER | 46,840 | 46,840 | 46,840 | | 46,840 |
| Navy | SPAIN | Rota | EDI: SMALL CRAFT BERTHING FACILITY | 12,770 | 12,770 | 12,770 | | 12,770 |
| Navy | WORLDWIDE UN- SPECIFIED | Unspecified | PLANNING & DESIGN | 0 | 0 | 50,000 | | 0 |

SEC. 4602. MILITARY CONSTRUCTION FOR OVERSEAS CONTINGENCY OPERATIONS
(In Thousands of Dollars)

| Account | State/ Country | Installation | Project Title | FY 2020 Request | House Authorized | Senate Authorized | Conference Change | Conference Authorized |
|--|------------------------|---------------------------------|---|--------------------|---------------------|----------------------|----------------------|--------------------------|
| Navy | WORLDWIDE UN-SPECIFIED | Unspecified Worldwide Locations | PLANNING AND DESIGN | 25,000 | 25,000 | 25,000 | | 25,000 |
| Navy | WORLDWIDE UN-SPECIFIED | Various Worldwide Locations | EDI: VARIOUS WORLDWIDE LOCATIONS EUROPE | 0 | 56,246 | 0 | 36,211 | 36,211 |
| Military Construction, Navy Total | | | | 94,570 | 281,576 | 144,570 | 166,971 | 261,541 |
| AF | ICELAND | Keflavik | EDI-AIRFIELD UPGRADES—DANGEROUS CARGO PAD | 18,000 | 18,000 | 18,000 | | 18,000 |
| AF | ICELAND | Keflavik | EDI-BEDDOWN SITE PREP | 7,000 | 7,000 | 7,000 | | 7,000 |
| AF | ICELAND | Keflavik | EDI-EXPAND PARKING APRON | 32,000 | 32,000 | 32,000 | | 32,000 |
| AF | JORDAN | Azraq | AIR TRAFFIC CONTROL TOWER | 0 | 24,000 | 0 | 24,000 | 24,000 |
| AF | JORDAN | Azraq | MUNITIONS STORAGE AREA | 0 | 42,000 | 0 | 42,000 | 42,000 |
| AF | SPAIN | Moron | EDI-HOT CARGO PAD | 8,500 | 8,500 | 8,500 | | 8,500 |
| AF | WORLDWIDE UN-SPECIFIED | Unspecified | PLANNING & DESIGN | 0 | 0 | 247,000 | 60,000 | 60,000 |
| AF | WORLDWIDE UN-SPECIFIED | Unspecified Worldwide Locations | EDI-ECAOS DABS/FEV EMEDS STORAGE | 107,000 | 107,000 | 107,000 | | 107,000 |
| AF | WORLDWIDE UN-SPECIFIED | Unspecified Worldwide Locations | EDI-HOT CARGO PAD | 29,000 | 29,000 | 29,000 | | 29,000 |
| AF | WORLDWIDE UN-SPECIFIED | Unspecified Worldwide Locations | EDI-MUNITIONS STORAGE AREA | 39,000 | 39,000 | 39,000 | | 39,000 |
| AF | WORLDWIDE UN-SPECIFIED | Various Worldwide Locations | EDI: VARIOUS WORLDWIDE LOCATIONS EUROPE | 0 | 56,246 | 0 | 36,211 | 36,211 |
| AF | WORLDWIDE UN-SPECIFIED | Various Worldwide Locations | EDI-P&D | 61,438 | 61,438 | 61,438 | | 61,438 |
| AF | WORLDWIDE UN-SPECIFIED | Various Worldwide Locations | EDI-UMMC | 12,800 | 12,800 | 12,800 | | 12,800 |
| Military Construction, Air Force Total | | | | 314,738 | 436,984 | 561,738 | 162,211 | 476,949 |
| Def-Wide | GERMANY | Gemersheim | EDI: LOGISTICS DISTRIBUTION CENTER ANNEX | 46,000 | 46,000 | 46,000 | | 46,000 |
| Military Construction,Defense-Wide Total | | | | 46,000 | 46,000 | 46,000 | | 46,000 |

| | | | | | |
|------------------------------------|-----------|---------|---------|------------|---------|
| Total, Military Construction | 9,844,526 | 921,420 | 853,026 | -8,923,106 | 921,420 |
|------------------------------------|-----------|---------|---------|------------|---------|

SEC. 4603. MILITARY CONSTRUCTION FOR EMERGENCY REQUIREMENTS.

| SEC. 4603. MILITARY CONSTRUCTION FOR EMERGENCY REQUIREMENTS (In Thousands of Dollars) | | | | | | | | |
|--|-------------------|--------------------------------------|--|--------------------|---------------------|----------------------|----------------------|--------------------------|
| Account | State/ Country | Installation | Project Title | FY 2020 Request | House Authorized | Senate Authorized | Conference Change | Conference Authorized |
| Navy | CALIFORNIA | Naval Air Weapons Station China Lake | Planning and Design | 0 | 0 | 0 | 0 | 89,320 |
| Navy | CALIFORNIA | Naval Air Weapons Station China Lake | Hanger 3 Replacement, Apron, Taxiway & Utilities for RDT&E | 0 | 0 | 0 | 514,600 | 514,600 |
| Navy | CALIFORNIA | Naval Air Weapons Station China Lake | Aircraft Parking Apron in Support of Hanger 2 Replacement | 0 | 0 | 0 | 50,800 | 50,800 |
| Navy | CALIFORNIA | Naval Air Weapons Station China Lake | Michelson Mission Systems Intergration Laboratory | 0 | 0 | 0 | 202,340 | 202,340 |
| Navy | CALIFORNIA | Naval Air Weapons Station China Lake | Magazines & Inert Storage Facility | 0 | 0 | 0 | 138,930 | 138,930 |
| Navy | CALIFORNIA | Naval Air Weapons Station China Lake | Air Operations Facility & Air Traffic Control Tower | 0 | 0 | 0 | 70,900 | 70,900 |
| Navy | CALIFORNIA | Naval Air Weapons Station China Lake | Community Support Facilities | 0 | 0 | 0 | 85,790 | 85,790 |
| Navy | NORTH CAROLINA | Camp Lejeune | Courthouse Bay Fire Station Replacement | 0 | 0 | 21,336 | 21,336 | 21,336 |
| Navy | NORTH CAROLINA | Camp Lejeune | Hadnot Point Fire Station Replacement | 0 | 0 | 21,931 | 21,931 | 21,931 |
| Navy | NORTH CAROLINA | Camp Lejeune | Hadnot Point Mess Hall Replacement | 0 | 0 | 66,023 | 66,023 | 66,023 |
| Navy | NORTH CAROLINA | Camp Lejeune | II MEF Simulation/Training Center Replacement | 0 | 0 | 74,487 | 74,487 | 74,487 |
| Navy | NORTH CAROLINA | Camp Lejeune | LOGCOM CSP Warehouse Replacement | 0 | 0 | 35,874 | 35,874 | 35,874 |
| Navy | NORTH CAROLINA | Camp Lejeune | LSSS Facility Replacement | 0 | 0 | 26,815 | 26,815 | 26,815 |
| Navy | NORTH CAROLINA | Camp Lejeune | MC Advisor Battalion HQs Replacement | 0 | 0 | 30,109 | 30,109 | 30,109 |
| Navy | NORTH CAROLINA | Camp Lejeune | MCCSSS Log Ops School | 0 | 0 | 179,617 | 179,617 | 179,617 |
| Navy | NORTH CAROLINA | Camp Lejeune | MCES Applied Instruction Facility Replacement | 0 | 0 | 95,599 | 95,599 | 95,599 |
| Navy | NORTH CAROLINA | Camp Lejeune | NCIS Facilities Replacement | 0 | 0 | 22,594 | 22,594 | 22,594 |
| Navy | NORTH CAROLINA | Camp Lejeune | PMO Facility Replacement | 0 | 0 | 34,718 | 34,718 | 34,718 |
| Navy | NORTH CAROLINA | Camp Lejeune | WTBN Headquarters Replacement | 0 | 0 | 18,644 | 18,644 | 18,644 |
| Navy | NORTH CAROLINA | MCAS Cherry Point | Physical Security Compliance | 0 | 0 | 52,300 | 52,300 | 52,300 |
| Navy | NORTH CAROLINA | MCAS Cherry Point | BT-11 Range Operations Center Replacement | 0 | 0 | 14,251 | 14,251 | 14,251 |

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| | | | | | | | | |
|---|----------------|------------------------|---|---|---|---------|-----------|-----------|
| Navy | NORTH CAROLINA | MCAS New River | C-12W Aircraft Maintenance Hangar Replacement | 0 | 0 | 36,295 | 36,295 | 36,295 |
| Navy | NORTH CAROLINA | MCAS New River | Bachelor Enlisted Quarters Replacement | 0 | 0 | 62,104 | 62,104 | 62,104 |
| Navy | NORTH CAROLINA | MCAS New River | CNATT Classroom Building Replacement | 0 | 0 | 0 | 114,706 | 114,706 |
| Navy | NORTH CAROLINA | MCAS New River | CH-53K Maintenance Hangar Replacement | 0 | 0 | 0 | 252,717 | 252,717 |
| Military Construction, Navy Total | | | | 0 | 0 | 610,080 | 2,223,480 | 2,312,800 |
| AF | FLORIDA | Tyndall Air Force Base | 325th Fighting Wing HQ Facility | 0 | 0 | 0 | 38,000 | 38,000 |
| AF | FLORIDA | Tyndall Air Force Base | Aerospace & Operational Physiology Facility | 0 | 0 | 10,400 | 12,000 | 12,000 |
| AF | FLORIDA | Tyndall Air Force Base | Aircraft MX Fuel Cell Hangar | 0 | 0 | 28,000 | 37,000 | 37,000 |
| AF | FLORIDA | Tyndall Air Force Base | Aircraft Wash Rack | 0 | 0 | 10,600 | 9,100 | 9,100 |
| AF | FLORIDA | Tyndall Air Force Base | Airfield Drainage | 0 | 0 | 0 | 144,000 | 144,000 |
| AF | FLORIDA | Tyndall Air Force Base | Auxiliary Ground Equipment Facility | 0 | 0 | 0 | 22,000 | 22,000 |
| AF | FLORIDA | Tyndall Air Force Base | Chapel | 0 | 0 | 0 | 26,000 | 26,000 |
| AF | FLORIDA | Tyndall Air Force Base | Community Commons Facility | 0 | 0 | 0 | 64,000 | 64,000 |
| AF | FLORIDA | Tyndall Air Force Base | Deployment Center/Flight Line Dining/AAFES | 0 | 0 | 31,000 | 43,000 | 43,000 |
| AF | FLORIDA | Tyndall Air Force Base | Dorm Complex Phase 1 | 0 | 0 | 0 | 145,000 | 145,000 |
| AF | FLORIDA | Tyndall Air Force Base | Dorm Complex Phase 2 | 0 | 0 | 0 | 131,000 | 131,000 |
| AF | FLORIDA | Tyndall Air Force Base | Emergency Management, EOC, Alt CP | 0 | 0 | 14,400 | 20,000 | 20,000 |
| AF | FLORIDA | Tyndall Air Force Base | Flightline—Muns Storage, 7000 Area | 0 | 0 | 0 | 36,000 | 36,000 |
| AF | FLORIDA | Tyndall Air Force Base | Lodging Facilities Phase 1 | 0 | 0 | 0 | 90,000 | 90,000 |
| AF | FLORIDA | Tyndall Air Force Base | Lodging Facilities Phase 2 | 0 | 0 | 0 | 89,000 | 89,000 |
| AF | FLORIDA | Tyndall Air Force Base | Operations Group/Maintenance Group HQ | 0 | 0 | 18,500 | 24,000 | 24,000 |
| AF | FLORIDA | Tyndall Air Force Base | Ops/Aircraft Maintenance Unit/Hangar #2 | 0 | 0 | 0 | 74,000 | 74,000 |
| AF | FLORIDA | Tyndall Air Force Base | Ops/Aircraft Maintenance Unit/Hangar #3 | 0 | 0 | 0 | 75,000 | 75,000 |
| AF | FLORIDA | Tyndall Air Force Base | OSS/Radar Approach Control Facility | 0 | 0 | 51,000 | 37,000 | 37,000 |
| AF | FLORIDA | Tyndall Air Force Base | Planning and Design | 0 | 0 | 0 | 0 | 52,400 |
| AF | FLORIDA | Tyndall Air Force Base | Security Forces Mobility Storage Facility | 0 | 0 | 2,800 | 6,700 | 6,700 |
| AF | FLORIDA | Tyndall Air Force Base | Simulator Facility | 0 | 0 | 0 | 38,000 | 38,000 |
| AF | FLORIDA | Tyndall Air Force Base | Site Development, Utilities & Demo Phase 2 | 0 | 0 | 0 | 141,000 | 141,000 |
| AF | FLORIDA | Tyndall Air Force Base | Small Arms Range | 0 | 0 | 0 | 26,000 | 26,000 |
| AF | FLORIDA | Tyndall Air Force Base | Special Purpose Vehicle Maintenance | 0 | 0 | 14,000 | 20,000 | 20,000 |
| AF | FLORIDA | Tyndall Air Force Base | Tyndall AFB Gate Complexes | 0 | 0 | 38,000 | 75,000 | 75,000 |
| AF | FLORIDA | Tyndall Air Force Base | Weapons Load Training Hangar | 0 | 0 | 0 | 25,000 | 25,000 |
| AF | NEBRASKA | Offutt Air Force Base | Emergency Power Microgrid | 0 | 0 | 0 | 43,000 | 43,000 |
| AF | NEBRASKA | Offutt Air Force Base | Flightline Hangars Campus | 0 | 0 | 0 | 10,000 | 10,000 |
| AF | NEBRASKA | Offutt Air Force Base | Lake Campus | 0 | 0 | 0 | 6,000 | 6,000 |

SEC. 4603. MILITARY CONSTRUCTION FOR EMERGENCY REQUIREMENTS
(In Thousands of Dollars)

| Account | State/ Country | Installation | Project Title | FY 2020 Request | House Authorized | Senate Authorized | Conference Change | Conference Authorized |
|--|-------------------|---------------------------|---------------------------------------|--------------------|---------------------|----------------------|----------------------|--------------------------|
| AF | NEBRASKA | Offutt Air Force Base | Logistics Readiness Squadron Campus | 0 | 0 | 0 | 18,500 | 18,500 |
| AF | NEBRASKA | Offutt Air Force Base | Security Campus | 0 | 0 | 0 | 63,000 | 63,000 |
| AF | VIRGINIA | Joint Base Langley-Eustis | Dormitory | 0 | 0 | 0 | 31,000 | 31,000 |
| Military Construction, Air Force Total | | | | 0 | 0 | 218,700 | 1,619,300 | 1,671,700 |
| Def-Wide | NORTH CAROLINA | Camp Lejeune | Ambulatory Care Center (Camp Geiger) | 0 | 0 | 17,821 | 17,821 | 17,821 |
| Def-Wide | NORTH CAROLINA | Camp Lejeune | Ambulatory Care Center (Camp Johnson) | 0 | 0 | 27,492 | 27,492 | 27,492 |
| Def-Wide | NORTH CAROLINA | Camp Lejeune | MARSOC ITC Team Facility Replacement | 0 | 0 | 0 | 30,000 | 30,000 |
| Military Construction, Defense-Wide Total | | | | 0 | 0 | 45,313 | 75,313 | 75,313 |
| Army NG | LOUISIANA | Pineville | National Guard Readiness Center | 0 | 0 | 0 | 16,500 | 16,500 |
| Army NG | NEBRASKA | Ashland | Training Site, Various Facilities | 0 | 0 | 0 | 35,000 | 35,000 |
| Army NG | NEBRASKA | Ashland | Flood Control Levee/Floodwall | 0 | 0 | 0 | 8,500 | 8,500 |
| Military Construction, Army National Guard Total | | | | 0 | 0 | 0 | 60,000 | 60,000 |
| Total, Military Construction | | | | 0 | 0 | 874,093 | 3,978,093 | 4,119,813 |

TITLE XLVII—DEPARTMENT OF ENERGY NATIONAL SECURITY PROGRAMS

SEC. 4701. DEPARTMENT OF ENERGY NATIONAL SECURITY PROGRAMS.

SEC. 4701. DEPARTMENT OF ENERGY NATIONAL SECURITY PROGRAMS
(In Thousands of Dollars)

| Program | FY 2020 Request | House Authorized | Senate Authorized | Conference Change | Conference Authorized |
|--|-------------------|------------------|-------------------|-------------------|-----------------------|
| Discretionary Summary By Appropriation | | | | | |
| Energy And Water Development, And Related Agencies | | | | | |
| Appropriation Summary: | | | | | |
| Energy Programs | | | | | |
| Nuclear Energy | 137,808 | | | | 137,808 |
| Atomic Energy Defense Activities | | | | | |
| National nuclear security administration: | | | | | |
| Weapons activities | 12,408,603 | -611,529 | 69,800 | 36,177 | 12,444,780 |
| Defense nuclear nonproliferation | 1,993,302 | 41,785 | -29,100 | 27,512 | 2,020,814 |
| Naval reactors | 1,648,396 | -16,254 | 0 | -15,000 | 1,633,396 |
| Federal salaries and expenses | 434,699 | -44,699 | -11,700 | 0 | 434,699 |
| Total, National nuclear security administration | 16,485,000 | -630,697 | 29,000 | 48,689 | 16,533,689 |
| Environmental and other defense activities: | | | | | |
| Defense environmental cleanup | 5,506,501 | 109,500 | | 21,231 | 5,527,732 |
| Other defense activities | 1,035,339 | | -3,000 | -149,500 | 885,839 |
| Defense nuclear waste disposal | 26,000 | -26,000 | -26,000 | -26,000 | 0 |
| Total, Environmental & other defense activities | 6,567,840 | 83,500 | -29,000 | -154,269 | 6,413,571 |

| SEC. 4701. DEPARTMENT OF ENERGY NATIONAL SECURITY PROGRAMS (In Thousands of Dollars) | | | | | |
|---|-------------------|------------------|-------------------|-------------------|-----------------------|
| Program | FY 2020 Request | House Authorized | Senate Authorized | Conference Change | Conference Authorized |
| Total, Atomic Energy Defense Activities | 23,052,840 | -547,197 | | -105,580 | 22,947,260 |
| Total, Discretionary Funding | 23,190,648 | -547,197 | | -105,580 | 23,085,068 |
| Nuclear Energy | | | | | |
| Idaho sitewide safeguards and security | 137,808 | | | | 137,808 |
| Total, Nuclear Energy | 137,808 | | | | 137,808 |
| Weapons Activities | | | | | |
| Directed stockpile work | | | | | |
| Life extension programs and major alterations | | | | | |
| B61-12 Life extension program | 792,611 | | | | 792,611 |
| W76-2 Modification program | 10,000 | -10,000 | | | 10,000 |
| Terminate effort | | [-10,000] | | | |
| W88 Alt 370 | 304,186 | | | | 304,186 |
| W80-4 Life extension program | 898,551 | | | | 898,551 |
| W87-1 Modification Program (formerly IW1) | 112,011 | -59,011 | | | 112,011 |
| Unjustified growth | | [-59,011] | | | |
| Total, Life extension programs and major alterations | 2,117,359 | -69,011 | | | 2,117,359 |
| Stockpile systems | | | | | |
| B61 Stockpile systems | 71,232 | | | | 71,232 |
| W76 Stockpile systems | 89,804 | | | | 89,804 |
| W78 Stockpile systems | 81,299 | | | | 81,299 |
| W80 Stockpile systems | 85,811 | -5,607 | | | 85,811 |
| Unjustified study requirement | | [-5,607] | | | |
| B83 Stockpile systems | 51,543 | -29,122 | | | 51,543 |
| Unjustified growth | | [-29,122] | | | |

| | | | | |
|--|------------------|-----------------|---------------|------------------|
| W87 Stockpile systems | 98,262 | | | 98,262 |
| W88 Stockpile systems | 157,815 | | | 157,815 |
| Total, Stockpile systems | 635,766 | -34,729 | | 635,766 |
| Weapons dismantlement and disposition | | | | |
| Operations and maintenance | 47,500 | | | 47,500 |
| Program increase | | | | |
| Stockpile services | | | | |
| Production support | 543,964 | -43,964 | | 543,964 |
| Unjustified program growth | | [-33,964] | | |
| Program decrease | | [-10,000] | | |
| Research and development support | 39,339 | -3,189 | 1,000 | 39,339 |
| Unjustified program growth | | [-3,189] | | |
| UFR list—technology maturation | | | [1,000] | |
| R&D certification and safety | 236,235 | -34,395 | 10,000 | 236,235 |
| Unjustified program growth | | [-34,395] | | |
| UFR list—technology maturation | | | [10,000] | |
| Management, technology, and production | 305,000 | -5,000 | | 305,000 |
| Program decrease | | [-5,000] | | |
| Total, Stockpile services | 1,124,538 | -86,548 | 11,000 | 1,124,538 |
| Strategic materials | | | | |
| Uranium sustainment | 94,146 | | | 94,146 |
| Plutonium sustainment | 712,440 | -241,131 | | 712,440 |
| Pit production beyond 30 pits per year | | [-241,131] | | |
| Tritium sustainment | 269,000 | | | 269,000 |
| Lithium sustainment | 28,800 | | | 28,800 |
| Domestic uranium enrichment | 140,000 | | | 140,000 |
| Strategic materials sustainment | 256,808 | | | 256,808 |
| Total, Strategic materials | 1,501,194 | -241,131 | | 1,501,194 |
| Total, Directed stockpile work | 5,426,357 | -431,419 | 11,000 | 5,426,357 |

| SEC. 4701. DEPARTMENT OF ENERGY NATIONAL SECURITY PROGRAMS (In Thousands of Dollars) | | | | | |
|--|-----------------|------------------|-------------------|-------------------|-----------------------|
| Program | FY 2020 Request | House Authorized | Senate Authorized | Conference Change | Conference Authorized |
| Research, development, test and evaluation (RDT&E) | | | | | |
| Science | | | | | |
| Advanced certification | 57,710 | | | | 57,710 |
| Primary assessment technologies | 95,169 | | | | 95,169 |
| Dynamic materials properties | 133,800 | | | | 133,800 |
| Advanced radiography | 32,544 | | | | 32,544 |
| Secondary assessment technologies | 77,553 | | | | 77,553 |
| Academic alliances and partnerships | 44,625 | | | | 44,625 |
| Enhanced Capabilities for Subcritical Experiments | 145,160 | | | | 145,160 |
| Total, Science | 586,561 | | | | 586,561 |
| Engineering | | | | | |
| Enhanced surety | 46,500 | -6,783 | 8,000 | | 46,500 |
| Unjustified program growth | | [-6,783] | | | |
| UFR list—technology maturation | | | [8,000] | | |
| Delivery Environments (formerly Weapons Systems Engineering Assessment Technology) | 35,945 | -12,916 | | | 35,945 |
| Unjustified program growth | | [-12,916] | | | |
| Nuclear survivability | 53,932 | | | | 53,932 |
| Enhanced surveillance | 57,747 | | | | 57,747 |
| Stockpile Responsiveness | 39,830 | -34,830 | 40,800 | 40,800 | 80,630 |
| Unjustified request | | [-34,830] | | | |
| Program expansion | | | [40,800] | [40,800] | |
| Total, Engineering | 233,954 | -54,529 | 48,800 | 40,800 | 274,754 |
| Inertial confinement fusion ignition and high yield | | | | | |
| Ignition and Other Stockpile Programs | 55,649 | | | | 55,649 |

| | | | | |
|---|------------------|----------------|---------------|----------------|
| Diagnostics, cryogenics and experimental support | 66,128 | | | 66,128 |
| Pulsed power inertial confinement fusion | 8,571 | | | 8,571 |
| Joint program in high energy density laboratory plasmas | 12,000 | | | 12,000 |
| Facility operations and target production | 338,247 | 5,000 | 5,000 | 343,247 |
| Program increase | | [5,000] | [5,000] | |
| Total, Inertial confinement fusion and high yield | 480,595 | 5,000 | 5,000 | 485,595 |
| Advanced simulation and computing | | | | |
| Advanced simulation and computing | 789,849 | | | 789,849 |
| Construction: | | | | |
| 18-D-620, Exascale Computing Facility Modernization Project, LLNL | 50,000 | | | 50,000 |
| Total, Construction | 50,000 | | | 50,000 |
| Total, Advanced simulation and computing | 839,849 | | | 839,849 |
| Advanced manufacturing | | | | |
| Additive manufacturing | 18,500 | | | 18,500 |
| Component manufacturing development | 48,410 | | 10,000 | 52,000 |
| UFR list—technology maturation | | | [10,000] | [3,590] |
| Process technology development | 69,998 | -39,084 | | 69,998 |
| Unjustified program growth | | [-39,804] | | |
| Total, Advanced manufacturing | 136,908 | -39,084 | 10,000 | 140,498 |
| Total, RDT&E | 2,277,867 | -88,613 | 58,800 | 49,390 |
| 2,327,257 | | | | |
| Infrastructure and operations | | | | |
| Operations of facilities | 905,000 | -35,000 | | 905,000 |
| Unjustified program growth | | [-35,000] | | |
| Safety and environmental operations | 119,000 | -9,000 | | 119,000 |
| Unjustified program growth | | [-9,000] | | |
| Maintenance and repair of facilities | 456,000 | | | 456,000 |
| Recapitalization: | | | | |
| Infrastructure and safety | 447,657 | | | 447,657 |
| Capability based investments | 135,341 | -26,284 | | 135,341 |

| SEC. 4701. DEPARTMENT OF ENERGY NATIONAL SECURITY PROGRAMS (In Thousands of Dollars) | | | | | |
|--|------------------|------------------|-------------------|-------------------|-----------------------|
| Program | FY 2020 Request | House Authorized | Senate Authorized | Conference Change | Conference Authorized |
| Unjustified program growth | | | | | |
| Total, Recapitalization | 582,998 | -26,284 | | | 582,998 |
| Construction: | | | | | |
| 19-D-670, 138kV Power Transmission System Replacement, NNSS | 6,000 | | | | 6,000 |
| 18-D-690, Lithium Processing Facility, Y-12 (formerly Lithium Production Capability, Y-12) | 32,000 | 7,000 | | | 32,000 |
| Program increase | | [7,000] | | | |
| 18-D-650, Tritium Finishing Facility, SRS | 27,000 | | | | 27,000 |
| 17-D-640, U1a Complex Enhancements Project, NNSS | 35,000 | | | | 35,000 |
| 15-D-612, Emergency Operations Center, LLNL | 5,000 | | | | 5,000 |
| 15-D-611, Emergency Operations Center, SNL | 4,000 | | | | 4,000 |
| 15-D-301, HE Science & Engineering Facility, PX | 123,000 | | | | 123,000 |
| 06-D-141 Uranium processing facility Y-12, Oak Ridge, TN | 745,000 | | | | 745,000 |
| 04-D-125, Chemistry and Metallurgy Research Replacement Project, LANL | 168,444 | | | | 168,444 |
| Total, Construction | 1,145,444 | 7,000 | | | 1,145,444 |
| Total, Infrastructure and operations | 3,208,442 | -63,284 | | | 3,208,442 |
| Secure transportation asset | | | | | |
| Operations and equipment | 209,502 | | | | 209,502 |
| Program direction | 107,660 | | | | 107,660 |
| Total, Secure transportation asset | 317,162 | | | | 317,162 |
| Defense nuclear security | | | | | |
| Operations and maintenance | 778,213 | -28,213 | | -13,213 | 765,000 |
| Excess to need | | [-28,213] | | [-13,213] | |
| Total, Defense nuclear security | 778,213 | -28,213 | | -13,213 | 765,000 |

