Toxic Pollution and Health

An Analysis of Toxic Chemicals Released in Communities across the United States

MASSPIRG

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TABLE OF CONTENTS

EXECUTIVE SUMMARY

Industries across the United States pump billions of pounds of toxic chemicals into our air, land, and water each year, many of which can cause cancer and other severe health effects. The Environmental Protection Agency's Toxics Release Inventory (TRI) program provides Americans with the best information about toxic chemicals released in their communities. Unfortunately, in December 2006 the Bush administration limited the public's right-to-know about this pollution by giving some polluters a free pass on reporting their toxic emissions.

The TRI program is a critical tool for citizens, public health officials, and policy-makers interested in identifying trends in toxic pollution at the local, state and national levels. Each year, the country's largest facilities from a range of industries report their air, water, and land releases of more than 600 toxic chemicals, providing valuable information about which chemicals are entering the environment and where. For some of these chemicals, scientists know little about their effects on public health and the environment. For many, however, scientists have linked exposure to harmful health effects ranging from chronic bronchitis to developmental problems to cancer.

Using the latest available TRI data, we examined releases of chemicals known or suspected to cause serious health problems and identified states and localities that are bearing the brunt of this pollution. Specifically, we looked at releases of substances recognized by the state of California to cause cancer, birth defects or reproductive problems; we also looked at releases of substances suspected by scientists to damage the neurological or respiratory systems.

Our findings include:

Industries continue to release toxic chemicals linked to severe health effects into our air and water.

- In 2004, U.S. facilities—led by the chemical and paper industries—released more than 70 million pounds of recognized carcinogens to the air and water. Texas, South Carolina, Louisiana, Alabama and Florida ranked highest for air and water releases of carcinogens.
- In 2004, U.S. facilities—led by the chemical industry—reported more than 96 million pounds of air and water emissions of chemicals linked to developmental problems, such as birth defects and learning disabilities, and almost 38 million pounds of chemicals linked to reproductive disorders. Tennessee ranked first in overall releases of both developmental and reproductive toxicants, followed by Texas and Illinois.
- In 2004, U.S. facilities—led by the chemical and paper industries and electric utilities—released more than 826 million pounds of suspected neurological toxicants to the air and water. Texas, Tennessee, Georgia, Louisiana, and Ohio ranked highest for air and water releases of neurotoxicants.
- In 2004, U.S. facilities released almost 1.5 billion pounds of suspected respiratory toxicants to the air, with electric utilities accounting for almost half of the pollution. Ohio, North Carolina, Tennessee, Texas and Pennsylvania ranked highest for respiratory toxicant releases to air.
- In 2004, U.S. facilities reported releasing 2,631 grams of dioxins—one of the most dangerous substances known to science—to the air and water. The chemical industry and electric utilities released the most dioxins.

A relatively small number of communities often experience the bulk of the air and water pollution.

- In 2004, almost a quarter (24 percent) of all air and water releases of carcinogens occurred within just 20 U.S. counties. Four Texas counties—Harris, Galveston, Brazoria, and Jefferson—ranked in the top five counties for most carcinogenic emissions.
- Tennessee, Texas and Illinois accounted for more than 40 percent of the nation's developmental toxicant releases and more than 70 percent of the reproductive toxicant releases in 2004.
- Almost two-thirds (62 percent) of all air and water releases of dioxins reported to TRI in 2004 occurred within just 20 zip codes. Zip code 77541 in Freeport, Texas and 70765 in Plaquemine, Louisiana are home to the two facilities—both owned by Dow Chemical—that released the most dioxins in 2004.

The mining industry overwhelmingly releases the most toxic pollution to land.

- In 2004, U.S. facilities reporting to TRI released more than 608 million pounds of carcinogens, developmental toxicants and reproductive toxicants to land. The metal mining industry was responsible for about 485 million pounds (80 percent) of these releases.
- Two-thirds (67 percent) of the land releases of carcinogens, developmental toxicants and reproductive toxicants were lead or lead compounds. Exposure to lead can affect almost every organ and system in the human body, especially the central nervous system.
- Nevada, Alaska, and Utah ranked highest for land releases of carcinogens, developmental toxicants and reproductive toxicants in 2004, accounting for 71 percent of the land releases of these substances nationally.

The Bush administration has limited the public's right-to-know about toxic releases.

On December 22, 2006, the Bush administration finalized a new rule that will reduce the quantity and quality of toxic chemical data submitted under TRI and available to the public. Specifically, the new rule allows facilities to avoid submitting detailed reports for management of persistent bioaccumulative toxins (other than dioxins) under 500 pounds. These substances persist in the environment, and even minute amounts pose a serious risk to public health. For all other chemicals, the Bush administration raised the threshold at which companies are required to submit detailed reports from 500 pounds to 5,000 pounds per year of waste generation, if not more than 2,000 pounds are released to the environment. The end result is that the public will have less information about toxic pollution released in communities.

The public needs more information about toxic pollution, not less, and facilities need to cut toxic chemical use and releases.

The Bush administration should reverse its policy that limits reporting of toxic chemicals and instead strengthen the quality and quantity of data provided to the public. Moreover, the United States needs to make toxics use reduction a priority and require facilities to find safer alternatives to dangerous chemicals.

INTRODUCTION

Every day in America, industrial facilities release millions of pounds of toxic substances into the nation's air and water. Many Americans – especially those who live in close proximity to industrial facilities – harbor deep concern about how those toxic releases may affect their health.

Congress established the Toxics Release Inventory (TRI) program in 1986 as a part of the Emergency Planning and Community Right-to-Know Act (EPCRA). According to the Conference Report from the passage of EPCRA, Congress intended to "provide the public with important information on hazardous chemicals in their communities."[1] Under EPCRA, industrial facilities in specific sectors must disclose to the Environmental Protection Agency (EPA) their releases of approximately 650 toxic chemicals to air, water, and land, as well as the quantities of chemicals they recycle, treat, burn, or otherwise dispose of on-site and off-site.

The primary purpose of the TRI program is to inform citizens, emergency responders, and local and state governments of toxic hazards in communities.[2] By providing information on toxic chemical releases, the TRI program empowers citizens and local governments to hold companies accountable for how toxic chemicals are used and managed in their communities.

The TRI program has some limitations. Not all industries and facilities have to report their toxic pollution, and those that do report do not have to disclose releases of all chemicals. That said, the TRI program remains a critical tool for citizens and others who are concerned about toxic chemicals released, burned, and otherwise present in their communities. Unfortunately, as described later in this report, the Bush administration finalized a rule in December 2006 that will enable facilities to withhold currently reported toxic chemical information from the public.

This report uses the most recent TRI data available to show which industries are releasing carcinogens and other harmful substances, where, and in what amounts. In doing so, this report also demonstrates something else: the importance of the TRI program for understanding the problem of toxic chemicals in our communities.

TOXIC RELEASES IN THE UNITED STATES

Industries across the United States continue to pump billions of pounds of toxic chemicals into our air, land, and water. For some of these chemicals, scientists know little about their potential effects on public health and the environment. In the most recent government study on the subject, EPA found in 1998 that it had the full set of basic toxicity information for only seven percent of the high volume chemicals manufactured in the United States.[3] For many chemicals, however, scientists have linked exposure to harmful health effects ranging from chronic bronchitis to developmental problems to cancer.

Using the most recent data from the Toxics Release Inventory, we examined which industries are releasing chemicals known or suspected to cause serious health problems and which communities are bearing the brunt of this pollution. Specifically, we looked at:

- Releases of known carcinogens and chemicals known to cause developmental and reproductive problems. California maintains the most comprehensive list available of chemicals known to cause cancer, birth defects or other reproductive problems as part of Proposition 65, an initiative passed by voters in 1986 to inform Californians about their exposure to toxic chemicals.

- Releases of suspected neurotoxicants and respiratory toxicants. No government agency maintains an authoritative list of toxic chemicals that are known to cause neurological or respiratory problems. Environmental Defense, however, has compiled a comprehensive list of substances suspected by government or academic researchers to damage the neurological and respiratory systems.

Communities would not know about these toxic chemical releases without the Toxics Release Inventory program, unless facilities opted to voluntarily disclose this information.

TOXIC RELEASES TO AIR AND WATER

Industries reporting to the Toxics Release Inventory released 1.8 billion pounds of toxic pollution to our air and water in 2004.[4] Scientists have linked exposure to many of these toxic chemicals to severe health effects, including cancer; many more remain understudied and their health effects poorly understood. Since not all industries and facilities report to TRI and those that do report do not have to disclose releases of all chemicals, the following likely understates the problem of toxic pollution in the United States.

CARCINOGENS

A carcinogen is a substance that causes cancer, including malignant tumors and other cancerous diseases such as leukemia. The risk of cancer accumulates over a lifetime. In

the United States, men have about a 1 in 2 lifetime risk of developing cancer; for women, the lifetime risk is slightly more than 1 in 3.[5] Scientists estimate that exposure to carcinogens in the workplace or the general environment account for at least six percent of cancer deaths, or 33,900 people each year.[6]

Scientists know a great deal about cancer risks from exposure to some substances. Studies have shown that workers exposed to asbestos, for example, have a greater risk of developing lung cancer and malignant mesothelioma.[7] Similarly, many studies have shown that radon, which develops from the decay of naturally-occurring uranium in soil and rock and can accumulate in basements and underground unventilated spaces, can cause lung cancer.[8] Based on extensive scientific research, the state of California has listed almost 500 substances as known to cause cancer under Proposition 65. The TRI program does not require industries to report their releases of all of these substances.

FINDINGS

In 2004, U.S. facilities reporting to TRI released more than 70 million pounds of recognized carcinogens directly to the air and water. Acetaldehyde was the most frequently released carcinogen, with total air and water releases of almost 14 million pounds (Table 1). Acetaldehyde is used primarily as a chemical intermediate, principally for the production of certain acids and other chemicals. Human exposure occurs most often through inhalation, especially in urban areas or near other sources of combustion.[9] Studies have linked inhalation exposure to acetaldehyde with an increased incidence of respiratory tract tumors in laboratory animals.[10] In addition to being listed as a known carcinogen under Proposition 65, acetaldehyde is a suspected respiratory and neurological toxicant.

Table 1. Carcinogens Released in the Highest Volume to Air and Water, 2004 (pounds)

Rank	Chemical	Total Air and Water Emissions
1	ACETALDEHYDE	13,866,013
2	FORMALDEHYDE	13,006,975
3	DICHLOROMETHANE	6,749,078
4	BENZENE	6,666,412
5	TRICHLOROETHYLENE	6,150,291

The chemical industry was responsible for 17.3 million pounds (25 percent) of all releases of carcinogenic substances to the air and water in the United States during 2004, followed by the paper industry, lumber and wood products industry, and petroleum refineries (Table 2). BP's Texas City refinery, one of the largest refineries in the country, topped the list for the most releases of recognized carcinogens to the air and water, including more than 1.9 million pounds of formaldehyde. Similarly, the 3V chemical facility in Georgetown, South Carolina released almost 861,000 pounds of dichloromethane and 23,000 pounds of acetaldehyde into the air and water (Table 3).

Table 2. Industries Releasing the Most Carcinogens to Air and Water, 2004 (pounds)

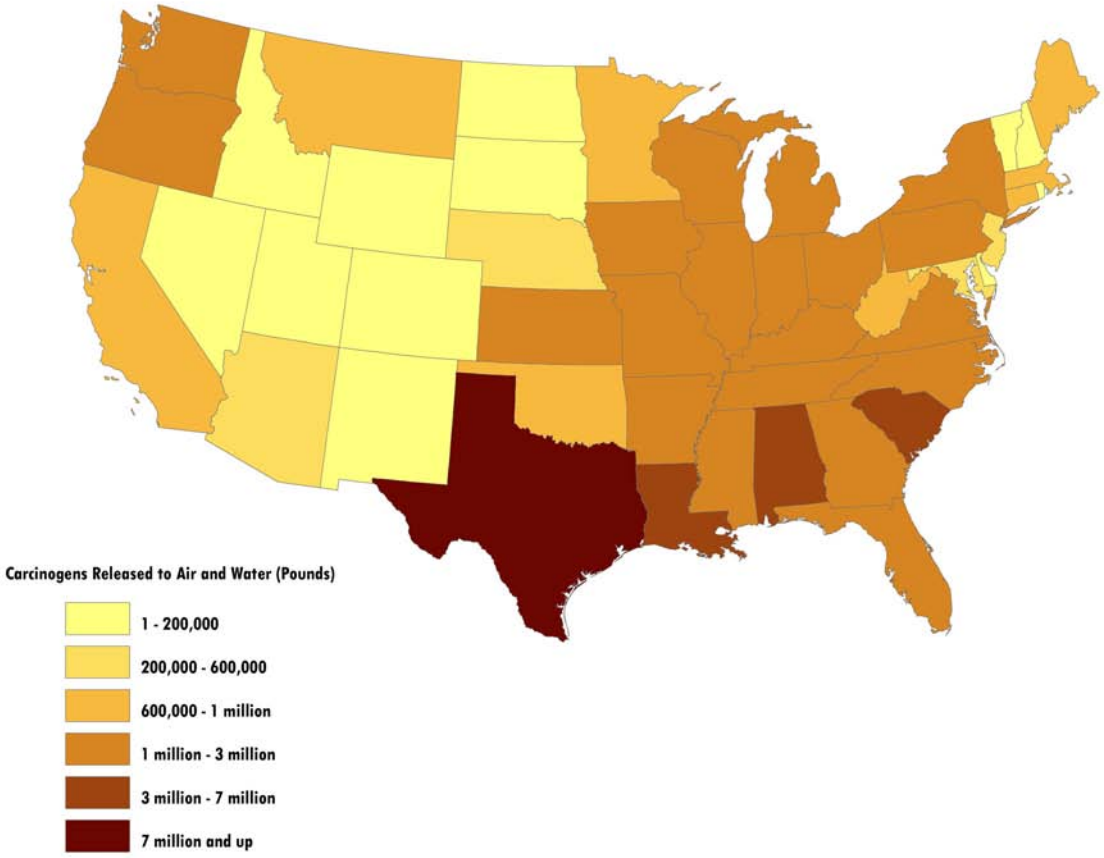
Rank	Industry	Total Air and Water Emissions
1	Chemicals and Allied Products	17,320,073
2	Paper and Allied Products	12,409,815
3	Lumber and Wood Products, Except Furniture	6,085,273
4	Petroleum Refining and Related Industries	5,331,550
5	Fabricated Metal Products, Except Machinery and Transportation Equipment	4,097,416
6	Primary Metal Industries	4,096,199
7	Food and Kindred Products	3,507,874
8	Transportation Equipment	3,300,501
9	Stone, Clay, Glass, and Concrete Products	2,832,873
10	Rubber and Miscellaneous Plastics Products	2,739,830

Table 3. Facilities Releasing the Most Carcinogens to Air and Water, 2004 (pounds)

Rank	Facility	City	State	Total Air and Water Emissions
1	BP TEXAS CITY REFINERY	TEXAS CITY	TX	2,086,948
2	3V INC	GEORGETOWN	SC	883,714
3	UNITED STATES SUGAR CORP	BRYANT	FL	726,120
4	WEYERHAEUSER CO	LONGVIEW	WA	697,693
5	EASTMAN KODAK CO.	ROCHESTER	NY	620,628
6	DDE LOUISVILLE	LOUISVILLE	KY	538,858
7	U.S. AIR FORCE DYESS AFB	DYESS AFB	TX	524,899
8	GE PLASTICS	MOUNT VERNON	IN	524,305
9	TRIGEN-BOSTON ENERGY	BOSTON	MA	478,090
10	PLUM CREEK MDF INC	COLUMBIA FALLS	MT	473,295

The Southeastern and Gulf regions of the country experienced the most carcinogenic pollution, with Texas, South Carolina, Louisiana, Alabama and Florida ranking highest for total carcinogen releases to air and water in 2004 (Figure A). These states are home to more than 300 chemical facilities, 40 pulp, paper and paperboard mills, and 90 petroleum refining facilities that reported emissions of carcinogens in 2004. See Appendix A for a list of all states with facilities releasing carcinogens to air and water in 2004.

Figure A. Air and Water Releases of Carcinogens by State, 2004 (pounds)



Note: Hawaii reported 93,000 pounds of carcinogens released to air and water in 2004; Alaska reported 48,000 pounds.

In 2004, almost one-fifth (18 percent) of all air and water releases of carcinogens reported to TRI occurred within just 20 zip codes. Zip code 77590 in Texas City, Texas, the site of several chemical facilities and refineries, ranked first for total releases of carcinogens to air and water, followed by zip code 29440 in Georgetown, South Carolina and 98632 in Longview, Washington (Table 4).

Similarly, almost a quarter (24 percent) of all air and water releases of carcinogens reported to TRI occurred within just 20 U.S. counties. Four Texas counties—Harris, Galveston, Brazoria, and Jefferson—ranked in the top five counties for most carcinogenic air and water emissions in 2004 (Table 5).

See Appendix B for the 100 U.S. zip codes and Appendix C for the 100 U.S. counties reporting the most carcinogens released to air and water in 2004.

Table 4. Top 10 U.S. Zip Codes for Air and Water Releases of Carcinogens, 2004 (pounds)

Rank	Zip Code	City	State	Total Air and Water Emissions
1	77590	TEXAS CITY	TX	2,207,262
2	29440	GEORGETOWN	SC	1,052,995
3	98632	LONGVIEW	WA	734,693
4	33439	BRYANT	FL	726,120
5	40216	LOUISVILLE	KY	632,791
6	35601	DECATUR	AL	628,789
7	14652	ROCHESTER	NY	620,628
8	77530	CHANNELVIEW	TX	579,198
9	47620	MOUNT VERNON	IN	531,148
10	79607	DYESS AFB	TX	524,899

Table 5. Top 10 U.S. Counties for Air and Water Releases of Carcinogens, 2004 (pounds)

Rank	County	State	Total Air and Water Emissions
1	HARRIS	TX	2,557,944
2	GALVESTON	TX	2,383,244
3	GEORGETOWN	SC	1,052,996
4	BRAZORIA	TX	928,811
5	JEFFERSON	TX	927,624
6	JEFFERSON	KY	832,951
7	COWLITZ	WA	756,248
8	PALM BEACH	FL	726,365
9	MORGAN	AL	707,188
10	MONROE	NY	672,782

DEVELOPMENTAL AND REPRODUCTIVE TOXICANTS

Scientists have shown that exposure to some toxic chemicals can impede the proper physical and mental development of young children. Potential developmental health effects cover a wide range of conditions including fetal death, structural defects such as cleft lip/cleft palate and heart abnormalities, and functional defects such as neurological, hormonal or immune system problems.

