

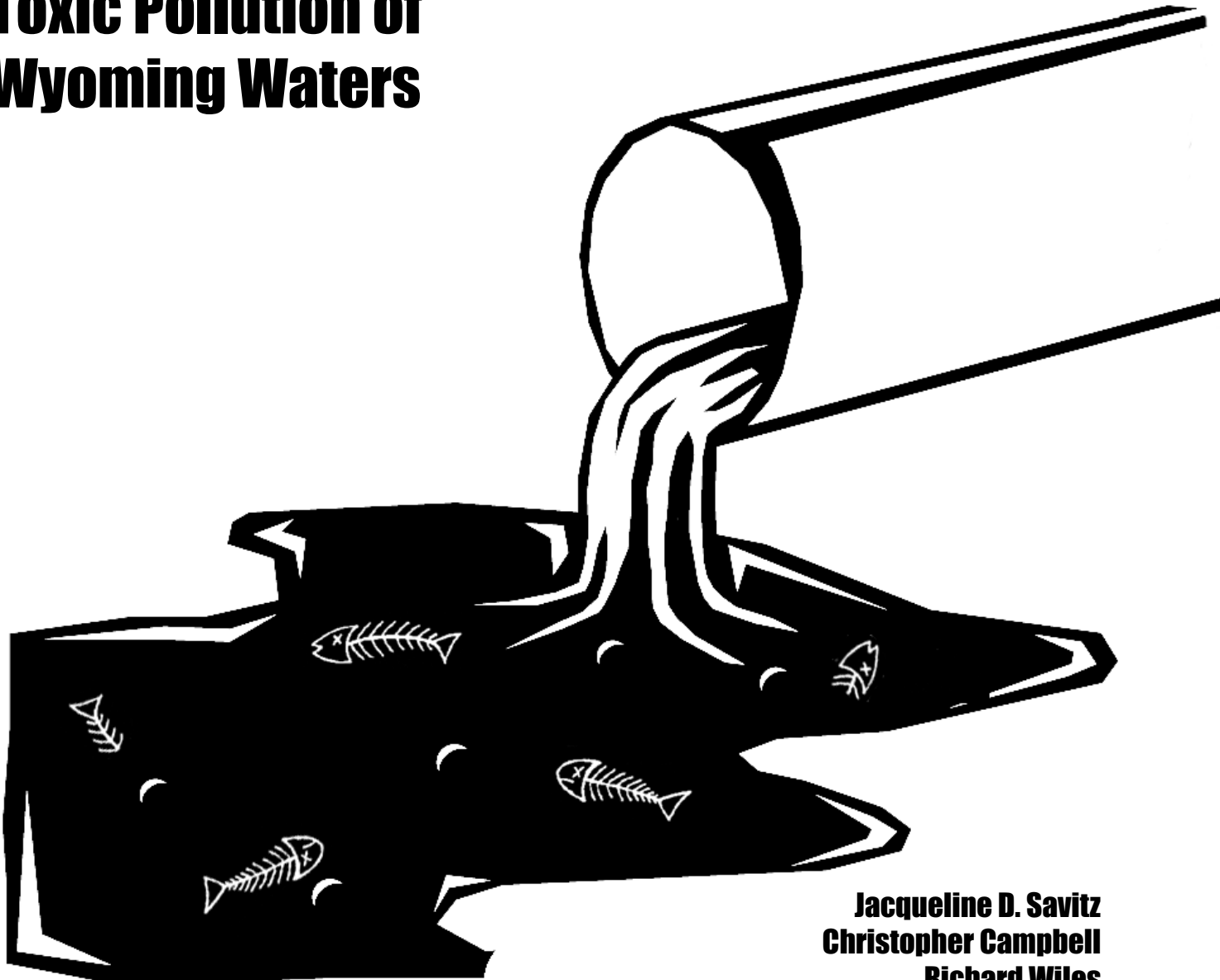


The State PIRGs



Dishonorable Discharge

Toxic Pollution of Wyoming Waters



**Jacqueline D. Savitz
Christopher Campbell
Richard Wiles
Carolyn Hartmann**

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Acknowledgments

We are grateful to Molly Evans who designed and produced the report and to Allison Daly who coordinated its release. Thanks to Ken Cook and Mark Childress for their editing and advice, and to Dale Klaus of U.S. PIRG who assisted with research.

Dishonorable Discharge was made possible by grants from The Joyce Foundation, the W. Alton Jones Foundation, The Pew Charitable Trusts, and Working Assets Funding Service. A computer equipment grant from the Apple Computer Corporation made our analysis possible. The opinions expressed in this report are those of the authors and do not necessarily reflect the views of The Pew Charitable Trusts or our other supporters listed above.

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Toxic Pollution of Wyoming Waters

Executive Summary

Most Wyoming citizens would be surprised to learn that scores of businesses and facilities across the state *legally* dump tons of toxic chemicals into the state's rivers, streams, lakes, and bays. Many of these same polluters flush millions more pounds of toxic substances down the drain to sewage treatment plants that taxpayers pay to operate and maintain. None of the toxic chemicals sent to publicly financed sewage treatment systems are reported as pollution by the EPA, even though a great deal of the toxic load eventually finds its way to Wyoming streams and rivers.

The citizens of Wyoming have a right to know about any pollution of their water, air or land that may pose a risk to human health or the environment. The goal of *Dishonorable Discharge* is to inform the public about the massive level of toxic pollution of the waters in their state, and point out the need for more comprehensive reporting of toxic chemical use, transport, and pollution, in Wyoming and nationwide.

