

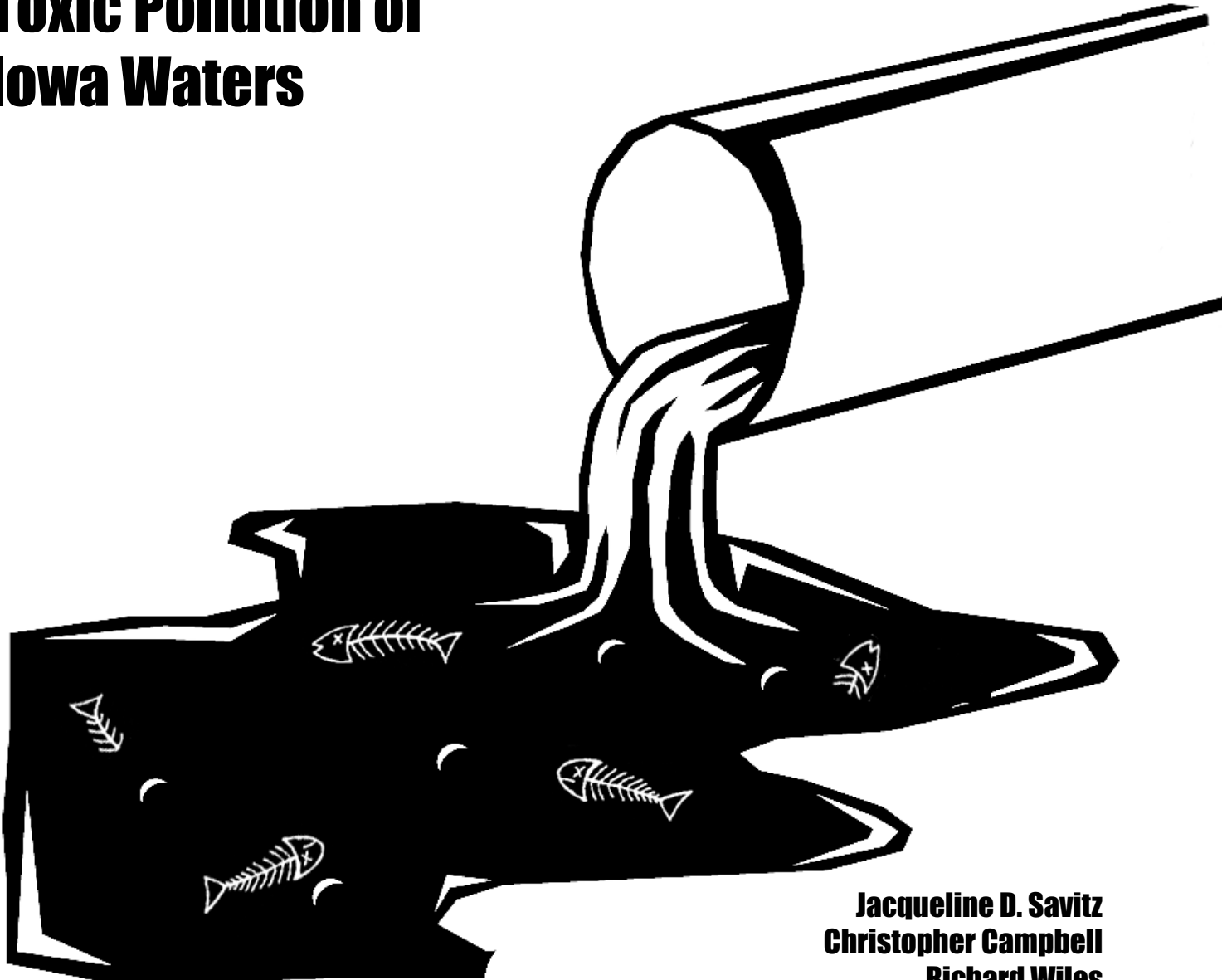


The State PIRGs



Dishonorable Discharge

Toxic Pollution of Iowa Waters



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Toxic Pollution of Iowa Waters

Executive Summary

Most Iowa 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 Iowa streams and rivers.