Less is known about the developmental impacts of many toxic chemicals than about their carcinogenicity, in part because developmental effects have been less widely studied and in part because the mechanism by which toxic substances can affect development is complex. Based on available knowledge, the state of California has listed more than 250 substances as known to cause developmental disorders under Proposition 65. The TRI program does not require industries to report their releases of all of these substances.

Toxic substances also have the potential to impair the male or female reproductive

system, leading to sterility, spontaneous abortion or stillbirth. The state of California currently lists 40 substances as known to cause reproductive disorders in females and 57 substances known to cause reproductive disorders in males. Again, the TRI program does not require industries to report their releases of all of these substances.

Few chemicals have been fully tested for their impact on the developing fetus. In fact, of the nearly 3,000 high production volume chemicals studied by EPA in 1998, three-fourths (77 percent) did not have publicly available screening-level information on developmental or reproductive toxicity.[11] In addition, the timing of exposure during a fetus or child's development is significant. Maternal exposure to a toxic substance at a critical time during pregnancy may result in a developmental defect, while exposure during another time may not.

FINDINGS

In 2004, facilities reporting to TRI released more than 96 million pounds of developmental toxicants directly to the air and water. Toluene was the most commonly released developmental toxicant in 2004, totaling 54 million pounds, followed by carbon disulfide at almost 27 million pounds (Table 6). Emissions of toluene and carbon disulfide accounted for 84 percent of all developmental toxicant releases in 2004.

Toluene occurs naturally in crude oil and is produced in the process of refining oil and making coke from coal. It also is used in the manufacture of paints, fingernail polish, adhesives and other products. Toluene does not remain in the environment for long, nor does it accumulate within animal tissue. At high levels of exposure, toluene can affect the kidneys, induce light-headedness, or cause unconsciousness or death. Lower level exposures can affect the nervous system and cause fatigue, nausea, and temporary hearing and color vision loss. No evidence links toluene to cancer, but inhalation of high levels of toluene during pregnancy can result in children with birth defects and mental retardation. Less is known about the developmental impacts of low-level exposure during pregnancy.[12]

Table 6. Developmental Toxicants Released in the Highest Volume to Air and Water, 2004 (pounds)

Rank	Chemical	Total Air and Water Emissions
1	TOLUENE	54,008,597
2	CARBON DISULFIDE	26,899,459
3	BENZENE	6,666,412
4	N-METHYL-2-PYRROLIDONE	2,355,373
5	1,3-BUTADIENE	1,881,877

In 2004, facilities reporting to TRI released almost 38 million pounds of reproductive toxicants directly to the air and water. Carbon disulfide was the reproductive toxicant released in the greatest quantity to air and water in 2004, accounting for more than 70 percent of all reproductive toxicant emissions (Table 7). Carbon disulfide is used in various manufacturing processes and can be lethal at high levels of exposure due to impacts on the nervous system. Animal studies suggest that carbon disulfide can affect the normal functions of the brain, liver and heart and can lead to birth defects and neonatal death.[13]

Table 7. Reproductive Toxicants Released in the Highest Volume to Air and Water, 2004 (pounds)[14]

Rank	Chemical	Total Air and Water Emissions
1	CARBON DISULFIDE	26,899,459
2	BENZENE	6,666,412
3	1,3-BUTADIENE	1,881,877
4	LEAD COMPOUNDS	1,031,090
5	ETHYLENE OXIDE	335,054

The chemical industry released the most developmental and reproductive toxicants to air and water in 2004, accounting for almost a third (31 percent) of developmental toxicant releases and more than half (57 percent) of reproductive toxicant releases (Tables 8 and 10). Within the chemical industry, the cellulosic manmade fibers sector – which includes the manufacture of acetate and rayon fibers for clothing – was responsible for the most pollution. This sector uses large amounts of carbon disulfide to treat cellulose in the manufacture of rayon. In Lowland, Tennessee, the Liberty Fibers facility, which manufactures rayon staple fiber products, released more than 14.4 million pounds of carbon disulfide to the air and water in 2004.

Four of the 10 facilities releasing the most developmental and reproductive toxicants belong to the rubber and plastic products industry (Tables 9 and 11). Teepak LLC and Viskase Corp. produce cellulose, fibrous and plastic casings for the packaging of meat; Spontex Inc. makes wiping and scouring products (such as sponges) and rubber gloves. Each of these facilities released large amounts of carbon disulfide in 2004.

Table 8. Industries Releasing the Most Developmental Toxicants to Air and Water, 2004 (pounds)

Rank	Industry	Total Air and Water Emissions
1	Chemicals and Allied Products	29,723,637
2	Rubber and Miscellaneous Plastics Products	15,026,397
3	Printing, Publishing, and Allied Industries	12,445,438
4	Paper and Allied Products	9,626,332
5	Petroleum Refining and Related Industries	6,983,611
6	Transportation Equipment	5,439,134
7	Primary Metal Industries	2,237,833
8	Lumber and Wood Products, Except Furniture	1,843,622
9	Fabricated Metal Products, Except Machinery and Transportation Equipment	1,768,415
10	Furniture and Fixtures	1,648,780

The printing and publishing industry ranked third for emissions of developmental toxicants. Commercial printing facilities using the gravure printing process for long runs of multi-colored products such as food packaging, wallpaper, wrapping paper, magazines, and greeting cards, often rely on toluene-based ink. The Quebecor World Memphis Corp. commercial printing facility in Dickson, Tennessee released more toluene than any other facility in this industry—more than 1.5 million pounds.

Table 9. Facilities Releasing the Most Developmental Toxicants to Air and Water, 2004 (pounds)

Rank	Facility	City	State	Total Air and Water Emissions
1	LIBERTY FIBERS CORP	LOWLAND	TN	14,410,790
2	TEEPAK LLC	DANVILLE	IL	3,555,300
3	INTERTAPE POLYMER GROUP	COLUMBIA	SC	2,244,218
4	VISKASE CORP	LOUDON	TN	2,226,146
5	QUEBECOR WORLD MEMPHIS CORP.	DICKSON	TN	1,510,219
6	VISKASE CORP	OSCEOLA	AR	1,428,423
7	SPONTEX INC.	COLUMBIA	TN	1,308,128
8	SHURTAPE TECHNOLOGIES	HICKORY	NC	1,127,803
9	QUEBECOR WORLD RICHMOND INC	RICHMOND	VA	1,123,901
10	INNOVIA FILMS INC	TECUMSEH	KS	1,115,957

Table 10. Industries Releasing the Most Reproductive Toxicants to Air and Water, 2004 (pounds)

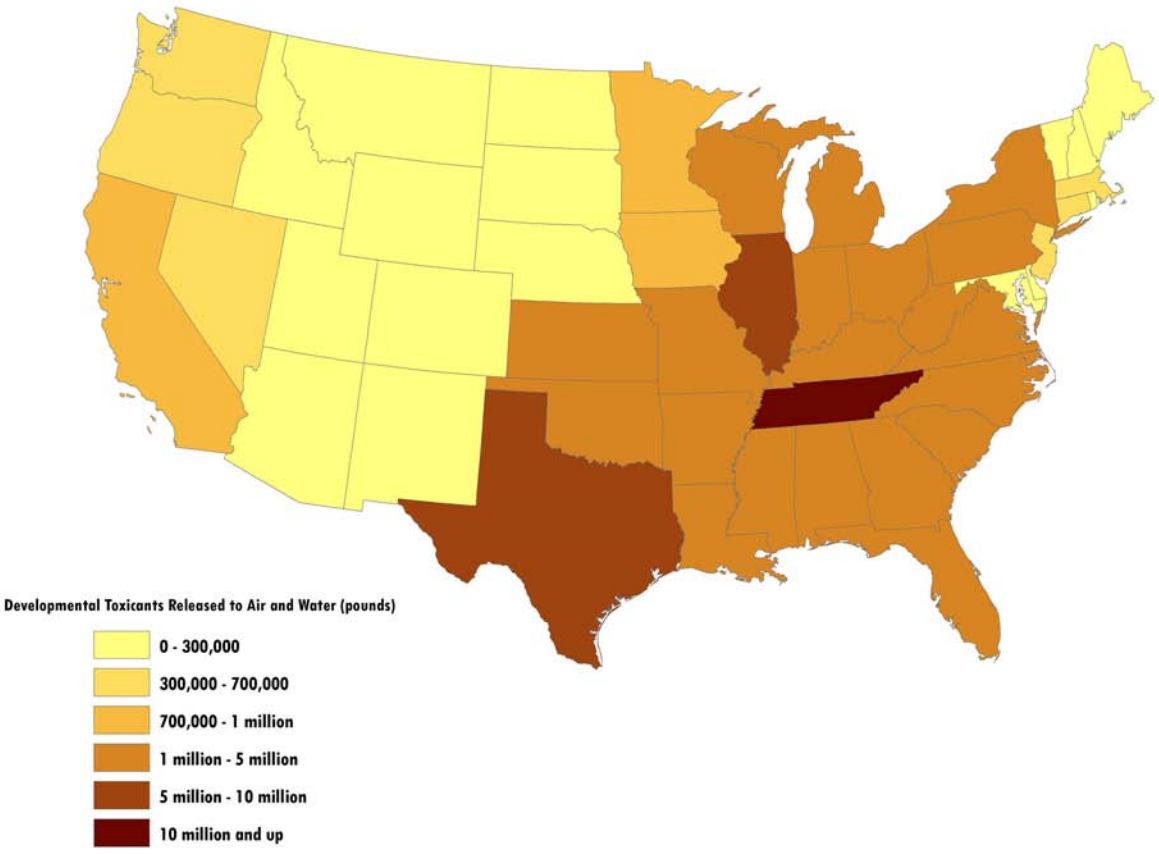
Rank	Industry	Total Air and Water Emissions
1	Chemicals and Allied Products	21,496,968
2	Rubber and Miscellaneous Plastics Products	8,935,031
3	Petroleum Refining and Related Industries	2,160,364
4	Paper and Allied Products	1,214,972
5	Primary Metal Industries	1,190,040
6	Stone, Clay, Glass, and Concrete Products	627,176
7	National Security and International Affairs	610,280
8	Food and Kindred Products	449,115
9	Electric, Gas, and Sanitary Services	255,709
10	Wholesale Trade, Non-Durable Goods	229,450

Table 11. Facilities Releasing the Most Reproductive Toxicants to Air and Water, 2004 (pounds)

Rank	Facility	City	State	Total Air and Water Emissions
1	LIBERTY FIBERS CORP	LOWLAND	TN	14,410,776
2	TEEPAK LLC	DANVILLE	IL	3,555,300
3	VISKASE CORP	LOUDON	TN	2,226,146
4	VISKASE CORP	OSCEOLA	AR	1,428,423
5	SPONTEX INC.	COLUMBIA	TN	1,308,128
6	INNOVIA FILMS INC	TECUMSEH	KS	951,757
7	U.S. AIR FORCE DYESS AFB	DYESS AFB	TX	524,899
8	COLUMBIAN CHEMICALS CO	PROCTOR	WV	486,973
9	3M CO TONAWANDA	TONAWANDA	NY	406,000
10	COLUMBIAN CHEMICALS CO	ULYSSES	KS	359,006

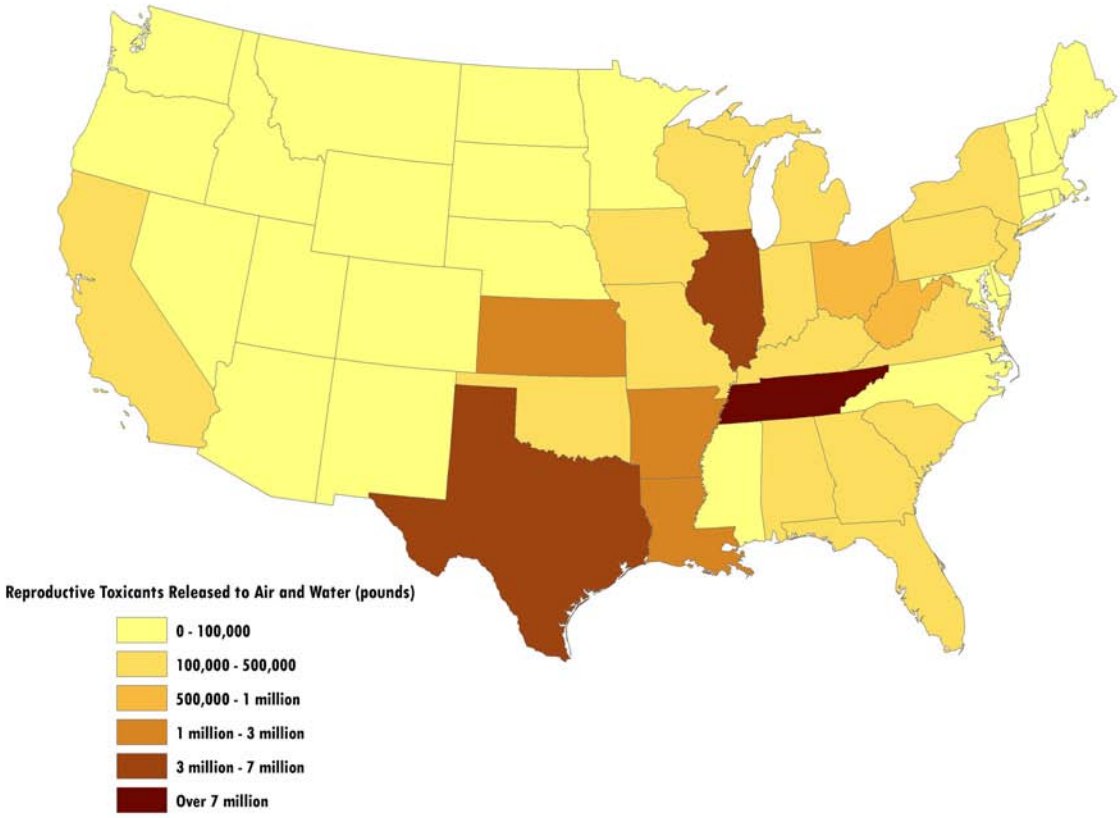
Tennessee ranked first in overall releases of both developmental and reproductive toxicants, followed by Texas and Illinois (Figures B and C). These three states accounted for more than 40 percent of the nation's developmental toxicant releases and more than 70 percent of the reproductive toxicant releases. Tennessee, home to several facilities in the rubber and printing industries and the facility releasing the most developmental and reproductive toxicants, contributed almost a quarter (24 percent) of the nation's releases of developmental toxicants and almost half (48 percent) of the nation's releases of reproductive toxicants. See Appendices D and E for a list of all states with facilities releasing developmental and reproductive toxicants to air and water in 2004.

Figure B. Air and Water Releases of Developmental Toxicants by State, 2004



Note: Hawaii reported 32,000 pounds of developmental toxicants released to air and water in 2004; Alaska reported almost 58,000 pounds.

Figure C. Air and Water Releases of Reproductive Toxicants by State, 2004



Note: Hawaii reported almost 17,000 pounds of reproductive toxicants released to air and water in 2004; Alaska reported almost 33,000 pounds.

Releases of developmental and reproductive toxicants are quite concentrated geographically. In 2004, 40 percent of all air and water releases of developmental toxicants and 75 percent of all air and water releases of reproductive toxicants occurred within just 20 zip codes (Tables 12 and 13). Zip code 37778 in Lowland, Tennessee, home to the Liberty Fibers Corp., ranked first for total releases of both developmental and reproductive toxicants to air and water. Similarly, zip code 61832 in Danville, Illinois, home to the Teepak LLC facility discussed earlier, ranked second for total releases of both developmental and reproductive toxicants to air and water.

Table 12. Top 10 U.S. Zip Codes for Air and Water Releases of Developmental Toxicants, 2004 (pounds)

Rank	Zip Code	City	State	Total Air and Water Emissions
1	37778	LOWLAND	TN	14,410,790
2	61832	DANVILLE	IL	3,555,300
3	29201	COLUMBIA	SC	2,253,649
4	37774	LOUDON	TN	2,226,210
5	37055	DICKSON	TN	1,519,851
6	72370	OSCEOLA	AR	1,428,423
7	38401	COLUMBIA	TN	1,308,483
8	28601	HICKORY	NC	1,144,614
9	23228	RICHMOND	VA	1,124,656
10	66542	TECUMSEH	KS	1,116,113

See Appendices F and G for a list of the 100 zip codes reporting the most releases of developmental and reproductive toxicants, respectively, to air and water in 2004.

Table 13. Top 10 U.S. Zip Codes for Air and Water Releases of Reproductive Toxicants, 2004 (pounds)

Rank	Zip Code	City	State	Total Air and Water Emissions
1	37778	LOWLAND	TN	14,410,776
2	61832	DANVILLE	IL	3,555,300
3	37774	LOUDON	TN	2,226,209
4	72370	OSCEOLA	AR	1,428,423
5	38401	COLUMBIA	TN	1,308,478
6	66542	TECUMSEH	KS	951,849
7	79607	DYESS AFB	TX	524,899
8	26055	PROCTOR	WV	486,973
9	14150	TONAWANDA	NY	416,892
10	67880	ULYSSES	KS	359,006

Similarly, 43 percent of all air and water releases of developmental toxicants reported to TRI occurred within just 20 U.S. counties. Four Tennessee counties—Hamblen, Loudon, Dickson, and Maury—ranked in the top 10 counties for most air and water emissions of developmental toxicants in 2004 (Table 14). Almost 80 percent of all air and water releases of reproductive toxicants occurred within just 20 U.S. counties. Three counties in Tennessee and three in Texas landed in the top 10 for most releases of reproductive toxicants (Table 15).

See Appendices H and I for a list of the 100 counties releasing the most developmental and reproductive toxicants, respectively, to air and water in 2004.