Factories and other industrial facilities dumped more than 468,000 pounds of toxic substances directly into Wyoming's waters between 1990 and 1994, according to a new analysis of the federal Toxics Release Inventory (TRI) (Table 1). Because of weaknesses and loopholes in federal pollution laws, most, if not all of these toxic discharges are perfectly legal.

As large as they are, these figures substantially underestimate toxic releases to waters and the environment because the TRI requires reporting of only about 340 of the 73,000 chemicals in commerce. The TRI also exempts certain industries from reporting, including utilities, sewage treatment plants, municipal incinerators, and manufacturing facilities with fewer than ten employees.

In addition, 211,000 pounds of toxic materials were flushed to sewage treatment plants in Wyoming from 1990 through 1994 (Table 1.) EPA estimates that twenty-five percent of all discharges nationwide flow through sewage treatment plants untreated (EPA 1995). Applying this 25 percent estimate to Wyoming raises the total amount of toxics dumped to the state's waters to an estimated 521,000 pounds (Table 1).

The Shoshone River received the greatest amount of toxic water pollution in Wyoming from 1990-1994, a total of 302,000 pounds, followed by Crow Creek, the Platte River, and the Big Horn River (Table 2). The eight most polluted waterways in Wyoming received 468,000 pounds of toxic pollution between 1990 and 1994, 100.0% percent of the total in the State.

The top three facilities reporting the most toxic pollution of Wyoming's waters over this period were Western Sugar Company in Lovell, which dumped 302,000 pounds of toxic chemicals, followed by Frontier Refining Inc., and Holly Sugar Corporation* in the

towns of Cheyenne and Torrington, respectively (Table 3). The toxic chemicals dumped in the greatest amounts were ammonia, a total of 452,000 pounds, followed by chlorine, and benzene (Table 4).

U.S. DOE Naval Petroleum dumped the most carcinogens into Wyoming's waters, a total of 750 pounds (Table 8). The Tributary To Little Teapot Creek received the greatest amount of cancer-causing toxic chemicals in Wyoming, a total of 750 pounds (Table 7).

U.S. DOE Naval Petroleum dumped the greatest amount of toxic chemicals that cause reproductive damage or birth defects into Wyoming's waters, a total of 750 pounds (Table 8). The Tributary To Little Teapot Creek received the greatest amount of toxic chemicals that cause reproductive damage or birth defects, a total of 750 pounds (Table 7).

These discharges to Wyoming's waters include only those wastes released by companies physically located in Wyoming. Many waterways receive additional pollution from sources outside of the state. Information on toxic water pollution in other states can be found in EWG's state reports series, and in the national report, *Dishonorable Discharge*.

Recommendations

Americans have a right to know about any use, transport, or release of toxic substance in their communities that might pose a risk to human health or the environment. Required reporting under the TRI provides only a small portion of this information. Much more complete reporting is needed. Americans also have a right to know about toxic chemicals in the products they buy that may pose a risk to them and their children.

Full accounting of the use of toxic materials reveals many low cost opportunities for pollution prevention. In New Jersey, state officials estimate that every dollar spent on such materials accounting practices generates five to eight dollars in increased efficiency (GAO 1994). Without materials accounting industry will miss many opportunities for substantial low cost reductions in pollution, and the public and policy makers will be unable formulate strategies that most effectively reduce exposure to toxic substances in the environment and consumer products.

We recommend:

- Timely implementation of the EPA's proposed expansion of industries and facilities required to report toxic releases under the TRI.
- Expansion of TRI reporting requirements to include full materials accounting for any facility or industry that uses or releases a toxic substance that may pose a risk to human health and the environment.

*This facility reported no discharges in 1994, and may also have reported zero discharges for other years.

Dishonorable Discharge

Toxic pollution of rivers, lakes, streams, and bays is a serious problem in all 50 states. Twenty five years after the passage of the Clean Water Act, nearly forty (40) percent of America's rivers, lakes, and coastal waters remain unsafe for fishing, swimming or basic recreation (EPA 1996b). In Wyoming, 2,700 acres of the lakes surveyed had elevated levels of toxic substances. (EPA 1995b). The pollution that fouls these waterways costs the state's economy millions of dollars in tourism, fishing, and development revenues that otherwise could be earned on or near these waters were they not so polluted (EPA 1996b).

Dishonorable Discharge Underestimates Toxic Pollution

The Toxics Release Inventory (TRI) provides a rough estimate of a small portion of the toxic chemicals that flow into America's waters. The toxic discharges reported in this study are based on TRI reported toxic releases to waterways and so-called "transfers" of toxics to publicly owned treatment works (POTWs) — the term of art that industry and the EPA use when an industrial facility dumps toxic chemicals into the local sewer.

The figures reported in *Dishonorable Discharge* dramatically underestimate the total amounts of toxic compounds that have been discharged, dumped, or made their way into rivers and lakes across the country over the past five years.

About 90¹ percent of all toxic discharges coming out of pipes into water (so-called point source discharges) are not reported to the TRI. This is because the TRI requires reporting on only about 343² of some 73,000 chemicals used in commerce, and because the TRI exempts many polluters (utilities, certain industries, and those with fewer than ten employees) from reporting requirements (EPA 1996).

About half of all toxics that pollute rivers come from surface runoff and air deposition, as opposed to pipes. Comprehensive accounting of this "nonpoint source" pollution is not available for all rivers on a national basis.