| | | | | | |
|---|-------------------|-----------------|---------------|----------------|-------------------|
| Information technology and cybersecurity | 309,362 | | | | 309,362 |
| Legacy contractor pensions | 91,200 | | | | 91,200 |
| Total, Weapons Activities | 12,408,603 | -611,529 | 69,800 | 36,177 | 12,444,780 |
| Defense Nuclear Nonproliferation | | | | | |
| Defense Nuclear Nonproliferation Programs | | | | | |
| Global material security | | | | | |
| International nuclear security | 48,839 | | | | 48,839 |
| Domestic radiological security | 90,513 | | | | 90,513 |
| International radiological security | 60,827 | 20,000 | | 18,080 | 78,907 |
| Secure additional radiologic materials | | [20,000] | | [18,080] | |
| Nuclear smuggling detection and deterrence | 142,171 | | | | 142,171 |
| Total, Global material security | 342,350 | 20,000 | | 18,080 | 360,430 |
| Material management and minimization | | | | | |
| HEU reactor conversion | 114,000 | | | -15,000 | 99,000 |
| Program decrease | | | | [-15,000] | |
| Nuclear material removal | 32,925 | | | | 32,925 |
| Material disposition | 186,608 | | | | 186,608 |
| Total, Material management & minimization | 333,533 | | | -15,000 | 318,533 |
| Nonproliferation and arms control | 137,267 | | | | 137,267 |
| Defense nuclear nonproliferation R&D | 495,357 | 30,000 | -19,500 | 4,432 | 499,789 |
| Proliferation detection research | | [15,000] | | | |
| Nonproliferation Stewardship program strategic plan | | | [-19,500] | | |
| Additional verification and detection effort | | [15,000] | | [4,432] | |
| Nonproliferation Construction: | | | | | |
| 18-D-150 Surplus Plutonium Disposition Project | 79,000 | | | | 79,000 |
| 99-D-143 Mixed Oxide (MOX) Fuel Fabrication Facility, SRS | 220,000 | -6,500 | | | 220,000 |

| SEC. 4701. DEPARTMENT OF ENERGY NATIONAL SECURITY PROGRAMS (In Thousands of Dollars) | | | | | |
|---|------------------|------------------|-------------------|-------------------|-----------------------|
| Program | FY 2020 Request | House Authorized | Senate Authorized | Conference Change | Conference Authorized |
| Program decrease | | [-6,500] | | | |
| Low-enriched uranium research and development | 0 | 20,000 | | 20,000 | 20,000 |
| Program increase | | [20,000] | | [20,000] | |
| Total, Nonproliferation construction | 299,000 | -6,500 | | 20,000 | 299,000 |
| Total, Defense Nuclear Nonproliferation Programs | 1,607,507 | 63,500 | -19,500 | 27,512 | 1,635,019 |
| Legacy contractor pensions | 13,700 | | | | 13,700 |
| Nuclear counterterrorism and incident response program | 372,095 | -31,715 | -9,600 | | 372,095 |
| Unjustified cost growth | | [-31,715] | | | |
| Non-defense function realignment | | | [-9,600] | | |
| DPRK phased denuclearization long-term monitoring and verification | 0 | 10,000 | | | |
| Program increase | | [10,000] | | | |
| Total, Defense Nuclear Nonproliferation | 1,993,302 | 41,785 | -29,100 | 27,512 | 2,020,814 |
| Naval Reactors | | | | | |
| Naval reactors development | 531,205 | -16,254 | | -15,000 | 516,205 |
| Unjustified growth | | [-16,254] | | [-15,000] | |
| Columbia-Class reactor systems development | 75,500 | | | | 75,500 |
| S8G Prototype refueling | 155,000 | | | | 155,000 |
| Naval reactors operations and infrastructure | 553,591 | | | | 553,591 |
| Construction: | | | | | |
| 20-D-931, KL Fuel Development Laboratory | 23,700 | | | | 23,700 |
| 19-D-930, KS Overhead Piping | 20,900 | | | | 20,900 |
| 14-D-901 Spent fuel handling recapitalization project, NRF | 238,000 | | | | 238,000 |
| Total, Construction | 282,600 | | | | 282,600 |
| Program direction | 50,500 | | | | 50,500 |

| | | | | |
|--|------------------|----------------|----------------|------------------|
| Total, Naval Reactors | 1,648,396 | -16,254 | -15,000 | 1,633,396 |
| Federal Salaries And Expenses | | | | |
| Program direction | 434,699 | -44,699 | -11,700 | 434,699 |
| Unjustified growth | | [-24,699] | | |
| Program decrease | | [-20,000] | | |
| Alignment with FTEs authorized | | | [-11,700] | |
| Total, Office Of The Administrator | 434,699 | -44,699 | -11,700 | 434,699 |
| Defense Environmental Cleanup | | | | |
| Closure sites: | | | | |
| Closure sites administration | 4,987 | | | 4,987 |
| Richland: | | | | |
| River corridor and other cleanup operations | 139,750 | | | 139,750 |
| Central plateau remediation | 472,949 | 50,000 | 50,000 | 522,949 |
| Program increase | | [50,000] | [50,000] | |
| Richland community and regulatory support | 5,121 | | | 5,121 |
| Construction: | | | | |
| 18-D-404 WESF Modifications and Capsule Storage | 11,000 | | | 11,000 |
| Total, Construction | 11,000 | | | 11,000 |
| Total, Hanford site | 628,820 | 50,000 | 50,000 | 678,820 |
| Office of River Protection: | | | | |
| Waste Treatment Immobilization Plant Commissioning | 15,000 | | | 15,000 |
| Rad liquid tank waste stabilization and disposition | 677,460 | 28,000 | 28,000 | 705,460 |
| Program increase | | [28,000] | [28,000] | |
| Construction: | | | | |
| 18-D-16 Waste treatment and immobilization plant—LBL/Direct feed LAW | 640,000 | | | 640,000 |
| 01-D-16 D, High-level waste facility | 30,000 | | -5,000 | 25,000 |

| SEC. 4701. DEPARTMENT OF ENERGY NATIONAL SECURITY PROGRAMS (In Thousands of Dollars) | | | | | |
|---|------------------|------------------|-------------------|-------------------|-----------------------|
| Program | FY 2020 Request | House Authorized | Senate Authorized | Conference Change | Conference Authorized |
| Program decrease | | | | [-5,000] | |
| 01-D-16 E—Pretreatment Facility | 20,000 | | | -5,000 | 15,000 |
| Program decrease | | | | [-5,000] | |
| Total, Construction | 690,000 | | | -10,000 | 680,000 |
| ORP Low-level waste offsite disposal | 10,000 | | | | 10,000 |
| Total, Office of River Protection | 1,392,460 | 28,000 | | 18,000 | 1,410,460 |
| Idaho National Laboratory: | | | | | |
| Idaho cleanup and waste disposition | 331,354 | | | | 331,354 |
| Idaho community and regulatory support | 3,500 | | | | 3,500 |
| Total, Idaho National Laboratory | 334,854 | | | | 334,854 |
| NNSA sites and Nevada off-sites | | | | | |
| Lawrence Livermore National Laboratory | 1,727 | | | | 1,727 |
| LLNL Excess facilities D&D | 128,000 | | | -73,000 | 55,000 |
| Program decrease | | | | [-73,000] | |
| Nuclear facility D & D | | | | | |
| Separations Process Research Unit | 15,300 | | | | 15,300 |
| Nevada | 60,737 | | | | 60,737 |
| Sandia National Laboratories | 2,652 | | | | 2,652 |
| Los Alamos National Laboratory | 195,462 | | | | 195,462 |
| Total, NNSA sites and Nevada off-sites | 403,878 | | | -73,000 | 330,878 |
| Oak Ridge Reservation: | | | | | |
| OR Nuclear facility D & D | 93,693 | | | | 93,693 |

| | | | | |
|--|----------------|---------------|---------------|----------------|
| Total, OR Nuclear facility D & D | 93,693 | | | 93,693 |
| U233 Disposition Program | 45,000 | | | 45,000 |
| OR cleanup and waste disposition | | | | |
| OR cleanup and disposition | 82,000 | | | 82,000 |
| Construction: | | | | |
| 17-D-401 On-site waste disposal facility | 15,269 | | -5,269 | 10,000 |
| Program decrease | | | [-5,269] | |
| 14-D-403 Outfall 200 Mercury Treatment Facility | 49,000 | | | 49,000 |
| Total, Construction | 64,269 | | -5,269 | 59,000 |
| Total, OR cleanup and waste disposition | 146,269 | | -5,269 | 141,000 |
| OR community & regulatory support | 4,819 | | | 4,819 |
| OR technology development and deployment | 3,000 | | | 3,000 |
| Total, Oak Ridge Reservation | 292,781 | | -5,269 | 287,512 |
| Savannah River Sites: | | | | |
| Savannah River risk management operations | | | | |
| Savannah River risk management operations | 490,613 | 25,000 | 25,000 | 515,613 |
| Program increase | | [25,000] | | |
| Construction: | | | | |
| 18-D-402, Emergency Operations Center | 6,792 | | | 6,792 |
| Total, risk management operations | 497,405 | 25,000 | 25,000 | 522,405 |
| SR community and regulatory support | 4,749 | 6,500 | 6,500 | 11,249 |
| Program increase | | [6,500] | | |
| Radioactive liquid tank waste stabilization and disposition | 797,706 | | | 797,706 |
| Construction: | | | | |
| 20-D-402 Advanced Manufacturing Collaborative Facility (AMC) | 50,000 | | | 50,000 |
| 20-D-401 Saltstone Disposal Unit #10, 11, 12 | 500 | | | 500 |
| 19-D-701 SR Security sytem replacement | 0 | | | 0 |

| SEC. 4701. DEPARTMENT OF ENERGY NATIONAL SECURITY PROGRAMS (In Thousands of Dollars) | | | | | |
|---|------------------|------------------|-------------------|-------------------|-----------------------|
| Program | FY 2020 Request | House Authorized | Senate Authorized | Conference Change | Conference Authorized |
| 18-D-402 Saltstone Disposal Unit #8/9 | 51,750 | | | | 51,750 |
| 17-D-402 Saltstone Disposal Unit #7 | 40,034 | | | | 40,034 |
| 05-D-405 Salt waste processing facility, Savannah River Site | 20,988 | | | | 20,988 |
| Total, Construction | 163,272 | | | | 163,272 |
| Total, Savannah River site | 1,463,132 | 31,500 | | 31,500 | 1,494,632 |
| Waste Isolation Pilot Plant | | | | | |
| Waste Isolation Pilot Plant | 299,088 | | | | 299,088 |
| Construction: | | | | | |
| 15-D-411 Safety significant confinement ventilation system, WIPP | 58,054 | | | | 58,054 |
| 15-D-412 Exhaust shaft, WIPP | 34,500 | | | | 34,500 |
| Total, Construction | 92,554 | | | | 92,554 |
| Total, Waste Isolation Pilot Plant | 391,642 | | | | 391,642 |
| Program direction | 278,908 | | | | 278,908 |
| Program support | 12,979 | | | | 12,979 |
| Safeguards and Security | | | | | |
| Safeguards and Security | 317,622 | | | | 317,622 |
| Total, Safeguards and Security | 317,622 | | | | 317,622 |
| Use of prior year balances | -15,562 | | | | -15,562 |
| Total, Defense Environmental Cleanup | 5,506,501 | 109,500 | | 21,231 | 5,527,732 |
| Other Defense Activities | | | | | |
| Environment, health, safety and security | | | | | |
| Environment, health, safety and security | 139,628 | | | | 139,628 |
| Program direction | 72,881 | | | | 72,881 |

| | | | | | |
|--|------------------|----------------|-----------------|----------------|----------------|
| Total, Environment, Health, Safety and Security | 212,509 | | | | 212,509 |
| Independent enterprise assessments | | | | | |
| Independent enterprise assessments | 24,068 | | | | 24,068 |
| Program direction | 57,211 | -3,000 | -2,500 | | 54,711 |
| Non-defense function realignment | | [-3,000] | [-2,500] | | |
| Total, Independent enterprise assessments | 81,279 | -3,000 | -2,500 | | 78,779 |
| Specialized security activities | 254,578 | | | | 254,578 |
| Office of Legacy Management | | | | | |
| Legacy management | 283,767 | | -141,000 | | 142,767 |
| Program decrease | | | [-141,000] | | |
| Program direction | 19,262 | | | | 19,262 |
| Total, Office of Legacy Management | 303,029 | | -141,000 | | 162,029 |
| Defense related administrative support | | | | | |
| Chief financial officer | 54,538 | | | | 54,538 |
| Chief information officer | 124,554 | | -6,000 | | 118,554 |
| Program decrease | | | [-6,000] | | |
| Total, Defense related administrative support | 179,092 | | -6,000 | | 173,092 |
| Office of Hearings and Appeals | 4,852 | | | | 4,852 |
| Subtotal, Other Defense Activities | 1,035,339 | -3,000 | -149,500 | | 885,839 |
| Total, Other Defense Activities | 1,035,339 | -3,000 | -149,500 | | 885,839 |
| Defense Nuclear Waste Disposal | | | | | |
| Yucca Mountain and interim storage | 26,000 | -26,000 | -26,000 | -26,000 | 0 |
| Program cut | 0 | [-26,000] | [-26,000] | [-26,000] | |
| Total, Defense Nuclear Waste Disposal | 26,000 | -26,000 | -26,000 | -26,000 | 0 |

DIVISION E—INTELLIGENCE AUTHORIZATIONS FOR FISCAL YEARS 2018, 2019, AND 2020

Intelligence authorizations for fiscal years 2018, 2019, and 2020 (secs. 5001-6747)

The Senate bill contained Division F that included the Intelligence Authorization Act for Fiscal Year 2020 and Division G that included the Intelligence Authorization Act for fiscal years 2018 and 2019.

The House amendment contained no similar provisions.

The House recedes with an amendment that would make various modifications to such provisions.

DIVISION F—OTHER MATTERS

TITLE LXXI—SANCTIONS WITH RESPECT TO NORTH KOREA

*Sanctions with respect to North Korea and Financial Industry
Guidance to Halt Trafficking Act (secs. 7101-7155)*

The Senate bill contained multiple provisions (sections 6901, 6911-6913, 6921-6925, 6931-6935, 6941-6946, 6951-6954, 6961-6966) that would strengthen United States sanctions on North Korea, impose oversight measures concerning sanctions on North Korea, and strengthen the Department of Treasury's role in combating human trafficking, among other measures.

The House amendment contained multiple similar provisions (sections 1099Z-1-1099Z-8).

The House recedes with an amendment that would provide for significant enhancement of economic sanctions on North Korea and foreign persons involved with North Korea, including new secondary banking sanctions and broadening primary trade-based sanctions provided for in the North Korea Sanctions and Policy Enhancement Act of 2016 (Public Law 114-122), hereafter referred to as NKSPEA. In addition, it would provide for increased congressional oversight in response to North Korea's aggressive nuclear and ballistic missile testing, sanctions evasion, and global compliance failures weakening enforcement of United Nations Security Council (UNSC) resolutions. The amendment

would also provide for significant guidance to the financial industry on strengthening measures to combat human trafficking.

More specifically, the amendment would impose such "secondary banking sanctions" as asset blocking and restrictions on correspondent accounts, and any other penalty authorized by the International Emergency Economic Powers Act (Public Law 95-223), hereafter referred to as IEEPA, against foreign financial institutions that provide financial services to certain sanctioned persons. Furthermore, the amendment would prohibit transactions with the same types of certain sanctioned persons by persons owned or controlled by U.S. financial institutions, and provides for civil IEEPA penalty authority against both the person owned or controlled and as appropriate its parent U.S. financial institution.

The amendment would also expand on the list of designation requirements for mandatory sanctions provided in NKSPEA, by adding as mandatory: any person that engages in the import or export, including of related services or technology, of coal, textiles, seafood, iron, or iron ore; and in crude oil or refined petroleum products above UNSC-set limits. The amendment would also require the imposition of sanctions with respect to any person who engages in, or otherwise facilitates: a transfer of North Korean government funds or property, contributing to a material violation of a UNSC resolution; the exportation of workers from North Korea; the sale or transfer of vessels to North Korea, or their registration, chartering or insurance; bribery of a North Korean official; or the significant misappropriation of public funds.

The amendment would also provide for enhanced guidance to the financial industry to combat human trafficking by: elevating human trafficking as an enumerated function of the U.S. Treasury Office of Terrorism and Financial Intelligence and requiring increased coordination and reporting related to human trafficking; strengthening the role that anti-money laundering and other tools play in combating human trafficking by requiring the U.S. Inter-Agency Task Force to Monitor and Combat Trafficking to provide certain policy recommendations to federal regulators and to Congress; and underscoring the sense of Congress that adequate funding be provided for public outreach and critical federal efforts to combat human trafficking at home and abroad.

TITLE LXXII—SANCTIONS WITH RESPECT TO FOREIGN TRAFFICKERS OF ILLICIT SYNTHETIC OPIOIDS

Sanctions with respect to foreign traffickers of illicit synthetic opioids (secs. 7201-7235)

The Senate bill contained a provision (sec. 6801-6837) that would strengthen United States sanctions against foreign synthetic opioid traffickers, financial institutions, and others that assist such entities. It would also establish a Commission on Combating Synthetic Opioid Trafficking to report on how to combat more effectively the flow of synthetic opioids from China, Mexico, and elsewhere, among other measures.

The House amendment contained a similar provision (sec. 1701-1736).

The House recedes with a clarifying amendment.

TITLE LXXIII-PFAS

Definition of Administrator (sec. 7302)

The Senate bill contained a provision (sec. 6701) that would define the term "Administrator" for this title.

The House amendment contained no similar provision.

The House recedes.

Drinking Water (secs. 7311-7312)

The Senate bill contained a series of provisions (sec. 6721-6724) that would require the Administrator of the Environmental Protection agency to promulgate a national primary drinking water regulation for, require monitoring of, and establish drinking water state revolving funds for perfluoroalkyl and polyfluoroalkyl substances.

The House amendment contained no similar provision.

The House recedes with an amendment that would eliminate the requirement to establish a national primary drinking water standard and the accompanying enforcement provision and makes various other technical modifications.

PFAS Release Disclosure (secs. 7321)

The Senate bill contained a provision (sec. 6711) that would include Perfluorooctanoic acid, Perfluorooctane sulfonic acid and their associated salts in the toxics release inventory.

The House amendment contained no similar provision.

The House recedes with a technical amendment.

USGS Performance Standard (secs. 7331-7335)

The Senate bill contained provisions (sec. 6731-6736) that would direct the director of the United States Geological Survey to establish a performance standard for the detection of highly fluorinated compounds, to conduct nationwide sampling, and to use the data to inform and enhance assessments of exposure.

The House amendment contained a similar provision (sec. 330G)

The House recedes with multiple technical amendments.

Emerging Contaminants (secs. 7341-7342)

The Senate bill contained provisions (sec. 6741-6742) that would require the Administrator of the Environmental Protection Agency to review the Federal efforts of research, development, and response to emerging contaminants.

The House amendment contained no similar provision.

The House recedes with a technical amendment.

Toxic Substances Control Act and Other Matters (secs. 7351-7362)

The Senate bill contained provisions (sec. 6751-6754) that would direct the Administrator of the Environmental Protection Agency to take final action on the proposed rule entitled "Long-Chain Perfluoroalkyl Carboxylate and Perfluoroalkyl Sulfonate Chemical Substances; Significant New Use Rule," to publish interim disposal guidance, to conduct research and development efforts focused on perfluoroalkyl and polyfluoroalkyl substances.

The House amendment contained no similar provisions.

The House recedes with multiple technical amendments.

**TITLE LXXIV-CAESAR SYRIA CIVILIAN
PROTECTION ACT OF 2019**

Caesar Syria Civilian Protection Act of 2019 (secs. 7401-7438)

The conference agreement includes a provision known as the Caesar Syria Civilian Protection Act of 2019 that would sanction foreign persons who knowingly provide significant financial, material, or technological support to, or knowingly engage in a significant transaction with the Government of Syria, or military contractors, mercenaries, or paramilitary forces that

knowingly operate in a military capacity inside Syria for or on behalf of the Government of Syria, the Government of the Russian Federation, or the Government of Iran. The provision would also require the Secretary of the Treasury to determine whether reasonable grounds exist for concluding that the Central Bank of Syria is a financial institution of primary money laundering concern and, if so, impose relevant sanctions on the Central Bank of Syria. The provision would also authorize the Secretary of State to provide support to entities conducting criminal investigations, supporting prosecutions, or collecting evidence against those who have committed war crimes or crimes against humanity in Syria. Lastly, the provision would require the President to produce various strategies, assessments, and briefings related to the provision of humanitarian assistance and the protection of civilians.

TITLE LXXV-PROTECTING EUROPE'S ENERGY SECURITY

Protecting Europe's Energy Security (secs. 7501-7503)

The conference agreement includes a provision that would express the sense of Congress concerning United States relations with the European Union and Germany and impose sanctions with respect to provision of certain vessels for the construction of the Nord Stream 2 and TurkStream pipeline projects.

TITLE LXXVI-OTHER MATTERS

SUBTITLE A-FEDERAL EMPLOYEE PAID LEAVE ACT

Federal Employee Paid Leave Act (secs. 7601-7606)

The House amendment contained several provisions(sec. 1121 through 1126) that would provide 12 weeks of paid leave to the Federal workforce for reasons covered by the Family and Medical Leave Act of 1993 (Public Law 115-232).

The Senate bill contained no similar provision.

The Senate recedes with an amendment that would provide 12 weeks of paid leave to Federal employees in connection with the birth or placement of a child to an eligible employee.

SUBTITLE B-OTHER MATTERS

Liberian refugee immigration fairness (sec. 7611)

The Senate bill contained a provision (sec. 6013) that would require, not later than December 31, 2019, the Secretary of Defense, in consultation with the Secretary of State, to submit a report on the impact of Liberian nationals on the national security, foreign policy, and economic, and humanitarian interests of the United States, and a justification for adjustment of status of qualifying Liberians to that of lawful permanent residents.

The House amendment contained no similar provision.

The House recesses with an amendment that would provide for the adjustment of the status of certain nationals of Liberia to that of lawful permanent residents.

Pensacola Dam and Reservoir, Grand River, Oklahoma (sec. 7612)

The Senate bill contained a provision (sec. 6021) that would clarify the respective jurisdictions of the Army Corps of Engineers and the Federal Energy Regulatory Commission (FERC) at the Grand Lake O' the Cherokees, Oklahoma.

The House bill contained no similar provision.

The House recesses with technical amendments and an amendment that would require the Army Corps of Engineers to conduct a study of the resiliency of upstream infrastructure and lands.

Limitation on certain rolling stock procurements; cybersecurity certification for rail rolling stock and operations (sec. 7613)

The Senate bill contained a provision (sec. 6015) that would amend section 5323 of title 49, United States Code, to prevent the use of Federal transit dollars to procure rolling stock from certain manufacturers and an associated annual process for certifying compliance, with an exception for preexisting contracts for rail rolling stock. This provision also would require that any transit service operator of rail rolling stock develop and execute a cybersecurity risk reduction plan in accordance with certain standards and would include arrangements for third-party testing of certain components.

The House amendment contained a similar provision (sec. 896) that would apply overall, only to rail rolling stock.

The House recesses with amendments that would add exceptions to implementation including a grace period of two years from enactment, for certain rolling stock, and other technical amendments.

LEGISLATIVE PROVISIONS NOT ADOPTED

PFAS designation, effluent limitations, and pretreatment standards

The House amendment contained a provision (sec. 330A) that would require the Administrator of the Environmental protection agency to include per- and polyfluoroalkyl substances to the toxic pollutant list in the Federal Water Pollution Control Act.

The Senate bill contained no similar provision.

The House recesses.

Designation as hazardous substances

The House amendment contained a provision (sec. 3300) that would require the Administrator of the Environmental Protection Agency to designate all per- and polyfluoroalkyl substances as hazardous substances under section 102(a) of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (42 U.S.C. 9602(a)).

The Senate bill contained no similar provision.

The House recesses.

Utilizing significant emissions with innovative technologies

The Senate bill contained a provision (sec. 6001) that would require the Administrator of the Environmental Protection Agency to conduct direct air capture research.

The House amendment contained no similar provision.

The Senate recesses.