Table 14. Top 10 U.S. Counties for Air and Water Releases of Developmental Toxicants, 2004 (pounds)

Rank	County	State	Total Air and Water Emissions
1	HAMBLEN	TN	14,578,261
2	VERMILION	IL	3,621,127
3	HARRIS	TX	2,346,750
4	RICHLAND	SC	2,258,044
5	LOUDON	TN	2,226,212
6	DICKSON	TN	1,519,851
7	MISSISSIPPI	AR	1,430,888
8	JEFFERSON	TX	1,390,937
9	MAURY	TN	1,335,292
10	CATAWBA	NC	1,174,320

Table 15. Top 10 U.S. Counties for Air and Water Releases of Reproductive Toxicants, 2004 (pounds)

Rank	County	State	Total Air and Water Emissions
1	HAMBLEN	TN	14,410,776
2	VERMILION	IL	3,593,888
3	LOUDON	TN	2,226,211
4	MISSISSIPPI	AR	1,429,962
5	HARRIS	TX	1,351,884
6	MAURY	TN	1,309,932
7	SHAWNEE	KS	951,860
8	JEFFERSON	TX	588,806
9	TAYLOR	TX	524,899
10	MARSHALL	WV	494,578

SUSPECTED NEUROTOXICANTS

Exposure to certain chemical substances can cause adverse effects on the brain or central nervous system. While some substances – such as lead and mercury – have long been known to impair central nervous system function, many other substances have not been fully tested for their neurological effects. Substances toxic to the central nervous system can cause confusion, fatigue,

irritability, and other behavioral changes as well as degenerative diseases of the brain (encephalopathy). Chemicals that harm the peripheral nervous system may affect how nerves carry sensory information and motor impulses from the brain to the rest of the body, leading to weakness or tingling in the limbs and loss of coordination.[15]

No government agency maintains an authoritative list of neurotoxicants. Environmental Defense, however, has compiled a comprehensive list of substances suspected by government or academic researchers to cause neurological problems.[16] The TRI program does not require industries to report their releases of all of these substances.

FINDINGS

In 2004, facilities reporting to TRI released more than 826 million pounds of suspected neurotoxicants directly to the air and water. Methanol was the most commonly released suspected neurotoxicant in 2004, totaling more than 177 million pounds, followed by ammonia at more than 135 million pounds (Table 16). Together, these chemicals accounted for more than one third (38 percent) of all neurotoxicant releases in 2004. Methanol is used as a solvent in adhesives, cleaners and inks; forms from the combustion of plastics and other wastes; and is present in automobile exhaust. At high levels of exposure, methanol can cause headaches, loss of muscle coordination, vision problems, blindness or death. Exposure to methanol also can result in nerve damage, and because the chemical is only slowly eliminated from the body, repeated low-level exposures can have severe effects.[17]

Table 16. Suspected Neurotoxicants Released in the Highest Volume to Air and Water, 2004 (pounds)

Rank	Chemical	Total Air and Water Emissions
1	METHANOL	177,613,616
2	AMMONIA	135,563,847
3	HYDROGEN FLUORIDE	71,959,637
4	TOLUENE	54,008,597
5	STYRENE	51,858,677

The chemical industry released the most suspected neurological toxicants in 2004, accounting for a quarter (26 percent) of all releases (Table 17). Within the chemical industry, the nitrogenous fertilizers sector was one of the largest air and water polluters, releasing large amounts of ammonia and methanol. This sector manufactures ammonia fertilizer compounds and anhydrous ammonia, nitric acid, ammonium nitrate, ammonium sulfate and nitrogen solutions, urea, and natural organic fertilizers.[18] The Terra Nitrogen facility in Sergeant Bluff, Iowa released more than 6.4 million pounds of ammonia to the air in 2004, ranking the facility third in the country for total releases of neurotoxicants (Table 18).

Table 17. Industries Releasing the Most Suspected Neurotoxicants to Air and Water, 2004 (pounds)

Rank	Industry	Total Air and Water Emissions
1	Chemicals and Allied Products	214,855,785
2	Paper and Allied Products	169,309,749
3	Electric, Gas, and Sanitary Services	67,434,469
4	Transportation Equipment	58,507,561
5	Rubber and Miscellaneous Plastics Products	56,704,211
6	Food and Kindred Products	42,937,605
7	Petroleum Refining and Related Industries	38,240,105
8	Primary Metal Industries	35,592,989
9	Fabricated Metal Products, Except Machinery and Transportation Equipment	30,370,845
10	Stone, Clay, Glass, and Concrete Products	28,458,766

Table 18. Facilities Releasing the Most Suspected Neurotoxicants to Air and Water, 2004 (pounds)

Rank	Facility	City	State	Total Air and Water Emissions
1	LIBERTY FIBERS CORP	LOWLAND	TN	14,463,493
2	BP TEXAS CITY REFINERY	TEXAS CITY	TX	6,888,560
3	TERRA NITROGEN	SERGEANT BLUFF	IA	6,432,455
4	CF INDUSTRIES INC	DONALDSONVILLE	LA	6,173,200
5	SUN CHEMICAL BUSHY PARK	GOOSE CREEK	SC	5,000,105
6	MILLENNIUM INORGANIC CHEMICALS	ASHTABULA	OH	4,856,250
7	KOCH NITROGEN CO	BEATRICE	NE	4,805,810
8	INTERNATIONAL PAPER	MANSFIELD	LA	4,695,750
9	INTERNATIONAL PAPER	RIEGELWOOD	NC	4,592,300
10	INTERNATIONAL PAPER	QUEEN CITY	TX	4,372,316

The paper industry ranked second in releases of suspected neurotoxicants in 2004. Pulp, paper, and paperboard mills release large amounts of methanol, a byproduct of the pulping and washing processes. The International Paper paperboard mill in Mansfield, Louisiana released the second most methanol to air of any facility—more than 4.2 million pounds to the air and water—in addition to more than 250,000 pounds of ammonia and other chemicals.

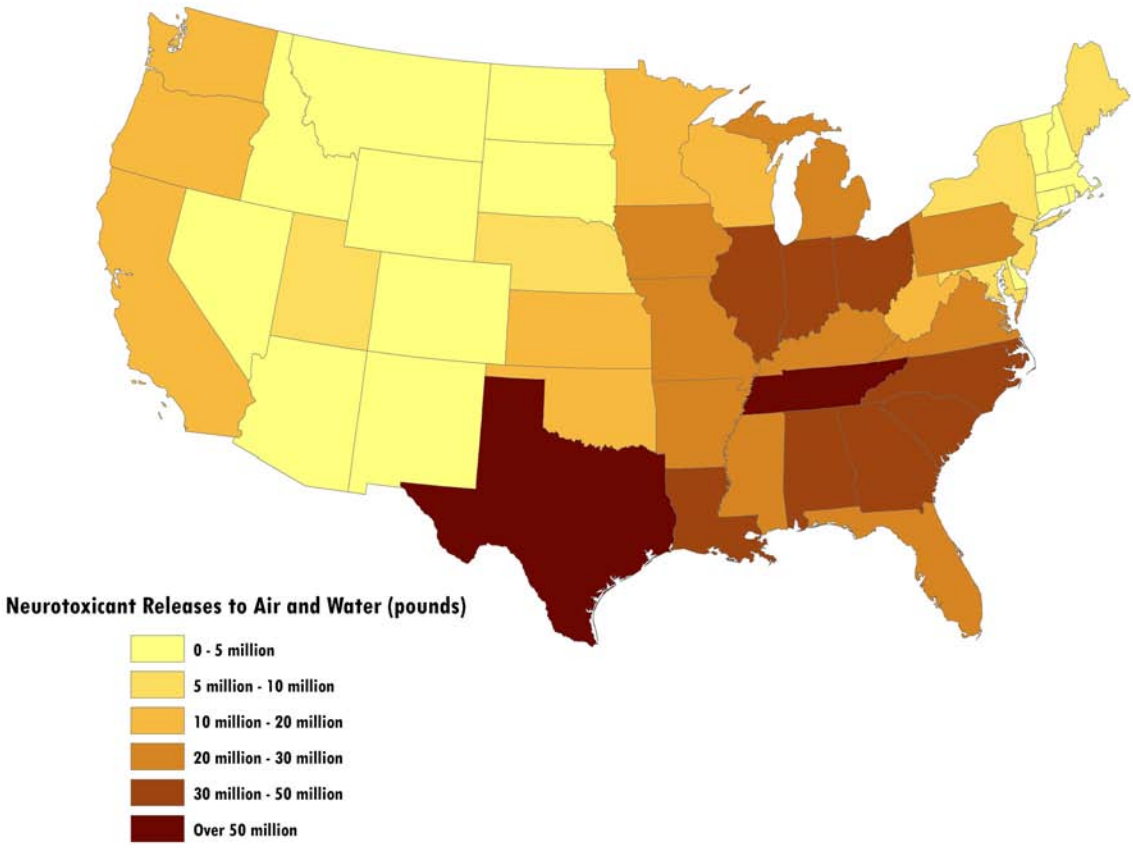
Ranking third for neurotoxicant releases, the electric services industry (comprised mainly of power plants) accounted for about 80 percent of all hydrogen fluoride released into the air in 2004. Almost all of this pollution comes from the combustion of coal, which contains small amounts of fluoride compounds that form hydrogen fluoride when burned.[19] In Cartersville, Georgia, Georgia Power's coal-fired Bowen power plant released 1.5 million pounds of hydrogen fluoride, the most of any facility in the country.

Texas, Tennessee, Georgia, Louisiana, and Ohio ranked highest for overall releases of suspected neurotoxicants to air and water in 2004 (Figure D). Georgia is home to 10 power plants releasing more than 4.6 million pounds of suspected neurotoxicants and more than a dozen pulp, paper, and paperboard facilities releasing more than 18 million pounds of suspected neurotoxicants to air and water in 2004. Similarly, Ohio is home to 25 power plants releasing more than five million pounds of suspected neurotoxicants and more than 150 chemical facilities releasing almost 14 million pounds of suspected neurotoxicants to air and water in 2004. See Appendix J for a list of all states with facilities releasing suspected neurotoxicants to air and water in 2004.

In 2004, 13 percent of all air and water releases of suspected neurotoxicants reported to TRI occurred within just 20 zip codes. Zip code 37778 in Lowland, Tennessee, home to the Liberty Fibers Corp., ranked first for total releases of suspected neurotoxicants to air and water, followed by 77590 in Texas City, Texas and 44004 in Ashtabula, Ohio (Table 19). See Appendix K for a list of the 100 zip codes reporting the most releases of suspected neurotoxicants to air and water in 2004.

Similarly, almost 17 percent of all air and water releases of suspected neurotoxicants reported to TRI occurred within just 20 U.S. counties. Three Texas counties—Harris, Galveston, and Jefferson—ranked in the top 10 counties for most air and water emissions of suspected neurotoxicants in 2004 (Table 20). See Appendix L for a list of the 100 counties reporting the most releases of suspected neurotoxicants to air and water in 2004.

Figure D. Air and Water Releases of Suspected Neurotoxicants by State, 2004



Note: Hawaii reported more than 310,000 pounds of neurotoxicants released to air and water in 2004; Alaska reported almost 1.9 million pounds.

Table 19. Top 10 U.S. Zip Codes for Air and Water Releases of Suspected Neurotoxicants, 2004 (pounds)

Rank	Zip Code	City	State	Total Air and Water Emissions
1	37778	LOWLAND	TN	14,463,493
2	77590	TEXAS CITY	TX	7,292,059
3	44004	ASHTABULA	OH	6,952,997
4	70346	DONALDSONVILLE	LA	6,935,633
5	51054	SERGEANT BLUFF	IA	6,791,533
6	29445	MOUNT HOLLY/GOOSE CREEK	SC	6,245,054
7	68310	BEATRICE	NE	4,881,133
8	71052	MANSFIELD	LA	4,748,082
9	28456	RIEGELWOOD	NC	4,703,218
10	30901	AUGUSTA	GA	4,655,458

Table 20. Top 10 U.S. Counties for Air and Water Releases of Suspected Neurotoxicants, 2004 (pounds)

Rank	County	State	Total Air and Water Emissions
1	HAMBLEN	TN	14,702,488
2	HARRIS	TX	14,231,090
3	ASCENSION	LA	9,705,246
4	GALVESTON	TX	8,717,524
5	BERKELEY	SC	7,506,926
6	RICHMOND	GA	7,339,191
7	ASHTABULA	OH	7,142,731
8	JEFFERSON	TX	7,089,354
9	WOODBURY	IA	7,037,963
10	LOS ANGELES	CA	5,214,571

SUSPECTED RESPIRATORY TOXICANTS

Exposure to certain toxic substances can cause adverse effects on the respiratory system ranging in severity from irritation to bronchitis to cancer. The link between exposure to asbestos fibers and cigarette smoke and disorders such as lung cancer and emphysema is well documented. In addition, exposure to ground ozone, a common air pollutant, has been linked to the onset of asthma attacks and to the development of asthma itself.[20] As is the case with neurological disorders, the respiratory impacts of most toxic substances have been subject to less study, and no government agency has compiled a definitive list of respiratory toxicants. Environmental Defense, however, has compiled a list of suspected respiratory toxicants based on a variety of scientific sources.[21] The TRI program does not require industries to report their releases of all of these substances.

FINDINGS

In 2004, facilities reporting to TRI released almost 1.5 billion pounds of suspected respiratory toxicants directly to the air. Aerosols of hydrochloric acid were released in the greatest quantities, representing more than one of every three pounds of suspected respiratory toxicants released in 2004 (Table 21). Hydrochloric acid is used for cleaning, pickling, and electroplating metals; in refining mineral ores; in petroleum well extraction; in leather tanning; and in producing polymers and plastics, rubber, fertilizers, dyes, and pigments.[22] Electric power plants also release hydrochloric acid to the air in large quantities. Hydrochloric acid is highly corrosive and irritating to the eyes and the respiratory tract. Chronic occupational exposure has been linked to gastritis, chronic bronchitis and dermatitis in workers, while long-term, low-level exposure has been linked to dental erosion.[23]

Table 21. Suspected Respiratory Toxicants Released in the Highest Volume to the Air, 2004 (pounds)

Rank	Chemical	Total Air Emissions
1	HYDROCHLORIC ACID AEROSOLS	558,372,304
2	METHANOL	166,647,387
3	SULFURIC ACID AEROSOLS	140,715,422
4	AMMONIA	129,307,197
5	HYDROGEN FLUORIDE	71,954,379

The electric services industry, which includes electric power plants, was responsible for the greatest releases of suspected respiratory toxicants in 2004 (Table 22). This industry accounted for 46 percent of all suspected respiratory toxicant releases nationwide and 90 percent of all releases of hydrochloric acid. Nine of the 10 facilities releasing the most respiratory toxicants were power plants (Table 23). Since coal contains trace amounts of chloride, coal-burning electric utilities release chloride into the air, which can combine with hydrogen in the air to form hydrogen chloride. Upon contact with water, the hydrogen chloride forms hydrochloric acid.[24]

Table 22. Industries Releasing the Most Suspected Respiratory Toxicants to Air, 2004 (pounds)

Rank	Industry	Total Air and Water Emissions
1	Electric, Gas, and Sanitary Services	683,233,869
2	Chemicals and Allied Products	208,965,306
3	Paper and Allied Products	180,398,372
4	Transportation Equipment	59,980,420
5	Rubber and Miscellaneous Plastics Products	56,684,176
6	Petroleum Refining and Related Industries	50,120,478
7	Food and Kindred Products	47,745,821
8	Primary Metal Industries	44,884,498
9	Stone, Clay, Glass, and Concrete Products	37,183,096
10	Fabricated Metal Products, Except Machinery and Transportation Equipment	31,458,836

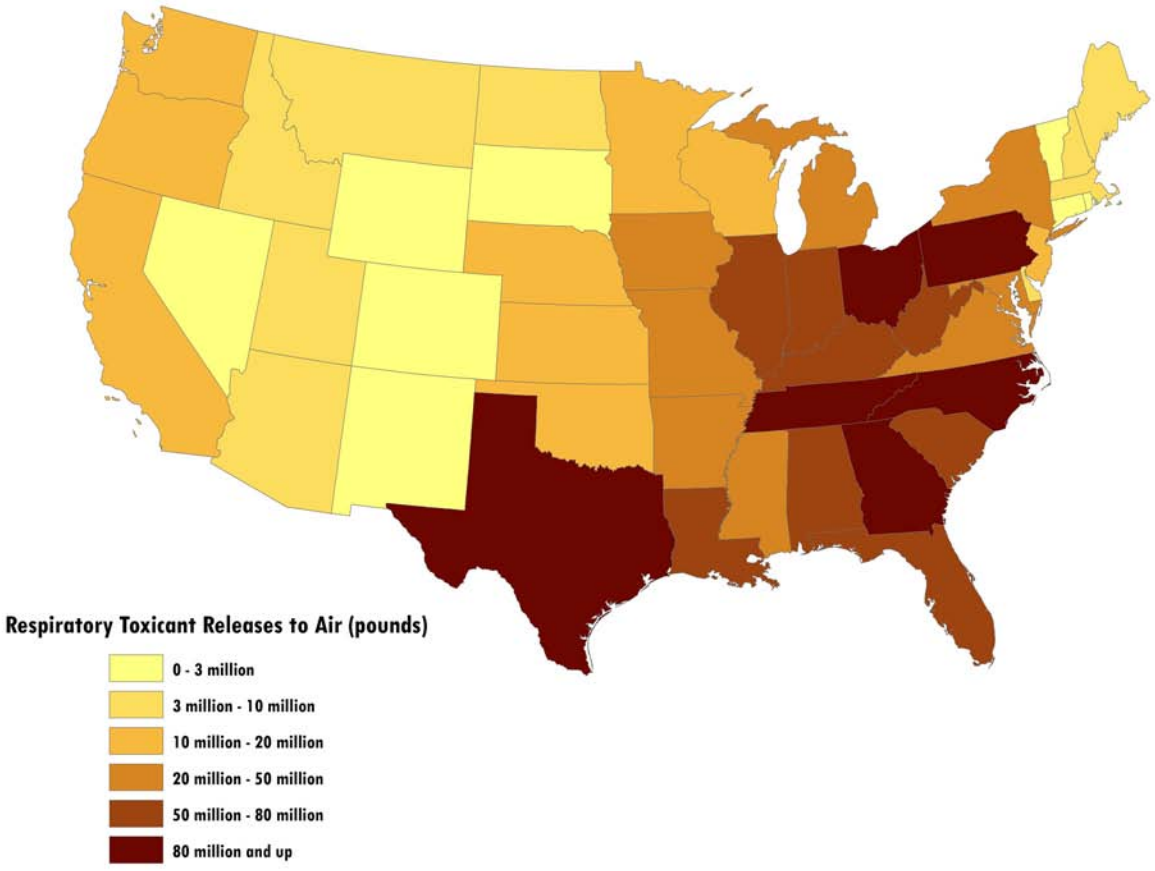
Table 23. Facilities Releasing the Most Suspected Respiratory Toxicants to Air, 2004 (pounds)

Rank	Facility	City	State	Total Air Emissions
1	U.S. TVA JOHNSONVILLE FOSSIL PLANT	NEW JOHNSONVILLE	TN	17,048,396
2	RELIANT ENERGY KEYSTONE POWER PLANT	SHELOCTA	PA	16,403,890
3	AMERICAN ELECTRIC POWER AMOS PLANT	WINFIELD	WV	15,708,386
4	BOWEN STEAM ELECTRIC GENERATING PLANT	CARTERSVILLE	GA	15,457,168
5	LIBERTY FIBERS CORP	LOWLAND	TN	14,769,926
6	AMERICAN ELECTRIC POWER KAMMER/ MITCHELL PLANTS	MOUNDSVILLE	WV	14,272,016
7	DUKE ENERGY BELEWS CREEK STEAM STN	BELEWS CREEK	NC	13,661,595
8	MARSHALL STEAM STATION	TERRELL	NC	13,571,617
9	CAROLINA POWER & LIGHT CO ROXBORO STEAM ELECTRIC PLANT	SEMORA	NC	12,160,544
10	PROGRESS ENERGY CRYSTAL RIVER ENERGY COMPLEX	CRYSTAL RIVER	FL	11,960,774

Ohio, North Carolina, Tennessee, Texas and Pennsylvania ranked highest in respiratory toxicant releases to air in 2004 (Figure E). These states are home to some of the country's largest coal-burning and polluting power plants, as shown in Table 23, as well as chemical facilities and refineries. Ohio alone is home to seven power plants releasing at least four million pounds of hydrochloric acid in 2004.