Taking all of the limitations of the existing information into account, Environmental Working Group believes that an accurate estimate of the total load of toxic pollution in many rivers and lakes over the past five years might be 20 times greater than the amounts reported here.

Hiding Toxics in the Sewer

The EPA does not include so-called "transfers" of toxic chemicals to sewer systems as an official "release" of a toxic chemical into the environment (EPA 1996). At the same time, the EPA estimates that 25 percent of all toxic chemicals transferred to sewers from industrial facilities pass through treatment and into the waterways that receive wastewater (EPA 1995).

Transfers of toxic chemicals to publicly owned treatment works (POTWs) — otherwise known as sewage treatment plants — were four times greater in 1994 than the amount of toxic chemicals released directly to water that are reported in the entire TRI that year. To estimate the total amounts of toxic substances dumped into Wyoming’s waters, we used EPA’s assumption that 25 percent of all toxic chemicals transferred to POTWs pass-through untreated³. Table 1 presents the EWG estimate of toxic chemicals assumed to be discharged by the POTWs in Wyoming. Estimates of toxic discharges from POTWs to specific rivers and bodies of water could not be accurately estimated because the sewage treatment plants are not required to report to the TRI.

Assuming a 25 percent flow-through also does not permit discharge estimates for individual toxic chemicals that flow through the sewer system into waterways. In reality some chemicals flow through POTW’s untouched, while others are removed and held in the sludge, broken down in treatment, or allowed to evaporate into the ambient air as toxic pollutants.

How Toxic is Toxic?

Some 340 substances were required to be reported to the EPA for the years analyzed in this report. According to the EPA:

“For a chemical or chemical category to remain on or be added to the TRI list, it must be known to cause or reasonably be anticipated to cause one of the following:

- Significant adverse acute health effects at concentration levels that are reasonably likely to exist beyond facility boundaries as a result of continuous, or frequently recurring releases;
- In humans — cancer; teratogenic effects; or serious irreversible reproductive dysfunction, neurologic disorders, heritable genetic mutations, or other chronic health effects;
- A significant adverse effect on the environment because of its toxicity, its toxicity and persistence in the environment, or its toxicity and tendency to bioaccumulate in the environment of sufficient seriousness to warrant reporting under EPCRA section 313” (EPA 1996).

For most of the TRI chemicals, federal regulators and scientists have a disturbingly incomplete understanding of the long term toxic effects on the environment or human health. The vast majority of compounds reported in the TRI are not fully studied, even though they have triggered one of the above criteria.

Toxic discharges and runoff to water are a serious and largely unaddressed environmental and human health problem. Most, if not all of the pollution reported in Dishonorable Discharge is legal. Current pollution control laws like the Clean Water Act (CWA), the Resource Conservation and Recovery Act (RCRA), and the Toxic Substances Control Act (TSCA) do little to move the nation towards reducing the toxic pollution cited in this report. In effect, these laws issue pollution licenses or exemptions from regulations.

One of the more glaring exemptions may be the so-called “domestic sewage exclusion” under RCRA, whereby toxic contaminants sent to sewage treatment plants escape otherwise applicable federal hazardous waste regulations. This accounts for the huge amounts of toxic chemicals that were dumped down the drain by American industry and end up in the nation’s rivers and streams. Another major source of toxic pollution of waters is agricultural pesticides. The runoff of pesticides from agricultural fields is not regulated under any federal law, and is not tabulated by the TRI nor included in this report. About 1.1 billion pounds⁴ of pesticides were used in the United States in 1993 alone (Aspelin 1994).

Dishonorable Discharge is based on data collected by the U.S. Environmental Protection Agency’s Toxics Release Inventory (TRI) for the reporting years 1990 through 1994, which includes the most recent data available. It includes the releases of only 343 chemicals from about 27,000 manufacturing facilities. The limitations of these data have been described above.

Analyzing Discharges by Body of Water

Discharges from TRI facilities were assigned to a given waterway based on the “receiving stream” reported to the EPA. Most waterways reported as “tributary” streams were included with their respective rivers in this report when it was possible to link them. For purposes of this analysis, toxic release data for major rivers themselves are tabulated separately, not summed as part of larger watersheds. For example, a “Tributary to the Mississippi River” was counted as Mississippi River, while the Missouri River was not, even though it eventually joins the Mississippi just above St. Louis. Small streams receiving large quantity discharges (such as Gravelly Run in Virginia and Clear Creek in Colorado) were reported individually, just as they are recorded in the TRI. State-level reports only include discharges to a given river from facilities that are physically located in this state, not discharges from facilities located in other states upstream.

Reporting Toxics Dumped Down the Drain

Enormous quantities of toxic chemicals are discharged to waterways via sewer systems. These so-called “transfers” of toxic chemicals to publicly owned treatment works (POTWs) totaled more than 250 million pounds in 1994, compared to 66 million pounds of direct discharges to waters reported in that same year. While the EPA does not count these transfers as environmental releases in the TRI, the Agency estimates that an average of 25 percent of these transfers flow through sewer systems into receiving waters (EPA 1995).

To better illustrate the amount of toxic chemicals that actually make it into the nation’s waters each year, we assumed that on average 25 percent of the toxic chemicals transferred to POTWs (a.k.a. sewers) by a reporting facility, ultimately pass through the sewage treatment plant untreated and in most cases are discharged to receiving waters.

Toxic chemical releases through POTWs were estimated statewide, but were not attributed to specific rivers at the state level due to the difficulty of verifying the receiving waters. Environmental Working Group will attempt to identify receiving waters more precisely future reports. All other analyses including facility discharges and top chemicals reflect direct discharges only, and not POTW release estimations.