S. 1790

*Managers on the part of the
HOUSE*

*Managers on the part of the
SENATE*

From the Committee on Armed Services, for consideration of the Senate bill and the House amendment, and modifications committed to conference:

Mr. Smith of Washington

Mrs. Davis of California

Mr. Langevin

Mr. Larsen of Washington

Mr. Cooper

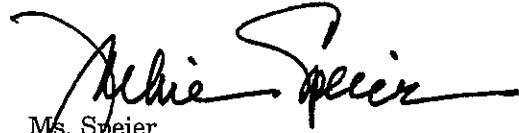
Mr. Courtney

Mr. Garamendi

S. 1790—Continued

*Managers on the part of the
HOUSE*

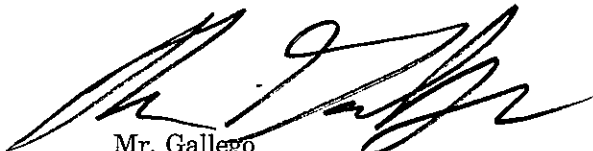
*Managers on the part of the
SENATE*



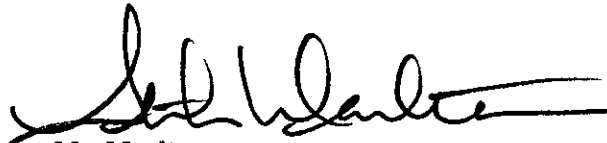
Ms. Speier



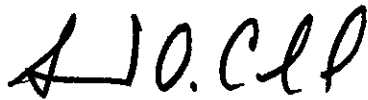
Mr. Norcross




Mr. Gallego



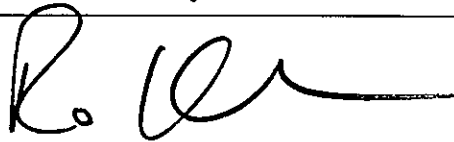
Mr. Moulton



Mr. Carbajal



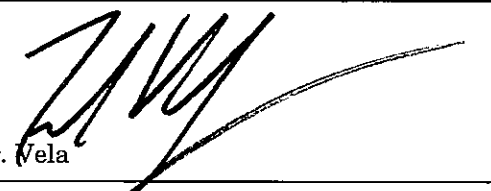
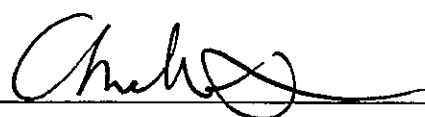
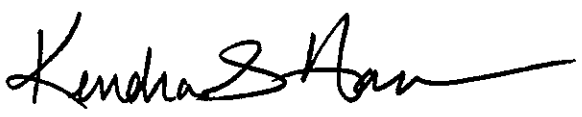

Mr. Brown of Maryland




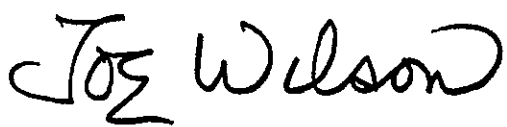






Mr. Khanna





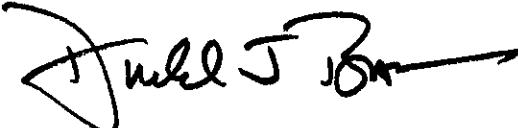
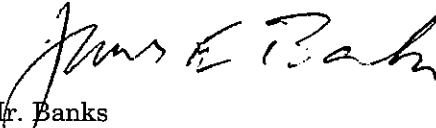

S. 1790—Continued

| <i>Managers on the part of the HOUSE</i> | <i>Managers on the part of the SENATE</i> |
|---|---|
|  Mr. Vela | |
|  Mr. Kim | |
|  Ms. Kendra S. Horn of Oklahoma | |
|  Mr. Cisneros | |
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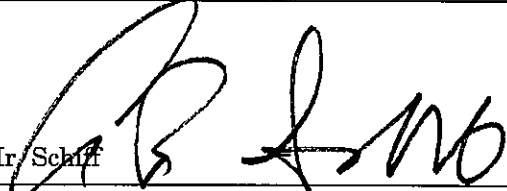


S. 1790—Continued

| <i>Managers on the part of the HOUSE</i> | <i>Managers on the part of the SENATE</i> |
|---|---|
|  Mr. Thornberry | |
|  Mr. Wilson of South Carolina | |
|  Mr. Turner | |
|  Mr. Rogers of Alabama | |
|  Mr. Conaway | |
|  Mr. Lamborn | |
|  Mr. Wittman | |
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S. 1790—Continued

| <i>Managers on the part of the HOUSE</i> | <i>Managers on the part of the SENATE</i> |
|---|---|
|  Ms. Stefanik | |
|  Mr. Kelly of Mississippi | |
|  Mr. Bacon | |
|  Mr. Banks | |
|  Ms. Cheney | |
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S. 1790—Continued

| <i>Managers on the part of the HOUSE</i> | <i>Managers on the part of the SENATE</i> |
|--|---|
| From the Permanent Select Committee on Intelligence, for consideration of matters within the jurisdiction of that committee under clause 11 of rule X: | |
|  Mr. Schiff | |
|  Ms. Sewell of Alabama | |
|  Mr. Nunes | |
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S. 1790—Continued

| <i>Managers on the part of the HOUSE</i> | <i>Managers on the part of the SENATE</i> |
|---|---|
| From the Committee on the Budget, for consideration of secs. 4 and 10608 of the Senate bill, and secs. 1006 and 1112 of the House amendment, and modifications committed to conference: | |
|  Mr. Yarmuth | |
|  Mr. Peters | |
|  Mr. Johnson of Ohio | |
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S. 1790—Continued

| <i>Managers on the part of the HOUSE</i> | <i>Managers on the part of the SENATE</i> |
|--|---|
| From the Committee on Education and Labor, for consideration of secs. 571, 572, and 5501 of the Senate bill, and secs. 211, 576, 580, 1099N, 1117, 3120, and 3503 of the House amendment, and modifications committed to conference: | |
|  Mr. Scott of Virginia | |
|  Mrs. Trahan | |
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S. 1790—Continued

| <i>Managers on the part of the HOUSE</i> | <i>Managers on the part of the SENATE</i> |
|--|---|
| <p>From the Committee on Foreign Affairs, for consideration of secs. 834, 1011, 1043, 1202, 1203, 1205, 1206, 1211, 1212, 1215, 1221-24, 1231-36, 1238, 1252, 1281-84, title XIII, secs. 1671, 1681, 2822, 6203-06, 6210, 6213, 6215, 6231, 6236, title LXVIII, secs. 6921, 6922, 6931, 6941, 6943, 6954, part I of subtitle B of title LXXXV, secs. 8562, and 10701 of the Senate bill, and secs. 634, 1036, 1046, 1050, 1099X, 1201, 1202, 1204, 1207, 1210, 1213, 1215, 1218, 1221-25, 1229, 1231-34, 1240A, 1241, 1250D, 1251, 1255, 1258, 1260A, 1260B, 1265, 1266, 1269, 1270, 1270G, 1270H, 1270I, 1270N, 1270R, 1270S, 1270T, 1270W, subtitle I of title XII, subtitle J of title XII, title XIII, secs. 1521, 1669, and title XVII of the House amendment, and modifications committed to conference:</p> | |
| <p></p> | |
| <p></p> | |
| <p> Mr. McCaul</p> | |
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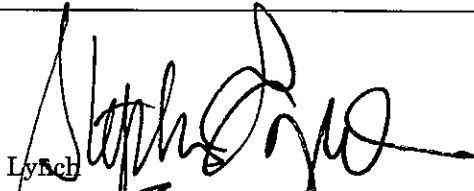
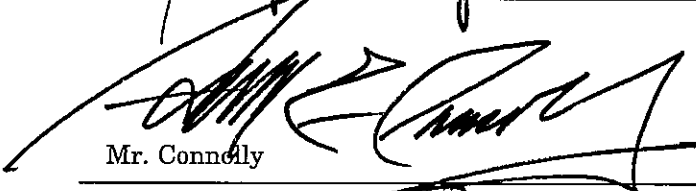
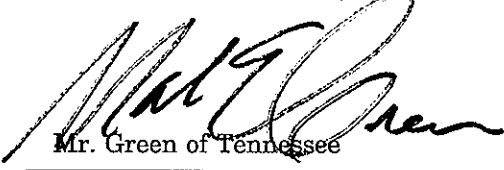
S. 1790—Continued

| <i>Managers on the part of the</i> HOUSE | <i>Managers on the part of the</i> SENATE |
|---|---|
| From the Committee on Homeland Security, for consideration of secs. 6006, 6012, and 8543 of the Senate bill, and modifications committed to conference: | |
|  Mr. Rose of New York | |
|  Ms. Underwood | |
|  Mr. Walker | |
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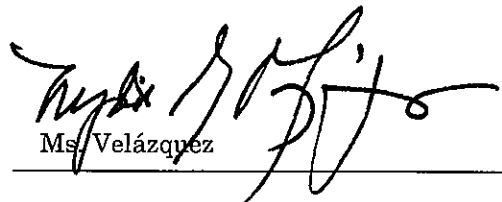
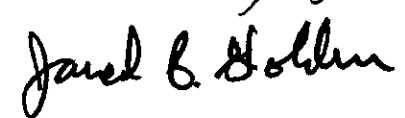

S. 1790—Continued

| <i>Managers on the part of the HOUSE</i> | <i>Managers on the part of the SENATE</i> |
|---|---|
| From the Committee on Natural Resources, for consideration of secs. 314, 2812, 2814, 6001, 6020, subtitle C of title LXVII, sec. 8524, part I of subtitle B of title LXXXV, secs. 8554, and 8571 of the Senate bill, and secs. 330G, 1094, 1099D, 1099F, 1099U, 2851, subtitle F of title XXVIII, secs. 2876, and 2880 of the House amendment, and modifications committed to conference: | |
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| Ms. Haaland | |
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| Mr. Bishop of Utah | |
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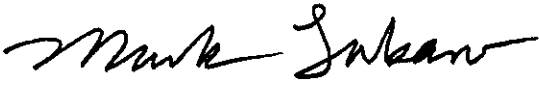

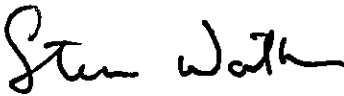
S. 1790—Continued

| <i>Managers on the part of the HOUSE</i> | <i>Managers on the part of the SENATE</i> |
|---|---|
| From the Committee on Oversight and Reform, for consideration of secs. 218, 530, 559, 579, 1081, 1082, title XI, secs. 5802, 6012, subtitle B of title LXV, secs. 9304, 9307, 9311, 9313, 9314, 10303, 10432, 10434, 10601, 10603-05, 10612, 10741, and 10742 of the Senate bill, and secs. 212, 239, 5500, 629, 633, 804, 829, 842, 861, 872, 877, 883, 884, 891, 895, 899E, 899H, 899I, 1064, 1085, 1099B, title XI, secs. 1704, 1711, 1713-16, and 3127 of the House amendment, and modifications committed to conference: | |
|  Mr. Lynch | |
|  Mr. Connolly | |
|  Mr. Green of Tennessee | |
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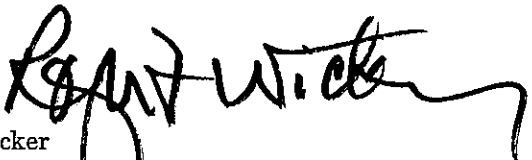
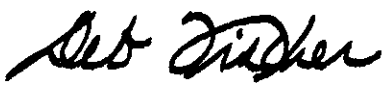

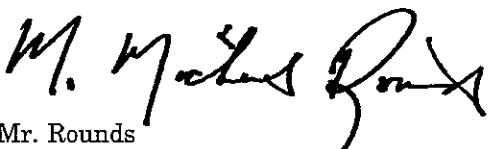
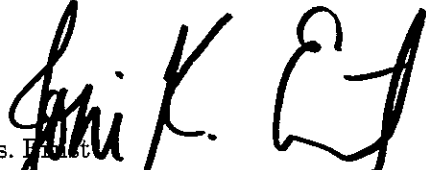
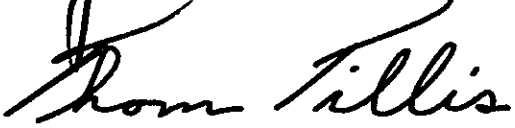

S. 1790—Continued

| <i>Managers on the part of the HOUSE</i> | <i>Managers on the part of the SENATE</i> |
|---|---|
| From the Committee on Small Business, for consideration of sec. 841 of the Senate bill, and secs. 872-76, 878, 879, 881, 882, and 886-89 of the House amendment, and modifications committed to conference: | |
|  Ms. Velázquez | |
|  Mr. Golden | |
|  Mr. Chabot | |
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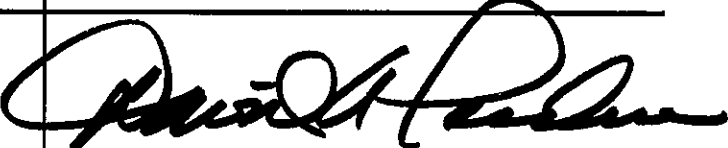
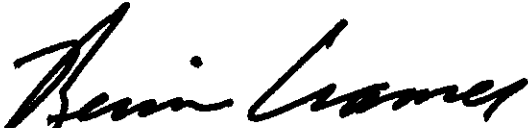



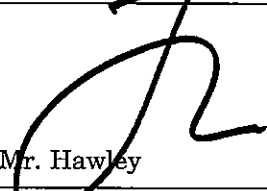


S. 1790—Continued

| <i>Managers on the part of the HOUSE</i> | <i>Managers on the part of the SENATE</i> |
|---|---|
| <p>From the Committee on Veterans' Affairs, for consideration of secs. 568, 721, 726, 727, 1083, 1431, 2812, 2813, 5702, and 6007 of the Senate bill, and secs. 530, 530A, 545, 546, 550E, 550G, 550H, 550I, 550J, 569, 570E, 570F, 574, 624, 705, 706, 713, 715, 1093, 1126, and 1411 of the House amendment, and modifications committed to conference:</p> | |
|  Mr. Takano | |
|  Ms. Brownley of California | |
|  Mr. Watkins | |
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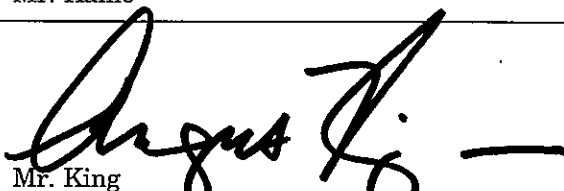
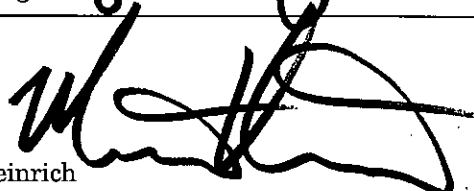

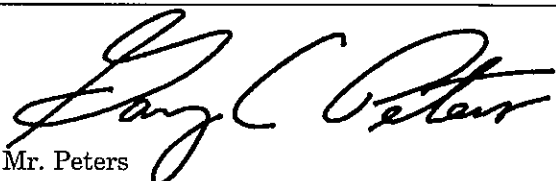
S. 1790—Continued

| <i>Managers on the part of the HOUSE</i> | <i>Managers on the part of the SENATE</i> |
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| |  Mr. Inhofe |
| |  Mr. Wicker |
| |  Mrs. Fischer |
| |  Mr. Cotton |
| |  Mr. Rounds |
| |  Ms. Hunt |
| |  Mr. Tillis |
| |  Mr. Sullivan |

S. 1790—Continued

| <i>Managers on the part of the HOUSE</i> | <i>Managers on the part of the SENATE</i> |
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| |  |
| | Mr. Perdue |
| |  |
| | Mr. Crumer |
| |  |
| | Ms. McSally |
| |  |
| | Mr. Scott of Florida |
| |  |
| | Mrs. Blackburn |
| |  |
| | Mr. Hawley |
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| | Mr. Reed |
| |  |
| | Mrs. Shaheen |

S. 1790—Continued

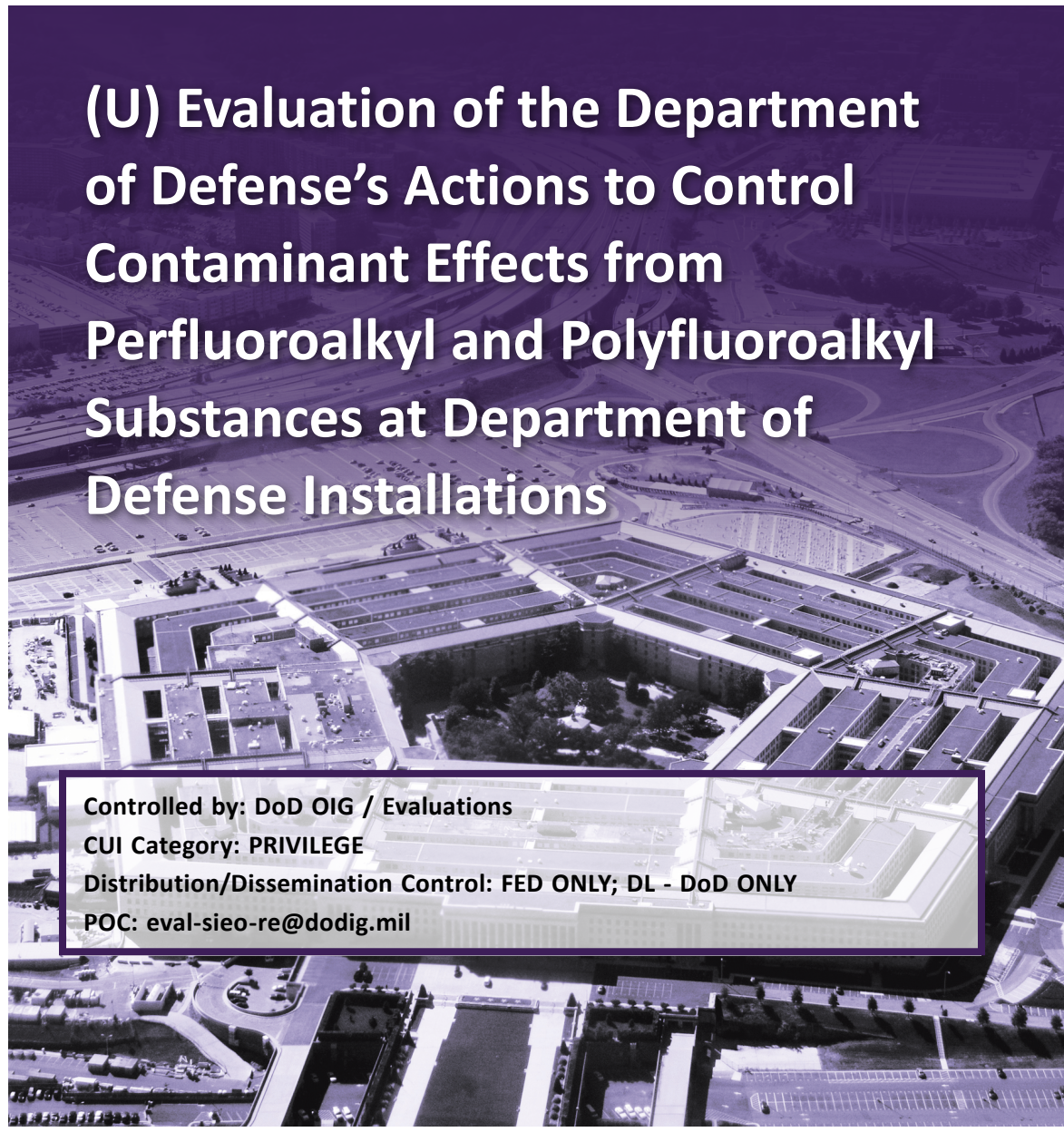
| <i>Managers on the part of the HOUSE</i> | <i>Managers on the part of the SENATE</i> |
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| |  |
| |  Mr. Blumenthal |
| |  Ms. Hirose |
| |  Mr. Kaine |
| |  Mr. King |
| |  Mr. Heinrich |
| |  |
| |  Mr. Peters |

CUI

INSPECTOR GENERAL

U.S. Department of Defense

JULY 22, 2021



(U) Evaluation of the Department of Defense's Actions to Control Contaminant Effects from Perfluoroalkyl and Polyfluoroalkyl Substances at Department of Defense Installations

Controlled by: DoD OIG / Evaluations

CUI Category: PRIVILEGE

Distribution/Dissemination Control: FED ONLY; DL - DoD ONLY

POC: eval-sieo-re@dodig.mil

INTEGRITY ★ INDEPENDENCE ★ EXCELLENCE

CUI





CUI

(U) Results in Brief

(U) Evaluation of the Department of Defense's Actions to Control Contaminant Effects from Perfluoroalkyl and Polyfluoroalkyl Substances at Department of Defense Installations

July 22, 2021

(U) Objective

(U) The objective of this evaluation was to determine the extent that the DoD has taken steps to:

- (U) identify, mitigate, and remediate contamination from perfluoroalkyl and polyfluoroalkyl substances (PFAS) at DoD installations; and
- (U) identify populations exposed to PFAS at DoD installations and inform them of the associated health and safety concerns.

(U) Background

(U) In a July 25, 2019 letter, 31 members of Congress requested that the DoD Office of Inspector General (DoD OIG) “undertake a review of the U.S. Department of Defense’s (DoD’s) use of PFAS at military sites around the country and the exposure of both military personnel and civilians living near military sites.” In response to the congressional letter, the DoD OIG announced this evaluation on February 3, 2020.

(U) PFAS are fire-resistant, man-made chemicals that repel oil, grease, and water. Products that contain PFAS can be found in almost every U.S. home and business; however, some products containing PFAS are largely limited to the DoD and other heavy industries. One such product is Aqueous Film Forming Foam (AFFF), which the DoD began using in the 1970s as a fire suppressant to fight dangerous petroleum-based fires.

(U) Background (cont'd)

(U) The DoD, the Military Departments, and the Defense Logistics Agency have issued policies and established programs and organizations that require their officials to, among other things, manage Environment, Safety, and Occupational Health risks caused by their activities; perform environmental cleanup; control health hazards associated with exposures to chemical, physical, and biological hazards in DoD workplaces; and perform medical surveillance to identify illness trends and annual occupational medical examinations for firefighters.

(U) Additionally, DoD officials issued DoD Instruction (DoDI) 4715.18, requiring proactive evaluations and risk management for “emerging chemicals of environmental concern.” We refer to “emerging chemicals of environmental concern” as emerging chemicals (ECs) and the program as the EC Program throughout this report. Furthermore, in 2019 and 2020, Congress included PFAS requirements in the National Defense Authorization Act, including the requirement that the Secretary of Defense “provide blood testing to determine and document potential exposure to...PFAS for each firefighter of the [DoD] during their annual physical exam” beginning in FY 2021.

(U) Findings

~~(CUI)~~ DoD officials have taken steps to identify, mitigate, and remediate contaminant effects from PFAS-containing AFFF at DoD installations, including restricting nonessential use of AFFF and initiating Federal cleanup response actions. However, DoDI 4715.18 requires DoD officials to proactively mitigate contaminant effects from ECs at DoD installations when risk management actions are endorsed by the Emerging Chemicals of Concern Governance Council. EC Program officials included PFOS and PFOA on the EC Watch List. They commissioned impact assessment reports. EC Program officials issued a risk alert in 2011 that described risks to DoD areas of concern, including risks to human

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(U) Results in Brief

(U) Evaluation of the Department of Defense’s Actions to Control Contaminant Effects from Perfluoroalkyl and Polyfluoroalkyl Substances at Department of Defense Installations

(U) Findings (cont’d)

~~(CUI)~~ health and the environment. However, the 2011 risk alert was not a risk management action because it was not endorsed by the Emerging Chemicals of Concern Governance Council. Therefore, DoD officials were not required to plan, program, and budget for any actions in response to the 2011 risk alert. EC Program officials did not require proactive risk management actions for PFAS-containing AFFF until 2016 [REDACTED]

[REDACTED]. This occurred because DoDI 4715.18 does not include objective requirements for EC Program officials to use when determining when to initiate risk management actions or to elevate an EC from the EC Watch List to the EC Action List. As a result, people and the environment may have been exposed to preventable risks from PFAS-containing AFFF.

~~(CUI)~~ Additionally, DoDI 4715.18 requires DoD officials to apply an enterprise-wide approach to mitigate contaminant effects from ECs. An enterprise-wide approach would address all sources of potential EC exposure caused by DoD activities and the impacts of that exposure to DoD areas of concern. EC Program officials identified PFOS and PFOA as ECs [REDACTED]. EC Program officials commissioned impact assessment reports [REDACTED]

[REDACTED]

DoD officials have not proactively identified, mitigated, and remediated contaminant effects from PFAS-containing materials other than AFFF at DoD installations. Therefore, DoD officials did not apply an enterprise-wide approach to mitigate the contaminant effects of all sources of potential PFAS exposure caused by DoD activities, as required

~~(CUI)~~ by DoDI 4715.18. This occurred because DoD officials were focused on AFFF, a major source of potential PFAS exposure, and not on all sources of potential PFAS exposure caused by DoD activities. As a result, people and the environment may continue to be exposed to preventable risks from other PFAS-containing materials.

(U) DoD officials have taken steps to identify populations exposed to PFAS at DoD installations and inform them of the associated health and safety concerns. These steps include identifying sources of water containing PFAS and providing PFAS health-related information to military medical treatment facilities. DoDI 6055.05 requires DoD Components to implement risk management steps, including evaluating occupational and environmental health risk management. These risk management steps include tracking, trending, and analyzing clinical examination results related to workplace exposures.

(U) DoD officials developed a plan to implement PFAS blood testing for DoD firefighters by FY 2021, as required by the FY 2020 National Defense Authorization Act. However, DoD officials do not plan to track, trend, and analyze the results of PFAS blood tests conducted on DoD firefighters at a DoD-wide level, as required by DoDI 6055.05. This occurred because DoD officials were focused on the immediate collection of the PFAS blood test results to address the FY 2020 National Defense Authorization Act requirement to test the blood of DoD firefighters and not on the analysis of the blood test results at a DoD-wide level. As a result, the DoD is missing an opportunity to capture comprehensive PFAS exposure data for DoD firefighters to be used for risk management, including future studies to assess significant long-term health effects relating to PFAS.



(U) Results in Brief

(U) Evaluation of the Department of Defense's Actions to Control Contaminant Effects from Perfluoroalkyl and Polyfluoroalkyl Substances at Department of Defense Installations

(U) Recommendations

(U) We recommend that the Under Secretary of Defense for Acquisition and Sustainment (USD[A&S]) revise DoDI 4715.18 to include requirements for Emerging Chemical Program officials to:

- (U) initiate proactive risk management actions based on measurable risks to the DoD areas of concern to mitigate contaminant effects of emerging chemicals at DoD installations;
- (U) develop risk management options and initiate proactive risk management actions which may be warranted to identify and mitigate the contaminant effects of emerging chemicals as early as possible in the Emerging Chemical Process, regardless of whether an emerging chemical is on the Emerging Chemical Watch List or the Emerging Chemical Action List; and
- (U) formally inform DoD users of emerging chemicals and of their status in the Emerging Chemical Process.

(U) We recommend that the Deputy Assistant Secretary of Defense (Environment and Energy Resilience) complete the Emerging Chemical Process for potential PFAS exposure caused by DoD activities from PFAS-containing materials other than AFFF by developing and presenting validated risk management options for PFAS on the Emerging Chemical Action List to the Emerging Chemicals of Concern Governance Council, as required by DoDI 4715.18.

(U) We recommend that the Assistant Secretary of Defense (Readiness) (ASD[R]) develop a plan to track, trend, and analyze DoD firefighter PFAS blood test results at a DoD-wide level, in accordance with DoDI 6055.05.

(U) Management Comments and Our Response

(U) The Acting Assistant Secretary of Defense (Sustainment) (ASD[S]), responding for the Under Secretary of Defense for Acquisition and Sustainment, partially agreed with the recommendations to revise DoDI 4715.18. However, comments from the Acting ASD(S) addressed the recommendations; therefore, the recommendations are resolved but will remain open.

(U) The Acting ASD(S), responding for the Deputy Assistant Secretary of Defense (Environment and Energy Resilience), agreed with the recommendation to complete the EC Process for potential PFAS exposure caused by DoD activities from PFAS-containing materials other than AFFF. Comments from the Acting ASD(S) addressed the recommendation; therefore, the recommendation is resolved but will remain open. We suggest that the Acting ASD(S) consider the planned changes to DoDI 4715.18 when addressing this recommendation.

