BEFORE THE
UNITED STATES HOUSE OF REPRESENTATIVES

THE SUBCOMMITTEES ON HIGHWAY AND TRANSIT
AND RAILROADS OF THE COMMITTEE ON
TRANSPORTATION
AND INFRASTRUCTURE

TRANSPORTATION OF SPENT RODS TO THE PROPOSED YUCCA MOUNTAIN STORAGE FACILITY

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Mr. Chairman, the Association of American Railroads (AAR) is pleased at this opportunity to testify on the transportation of nuclear waste. AAR=s member railroads account for 97 percent of the nation=s railroads= ton-miles and have transported a significant percentage of the spent nuclear fuel that has been transported in the U.S. AAR=s members would likely be called upon to transport a substantial amount of the spent nuclear fuel (SNF) and high-level radioactive waste that would be moved to the Yucca Mountain repository,[1] since the Department of Energy

(DOE) has indicated it prefers rail transportation for the movement of SNF and high-level radioactive waste.[2]

Over twenty years ago, the Interstate Commerce Commission, the predecessor of today's Surface Transportation Board, held that, based upon the record at that time, the railroads= common carrier obligation requires them to transport shipments of SNF. Even though the railroads may currently prefer not to be common carriers of SNF, the railroads recognize that they may be called upon to transport SNF safely and efficiently to the repository. The railroads= safety record speaks for itself. There has *never* been a release in connection with the transportation of SNF by rail. Furthermore, the railroads= overall safety record shows that the public has every reason to expect this record will continue. Today, the railroads transport 99.9956% of hazardous materials carloads without a release due to an accident. And the record keeps improving. The rate of train accidents with a hazardous materials release has decreased 86 percent since 1980 and 25 percent since 1990. Specifically, in 1980 there were 0.143 train accidents resulting in a hazardous materials release per thousand carloads of hazardous materials transported; in 1990, the number was reduced to 0.027; and in 2000, the number was further reduced to an estimated 0.021, or one accident in which hazardous materials were released for every 48,000 carloads of hazardous materials shipped. Putting these rates in perspective, DOE projects there would be at most approximately 400 carloads of SNF transported annually to the Yucca Mountain repository over twenty-four years, until the repository reaches its statutory capacity.

Notwithstanding this safety record, the railroads recognize that public concern over radioactive materialsrequires that all parties involved in the transport of SNF take special measures to ensure that SNF is moved without incident. In particular, the Department of Energy (DOE), as the shipper of SNF to the repository, the Department of Transportation (DOT), as the regulator of the safety

aspects of the transportation of hazardous materials, and the railroads must work together to design the safest possible transportation system for SNF.

The railroads believe that the safest possible method of transporting SNF by rail is through the use of dedicated trains. Dedicated trains offer several important safety advantages that reduce the very small possibility of an accident occurring. One advantage offered by dedicated trains is that SNF cars in dedicated trains do not have to be Aswitched@ in and out of trains at rail yards since all cars in a dedicated train travel from the same origin to the same destination. Switching would be required were SNF cars to be transported in general freight service. Switching increases the handling of cars and the more a car has to be handled, the greater the risk of an accident.

Mixing heavy SNF cars in general freight service instead of dedicated trains also increases the potential for an accident.[3] The heavy SNF cars could generate high forces in a general service train, causing significant in-train forces, such as slack action, that could lead to a derailment. Slack action is the force exerted throughout the train as trains accelerate, decelerate, and operate over undulating and curved terrain. A significant part of an engineer=s safety responsibilities is to control in-train forces such as slack action. Slack action would be much easier to control in a short dedicated train than in a long general service train. Furthermore, premium suspensions can be incorporated in all rail cars in dedicated trains. Premium suspensions reduce lateral wheel forces and vertical dynamic impact forces, which can result in derailments.[4] If SNF were transported in general freight service, there would be no way of assuring that the cars transporting other freight would have premium suspensions.

Dedicated trains are also essential if the newest technology designed to lower the possibility of a derailment is to be used for SNF shipments. For example, electronically-controlled pneumatic (ECP) brakes, a recent innovation, can be utilized only when all cars in a train are equipped with them. In addition to providing

superior braking performance, ECP brakes utilize a communication system throughout a train that can be used to transmit train Ahealth@ information to the locomotive crew and security personnel. The train health information could include monitoring for known derailment causes such as truck hunting,[5] rocking,[6] wheel flats,[7] defective bearings, vertical and longitudinal acceleration, and, of course, braking performance.