The citizens of Iowa 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 Iowa and nationwide.

Factories and other industrial facilities dumped more than 7.7 million pounds of toxic substances directly into Iowa's waters between 1990 and 1994, according to a new analysis of the federal Toxics Release Inventory (TRI) (Table 1). Iowa ranked 19th among the states in toxic water pollution reported over those five years. 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, over forty (43.2) million pounds of toxic materials were flushed to sewage treatment plants in Iowa from 1990 through 1994, 13th in the nation (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 Iowa raises the total amount of toxics dumped to the state's waters to an estimated 18.5 million pounds (Table 1).

The Mississippi River received the greatest amount of toxic water pollution in Iowa from 1990-1994, a total of 1,920,000 pounds, followed by the Cedar River, the Missouri River, and the Des Moines River (Table 2). The ten most polluted waterways in Iowa received 7,620,000 pounds of toxic pollution between 1990 and 1994, 99.5% percent of the total in the State.

The top three facilities reporting the most toxic pollution of Iowa's waters over this period were IBP, Inc. in Columbus Junction, which dumped 2,570,000 pounds of toxic chemicals, followed by Arcadian Fertilizer L.P., and Terra International Inc. in the towns of Camanche, and Sergeant Bluff, respectively (Table 3). The toxic chemicals dumped in the greatest amounts were ammonia, a total of 5,680,000 pounds, followed by ammonium nitrate solution, and methanol (Table 4).

Alcoa dumped the most carcinogens into Iowa's waters, a total of 5,200 pounds, followed by Monsanto Company and Salsbury Chemicals Inc. (Table 8). The Mississippi River received the greatest amount of cancer-causing toxic chemicals in Iowa, a total of 8,700 pounds, followed by the Cedar River and the White Breast (Table 7).

Salsbury Chemicals Inc. dumped the greatest amount of persistent toxic metals in Iowa's waters, a total of 11,000 pounds, followed by Qualis Inc.* and Alcoa (Table 8). The Cedar River received the greatest amount of persistent toxic metals, a total of 16,000 pounds, followed by the Mississippi River and the Des Moines River (Table 7).

John Deere, Dubuque Works dumped the greatest amount of toxic chemicals that cause reproductive damage or birth defects into Iowa's waters, a total of 5,000 pounds, followed by Amana Refrigeration Inc. and Paul Mueller Company (Table 8). The Mississippi River received the greatest amount of toxic chemicals that cause reproductive damage or birth defects, a total of 5,000 pounds, followed by the White Breast and the Iowa River (Table 7).

These discharges to Iowa's waters include only those wastes released by companies physically located in Iowa. 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 Iowa, 1000 acres of lakes surveyed had elevated levels of toxic chemicals (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 Iowa'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 Iowa. 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 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	Nitrotriacetic 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)	Safrrole
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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Iowa

Toxic pollution of Iowa waters (1990-1994)

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

Direct Water Discharges	7,654,902 Pounds
Estimated Sewer Discharges‡	10,795,666 Pounds
Total Discharges to Waters	18,450,568 Pounds

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

River or Water Body	Toxic chemical release to waterbody (pounds)
Mississippi River	1,917,908
Cedar River	1,881,803
Missouri River	1,358,772
Des Moines River	1,270,304
Iowa River	752,516
Eastern Tributary Rock Creek	333,833
Brushy Creek	38,875
New Lake	34,000
Mud Creek	16,273
North Raccoon River	13,624

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

Facility	City	Toxic chemical release to waters (pounds)
IBP Inc.	Columbus Junction	2,569,812
Arcadian Fertilizer L.P.	Camanche	1,423,977
Terra Intl. Inc.	Sergeant Bluff	1,213,545
Cargill Corn Milling	Eddyville	1,023,309
Roquette America Inc.	Keokuk	362,235
Monsanto Co.	Muscatine	291,651
Excel Corp.	Ottumwa	204,640
Kind & Knox Gelatin	Sergeant Bluff	165,060
ADM	Clinton	94,730
Farmland Ind.	Fort Dodge	72,922