(U) The Acting ASD(R) agreed with the recommendation to develop a plan to track, trend, and analyze DoD firefighter PFAS blood test results at a DoD-wide level, in accordance with DoDI 6055.05. Comments from the Acting ASD(R) addressed the recommendation; therefore, the recommendation is resolved but will remain open. While we recognize that PFAS exposure limits are yet to be determined, we suggest that the Acting ASD(R) consider discussing and providing guidance for the following while implementing long-term actions described in the management comments:

- (U) how the DoD will provide the PFAS blood test clinical examination results recorded in various DoD wide systems (such as the Armed Forces Health Longitudinal Technology Application, the Military Health System GENESIS, other electronic



(U) Results in Brief

(U) Evaluation of the Department of Defense's Actions to Control Contaminant Effects from Perfluoroalkyl and Polyfluoroalkyl Substances at Department of Defense Installations

(U) Comments (cont'd)

- (U) systems, or paper medical records) to the National Institute for Occupational Safety and Health and the Navy and Marine Corps Public Health Center's EpiData Center;
 - (U) what trend analysis, besides measures of central tendencies (such as the mean, median, and mode) will be calculated for the PFAS blood test results; and
 - (U) the plan to collect work-place exposure data (such as length of service, locations served, and any contact with PFAS releases) and illness outcomes data for DoD firefighters (such as increased cholesterol levels or cancer).
- (U) Please see the Recommendations Table on the next page for the status of recommendations.

(U) Recommendations Table

| Management | Recommendations Unresolved | Recommendations Resolved | Recommendations Closed |
|---|----------------------------|--------------------------|------------------------|
| (U) Under Secretary of Defense for Acquisition and Sustainment | None | A.1.a, A.1.b, A.1.c | None |
| (U) Assistant Secretary of Defense (Readiness) | None | B | None |
| (U) Deputy Assistant Secretary of Defense (Environment and Energy Resilience) | None | A.2 | None |

Note: The following categories are used to describe agency management’s comments to individual recommendations.

- **Unresolved** – Management has not agreed to implement the recommendation or has not proposed actions that will address the recommendation.
- **Resolved** – Management agreed to implement the recommendation or has proposed actions that will address the underlying finding that generated the recommendation.
- **Closed** – OIG verified that the agreed upon corrective actions were implemented.





**INSPECTOR GENERAL
DEPARTMENT OF DEFENSE
4800 MARK CENTER DRIVE
ALEXANDRIA, VIRGINIA 22350-1500**

July 22, 2021

MEMORANDUM FOR DISTRIBUTION

(U) SUBJECT: Evaluation of the Department of Defense’s Actions to Control Contaminant Effects from Perfluoroalkyl and Polyfluoroalkyl Substances at Department of Defense Installations (Report No. DODIG-2021-105)

(U) This final report provides the results of the DoD Office of Inspector General’s evaluation. We previously provided copies of the draft report and requested written comments on the recommendations. We considered management’s comments on the draft report when preparing the final report. These comments are included in the report.

(U) The Acting Assistant Secretary of Defense (Sustainment) agreed to address the recommendations directed to the Under Secretary of Defense for Acquisition and Sustainment and the Deputy Assistant Secretary of Defense (Environment and Energy Resilience); therefore, we consider the recommendations resolved and open. The Acting Assistant Secretary of Defense (Readiness) agreed to address the recommendation directed to the Assistant Secretary of Defense (Readiness); therefore, we consider the recommendation resolved and open. As described in the Recommendations, Management Comments, and Our Response section of this report, we will close the recommendations when we receive documentation showing that all agreed-upon actions to implement the recommendations are completed. Therefore, please provide us within 90 days your response concerning specific actions in process or completed on the recommendations. Send your response to either

[Redacted]

(U) If you have any questions, please contact [Redacted]
[Redacted]

Randolph R. Stone
Assistant Inspector General for Evaluations
Space, Intelligence, Engineering, and Oversight

Distribution:

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(U) Introduction

(U) Objective

(U) The objective of this evaluation was to determine the extent that the DoD has taken steps to:

- (U) identify, mitigate, and remediate contamination from perfluoroalkyl and polyfluoroalkyl substances (PFAS) at DoD installations; and
- (U) identify populations exposed to PFAS at DoD installations and inform them of the associated health and safety concerns.¹

(U) Background

(U) In a July 25, 2019 letter, 31 members of Congress requested that the DoD Office of Inspector General (DoD OIG) “undertake a review of the U.S. Department of Defense’s (DoD’s) use of PFAS at military sites around the country and the exposure of both military personnel and civilians living near military sites.”² In response to the congressional letter, on February 3, 2020, the DoD OIG announced this evaluation of the DoD’s use of PFAS at DoD installations. For our evaluation, we selected six DoD installations (five current and one former DoD installation) based on factors such as the reported level of PFAS and active or historical firefighting training activities. The following six current and former DoD installations that we selected host, or hosted, active duty military, National Guard, DoD civilians, and military families.³

1. (U) Active duty Army: Fort Bragg, North Carolina
2. (U) Army National Guard: Camp Grayling, Michigan
3. (U) Active duty Navy: Naval Air Station Oceana and Naval Auxiliary Landing Field, Virginia
4. (U) Active duty Marine Corps: Marine Corps Base Camp Pendleton, California
5. (U) Active duty Air Force: Peterson Air Force Base, Colorado
6. (U) Former Air Force: Former Pease Air Force Base, New Hampshire⁴

¹ (U) Throughout this report, we refer to humans in general or collectively as people. We refer to specific communities or groups of people exposed to the same conditions as a population, such as the firefighting population.

² (U) See Appendix B for a copy of the letter.

³ (U) Due to COVID-19 travel restrictions, we did not physically visit the installations identified in this report. We relied on teleconferences, interviews, questionnaires, and data calls to collect testimonial and documentary evidence to gather and verify information.

⁴ (U) Former Pease Air Force Base is a former military installation that has been transferred out of the Air Force but for which the DoD retains environmental restoration responsibilities.

(U) We also held meetings with Defense Logistics Agency (DLA) officials involved with storage and disposal of PFAS-containing materials and discussed the following sites.

1. (U) DLA Headquarters, Fort Belvoir, Virginia
2. (U) Defense Supply Center, Richmond, Virginia
3. (U) Defense Fuel Support Point, Verona, New York
4. (U) DLA Distribution Susquehanna, Pennsylvania

(U) See Appendix A, Scope and Methodology, for a detailed discussion of how we conducted our evaluation. Additionally, see the Glossary for definitions of technical terms used in this report.

(U) Description of PFAS

(U) PFAS are fire-resistant man-made chemicals that repel oil, grease, and water. Since the 1940s, a wide variety of commercial and industrial products have included PFAS. According to the United States Environmental Protection Agency (EPA), more than 600 types of PFAS are known to have been used in commercial and industrial products or manufacturing processes in the past decade. PFAS can be found in food packaging materials, nonstick cookware, stain-resistant carpet treatments, and water-resistant clothing. Some products that contain PFAS are largely limited to the DoD and other heavy industries; for example, PFAS are an ingredient in a fire suppressant, known as Aqueous Film Forming Foam (AFFF), used by military installations, civilian airports, and local fire departments, and in fire-resistant aviation hydraulic fluids.

(U) Human exposure to PFAS occurs through the regular use of products that contain PFAS and through occupational exposure.⁵ Many PFAS do not break down easily in the environment. Therefore, PFAS can get into sources of food and drinking water. For example, when PFAS-containing AFFF is released, the PFAS in the AFFF can make its way into the ground and affect the groundwater.⁶ As a result, PFAS may eventually reach and affect sources of drinking water. The EPA's 2019 PFAS Action Plan, described later in this report, states, "[d]ue to their widespread use and persistence in the environment, most people in the United States have been exposed to PFAS."⁷

⁵ (U) United States Environmental Protection Agency, "EPA's Per- and Polyfluoroalkyl Substances (PFAS) Action Plan," February 2019.

⁶ (U) AFFF releases may occur in an emergency when AFFF is applied to petroleum-based fires, during firefighter training, during testing of fire suppression systems, or by accident.

⁷ (U) EPA's PFAS Action Plan, February 2019.

(U) Potential Health Effects of PFAS Exposure

(U) The EPA, in collaboration with the Agency for Toxic Substances and Disease Registry (ATSDR), reported that “there is evidence that continued exposure above specific levels to certain PFAS may lead to adverse health [effects].”⁸ The ATSDR summarized the current knowledge of potential adverse health effects from exposure to PFAS in its 2020 fact sheet for the public. The fact sheet states,

(U) [a]lthough more research is needed, some studies in people have shown that PFAS may:

- (U) interfere with the body’s natural hormones;
- (U) increase cholesterol levels;
- (U) affect the immune system; and
- (U) increase the risk of some cancers.

(U) At this time, scientists are still learning about the health effects of exposures to mixtures of PFAS.⁹

(U) According to the EPA, scientists found PFAS in the blood of 99 percent of Americans tested between 1999 and 2012.¹⁰ The ATSDR is working with research partners and Federal partners, including the DoD, to study whether exposure to certain PFAS may lead to adverse health effects. For example, the ATSDR is conducting a “multi-site health study” to learn more about the relationship between PFAS exposure and health effects. Health effects are determined by the factors leading to human exposure, which include the type of PFAS, the “dose (how much), the duration (how long), and the route [(the means)] of exposure.” A major source of human exposure to PFAS is through direct ingestion, such as through drinking water containing PFAS.¹¹ Perfluorooctane sulfonic acid (PFOS) and perfluorooctanoic acid (PFOA) are the two types of PFAS that were made in the greatest quantities in the United States and are the most well-studied types of PFAS.¹²

⁸ (U) The ATSDR is a Federal public health agency that investigates emerging chemicals of environmental concern, conducts scientific research, and prepares information for Federal and state agencies, the healthcare and environmental community, and the public.

⁹ (U) Agency for Toxic Substances and Disease Registry, “Perfluoroalkyl and Polyfluoroalkyl Substances (PFAS) Frequently Asked Questions,” January 28, 2020.

¹⁰ (U) EPA’s PFAS Action Plan, February 2019.

¹¹ (U) Agency for Toxic Substances and Disease Registry, “ToxGuide for Perfluoroalkyls,” July 2018.

¹² (U) Any chemical that has the chemical structure of at least one carbon atom attached (bonded) to two or more fluorine atoms or includes a chain of carbon atoms attached to fluorine atoms may be considered a PFAS. The bonds between carbon and fluorine atoms are the strongest in nature and do not break down easily. PFOA and PFOS are both perfluoroalkyl substances with eight carbon atoms bonded to fluorine atoms.

(U) The DoD Uses Materials Containing PFAS

(U) DoD officials use products and materials, commonly available to U.S. home and business owners, that contain PFAS.¹³ For example, DoD officials purchase foods packaged in materials that may contain PFAS and use water-resistant clothing that may contain PFAS. DoD officials also use products, such as fire suppressants and fire-resistant aviation hydraulic fluids, that are largely limited to the DoD, civilian airports, and local fire departments.

(U) Petroleum-based fires pose a great risk to human life, are especially dangerous to military equipment, such as military aircraft, and are difficult to contain and extinguish. Manufacturers, including U.S. manufacturers, included PFOS and PFOA as ingredients in AFFF concentrates for their unique fire-resistant properties.¹⁴ According to the Under Secretary of Defense for Acquisition and Sustainment (USD[A&S]), the DoD began using the fire suppressant foam AFFF, which contained PFAS, in the 1970s to fight petroleum-based fires.¹⁵ The fire suppressant foam is applied to petroleum-based fires where it forms a film that restricts oxygen to the fire and extinguishes the flames.

(U) The AFFF used by the DoD has historically contained PFOS and PFOA.¹⁶ If stored properly, AFFF concentrates have a long shelf-life and can remain in the DoD inventory for up to 25 years. As of September 30, 2020, DoD officials identified 687 sites, including active and National Guard installations, former military installations, and DLA sites, where PFAS-containing AFFF was used or released. We refer to the potential effects of PFAS to people, the environment, and DoD missions, programs, and resources as contaminant effects throughout this report. See Appendix C for the history of the DoD's use and response to PFAS contaminant effects.

(U) Federal Actions Related to PFAS

(U) Federal and state agencies are responding to PFAS concerns and evaluating potential human health effects associated with exposures to various PFAS. The following Federal actions are the most relevant to the DoD's use of PFAS and to the objective of this evaluation.

¹³ (U) As previously discussed, a wide variety of commercial and industrial products have included PFAS. Current Federal laws do not require manufacturers to disclose the ingredients or the specific products or materials that contain PFOS and PFOA. However, some states, such as California, require PFOS and PFOA disclosures (as of November 10, 2017). Therefore, products used within the United States may or may not carry a consumer warning disclosing the presence of PFOS and PFOA.

¹⁴ (U) AFFF is made at the time of use by mixing air, water, and foam concentrate (concentrated formula) with suitably designed equipment, such as mixing equipment installed on firefighting vehicles or in aircraft hangars.

¹⁵ (U) USD(A&S), "Department of Defense Alternatives to Aqueous Film Forming Foam Report to Congress," June 2018.

¹⁶ (U) Most AFFF used by the DoD was PFOS-based, but some formulas also contained PFOA.
(U) USD(A&S), "DoD Alternatives to AFFF Report to Congress," June 2018.

(U) EPA Actions Related to PFAS

(U) From the early 2000s to 2015, the EPA worked with U.S. manufacturers to voluntarily phase out the production of PFOS and PFOA in the United States.¹⁷ Over time, U.S. manufacturers transitioned to the use of alternatives that do not contain PFOS and PFOA. Therefore, in the United States, PFOS and PFOA have not been used as ingredients or in the process of manufacturing products, including AFFF concentrates, since the phase-out.

(U) The EPA gathered and assessed information on the risks of certain PFAS, including PFOS and PFOA.¹⁸ Although the EPA has not established enforceable water quality standards for any PFAS, the EPA established health advisories for PFOS and PFOA in sources of drinking water.¹⁹ The “EPA develops health advisories to provide information on contaminants that can cause human health effects and are known or anticipated to occur in drinking water. The EPA’s health advisories are non-enforceable and non-regulatory.”²⁰ The EPA’s health advisories for PFOS and PFOA are intended to guide the many Federal and state agencies that are taking actions to respond to PFAS concerns. A contaminant is defined as any substance, which, after release into the environment and upon exposure, will or may reasonably be anticipated to cause adverse health effects.²¹

(U) In 2009, the EPA published provisional health advisories (PHAs) for PFOS and PFOA found in sources of drinking water.²² According to the EPA, PHA values “reflect reasonable, health-based values above which action should be taken to reduce exposure to unregulated contaminants in drinking water.”²³ The EPA issues PHAs in response to an urgent or developing situation and updates them as additional information becomes available.

¹⁷ (U) According to the EPA, between 2000 and 2002, the primary manufacturer of PFOS voluntarily phased out its production in the United States due to potential risks of the chemical. In 2006, eight major companies voluntarily agreed to phase out their global production of PFOA. According to the EPA, by 2015, all eight companies had met the phase-out goals, although a limited number of ongoing uses, such as fire-resistant aviation hydraulic fluids and photography and film products, remain.

¹⁸ (U) The Toxic Substances Control Act of 1976 (amended in 1996) gives the EPA authority to establish regulatory controls on any stage of the lifecycle of a chemical and, if necessary, to mitigate “unreasonable risk of injury to health or the environment.” However, the EPA has not exercised the authority of these types of regulatory controls and has, instead, used voluntary phase-out activities and requires notification before new PFAS are proposed for manufacturing.

¹⁹ (U) According to the EPA, the EPA developed the non-regulatory Health Advisory Program in 1978 to provide information for public health officials or other interested groups on contaminants that can affect drinking water quality, but are not regulated under the Safe Drinking Water Act. The Safe Drinking Water Act was originally passed by Congress in 1974 to protect public health by regulating the nation’s public drinking water supply. The law was amended in 1986 and 1996 and requires many actions to protect drinking water. The Safe Drinking Water Act authorizes the EPA to set mandatory, enforceable water quality standards for drinking water contaminants that present a risk to human health.

²⁰ (U) EPA, “Fact Sheet PFOA & PFOS Drinking Water Health Advisories,” May 2016.

²¹ (U) Public Law 96-510, codified in 42 U.S.C. chapter 103, § 9601.

(U) See the Glossary for a complete definition.

²² (U) The EPA established the 2009 provisional health advisory for PFOS at 200 parts per trillion and PFOA at 400 parts per trillion.

²³ (U) EPA, “Provisional Health Advisories for Perfluorooctanoic Acid (PFOA) and Perfluorooctane Sulfonate (PFOS),” January 8, 2009.

(U) In May 2016, based on additional scientific studies and evidence, the EPA replaced the 2009 PHAs with lifetime health advisories (LHAs) for PFOS and PFOA. The EPA established the LHA level of 70 parts per trillion to “provide Americans, including the most sensitive populations, with a margin of protection from a lifetime of exposure to PFOS and PFOA from drinking water.”²⁴ According to the EPA, this means that a person drinking water that contains PFOS, PFOA, or a combination of these two PFAS at an amount less than the LHA level of 70 parts per trillion for their entire life should not expect adverse health effects from the PFOS or PFOA.²⁵ According to the EPA, officials responsible for drinking water systems, including drinking water systems on DoD installations, should:

- (U) notify affected populations if PFOS and PFOA levels in sources of drinking water exceed the lifetime health advisories;
- (U) describe actions taken to reduce risks to affected populations; and
- (U) provide information to affected populations on the risks associated with exposure to PFOS and PFOA in sources of drinking water above the EPA LHA levels.

(U) Additionally, in February 2019, the EPA issued a PFAS Action Plan that had multiple planned actions, including proposals for the potential regulation of PFAS. The EPA PFAS Action Plan states that PFOS and PFOA are considered contaminants and that they may reasonably be anticipated to cause adverse health effects. The EPA PFAS Action Plan addressed the EPA’s intent to:

- (U) determine whether to establish mandatory water quality standards in sources of drinking water for PFOS and PFOA;²⁶
- (U) propose testing for additional PFAS not previously monitored in sources of drinking water across the United States to determine their prevalence;

²⁴ (U) EPA, “Fact Sheet PFOA & PFOS Drinking Water Health Advisories,” May 2016.

²⁵ (U) EPA, “Fact Sheet PFOA & PFOS Drinking Water Health Advisories,” May 2016.

(U) According to the EPA fact sheet, when both PFOS and PFOA are found in sources of drinking water, the combined concentration of PFOS and PFOA should be compared with the 70 parts per trillion health advisory level. For example, if a source of drinking water is tested and is found to contain both PFOS and PFOA, the amount of PFOS and PFOA should be added together and compared to the EPA’s LHA level. If the combined amount of PFOS and PFOA is greater than the EPA’s LHA level of 70 parts per trillion, action is recommended to reduce these PFAS in the source of drinking water.

²⁶ (U) The EPA published provisional health advisories for PFOS and PFOA in sources of drinking water in 2009 and replaced the provisional health advisories with LHAs in 2016. The 2016 LHAs greatly lowered the threshold of the amount of PFOS and PFOA in sources of drinking water that should not lead to adverse health effects. The EPA’s PFAS action plan addresses the EPA’s intent to determine whether to establish mandatory water quality standards in sources of drinking water for PFOS and PFOA, which may further reduce the amount of these PFAS that should not lead to adverse health effects. Each time the levels are reduced, the impact to people, the environment, and DoD missions, programs, and resources from historical release of PFAS-containing AFFF increases.

- (U) propose the designation of PFOS and PFOA as hazardous substances under Federal cleanup requirements;²⁷
- (U) develop “groundwater cleanup recommendations” to guide cleanup activities for groundwater impacted by PFAS from past uses and releases;
- (U) propose additional rules to limit new PFAS from manufacturing;
- (U) take enforcement actions, when appropriate, against violators of existing rules and regulations; and
- (U) continue to study the potential health effects of PFAS in coordination with other agencies.

(U) In February 2020, the EPA published an update to the 2019 PFAS Action Plan that describes the status of its actions, including the development of enhanced water testing methods that laboratories can use to analyze sources of drinking water for PFAS. Additionally, the February 2020 update provides a description of groundwater cleanup recommendations for PFOS and PFOA that were previously issued by the EPA in December 2019.²⁸ The EPA’s groundwater cleanup recommendations advise Federal agencies, including the DoD, to screen for PFAS in groundwater and to use the EPA’s LHA levels as the preliminary goal for cleanup of groundwater that is a current or potential source of drinking water.²⁹

(U) National Defense Authorization Acts

(U) In 2019 and 2020, Congress included various PFAS requirements in the National Defense Authorization Act (NDAA).³⁰ The FY 2019 NDAA required the Secretary of Defense to “conduct an assessment of the human health implications of PFAS exposure.” The NDAA required the assessment to include an analysis of health effects associated with PFAS and “an estimate of the number of members of the Armed Forces and veterans who may have been exposed to PFAS while serving in the Armed Forces.” The FY 2020 NDAA further required the Secretary of Defense to “provide blood testing to determine and document potential exposure to...PFAS for each firefighter of the [DoD] during their annual physical exam” beginning in FY 2021.

²⁷ (U) As of July 2021, the EPA has not designated PFOS or PFOA as a “hazardous substance.” Hazardous chemicals or substances are materials that pose an unacceptable health hazard or harm to the environment at certain levels. When the EPA gives a chemical or other substance a “hazardous substance” designation under the authority of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA), this action compels any party responsible for the release of that hazardous substance at unacceptable risk levels to pay for and perform Federal cleanup response actions.

²⁸ (U) EPA, “Interim Recommendations to Address Groundwater Contaminated with PFOA and PFOS,” December 19, 2019.

²⁹ (U) According to the EPA’s PFAS Action Plan, “Screening levels [for PFOA and PFOS] are risk-based values that are used to determine if levels of [these two PFAS] may warrant further investigation at a site,” and the cleanup goals are “initial targets for cleanup, which may be adjusted on a site-specific basis as more information becomes available.” The recommended screening level for PFOS and PFOA in groundwater is 40 parts per trillion, and the recommended cleanup goal for PFOS and PFOA in groundwater is equal to the EPA’s LHA level of 70 parts per trillion.

³⁰ (U) Public Law 115-232 enacted the FY 2019 NDAA into law and Public Law 116-92 enacted the FY 2020 NDAA into law.

(U) DoD Policies, Programs, and Actions Related to PFAS

(U) The DoD, the Military Departments (MILDEPs), and the DLA have issued the following key policies and established the following programs and organizations that are the most relevant to the DoD's use of PFAS and to the objective of this evaluation.

(U) Environment, Safety, and Occupational Health Policy

(U) The USD(A&S) published DoD Directive (DoDD) 4715.1E, which requires all DoD organizations to “plan, program, and budget to manage [Environment, Safety, and Occupational Health (ESOH)] risks” caused by their activities.³¹ DoDD 4715.1E also requires all DoD organizations to “evaluate all activities for emerging ESOH resource requirements.” DoDD 4715.1E requires the DoD to protect DoD personnel from risks, including accidental death or occupational illness. Additionally, the DoDD 4715.1E requires the DoD to protect the public from risks, including injury, illness, or death, caused by DoD activities.

(U) Defense Environmental Restoration Program

(U) The Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) authorizes clean up and enforcement actions by the EPA.³² The CERCLA established a separate DoD Defense Environmental Restoration Program (DERP) for environmental cleanup at DoD installations. The USD(A&S) published DoD Instruction (DoDI) 4715.07, which provides procedures for implementing the DERP and requires all DoD organizations to “[i]dentify, evaluate and, where appropriate, respond to a release or threat of a release [of hazardous substances or contaminants] into the environment from DoD activities.”³³

(U) The USD(A&S) also published DoD Manual (DoDM) 4715.20 to accompany DoDI 4715.07, which includes the detailed requirements for the identification, investigation, research and development, and cleanup of contamination or contaminant effects from a hazardous substance or contaminant.³⁴ Therefore,

³¹ (U) DoDD 4715.1E, “Environment, Safety, and Occupational Health (ESOH),” March 19, 2005 (Incorporating Change 2, December 30, 2019).

³² (U) Public Law 96-510, codified in 42 U.S.C. chapter 103, § 9600, et al.

(U) The CERCLA, commonly known as Superfund, was enacted by Congress on December 11, 1980, and was amended in 1986. The law created a tax on the chemical and petroleum industries and provided broad Federal authority to respond directly to releases or threatened releases of hazardous substances that may endanger public health or the environment. The 1986 amendment included the establishment of a separate DoD Defense Environmental Restoration Program.

³³ (U) DoDI 4715.07, “Defense Environmental Restoration Program (DERP),” May 21, 2013 (Incorporating Change 2, August 31, 2018).

(U) The Secretary of Defense established the DERP in accordance with sections 2701(a)(1) and 2701(c), title 10, United States Code.

³⁴ (U) DoDM 4715.20, “Defense Environmental Restoration Program (DERP) Management,” March 9, 2012 (Incorporating Change 1, August 31, 2018).

(U) DoD officials are required by the CERCLA and the DERP to respond to and remediate DoD releases of contaminants, such as PFOS and PFOA. We refer to CERCLA response actions performed in accordance with the DERP as Federal cleanup response actions throughout this report.

(U) Emerging Chemicals of Environmental Concern Program

(U) The USD(A&S) published DoDI 4715.18 to establish the “EC Program” and “procedures for an enterprise-wide approach to the identification, assessment, and management of ‘DoD ECs’” to proactively reduce impacts to “people, the environment, and DoD missions, programs, and resources.”³⁵ “ECs” are “emerging chemicals of environmental concern,” such as PFAS, and we refer to them as emerging chemicals throughout this report. DoDI 4715.18 defines ECs as

(U) [c]hemicals relevant to the DoD that are characterized by a perceived or real threat to human health or the environment and that have new or changing toxicity values or new or changing human health or environmental regulatory standards. Changes may be due to new science discoveries, detection capabilities, or exposure pathways.

(U) The Emerging Chemicals of Concern Governance Council (ECGC) provides “executive-level, enterprise-wide strategic direction” to EC Program officials.³⁶ DoDI 4715.18 requires EC Program officials to develop and present validated risk management options (RMOs) for an EC to the ECGC. DoDI 4715.18 defines RMOs as

(U) actionable, measurable enterprise-wide initiatives focused on proactively mitigating or eliminating risks identified during the assessment portion of the EC process. Initiatives include new DoD policies or research, development, testing, or evaluation of alternative chemicals.

(U) DoDI 4715.18 requires the ECGC to “endorse” validated RMOs. RMOs endorsed by the ECGC become risk management actions (RMAs), and DoDI 4715.18 requires DoD Components to “plan, program, and budget for the implementation of RMAs.”

³⁵ (U) DoDI 4715.18, “Emerging Chemicals (ECs) of Environmental Concern,” September 4, 2019.

(U) DoDI 4715.18, “Emerging Contaminants (ECs),” June 11, 2009 (Superseded).

(U) We refer to issuances of the DoDI 4715.18 according to their issuance dates, when necessary, to describe the timeline of events discussed in this report. Specifically, we refer to the 2009 DoDI 4715.18 and the 2019 DoDI 4715.18. Although the 2009 DoDI 4715.18 did not always refer to the EC Program requirements in the same terms as the 2019 DoDI 4715.18, it described an enterprise-wide approach similar to the 2019 DoDI 4715.18 for the identification, assessment, and management of ECs. Unless otherwise stated, we quoted the current 2019 DoDI 4715.18 in this report to describe DoDI 4715.18 requirements, which did not change in a meaningful way between the 2009 DoDI 4715.18 and the 2019 DoDI 4715.18.

³⁶ (U) 2019 DoDI 4715.18.