Total discharges of persistent toxic metals, known or possible carcinogens, and chemicals known to cause reproductive effects, were calculated for specific rivers

based on information characterizing the toxic properties of these substances previously published by the EPA, the State of California, and the State of New Jersey, as well as other toxicological literature (Environmental Protection Agency, 1996; California Code of Regulations; New Jersey Department of Health; and Dixon, 1986). EPA's inclusion of known, probable, and possible carcinogens is based on determinations made by the Occupational Safety and Health Administration (OSHA), the National Toxicology Program (NTP), and the International Agency for Research on Cancer (IARC) (EPA 1996). Lists of chemicals included are found in the Appendix.

Notes

¹Estimate based on EPA report (National Sediment Contaminant Point Source Inventory: Analysis of Release Data for 1992. Final Draft.) (EPA, 1995) where data from TRI were compared to the Permit Compliance System (PCS) Database and found to represent only about 9%, at most, of discharges reported in PCS. Estimates from the GAO indicate that PCS regulates only 23% of all toxic water pollution (GAO, 1994).

²The exact number of chemicals required varies with the year. In 1994, 343 chemicals were reported. EPA has recently expanded the inventory to include about 650. These data, to be reported for 1995, will be available in 1997.

³EPA uses this factor since it is unlikely to greatly overestimate or underestimate the exact treatment efficiency (EPA 1995). This number will vary for any specific chemical; however it estimates pass through for chemicals as a whole, and is not applied to specific chemicals in this report.

⁴This value refers to pesticide active ingredients. The total volume of pesticide products, including so-called inert ingredients is far higher.

Appendix

Carcinogens

1,1,2,2-Tetrachloroethane	beta-Propiolactone	Michler's ketone
1,1-Dimethylhydrazine (UDMH) (alar trans. prod.)	Bis (2-chloroethyl) ether	Mustard Gas
1,2-Dibromo-3-chloropropane (DBCP)	Bis(chloromethyl) ether	N-Nitroso-N-ethylurea
1,3-Butadiene	Bromodichloromethane	N-Nitroso-N-methylurea
1,3-Dichloropropylene	Bromoform	N-Nitrosodi-n-butylamine
1,3-Propane sultone	Cadmium	N-Nitrosodi-n-propylamine
1,4-Dioxane	Cadmium compounds	N-Nitrosodiethylamine
1-Amino-2-methylantraquinone	Captan	N-Nitrosodimethylamine
1-Naphthylamine	Carbon tetrachloride	N-Nitrosodiphenylamine
2,4,6-Trichlorophenol	Chlordane	N-Nitrosomethylvinylamine
2,4-Diaminoanisole	Chloroethane (Ethyl chloride)	N-Nitrosomorpholine
2,4-Diaminoanisole sulfate	Chloroform	N-Nitrososarcosine
2,4-Diaminotoluene	Chloromethyl methyl ether	N-Nitrosopiperidine
2,4-Dinitrotoluene	Chlorophenols	Nickel
2-Acetylaminofluorene	Chlorothalonil	Nickel compounds
2-Aminoanthraquinone	Chromium	Nitritotriacetic acid
2-Methylaziridine (Propyleneimine)	Cupferron	Nitrofen
2-Naphthylamine	D&C Red No. 19	Nitrogen mustard (Mechlorethamine)
2-Nitropropane	DDVP (Dichlorvos)	ortho-Anisidine
3,3'-Dichlorobenzidine	Di -(2-ethylhexyl)phthalate	ortho-Anisidine hydrochloride
3,3'-Dimethoxybenzidine (ortho-Dianisidine)	Dichloromethane (Methylene chloride)	ortho-Toluidine
3,3'-Dimethylbenzidine	Diepoxybutane	ortho-Toluidine hydrochloride
4,4'-Diaminodiphenyl ether (4,4'-Oxydianiline)	Diethyl sulfate	p-Aminoazobenzene
4,4'-Methylene bis(2-chloroaniline)	Dimethyl sulfate	p-Cresidine
4,4'-Methylene bis(N,N-dimethyl) benzenamine	Dimethylcarbamoyl chloride	p-Dichlorobenzene
4,4'-Methylenedianiline	Direct Black 38	p-Nitrosodiphenylamine
4,4'-Thiodianiline	Direct Blue 6	Pentachlorophenol
4-Aminobiphenyl (4-aminodiphenyl)	Direct Brown 95	Polybrominated biphenyls
4-Dimethylaminoazobenzene	Epichlorohydrin	Polychlorinated biphenyls
4-Nitrobiphenyl	Ethyl acrylate	Propylene oxide
5-Nitro-o-anisidine	Ethylene dibromide	Saccharin
Acetaldehyde	Ethylene dichloride (1,2-Dichloroethane)	Safrole
Acetamide	Ethylene oxide	Styrene
Acrylamide	Ethylene thiourea (EBDC trans prod.)	Styrene oxide
Acrylonitrile	Ethyleneimine	Tetrachloroethylene (Perchloroethylene)
Allyl chloride	Formaldehyde	Thioacetamide
Aniline	Hexachlorobenzene	Thiourea
Arsenic	Hexachloroethane	Toluene-2,4-diisocyanate
Arsenic compounds	Hexamethylphosphoramide	Toluene-2,6-diisocyanate
Asbestos	Hydrazine	Toxaphene (Polychlorinated camphenes)
Auramine	Hydrazine sulfate	Trichloroethylene
Benzene	Hydrazobenzene (1,2-Diphenylhydrazine)	Tris(2,3-dibromopropyl)phosphate
Benzidine [and its salts]	Isosafrole	Urethane (Ethyl carbamate)
Benzotrichloride	Lead	Vinyl bromide
Benzyl chloride	Lead compounds	Vinyl chloride
Beryllium and beryllium compounds	Lindane	Vinyl trichloride (1,1,2-Trichloroethane)
Beryllium compounds	Methyl iodide	