See Appendix M for a list of all states with facilities releasing suspected respiratory toxicants to the air in 2004.

Figure E. Air Releases of Suspected Respiratory Toxicants by State, 2004



Note: Hawaii reported more than 2.3 million pounds of respiratory toxicants released to air in 2004; Alaska reported more than 1.6 million pounds.

Zip code 37134 in New Johnsonville, Tennessee ranked first in the nation for air releases of suspected respiratory toxicants, followed by zip codes in Shelocta, Pennsylvania and Winfield, West Virginia (Table 24); these zip codes are home to the three power plants releasing the most suspected respiratory toxicants to air in 2004, as shown in Table 23. Three West Virginia zip codes fall in the top 10 for most respiratory toxicant releases.

Similarly, Jefferson County, Ohio — home to FirstEnergy's W. H. Sammis power plant and American Electric Power's Cardinal power plant — falls at the top of the list of counties reporting the highest releases of suspected respiratory toxicants, followed by Armstrong County, Pennsylvania. One-fifth (20 percent) of all air and water releases of suspected respiratory toxicants occurred within just 20 U.S. counties (Table 25).

See Appendix N for a list of the 100 zip codes and Appendix O for the 100 counties reporting the most releases of suspected respiratory toxicants to the air in 2004.

Table 24. Top 10 U.S. Zip Codes for Air Emissions of Suspected Respiratory Toxicants, 2004 (pounds)

Rank	Zip Code	City	State	Total Air Emissions
1	37134	NEW JOHNSONVILLE	TN	17,185,681
2	15774	SHELOCTA	PA	16,403,890
3	25213	WINFIELD	WV	15,708,386
4	30120	CARTERSVILLE	GA	15,476,036
5	37778	LOWLAND	TN	14,769,926
6	26041	MOUNDSVILLE	WV	14,312,502
7	27009	BELEWS CREEK	NC	13,661,597
8	28682	TERRELL	NC	13,571,617
9	45144	MANCHESTER	OH	12,977,392
10	25265	NEW HAVEN	WV	12,526,073

Table 25. Top 10 U.S. Counties for Air Emissions of Suspected Respiratory Toxicants, 2004 (pounds)

Rank	County	State	Total Air Emissions
1	JEFFERSON	OH	21,850,211
2	ARMSTRONG	PA	19,514,515
3	HUMPHREYS	TN	18,805,656
4	HARRIS	TX	17,672,267
5	PERSON	NC	16,396,477
6	MARSHALL	WV	16,017,366
7	PUTNAM	WV	15,716,564
8	BARTOW	GA	15,660,124
9	CATAWBA	NC	15,016,129
10	HAMBLEN	TN	15,009,961

DIOXINS

EPA added the chemical class known as dioxins to the Toxics Release Inventory beginning in the 2000 reporting year. Long regarded as among the most toxic chemicals known to science, dioxins can alter the growth and development of cells and lead to adverse effects on reproduction and development, suppression of the immune system, and cancer. In fact, EPA estimates that the cancer risk from dioxins in levels already present in the general public is approximately 1-per-1,000.[25] Chlorine bleaching of pulp and paper, certain types of chemical manufacturing and processing, and other industrial processes all can create small quantities of dioxins.

Dioxins are treated separately from other chemicals in this report because minute quantities of dioxins are dangerous to human health. As a result, EPA requires facilities to report their dioxin releases to TRI in units of grams rather than pounds. Including dioxins with other toxicants would downplay the severe consequences that even small releases of dioxins can have on human health and the environment.

FINDINGS

U.S. facilities nationwide reported releasing 2,631 grams of dioxins to the air and water during 2004. The chemical industry released the most dioxins to air and water, accounting for almost half (49 percent) of all air and water emissions of dioxins (Table 26). The electric power sector and paper industry followed, together accounting for almost a third (31 percent) of the dioxin releases.

The most dioxin releases occurred in Texas, Louisiana, Alabama, New Hampshire and Arkansas (Figure F). These states are home to numerous chemical facilities, pulp and paperboard mills, petroleum refineries, and large coal-burning power plants. Freeport, Texas and Plaquemine, Louisiana are home to the two facilities—both owned by Dow Chemical—that released the most dioxins in 2004 (Table 27). These two facilities account for almost a third (31 percent) of the dioxins released across the country in 2004. See Appendix P for a list of all states home to facilities reporting dioxin releases in 2004.

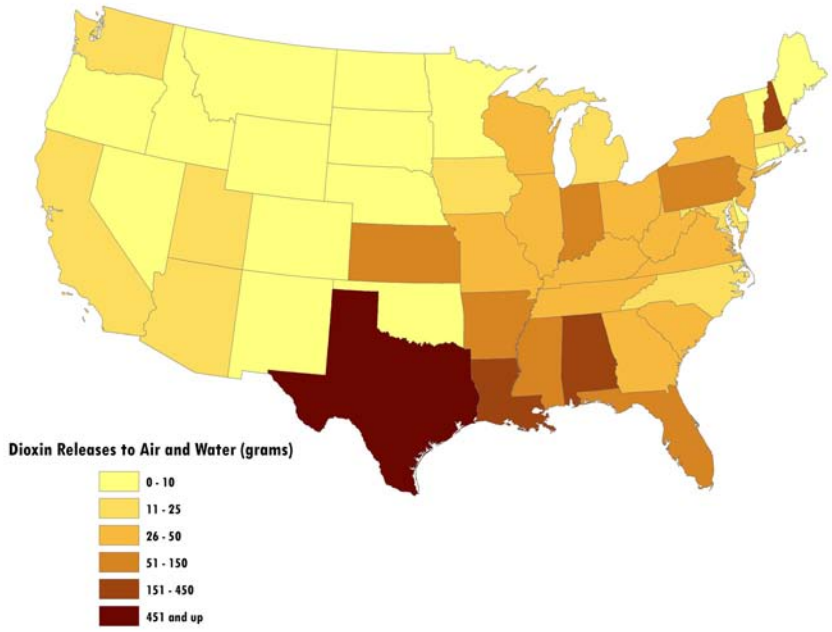
Table 26. Industries Releasing the Most Dioxins to Air and Water, 2004 (grams)

Rank	Industry	Total Air and Water Emissions
1	Chemicals and Allied Products	1,291.33
2	Electric, Gas, and Sanitary Services	606.55
3	Paper and Allied Products	208.30
4	Primary Metal Industries	192.70
5	Lumber and Wood Products, Except Furniture	189.77

Table 27. Facilities Releasing the Most Dioxins to Air and Water, 2004 (grams)

Rank	Facility	City	State	Total Air and Water Emissions
1	DOW CHEMICAL CO FREEPORT FACILITY	FREEPORT	TX	524.00
2	DOW CHEMICAL CO LOUISIANA DIV	PLAQUEMINE	LA	298.47
3	INNOVENE POLYETHYLENE N.A.	LA PORTE	TX	235.86
4	TILLOTSON RUBBER CO.	DIXVILLE NOTCH	NH	151.27
5	CAHABA PRESSURE TREATED FOREST PRODS	BRIERFIELD	AL	74.97
6	VULCAN CHEMICALS	WICHITA	KS	57.01
7	DOMTAR INDUSTRIES INC ASHDOWN MILL	ASHDOWN	AR	43.77
8	PPG INDUSTRIES INC	WESTLAKE	LA	39.78
9	KOPPERS INC	GRENADA	MS	36.77
10	HUXFORD POLE & TIMBER CO. INC.	HUXFORD	AL	27.85

Figure F. Dioxin Releases to Air and Water by State, 2004



Note: Hawaii reported 4 grams of dioxins released to air and water in 2004; Alaska reported 8 grams.

These dioxin releases are quite concentrated within a relatively small number of localities, especially in the Gulf of Mexico region. In 2004, almost two-thirds (62 percent) of all air and water releases of dioxins reported to TRI occurred within just 20 zip codes (Table 28). Zip code 77541 in Freeport, Texas saw the highest releases of dioxins to air and water, followed by zip codes in Plaquemine, Louisiana, La Porte, Texas, and Dixville Notch, New Hampshire. Similarly, almost 65 percent of all air and water releases of dioxins occurred within just 20 counties, half of which are located in the Gulf region (Table 29).

See Appendix Q for a list of the 100 zip codes and Appendix R for the 100 counties reporting the most dioxin releases to the air and water in 2004.

Table 28. Top 10 U.S. Zip Codes for Dioxin Releases to Air and Water, 2004 (grams)

Rank	Zip Code	City	State	Total Air and Water Emissions
1	77541	FREEPORT	TX	525.37
2	70765	PLAQUEMINE	LA	298.47
3	77571	LA PORTE	TX	239.37
4	03576	DIXVILLE NOTCH	NH	151.27
5	35035	BRIERFIELD	AL	74.97
6	67215	WICHITA	KS	57.01
7	71822	ASHDOWN	AR	43.77
8	70669	WESTLAKE	LA	43.24
9	38960	GRENADA	MS	36.77
10	36543	HUXFORD	AL	27.85

Table 29. Top 10 U.S. Counties for Dioxin Releases to Air and Water, 2004 (grams)

Rank	County	State	Total Air and Water Emissions
1	BRAZORIA	TX	525.87
2	IBERVILLE	LA	301.64
3	HARRIS	TX	254.91
4	COOS	NH	151.86
5	BIBB	AL	74.97
6	SEDGWICK	KS	57.51
7	LITTLE RIVER	AR	47.93
8	CALCASIEU	LA	43.33
9	ESCAMBIA	AL	39.12
10	GRENADA	MS	37.22

TOXIC RELEASES TO LAND

The mining industry dominates land releases of carcinogens, developmental toxicants and reproductive toxicants – largely due to the on-site land disposal of hundreds of millions of pounds of compounds including lead, arsenic and chromium. We decided to separate the toxic releases to air and water from the toxic releases to land because most mining facilities are in remote locations with a small surrounding population. Although the mining industry's pollution poses long-term threats to the environment and public health, the massive releases of toxic substances to land would have deemphasized the threats posed by less voluminous air and water discharges nationwide.

In 2004, facilities reporting to TRI released more than 608 million pounds of carcinogens, developmental toxicants or reproductive toxicants to land. Land releases include all the chemicals disposed on land within the boundaries of the reporting facility and can include on-site landfills, surface impoundments (uncovered holding ponds), land treatment, and accidental spills or leaks. The metal mining industry, led by the lead and zinc, gold, silver, and copper sectors, was responsible for about 485 million pounds (80 percent) of these releases (Table 30). The electric services sector had the largest non-mining sector releases to land.

The 10 facilities releasing the most toxic substances to land belong to the metal mining industry, led by the Red Dog mine in Kotzebue, Alaska and the Coeur Rochester mine in Lovelock, Nevada (Table 31).

Table 30. Industries with Most Land Releases of Carcinogens, Developmental Toxicants and Reproductive Toxicants, 2004 (pounds)

Rank	Industry	Total On-Site Land Releases
1	Metal Mining	485,420,236
2	Electric, Gas, and Sanitary Services	85,267,251
3	Primary Metal Industries	21,476,222
4	Chemicals and Allied Products	9,439,722
5	National Security and International Affairs	2,279,833
6	Coal Mining	1,420,598
7	Stone, Clay, Glass, and Concrete Products	1,050,941
8	Nonclassifiable Establishments	889,779
9	Paper and Allied Products	449,465
10	Electronic and Other Electrical Equipment/ Components, Except Computer Equipment	194,170

Table 31. Facilities with Most Land Releases of Carcinogens, Developmental Toxicants and Reproductive Toxicants, 2004 (pounds)

Rank	Facility	City	State	Total On-Site Land Releases
1	RED DOG OPERATIONS	KOTZEBUE	AK	131,857,483
2	COEUR ROCHESTER INC	LOVELOCK	NV	85,302,846
3	KENNECOTT UTAH COPPER MINE CONCENTRATORS & POWER PLANT	COPPERTON	UT	52,554,078
4	NEWMONT MINING TWIN CREEKS MINE	GOLCONDA	NV	39,000,000
5	BARRICK GOLDSTRIKE MINES INC	ELKO	NV	22,594,720
6	NEWMONT MINING LONE TREE MINE	VALMY	NV	20,000,790
7	NEWMONT MINING CARLIN SOUTH AREA	CARLIN	NV	14,000,000
8	BUICK MINE/MILL	BOSS	MO	11,307,924
9	MONTANA TUNNELS MINING INC	JEFFERSON CITY	MT	9,219,699
10	FLETCHER MINE/MILL	BUNKER	MO	8,173,767

Two-thirds (67 percent) of the land releases of carcinogens, developmental toxicants and reproductive toxicants were lead or lead compounds (Table 32). Exposure to lead can affect almost every organ and system in the human body, especially the central nervous system. Exposure to low doses of lead can cause IQ deficits, attention deficit

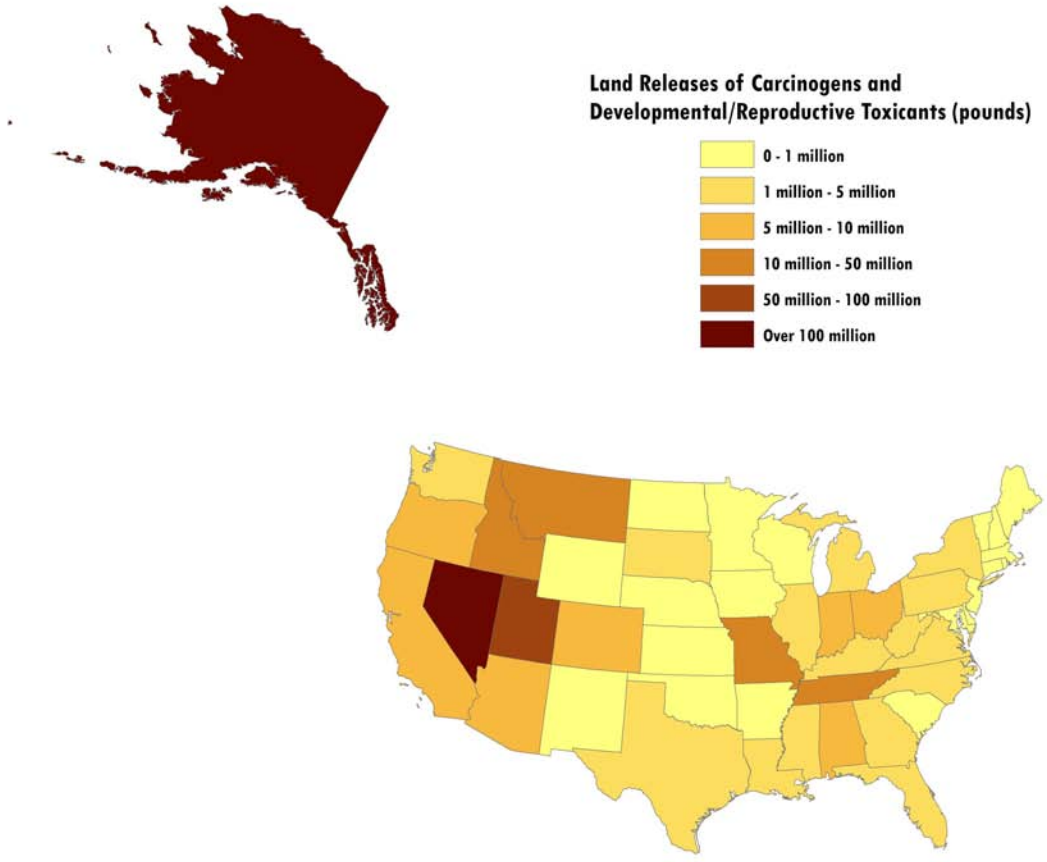
hyperactivity disorder, and deficits in vocabulary, fine motor skills, reaction time, and hand-eye coordination.[26] The developing brains and nervous systems of children are particularly sensitive to the damaging effects of lead.

Table 32. Carcinogens, Developmental Toxicants and Reproductive Toxicants Released in the Highest Volume to Land, 2004 (pounds)[27]

Rank	Chemical	Total On-Site Land Releases
1	LEAD COMPOUNDS	395,498,060
2	ARSENIC COMPOUNDS	115,570,487
3	CHROMIUM COMPOUNDS	28,959,574
4	NICKEL COMPOUNDS	22,266,594
5	LEAD	11,759,696

The states receiving the most toxic releases to land are often the most sparsely populated. Nevada, Alaska, and Utah ranked first, second and third for total land releases of carcinogens, developmental toxicants and reproductive toxicants in 2004 (Figure G), accounting for 71 percent of the land releases of these substances. The mining industry accounts for the vast majority of the toxic releases to land in these states. See Appendix S for a list of all states with facilities reporting land releases of carcinogens, developmental toxicants and reproductive toxicants in 2004.