(U) Occupational and Environmental Health Policy

(U) The USD(A&S) published DoDI 6055.05, which applies “risk management procedures to anticipate, recognize, evaluate, and control health hazards associated with occupational and environmental exposures...in DoD workplaces.”³⁷ DoDI 6055.05 requires the Assistant Secretary of Defense (Health Affairs), to develop “defense planning guidance and medical planning guidance” and oversee the MILDEPs’ Occupational Environmental Health Programs (OEHPs). DoDI 6055.05 requires OEHP officials to perform active medical surveillance, which includes occupational medical examinations for exposures to hazards. Additionally, DoDI 6055.05 requires OEHP officials to perform passive medical surveillance, which includes “epidemiological review of clinical examination results,” conducting analyses to identify health effects from workplace exposures, and trending data.³⁸ Furthermore, DoDI 6055.05 reporting and recordkeeping procedures require OEHP officials to “perform trend analysis and epidemiologic studies [and] share hazard and exposure data across the Department of Defense.”

(U) The USD(A&S) also published DoDM 6055.05, which “provides health professionals with information and references appropriate for developing and conducting occupational medical examinations and surveillance prescribed in DoDI 6055.05.”³⁹ For example, DoDM 6055.05 includes guidance for developing and conducting occupational medical examinations for Service members, including annual occupational medical examinations for firefighters.

(U) DoD Fire and Emergency Services Program

(U) The USD(A&S) published DoDI 6055.06, which requires all DoD organizations to establish a comprehensive Fire and Emergency Services (F&ES) program.⁴⁰ According to DoDI 6055.06, the purpose of the F&ES program is to protect “DoD personnel, their families, and the public from risk of death, injury, illness,

³⁷ (U) DoDI 6055.05, “Occupational and Environmental Health (OEHP),” November 11, 2008 (Incorporating Change 2, August 31, 2018).

(U) Although the Office of the Under Secretary of Defense for Acquisition and Sustainment issued this policy, the responsibility to implement the DoDI 6055.05 policy series was transferred to the Under Secretary of Defense for Personnel and Readiness.

³⁸ (U) Epidemiology is the study of the health of specified populations (for example, occupational populations such as firefighters or regional populations such as cities) to identify the causes of health outcomes and diseases in those populations. In epidemiology, the patient is the community and individuals are viewed collectively. “Epidemiologic studies” and “epidemiological review” are terms used to describe the application of epidemiology.

³⁹ (U) DoDM 6055.05, “Occupational Medical Examinations and Surveillance Manual,” May 2, 2007 (Incorporating Change 3, August 31, 2018).

⁴⁰ (U) DoDI 6055.06, “DoD Fire and Emergency Services (F&ES) Program,” October 3, 2019.

(U) or property damage as a result of DoD activities” and prevent and minimize “loss of DoD lives and damage to property and the environment.” DoDI 6055.06 further requires all DoD F&ES programs to:

- (U) “[c]ontinuously improve firefighter safety and health,” by analyzing “work processes to identify firefighter injury and illness risk[;]” and
- (U) “[i]mplement medical surveillance programs in accordance with [DoDM 6055.05],” and monitor “illness trends, analyze data to focus prevention efforts, and implement mishap prevention initiatives.”

(U) DoD PFAS Task Force

(U) In July 2019, the Secretary of Defense established the DoD PFAS Task Force.⁴¹ The purpose of the DoD PFAS Task Force is to ensure that the DoD has a “coordinated, aggressive, and holistic approach to DoD-wide efforts to proactively address” the effects of PFAS exposure caused by DoD activities.⁴² The DoD PFAS Task Force makes recommendations to the Secretary of Defense for the establishment of, or changes to, policies, programs, and investments, where necessary, to address PFAS challenges.

⁴¹ (U) Secretary of Defense memorandum, “Per- and Polyfluoroalkyl Substances Task Force,” July 23, 2019.

(U) According to the Secretary of Defense memorandum establishing the DoD PFAS Task Force, the DoD PFAS Task Force is chaired by the Assistant Secretary of Defense (Sustainment) and comprised of Assistant Secretary-level Military Department counterparts.

⁴² (U) “Department of Defense Per- and Polyfluoroalkyl Substances Task Force Operating Principles,” September 13, 2019.

(U) Finding A

(U) The DoD Is Identifying, Mitigating, and Remediating Contaminant Effects From PFAS-Containing AFFF; However, the DoD's Emerging Chemicals Program Needs Improvement

(U) DoD officials have taken steps to identify, mitigate, and remediate contaminant effects from PFAS-containing AFFF at DoD installations. Specifically, DoD officials reduced the risk of contaminant effects from PFAS-containing AFFF by:

- (U) restricting nonessential use of AFFF;
- (U) requiring engineered containment systems or spill response measures for AFFF releases;
- (U) implementing strict reporting and record keeping requirements;
- (U) converting existing stocks of AFFF concentrates containing PFOS and PFOA to AFFF concentrates with little to no PFOS or PFOA;
- (U) performing research and development projects seeking to develop an effective firefighting alternative without PFAS that meets or exceeds firefighting performance requirements; and
- (U) initiating Federal cleanup response actions.

~~(CUI)~~ However, DoDI 4715.18 requires DoD officials to proactively mitigate contaminant effects from ECs at DoD installations when RMAs are endorsed by the ECGC. EC Program officials:

- ~~(CUI)~~ included PFOS and PFOA on the EC Watch List [REDACTED]
- ~~(CUI)~~ commissioned impact assessment reports to [REDACTED]
[REDACTED] and
- (U) issued a risk alert in 2011 that described risks to DoD areas of concern, including risks to human health and the environment.

~~(CUI)~~ Although EC Program officials issued the 2011 risk alert, the 2011 risk alert was not an RMA because it was not endorsed by the ECGC. Therefore, DoD officials were not required to plan, program, and budget for any actions in response to the 2011 risk alert. EC Program officials did not require proactive RMAs for PFAS-containing AFFF until 2016 [REDACTED]. This occurred because the DoDI 4715.18 does not include objective requirements for EC Program officials

(CUI) to use when determining when to initiate RMAs or to elevate an EC from the EC Watch List to the EC Action List. As a result, people and the environment may have been exposed to preventable risks from PFAS-containing AFFF.

(CUI) Additionally, DoDI 4715.18 requires DoD officials to apply an enterprise-wide approach to contaminant effects from ECs. An enterprise-wide approach would address all sources of potential EC exposure caused by DoD activities and the impacts of that exposure to DoD areas of concern. EC Program officials:

- (CUI) identified PFOS and PFOA as ECs [REDACTED]; and
- (CUI) commissioned impact assessment reports [REDACTED]
[REDACTED]
[REDACTED].

(CUI) [REDACTED]

[REDACTED]. DoD officials have not proactively identified, mitigated, and remediated contaminant effects from PFAS-containing materials other than AFFF at DoD installations. Therefore, DoD officials did not apply an enterprise-wide approach to mitigate contaminant effects from all sources of potential PFAS exposure caused by DoD activities, as required by DoDI 4715.18. This occurred because DoD officials were focused on AFFF, a major source of potential PFAS exposure, and not on all sources of potential PFAS exposure caused by DoD activities. As a result, people and the environment may continue to be exposed to preventable risks from other PFAS-containing materials.

(U) DoD Officials Have Taken Steps to Identify, Mitigate, and Remediate Contaminant Effects From PFAS-Containing AFFF at DoD Installations

(U) DoD officials have taken steps to identify, mitigate, and remediate contaminant effects from PFAS-containing AFFF used to fight petroleum-based fires at DoD installations.⁴³ Specifically, DoD officials reduced the risk of contaminant effects from PFAS-containing AFFF by:

- (U) restricting nonessential use of AFFF;
- (U) requiring engineered containment systems or spill response measures for AFFF releases;⁴⁴

⁴³ (U) DoD officials mitigate contaminant effects from PFAS-containing AFFF by taking actions to reduce risks or to reduce the severity of risks associated with PFAS. DoD officials remediate contaminant effects from PFAS-containing AFFF by taking actions intended to be the final and permanent solution to remedy the contaminant effects.

⁴⁴ (U) Engineered containment systems refer to physical infrastructure, such as a drainage system to a tank, designed to completely contain a release of AFFF solution or other substance, such as fuel, until it can be safely treated for release or removed for proper disposal. Spill response refers to immediate, short-term response to limit, address, or mitigate a spill or release.

- (U) implementing strict reporting and record keeping requirements; and
- (U) converting existing stocks of AFFF concentrates containing PFOS and PFOA to AFFF concentrates with little to no PFOS or PFOA.⁴⁵ This action included disposal of existing stocks of AFFF concentrates containing PFOS and PFOA to prevent future usage or release.

(U) For example, installation officials at Camp Grayling showed us their policy restricting nonessential use of AFFF and restricting visiting firefighters from bringing any AFFF to the installation. Additionally, installation officials at Fort Bragg developed a policy requiring installation firefighters to cover all drains in and around any area where an AFFF release occurs, control migration of the foam with dams or dikes, and contact installation environmental officials for further support. In another example, installation officials at Marine Corps Base Camp Pendleton showed us their progress toward converting AFFF concentrates containing PFOS and PFOA in firefighting vehicles, stockpiles, and aircraft hangar fire suppressions systems on the installation to AFFF concentrates with little to no PFOS or PFOA. Installation officials at Marine Corps Base Camp Pendleton were working with DLA officials to dispose of the unused AFFF concentrates.

(U) DoD PFAS Task Force officials reported that DoD officials are performing research and development projects to determine ways to reduce the risk of contaminant effects from PFAS-containing AFFF. The research and development projects are seeking to develop an effective firefighting alternative without PFAS that meets or exceeds firefighting performance requirements. The research and development projects include assessments of whether the identified alternatives pose potential health risks.

(U) DoD officials also reduced the risk of contaminant effects from PFAS by initiating Federal cleanup response actions. DoD PFAS Task Force officials reported that installation officials took action, including providing bottled water, in all locations where PFOS and PFOA were identified in sources of drinking water above the EPA's LHA levels. Additionally, DoD PFAS Task Force officials reported that "[n]o one – on or off base – is drinking water" containing PFOS or PFOA in levels higher than the EPA's LHAs where PFAS contaminant effects were caused by DoD activities.⁴⁶ For example, installation officials at Naval Air Station Oceana and Naval Auxiliary Landing Field Fentress provided us with a timeline of their Federal cleanup response actions. Actions included testing sources of drinking water both on the installation and in the surrounding community, providing bottled water

⁴⁵ (U) Although U.S. manufacturers phased out the production of PFOS and PFOA and the commercially-available AFFF concentrates contain little to no PFOS or PFOA, the DoD has found trace amounts of PFOS or PFOA in the replacement AFFF concentrates. Additionally, the replacement AFFF concentrates contain other types of PFAS.

⁴⁶ (U) DoD PFAS Task Force, "Progress Report," March 2020.

(U) where necessary, and installing treatment systems that remove PFOS and PFOA from sources of drinking water. In another example, environmental officials at former Pease Air Force Base described Federal cleanup response actions taken to ensure that no one is drinking water containing PFOS or PFOA in levels higher than the EPA's LHAs. The environmental officials partnered with local community officials to renovate the drinking water treatment plant to ensure PFOS and PFOA are removed from the drinking water before delivery to the community.⁴⁷ Additionally, installation environmental officials at both Camp Grayling and Peterson Air Force Base told us about projects occurring at their installations to evaluate methods to remediate PFAS contaminant effects in groundwater and in soil. The actions taken to reduce the risk of contaminant effects from PFAS in groundwater or in sources of drinking water address those specific routes of exposure regardless of whether the historical impacts resulted from PFAS-containing AFFF or PFAS-containing materials other than AFFF.

(U) We found that DoD, MILDEP, and DLA officials began to consolidate efforts in 2016 to identify, mitigate, and remediate contaminant effects from PFAS-containing AFFF.⁴⁸ Beginning in 2019, DoD PFAS Task Force officials further consolidated these efforts and issued various policies promulgated throughout the DoD. DoD, MILDEP, and DLA officials continue to report the status of their efforts to respond to PFAS concerns through public reports on the defense.gov website and Service-specific websites, status reports to Congress, and direct communication with community stakeholders near military installations.

(U) DoD Officials Did Not Take Proactive Risk Management Actions to Mitigate Contaminant Effects From PFAS-Containing AFFF at DoD Installations

~~(CUI)~~ Although DoD officials are identifying, mitigating, and remediating contaminant effects from PFAS-containing AFFF, DoDI 4715.18 requires DoD officials to proactively mitigate contaminant effects from ECs at DoD installations. EC Program officials included PFAS on the EC Watch List [REDACTED]. [REDACTED], EC Program officials commissioned impact assessment reports [REDACTED]. [REDACTED] EC Program officials issued a risk alert in 2011 that described risks to DoD areas of concern, including risks to human health and the environment. However, the 2011 risk alert was not an RMA because

⁴⁷ (U) The environmental officials at former Pease Air Force Base expect the renovation to be completed in the summer of 2021.

⁴⁸ (U) DoD PFAS Task Force officials stated that since the EPA established the LHA levels for PFOS and PFOA in sources of drinking water in 2016, the CERCLA requires the DoD to respond with Federal cleanup response actions to actual or threatened releases of PFOS and PFOA into the environment.

~~(U)~~ it was not endorsed by the ECGC. Therefore, DoD officials were not required to plan, program, and budget for any actions in response to the 2011 risk alert. EC Program officials did not require proactive RMAs for PFAS-containing AFFF until 2016 [REDACTED]

~~(U)~~ Additionally, DoDI 4715.18 requires DoD officials to apply an enterprise-wide approach to mitigate contaminant effects from an EC. An enterprise-wide approach would address all sources of potential EC exposure caused by DoD activities and the impacts of that exposure to DoD areas of concern. EC Program officials identified PFOS and PFOA as ECs [REDACTED] DoD officials commissioned impact assessment reports [REDACTED]

[REDACTED]. DoD officials have not proactively identified, mitigated, and remediated contaminant effects from PFAS-containing materials other than AFFF at DoD installations. Therefore, DoD officials did not apply an enterprise-wide approach to mitigate the contaminant effects from all sources of potential PFAS exposure caused by DoD activities, as required by DoDI 4715.18.

(U) DoDI 4715.18 Requires DoD Officials to Take Proactive Risk Management Actions

(U) DoD officials initiated the EC Program in 2006 to proactively evaluate and manage risks from ECs, established the EC Program with the first publication of DoDI 4715.18 in 2009, and updated DoDI 4715.18 in 2019. DoDI 4715.18 “provides procedures for an enterprise-wide approach to the identification, assessment, and management of ‘DoD ECs.’” DoDI 4715.18 requires a process, which we refer to as the DoDI 4715.18 EC Process, to proactively reduce impacts to “people, the environment, and DoD missions, programs, and resources.” The DoDI 4715.18 EC Process requires EC Program officials to identify ECs and maintain an EC Watch List. EC Program officials assess media interest, review scholarly publications, and evaluate the likelihood of changing guidance or standards on the international, Federal, or state levels to determine if chemicals or substances used by the DoD meet the DoDI 4715.18 definition of an EC. EC Program officials use these indicators to identify ECs for addition to the EC Watch List. The EC Watch List is a list of ECs with a potential risk of impact to DoD areas of concern.

(U) Once an EC is added to the EC Watch List, the DoDI 4715.18 EC Process requires EC Program officials to “assess the likelihood and severity of impacts associated with ECs.” These impact assessments incorporate “qualitative data, quantitative data, or a combination of both,” to assess the impacts associated with ECs.⁴⁹ The impact assessments must address enterprise-wide categories that represent DoD areas of concern for ECs, such as environment, safety, and health; training and readiness; and cleanup.⁵⁰ The DoDI 4715.18 EC Process requires EC Program officials to determine if ECs on the EC Watch List should be elevated to the EC Action List based on the risks to the DoD areas of concern assessed in the EC impact assessments. The EC Action List is a list of ECs with a “probable high risk of impact to people, the environment, and DoD mission, programs, or resources and for which proactive RMOs are being developed or actions are ongoing.”⁵¹

(U) Once EC Program officials elevate an EC from the EC Watch List to the EC Action List, the DoDI 4715.18 EC Process requires EC Program officials to develop and present validated RMOs for the EC to the ECGC.⁵² The DoDI 4715.18 EC Process requires the ECGC to “endorse” validated RMOs. RMOs endorsed by the ECGC become RMAs. DoDI 4715.18 requires DoD Components to “plan, program, and budget for the implementation of RMAs needed to [proactively] reduce the likelihood or severity of impacts to people, the environment, and DoD missions, programs, and resources.”

⁴⁹ (U) 2019 DoDI 4715.18.

(U) See the Glossary for definitions of qualitative and quantitative.

~~(CUI)~~ The 2009 DoDI 4715.18 did not include a description of the specific requirements for qualitative and quantitative assessments. However, we found that the impact assessment reports commissioned by EC Program officials ██████████ included qualitative and quantitative assessments, as described in the 2019 DoDI 4715.18.

⁵⁰ ~~(CUI)~~ The 2009 DoDI 4715.18 did not list the specific enterprise-wide categories that represent DoD areas of concern. However, both the impact assessment reports commissioned by EC Program officials ██████████ and the 2019 DoDI 4715.18 list the enterprise-wide categories that represent DoD-relevant areas of concern for ECs: environment, safety, and health; training and readiness; production, operations, maintenance, and disposal of DoD assets; cleanup; and acquisition and research, development, testing, and evaluation.

⁵¹ (U) 2019 DoDI 4715.18.

(U) According to the 2019 DoDI 4715.18, if the impact assessments indicate low or moderate risk of impact to any of the DoD areas of concern, the EC remains on the EC Watch List. If the impact assessments indicate high risk of impact to any of the DoD areas of concern, the EC is elevated to the EC Action List. The 2009 DoDI 4715.18 used the terms potential high risk for the EC Watch List and probable high risk for the EC Action List.

⁵² (U) According to DoDI 4715.18, the ECGC is chaired by the Assistant Secretary of Defense for Sustainment and is comprised of Assistant Secretary of Defense officials representing enterprise-wide categories that represent areas of concern for ECs. The ECGC meets to endorse proactive RMOs and issues the resulting RMAs to DoD Components.

~~(CUI)~~ EC Program Officials Commissioned Impact Assessment Reports

[Redacted]

~~(CUI)~~ EC Program officials completed DoDI 4715.18 EC Process ad [Redacted] related to two PFAS: PFOS and PFOA. Figure 1 shows the timeline of activities performed by EC Program officials, including impact assessment reports and policies, memorandums, and risk alerts issued to DoD Components and users of PFAS-containing AFFF related to PFOS and PFOA, and select EPA activities, including health advisories.

(U) Figure 1. Timeline of EC Program Activities and Select EPA Activities Related to PFOS and PFOA



(U) Source: DoD OIG.

(CUI) EC Program officials identified potential changes to environmental regulatory standards related to PFOS and PFOA and included PFOS and PFOA on the EC Watch List [REDACTED]⁵³ EC Program officials commissioned impact assessments reports for PFOS and PFOA [REDACTED]⁵⁴ [REDACTED]

[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]

(CUI) [REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED] acturers,
U.S. manufacturers of AFFF concentrates transitioned to the use of alternatives that do not contain PFOS and PFOA. However, the EPA did not prohibit the use of existing stocks of AFFF concentrates containing PFOS and PFOA in the United States.⁵⁵

(CUI) [REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]

⁵³ (U) See Figure 1.

⁵⁴ (U) See Figure 1.

(CUI) [REDACTED]
[REDACTED]
(CUI) [REDACTED]
[REDACTED]
(CUI) [REDACTED]
[REDACTED]
(CUI) [REDACTED]
[REDACTED]

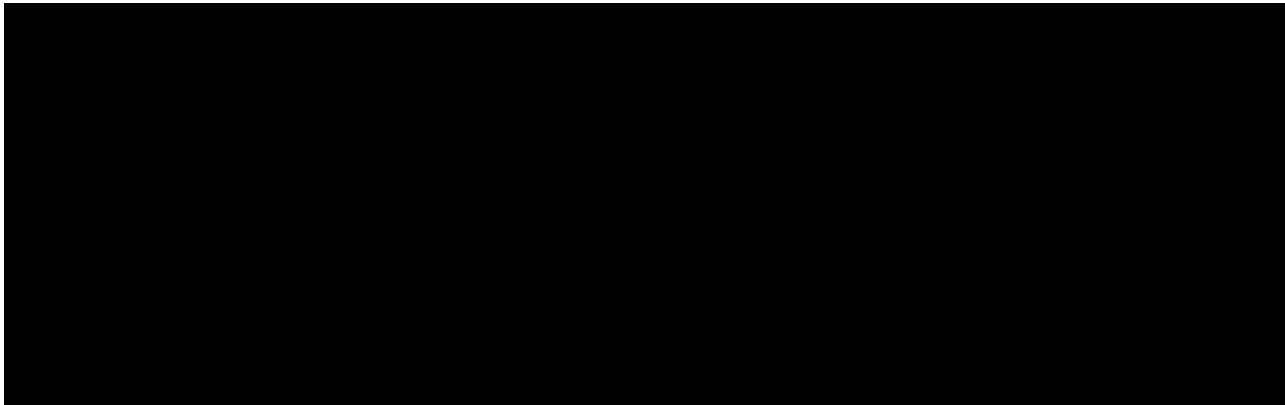
(CUI) We reviewed the impact assessment reports and found that the impact assessments were prepared as required by DoDI 4715.18. The Phase I impact assessments combined qualitative and quantitative data, while the Phase II impact assessments went into further detail to validate the results of the Phase I impact assessments and focused on quantitative data. [REDACTED]

⁵⁵ (CUI) [REDACTED]. Specifically, the European Union required DoD officials to convert existing stocks of AFFF concentrates containing PFOS and PFOA to AFFF concentrates with little to no PFOS or PFOA at military installations in Europe by June 2011. However, we did not evaluate whether this occurred because it was outside of the scope of this evaluation.

(CUI) [Redacted]

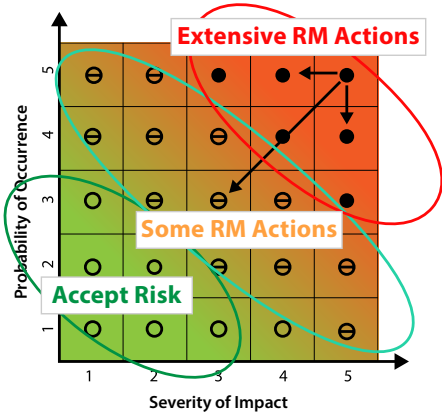
According to EC Program officials, the combination of the probability of occurrence and the severity of impact associated with the risks to DoD areas of concern justify the options shown in Figure 3 to accept risk, require some RMAs (depicted as “RM Actions”), or require extensive RMAs at DoD installations.

(CUI) [Redacted]



(CUI) [Redacted]

(U) Figure 3. Risk Management Actions Applicable to Risk Cube



(U) Source: EC Program presentation at December 2006 Federal Remediation Technologies Roundtable meeting.

(CUI) [Redacted text block]

- (CUI) [Redacted list item 1]
- (CUI) [Redacted list item 2]
- (CUI) [Redacted list item 3]

(CUI) [Redacted text block]

[Redacted] In August 2008, the Office of the Under Secretary of Defense for Acquisition, Technology, and Logistics issued a memorandum to the DoD acquisition community, stating, “[W]e do not intend to develop risk management options [RMOs] for PFOA since industry is taking appropriate actions.”⁵⁶ [Redacted]

[Redacted]

[Redacted]⁵⁷

Therefore, EC Program officials did not issue RMAs through the ECGC.

⁵⁶ (U) See Figure 1.
 (U) Office of the Under Secretary of Defense for Acquisition, Technology, and Logistics memorandum, “Phase-Out of Perfluorooctanoic Acid (PFOA),” August 7, 2008.
 (U) The Office of the Under Secretary of Defense for Acquisition and Sustainment was formerly the Office of the Under Secretary of Defense for Acquisition, Technology, and Logistics.

⁵⁷ (CUI) [Redacted footnote text]

~~(CUI)~~ **EC Program Officials Did Not Require Proactive Risk Management Actions for PFAS-Containing AFFF Until 2016**

~~(CUI)~~ EC Program officials issued a risk alert in 2011 that described risks to the DoD areas of concern, including risks to human health and the environment. However, the 2011 risk alert was not an RMA because it was not endorsed by the ECGC. Therefore, DoD officials were not required to plan, program, and budget for any actions in response to the 2011 risk alert. EC Program officials did not require proactive RMAs for PFAS-containing AFFF until 2016

(CUI) In 2009, the EPA published PHAs for PFOS and PFOA found in sources of drinking water.⁵⁸ However, EC Program officials did not issue RMAs for these PFAS in response to the 2009 PHA. Instead, as shown in Figure 1, EC Program officials from the Office of the Under Secretary of Defense for Acquisition, Technology, and Logistics issued the “Chemical & Material Emerging Risk Alert: Aqueous Film Forming Foam (AFFF)” in 2011. The risk alert stated that PFAS-containing AFFF “contain[s] chemicals that present human health and environmental risks and require[s] special handling and disposal.” The risk alert described the environmental risks associated with the storage, use, and disposal of PFAS-containing AFFF and included recommendations to control future releases of stockpiled, PFAS-containing AFFF. However, EC Program officials did not develop and present these recommendations to the ECGC for endorsement of RMAs. DoDI 4715.18 requires DoD Components to “plan, program, and budget for the implementation of RMAs,” but it does not describe risk alerts as part of the DoDI 4715.18 EC Process or require DoD Components to plan, program, and budget for the implementation of risk alert recommendations. **The 2011 risk alert was not endorsed by the ECGC. Therefore, EC Program officials did not issue the risk alert in the form of an RMA, as defined by DoDI 4715.18. Consequently, it was not a requirement for DoD Components to act on the 2011 risk alert. Additionally, installation officials, including firefighters, at the six current and former military installations and the DLA sites we evaluated were not aware of the 2011 risk alert.**

⁵⁸ (U) As discussed in the Background section of this report, according to the EPA, PHA values “reflect reasonable, health-based values above which action should be taken to reduce exposure to unregulated contaminants in drinking water.” The EPA issues PHAs in response to an urgent or developing situation, and updates them as additional information becomes available.

(CUI) [REDACTED]
 [REDACTED]
 [REDACTED]
 [REDACTED]
 [REDACTED]
 [REDACTED]
 [REDACTED]

(U) On December 16, 2015, the ECGC endorsed RMOs for PFAS-containing AFFF into RMAs. In January 2016, EC Program officials provided the ECGC-endorsed RMAs for PFAS-containing AFFF in a memorandum to DoD Components.⁵⁹ The RMA memorandum required the initiation of research and development of an effective firefighting alternative without PFAS. Additionally, the RMA memorandum required DoD officials to implement steps to reduce the risk of contaminant effects from PFAS-containing AFFF. The RMA memorandum required DoD officials to:

- (U) “prevent routine uncontrolled land-based releases of AFFF during maintenance, testing, and training activities,” including restricting nonessential use of AFFF and requiring engineered containment systems or spill response measures for AFFF releases; and
- (U) replace existing stocks of AFFF concentrates containing PFOS and PFOA with AFFF concentrates with little to no PFOS or PFOA.⁶⁰

(CUI) [REDACTED]
 [REDACTED]
 [REDACTED], the ECGC did not endorse RMAs to mitigate contaminant effects of PFAS-containing AFFF until 2016.⁶¹ Neither MILDEP nor DLA officials issued policy targeted to installation F&ES officials using stockpiled, PFAS-containing AFFF to require the use of proactive strategies to mitigate contaminant effects until after the 2016 RMA.⁶² Therefore, AFFF concentrates containing PFOS and PFOA

⁵⁹ (U) See Figure 1.