Persistent Toxic Metals

Antimony & Antimony Compounds
 Arsenic & Arsenic Compounds
 Barium & Barium Compounds
 Beryllium & Beryllium Compounds
 Cadmium & Cadmium Compounds
 Chromium & Chromium Compounds
 Cobalt & Cobalt Compounds
 Copper & Copper Compounds
 Lead & Lead Compounds
 Manganese & Manganese Compounds
 Mercury & Mercury Compounds
 Nickel & Nickel Compounds
 Selenium & Selenium Compound
 Silver & Silver Compounds
 Thallium & Thallium Compounds
 Zinc & Zinc Compounds

Chemicals that Affect Reproduction

1,2-Dibromo-3-chloropropane
 Cadmium
 Carbon disulfide
 Diethylhexyl phthalate
 o-Dinitrobenzene
 m-Dinitrobenzene
 p-Dinitrobenzene
 Ethylene glycol monoethyl ether
 Ethylene glycol monomethyl ether
 Ethylene oxide
 Hexamethylphosphoramide
 Lead
 Styrene
 Toluene
 Trichloroethylene
 Xylene(mixed isomers)
 o-xylene
 m-xylene
 p-xylene
 Di-n-butyl phthalate
 Glycol ethers
 Mercury Compounds
 Mercury
 Benzene
 Aluminum
 Arsenic
 Nickel
 Lindane
 Vinyl Chloride

Source: Environmental Working Group. Compiled from California Proposition 65, EPA's TRI Public Data Release, New Jersey Department of Health, Hazardous Substances Fact Sheets, and Toxic Responses of the Reproductive System (Dixon 1986).

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Wyoming

Toxic pollution of Wyoming waters (1990-1994)

Table 1. Total reported toxic pollution of Wyoming waters (1990-1994).

Direct Water Discharges	467,857 Pounds
Estimated Sewer Discharges‡	52,687 Pounds
Total Discharges to Waters	520,544 Pounds

Table 2. Wyoming waters receiving the greatest amounts of toxic pollution (1990-1994).

River or Water Body	Toxic chemical release to waterbody (pounds)
Shoshone River	301,843
Crow Creek	51,498
Platte River	44,000
Big Horn River	39,000
Porter Draw	15,488
Windmill Draw	15,000
Tributary To Little Teapot Creek	750
South Fork	250

Table 3. Polluters reporting the greatest amounts of toxic chemicals discharged to Wyoming waters (1990-1994).

Facility	City	Toxic chemical release to waters (pounds)
Western Sugar Co.	Lovell	301,843
Frontier Refining Inc.	Cheyenne	66,986
Holly Sugar Corp.*	Torrington	44,000
Holly Sugar Corp.*	Worland	39,000
Wyoming Refining Co.	Newcastle	15,000
U.S. DOE Naval Petroleum	Casper	750
Austin Powder Co.	Mills	250

Table 4. Toxic chemicals discharged in the greatest amounts to Wyoming waters (1990-1994).

Chemical	Toxic chemical release to waters (pounds)
Ammonia	451,615
Chlorine	14,880
Benzene	770
Ammonium nitrate (solution)	250
Phenol	169

Table 5. Polluters reporting the greatest amounts of toxic chemicals discharged to Wyoming sewage treatment facilities (1990-1994).

Facility	City	Toxic chemical release to sewers (pounds)
Amoco Oil Co.	Casper	132,120
Star Valley Cheese Corp.	Thayne	66,000
Tree Reliance Electric	Gillette	7,825
U.S. National Park Service	Yellowstone	4,500
Crown Cork & Seal Co. Inc.	Worland	260

‡ Total discharges of toxic chemicals to sewer systems in Wyoming was 210,750 in 1990-94. EPA estimates that 25% of all toxic discharges to sewers pass through sewage treatment plants to receiving waters (EPA 1995).

* This polluter did not report any discharges to water in 1994. See Table 9 for year to year pollution figures.

Source: Environmental Working Group. Compiled from U.S. Environmental Protection Agency, Toxics Release Inventory 1990-1994.

Wyoming

Toxic pollution of Wyoming waters (1990-1994). Carcinogens, persistent toxic metals, and reproductive toxins

Table 6. Total carcinogens, persistent toxic metals, and reproductive toxins** discharged into Wyoming waters (1990-1994).**

Carcinogens	786 Pounds
Persistent Toxic Metals	45 Pounds
Reproductive Toxins	820 Pounds
Total (see note)	865 Pounds

Note: The sum of carcinogens, persistent toxic metals, and reproductive toxins listed in Table 6 may be larger than the total because a chemical may be in one or more categories, i.e. a chemical may be both a carcinogen and a reproductive toxin. Chemicals were counted only once for the total in Table 6.

Table 7. Wyoming waters receiving the greatest amounts of carcinogens, persistent toxic metals, and reproductive toxins** (1990-1994).**

Waters receiving the greatest amounts of carcinogenic chemicals in Wyoming (1990-1994).**

River or Water Body	Carcinogens** released to waters (lbs.)
Tributary To Little Teapot Creek	750

Waters receiving the greatest amounts of persistent toxic metals in Wyoming (1990-1994).