Figure G. Land Releases of Carcinogens, Developmental Toxicants and Reproductive Toxicants, 2004 (pounds)



Note: Hawaii released more than 125,000 pounds of toxic substances to land in 2004.

The largest land releases of carcinogens, developmental toxicants and reproductive toxicants occurred in relatively remote areas. As shown in Table 33, zip code 99752, located 90 miles north of Kotzebue, Alaska and home to the Red Dog zinc and lead mine, ranked first for total releases of these substances to land, followed by zip code 89419 in Lovelock, Nevada (home to the Coeur Rochester silver mine) and 84006 in Copperton/Bingham Canyon, Utah (home to the Kennecott Utah copper mine). Four Nevada counties—Pershing, Humboldt, Elko, and Eureka—fell in the top 10 counties with the most land releases of carcinogens, developmental toxicants and reproductive toxicants (Table 34).

See Appendix T for a list of the 100 zip codes and Appendix U for the list of the 100 counties reporting the most land releases of carcinogens, developmental toxicants and reproductive toxicants in 2004.

Table 33. Top 10 U.S. Zip Codes for Land Releases of Carcinogens, Developmental Toxicants and Reproductive Toxicants, 2004 (pounds)

Rank	Zip Code	City	State	Total On-Site Land Releases
1	99752	KOTZEBUE	AK	135,329,476
2	89419	LOVELOCK	NV	85,322,626
3	84006	BINGHAM CANYON/ COPPERTON	UT	53,818,352
4	89414	GOLCONDA/MIDAS	NV	42,382,733
5	89803	ELKO	NV	35,016,558
6	89438	VALMY	NV	23,485,855
7	89822	CARLIN	NV	18,790,206
8	63629	BUNKER	MO	13,358,616
9	65440	BOSS	MO	12,435,901
10	84044	MAGNA	UT	11,398,156

Table 34. Top 10 U.S. Counties for Land Releases of Carcinogens, Developmental Toxicants and Reproductive Toxicants, 2004 (pounds)

Rank	County	State	Total On-Site Land Releases
1	NORTHWEST ARCTIC	AK	135,329,476
2	PERSHING	NV	85,929,456
3	HUMBOLDT	NV	65,757,170
4	SALT LAKE	UT	65,216,816
5	ELKO	NV	36,696,303
6	EUREKA	NV	18,790,206
7	REYNOLDS	MO	14,598,233
8	IRON	MO	12,435,901
9	JEFFERSON	MT	9,574,327
10	SILVER BOW	MT	8,940,004

BUSH ADMINISTRATION WEAKENS THE TOXICS RELEASE INVENTORY

As this report demonstrates, facilities across the country continue to release millions of pounds of toxic chemicals known or suspected to cause serious health effects. The Toxics Release Inventory program plays a pivotal role in providing for the public's right-to-know about the use and release of these toxic chemicals. Regrettably, the Bush administration recently weakened the TRI program by reducing the information available to the public about toxic chemicals released into communities.

BACKGROUND: TRI REPORTING REQUIREMENTS

The TRI program requires companies that manage or release toxic chemicals above established thresholds to disclose these activities to EPA in an annual reporting process. This annual reporting, made for each toxic chemical present at a facility and covered by the program, provides EPA with a snapshot of toxic waste management and pollution activities at a particular facility. Once annual reports are submitted, EPA compiles and disseminates the data on its website for public review.

TRI disclosure requirements apply only to certain classes of industrial facilities that employ more than 10 full time employees and release, store or manage any one of 650 listed toxic chemicals in amounts that exceed established reporting thresholds.[28] Depending on the type and quantity of toxic chemical, facilities comply with reporting requirements by submitting one of two forms: a short "Form A" certification statement or a detailed "Form R" report. The Form R report provides a full disclosure that captures detailed information about the chemicals released, such as the quantity of the chemical disposed or released onsite to the air, water, or land; injected underground; or transferred for disposal or release offsite.[29]

FORM R REPORT VS. FORM A CERTIFICATION

Form R Report: Includes the name of toxic chemical, the amount released to the environment (delineated by total releases to water, underground injection wells, air, and disposed to land), the amount recycled, the amount combusted for energy, and the amount transferred offsite (delineated by total sent offsite for disposal, recycling or energy combustion).

Form A Certification: Acknowledges that the listed toxic chemical is present at a facility.

Since 1995, however, EPA has allowed facilities to submit the more limited Form A certification statement in lieu of the detailed Form R if they release or manage toxic chemicals in small amounts.[30] The Form A only certifies that a toxic chemical is present at a facility but does not contain any of the detailed information about the quantities of the toxic chemical used, released, or managed as waste. According to EPA, "the primary difference between information contained on Form R and the Form A Certification Statement is that the Form R provides details of releases and other waste management (e.g., total quantity of releases to air, water, and land; on- and off-site recycling, treatment, and combustion for

energy recovery), while the Form A does not."[31]

The Form R reports supply the critical data that enables TRI users to assess when toxic substances are released, where releases occur and in what amounts. Form A only serves to warn the public that a toxic chemical is present at a facility without providing any additional information.

FORM A CERTIFICATION STATEMENT ELIGIBILITY

Since the Form A certification statement does not provide useful information about the quantity and ultimate disposition of a toxic chemical release, EPA historically has restricted the use of Form A by establishing a low Form A reporting threshold.[32] A facility is eligible to use the Form A only when the combined total amount of the waste management and release of a toxic chemical is less than the established reporting threshold. If the combined waste management and release total exceeds the reporting threshold, a facility must complete and submit a detailed Form R report.

In addition to reporting thresholds, EPA had disallowed Form A eligibility for a small but dangerous class of chemicals called persistent bioaccumulative toxics (PBTs). PBT chemicals, such as lead and mercury, are treated separately and with greater attention because they remain in the environment for long periods of time, do not readily degrade, and build up or accumulate in body tissue. Because PBTs are dangerous even in small amounts, EPA required facilities to report all PBT releases on detailed Form R reports without regard to threshold levels—until December 2006.

BUSH ADMINISTRATION WEAKENS TOXIC RELEASE REPORTING REQUIREMENTS

On December 22, 2006, EPA finalized a new rule that will reduce the quantity and quality of toxic chemical data submitted under TRI and available to the public.[33] The new rule consists of two major modifications to the reporting requirements for TRI toxic chemicals.

DIMINISHED REPORTING FOR PERSISTENT BIOACCUMULATIVE TOXICS

The new rule allows, for the first time, facilities to obtain Form A certification for PBT chemicals when the total reportable amount for a PBT does not exceed 500 pounds and the chemical is not disposed or released to the environment.[34] Previously, EPA required detailed Form R reporting for all PBT chemicals, regardless of total reportable amount or ultimate disposition. In a 1999 rulemaking, EPA claimed that Form A certification is "insufficient for conducting meaningful analyses on PBT chemicals" and prohibited the use of certification for PBT chemicals.[35] The expansion of Form A certification eligibility to PBT chemicals represents a significant divergence from the EPA's previous position and eliminates currently collected information on the most dangerous and long-lived toxic chemicals.

RAISED REPORTING THRESHOLDS FOR TRI CHEMICALS

The second change increases the reporting threshold for non-PBT toxic chemicals from 500 pounds to 5,000 pounds per year. The raised threshold permits facilities to forgo detailed reporting and submit only a certification statement if the total reportable amount for a toxic chemical is below 5,000 pounds, provided the total amount of the

substance disposed or released to the environment does not exceed 2,000 pounds.[36] The new reporting threshold increases by a factor of ten the point at which facilities must report to EPA and will allow facilities to release four times the amount of a toxic chemical without reporting the release to EPA. Accordingly, the raised reporting threshold for non-PBT chemicals appreciably reduces the amount and quality of toxic release data available to the public.

Generally, these changes enable facilities to withhold currently reported information about toxic chemicals and restrict public access to information about toxic chemicals released in communities. A preliminary analysis of the changes by the Government Accountability Office estimated that 3,565 facilities would no longer be required to submit information describing the amount and location of toxic chemical releases.[37]

RECOMMENDATIONS

The continued use and release of toxic chemicals presents tangible and serious threats to human health and the environment. Each year, emerging science provides increasing evidence linking chemical exposures to adverse health impacts. Americans have known about the potential threat of toxic releases in their communities for years, but the data on toxic releases reviewed in this report reveal that many communities still confront large-scale releases of substances that are known or suspected to damage public health. Moreover, for many chemicals, crucial data gaps remain in our understanding of how these chemicals interact with humans and may affect our health and well-being.

To reduce toxic chemical use and releases in our communities and ensure that these communities have access to information about this pollution, we recommend the following steps.

RESTORE PUBLIC ACCESS TO TOXIC RELEASE DATA

In order to maintain the quality and quantity of TRI data collected and disseminated to the public, EPA should:

- Reverse its recent rulemaking extending Form A eligibility to PBT chemicals. As mentioned previously, PBT chemicals do not readily degrade, accumulating in the food chain and in animal and human body tissue. Because even small releases of these chemicals pose a serious threat to human health, EPA should require full disclosure of releases of PBT chemicals.

- Reverse its recent rulemaking increasing reporting thresholds for all non-PBT TRI chemicals. The sizeable increase in the reporting threshold will have a significant impact on the information available to the public about dozens of toxic chemicals from thousands of facilities in states and communities across the country. Some facilities will not have to provide detailed information on the amounts and locations of toxic chemical releases and disposals, complicating governmental and community efforts to understand and track toxic chemical pollution.

IMPROVE TRI DATA QUALITY

Although the TRI represents the best source of national and local toxic release and waste management information, EPA could improve the quality of the TRI data. Specifically, the methods used to generate data and the time it takes for EPA to process and publish the data present major limitations for communities and states. In order to improve the quality of TRI data, EPA should:

- Improve the accuracy of reported toxic release and waste management data. The TRI program does not currently require any specific monitoring of emissions, but instead allows facilities to rely on equations that estimate releases and waste generation during the course of the reporting year. Although facilities are responsible for the accuracy of the TRI data submitted to EPA, relying on emissions estimations may not provide a valid and accurate accounting of toxic data. Instead, EPA should evaluate and require facilities to use continuous monitoring devices, the most effective way to accurately track all quantities of toxic releases. Advances in technology

have improved the reliability and reduced the cost of continuous monitoring devices, and many facilities already use such devices to monitor pollution.

- Increase the speed at which EPA processes TRI data and makes it public. EPA did not release TRI data for the 2004 reporting year until April 2006. Delays in releasing data force the public, communities and states to rely on TRI data that is often two to three years old. EPA should expedite TRI data release by promoting full and timely electronic reporting for all covered facilities and by reducing the time that facilities have to confirm data submissions to 60 days. Technological improvements, such as continuous monitoring, also would reduce the time required to calculate and verify toxic release data.

IMPROVE TRI DATA ANALYSIS

When EPA releases TRI data, the agency also provides an analysis of the information in its Public Data Release (PDR). In recent years, EPA has reduced the amount of analysis provided in the PDR. For example, EPA has stopped enumerating a list of the facilities with the highest toxic releases. EPA should implement the following steps to ensure that the public is provided with a useful analysis of the TRI data:

- Detail the facilities in each industry sector responsible for the most toxic releases and list the U.S. states and counties experiencing the most pollution.

- Explain in each PDR that TRI does not cover all chemicals or all sources of chemicals; include the percentage of facilities, chemicals, and/or releases that are covered under TRI each year.

- Provide information on the potential health hazards of the reported toxic chemicals, including data on releases of chemical categories of serious concern such as PBTs, carcinogens and hazardous air pollutants.

- Provide a balanced analysis of the data results that highlights troubling findings in addition to positive trends.

- Develop a TRI data user's guide for the media and the public.

REDUCE CHEMICAL USE

The data reported to TRI demonstrate that toxic chemicals are released to the environment in significant quantities nationwide. While the links between some of these chemicals and health problems are uncertain, common sense and the weight of available evidence suggest that prudent steps be taken to reduce the use and release of toxic chemicals nationwide.

State and federal governments can play a direct role in reducing toxic emissions to the air and water by strictly enforcing basic pollution laws such as the Clean Air Act and Clean Water Act. Ultimately, however, state and federal governments must address the issue of preventing pollution by encouraging reductions in the use of toxic chemicals and the substitution of safer alternatives. The Massachusetts Toxics Use Reduction Act, which requires reporting of toxic chemical use and the development of plans for use reduction by industry, reduced generation of toxic waste per unit of production by 65 percent between 1990 and 2004 and on-site releases of TRI chemicals by 91 percent.[38]

Revitalizing pollution prevention efforts at the state and federal levels should be a top policy priority.

REFORM CHEMICALS POLICY

Chemicals that are untested or known to be hazardous to human health should not be on the market or in widespread use and distribution. U.S. chemicals policy should ensure that manufacturers and industrial users provide regulatory agencies and the public with adequate information about their products so that agencies can act to protect public health from potentially dangerous substances before damage is done.

Currently, manufacturers can put chemicals on the market before detection methods have even been developed to test for the presence of the chemical in air, water, soil, and our bodies. The burden falls on federal and state governments to develop these analytical methods – an expensive and time-consuming process. The costs of developing analytical methods to test for a chemical's safety should fall to the manufacturers who stand to profit from the product.

Manufacturers should be required to provide all hazard and health-impact information to EPA so the agency can begin to assess the thousands of chemicals currently on the market for which it has little or inadequate data. Manufacturers of chemicals also should be required to conduct an alternatives analysis to determine if they are using the least hazardous chemical for each application. Finally, EPA's authority to ban or restrict the use of a chemical if it can harm human health must be strengthened.

METHODOLOGY

All data analyzed for this report are from the EPA's Toxics Release Inventory. Subsequent amendments to TRI reports made by industry following EPA's release of the 2004 reporting year data may not be reflected in this analysis. We only looked at releases in the 50 states and the District of Columbia and excluded releases in U.S. territories.

Health Effects

We looked at all of the chemicals and substances reported in 2004 to TRI and categorized them by health effect. We used California's Proposition 65 list, current as of December 8, 2006, to categorize chemicals as carcinogens, developmental toxicants and/or reproductive toxicants. To identify suspected neurological and respiratory toxicants, we used Environmental Defense's Scorecard.org website. Environmental Defense's lists are based primarily on information compiled by EPA, the National Institute for Occupational Safety and Health, the states of California, Massachusetts and New Jersey, and European government agencies, as well as toxicological studies published in scientific journals. In a small number of cases, Environmental Defense conducted supplementary review to identify any remaining potential human health hazards.[39] See Appendix V for a list of the chemicals included in this report and associated health effects.

Not all chemicals reported to TRI in 2004 fell into these five categories of health concern and therefore are excluded from this report. Some of the excluded chemicals may cause other health effects, ranging from skin disorders to endocrine disruption; other chemicals have little toxicity data available.

In cases in which a single chemical was listed, but TRI reports only releases by chemical class, we assumed the entire class causes the listed health effect. For example, releases of polycyclic aromatic compounds are reported to TRI as a class, even though they are listed separately on California's Proposition 65 list. Also, some chemicals are listed as toxic in certain forms on the Proposition 65 list, but their releases are reported to TRI in the aggregate. For example, several "technical grade" chemicals are listed as carcinogens under Proposition 65, but TRI does not make a similar distinction. Because there is no way to resolve this mismatch, we assumed all substances reported to TRI that are listed on Proposition 65 cause the listed health effect.

In cases in which an elemental form of a substance was on the Proposition 65 list, we assumed compounds including the substance also cause the listed health effect. Two specific examples bear mentioning. Proposition 65 includes lead and cadmium as developmental and reproductive toxicants, but not their compounds. Environmental Defense lists lead compounds as recognized developmental and reproductive toxicants and cadmium compounds as suspected developmental and reproductive toxicants based on the inclusion of their elemental forms on the Proposition 65 list. This analysis includes both lead compounds and cadmium compounds in our list of developmental and reproductive toxicants.

Industry Analysis

Industry analysis is based on the primary, four-digit Standard Industrial Classification (SIC) codes reported by the facilities to TRI. We grouped each facility by its major industry (the first two numbers of the SIC code) as defined by the U.S. Department of Labor.[40] Some facilities did not report primary SIC codes and were excluded from the industry analysis.