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

Chemical	Toxic chemical release to waters (pounds)
Ammonia	5,680,569
Ammonium nitrate (solution)	1,725,186
Methanol	60,931
Chlorine	42,304
Molybdenum trioxide	29,925
Ethylene glycol	17,402
Manganese compounds	12,466
Diethanolamine	8,644
Copper compounds	8,324
Manganese	7,391

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

Facility	City	Toxic chemical release to sewers (pounds)
Penford Prods. Co.	Cedar Rapids	20,927,880
Cargill Corn Milling	Cedar Rapids	4,118,806
FDL Foods Inc.	Dubuque	2,476,700
Diosynth Inc.	Sioux City	1,901,022
IBP Inc.	Waterloo	1,385,250
Eagle Tanning Co.	Waterloo	1,273,550
Farmland Foods Inc.	Denison	1,248,000
Genencor Intl.	Cedar Rapids	1,238,000
Ag Processing Inc.	Mason City	983,985
IBP Inc.	Denison	800,388

‡ Total discharges of toxic chemicals to sewer systems in Iowa was 43,182,665 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.

Iowa

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

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

Carcinogens	15,219 Pounds
Persistent Toxic Metals	48,775 Pounds
Reproductive Toxins	9,768 Pounds
Total (see note)	62,347 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. Iowa waters receiving the greatest amounts of carcinogens, persistent toxic metals, and reproductive toxins** (1990-1994).**

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

River or Water Body	Carcinogens** released to waters (lbs.)
Mississippi River	8,710
Cedar River	2,669
White Breast	1,500
Iowa River	750
Maquoketa River	384

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

River or Water Body	Persistent toxic metals released to waters (lbs.)
Cedar River	15,889
Mississippi River	11,393
Des Moines River	8,302
Iowa River	4,055
White Breast	3,000

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

River or Water Body	Reproductive toxins** released to waters (lbs.)
Mississippi River	4,982
White Breast	1,500
Iowa River	1,270
Boyden Creek	750
East Nishnabotna River	333

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

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

Facility	City	Carcinogens** released to waters (lbs.)
Alcoa	Riverdale	5,156
Monsanto Co.	Muscatine	3,065
Salsbury Chemicals Inc.	Charles City	2,276
Paul Mueller Co.	Osceola	1,500
Amana Refrigeration Inc.	Amana	750

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

Facility	City	Persistent toxic metals released to waters (lbs.)
Salsbury Chemicals Inc.	Charles City	10,681
Qualis Inc.*	Des Moines	8,297
Alcoa	Riverdale	7,404
Amana Refrigeration Inc.	Amana	4,060
Solvay Animal Health Inc.*	Charles City	3,980

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

Facility	City	Reproductive toxins** released to waters (lbs.)
John Deere Dubuque Works	Dubuque	4,613
Amana Refrigeration Inc.	Amana	1,525
Paul Mueller Co.	Osceola	1,500
Dethmers Mfg. Co.*	Boyden	750
Glacier Vandervell Inc.	Atlantic	583

* 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 Environmental Working Group is a non-profit environmental research organization based in Washington, D.C.
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The Mississippi River in Iowa

Total toxic pollution reported (1990-1994): 1,917,908 Pounds

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

Facility	City	Toxic chemical release to water (pounds)
Arcadian Fertilizer L.P.	Camanche	1,090,144
Roquette America Inc.	Keokuk	362,235
Monsanto Co.	Muscatine	291,651
ADM	Clinton	94,730
Climax Molybdenum Co.	Fort Madison	33,495
John Deere Dubuque Works	Dubuque	15,939
Alcoa	Riverdale	13,027
Dial Corp.*	Fort Madison	10,500
Sivyer Steel Corp.	Bettendorf	3,524
Du Pont*	Fort Madison	