River or Water Body	Persistent toxic metals released to waters (lbs.)

Waters receiving the greatest amounts of reproductive toxins in Wyoming (1990-1994).**

River or Water Body	Reproductive toxins** released to waters (lbs.)
Tributary To Little Teapot Creek	750

Table 8. Polluters reporting the greatest amounts of carcinogens, persistent toxic metals, and reproductive toxins** discharged to Wyoming waters (1990-1994).**

Top dischargers of carcinogenic chemicals to Wyoming waters (1990-1994).**

Facility	City	Carcinogens** released to waters (lbs.)
U.S. DOE Naval Petroleum	Casper	750

Top dischargers of persistent toxic metals to Wyoming waters (1990-1994).

Facility	City	Persistent toxic metals released to waters (lbs.)

Top dischargers of reproductive toxins to Wyoming waters (1990-1994).**

Facility	City	Reproductive toxins** released to waters (lbs.)
U.S. DOE Naval Petroleum	Casper	750

* This polluter did not report any discharges to water in 1994. See Table 9 for year to year pollution figures.

** Carcinogens and reproductive toxins defined by the State of California Proposition 65, EPA's TRI Public Data Release and other literature. See full report for references.

Source: Environmental Working Group. Compiled from U.S. Environmental Protection Agency, Toxics Release Inventory 1990-1994.

The Shoshone River in Wyoming

Total toxic pollution reported (1990-1994): 301,843 Pounds

Table 1. Polluters discharging the greatest amounts of toxic chemicals to the Shoshone River in Wyoming (1990-1994).

Facility	City	Toxic chemical release to water (pounds)
Western Sugar Co.	Lovell	301,843

Table 2. Toxic chemicals discharged in the greatest amounts to the Shoshone River in Wyoming (1990-1994).

Chemical	Toxic chemical release to waterbody (pounds)
Ammonia	301,843

‡ The sum of carcinogens, persistent toxic metals, and reproductive toxins listed in Table 3 may be larger than the total because a chemical may be in one or more categories. Chemicals were counted only once for the total in Table 3.

* This polluter did not report any discharges to water in 1994. See Table 9 for year to year pollution figures.

** Carcinogens and reproductive toxins defined by the State of California Proposition 65, EPA's TRI Public Data Release and other literature. See full report for references.

Table 3. Total carcinogens, persistent toxic metals, and reproductive toxins** discharged to the Shoshone River in Wyoming (1990-1994).**

Carcinogens	0 Pounds
Persistent Toxic Metals	0 Pounds
Reproductive Toxins	0 Pounds
Total‡	0 Pounds

Table 4. Polluters reporting the greatest amounts of carcinogens, persistent toxic metals, and reproductive toxins** discharged to the Shoshone River in Wyoming (1990-1994).**

Top dischargers of carcinogens to the Shoshone River in Wyoming (1990-1994).**

Facility	City	Carcinogens** released to water (lbs)

Top dischargers of persistent toxic metals to the Shoshone River in Wyoming (1990-1994).

Facility	City	Persistent toxic metals released to water (lbs)

Top dischargers of reproductive toxins to the Shoshone River in Wyoming (1990-1994).**

Facility	City	Reproductive toxins** released to water (lbs)

Crow Creek in Wyoming

Total toxic pollution reported (1990-1994): 51,498 Pounds

Table 1. Polluters discharging the greatest amounts of toxic chemicals to Crow Creek in Wyoming (1990-1994).

Facility	City	Toxic chemical release to water (pounds)
Frontier Refining Inc.	Cheyenne	51,498

Table 2. Toxic chemicals discharged in the greatest amounts to Crow Creek in Wyoming (1990-1994).

Chemical	Toxic chemical release to waterbody (pounds)
Ammonia	51,299
Phenol	158

‡ The sum of carcinogens, persistent toxic metals, and reproductive toxins listed in Table 3 may be larger than the total because a chemical may be in one or more categories. Chemicals were counted only once for the total in Table 3.

* This polluter did not report any discharges to water in 1994. See Table 9 for year to year pollution figures.

** Carcinogens and reproductive toxins defined by the State of California Proposition 65, EPA's TRI Public Data Release and other literature. See full report for references.

Table 3. Total carcinogens, persistent toxic metals, and reproductive toxins** discharged to Crow Creek in Wyoming (1990-1994).**

Carcinogens	14 Pounds
Persistent Toxic Metals	41 Pounds
Reproductive Toxins	0 Pounds
Total‡	41 Pounds

Table 4. Polluters reporting the greatest amounts of carcinogens, persistent toxic metals, and reproductive toxins** discharged to Crow Creek in Wyoming (1990-1994).**

Top dischargers of carcinogens to Crow Creek in Wyoming (1990-1994).**

Facility	City	Carcinogens** released to water (lbs)

Top dischargers of persistent toxic metals to Crow Creek in Wyoming (1990-1994).

Facility	City	Persistent toxic metals released to water (lbs)

Top dischargers of reproductive toxins to Crow Creek in Wyoming (1990-1994).**

Facility	City	Reproductive toxins** released to water (lbs)

The Platte River in Wyoming

Total toxic pollution reported (1990-1994): 44,000 Pounds

Table 1. Polluters discharging the greatest amounts of toxic chemicals to the Platte River in Wyoming (1990-1994).

Facility	City	Toxic chemical release to water (pounds)
Holly Sugar Corp.*	Torrington	44,000

Table 2. Toxic chemicals discharged in the greatest amounts to the Platte River in Wyoming (1990-1994).