Appendix A. Air and Water Releases of Recognized Carcinogens, 2004: By State

Rank	State	Total Air Emissions (pounds)	Total Surface Water Emissions (pounds)	Total (pounds)
1	TX	10,391,058	228,039	10,619,097
2	SC	4,194,931	80,853	4,275,784
3	LA	3,694,761	154,843	3,849,604
4	AL	3,315,804	160,998	3,476,802
5	FL	2,727,494	57,463	2,784,957
6	GA	2,688,152	66,862	2,755,014
7	OH	2,566,355	45,251	2,611,606
8	IL	2,566,470	20,958	2,587,428
9	IN	2,518,340	66,998	2,585,338
10	NC	2,433,827	84,283	2,518,110
11	PA	2,480,858	33,240	2,514,098
12	VA	2,190,876	18,162	2,209,038
13	TN	2,009,980	121,332	2,131,312
14	KY	2,061,123	50,395	2,111,518
15	MI	1,900,687	25,273	1,925,960
16	OR	1,840,414	32,839	1,873,253
17	IA	1,520,613	22,379	1,542,992
18	AR	1,386,192	64,273	1,450,465
19	NY	1,294,480	72,838	1,367,318
20	WA	1,279,089	36,475	1,315,564
21	MS	1,242,306	14,498	1,256,804
22	MO	1,183,753	10,361	1,194,114
23	WI	1,160,393	15,652	1,176,045
24	KS	1,157,103	876	1,157,979
25	MN	898,238	4,606	902,844
26	WV	822,101	44,742	866,843
27	MA	781,444	8,863	790,307
28	MT	754,276	595	754,871
29	CA	704,710	49,857	754,567
30	OK	730,540	7,462	738,002
31	CT	702,671	4,316	706,987
32	ME	635,527	44,455	679,982
33	NJ	433,639	29,296	462,935
34	NE	346,334	605	346,939
35	MD	323,033	4,873	327,906
36	AZ	219,479	16	219,495
37	ND	191,061	638	191,699
38	UT	162,708	10,501	173,209
39	ID	139,654	21,093	160,747
40	DE	139,868	12,127	151,995
41	SD	135,637	693	136,330
42	WY	118,931	380	119,311
43	HI	93,136	363	93,499
44	NM	81,868	988	82,856
45	CO	79,715	75	79,790
46	NH	72,256	4,411	76,667
47	RI	69,517	724	70,241
48	NV	17,110	31,668	48,778
49	AK	47,805	307	48,112
50	VT	1,914	15	1,929
51	DC	1	0	1
National		**68,508,232**	**1,768,810**	**70,277,042**

Appendix B. 100 U.S. Zip Codes Reporting the Most Air and Water Releases of Carcinogens, 2004

Rank	Zip Code	City	State	Total Air and Water Emissions (pounds)
1	77590	TEXAS CITY	TX	2,207,262
2	29440	GEORGETOWN	SC	1,052,995
3	98632	LONGVIEW	WA	734,693
4	33439	BRYANT	FL	726,120
5	40216	LOUISVILLE	KY	632,791
6	35601	DECATUR	AL	628,789
7	14652	ROCHESTER	NY	620,628
8	77530	CHANNELVIEW	TX	579,198
9	47620	MOUNT VERNON	IN	531,148
10	79607	DYESS AFB	TX	524,899
11	29706	CHESTER	SC	479,524
12	02111	BOSTON	MA	478,090
13	59912	COLUMBIA FALLS	MT	475,978
14	77536	DEER PARK	TX	469,380
15	77541	FREEPORT/JONES CREEK/CLUTE	TX	469,177
16	28120	MOUNT HOLLY	NC	423,181
17	22603	WINCHESTER	VA	415,940
18	70734	GEISMAR	LA	410,390
19	47112	CORYDON	IN	405,710
20	70068	LA PLACE	LA	387,467
21	77520	BAYTOWN	TX	367,401
22	97432	DILLARD	OR	362,177
23	29115	ORANGEBURG	SC	359,913
24	24526	BIG ISLAND	VA	359,392
25	62526	DECATUR	IL	345,078
26	52732	CLINTON	IA	334,310
27	67210	WICHITA	KS	333,973
28	52404	CEDAR RAPIDS	IA	328,594
29	48131	DUNDEE	MI	317,902
30	70669	WESTLAKE	LA	316,379
31	29461	MONCKS CORNER	SC	315,540
32	77705	BEAUMONT/CHEEK	TX	310,939
33	71730	EL DORADO	AR	291,808
34	38113	MEMPHIS	TN	288,166
35	33440	CLEWISTON	FL	277,164
36	70079	NORCO	LA	272,600
37	75603	LONGVIEW	TX	270,023
38	19426	COLLEGEVILLE/TRAPPE	PA	269,753
39	36752	BURKVILLE	AL	267,055
40	38326	COUNCE	TN	261,015
41	77511	ALVIN	TX	259,644
42	61602	PEORIA	IL	247,136
43	77507	PASADENA	TX	245,615
44	97355	LEBANON	OR	242,913
45	32347	PERRY	FL	238,544
46	70805	BATON ROUGE	LA	235,690
47	59802	MISSOULA	MT	234,389
48	43512	DEFIANCE	OH	233,369
49	36201	ANNISTON	AL	217,060
50	77017	HOUSTON	TX	216,391
51	32837	ORLANDO	FL	212,035
52	37662	KINGSPORT	TN	210,265
53	29059	HOLLY HILL	SC	207,060
54	28716	CANTON	NC	203,139
55	77631	ORANGE	TX	198,030
56	39654	MONTICELLO	MS	194,941
57	75961	NACOGDOCHES	TX	194,721
58	97478	SPRINGFIELD	OR	193,830
59	32034	FERNANDINA BEACH	FL	192,863
60	29512	BENNETTSVILLE	SC	191,925
61	37331	ETOWAH	TN	189,532
62	04740	EASTON	ME	187,909
63	63336	CLARKSVILLE	MO	187,863
64	71601	PINE BLUFF	AR	186,674
65	36067	PRATTVILLE	AL	186,339
66	39832	CEDAR SPRINGS	GA	184,139
67	97501	MEDFORD	OR	183,916
68	74764	VALLIANT	OK	183,402
69	77571	LA PORTE	TX	179,227
70	77978	POINT COMFORT	TX	178,691
71	29532	DARLINGTON	SC	176,465
72	77592	TEXAS CITY	TX	175,471
73	50444	HANLONTOWN	IA	174,402
74	52761	MUSCATINE	IA	174,052
75	53120	EAST TROY	WI	173,357
76	32402	PANAMA CITY	FL	172,662
77	37138	OLD HICKORY	TN	171,278
78	36769	PINE HILL	AL	169,793
79	67337	COFFEYVILLE	KS	169,006
80	23860	HOPEWELL	VA	167,458
81	31515	JESUP	GA	167,414
82	23851	FRANKLIN	VA	165,938
83	29704	CATAWBA	SC	165,133
84	75572	QUEEN CITY	TX	164,122
85	42029	CALVERT CITY	KY	162,614
86	61350	OTTAWA	IL	162,415
87	04694	BAILEYVILLE	ME	162,206
88	32533	CANTONMENT	FL	162,133
89	31015	CORDELE	GA	161,017
90	29406	NORTH CHARLESTON	SC	160,748
91	06706	WATERBURY	CT	158,823
92	71360	PINEVILLE	LA	157,302
93	71635	CROSSETT	AR	156,263
94	66115	KANSAS CITY	KS	156,219
95	41144	WURTLAND	KY	155,954
96	77049	HOUSTON	TX	155,620
97	28586	VANCEBORO	NC	154,898
98	64119	CLAYCOMO	MO	153,981
99	31415	SAVANNAH	GA	151,997
100	28502	KINSTON	NC	151,164

Appendix C. 100 U.S. Counties Reporting the Most Air and Water Releases of Carcinogens, 2004

Rank	County	State	Total Air and Water Emissions (pounds)
1	HARRIS	TX	2,557,944
2	GALVESTON	TX	2,383,244
3	GEORGETOWN	SC	1,052,996
4	BRAZORIA	TX	928,811
5	JEFFERSON	TX	927,624
6	JEFFERSON	KY	832,951
7	COWLITZ	WA	756,248
8	PALM BEACH	FL	726,365
9	MORGAN	AL	707,188
10	MONROE	NY	672,782
11	MONTGOMERY	PA	619,606
12	ORANGEBURG	SC	567,681
13	POSEY	IN	531,148
14	TAYLOR	TX	524,899
15	SEDGWICK	KS	518,739
16	CHESTER	SC	503,832
17	COOK	IL	500,006
18	SUFFOLK	MA	492,223
19	FLATHEAD	MT	475,987
20	LINN	OR	464,337
21	GASTON	NC	458,712
22	MACON	IL	448,962
23	NUECES	TX	436,117
24	ST CHARLES	LA	426,739
25	ASCENSION	LA	423,132
26	BERKELEY	SC	421,875
27	FREDERICK	VA	416,317
28	ST JOHN THE BAPTIST	LA	415,422
29	SHELBY	TN	409,268
30	HARRISON	IN	405,710
31	CALCASIEU	LA	392,262
32	ORANGE	TX	391,408
33	MONROE	MI	383,594
34	DOUGLAS	OR	362,178
35	BEDFORD	VA	359,392
36	LINN	IA	353,409
37	EAST BATON ROUGE	LA	343,591
38	SULLIVAN	TN	335,324
39	NEW HAVEN	CT	334,417
40	CLINTON	IA	334,386
41	MC CURTAIN	OK	332,953
42	CUYAHOGA	OH	327,890
43	HARRISON	TX	300,201
44	LANE	OR	298,811
45	UNION	AR	291,824
46	NASSAU	FL	289,579
47	MC MINN	TN	281,646
48	HENDRY	FL	277,164
49	WAYNE	MI	270,314
50	LOWNDES	AL	267,055
51	PEORIA	IL	263,801
52	HARDIN	TN	261,015
53	CHARLESTON	SC	253,915
54	AUGUSTA	VA	250,654
55	IBERVILLE	LA	243,905
56	MISSOULA	MT	241,714
57	TAYLOR	FL	240,438
58	DEFIANCE	OH	233,371
59	JEFFERSON	AR	225,560
60	BAY	FL	220,304
61	BERKS	PA	218,255
62	CALHOUN	AL	218,066
63	PIKE	MO	217,123
64	ORANGE	FL	215,491
65	CALHOUN	TX	215,014
66	ST LOUIS	MO	207,017
67	CHATHAM	GA	203,599
68	HAYWOOD	NC	203,139
69	AROOSTOOK	ME	198,609
70	DARLINGTON	SC	196,063
71	BIBB	GA	195,529
72	WALWORTH	WI	195,473
73	FLORENCE	SC	195,241
74	LAWRENCE	MS	194,948
75	NACOGDOCHES	TX	194,721
76	MARLBORO	SC	192,071
77	BROOKE	WV	187,866
78	AUTAUGA	AL	186,339
79	YORK	SC	185,875
80	OAKLAND	MI	184,441
81	EARLY	GA	184,139
82	JACKSON	OR	183,916
83	RICHLAND	SC	183,889
84	JACKSON	AL	183,291
85	LICKING	OH	177,763
86	CRAVEN	NC	175,768
87	MECKLENBURG	NC	175,456
88	ESCAMBIA	FL	174,614
89	WORTH	IA	174,402
90	DAVIDSON	TN	174,062
91	MUSCATINE	IA	173,273
92	MONROE	AL	171,459
93	SMITH	TX	171,331
94	LAKE	IN	170,571
95	WILCOX	AL	169,793
96	MONTGOMERY	KS	169,032
97	WYANDOTTE	KS	168,619
98	ALLEGHENY	PA	168,150
99	WAYNE	GA	167,414
100	RAPIDES	LA	167,322

Appendix D. Air and Water Releases of Recognized Developmental Toxicants, 2004: By State

Rank	State	Total Air Emissions (pounds)	Total Surface Water Emissions (pounds)	Total (pounds)
1	TN	23,549,316	36,574	23,585,890
2	TX	9,040,947	265,430	9,306,377
3	IL	6,481,819	11,021	6,492,840
4	IN	4,083,409	16,769	4,100,178
5	NC	3,752,033	7,718	3,759,751
6	SC	3,731,802	15,055	3,746,857
7	VA	3,623,611	15,040	3,638,651
8	LA	3,238,219	33,892	3,272,111
9	MS	3,182,851	1,771	3,184,622
10	MI	3,113,824	6,557	3,120,381
11	KY	2,917,524	12,174	2,929,698
12	PA	2,802,885	6,994	2,809,879
13	OH	2,524,573	12,940	2,537,513
14	AR	2,436,581	2,219	2,438,800
15	KS	2,346,709	4,698	2,351,407
16	NY	2,109,636	8,433	2,118,069
17	GA	2,056,781	10,156	2,066,937
18	AL	1,549,188	92,689	1,641,877
19	WV	1,573,354	26,460	1,599,814
20	MO	1,292,480	9,032	1,301,512
21	FL	1,199,120	2,202	1,201,322
22	OK	1,096,267	380	1,096,647
23	WI	1,037,768	1,380	1,039,148
24	IA	874,129	2,168	876,297
25	MN	746,168	3,410	749,578
26	CA	706,945	634	707,579
27	NJ	572,522	1,682	574,204
28	CT	530,142	250	530,392
29	MA	467,136	178	467,314
30	OR	449,738	6,054	455,792
31	NV	336,982	30,017	366,999
32	WA	338,866	3,930	342,796
33	UT	220,318	6,783	227,101
34	MD	225,541	568	226,109
35	NE	197,842	112	197,954
36	AZ	175,633	44	175,677
37	CO	171,688	26	171,714
38	NM	158,597	576	159,173
39	SD	156,905	693	157,598
40	NH	123,183	118	123,301
41	RI	108,911	33	108,944
42	ND	88,554	496	89,050
43	WY	86,961	20	86,981
44	DE	68,620	12,364	80,984
45	MT	59,139	404	59,543
46	AK	57,402	235	57,637
47	HI	31,863	76	31,939
48	ID	27,193	706	27,899
49	ME	20,682	1,457	22,139
50	VT	4,509	271	4,780
51	DC	0	0	0
National		**95,746,866**	**672,889**	**96,419,755**

Appendix E. Air and Water Releases of Recognized Reproductive Toxicants, 2004: By State

Rank	State	Total Air Emissions (pounds)	Total Surface Water Emissions (pounds)	Total (pounds)
1	TN	18,114,657	10,533	18,125,190
2	TX	4,838,506	17,520	4,856,026
3	IL	3,929,176	7,358	3,936,534
4	AR	1,479,094	2,130	1,481,224
5	KS	1,393,391	4,399	1,397,790
6	LA	1,274,970	33,217	1,308,187
7	WV	741,012	23,650	764,662
8	OH	636,324	4,485	640,809
9	NY	492,074	3,268	495,342
10	AL	443,222	11,115	454,337
11	PA	424,530	3,975	428,505
12	FL	422,603	1,664	424,267
13	MI	387,123	4,456	391,579
14	MO	352,081	8,871	360,952
15	IN	304,433	7,687	312,120
16	KY	289,125	3,362	292,487
17	VA	256,627	3,316	259,943
18	NJ	76,323	131,130	207,453
19	OK	181,813	352	182,165
20	WI	165,414	1,345	166,759
21	GA	150,555	2,256	152,811
22	SC	132,031	11,159	143,190
23	IA	114,113	5,957	120,070
24	CA	104,540	567	105,107
25	MS	90,267	1,849	92,116
26	NC	77,407	2,232	79,639
27	WA	64,670	3,834	68,504
28	UT	51,455	1,523	52,978
29	NM	47,187	571	47,758
30	ND	38,706	485	39,191
31	AK	32,674	196	32,870
32	MN	29,503	3,274	32,777
33	WY	32,108	20	32,128
34	CO	30,771	26	30,797
35	MT	26,015	399	26,414
36	AZ	21,018	4	21,022
37	DE	13,225	6,969	20,194
38	MD	18,042	254	18,296
39	MA	17,029	77	17,106
40	HI	16,559	51	16,610
41	OR	11,454	3,116	14,570
42	NE	14,151	110	14,261
43	ID	10,676	686	11,362
44	NV	7,878	0	7,878
45	ME	4,878	1,390	6,268
46	CT	5,567	242	5,809
47	RI	3,380	21	3,401
48	SD	2,308	693	3,001
49	NH	1,913	118	2,031
50	VT	37	15	52
51	DC	0	0	0
National		**37,372,615**	**331,927**	**37,704,542**

Appendix F. 100 U.S. Zip Codes Reporting the Most Air and Water Releases of Developmental Toxicants, 2004

Rank	Zip Code	City	State	Total Air and Water Emissions (pounds)
1	37778	LOWLAND	TN	14,410,790
2	61832	DANVILLE	IL	3,555,300
3	29201	COLUMBIA	SC	2,253,649
4	37774	LOUDON	TN	2,226,210
5	37055	DICKSON	TN	1,519,851
6	72370	OSCEOLA	AR	1,428,423
7	38401	COLUMBIA	TN	1,308,483
8	28601	HICKORY	NC	1,144,614
9	23228	RICHMOND	VA	1,124,656
10	66542	TECUMSEH	KS	1,116,113
11	39046	CANTON	MS	1,110,539
12	48040	MARYSVILLE	MI	1,094,284
13	42134	FRANKLIN	KY	1,033,212
14	38116	MEMPHIS	TN	954,972
15	38834	CORINTH	MS	895,066
16	77701	BEAUMONT	TX	756,449
17	19310	ATGLEN	PA	742,827
18	40216	LOUISVILLE	KY	723,266
19	30809	EVANS	GA	682,072
20	61938	MATTOON	IL	661,122
21	38024	DYERSBURG	TN	629,456
22	24501	LYNCHBURG	VA	629,241
23	46580	WARSAW	IN	566,923
24	79607	DYESS AFB	TX	524,904
25	61054	MOUNT MORRIS	IL	521,541
26	29307	SPARTANBURG	SC	513,944
27	77536	DEER PARK	TX	504,156
28	74002	BARNSDALL	OK	496,660
29	26055	PROCTOR	WV	486,973
30	77522	BAYTOWN	TX	476,802
31	28704	ARDEN	NC	432,667
32	14150	TONAWANDA	NY	421,923
33	70669	WESTLAKE	LA	395,369
34	78407	CORPUS CHRISTI	TX	395,232
35	17601	LANCASTER	PA	391,949
36	77530	CHANNELVIEW	TX	378,191
37	70805	BATON ROUGE	LA	359,392
38	67880	ULYSSES	KS	359,006
39	14522	PALMYRA	NY	342,388
40	76306	WICHITA FALLS	TX	342,221
41	48131	DUNDEE	MI	334,271
42	71109	SHREVEPORT	LA	331,230
43	39301	MERIDIAN	MS	324,461
44	35601	DECATUR	AL	322,615
45	14043	DEPEW	NY	319,367
46	77590	TEXAS CITY	TX	316,387
47	33439	BRYANT	FL	315,560
48	28645	LENOIR	NC	300,114
49	25401	MARTINSBURG	WV	295,000
50	70079	NORCO	LA	290,464
51	31415	SAVANNAH	GA	288,510
52	06484	SHELTON	CT	286,658
53	89506	RENO	NV	286,314
54	77511	ALVIN	TX	279,151
55	77017	HOUSTON	TX	272,272
56	77520	BAYTOWN	TX	267,217
57	33169	MIAMI	FL	264,255
58	70734	GEISMAR	LA	258,756
59	37091	LEWISBURG	TN	254,567
60	71730	EL DORADO	AR	248,855
61	16749	SMETHPORT	PA	247,752
62	79066	PAMPA	TX	245,784
63	49093	THREE RIVERS	MI	242,938
64	24089	FIELDALE	VA	238,153
65	46706	AUBURN	IN	237,071
66	45750	MARIETTA	OH	231,705
67	30901	AUGUSTA	GA	226,361
68	26836	MOOREFIELD	WV	217,519
69	35661	MUSCLE SHOALS	AL	216,599
70	75603	LONGVIEW	TX	216,424
71	37642	CHURCH HILL	TN	209,306
72	39702	COLUMBUS	MS	199,228
73	75702	TYLER	TX	197,866
74	79007	BORGER	TX	195,790
75	77642	PORT ARTHUR	TX	192,450
76	26146	FRIENDLY	WV	190,219
77	37809	MIDWAY	TN	189,147
78	70538	FRANKLIN/LOUISA	LA	188,064
79	63336	CLARKSVILLE	MO	182,613
80	75961	NACOGDOCHES	TX	182,433
81	39401	HATTIESBURG	MS	180,185
82	47620	MOUNT VERNON	IN	178,561
83	77507	PASADENA	TX	178,065
84	46124	EDINBURGH/CAMP ATTERBURY	IN	177,739
85	46540	MIDDLEBURY	IN	177,098
86	40324	GEORGETOWN	KY	172,063
87	70776	SAINT GABRIEL	LA	171,773
88	77631	ORANGE	TX	169,978
89	46581	WARSAW	IN	168,440
90	37814	MORRISTOWN	TN	167,471
91	24526	BIG ISLAND	VA	166,315
92	33069	POMPANO BEACH	FL	165,920
93	77705	BEAUMONT/CHEEK	TX	164,757
94	78410	CORPUS CHRISTI	TX	161,119
95	70043	CHALMETTE	LA	155,960
96	55350	HUTCHINSON	MN	153,302
97	37066	GALLATIN	TN	150,958
98	44481	WARREN/LORDSTOWN	OH	150,779
99	46947	LOGANSPORT	IN	150,258
100	76065	MIDLOTHIAN	TX	149,845