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

Chemical	Toxic chemical release to waterbody (pounds)
Ammonia	976,184
Ammonium nitrate (solution)	789,858
Methanol	57,170
Molybdenum trioxide	29,925
Chlorine	19,767
Diethanolamine	8,639
1,1,1-Trichloroethane	5,832
n-Butyl alcohol	5,650
Glycol ethers	3,845
Manganese	3,249

‡ 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 Mississippi River in Iowa (1990-1994).**

Carcinogens	8,710 Pounds
Persistent Toxic Metals	11,393 Pounds
Reproductive Toxins	4,982 Pounds
Total‡	21,966 Pounds

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

Top dischargers of carcinogens to the Mississippi River in Iowa (1990-1994).**

Facility	City	Carcinogens** released to water (lbs)
Alcoa	Riverdale	5,156
Monsanto Co.	Muscatine	3,065
Keokuk Ferro-Sil Inc.	Keokuk	265
John Deere Dubuque Works	Dubuque	169

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

Facility	City	Persistent toxic metals released to water (lbs)
Alcoa	Riverdale	7,404
Sivyer Steel Corp.	Bettendorf	3,274
Keokuk Ferro-Sil Inc.	Keokuk	300
John Deere Dubuque Works	Dubuque	289

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

Facility	City	Reproductive toxins** released to water (lbs)
John Deere Dubuque Works	Dubuque	4,558
Alcoa	Riverdale	250
Monsanto Co.	Muscatine	120

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

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The Cedar River in Iowa

Total toxic pollution reported (1990-1994): 1,881,803 Pounds

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

Facility	City	Toxic chemical release to water (pounds)
IBP Inc.	Columbus Junction	1,833,041
Salsbury Chemicals Inc.	Charles City	40,524
John Deere Fndy.	Waterloo	4,185
Solvay Animal Health Inc.*	Charles City	4,025

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

Chemical	Toxic chemical release to waterbody (pounds)
Ammonia	1,865,017
Manganese compounds	12,100
Arsenic compounds	2,561
Manganese	1,220
Phenol	476
Acetonitrile	250
1,1,2-Trichloroethane	100

‡ 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 Cedar River in Iowa (1990-1994).**

Carcinogens	2,669 Pounds
Persistent Toxic Metals	15,889 Pounds
Reproductive Toxins	6 Pounds
Total‡	15,992 Pounds

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

Top dischargers of carcinogens to the Cedar River in Iowa (1990-1994).**

Facility	City	Carcinogens** released to water (lbs)
Salsbury Chemicals Inc.	Charles City	2,276
Solvay Animal Health Inc.*	Charles City	385

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

Facility	City	Persistent toxic metals released to water (lbs)
Salsbury Chemicals Inc.	Charles City	10,681
Solvay Animal Health Inc.*	Charles City	3,980
John Deere Fndy.	Waterloo	1,228

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

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

The Missouri River in Iowa

Total toxic pollution reported (1990-1994): 1,358,772 Pounds

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

Facility	City	Toxic chemical release to water (pounds)
Terra Intl. Inc.	Sergeant Bluff	1,213,545
Kind & Knox Gelatin	Sergeant Bluff	131,060
Ag Processing Inc.	Sergeant Bluff	14,167

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

Chemical	Toxic chemical release to waterbody (pounds)
Ammonia	852,000
Ammonium nitrate (solution)	491,000
Chlorine	14,227
Methanol	1,250
Nitric acid	270

‡ 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 Missouri River in Iowa (1990-1994).**

Carcinogens	25 Pounds
Persistent Toxic Metals	0 Pounds
Reproductive Toxins	0 Pounds
Total‡	25 Pounds

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

Top dischargers of carcinogens to the Missouri River in Iowa (1990-1994).**

Facility	City	Carcinogens** released to water (lbs)

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

Facility	City	Persistent toxic metals released to water (lbs)

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

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

The Des Moines River in Iowa

Total toxic pollution reported (1990-1994): 1,270,304 Pounds

Table 1. Polluters discharging the greatest amounts of toxic chemicals to the Des Moines River in Iowa (1990-1994).