Dedicated trains are also advantageous from the perspective of time spent in transportation. The amount of time SNF shipments spend in the transportation system should be minimized, for both security and efficiency reasons.[8] It would take longer to transport SNF from origin to destination if SNF were transported in mixed-freight trains instead of dedicated trains. One reason is that the switching of rail cars in and out of trains takes time. A second reason is that railroads can schedule dedicated trains to move quickly and smoothlythrough sensitive areas, thus lessening safety concerns by limiting the time of transit for SNF shipments. Finally, dedicated SNF trains can be transported with greater security. Escorts, required by DOT and the Nuclear Regulatory Commission (NRC) for all SNF movements, would have an easier time monitoring SNF in dedicated trains than in general freight service, which by necessity involves the switching of SNF cars and the movement of the cars in different trains as the SNF moves from origin to destination.

With the advantages that dedicated trains offer, it is unfortunate that in its environmental impact statement for the Yucca Mountain repository, DOE maintains that the evidence does not show that dedicated trains are advantageous.[9] Thus, DOE states, Ait has not determined the commercial arrangements it would request from railroads for shipment of spent nuclear fuel and high-level radioactive waste.”[10]

DOE=s reluctance to commit to dedicated trains dates back at least to the 1970's, when it argued before the Interstate Commerce Commission that railroads could not require shippers to use and pay for dedicated train service for SNF. DOE’s position, as a

potential shipper, is driven, no doubt, by economic considerations. I submit that the events of September 11, 2001, have altered that calculation forever.

It is noteworthy that the Private Fuel Storage consortium, which is seeking to build a temporary storage facility for SNF in Utah, intends to use and pay for dedicated trains incorporating ECP brakes and a train health monitoring system. Dedicated trains with these safety enhancements will be used by the private utilities belonging to the consortium and the rail transporters of SNF because of the safety benefits. The commitment of industry to dedicated trains should be convincing evidence that safety would be enhanced by the use of dedicated trains. AAR calls on DOE to meet the commitment to safety exemplified by the railroads= private utility customers. AAR also urges DOT and NRC, the agencies charged with ensuring the safe transport of SNF, to join us in insisting on DOE's use of dedicated trains

Mr. Chairman, thank you for the opportunity to testify. AAR would be pleased to answer any questions the Committee has concerning the transportation of SNF by rail.

1AAR takes no position on whether Yucca Mountain is the appropriate site for a repository.

[2]In its environmental impact statement for the Yucca Mountain repository, DOE stated it would prefer that most shipments to the repository be made using rail transportation, although highway transport is an option. U.S. Department of Energy, Office of Civilian Radioactive Waste Management, AFinal Environmental Impact Statement for a Geologic Repository for the Disposal of Spent Nuclear Fuel and High-Level Radioactive Waste at Yucca Mountain, Nye County, Nevada,@ p. J-1 (Feb. 2002). The

remainder of this testimony will use ASNF@ as a shorthand for spent nuclear fuel and high-level radioactive waste.

[3] SNF cars weigh over 400,000 pounds, while loaded general freight service case generally weigh a maximum of 286,000 pounds and empty rail cars weigh as little as 30,000 pounds.

[4]Premium suspensions are higher quality freight car wheel assemblies.

[5]Truck hunting is an instability at high speed of a wheel set (truck) causing the truck to weave down the track, usually with the flange of the wheel striking the rail.

[6]Excessive lateral rocking of cars and locomotives can occur, usually at low speeds. The speed range at which this cyclic phenomenon occurs is determined by such factors as the wheel base, height of the center of gravity of each individual car or locomotive, and the spring dampening associated with each vehicle=s suspension system.

[7]A wheel flat is a flat spot or loss of roundness of the tread of a railroad wheel.

8See U.S. Department of Transportation, “Identification of Factors for Selecting Modes and Routes for Shipping High-Level Radioactive Waste and Spent Nuclear Fuel,” p. vi (April 1998).

[9]Final Environmental Impact Statement, p. J-76.

10Id.