(U) Office of the Assistant Secretary of Defense for Energy, Installations, and Environment memorandum, "Emerging Contaminants Governance Council (ECGC) Meeting Results," January 28, 2016.

⁶⁰ (CUI) [REDACTED]
 [REDACTED]

The RMA memorandum did not include a deadline for completion of these requirements.

⁶¹ (U) See Figure 1.

⁶² (U) We reviewed the MILDEP’s and the DLA’s policies issued to the Services, National Guard, and the DLA related to PFAS. We found that, in some instances, the Services moved ahead of the EC Program or DoD PFAS Task Force activities and began to take certain proactive steps to identify and mitigate contaminant effects from PFAS-containing AFFF at military installations. For example, the Department of the Air Force published interim guidance in 2012 for PFAS sampling and response actions in the absence of environmental regulatory standards and began performing Federal cleanup response actions in 2014. In another example, the Department of the Navy issued a policy in 2014 to address drinking water and environmental restoration program activities related to PFAS, including response actions such as providing bottled water to stop exposure to PFAS. The Army did not issue any policy to identify, mitigate, and remediate contaminant effects from PFAS until 2016.

(~~CUI~~) remained in the DoD inventory and remained in use until 2016. [REDACTED]
[REDACTED]
[REDACTED]⁶³

(U) DoD Officials Did Not Take Proactive Steps to Identify, Mitigate, and Remediate Contaminant Effects From PFAS-Containing Materials Other Than AFFF

(~~CUI~~) DoDI 4715.18 requires DoD officials to apply an enterprise-wide approach to mitigate contaminant effects from ECs. An enterprise-wide approach would address all sources of potential EC exposure caused by DoD activities and the impacts of that exposure to DoD areas of concern. As previously discussed, DoD officials identified PFOS and PFOA as ECs [REDACTED] EC Program officials commissioned impact assessment reports [REDACTED]

[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]

[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]

- (CUI) [REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
- (CUI) [REDACTED]
[REDACTED]⁶⁴

(CUI) [REDACTED]
[REDACTED] as of July 2021, EC Program officials had not issued any RMAs requiring actions at DoD installations related to PFAS-containing materials other than AFFF.

⁶³ (U) See Figure 1.

⁶⁴ (CUI) [REDACTED]

(U) As previously discussed, the Secretary of Defense established the DoD PFAS Task Force in 2019 to ensure that the DoD has a “coordinated, aggressive, and holistic approach to DoD-wide efforts to proactively address” the effects of PFAS exposure caused by DoD activities. Although DoD PFAS Task Force officials issued various policies and reports to Congress describing their efforts to respond to PFAS concerns, DoD PFAS Task Force officials did not address PFAS-containing materials other than AFFF in the policies or reports. As previously discussed, actions taken to reduce the risk of contaminant effects from PFAS in groundwater or in sources of drinking water address those specific routes of exposure regardless of whether the historical impacts resulted from PFAS-containing AFFF or PFAS-containing materials other than AFFF. However, these actions do not address current and future contaminant effects from PFAS-containing materials other than AFFF to groundwater, sources of drinking water, or other routes of exposure.

(U) Furthermore, neither MILDEP nor DLA officials issued consistent policy to installation officials initiating Federal cleanup response actions regarding which PFAS-containing materials to investigate.⁶⁵ Therefore, installation officials may not consistently investigate their activities to identify all sources of PFAS and their contaminant effects on DoD installations and in the surrounding communities. We asked installation officials at the six current and former military installations and the DLA sites we evaluated what materials and activities at the installation contained PFAS. Installation officials at the six current and former military installations and the DLA sites we evaluated were aware of PFAS in consumer products, such as food packaging materials, nonstick cookware, stain-resistant carpet treatments, and water-resistant clothing. However, the installation officials were not aware of whether potential PFAS exposure caused by DoD activities could result from the use of PFAS-containing materials other than AFFF on their installations.

(CUI) [REDACTED]
 [REDACTED]
 [REDACTED] However, EC Program officials have not issued RMAs for PFAS-containing materials other than AFFF at DoD installations. Additionally, DoD PFAS Task Force officials have not addressed PFAS-containing materials other than AFFF in their policies or reports to Congress.

⁶⁵ (U) We reviewed the MILDEP’s and the DLA’s policies issued to the Services, National Guard, and the DLA related to PFAS. We found that, in some instances, the Services described the potential for contaminant effects caused by DoD activities from PFAS-containing materials other than AFFF at military installations and in some instances they did not. For example, both the Department of the Navy and the Army published guidance addressing releases of PFAS that described the use of PFAS in the manufacturing process of adding metal plating (coating) to materials that sometimes occurs at military installations. However, the Air Force policies did not describe the potential for contaminant effects from PFAS-containing materials other than AFFF at military installations.

~~(CUI)~~ Furthermore, neither MILDEP nor DLA officials have taken steps to identify, mitigate, and remediate contaminant effects from PFAS-containing materials other than AFFF at DoD installations. Therefore, as of July 2021, DoD officials did not apply an enterprise-wide approach to mitigate contaminant effects from all sources of potential PFAS exposure caused by DoD activities at DoD installations.

(U) DoDI 4715.18 Does Not Include Objective Requirements to Initiate Risk Management Actions or to Elevate an EC to the EC Action List

~~(CUI)~~ DoD officials did not require proactive RMAs for PFAS-containing AFFF until 2016 because the DoDI 4715.18 does not include objective requirements for EC Program officials to use when determining when to initiate RMAs or to elevate an EC from the EC Watch List to the EC Action List. [REDACTED]

[REDACTED]

As shown in Figure 1, EC Program officials [REDACTED], did not issue an RMA until 2016, [REDACTED].

(U) According to an EC Program official, the EC Program was established to provide proactive, strategic planning to reduce risks to the DoD from ECs. However, when we asked the EC Program official why proactive RMAs were not issued before 2016, the EC Program official told us that they react to what is emerging from environmental regulatory agencies. We concluded that the EC Program official’s statement contradicted the proactive purpose of the EC Program.

(U) As previously discussed, DoDI 4715.18 defines ECs as chemicals with “new or changing toxicity values” or “new or changing human health or environmental regulatory standards.” For example, DoDI 4715.18 states that “if gaps in human health science exist, the DoD can make recommendations to...the EPA, or other agencies for additional studies to reduce uncertainty.” Various EPA activities, such as manufacturing phase-outs and health advisories, occurred while PFOS and PFOA

⁶⁶ ~~(CUI)~~ [REDACTED]

(U) were on the EC Watch List. These EPA activities indicated that new or changing toxicity values were expected for PFOS and PFOA and that new or changing human health or environmental regulatory standards were expected for PFOS and PFOA. DoDI 4715.18 requires EC Program officials to proactively evaluate and manage risks from ECs with RMAs. Therefore, regardless of whether the EPA had finalized and issued environmental regulatory standards, DoDI 4715.18 required EC Program officials to proactively evaluate and manage risks from PFOS and PFOA.

(U) DoDI 4715.18 requires EC Program officials to develop and present RMOs to be endorsed as RMAs by the ECGC for ECs with high risk of impact to any of the DoD areas of concerns. However, DoDI 4715.18 does not have objective requirements to define risk levels or define how to quantify risks to the DoD areas of concern. This allowed EC Program officials to make decisions regarding PFAS that were not aligned with the DoDI 4715.18 EC Process goal of proactively reducing risks to the DoD areas of concern. If DoDI 4715.18 included objective requirements for EC Program officials to use when determining when to initiate risk management actions, then EC Program officials could make informed and timely decisions to proactively reduce impacts to “people, the environment, and DoD missions, programs, and resources.”

(~~CUI~~) [REDACTED]
 [REDACTED]
 [REDACTED]. The DoDI 4715.18 EC Process requires EC Program officials to develop RMOs for ECs on the EC Action List. However, DoDI 4715.18 does not require EC Program officials to develop RMOs for ECs that remain on the EC Watch List, even if those RMOs may be warranted. EC Program officials did not elevate PFOS and PFOA to the EC Action List [REDACTED] and, according to DoDI 4715.18, were not required to develop RMOs for the ECGC to endorse as RMAs. If DoDI 4715.18 required EC Program officials to initiate proactive RMAs at the earliest opportunity, regardless of whether an EC is on the EC Watch List or the EC Action List, then EC Program officials could make informed and timely decisions to proactively reduce impacts to “people, the environment, and DoD missions, programs, and resources.”

(~~CUI~~) As previously discussed, EC Program officials added PFOS and PFOA to the EC Watch List [REDACTED]. Although EC Program officials issued a risk alert in 2011, we found no evidence that installation officials, including firefighters, at the six current and former military installations and the DLA sites we evaluated were aware of the 2011 risk alert. The DoDI 4715.18 EC Process requires EC program officials to identify ECs and to justify the addition of the EC to the EC Watch List and the EC Action List. DoDI 4715.18 requires EC Program officials to notify

~~(U)~~ members of the ECGC representing the DoD areas of concern “about the potential consequences of...impact assessment report findings.” However, DoDI 4715.18 does not require EC Program officials to make DoD users of the ECs aware of the EC’s status in the EC Process.⁶⁷

(U) DoD Officials Were Focused on AFFF, a Major Source of Potential PFAS Exposure, and Not on All Sources of Potential PFAS Exposure Caused by DoD Activities

(U) DoD officials did not apply an enterprise-wide approach to mitigate contaminant effects from all sources of potential PFAS exposure caused by DoD activities. This occurred because DoD officials were focused on AFFF, which is a major source of potential PFAS exposure caused by DoD activities. According to the ATSDR, the historical use of PFAS-containing AFFF at DoD installations has resulted in “widespread” PFAS contaminant effects in groundwater and sources of drinking water at DoD installations and in the surrounding communities. Therefore, AFFF is a major source of potential PFAS exposure caused by DoD activities because of the risks AFFF poses to sources of drinking water.⁶⁸

(U) We asked DoD officials, including EC Program officials, DoD PFAS Task Force officials, and installation officials at the six current and former military installations and the DLA sites we evaluated, about sources of potential PFAS exposure caused by DoD activities. At each of the six current and former military installations and the DLA sites we evaluated, DoD officials only described their actions to identify, mitigate, and remediate contaminant effects from PFAS-containing AFFF. Additionally, we found that all of the DoD’s efforts, including Federal cleanup response actions, policies, and reports to Congress, were related to AFFF and PFAS-containing AFFF impacts to sources of drinking water. Therefore, DoD officials were focused on AFFF, a major source of potential PFAS exposure caused by DoD activities.

~~(U)~~ Although AFFF is a major source of potential PFAS exposure caused by DoD activities, AFFF is not the only PFAS-containing product that is largely limited to the DoD and other heavy industries. [REDACTED]

[REDACTED]. EC Program officials elevated PFOS and PFOA to the EC Action List [REDACTED]. However, EC Program officials have not issued any RMAs for PFAS since 2016. [REDACTED]

⁶⁷ (U) Similarly, the 2009 DoDI 4715.18 required EC Program officials to “provide updates to senior DoD leadership” but did not require EC Program officials to communicate with DoD users of the ECs.

⁶⁸ (U) As previously discussed, drinking water containing PFAS is a major route of human exposure to PFAS.

(CUI) [REDACTED]
 [REDACTED]
 [REDACTED] DoDI 4715.18 requires “an enterprise-wide approach to the identification, assessment, and management” of ECs. An enterprise-wide approach should include identifying, assessing, and managing all sources of potential PFAS exposure caused by DoD activities, [REDACTED]
 [REDACTED]

(U) People and the Environment May Be Exposed to Preventable Risks From PFAS

(CUI) As a result of the DoD not taking proactive risk management actions, people and the environment may have been exposed to preventable risks from PFAS-containing AFFF. [REDACTED]
 [REDACTED]

[REDACTED]⁶⁹ DoD officials could not have known the amount of risk or future impact from each historical release of PFAS-containing AFFF.⁷⁰ However, we found that EC Program officials had the opportunity to require proactive RMAs to mitigate contaminant effects of PFAS-containing AFFF at DoD installations before the 2016 RMA.

(CUI) Installation officials at each of the six current and former military installations and the DLA sites we evaluated showed us the results of assessments that identified locations of historical PFAS-containing AFFF releases.⁷¹ The assessments we reviewed indicated that the majority of historical PFAS-containing AFFF releases occurred before the 2000s.⁷² However, we found that the assessments also identified locations where uncontrolled releases of PFAS-containing AFFF were believed to have occurred more recently in the years prior to 2016, when the ECGC issued RMAs for PFAS-containing AFFF.⁷³

[REDACTED]
 [REDACTED]⁷⁴ [REDACTED]
 [REDACTED]
 [REDACTED]

⁶⁹ (CUI) [REDACTED]

⁷⁰ (U) Historical releases may have occurred in an emergency, during testing or training, or by accident.

⁷¹ (U) The installation assessments identified locations of potential historical PFAS-containing AFFF releases through records reviews and interviews with knowledgeable people.

⁷² (U) As previously discussed, from the early 2000s to 2015, the EPA worked with U.S. manufacturers to voluntarily Phase out the production of PFOS and PFOA in the United States.

⁷³ (CUI) [REDACTED]
 [REDACTED]

⁷⁴ (CUI) [REDACTED]
 [REDACTED]

~~(CUI)~~ us a report that identified locations of historical PFAS-containing AFFF releases. The Naval Auxiliary Landing Field Fentress PFAS report indicated that installation F&ES officials released PFAS-containing AFFF directly onto the ground to test the functionality of firefighting vehicles in the years between 2010 and 2015. Additionally, installation firefighters at Peterson Air Force Base told us that they did not stop releasing PFAS-containing AFFF in a location where it could affect the soil during training exercises until 2011. Therefore, uncontrolled release of PFAS-containing AFFF prior to 2016 may have contributed to unnecessary groundwater and drinking water contaminant effects that will cost the DoD time and resources to investigate and remediate when performing Federal cleanup response actions.⁷⁵

(U) In addition, uncontrolled storage, handling, and use of PFAS-containing AFFF prior to 2016 may have contributed to unnecessary occupational exposure to installation F&ES officials, including firefighters.⁷⁶ We asked firefighters at the military installations we evaluated when they became aware of potential health effects from exposure to PFAS. Firefighters at the five current military installations we evaluated were not aware of the risks until 2016 when they received their Service-specific policies restricting nonessential use of AFFF, which were written in response to the RMAs issued by the ECGC.⁷⁷

~~(CUI)~~ Installation F&ES officials are not the only potential users of PFAS-containing materials. Additionally, AFFF is not the only PFAS-containing product that is largely limited to the DoD and other heavy industries. [REDACTED]

[REDACTED]

[REDACTED]. For example, fire-resistant aviation hydraulic fluids are a potential source of PFAS exposure caused by DoD activities, such as exposures caused by accidental releases during MILDEP maintenance activities.

⁷⁵ (U) Uncontrolled releases are historical releases where engineered containment systems or spill response measures were not used to contain the PFAS-containing AFFF and where DoD officials did not take steps to prevent PFAS-containing AFFF from reaching sources of potential human exposure, such as sources of water.

⁷⁶ (U) Uncontrolled storage, handling, and use refers to a lack of occupational controls placed on AFFF concentrates. For example, the storage of AFFF concentrates in unlocked facilities or facilities not equipped with engineered containment systems is uncontrolled storage. In another example, the handling and use of AFFF concentrates by firefighters without personal protective equipment is uncontrolled handling and use.

(U) According to the EPA, occupational exposure is one way that people are exposed to PFAS. Additionally, according to the ATSDR, some studies have found higher levels of PFAS in firefighters who use PFAS-containing AFFF compared to the general population.

(U) EPA's PFAS Action Plan, February 2019.

(U) Agency for Toxic Substances and Disease Registry, "Toxicological Profile for Perfluoroalkyls Draft for Public Comment," June 2018.

⁷⁷ (U) Although we selected six DoD installations and spoke to officials representing three DLA Sites for our evaluation, DoD firefighters were only present and assigned to the five current DoD installations. Therefore, the firefighters at the five current military installations represent all of the DoD firefighters with whom we spoke.

(U) In another example, installation environmental officials at Camp Grayling provided us a report that described the results of their investigation into PFAS contaminant effects in groundwater on the installation. The investigation found PFOS and PFOA at levels exceeding the EPA LHAs in the groundwater in an area on the installation designed to provide materials storage and maintenance and repair areas for military equipment. According to the Camp Grayling report, the area was not identified during the initial investigation but was added to the investigation later when test results indicated potential PFAS contaminant effects in the area. The report stated that no known historical releases of PFAS-containing AFFF occurred in the area, and there are no fire suppressions systems in any of the buildings in the area. According to the report, the location suggested that the release occurred near a station for washing equipment, such as military vehicles, but that the PFAS-containing material source was unknown. Although it is possible that the contaminant effects may have been the result of a PFAS-containing AFFF release unknown to Camp Grayling officials, this example indicates that PFAS contaminant effects may be present in unexpected locations and resulting from unknown sources, including PFAS-containing materials other than AFFF. Therefore, as a result, people and the environment may be exposed to preventable risks from PFAS-containing materials other than AFFF.

(U) Recommendations, Management Comments, and Our Response

(U) Recommendation A.1

(U) We recommend that the Under Secretary of Defense for Acquisition and Sustainment revise DoD Instruction 4715.18 to include requirements for Emerging Chemical Program officials to:

- a. **(U) Initiate proactive risk management actions based on measureable risks to the DoD areas of concern to mitigate contaminant effects of emerging chemicals at DoD installations.**
- b. **(U) Develop risk management options and initiate proactive risk management actions which may be warranted to identify and mitigate the contaminant effects of emerging chemicals as early as possible in the Emerging Chemical Process, regardless of whether an emerging chemical is on the Emerging Chemical Watch List or the Emerging Chemical Action List.**
- c. **(U) Formally inform DoD users of emerging chemicals and of their status in the Emerging Chemical Process.**

(U) Assistant Secretary of Defense (Sustainment) Comments

(U) The Acting Assistant Secretary of Defense (Sustainment) (ASD[S]), responding for the Under Secretary of Defense for Acquisition and Sustainment, partially agreed with the recommendations. Specifically, the Acting ASD(S) stated that the DoDI 4715.18 should be revised to more clearly articulate EC Program activities. The Acting ASD(S) stated that the USD(A&S) will revise DoDI 4715.18 to:

- (U) develop risk measures consistent with the “Department of Defense Risk Management Guide for Defense Acquisition Programs” to quantify risks to the DoD areas of concern;⁷⁸
- (U) require EC Program officials to apply the measurable risk management requirements and, when warranted, present risk management options to the ECGC;
- (U) include the development of risk management options for ECs on the EC Watch List and the EC Action List; and
- (U) include a process to formally inform DoD users of ECs of their status in the EC Process.

(U) The Acting ASD(S) also stated that the USD(A&S) plans to issue these requirements in a policy memorandum by January 2022 and to incorporate the requirements in the next update to DoDI 4715.18, which is anticipated to occur by September 2025.

(U) Our Response

(U) Comments from the Acting ASD(S) addressed the recommendations. While the comments we received stated that the Acting ASD(S) partially agreed with the recommendations, the comments clarified that the partial agreement was related to terms we used in our recommendation and was not related to the recommended revisions to DoDI 4715.18. Therefore, the recommendations are resolved but will remain open. We will close these recommendations after we verify that the January 2022 policy memorandum and the next update to DoDI 4715.18 fully address the recommendations.

⁷⁸ (U) Office of the Deputy Assistant Secretary of Defense for Systems Engineering, “Department of Defense Risk, Issue, and Opportunity Management Guide for Defense Acquisition Programs,” January 2017.

(U) The DoD Risk, Issue, and Opportunity Management Guide provides guidance for risk identification, risk analysis, risk mitigation, and risk monitoring. It also describes the use of consistent, predefined criteria to determine when to act and how to prioritize actions.

(U) Recommendation A.2

(U) We recommend that the Deputy Assistant Secretary of Defense (Environment and Energy Resilience) complete the Emerging Chemical Process for potential perfluoroalkyl and polyfluoroalkyl substance exposure caused by DoD activities from perfluoroalkyl and polyfluoroalkyl substance-containing materials other than Aqueous Film Forming Foam by developing and presenting validated risk management options for the perfluoroalkyl and polyfluoroalkyl substances on the Emerging Chemical Action List to the Emerging Chemicals of Concern Governance Council, as required by DoD Instruction 4715.18.

(U) Assistant Secretary of Defense (Sustainment) Comments

(U) The Acting ASD(S), responding for the Deputy Assistant Secretary of Defense (Environment and Energy Resilience), agreed with the recommendation. The Acting ASD(S) stated that validated risk management options will be presented to the ECGC in the second quarter of FY 2022.

(U) Our Response

(U) Comments from the Acting ASD(S) addressed the recommendation; therefore, the recommendation is resolved but will remain open. We suggest that the Acting ASD(S) consider the planned changes to DoDI 4715.18 when addressing this recommendation. We will close this recommendation after we verify that the information provided and that the actions taken fully addressed the recommendations.

(U) Finding B

(U) The DoD Is Identifying Populations Exposed to PFAS in Drinking Water, Informing Them of the Associated Health and Safety Concerns, and Implementing PFAS Blood Tests for DoD Firefighters; However, the DoD Firefighter PFAS Blood Testing Implementation Plan Needs Improvement

(U) DoD officials have taken steps to identify populations exposed to PFAS in drinking water at DoD installations and inform them of the associated health and safety concerns. These steps include identifying sources of water containing PFAS and providing PFAS health-related information to military medical treatment facilities. DoDI 6055.05 requires DoD Components to implement risk management steps, including evaluating occupational and environmental health risk management. These risk management steps include tracking, trending, and analyzing clinical examination results related to workplace exposures.

(U) DoD officials developed a plan to implement PFAS blood testing for DoD firefighters by FY 2021, as required by the FY 2020 NDAA. However, DoD officials do not plan to track, trend, and analyze the results of PFAS blood tests conducted on DoD firefighters at a DoD-wide level, as required by DoDI 6055.05. This occurred because DoD officials were focused on the immediate collection of the PFAS blood test results to address the FY 2020 NDAA requirement to test the blood of DoD firefighters and not on the analysis of the blood test results at a DoD-wide level. As a result, the DoD is missing an opportunity to capture comprehensive PFAS exposure data for DoD firefighters to be used for risk management, including future studies to assess long-term health effects relating to PFAS exposure.

(U) DoD Officials Have Taken Steps to Identify Populations Exposed to PFAS in Drinking Water at DoD Installations and Inform Them of the Associated Health and Safety Concerns

(U) DoD officials have taken steps to identify populations exposed to PFAS in drinking water at DoD installations and inform them of the associated health and safety concerns. Specifically, in response to the EPA issuing LHAs for PFOS and PFOA in sources of drinking water in May 2016, DoD officials tested all DoD-operated drinking water systems to identify sources of drinking water with concentrations of PFOS or PFOA above the EPA LHA levels. In addition, the MILDEPs tested private and public drinking water wells for PFOS and PFOA in communities surrounding military installations that may have been impacted by DoD activities.

(U) DoD officials also followed the EPA's recommended actions, including notifying affected populations if PFOS and PFOA levels in sources of drinking water exceeded the LHAs. These notifications included describing actions being taken to reduce risks and providing information on the risks associated with exposure to PFOS and PFOA in sources of drinking water above the EPA LHA levels. The DoD's outreach strategy also included coordinating with state and local governments and conducting community outreach to address PFAS concerns and answer questions from potentially impacted communities.

(U) For example, after installation officials at Camp Grayling identified PFOS and PFOA in groundwater tested in May 2017, installation officials hosted a town hall meeting to announce the test results and a plan to identify whether any sources of drinking water surrounding the installation, including private drinking water wells, had PFOS and PFOA concentrations above the EPA LHA levels. Installation officials at Camp Grayling notified residents and state regulators of the test results after testing private drinking water wells and finding that PFOS and PFOA concentrations were above the EPA LHA levels. The installation officials at Camp Grayling also described the actions they would take to address the contaminant effects of PFOS and PFOA in the sources of drinking water. Installation officials at Camp Grayling posted information on the State of Michigan's PFAS Action Response Team website, which included health information, a timeline of events, frequently asked questions, and Grayling Area Restoration Advisory Board information.⁷⁹

⁷⁹ (U) A Restoration Advisory Board is a stakeholder group, involving the local community, that meets to discuss environmental restoration at a DoD installation.

(U) DoD officials also provided PFAS health-related information to Military Health System healthcare providers to address questions from the potentially exposed population. Specifically, the Assistant Secretary of Defense (Health Affairs) issued a memorandum in February 2020 that provided PFAS health-related information resources to Military Health System healthcare providers.⁸⁰ The MILDEPs also prepared their own PFAS health information for healthcare providers. For example, in August 2016, the U.S. Air Force School of Aerospace Medicine issued a detailed report to Air Force healthcare providers, which included frequently asked questions about PFAS.⁸¹ In addition, in January 2016, the Navy and Marine Corps Public Health Center issued two technical guides as a resource to help Navy healthcare providers prepare for health-related questions related to exposure to PFAS in drinking water. Furthermore, in early 2017 the Army Public Health Center issued an information paper for healthcare providers that was made available to Army commands for outreach to their communities.

(U) Additionally, DoD officials are addressing the FY 2019 NDAA requirement for the Secretary of Defense to “conduct an assessment of the human health implications of PFAS exposure.” The FY 2019 NDAA required the assessment to include an analysis of health effects associated with PFAS and an estimate of the number of members of the Armed Forces and veterans who may have been exposed to PFAS while serving in the Armed Forces. Defense Health Agency Public Health Division officials told us they took several steps to address these requirements. Specifically, Defense Health Agency Public Health Division officials:

- (U) identified and evaluated health studies relevant to members of the Armed Forces and veterans;
- (U) identified and evaluated peer-reviewed papers on civilian firefighter PFAS exposures and other potential industrial processes that use PFAS; and
- (U) estimated the number of potential Service members and veterans, including National Guard, active duty personnel, and DoD firefighters, who may have been exposed to PFAS based on reported estimates of the number of Armed Forces personnel located on installations where sources of drinking water tested at or above the EPA LHAs for PFOS and PFOA.⁸²

⁸⁰ (U) Assistant Secretary of Defense (Health Affairs) memorandum, “Per- and Polyfluoroalkyl Substances: Information for Healthcare Providers,” February 7, 2020.

⁸¹ (U) The U.S. Air Force School of Aerospace Medicine issued an updated PFAS report in February 2019.