Facility	City	Toxic chemical release to water (pounds)
Cargill Corn Milling	Eddyville	1,023,309
Excel Corp.	Ottumwa	204,640
Farmland Ind.	Fort Dodge	34,047
Qualis Inc.*	Des Moines	8,297

Table 2. Toxic chemicals discharged in the greatest amounts to the Des Moines River in Iowa (1990-1994).

Chemical	Toxic chemical release to waterbody (pounds)
Ammonia	1,141,898
Ammonium nitrate (solution)	117,587
Copper compounds	8,297
Methanol	2,511

‡ 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 Des Moines River in Iowa (1990-1994).**

Carcinogens	0 Pounds
Persistent Toxic Metals	8,302 Pounds
Reproductive Toxins	1 Pounds
Total‡	8,303 Pounds

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

Top dischargers of carcinogens to the Des Moines River in Iowa (1990-1994).**

Facility	City	Carcinogens** released to water (lbs)

Top dischargers of persistent toxic metals to the Des Moines River in Iowa (1990-1994).

Facility	City	Persistent toxic metals released to water (lbs)
Qualis Inc.*	Des Moines	8,297

Top dischargers of reproductive toxins to the Des Moines River in Iowa (1990-1994).**

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

The Iowa River in Iowa

Total toxic pollution reported (1990-1994): 752,516 Pounds

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

Facility	City	Toxic chemical release to water (pounds)
IBP Inc.	Columbus Junction	736,771
Tama Meat Packing Inc.	Tama	7,400
Amana Refrigeration Inc.	Amana	5,080
Packaging Corp. Of America	Tama	3,265

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

Chemical	Toxic chemical release to waterbody (pounds)
Ammonia	747,364
Manganese	1,800
Zinc compounds	1,500
Xylene (mixed isomers)	755
Chromium	500
Glycol ethers	265
Nickel	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 the Iowa River in Iowa (1990-1994).**

Carcinogens	750 Pounds
Persistent Toxic Metals	4,055 Pounds
Reproductive Toxins	1,270 Pounds
Total‡	5,075 Pounds

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

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

Facility	City	Carcinogens** released to water (lbs)
Amana Refrigeration Inc.	Amana	750

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

Facility	City	Persistent toxic metals released to water (lbs)
Amana Refrigeration Inc.	Amana	4,055

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

Facility	City	Reproductive toxins** released to water (lbs)
Amana Refrigeration Inc.	Amana	1,270

Eastern Tributary Rock Creek in Iowa

Total toxic pollution reported (1990-1994): 333,833 Pounds

Table 1. Polluters discharging the greatest amounts of toxic chemicals to Eastern Tributary Rock Creek in Iowa (1990-1994).

Facility	City	Toxic chemical release to water (pounds)
Arcadian Fertilizer L.P.	Camanche	333,833

Table 2. Toxic chemicals discharged in the greatest amounts to Eastern Tributary Rock Creek in Iowa (1990-1994).

Chemical	Toxic chemical release to waterbody (pounds)
Ammonium nitrate (solution)	294,920
Ammonia	38,913

‡ 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 Eastern Tributary Rock Creek in Iowa (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 Eastern Tributary Rock Creek in Iowa (1990-1994).**

Top dischargers of carcinogens to Eastern Tributary Rock Creek in Iowa (1990-1994).**

Facility	City	Carcinogens** released to water (lbs)

Top dischargers of persistent toxic metals to Eastern Tributary Rock Creek in Iowa (1990-1994).