Chemical	Toxic chemical release to waterbody (pounds)
Ammonia	44,000

‡ The sum of carcinogens, persistent toxic metals, and reproductive toxins listed in Table 3 may be larger than the total because a chemical may be in one or more categories. Chemicals were counted only once for the total in Table 3.

* This polluter did not report any discharges to water in 1994. See Table 9 for year to year pollution figures.

** Carcinogens and reproductive toxins defined by the State of California Proposition 65, EPA's TRI Public Data Release and other literature. See full report for references.

Table 3. Total carcinogens, persistent toxic metals, and reproductive toxins** discharged to the Platte River in Wyoming (1990-1994).**

Carcinogens	0 Pounds
Persistent Toxic Metals	0 Pounds
Reproductive Toxins	0 Pounds
Total‡	0 Pounds

Table 4. Polluters reporting the greatest amounts of carcinogens, persistent toxic metals, and reproductive toxins** discharged to the Platte River in Wyoming (1990-1994).**

Top dischargers of carcinogens to the Platte River in Wyoming (1990-1994).**

Facility	City	Carcinogens** released to water (lbs)

Top dischargers of persistent toxic metals to the Platte River in Wyoming (1990-1994).

Facility	City	Persistent toxic metals released to water (lbs)

Top dischargers of reproductive toxins to the Platte River in Wyoming (1990-1994).**

Facility	City	Reproductive toxins** released to water (lbs)

The Big Horn River in Wyoming

Total toxic pollution reported (1990-1994): 39,000 Pounds

Table 1. Polluters discharging the greatest amounts of toxic chemicals to the Big Horn River in Wyoming (1990-1994).

Facility	City	Toxic chemical release to water (pounds)
Holly Sugar Corp.*	Worland	39,000

Table 2. Toxic chemicals discharged in the greatest amounts to the Big Horn River in Wyoming (1990-1994).

Chemical	Toxic chemical release to waterbody (pounds)
Ammonia	39,000

‡ The sum of carcinogens, persistent toxic metals, and reproductive toxins listed in Table 3 may be larger than the total because a chemical may be in one or more categories. Chemicals were counted only once for the total in Table 3.

* This polluter did not report any discharges to water in 1994. See Table 9 for year to year pollution figures.

** Carcinogens and reproductive toxins defined by the State of California Proposition 65, EPA's TRI Public Data Release and other literature. See full report for references.

Table 3. Total carcinogens, persistent toxic metals, and reproductive toxins** discharged to the Big Horn River in Wyoming (1990-1994).**

Carcinogens	0 Pounds
Persistent Toxic Metals	0 Pounds
Reproductive Toxins	0 Pounds
Total‡	0 Pounds

Table 4. Polluters reporting the greatest amounts of carcinogens, persistent toxic metals, and reproductive toxins** discharged to the Big Horn River in Wyoming (1990-1994).**

Top dischargers of carcinogens to the Big Horn River in Wyoming (1990-1994).**

Facility	City	Carcinogens** released to water (lbs)

Top dischargers of persistent toxic metals to the Big Horn River in Wyoming (1990-1994).

Facility	City	Persistent toxic metals released to water (lbs)

Top dischargers of reproductive toxins to the Big Horn River in Wyoming (1990-1994).**

Facility	City	Reproductive toxins** released to water (lbs)

Porter Draw in Wyoming

Total toxic pollution reported (1990-1994): 15,488 Pounds

Table 1. Polluters discharging the greatest amounts of toxic chemicals to Porter Draw in Wyoming (1990-1994).

Facility	City	Toxic chemical release to water (pounds)
Frontier Refining Inc.	Cheyenne	15,488

Table 2. Toxic chemicals discharged in the greatest amounts to Porter Draw in Wyoming (1990-1994).

Chemical	Toxic chemical release to waterbody (pounds)
Ammonia	15,473

‡ The sum of carcinogens, persistent toxic metals, and reproductive toxins listed in Table 3 may be larger than the total because a chemical may be in one or more categories. Chemicals were counted only once for the total in Table 3.

* This polluter did not report any discharges to water in 1994. See Table 9 for year to year pollution figures.

** Carcinogens and reproductive toxins defined by the State of California Proposition 65, EPA's TRI Public Data Release and other literature. See full report for references.

Table 3. Total carcinogens, persistent toxic metals, and reproductive toxins** discharged to Porter Draw in Wyoming (1990-1994).**

Carcinogens	2 Pounds
Persistent Toxic Metals	4 Pounds
Reproductive Toxins	0 Pounds
Total‡	4 Pounds

Table 4. Polluters reporting the greatest amounts of carcinogens, persistent toxic metals, and reproductive toxins** discharged to Porter Draw in Wyoming (1990-1994).**

Top dischargers of carcinogens to Porter Draw in Wyoming (1990-1994).**

Facility	City	Carcinogens** released to water (lbs)

Top dischargers of persistent toxic metals to Porter Draw in Wyoming (1990-1994).

Facility	City	Persistent toxic metals released to water (lbs)

Top dischargers of reproductive toxins to Porter Draw in Wyoming (1990-1994).**

Facility	City	Reproductive toxins** released to water (lbs)

Windmill Draw in Wyoming

Total toxic pollution reported (1990-1994): 15,000 Pounds

Table 1. Polluters discharging the greatest amounts of toxic chemicals to Windmill Draw in Wyoming (1990-1994).