⁸² (U) According to Defense Health Agency Public Health Division officials, the estimates will include a calculation to account for how long the drinking water may have been affected by PFAS contaminant effects.

(U) According to an Office of the Deputy Assistant Secretary of Defense (Health Readiness & Policy Oversight) (ODASD[HRPO]) official, the reports addressing the FY 2019 NDAA requirement are expected to be finalized in the fourth quarter of FY 2021.

(U) Furthermore, DoD officials developed a plan for annually testing DoD firefighters' blood to document and determine potential PFAS exposure by FY 2021, in accordance with the FY 2020 NDAA. We refer to the plan to implement PFAS blood testing for DoD firefighters as the DoD firefighter PFAS blood testing implementation plan throughout this report. According to Office of the Deputy Assistant Secretary of Defense (Force Safety and Occupational Health) officials, the Office of the Assistant Secretary of Defense (Readiness) (ASD[R]) determined that the best way to complete the NDAA blood testing requirement was for occupational medical providers to test blood during the annual occupational medical examination of each firefighter.

(U) DoD Officials Do Not Plan to Track, Trend, and Analyze the Results of PFAS Blood Tests Conducted on DoD Firefighters at a DoD-Wide Level

(U) Although DoD officials are implementing the FY 2020 NDAA requirement to test DoD firefighters' blood for PFAS, DoD officials do not plan to track, trend, and analyze the results of PFAS blood tests conducted on DoD firefighters at a DoD-wide level. While the FY 2020 NDAA did not include requirements to track, trend, and analyze the results of PFAS blood tests conducted on DoD firefighters, the DoDI 6055.05 requires DoD Components to track, trend, and analyze clinical examination results related to workplace exposures.

(U) DoDI 6055.05 requires the heads of DoD Components to implement risk management requirements to "protect DoD personnel from accidental death, injury, and illness caused by hazardous occupational or environmental exposures" as part of their OEHPs. Additionally, DoD Component OEHP officials are required to evaluate the effectiveness of their occupational and environmental health risk management activities, which includes performing both "active" and "passive" medical surveillance. To perform passive surveillance, DoD officials should track, trend, and analyze medical data as part of evaluating occupational and environmental health risk effectiveness.

(U) To meet the FY 2020 NDAA requirement to test the blood of DoD firefighters for PFAS, occupational medicine healthcare providers will perform PFAS blood testing during the annual occupational medical examination of DoD firefighters. The results of the blood test will be recorded in the individual employee's

(U) occupational medical record. However, DoD officials do not plan to track, trend, and analyze the results of the PFAS blood tests at a DoD-wide level, as required by DoDI 6055.05.

(U) The DoD Firefighter PFAS Blood Testing Implementation Plan Includes Requirements to Test the Blood of DoD Firefighters for PFAS and Record the Results in the Firefighter's Individual Occupational Medical Record

(U) According to DoDI 6055.05, active medical surveillance includes occupational medical examinations for exposures to hazards. DoDM 6055.05 “provides health professionals with information and references appropriate for developing and conducting occupational medical examinations” as part of active medical surveillance. For example, an occupational medical examination for firefighters includes hearing and blood tests. As previously discussed, DoD officials developed the DoD firefighter PFAS blood testing implementation plan for annually testing DoD firefighters’ blood to document and determine potential PFAS exposure by FY 2021, in accordance with the FY 2020 NDAA. In September 2020, the ASD(R) issued a memorandum providing requirements for implementing the FY 2020 NDAA requirement to test DoD firefighters’ blood for PFAS.⁸³ To implement DoD firefighter PFAS blood testing, occupational medicine healthcare providers will conduct blood testing during the annual occupational medical examination of each DoD firefighter and record the results in the individual firefighter’s occupational medical record. According to the memorandum, the PFAS blood testing requirements will be incorporated into the next revision of the DoDM 6055.05.

(U) The DoD firefighter PFAS blood testing implementation plan requirements include:

- (U) the list of PFAS that must be tested, including PFOS and PFOA;
- (U) guidance on providing the PFAS blood test results to DoD firefighters, including providing each tested DoD firefighter with “information on PFAS using the DoD-approved fact sheet;”⁸⁴ and
- (U) guidance on providing occupational medicine healthcare providers information and direction on PFAS blood testing, including providing each occupational medicine healthcare provider with “information on PFAS using the DoD-approved fact sheet.”⁸⁵

⁸³ (U) ASD(R) memorandum, “Blood Testing for DoD Firefighters to Determine Exposure to Per- and Poly-fluoroalkyl Substances,” September 29, 2020.

⁸⁴ (U) ASD(R) memorandum, “Blood Testing for DoD Firefighters to Determine Exposure to Per- and Poly-fluoroalkyl Substances,” September 29, 2020.

⁸⁵ (U) ASD(R) memorandum, “Blood Testing for DoD Firefighters to Determine Exposure to Per- and Poly-fluoroalkyl Substances,” September 29, 2020.

(U) ODASD(HRPO) officials told us that the PFAS blood test results will be recorded in the individual firefighter's occupational medical record in the electronic records of either the Armed Forces Health Longitudinal Technology Application, the Military Health System GENESIS, other electronic systems, or paper medical records. Therefore, the DoD firefighter PFAS blood testing implementation plan to conduct blood testing for PFAS during the annual occupational medical examination of each DoD firefighter and record the results in the individual firefighter's occupational medical record meets the intent of DoDI 6055.05 for active medical surveillance.

(U) The DoD Firefighter PFAS Blood Testing Implementation Plan Does Not Include Requirements to Track, Trend, or Analyze the Results of PFAS Blood Testing at a DoD-Wide Level

(U) According to DoDI 6055.05, passive medical surveillance includes "epidemiological review of clinical examination results," conducting analyses to identify health effects from workplace exposures, and trending data. The DoDI 6055.05 requires that "work place exposure data, medical surveillance results...and illness outcomes data should be reviewed to examine program effectiveness" when conducting analyses to identify health effects. Additionally, the reporting and recordkeeping procedures of DoDI 6055.05 require OEHP officials to "perform trend analysis and epidemiologic studies [and] share hazard and exposure data across the Department of Defense." According to DoDI 6055.05, hazard and exposure assessment data includes "potentially exposed personnel, exposure monitoring...and qualified health staff performing assessments." Specifically, the passive medical surveillance required by DoDI 6055.05 includes tracking, trending, and analyzing clinical examination results related to workplace exposures. Although the DoD firefighter PFAS blood testing implementation plan meets the intent of DoDI 6055.05 for active medical surveillance, the plan does not require the results to be tracked, trended, or analyzed at the DoD-wide level, as required by DoDI 6055.05 for passive medical surveillance.

(U) According to ODASD(HRPO) officials, healthcare providers will record the PFAS blood test results for the individual firefighter tested only in the firefighter's individual occupational medical record. Specifically, the PFAS blood test results will be recorded in the electronic records or paper medical records. ODASD(HRPO) officials told us that the use of electronic and paper records varies by DoD Component and sometimes by location.

(U) We asked ODASD(HRPO) officials how occupational medicine healthcare providers and DoD firefighters were expected to use the blood test result data. According to the ODASD(HRPO) Director for Force Readiness and Health

(U) Assurance Policy, occupational medicine healthcare providers will be able to tell DoD firefighters how their individual blood test results compare to the national average of PFAS blood levels in the U.S. population, based on age groups.⁸⁶ However, occupational medicine healthcare providers will not be able to tell DoD firefighters if their individual blood test results relate to specific health effects because scientists are still learning about the health effects of exposures to PFAS.

(U) In September 2020, the ASD(R) issued a memorandum that included DoD-approved fact sheets tailored to DoD firefighters and to the occupational medicine healthcare providers evaluating DoD firefighters.⁸⁷ Both fact sheets state that individual blood test results cannot predict or rule out health problems now or in the future.⁸⁸ Additionally, neither fact sheet includes information on whether DoD officials will track and trend the blood test data of DoD firefighters to identify PFAS exposure trends. Furthermore, the fact sheets do not inform the DoD firefighters and the occupational medicine healthcare providers whether DoD officials will conduct analyses on the blood test results or perform future studies to determine whether there is any correlation between PFAS levels in blood and health effects among the DoD firefighting population.

(U) DoDI 6055.05 requires DoD Components to evaluate occupational and environmental health risk management effectiveness by performing passive medical surveillance. Passive medical surveillance includes tracking, trending, and analyzing clinical examination results related to workplace exposures. However, DoD officials do not plan to track, trend, or analyze the DoD firefighter PFAS blood test results at a DoD-wide level to identify exposure trends and conduct analyses to identify health effects among the DoD firefighting population.

⁸⁶ (U) The CDC's National Health and Nutritional Examination Survey measures PFAS levels in the blood of the U.S. population.

⁸⁷ (U) ASD(R) memorandum, "Transmittal of Fact Sheets for Blood Testing for DoD Firefighters Per- and Poly- fluoroalkyl Substances Levels," September 29, 2020.

⁸⁸ (U) "Perfluoroalkyl and Polyfluoroalkyl Substances (PFAS): A Guide for Department of Defense Firefighters," September 29, 2020, and "Perfluoroalkyl and Polyfluoroalkyl Substances (PFAS): A Guide for Occupational Medicine Providers Evaluating DoD Firefighters," September 29, 2020.

(U) DoD Officials Were Focused on the Immediate Collection of PFAS Blood Test Results to Address the FY 2020 NDAA Requirement to Test the Blood of DoD Firefighters and Not on the Analysis of the Results at a DoD-Wide Level

(U) The DoD firefighter PFAS blood testing implementation plan does not include tracking, trending, and analyzing the DoD firefighter PFAS blood test results at a DoD-wide level. This occurred because DoD officials were focused on the immediate collection of PFAS blood test results to address the FY 2020 NDAA requirement to test the blood of DoD firefighters and not on the analysis of the results at a DoD-wide level. The FY 2020 NDAA requires the DoD “to determine and document potential exposure to...PFAS for each firefighter of the [DoD] during their annual physical exam” starting in FY 2021. DoD officials developed the DoD firefighter PFAS blood testing implementation plan to begin testing DoD firefighter blood in FY 2021, but the plan does not include tracking, trending, or analyzing the test results at a DoD-wide level because the FY 2020 NDAA did not include any requirements to track and trend the PFAS blood test results.

(U) According to the ODASD(HRPO) Director for Force Readiness and Health Assurance Policy, DoD officials were focused on meeting the specific requirements of the FY 2020 NDAA to provide PFAS blood tests to DoD firefighters during their annual occupational medical examination and provide the results to the individual firefighter because the FY 2020 NDAA did not include any requirements to do an epidemiological study or analysis. The ODASD(HRPO) official also explained that, as long as the medical provider records the blood test results in the firefighter’s individual occupational medical record, DoD officials will have met the minimum standard to comply with the FY 2020 NDAA. According to ODASD(HRPO) officials, tracking and trending PFAS blood test results was not included within the scope of implementing individual firefighter testing; therefore, actions to track and trend blood test results are currently not part of the DoD firefighter PFAS blood testing implementation plan.

(U) According to the ATSDR, workers who use products containing PFAS are at a higher risk for PFAS occupational exposure. DoD firefighters began using AFFF containing PFOS and PFOA in the 1970s to extinguish dangerous petroleum-based fires. As discussed in Finding A, DoD officials did not issue policy restricting nonessential use of AFFF until 2016, and DoD firefighters continue the use of PFAS-containing AFFF for fire emergencies, which may indicate a higher likelihood

(U) that DoD firefighters have been exposed to PFAS. Without tracking, trending, and analyzing PFAS blood test results, DoD officials will not know the extent or effect of PFAS exposure among the firefighter population across the DoD.

(U) The DoD Is Missing an Opportunity to Capture Comprehensive PFAS Exposure Data for DoD Firefighters to Be Used for Risk Management, Including Future Studies to Assess Long-Term Health Effects Relating to PFAS Exposure

(U) The DoD is missing an opportunity to capture comprehensive PFAS exposure data for DoD firefighters to be used for risk management, including future studies to assess long-term health effects relating to PFAS exposure. By not tracking, trending, and analyzing the PFAS blood test results, DoD officials will not be able to perform comprehensive reviews of the blood test results for studies and analyses. These studies and analyses would enhance the knowledge of healthcare providers, Service members, their families, and the DoD civilian workforce about the long-term health effects associated with PFAS exposure. Furthermore, with no plan in place to track, trend, and analyze DoD firefighter PFAS blood test results, DoD officials will likely encounter challenges evaluating occupational and environmental health risk management effectiveness through passive medical surveillance for the DoD firefighter population, in accordance with DoDI 6055.05.

(U) Recommendation, Management Comments, and Our Response

(U) Recommendation B

(U) We recommend that the Assistant Secretary of Defense (Readiness) develop a plan to track, trend, and analyze DoD firefighter perfluoroalkyl and polyfluoroalkyl substances blood test results at a DoD-wide level, in accordance with DoD Instruction 6055.05.

(U) Assistant Secretary of Defense (Readiness) Comments

(U) The Acting ASD(R) agreed with the recommendation. Specifically, the Acting ASD(R) stated that, to support occupational illness surveillance and trend analysis, the DoD will:

- (U) provide firefighter PFAS blood level data to the National Institute for Occupational Safety and Health to assist in their Fire Fighter Cancer Cohort study that includes PFAS research; and

- (U) conduct trend analysis of direct care PFAS serum laboratory results at the Navy and Marine Corps Public Health Center’s EpiData Center, including measures of central tendencies, with confidence intervals, for six PFAS compounds.⁸⁹

(U) The Acting ASD(R) stated that these actions would take approximately 4 years.

(U) Additionally, the Acting ASD(R) stated that, to perform occupational exposure surveillance, the DoD will:

- (U) “use its toxicology expertise in the Tri-Service Toxicology Consortium—with external peer review (e.g., National Research Council Committee on Toxicology)—to understand the relationship of PFAS blood levels to firefighter workplace exposures;” and
- (U) use the relationship of PFAS blood levels to firefighter workplace exposures and work with the National Institute for Occupational Safety and Health to develop exposure measurement technologies that are predictive of PFAS blood levels.

(U) The Acting ASD(R) stated that the development of PFAS exposure limits and exposure assessment procedures will take more than 4 years.

(U) Our Response

(U) Comments from the Acting ASD(R) addressed the recommendation; therefore, the recommendation is resolved but will remain open. The long-term actions described by the Acting ASD(R) outline the planned approach to conduct passive medical surveillance. The DoDI 6055.05 requires the review of three items to perform passive medical surveillance: (1) work-place exposure data, (2) clinical examination results, and (3) illness outcomes data. While we recognize that PFAS exposure limits are yet to be determined, we suggest that the Acting ASD(R) consider discussing and providing guidance for the following while implementing long-term actions described in the management comments:

- (U) how the DoD will provide the PFAS blood test clinical examination results recorded in various DoD-wide systems (such as the Armed Forces Health Longitudinal Technology Application, the Military Health System GENESIS, other electronic systems, or paper medical records) to the National Institute for Occupational Safety and Health and the Navy and Marine Corps Public Health Center’s EpiData Center;

⁸⁹ (U) According to their website, the Navy and Marine Corps Public Health Center’s EpiData Center provides data analysis for public health surveillance for the Department of the Navy, including occupational and environmental epidemiology. Additionally, EpiData Center officials design and conduct epidemiological investigations and studies.

- (U) what trend analysis, besides measures of central tendencies (such as the mean, median, and mode) will be calculated for the PFAS blood test results; and
- (U) the plan to collect work place exposure data (such as length of service, locations served, and any contact with PFAS releases) and illness outcomes data for DoD firefighters (such as increased cholesterol levels or cancer).

(U) We will close this recommendation after we verify that the information provided and that the actions taken by the ASD(R) officials fully addressed the recommendations by: (1) collecting the PFAS blood test clinical examination results, (2) collecting the work-place exposure and illness outcome data, and (3) analyzing this data in accordance with DoDI 6055.05.

(U) Appendix A

(U) Scope and Methodology

(U) We conducted this evaluation from February 2020 through May 2021 in accordance with the “Quality Standards for Inspection and Evaluation,” published in January 2012 by the Council of the Inspectors General on Integrity and Efficiency. Those standards require that we adequately plan the evaluation to ensure that objectives are met and that we perform the evaluation to obtain sufficient, competent, and relevant evidence to support the findings, conclusions, and recommendations. We believe that the evidence obtained was sufficient, competent, and relevant to lead a reasonable person to sustain the findings, conclusions, and recommendations.

(U) Interviews with Officials

(U) We met and interviewed individuals at the following organizations to determine whether DoD officials knew the requirements for the identification, mitigation, and remediation of contaminant effects from PFAS; to determine whether DoD officials informed populations exposed to PFAS of the associated health and safety concerns; and to understand their concerns and challenges related to PFAS.

- (U) Office of the Assistant Secretary of Defense (Sustainment)
- (U) Office of the Assistant Secretary of Defense (Readiness)
- (U) Office of the Assistant Secretary of Defense (Health Affairs)
- (U) Office of the Deputy Assistant Secretary of Defense (Environment and Energy Resilience)
- (U) Office of the Secretary of Defense Office of General Counsel (Environment and Installations)
- (U) DoD PFAS Task Force
- (U) DoD Fire and Emergency Services Working Group
- (U) Office of the Deputy Chief of Staff, Army, G-9
- (U) Office of the Assistant Secretary of the Navy (Energy, Installations and Environment)
- (U) Commander, Navy Installations Command
- (U) Naval Facilities Engineering Command
- (U) Office of the Deputy Assistant Secretary of the Air Force (Environment, Safety, and Infrastructure)
- (U) Air Force Materiel Command, Air Force Civil Engineer Center

- (U) DLA Installation Management
- (U) Installation officials from environmental, fire and emergency services, engineering, public affairs, and health departments

(U) Site Selection

(U) We selected a non-statistical sample of military installations and DLA sites in the United States. The military installations represent two sites per MILDEP and include both current and former military installations and both active duty and National Guard military installations. We also prioritized factors relevant to this evaluation, including:

- (U) reported levels of PFAS, including PFOS and PFOA, found at the installations;
- (U) sources of human exposure, including both groundwater and sources of drinking water;
- (U) known active or historical firefighting training activities; and
- (U) reported Federal cleanup response actions.

(U) Due to COVID-19 travel restrictions, we did not physically visit the installations identified in this report. We relied upon teleconferences, interviews, questionnaires, and data calls to collect testimonial and documentary evidence to verify information.

(U) We selected the following six current and former DoD installations, which host, or hosted, active duty military, National Guard, DoD civilians, and military families, for our evaluation.

1. (U) Active duty Army: Fort Bragg, North Carolina
2. (U) Army National Guard: Camp Grayling, Michigan
3. (U) Active duty Navy: Naval Air Station Oceana and Naval Auxiliary Landing Field Fentress, Virginia
4. (U) Active duty Marine Corps: Marine Corps Base Camp Pendleton, California
5. (U) Active duty Air Force: Peterson Air Force Base, Colorado
6. (U) Former Air Force site: Former Pease Air Force Base, New Hampshire

(U) We also held meetings with DLA officials involved with storage and disposal of PFAS-containing materials and discussed the following locations.

1. (U) DLA Headquarters, Fort Belvoir, Virginia
2. (U) Defense Supply Center, Richmond, Virginia
3. (U) Defense Fuel Support Point, Verona, New York
4. (U) DLA Distribution Susquehanna, Pennsylvania

(U) Data Collection

~~(CUI)~~ To determine whether DoD officials implemented the requirements for the identification, mitigation, and remediation of contaminant effects from PFAS and whether DoD officials informed populations exposed to PFAS of the associated health and safety concerns, we collected and reviewed the following types of documents.

- (U) DoD reports and briefings prepared for Congress
- (U) DoD and DoD PFAS Task Force policies
- (U) MILDEP, DLA, and installation-level policies and standard operating procedures related to PFAS
- ~~(CUI)~~ [REDACTED]
- (U) DoD, MILDEP, and DLA PFAS response timelines
- (U) Reports and briefings describing research and development projects, such as remediation projects
- (U) Installation environmental management plans, such as spill response plans
- (U) Installation F&ES emergency response records
- (U) Installation F&ES training plans and procedures
- (U) Installation records of releases of PFAS-containing AFFF
- (U) Installation AFFF concentrate inventories and disposal records
- (U) DoD, MILDEP, DLA, and installation public affairs materials
- (U) Installation outreach documentation, such as Restoration Advisory Board briefing charts
- (U) Installation PFAS test results for both groundwater and sources of drinking water both on the installations and in the surrounding communities
- (U) Installation maps and drawings showing groundwater and sources of drinking water tested for PFAS

- (U) Installation engineering drawings and schematics of engineered containment systems
- (U) Installation assessments prepared in accordance with the Federal cleanup process

(U) Use of Computer-Processed Data

(U) We did not use computer-processed data to perform this evaluation.

(U) Prior Coverage

(U) During the last 5 years, the Government Accountability Office (GAO) and the Army Audit Agency issued four reports related to PFAS contaminant effects and environmental cleanup.

(U) Unrestricted GAO reports can be accessed at <http://www.gao.gov>. Unrestricted Army Audit Agency reports can be accessed at <https://www.army.mil/aaa>.

(U) GAO

(U) Report No. GAO-21-421, “Firefighting Foam Chemicals: DoD Is Investigating PFAS and Responding to Contamination, but Should Report More Cost Information,” June 2021

(U) The GAO determined that the DoD is early in the environmental cleanup process at or near 687 military installations with a known or suspected release of PFAS-containing AFFF. The DoD has taken actions to address PFAS in sources of drinking water above the EPA LHA levels; however it has not taken actions to address PFAS in sources of drinking water that are above state-imposed PFAS standards but below the EPA LHA levels. Although the DoD estimates that future PFAS costs will likely increase significantly, the DoD has not reported estimated costs for future PFAS cleanup in its annual environmental report to Congress. The GAO also found that, although the DoD identified six potential firefighting alternatives without PFAS, none of the alternatives fully meet or exceed firefighting performance requirements. The DoD is continuing to fund research to identify firefighting alternatives without PFAS, as required by the FY 2020 NDAA.

(U) Report No. GAO-18-700T, "Drinking Water: Status of DoD Efforts to Address Drinking Water Contaminants Used in Fire Fighting Foam," September 2018

(U) The GAO determined that the DoD has initiated actions to address elevated levels of PFOS and PFOA in drinking water at or near military installations. In response to the EPA's non-enforceable advisories, the DoD directed military installations to identify locations with known or suspected release of PFOS and PFOA. The GAO also found that the DoD requested these installations to test for PFOS and PFOA in the drinking water and address any contamination above the levels in the EPA's health advisories. Furthermore, the DoD has taken steps to address health and environmental concerns with its use of firefighting foam that contains PFAS.

(U) Report No. GAO-18-78, "Drinking Water: DoD Has Acted on Some Emerging Contaminants but Should Improve Internal Reporting on Regulatory Compliance," October 2017

(U) The GAO determined that the DoD's public water systems complied with EPA and state health-based drinking water regulations at a level comparable with other systems in the United States. The DoD has not internally reported on all data on compliance with health-based drinking water regulations or used available data to assess compliance. The GAO determined that this indicates that the internal reporting systems of the DoD are either not clear in DoD regulations or are not clearly understood by those implementing them. The DoD also has not used its data to determine why the two types of systems—DoD-treated water and non-DoD-treated water—have different compliance rates. The GAO also found that the DoD has initiated steps to address concerns in regards to both the firefighting foam and elevated levels of PFOS and PFOA in drinking-water. The DoD has restricted the use of firefighting foam that contain these emerging contaminants and has funded efforts to provide alternative foam without the contaminants. Furthermore, the DoD has shut down wells, provided alternate water sources, or installed water treatment systems to respond to elevated levels of PFOS and PFOA.

(U) Report No. GAO-17-151, "Military Base Realignments and Closures: DoD Has Improved Environmental Cleanup Reporting but Should Obtain and Share More Information," January 2017

(U) The GAO determined that cleanup of environmental contaminants on installations closed under Military Base Realignments and Closures has been a key impediment to the transfer and ultimate reuse of the property by the community. The DoD has improved its reporting on the cost of these cleanups to Congress. The DoD has not reported to Congress how the cleanup

(U) of emerging chemicals under Military Base Realignment and Closures will significantly increase the estimated cost. Additionally, the GAO also found that the DoD has made progress in transferring property; however, officials have identified several challenges in the transfer process. The GAO stated that DoD officials noted that some of these challenges may be aided by sharing information from others who have successfully developed mitigation strategies or navigated complex regulatory environments.

(U) Army Audit Agency

(U) Report No. A-2020-0050-FIZ, “Per- and Polyfluoroalkyl Substances (PFAS) Contamination on Army Installations,” May 2020

(U) The Army Audit Agency determined that Army installations took actions to mitigate contaminants and to meet the EPA’s LHA limits. A review of Army installations identified 13 installations with drinking water that exceeded the EPA limits. The Army Audit Agency reviewed 7 of the 13 and determined that those bases took actions to reduce contamination levels of PFOS and PFOA to meet Army guidance. The Army Audit Agency also found that although most Army installations generally completed quarterly assessments to monitor contamination levels, Sierra Army Depot did not. Furthermore, 32 of 64 Army installations with Army-owned water systems did not record their assessments in the DoD’s official system of record, Defense Occupational and Environmental Health Readiness System, for PFOS and PFOA results. The Army Audit Agency recommended that the Army support funding to remediate PFAS levels on Army establishments, update PFAS guidance to include a timeframe and methods for Army installations to notify affected users of contaminated water, update and consolidate PFAS guidance, require installations to provide PFAS sampling results to the U.S. Army Public Health Center and enter the results into the Defense Occupational and Environmental Health Readiness System, and ensure the required assessments are completed and reported in the Defense Occupational and Environmental Health Readiness System.

(U) Appendix B

(U) Congressional Request Letter, July 25, 2019

Congress of the United States
Washington, DC 20515

July 25, 2019

Glenn A. Fine
 Acting Inspector General
 Office of Inspector General
 U.S. Department of Defense
 4800 Mark Center Drive
 Alexandria, VA 22350-1500

Mr. Fine:

We are writing to request that you undertake a review of the U.S. Department of Defense's (DoD's) use of per- and polyfluoroalkyl substances (PFAS) at military sites around the country and the exposure to both military personnel and civilians living near military sites.

PFAS is a class of chemicals that has been, and continues to be, used in military firefighting foam. Medical experts have found PFAS chemicals to be extremely hazardous to human health.

Thus, we are extremely concerned about the public health impact of PFAS on not only service members and their families living on and near military bases, but also on citizens in surrounding communities.

The DoD is currently tracking at least 401 sites with potential PFAS contamination, but it has only taken mitigation steps at 32 sites.

Simply, it appears the scope of the problem far outweighs the current allocated resources and focus of the DoD, despite Congress' attempt to provide additional resources for clean-up.