Facility	City	Persistent toxic metals released to water (lbs)

Top dischargers of reproductive toxins to Eastern Tributary Rock Creek in Iowa (1990-1994).**

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

Brushy Creek in Iowa

Total toxic pollution reported (1990-1994): 38,875 Pounds

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

Facility	City	Toxic chemical release to water (pounds)
Farmland Ind.	Fort Dodge	38,875

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

Chemical	Toxic chemical release to waterbody (pounds)
Ammonium nitrate (solution)	31,821
Ammonia	7,054

‡ 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 Brushy Creek in Iowa (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 Brushy Creek in Iowa (1990-1994).**

Top dischargers of carcinogens to Brushy Creek in Iowa (1990-1994).**

Facility	City	Carcinogens** released to water (lbs)

Top dischargers of persistent toxic metals to Brushy Creek in Iowa (1990-1994).

Facility	City	Persistent toxic metals released to water (lbs)

Top dischargers of reproductive toxins to Brushy Creek in Iowa (1990-1994).**

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

New Lake in Iowa

Total toxic pollution reported (1990-1994): 34,000 Pounds

Table 1. Polluters discharging the greatest amounts of toxic chemicals to New Lake in Iowa (1990-1994).

Facility	City	Toxic chemical release to water (pounds)
Kind & Knox Gelatin	Sergeant Bluff	34,000

Table 2. Toxic chemicals discharged in the greatest amounts to New Lake in Iowa (1990-1994).

Chemical	Toxic chemical release to waterbody (pounds)
Ammonia	34,000

‡ 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 New Lake in Iowa (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 New Lake in Iowa (1990-1994).**

Top dischargers of carcinogens to New Lake in Iowa (1990-1994).**

Facility	City	Carcinogens** released to water (lbs)

Top dischargers of persistent toxic metals to New Lake in Iowa (1990-1994).

Facility	City	Persistent toxic metals released to water (lbs)

Top dischargers of reproductive toxins to New Lake in Iowa (1990-1994).**

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

Mud Creek in Iowa

Total toxic pollution reported (1990-1994): 16,273 Pounds

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

Facility	City	Toxic chemical release to water (pounds)
North Star Steel Co.*	Wiltonjunction	16,273

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

Chemical	Toxic chemical release to waterbody (pounds)
Ethylene glycol	15,500
Chromium compounds	250
Zinc compounds	250
Manganese compounds	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 Mud Creek in Iowa (1990-1994).**

Carcinogens	13 Pounds
Persistent Toxic Metals	763 Pounds
Reproductive Toxins	0 Pounds
Total‡	763 Pounds

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

Top dischargers of carcinogens to Mud Creek in Iowa (1990-1994).**

Facility	City	Carcinogens** released to water (lbs)

Top dischargers of persistent toxic metals to Mud Creek in Iowa (1990-1994).

Facility	City	Persistent toxic metals released to water (lbs)
North Star Steel Co.*	Wiltonjunction	763

Top dischargers of reproductive toxins to Mud Creek in Iowa (1990-1994).**

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

The North Raccoon River in Iowa

Total toxic pollution reported (1990-1994): 13,624 Pounds

Table 1. Polluters discharging the greatest amounts of toxic chemicals to the North Raccoon River in Iowa (1990-1994).

Facility	City	Toxic chemical release to water (pounds)
IBP Inc.	Perry	13,624

Table 2. Toxic chemicals discharged in the greatest amounts to the North Raccoon River in Iowa (1990-1994).

Chemical	Toxic chemical release to waterbody (pounds)
Ammonia	13,624

‡ 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 North Raccoon River in Iowa (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 North Raccoon River in Iowa (1990-1994).**

Top dischargers of carcinogens to the North Raccoon River in Iowa (1990-1994).**

Facility	City	Carcinogens** released to water (lbs)

Top dischargers of persistent toxic metals to the North Raccoon River in Iowa (1990-1994).

Facility	City	Persistent toxic metals released to water (lbs)

Top dischargers of reproductive toxins to the North Raccoon River in Iowa (1990-1994).**

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