Facility	City	Toxic chemical release to water (pounds)
Wyoming Refining Co.	Newcastle	15,000

Table 2. Toxic chemicals discharged in the greatest amounts to Windmill Draw in Wyoming (1990-1994).

Chemical	Toxic chemical release to waterbody (pounds)
Chlorine	14,880

‡ The sum of carcinogens, persistent toxic metals, and reproductive toxins listed in Table 3 may be larger than the total because a chemical may be in one or more categories. Chemicals were counted only once for the total in Table 3.

* This polluter did not report any discharges to water in 1994. See Table 9 for year to year pollution figures.

** Carcinogens and reproductive toxins defined by the State of California Proposition 65, EPA's TRI Public Data Release and other literature. See full report for references.

Table 3. Total carcinogens, persistent toxic metals, and reproductive toxins** discharged to Windmill Draw in Wyoming (1990-1994).**

Carcinogens	20 Pounds
Persistent Toxic Metals	0 Pounds
Reproductive Toxins	60 Pounds
Total‡	60 Pounds

Table 4. Polluters reporting the greatest amounts of carcinogens, persistent toxic metals, and reproductive toxins** discharged to Windmill Draw in Wyoming (1990-1994).**

Top dischargers of carcinogens to Windmill Draw in Wyoming (1990-1994).**

Facility	City	Carcinogens** released to water (lbs)

Top dischargers of persistent toxic metals to Windmill Draw in Wyoming (1990-1994).

Facility	City	Persistent toxic metals released to water (lbs)

Top dischargers of reproductive toxins to Windmill Draw in Wyoming (1990-1994).**

Facility	City	Reproductive toxins** released to water (lbs)

Tributary To Little Teapot Creek in Wyoming

Total toxic pollution reported (1990-1994): 750 Pounds

Table 1. Polluters discharging the greatest amounts of toxic chemicals to Tributary To Little Teapot Creek in Wyoming (1990-1994).

Facility	City	Toxic chemical release to water (pounds)
U.S. DOE Naval Petroleum	Casper	750

Table 2. Toxic chemicals discharged in the greatest amounts to Tributary To Little Teapot Creek in Wyoming (1990-1994).

Chemical	Toxic chemical release to waterbody (pounds)
Benzene	750

‡ The sum of carcinogens, persistent toxic metals, and reproductive toxins listed in Table 3 may be larger than the total because a chemical may be in one or more categories. Chemicals were counted only once for the total in Table 3.

* This polluter did not report any discharges to water in 1994. See Table 9 for year to year pollution figures.

** Carcinogens and reproductive toxins defined by the State of California Proposition 65, EPA's TRI Public Data Release and other literature. See full report for references.

Table 3. Total carcinogens, persistent toxic metals, and reproductive toxins** discharged to Tributary To Little Teapot Creek in Wyoming (1990-1994).**

Carcinogens	750 Pounds
Persistent Toxic Metals	0 Pounds
Reproductive Toxins	750 Pounds
Total‡	750 Pounds

Table 4. Polluters reporting the greatest amounts of carcinogens, persistent toxic metals, and reproductive toxins** discharged to Tributary To Little Teapot Creek in Wyoming (1990-1994).**

Top dischargers of carcinogens to Tributary To Little Teapot Creek in Wyoming (1990-1994).**

Facility	City	Carcinogens** released to water (lbs)
U.S. DOE Naval Petroleum	Casper	750

Top dischargers of persistent toxic metals to Tributary To Little Teapot Creek in Wyoming (1990-1994).

Facility	City	Persistent toxic metals released to water (lbs)

Top dischargers of reproductive toxins to Tributary To Little Teapot Creek in Wyoming (1990-1994).**

Facility	City	Reproductive toxins** released to water (lbs)
U.S. DOE Naval Petroleum	Casper	750

South Fork in Wyoming

Total toxic pollution reported (1990-1994): 250 Pounds

Table 1. Polluters discharging the greatest amounts of toxic chemicals to South Fork in Wyoming (1990-1994).

Facility	City	Toxic chemical release to water (pounds)
Austin Powder Co.	Mills	250

Table 2. Toxic chemicals discharged in the greatest amounts to South Fork in Wyoming (1990-1994).

Chemical	Toxic chemical release to waterbody (pounds)
Ammonium nitrate (solution)	250

‡ The sum of carcinogens, persistent toxic metals, and reproductive toxins listed in Table 3 may be larger than the total because a chemical may be in one or more categories. Chemicals were counted only once for the total in Table 3.

* This polluter did not report any discharges to water in 1994. See Table 9 for year to year pollution figures.

** Carcinogens and reproductive toxins defined by the State of California Proposition 65, EPA's TRI Public Data Release and other literature. See full report for references.

Table 3. Total carcinogens, persistent toxic metals, and reproductive toxins** discharged to South Fork in Wyoming (1990-1994).**

Carcinogens	0 Pounds
Persistent Toxic Metals	0 Pounds
Reproductive Toxins	0 Pounds
Total‡	0 Pounds

Table 4. Polluters reporting the greatest amounts of carcinogens, persistent toxic metals, and reproductive toxins** discharged to South Fork in Wyoming (1990-1994).**

Top dischargers of carcinogens to South Fork in Wyoming (1990-1994).**

Facility	City	Carcinogens** released to water (lbs)

Top dischargers of persistent toxic metals to South Fork in Wyoming (1990-1994).

Facility	City	Persistent toxic metals released to water (lbs)

Top dischargers of reproductive toxins to South Fork in Wyoming (1990-1994).**

Facility	City	Reproductive toxins** released to water (lbs)