For these reasons, we ask that you undertake a review and respond to the following:

- 1) When did the DoD first learn that PFAS chemicals were harmful to human health?
- 2) What methodology has the DoD used to determine the scope of the problem and how to allocate its resources to address it?
- 3) What has the DoD done to inform service members, their families, and impacted communities about the danger of PFAS chemical contamination?
- 4) What is the DoD's plan to discontinue the use of PFAS chemicals?
- 5) What is the DoD's plan to mitigate, and clean up, PFAS contamination of the environment, including soil and drinking water?
- 6) What is the DoD doing to identify service members, their families and people in communities exposed to PFAS and provide them with the appropriate care to address and mitigate the impacts of the exposure?

(U) Congressional Request Letter, July 25, 2019 (cont'd)

We owe it to our service members, their families, and the communities that support them to ensure that the DoD is appropriately addressing this public health crisis.

Thank you very much for your assistance.

Sincerely,



Daniel T. Kildee
MEMBER OF CONGRESS



Brian Fitzpatrick
MEMBER OF CONGRESS



Debbie Dingell
MEMBER OF CONGRESS



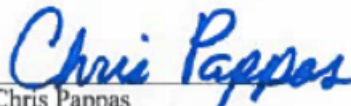
Katie Hill
MEMBER OF CONGRESS



Ro Khanna
MEMBER OF CONGRESS



Madeleine Dean
MEMBER OF CONGRESS



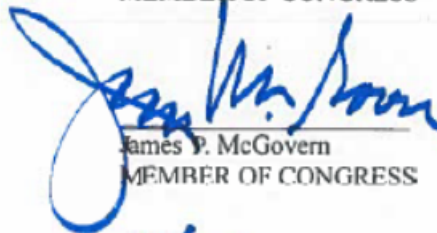
Chris Pappas
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James P. McGovern
MEMBER OF CONGRESS



Gilbert R. Cisneros, Jr.
MEMBER OF CONGRESS



Xochitl Torres Small
MEMBER OF CONGRESS

(U) Congressional Request Letter, July 25, 2019 (cont'd)



Antonio Delgado
MEMBER OF CONGRESS



Peter Welch
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Brendan F. Boyle
MEMBER OF CONGRESS



Mark Pocan
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Deb Haaland
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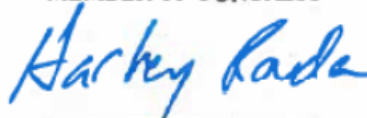
Elissa Slotkin
MEMBER OF CONGRESS



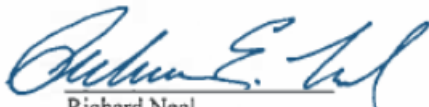
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Richard Neal
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Ben Ray Lujan
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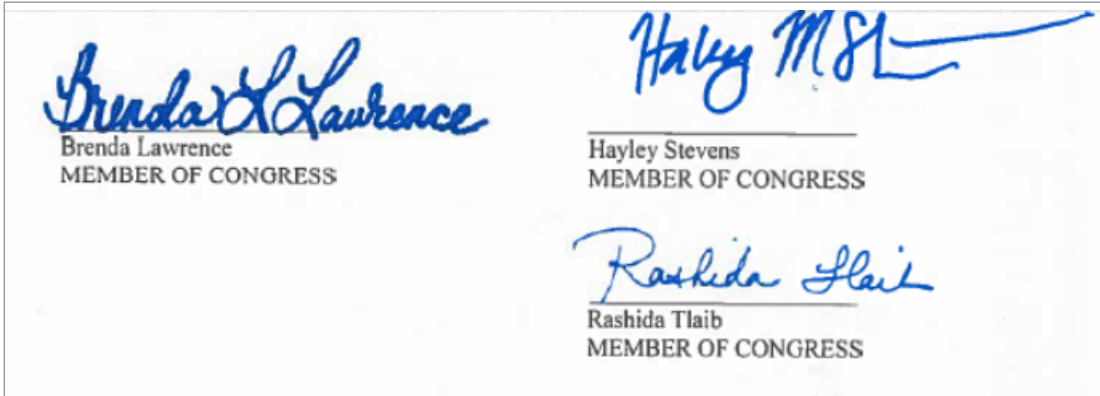


Sean Patrick Maloney
MEMBER OF CONGRESS



Kathleen M. Rice
MEMBER OF CONGRESS

(U) Congressional Request Letter, July 25, 2019 (cont'd)



(U) Appendix C

(U) Timeline of PFAS History and the DoD's Response

(U) PFAS have been used in a wide variety of commercial and industrial products and in manufacturing processes since the 1940s, and many Federal agencies, including the DoD and the EPA, are responding to PFAS concerns. The following is a brief history of key PFAS-related events that affected the DoD.

(U) 1970s:

- (U) The DoD began using AFFF, which contained PFOS, and in some formulations, PFOA, to extinguish petroleum-based fires.
- (U) 1974: Congress passed the Safe Drinking Water Act to protect public health by regulating the nation's public drinking water supply.
- (U) 1976: Congress passed the Toxic Substances Control Act to control substances determined to cause unreasonable risk to public health or the environment.

(U) 1980:

- (U) Congress passed the Comprehensive Environmental Response, Compensation, and Liability Act to clean up sites contaminated by substances deemed hazardous by the EPA in the United States.

~~(CUI)~~ 2000s:

- (U) 2000: The primary American manufacturers began phasing out the production of PFOS-related products.
- (U) 2005: The EPA Office of Pollution Prevention and Toxics conducted an assessment of PFOS and PFOA to develop toxicity benchmarks. The EPA released a draft PFOA risk assessment in January 2005.
- (U) 2006: The EPA reached an agreement with PFOA manufacturers to voluntarily phase out PFOA over a 10-year period.
- (U) 2006: The DoD EC Program was established to proactively evaluate and minimize adverse impacts from emerging chemicals to DoD missions.
- ~~(CUI)~~ [REDACTED]
- (U) 2009: EC Program officials formally established the EC Program policy, DoDI 4715.18.
- (U) 2009: The EPA published provisional health advisories for PFOS and PFOA in sources of drinking water.

~~(CUI)~~ 2010s:

- (U) 2011: EC Program officials issued a risk alert for AFFF.
- (U) 2013-2015: The EPA's third Unregulated Contaminant Monitoring Rule required monitoring for 30 contaminants, including PFOS and PFOA, using analytical methods developed by the EPA. This monitoring provided a basis for future regulatory action to protect public health.
- (U) January 2016: The ECGC issued a policy memorandum, based on recommendations from EC Program officials, including endorsed RMAs requiring Service-specific risk management procedures to prevent uncontrolled releases of AFFF during maintenance, testing, and training; requiring engineered containment systems or spill response measures for AFFF releases; and requiring the removal and disposal of PFOS-based AFFF where practical.
- (U) May 2016: The EPA published LHAs for PFOS and PFOA in sources of drinking water.
- (U) May 2016: The DoD Components consolidated efforts to start addressing releases of PFAS by developing strategies under the Defense Environmental Restoration Program.
- (U) 2016-2017: The MILDEPs tested for PFOS and PFOA where the DoD supplies drinking water. During this time, DoD officials identified 401 installations that had used AFFF containing PFOS or PFOA and tested wells and groundwater for potential PFAS impacts. MILDEP officials identified 90 active and closed military installations in which sources of drinking water or groundwater tested above the EPA's LHA levels.
- (U) 2017-2019: DoD officials wrote multiple reports and gave several presentations to congressional committees detailing the DoD's response to PFAS concerns.
- (U) 2018: The MILDEPs began the process of removing PFOS-based AFFF inventory from its stockpiles.
- (U) 2018: Congress passed the FY 2019 NDAA, which addressed specific PFAS response requirements.
- ~~(CUI)~~ [REDACTED]
- (U) February 2019: The EPA issued a PFAS Action Plan that addressed multiple planned actions, including proposals for potential regulation of PFAS.

- (U) 2019: The Secretary of Defense established the DoD PFAS Task Force that consists of DoD and MILDEP officials with a mission to ensure a coordinated DoD-wide approach to quickly address PFAS contaminant effects caused by DoD activities.
- (U) 2019: DoD officials issued multiple policy memorandums to address responses to PFAS concerns, including requirements related to the DoD cleanup program and reporting of PFAS investigation results. MILDEP officials published additional policies and guidance documents, when necessary, to direct installation officials on the Service-specific processes to comply with these requirements.
- (U) 2019: Congress passed the FY 2020 NDAA, which included additional PFAS response requirements, including a mandate to include blood testing for PFAS during annual firefighter medical examinations beginning in FY 2021.

(U) 2020s:

- (U) DoD officials issued additional policy memorandums that included requirements to address responses to PFAS concerns, including requirements for additional water sampling, reporting of state-specific and host nation-specific PFAS requirements, and public health engagement. MILDEP officials published policies and guidance documents, when necessary, to direct installation officials on the Service-specific processes to comply with these requirements.
- (U) The EPA published an update to its PFAS Action Plan.
- (U) DoD PFAS Task Force officials published a progress report and updated the number of active and National Guard installations, former military installations, and DLA sites where assessments of historical PFAS-containing AFFF use or release were underway to 676 sites.
- (U) DoD officials issued additional reports and sent representatives to testify to congressional committees detailing the DoD's response to PFAS concerns.
- (U) DoD, MILDEP, and DLA officials continue to report the status of their efforts to respond to PFAS concerns through public reports on the defense.gov website and Service-specific websites, through status reports to Congress, and through other outlets, such as through direct communication with community stakeholders near military installations.

(U) Management Comments

(U) Assistant Secretary of Defense (Sustainment)



SUSTAINMENT

OFFICE OF THE ASSISTANT SECRETARY OF DEFENSE
3500 DEFENSE PENTAGON
WASHINGTON, DC 20301-3500

06/28/2021

MEMORANDUM FOR PROGRAM DIRECTOR, RESEARCH AND ENGINEERING
DIVISION, OFFICE OF THE DEPARTMENT OF DEFENSE
INSPECTOR GENERAL

SUBJECT: Review of Draft Inspector General Report, "Evaluation of the Department of Defense's Actions to Control Contaminant Effects from Perfluoroalkyl and Polyfluoroalkyl Substances at Department of Defense Installations," Project Number D2020-DEVOSR-0088.000

I am providing the response to the recommendation for the Under Secretary of Defense for Acquisition and Sustainment (USD(A&S)), and the Deputy Assistant Secretary of Defense for Environment and Energy Resilience (DASD(E&ER)) contained in the subject report.

I appreciate the Department of Defense (DoD) Office of Inspector General's (IG) review of the Department's actions related to per- Polyfluoroalkyl Substances (PFAS). This assessment is a companion to the Government Accountability Office (GAO) assessment of the department's investigation and response actions for PFAS, and together they provide a comprehensive look at DoD's actions to address PFAS.

The DoDIG's draft report recommends, "... that the Under Secretary of Defense for Acquisition and Sustainment revise DoDI 4715.18 to include requirements for Emerging Chemical Program officials to:

- Initiate proactive risk management actions based on measurable risks to the DoD areas of concern to mitigate contaminant effects of emerging chemicals at DoD installations;
- Develop risk management options and initiate proactive risk management actions which may be warranted to identify and mitigate the contaminant effects of emerging chemicals as early as possible in the Emerging Chemical Process, regardless of whether an emerging chemical is on the Emerging Chemical Watch List or the Emerging Chemical Action List; and
- Formally inform DoD users of emerging chemicals of their status in the Emerging Chemical Process."

I partially concur with this recommendation. I agree the DoD Instruction (DoDI) 4715.18 should be revised to more clearly articulate our actions and address the points raised above. However, to clarify, the DoDI currently directs the assessment of risks associated with emerging chemicals of concern across the DoD enterprise, including a range of potential areas of interest to the Department, and is inclusive of DoD installations.

(U) Assistant Secretary of Defense (Sustainment) (cont'd)

To clarify how DoD will implement this recommendation, the DASD(E&ER), acting at the direction of the USD(A&S), will provide a policy memorandum by January 2022, which will serve as official guidance until the procedures are included in the next update to the DoDI 4715.18, which is anticipated to occur by September 2025, to more clearly direct the following actions:

1. Develop measurable risk criteria consistent with the *Department of Defense Risk Management Guide for Defense Acquisition Programs*, (2017) to quantify risks to the DoD areas of concern from Emerging Chemicals (EC).
2. Reference or include this measurable risk process and when warranted, present risks management options to the Emerging Chemicals Steering Group (ECSG) and Emerging Chemicals Governance Council (ECGC).
3. Include the development of risk management options for EC on the Watch List and Action List.
4. Include a process to formally inform DoD users of emerging chemicals of their status.

The DoD IG’s draft report also recommends, “...that the Deputy Assistant Secretary of Defense (Environment and Energy Resilience) complete the Emerging Chemical Process for potential PFAS exposure caused by DoD activities from PFAS-containing materials other than AFFF by developing and presenting validated risk management options for PFAS on the Emerging Chemical Action List to the Emerging Chemicals of Concern Governance Council, as required by DoDI 4715.18.”

I concur with this recommendation and will present validated risk management options for PFAS to the Emerging Chemicals of Concern Governance Council in the second quarter of Fiscal Year 2022.

Please contact [REDACTED] with any questions or concerns.

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Date: 2021.06.28 17:02:11 -04'00'

Paul D. Cramer
Performing the Duties of Assistant Secretary of
Defense for Sustainment

(U) Assistant Secretary of Defense (Readiness)



READINESS

OFFICE OF THE ASSISTANT SECRETARY OF DEFENSE
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WASHINGTON, D.C. 20301-4000

MEMORANDUM FOR PROGRAM DIRECTOR, RESEARCH & ENGINEERING DIVISION,
OFFICE OF THE DEPARTMENT OF DEFENSE INSPECTOR
GENERAL

SUBJECT: Review of Draft Inspector General Report, "Evaluation of the Department of
Defense's Actions to Control Contaminant Effects from Perfluoroalkyl and
Polyfluoroalkyl Substances at Department of Defense Installations," Project Number
D2020-DEVOSR-0088.000

I appreciate the Department of Defense Office of the Inspector General's (DoD OIG) review of the Department's actions related to Perfluoroalkyl and Polyfluoroalkyl Substances (PFAS) effects. This memo is in response to the recommendation in the subject report for the Assistant Secretary of Defense for Readiness to "...develop a plan to track, trend, and analyze DoD firefighter PFAS blood test results at a DoD-wide level, in accordance with DoDI 6055.05."

I concur with this recommendation. To meet the statutory requirements to provide blood tests to the DoD firefighters, our office, the Office of the Assistant Secretary of Defense for Health Affairs, and the Defense Health Agency are working together to track the number of PFAS blood tests performed against the number of firefighters planned to receive the tests. This information is being provided to the DoD Components performing the testing to resolve any gaps.

To support occupational illness surveillance and trend analysis requirements of DoD Instruction 6055.05, "Occupational and Environmental Health," the DoD will first need to understand the health effects expected from exposure to PFAS at various blood concentrations. The DoD will support, monitor, and leverage relevant multi-year research efforts either underway or planned to understand the potential PFAS health effects. The Agency for Toxic Substances and Disease Registry is performing a multi-site health study at 10 locations (including several nearby DoD installations) and at the former Pease Air Force Base to identify health effects associated with consuming water containing PFAS, and the blood level of PFAS associated with those health effects. In parallel, the National Institute for Occupational Safety and Health (NIOSH) is leading a Fire Fighter Cancer Cohort study that includes PFAS research. DoD will provide firefighter PFAS blood level data to NIOSH to use in their firefighter PFAS research. In addition, the Navy and Marine Corps Public Health Center's EpiData Center will perform trend analysis of direct care PFAS serum laboratory results collected from DoD firefighters. The trend analysis of laboratory PFAS serum data will include measures of central tendencies, with confidence intervals, for all six PFAS compounds.

Similar research was performed in developing the current DoD policy for blood lead levels in DoD Manual 6055.05, "Occupational Medical Examinations and Surveillance Manual",

(U) Assistant Secretary of Defense (Readiness) (cont'd)

Change 2, April 2017. This policy development was initiated as a result of the National Research Council report, "Potential Health Risks to DOD Firing-Range Personnel from Recurrent Lead Exposure," in 2013. Using this effort as a benchmark, understanding the potential health effects and developing medical surveillance policy for PFAS would take approximately four years.

After this research provides an understanding of health effects from PFAS exposure, the DoD will be able to use individual firefighter test results to advise each firefighter on actions to manage their individual health risk, conduct trend analysis of test results across time and groups of firefighters, and then perform trend analysis of health effects (i.e., illness) for individuals and groups of firefighters.

To perform occupational exposure surveillance, DoD will first need to develop exposure assessment procedures that correlate exposure levels to the PFAS blood levels predictive of the health effects identified in the studies previously described. DoD will use its toxicology expertise in the Tri-Service Toxicology Consortium – with external peer review (e.g., National Research Council Committee on Toxicology) – to understand the relationship of PFAS blood levels to firefighter workplace exposures. DoD will use this relationship and work with NIOSH to develop exposure measurement technologies that are predictive of PFAS blood levels.

The Force Safety and Occupational Health (FSOH) office is performing a similar development effort, started in 2017 for occupational exposure assessments for inhalation of lead dust and fume. In 2020, FSOH, in coordination with the Military Services, completed the correlation of blood lead levels to airborne lead dust and fume, and are currently reviewing additional technical and policy issues before publishing DoD policy for an occupational exposure limit with assessment procedures for lead in air. While these efforts would imply that it will require four years to develop policy for assessing PFAS workplace exposures, PFAS does not yet have exposure assessment procedures as provided by OSHA for lead air sampling and analysis. Developing a PFAS exposure limit with assessment procedures will require more than four years.

The Office of the Secretary of Defense for Readiness is committed to managing the health risks to DoD firefighters, but also recognizes the significant limitations of the current science in being able to accurately inform firefighters of any PFAS occupational exposure risks. This is further complicated by the need to balance the life-saving properties to our firefighters of the current use of certain firefighting foam that contains PFAS.

Thank you for your support of the Department's goal to protect DoD personnel from accidental death, injury, and illness caused by hazardous occupational or environmental exposures.

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Date: 2021.07.09 09:48:21 -0400
Thomas A. Constable
Acting Assistant Secretary of Defense for
Readiness

(U) Acronyms and Abbreviations

| | |
|---------------------|---|
| AFFF | Aqueous Film-Forming Foam |
| ASD(R) | Assistant Secretary of Defense (Readiness) |
| ATSDR | Agency for Toxic Substances and Disease Registry |
| CERCLA | Comprehensive Environmental Response, Compensation, and Liability Act |
| DERP | Defense Environmental Restoration Program |
| DLA | Defense Logistics Agency |
| EC | Emerging Chemical |
| ECGC | Emerging Chemicals of Concern Governance Council |
| EPA | Environmental Protection Agency |
| ESOH | Environment, Safety, and Occupational Health |
| F&ES | Fire and Emergency Services |
| LHA | Lifetime Health Advisory |
| MILDEP | Military Departments |
| NDAA | National Defense Authorization Act |
| NFPA | National Fire Protection Association |
| OEHP | Occupational and Environmental Health Programs |
| ODASD(HRPO) | Office of the Deputy Assistant Secretary of Defense (Health Readiness & Policy Oversight) |
| PFAS | Perfluoroalkyl and Polyfluoroalkyl Substances |
| PFOA | Perfluorooctanoic Acid |
| PFOS | Perfluorooctane Sulfonic Acid |
| PHA | Provisional Health Advisory |
| RMA | Risk Management Action |
| RMO | Risk Management Option |
| USD(A&S) | Under Secretary of Defense for Acquisition and Sustainment |

(U) Glossary

(U) Aqueous Film-Forming Foam (AFFF). AFFF is a foam made at the time of use by mixing air into a water solution containing a specifically formulated foam concentrate (concentrated version), by means of suitably designed equipment. The resulting foam flows freely over a burning liquid surface and acts as a barrier both to exclude air or oxygen and to develop an aqueous film on the fuel surface that is capable of suppressing combustible vapors to quickly extinguish the flames.

(U) Contaminant. Includes, but is not limited to, any element, substance, compound, or mixture, including disease-causing agents, which, after release into the environment and upon exposure, ingestion, inhalation, or assimilation into any organism (including humans), either directly from the environment or indirectly by ingestion through food chains, will or may reasonably be anticipated to cause death, disease, behavioral abnormalities, cancer, genetic mutation, physiological malfunctions (including malfunctions in reproduction) or physical deformations, in such organisms or their offspring.

(U) Contaminant Effects. The potential effects of a contaminant, such as PFOS or PFOA, to people, the environment, and DoD missions, programs, and resources.

(U) DoD Areas of Concern. Enterprise-wide categories that represent five DoD functional areas relevant to ECs, which are:

- (U) environment, safety, and health;
- (U) training and readiness;
- (U) production, operations, maintenance, and disposal of DoD assets;
- (U) cleanup; and
- (U) acquisition and research, development, testing, and evaluation.

(U) DoD Components. The Office of the Secretary of Defense, the Military Departments, Joint Chiefs of Staff and the Joint Staff, the combatant commands, the Office of Inspector General of the DoD, the Defense agencies, DoD field activities, and all other organization entities within the DoD.

(U) Emerging Chemical Action List. A list of emerging chemicals with a probable high risk of impact to at least one of the DoD areas of concern and for which proactive risk management options are being developed or actions are ongoing.

(U) Emerging Chemical Watch List. A list of emerging chemicals with a potential risk of impact to DoD areas of concern.

(U) Emerging Chemical (EC). ECs are chemicals relevant to the DoD that are characterized by a perceived or real threat to human health or the environment and that have new or changing toxicity values or new or changing human health or environmental regulatory standards. Changes may be due to new science discoveries, detection capabilities, or exposure pathways.

(U) Engineered containment. Physical infrastructure designed to completely contain a release of AFFF solution (or other substance, such as fuel). Engineered containment systems can be designed in a variety of ways to contain various substances and typically include a drainage system to a tank, pit, or channel, either above ground or below ground, which can contain the substance until it can be safely treated for release or removed for proper disposal. DoD design criteria require DoD Components to construct engineered containment systems when foam fire suppression systems are built, such as in aircraft hangars.

(U) Epidemiology. The method used to find the causes of health outcomes and diseases in populations. In epidemiology, the patient is the community and individuals are viewed collectively. Epidemiology is the scientific, systematic, and data-driven epidemiological study of the distribution (frequency, pattern) of health related effects and the causes and risk factors of health-related effects in specific populations, such as occupational populations, schools, cities, or countries.

(U) Exposure. The intensity, frequency, and length of time personnel are subjected to a hazard.

(U) Former military installations. Installations that are in the process of being closed, have been closed, or are being realigned by congressional authorization, but are still under the jurisdiction of the DoD. Former military installations also include properties that have been transferred out of the DoD but for which the DoD retains environmental restoration responsibilities.

(U) Groundwater. Water beneath the surface of land.

(U) Hazardous Substance. Any substance designated by the EPA as hazardous under various legal authorities, including the Federal Water Pollution Control Act, the Solid Waste Disposal Act, the Federal Water Pollution Control Act, the Clean Air Act, and the Toxic Substances Control Act.

(U) Health Advisory. The EPA establishes health advisories, based on its assessment of the latest peer-reviewed science, to provide drinking water system operators and officials who have the responsibility for overseeing drinking water systems with information on the health risks of certain chemicals so they can take the appropriate actions to protect the consumers of the drinking water.

(U) Installation. A base, camp, post, station, yard, center, homeport facility for any ship, or other activity under the jurisdiction of the DoD, including any leased facility.

(U) Lifetime Health Advisory. A lifetime health advisory is an EPA Health Advisory calculated to account for a lifetime of exposure to a chemical found in sources of drinking water.

(U) Medical Surveillance. Medical surveillance is the systematic assessment of employees exposed or potentially exposed to occupational hazards. This assessment monitors individuals for adverse health effects and determines the effectiveness of exposure prevention strategies. A medical surveillance program includes the analysis of both individual and aggregate surveillance data over time, with the goal of reducing and ultimately preventing occupational illness and injury.

(U) Military Departments. The Military Departments, created by the National Security Act of 1947, are the Army, Navy, and Air Force.

(U) Mitigate. To reduce risk.

(U) Occupational and Environmental Health Risk Management. A process that assists organizations and individuals in making informed risk decisions in order to reduce or offset risk, thereby increasing operational effectiveness and the probability of mission success.

(U) Occupational Health. Activities directed toward anticipation, recognition, evaluation, and control of potential occupational and environmental health hazards; preventing injuries and illness of personnel during operations; and accomplishment of mission at acceptable levels of risk.

(U) Occupational Medical Examination. Medical examinations performed to prevent work-related health problems by assessing the health status of individuals in relation to their work and making medical recommendations regarding worker placement, accommodation, and exposure controls. Occupational medical examinations may include information regarding an individual's medical background and history, physical examination, laboratory tests, and analysis of exposure to hazardous substances.

(U) Provisional Health Advisory. A provisional health advisory is an EPA Health Advisory released to the public so that drinking water system operators and officials who have the responsibility for overseeing drinking water systems can take action early even if scientific study of the chemical is still ongoing.

(U) Qualitative. An observation defined by non-numerical data, such as text, video, photographs, or audio recordings, and assigned to a category that, although it may be represented as a number, has no numerical value.

(U) Quantitative. An observation that has a meaningful numerical value. It can be either a direct observation or a count.

(U) Release. Any spilling, leaking, pumping, pouring, emitting, emptying, discharging, injecting, escaping, leaching, dumping, or disposing into the environment (including the abandonment or discarding of containers containing any hazardous substance or contaminant).

(U) Remediate. Actions taken in accordance with CERCLA to remedy the effects of environmental contamination on human health and safety, ecological resources or receptors, and operations. These actions occur sometime after the release of contaminants into the environment, as opposed to immediately following and in response to a release incident, and are consistent with or intended to be the final and permanent solution for site releases.

(U) Response Action. Identification, investigation, removal actions, remedial actions, or a combination of removal and remedial actions.

(U) Risk management action. Risk management actions are risk management options that are validated by EC Program officials and endorsed by the Emerging Chemicals of Concern Governance Council during the EC process.

(U) Risk management option. Actionable, measurable enterprise-wide initiatives focused on proactively mitigating or eliminating risks identified during the EC process. Initiatives include new DoD policies or research, development, testing, or evaluation of alternative chemicals.

(U) Risk. Chance of adverse outcome or bad consequence, such as injury, illness, or loss. Risk level is expressed in terms of hazard probability and severity.

(U) Site. A distinct area of an installation containing one or more releases or threatened releases of hazardous substances treated as a discrete entity or consolidated grouping for response purposes. Installations may have more than one site. Former military installations may also be considered sites.

(U) Source of Drinking Water. Any raw or finished (treated) water source that is or may be used by a public water system or as drinking water by one or more individuals.

(U) Spill response. Spill response refers to immediate, short-term response to limit, address, or mitigate a spill or release. AFFF spill response activities are intended to contain the flow of foam solution by blocking sewer and storm water drains, employing portable dikes or booms, and diverting the foam solution to an area suitable for containment.

(U) Toxicity value. A numerical expression of the relationship between the amount of human exposure to a chemical or substance and the potential for adverse health effects. The most common toxicity values published by regulatory and health agencies, such as the EPA, are reference doses, which are levels below which no adverse health effects are expected to occur in humans.



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