Appendix G. 100 U.S. Zip Codes Reporting the Most Air and Water Releases of Reproductive Toxicants, 2004

Rank	Zip Code	City	State	Total Air and Water Emissions (pounds)
1	37778	LOWLAND	TN	14,410,776
2	61832	DANVILLE	IL	3,555,300
3	37774	LOUDON	TN	2,226,209
4	72370	OSCEOLA	AR	1,428,423
5	38401	COLUMBIA	TN	1,308,478
6	66542	TECUMSEH	KS	951,849
7	79607	DYESS AFB	TX	524,899
8	26055	PROCTOR	WV	486,973
9	14150	TONAWANDA	NY	416,892
10	67880	ULYSSES	KS	359,006
11	77530	CHANNELVIEW	TX	340,276
12	77536	DEER PARK	TX	323,715
13	33439	BRYANT	FL	288,050
14	35601	DECATUR	AL	274,209
15	79066	PAMPA	TX	245,776
16	77511	ALVIN	TX	239,873
17	70079	NORCO	LA	239,052
18	48131	DUNDEE	MI	231,924
19	70538	FRANKLIN/LOUISA	LA	188,064
20	77017	HOUSTON	TX	187,996
21	77590	TEXAS CITY	TX	172,488
22	24526	BIG ISLAND	VA	166,292
23	77631	ORANGE	TX	162,676
24	79007	BORGER	TX	159,513
25	77520	BAYTOWN	TX	145,925
26	44035	ELYRIA	OH	144,302
27	63336	CLARKSVILLE	MO	141,293
28	77541	FREEPORT/JONES CREEK/CLUTE	TX	137,882
29	08023	DEEPWATER	NJ	136,096
30	77642	PORT ARTHUR	TX	132,164
31	77705	BEAUMONT/CHEEK	TX	122,336
32	26184	WAVERLY	WV	120,240
33	75702	TYLER	TX	113,802
34	79720	BIG SPRING	TX	112,847
35	77651	PORT NECHES	TX	106,867
36	75603	LONGVIEW	TX	105,909
37	70805	BATON ROUGE	LA	102,261
38	77463	OLD OCEAN	TX	102,110
39	77507	PASADENA	TX	101,420
40	78410	CORPUS CHRISTI	TX	98,534
41	70586	VILLE PLATTE	LA	95,363
42	77522	BAYTOWN	TX	91,496
43	70669	WESTLAKE	LA	90,228
44	70710	ADDIS	LA	89,947
45	77640	PORT ARTHUR	TX	89,336
46	33440	CLEWISTON	FL	88,782
47	15025	CLAIRTON/JEFFERSON HILLS	PA	88,382
48	77630	ORANGE	TX	82,068
49	52732	CLINTON	IA	80,803
50	40353	MOUNT STERLING	KY	77,250
51	43402	BOWLING GREEN	OH	77,065
52	77641	PORT ARTHUR	TX	76,695
53	46304	CHESTERTON/BURNS HARBOR	IN	73,666
54	78403	CORPUS CHRISTI	TX	72,304
55	26037	FOLLANSBEE	WV	71,148
56	44004	ASHTABULA	OH	70,213
57	78407	CORPUS CHRISTI	TX	66,864
58	65440	BOSS	MO	66,138
59	40216	LOUISVILLE	KY	65,363
60	70734	GEISMAR	LA	65,273
61	54981	WAUPACA	WI	62,592
62	19061	MARCUS HOOK/TRAINER/ LINWOOD	PA	61,793
63	46402	GARY	IN	60,585
64	76065	MIDLOTHIAN	TX	59,870
65	37138	OLD HICKORY	TN	59,829
66	77701	BEAUMONT	TX	59,010
67	70037	BELLE CHASSE	LA	58,883
68	63629	BUNKER	MO	53,893
69	70043	CHALMETTE	LA	53,625
70	63048	HERCULANEUM	MO	53,045
71	39581	PASCAGOULA	MS	51,902
72	23692	YORKTOWN/GRAFTON	VA	51,602
73	19145	PHILADELPHIA	PA	51,234
74	61350	OTTAWA	IL	50,665
75	77506	PASADENA	TX	49,738
76	62084	ROXANA	IL	49,590
77	53044	KOHLER	WI	49,527
78	47586	TELL CITY	IN	49,400
79	25112	INSTITUTE	WV	48,891
80	36505	AXIS	AL	47,509
81	43512	DEFIANCE	OH	46,588
82	44481	WARREN/LORDSTOWN	OH	45,435
83	61537	HENRY	IL	43,214
84	77503	PASADENA	TX	42,794
85	75706	TYLER	TX	42,746
86	74501	MC ALESTER	OK	42,680
87	77592	TEXAS CITY	TX	42,631
88	70721	CARVILLE	LA	41,252
89	78071	THREE RIVERS	TX	41,119
90	77978	POINT COMFORT	TX	39,685
91	77632	ORANGE	TX	39,634
92	49707	ALPENA	MI	38,598
93	61846	GEORGETOWN	IL	38,211
94	42029	CALVERT CITY	KY	34,471
95	29492	WANDO	SC	34,450
96	74820	ADA	OK	34,426
97	70765	PLAQUEMINE	LA	34,249
98	70057	HAHNVILLE/TAFT	LA	34,143
99	79008	BORGER	TX	33,712
100	45714	BELPRE	OH	32,215

Appendix H. 100 U.S. Counties Reporting the Most Air and Water Releases of Developmental Toxicants, 2004

Rank	County	State	Total Air and Water Emissions (pounds)
1	HAMBLEN	TN	14,578,261
2	VERMILION	IL	3,621,127
3	HARRIS	TX	2,346,750
4	RICHLAND	SC	2,258,044
5	LOUDON	TN	2,226,212
6	DICKSON	TN	1,519,851
7	MISSISSIPPI	AR	1,430,888
8	JEFFERSON	TX	1,390,937
9	MAURY	TN	1,335,292
10	CATAWBA	NC	1,174,320
11	SHELBY	TN	1,159,282
12	HENRICO	VA	1,124,715
13	SHAWNEE	KS	1,116,124
14	MADISON	MS	1,110,679
15	ST CLAIR	MI	1,098,133
16	SIMPSON	KY	1,033,212
17	ALCORN	MS	895,066
18	JEFFERSON	KY	839,206
19	ERIE	NY	830,597
20	CHESTER	PA	797,278
21	NUECES	TX	738,796
22	KOSCIUSKO	IN	735,407
23	COLUMBIA	GA	682,072
24	SPARTANBURG	SC	678,668
25	LYNCHBURG CITY	VA	670,790
26	COLES	IL	661,122
27	DYER	TN	631,927
28	ELKHART	IN	629,711
29	BRAZORIA	TX	574,340
30	HENRY	VA	529,633
31	OGLE	IL	528,013
32	TAYLOR	TX	524,904
33	MARSHALL	WV	497,177
34	OSAGE	OK	496,660
35	BUNCOMBE	NC	433,528
36	CALCASIEU	LA	433,231
37	LANCASTER	PA	425,852
38	GALVESTON	TX	410,072
39	EAST BATON ROUGE	LA	391,265
40	MONROE	MI	384,420
41	ST CHARLES	LA	379,881
42	CALDWELL	NC	377,677
43	LOS ANGELES	CA	374,179
44	CADDO	LA	367,454
45	DALLAS	TX	366,908
46	GRANT	KS	359,006
47	COOK	IL	356,175
48	LAUDERDALE	MS	348,064
49	WICHITA	TX	344,479
50	WAYNE	NY	342,403
51	MORGAN	AL	326,618
52	MC KEAN	PA	326,530
53	ORANGE	TX	326,003
54	IBERVILLE	LA	316,878
55	PALM BEACH	FL	315,798
56	HUTCHINSON	TX	313,126
57	FAIRFIELD	CT	305,736
58	CHATHAM	GA	296,332
59	BERKELEY	WV	295,001
60	DE KALB	IN	288,441
61	WASHOE	NV	286,672
62	MIAMI-DADE	FL	282,318
63	WASHINGTON	OH	268,326
64	HARRISON	TX	265,893
65	ALLEGHENY	PA	265,350
66	ASCENSION	LA	258,760
67	MARSHALL	TN	254,567
68	UNION	AR	248,871
69	GRAY	TX	246,237
70	COLBERT	AL	246,005
71	MIDDLESEX	NJ	244,842
72	ST JOSEPH	MI	242,965
73	SMITH	TX	240,659
74	RICHMOND	GA	228,695
75	WAYNE	MI	225,082
76	HARDY	WV	217,519
77	LOWNDES	MS	214,311
78	GREENE	TN	211,741
79	HAWKINS	TN	210,293
80	MIDDLESEX	MA	208,670
81	ST MARY	LA	206,417
82	JOHNSON	IN	200,097
83	GASTON	NC	197,959
84	NEWPORT NEWS CITY	VA	190,777
85	TYLER	WV	190,219
86	BROWARD	FL	185,976
87	MARION	IN	184,481
88	PIKE	MO	182,673
89	NACOGDOCHES	TX	182,433
90	FORREST	MS	180,316
91	TRUMBULL	OH	179,732
92	POSEY	IN	178,561
93	ALLEN	OH	176,501
94	ST BERNARD	LA	176,368
95	OAKLAND	MI	175,492
96	KENT	MI	174,807
97	YORK	PA	173,821
98	PLEASANTS	WV	172,281
99	SEDGWICK	KS	172,143
100	SCOTT	KY	172,063

Appendix I. 100 U.S. Counties Reporting the Most Air and Water Releases of Reproductive Toxicants, 2004

Rank	County	State	Total Air and Water Emissions (pounds)
1	HAMBLEN	TN	14,410,776
2	VERMILION	IL	3,593,888
3	LOUDON	TN	2,226,211
4	MISSISSIPPI	AR	1,429,962
5	HARRIS	TX	1,351,884
6	MAURY	TN	1,309,932
7	SHAWNEE	KS	951,860
8	JEFFERSON	TX	588,806
9	TAYLOR	TX	524,899
10	MARSHALL	WV	494,578
11	BRAZORIA	TX	489,610
12	ERIE	NY	422,397
13	GRANT	KS	359,006
14	ST CHARLES	LA	297,427
15	PALM BEACH	FL	288,288
16	ORANGE	TX	285,062
17	MORGAN	AL	274,651
18	NUECES	TX	253,922
19	GRAY	TX	246,229
20	MONROE	MI	233,019
21	GALVESTON	TX	215,374
22	ST MARY	LA	206,417
23	HUTCHINSON	TX	193,225
24	BEDFORD	VA	166,292
25	SMITH	TX	156,549
26	LORAIN	OH	148,553
27	PIKE	MO	141,343
28	SALEM	NJ	136,154
29	CALCASIEU	LA	124,039
30	PLEASANTS	WV	120,637
31	EAST BATON ROUGE	LA	120,473
32	ALLEGHENY	PA	117,034
33	HOWARD	TX	112,847
34	HARRISON	TX	106,413
35	WEST BATON ROUGE	LA	105,225
36	EVANGELINE	LA	95,363
37	HENDRY	FL	88,782
38	IBERVILLE	LA	87,815
39	JEFFERSON	KY	87,807
40	LAKE	IN	84,995
41	MADISON	IL	80,998
42	CLINTON	IA	80,863
43	WOOD	OH	77,441
44	MONTGOMERY	KY	77,250
45	PORTER	IN	74,577
46	BROOKE	WV	71,149
47	ASHTABULA	OH	70,236
48	IRON	MO	66,138
49	ASCENSION	LA	65,276
50	DELAWARE	PA	63,999
51	REYNOLDS	MO	63,266
52	WAUPACA	WI	62,594
53	ST BERNARD	LA	62,181
54	ELLIS	TX	60,326
55	DAVIDSON	TN	60,115
56	PLAQUEMINES	LA	58,944
57	MOBILE	AL	54,889
58	LOS ANGELES	CA	54,292
59	WAYNE	MI	53,775
60	JEFFERSON	MO	53,774
61	JACKSON	MS	52,013
62	PHILADELPHIA	PA	51,718
63	YORK	VA	51,602
64	TRUMBULL	OH	51,410
65	LA SALLE	IL	51,243
66	CALHOUN	TX	50,506
67	KANAWHA	WV	50,274
68	SHEBOYGAN	WI	49,973
69	PERRY	IN	49,400
70	DEFIANCE	OH	46,590
71	BOYD	KY	45,879
72	MARSHALL	IL	43,214
73	PITTSBURG	OK	42,680
74	WILL	IL	41,375
75	LIVE OAK	TX	41,119
76	JEFFERSON	AL	40,678
77	BERKELEY	SC	39,844
78	RICHMOND	GA	39,552
79	ALPENA	MI	38,598
80	GLOUCESTER	NJ	35,005
81	WASHINGTON	OH	34,813
82	MARSHALL	KY	34,475
83	PONTOTOC	OK	34,426
84	MARION	IN	33,281
85	LUCAS	OH	32,807
86	SALT LAKE	UT	31,396
87	MORTON	ND	30,780
88	VICTORIA	TX	30,406
89	MC MINN	TN	29,641
90	CUYAHOGA	OH	29,345
91	ST LAWRENCE	NY	28,883
92	ORANGEBURG	SC	28,380
93	MARINETTE	WI	28,320
94	KAY	OK	28,235
95	BUTLER	PA	28,078
96	MOORE	TX	27,868
97	ST JOHN THE BAPTIST	LA	27,645
98	SULLIVAN	TN	26,889
99	TULSA	OK	26,634
100	BARTOW	GA	25,714

Appendix J. Air and Water Releases of Suspected Neurotoxicants, 2004: By State

Rank	State	Total Air Emissions (pounds)	Total Surface Water Emissions (pounds)	Total (pounds)
1	TX	73,076,723	3,140,585	76,217,308
2	TN	52,011,756	1,405,162	53,416,918
3	GA	45,646,927	1,787,607	47,434,534
4	LA	45,916,257	1,464,655	47,380,912
5	OH	42,767,562	648,169	43,415,731
6	SC	32,887,312	6,213,447	39,100,759
7	AL	34,264,640	2,102,890	36,367,530
8	NC	34,217,139	635,978	34,853,117
9	IL	32,715,557	258,542	32,974,099
10	IN	30,352,468	1,151,159	31,503,627
11	FL	26,649,428	422,014	27,071,442
12	VA	26,376,235	376,671	26,752,906
13	MS	23,525,548	448,052	23,973,600
14	IA	22,575,345	228,570	22,803,915
15	KY	22,098,060	423,410	22,521,470
16	PA	21,741,816	360,496	22,102,312
17	MI	21,158,834	356,347	21,515,181
18	AR	19,702,941	814,476	20,517,417
19	MO	20,098,727	126,826	20,225,553
20	CA	15,735,587	2,219,661	17,955,248
21	OK	14,212,450	186,700	14,399,150
22	WI	13,185,508	310,407	13,495,915
23	OR	11,919,902	347,205	12,267,107
24	WV	10,416,257	930,043	11,346,300
25	MN	10,797,724	285,403	11,083,127
26	KS	10,953,359	8,637	10,961,996
27	WA	9,113,976	1,285,960	10,399,936
28	NY	9,489,542	358,998	9,848,540
29	NE	8,983,004	45,569	9,028,573
30	MD	6,839,745	155,065	6,994,810
31	UT	6,124,502	12,113	6,136,615
32	ME	4,748,872	683,953	5,432,825
33	NJ	4,546,557	463,640	5,010,197
34	ID	4,096,123	310,176	4,406,299
35	MT	3,731,916	41,844	3,773,760
36	MA	2,798,158	10,611	2,808,769
37	AZ	2,696,188	6,281	2,702,469
38	ND	2,301,737	31,721	2,333,458
39	CO	2,226,283	33,592	2,259,875
40	CT	2,052,690	49,072	2,101,762
41	DE	1,767,071	243,377	2,010,448
42	AK	1,521,671	354,468	1,876,139
43	WY	1,658,781	4,928	1,663,709
44	SD	1,645,134	899	1,646,033
45	NV	1,248,969	45,940	1,294,909
46	NH	1,209,026	75,766	1,284,792
47	NM	763,228	3,063	766,291
48	RI	422,666	1,676	424,342
49	HI	309,039	1,477	310,516
50	VT	49,075	5,323	54,398
51	DC	3,428	5,742	9,170
National		**795,351,443**	**30,884,366**	**826,235,809**

Appendix K. 100 U.S. Zip Codes Reporting the Most Air and Water Releases of Suspected Neurotoxicants, 2004

Rank	Zip Code	City	State	Total Air and Water Emissions (pounds)
1	37778	LOWLAND	TN	14,463,493
2	77590	TEXAS CITY	TX	7,292,059
3	44004	ASHTABULA	OH	6,952,997
4	70346	DONALDSONVILLE	LA	6,935,633
5	51054	SERGEANT BLUFF	IA	6,791,533
6	29445	MOUNT HOLLY/GOOSE CREEK	SC	6,245,054
7	68310	BEATRICE	NE	4,881,133
8	71052	MANSFIELD	LA	4,748,082
9	28456	RIEGELWOOD	NC	4,703,218
10	30901	AUGUSTA	GA	4,655,458
11	71601	PINE BLUFF	AR	4,610,770
12	61832	DANVILLE	IL	4,397,460
13	75572	QUEEN CITY	TX	4,372,316
14	84029	GRANTSVILLE/ROWLEY	UT	4,034,429
15	31515	JESUP	GA	3,863,929
16	29506	FLORENCE	SC	3,693,281
17	70805	BATON ROUGE	LA	3,576,343
18	23860	HOPEWELL	VA	3,515,808
19	63937	ELLSINORE	MO	3,431,376
20	62526	DECATUR	IL	3,414,179
21	24426	COVINGTON	VA	3,331,000
22	74019	CLAREMORE	OK	3,287,303
23	98632	LONGVIEW	WA	3,265,304
24	30165	ROME	GA	3,218,901
25	29440	GEORGETOWN	SC	3,133,189
26	36470	PERDUE HILL	AL	3,100,885
27	39815	ATTAPULGUS	GA	3,067,885
28	42029	CALVERT CITY	KY	2,993,683
29	35601	DECATUR	AL	2,805,774
30	45802	LIMA	OH	2,785,622
31	23851	FRANKLIN	VA	2,776,052
32	33830	BARTOW	FL	2,761,564
33	54494	WISCONSIN RAPIDS	WI	2,753,216
34	73701	ENID	OK	2,727,855
35	37134	NEW JOHNSONVILLE	TN	2,709,669
36	30906	AUGUSTA	GA	2,683,454
37	70734	GEISMAR	LA	2,637,720
38	75603	LONGVIEW	TX	2,609,001
39	32034	FERNANDINA BEACH	FL	2,579,715
40	21226	BALTIMORE/CURTIS BAY	MD	2,568,219
41	37774	LOUDON	TN	2,564,318
42	52732	CLINTON	IA	2,535,187
43	52627	FORT MADISON	IA	2,507,954
44	77541	FREEPORT/JONES CREEK/CLUTE	TX	2,505,716
45	40216	LOUISVILLE	KY	2,456,796
46	36426	BREWTON	AL	2,391,290
47	95564	SAMOA	CA	2,348,917
48	43512	DEFIANCE	OH	2,331,652
49	32533	CANTONMENT	FL	2,323,288
50	37662	KINGSPORT	TN	2,318,152
51	74764	VALLIANT	OK	2,302,263
52	29201	COLUMBIA	SC	2,294,687
53	28716	CANTON	NC	2,293,821
54	39654	MONTICELLO	MS	2,280,176
55	70669	WESTLAKE	LA	2,264,804
56	39832	CEDAR SPRINGS	GA	2,246,508
57	29406	NORTH CHARLESTON	SC	2,208,562
58	38310	ADAMSVILLE	TN	2,165,621
59	45750	MARIETTA	OH	2,138,718
60	31601	VALDOSTA/CLYATTVILLE	GA	2,108,395
61	71220	BASTROP	LA	2,095,065
62	67801	DODGE CITY	KS	2,036,197
63	77571	LA PORTE	TX	2,013,412
64	32177	PALATKA	FL	1,986,585
65	77701	BEAUMONT	TX	1,954,379
66	94553	MARTINEZ	CA	1,954,368
67	39046	CANTON	MS	1,949,833
68	28586	VANCEBORO	NC	1,942,771
69	70663	SULPHUR	LA	1,871,955
70	77520	BAYTOWN	TX	1,870,940
71	77705	BEAUMONT/CHEEK	TX	1,867,002
72	31415	SAVANNAH	GA	1,856,978
73	47629	NEWBURGH	IN	1,841,409
74	70634	DERIDDER	LA	1,825,145
75	47620	MOUNT VERNON	IN	1,814,407
76	97051	SAINT HELENS	OR	1,791,479
77	77536	DEER PARK	TX	1,785,563
78	70086	SAINT JAMES	LA	1,773,454
79	38326	COUNCE	TN	1,748,763
80	36769	PINE HILL	AL	1,746,748
81	64119	CLAYCOMO	MO	1,726,556
82	37167	SMYRNA	TN	1,723,727
83	48131	DUNDEE	MI	1,705,956
84	39462	NEW AUGUSTA	MS	1,704,484
85	77631	ORANGE	TX	1,701,442
86	32402	PANAMA CITY	FL	1,689,517
87	71630	ARKANSAS CITY	AR	1,683,659
88	70427	BOGALUSA	LA	1,682,233
89	59802	MISSOULA	MT	1,666,297
90	39156	REDWOOD	MS	1,664,143
91	23181	WEST POINT	VA	1,662,242
92	32347	PERRY	FL	1,653,319
93	39567	PASCAGOULA	MS	1,646,127
94	71901	HOT SPRINGS	AR	1,637,897
95	36851	COTTONTON	AL	1,629,605
96	99611	KENAI	AK	1,622,968
97	61025	EAST DUBUQUE	IL	1,616,863
98	37055	DICKSON	TN	1,590,981
99	35618	COURTLAND	AL	1,585,653
100	77530	CHANNELVIEW	TX	1,575,443

Appendix L. 100 U.S. Counties Reporting the Most Air and Water Releases of Suspected Neurotoxicants, 2004

Rank	County	State	Total Air and Water Emissions (pounds)
1	HAMBLEN	TN	14,702,488
2	HARRIS	TX	14,231,090
3	ASCENSION	LA	9,705,246
4	GALVESTON	TX	8,717,524
5	BERKELEY	SC	7,506,926
6	RICHMOND	GA	7,339,191
7	ASHTABULA	OH	7,142,731
8	JEFFERSON	TX	7,089,354
9	WOODBURY	IA	7,037,963
10	LOS ANGELES	CA	5,214,571
11	JEFFERSON	AR	5,102,041
12	HUMPHREYS	TN	4,986,947
13	GAGE	NE	4,881,133
14	EAST BATON ROUGE	LA	4,861,928
15	VERMILION	IL	4,823,500
16	COLUMBUS	NC	4,782,051
17	DE SOTO	LA	4,775,248
18	CALCASIEU	LA	4,771,396
19	JEFFERSON	KY	4,747,848
20	SHELBY	TN	4,585,412
21	CASS	TX	4,372,328
22	BRAZORIA	TX	4,179,426
23	POLK	FL	4,078,549
24	TOOELE	UT	4,034,763
25	ORANGE	TX	4,024,714
26	RICHLAND	SC	3,971,167
27	ELKHART	IN	3,938,970
28	FLORENCE	SC	3,933,525
29	WAYNE	GA	3,880,219
30	COOK	IL	3,830,120
31	MORGAN	AL	3,806,697
32	WOOD	WI	3,662,266
33	MACON	IL	3,612,334
34	CHATHAM	GA	3,546,361
35	HOPEWELL CITY	VA	3,515,693
36	FLOYD	GA	3,457,199
37	ALLEN	OH	3,442,179
38	CARTER	MO	3,431,376
39	ROGERS	OK	3,430,701
40	COWLITZ	WA	3,379,981
41	WAYNE	MI	3,357,501
42	NASSAU	FL	3,352,735
43	COVINGTON CITY	VA	3,331,000
44	MONROE	AL	3,282,036
45	JACKSON	MS	3,255,259
46	GEORGETOWN	SC	3,133,190
47	BALTIMORE CITY	MD	3,097,865
48	WASHINGTON	OH	3,091,327
49	DECATUR	GA	3,072,332
50	SULLIVAN	TN	3,071,909
51	MARSHALL	KY	2,993,687

Rank	County	State	Total Air and Water Emissions (pounds)
52	HARRISON	TX	2,963,472
53	MONROE	MI	2,878,742
54	ISLE OF WIGHT	VA	2,791,898
55	ESCAMBIA	FL	2,781,263
56	CHARLESTON	SC	2,767,853
57	CONTRA COSTA	CA	2,756,035
58	GARFIELD	OK	2,727,855
59	JEFFERSON	AL	2,677,091
60	LEE	IA	2,644,610
61	LOUDON	TN	2,607,810
62	MC CURTAIN	OK	2,591,461
63	CLINTON	IA	2,535,995
64	CALHOUN	TX	2,529,941
65	LICKING	OH	2,525,779
66	HUMBOLDT	CA	2,443,450
67	ALLEGHENY	PA	2,425,943
68	ESCAMBIA	AL	2,391,370
69	CALHOUN	SC	2,380,599
70	BAY	FL	2,344,763
71	DEFIANCE	OH	2,331,654
72	IBERVILLE	LA	2,312,425
73	NUECES	TX	2,308,806
74	ST CHARLES	LA	2,304,927
75	COLBERT	AL	2,297,691
76	HAYWOOD	NC	2,293,821
77	LAWRENCE	MS	2,280,183
78	CATAWBA	NC	2,277,971
79	WARREN	MS	2,250,995
80	EARLY	GA	2,246,508
81	UNION	OH	2,208,025
82	MCNAIRY	TN	2,165,621
83	LOWNDES	MS	2,133,077
84	MISSISSIPPI	AR	2,115,759
85	RUSSELL	AL	2,110,570
86	LOWNDES	GA	2,108,755
87	MOREHOUSE	LA	2,095,065
88	CRAVEN	NC	2,087,418
89	ST JAMES	LA	2,070,525
90	PUTNAM	FL	2,041,371
91	HARDIN	TN	2,040,707
92	FORD	KS	2,036,197
93	GLYNN	GA	2,022,030
94	OAKLAND	MI	2,004,906
95	RUTHERFORD	TN	1,988,825
96	LINN	OR	1,981,562
97	MADISON	MS	1,953,806
98	YORK	SC	1,934,243
99	LANE	OR	1,933,688
100	HARRISON	MS	1,916,664

Appendix M. Air Releases of Suspected Respiratory Toxicants, 2004: By State

Rank	State	Total Air Emissions (pounds)
1	OH	116,946,061
2	NC	99,151,657
3	TN	90,886,174
4	TX	89,551,196
5	PA	86,166,871
6	GA	86,018,217
7	FL	71,732,901
8	IN	69,213,183
9	WV	67,462,213
10	KY	58,201,781
11	SC	53,833,882
12	LA	51,726,808
13	IL	51,390,003
14	AL	51,017,194
15	MI	47,385,163
16	VA	45,911,573
17	MD	32,647,236
18	MS	31,295,706
19	IA	27,638,474
20	MO	25,389,668
21	NY	22,100,072
22	AR	21,611,950
23	WI	19,078,998
24	CA	17,207,357
25	OK	15,431,081
26	OR	12,499,164
27	KS	12,256,702
28	MN	11,898,443
29	WA	11,712,062
30	NJ	11,435,560
31	NE	10,520,352
32	UT	9,682,475
33	DE	7,540,269
34	MA	5,911,189
35	ME	5,394,464
36	ND	4,546,642
37	NH	4,531,690
38	ID	4,296,733
39	MT	4,250,357
40	AZ	4,248,933
41	CO	2,862,040
42	HI	2,343,006
43	WY	2,263,701
44	CT	2,259,767
45	NV	1,742,951
46	SD	1,704,384
47	AK	1,630,231
48	NM	984,354
49	RI	418,133
50	VT	50,727
51	DC	3,429
National		**1,485,983,177**

Appendix N. 100 U.S. Zip Codes Reporting the Most Air Releases of Suspected Respiratory Toxicants, 2004

Rank	Zip Code	City	State	Total Air Emissions (pounds)
1	37134	NEW JOHNSONVILLE	TN	17,185,681
2	15774	SHELOCTA	PA	16,403,890
3	25213	WINFIELD	WV	15,708,386
4	30120	CARTERSVILLE	GA	15,476,036
5	37778	LOWLAND	TN	14,769,926
6	26041	MOUNDSVILLE	WV	14,312,502
7	27009	BELEWS CREEK	NC	13,661,597
8	28682	TERRELL	NC	13,571,617
9	45144	MANCHESTER	OH	12,977,392
10	25265	NEW HAVEN	WV	12,526,073
11	27343	SEMORA	NC	12,160,544
12	34428	CRYSTAL RIVER	FL	11,960,774
13	21226	BALTIMORE/CURTIS BAY	MD	11,817,842
14	43961	STRATTON	OH	11,729,787
15	30170	ROOPVILLE	GA	10,377,850
16	43913	BRILLIANT	OH	10,049,602
17	37050	CUMBERLAND CITY	TN	9,984,805
18	45620	CHESHIRE	OH	9,474,147
19	47670	PRINCETON	IN	8,679,874
20	31061	MILLEDGEVILLE	GA	8,678,131
21	45715	BEVERLY	OH	8,638,437
22	48161	MONROE	MI	7,531,571
23	77590	TEXAS CITY	TX	7,460,286
24	51054	SERGEANT BLUFF	IA	7,247,509
25	32514	PENSACOLA	FL	7,025,872
26	41045	GHENT	KY	7,011,109
27	15461	MASONTOWN	PA	6,869,976
28	70346	DONALDSONVILLE	LA	6,847,847
29	15748	HOMER CITY	PA	6,721,953
30	20664	NEWBURG	MD	6,480,304
31	28012	BELMONT	NC	6,279,138
32	41230	LOUISA	KY	6,278,862
33	45052	NORTH BEND	OH	6,278,293
34	42337	DRAKESBORO	KY	6,137,785
35	26541	MAIDSVILLE/EVERETTVILLE	WV	6,105,916
36	29440	GEORGETOWN	SC	6,024,390
37	43811	CONESVILLE	OH	5,875,052
38	32409	SOUTHPORT	FL	5,851,790
39	32177	PALATKA	FL	5,831,584
40	47629	NEWBURGH	IN	5,728,528
41	37748	HARRIMAN	TN	5,706,867
42	17821	DANVILLE	PA	5,645,152
43	17370	YORK HAVEN	PA	5,574,143
44	29044	EASTOVER	SC	5,440,215
45	84029	GRANTSVILLE/ROWLEY	UT	5,248,250
46	15944	NEW FLORENCE	PA	5,219,545
47	30165	ROME	GA	5,201,216
48	71052	MANSFIELD	LA	5,082,654
49	39735	ACKERMAN	MS	5,036,140
50	28456	RIEGELWOOD	NC	4,923,318
51	68310	BEATRICE	NE	4,895,989
52	45157	NEW RICHMOND	OH	4,870,835
53	23836	CHESTER	VA	4,785,337
54	30901	AUGUSTA	GA	4,663,723
55	71601	PINE BLUFF	AR	4,563,572
56	20608	AQUASCO	MD	4,547,584
57	61832	DANVILLE	IL	4,515,033
58	62017	COFFEEN	IL	4,511,880
59	41056	MAYSVILLE	KY	4,454,679
60	75572	QUEEN CITY	TX	4,453,511
61	32226	JACKSONVILLE	FL	4,390,622
62	70805	BATON ROUGE	LA	4,346,953
63	49460	WEST OLIVE	MI	4,300,126
64	24426	COVINGTON	VA	4,185,458
65	29506	FLORENCE	SC	4,117,400
66	27574	ROXBORO	NC	4,112,488
67	23860	HOPEWELL	VA	4,064,790
68	47025	LAWRENCEBURG/GREENDALE	IN	3,965,792
69	35186	WILSONVILLE	AL	3,959,130
70	62526	DECATUR	IL	3,921,676
71	19966	MILLSBORO	DE	3,918,683
72	42348	HAWESVILLE	KY	3,898,896
73	28401	WILMINGTON	NC	3,831,483
74	47928	CAYUGA	IN	3,794,973
75	20842	DICKERSON	MD	3,661,598
76	07306	JERSEY CITY	NJ	3,623,418
77	31515	JESUP	GA	3,615,935
78	35601	DECATUR	AL	3,578,071
79	28114	MOORESBORO	NC	3,560,855
80	63937	ELLSINORE	MO	3,431,376
81	98632	LONGVIEW	WA	3,407,948
82	37716	CLINTON	TN	3,401,043
83	37662	KINGSPORT	TN	3,392,628
84	23851	FRANKLIN	VA	3,352,926
85	44095	EASTLAKE	OH	3,343,537
86	29445	MOUNT HOLLY/GOOSE CREEK	SC	3,342,639
87	47150	NEW ALBANY	IN	3,325,634
88	47250	MADISON	IN	3,288,579
89	74019	CLAREMORE	OK	3,276,081
90	35580	PARRISH	AL	3,235,443
91	32034	FERNANDINA BEACH	FL	3,220,527
92	52732	CLINTON	IA	3,182,220
93	45750	MARIETTA	OH	3,134,628
94	75603	LONGVIEW	TX	3,125,469
95	16201	KITTANNING	PA	3,110,625
96	39815	ATTAPULGUS	GA	3,059,576
97	42029	CALVERT CITY	KY	3,057,576
98	40330	HARRODSBURG	KY	3,051,986
99	16873	SHAWVILLE	PA	2,989,270
100	15144	SPRINGDALE	PA	2,985,206

Appendix O. 100 U.S. Counties Reporting the Most Air Releases of Suspected Respiratory Toxicants, 2004

Rank	County	State	Total Air Emissions (pounds)
1	JEFFERSON	OH	21,850,211
2	ARMSTRONG	PA	19,514,515
3	HUMPHREYS	TN	18,805,656
4	HARRIS	TX	17,672,267
5	PERSON	NC	16,396,477
6	MARSHALL	WV	16,017,366
7	PUTNAM	WV	15,716,564
8	BARTOW	GA	15,660,124
9	CATAWBA	NC	15,016,129
10	HAMBLEN	TN	15,009,961
11	STOKES	NC	13,664,898
12	ADAMS	OH	12,977,392
13	MASON	WV	12,659,702
14	BALTIMORE CITY	MD	12,349,782
15	CITRUS	FL	12,127,099
16	INDIANA	PA	11,941,498
17	WASHINGTON	OH	11,931,256
18	MONROE	MI	11,604,377
19	HEARD	GA	10,377,850
20	STEWART	TN	9,984,805
21	ASCENSION	LA	9,573,764
22	GALLIA	OH	9,474,647
23	ESCAMBIA	FL	9,260,540
24	GALVESTON	TX	9,229,221
25	GASTON	NC	8,874,420
26	GIBSON	IN	8,683,717
27	PUTNAM	GA	8,563,051
28	BAY	FL	8,377,691
29	JEFFERSON	TX	8,112,647
30	WOODBURY	IA	7,889,087
31	RICHLAND	SC	7,875,688
32	YORK	PA	7,467,192
33	HAMILTON	OH	7,360,347
34	RICHMOND	GA	7,320,454
35	CARROLL	KY	7,097,269
36	SHELBY	TN	7,032,506
37	BERKELEY	SC	7,002,088
38	WAYNE	MI	6,984,390
39	GREENE	PA	6,924,640
40	DUVAL	FL	6,858,221
41	MUHLENBERG	KY	6,512,853
42	CHARLES	MD	6,481,930
43	JEFFERSON	KY	6,316,384
44	COSHOCTON	OH	6,292,872
45	LAWRENCE	KY	6,278,862
46	MONONGALIA	WV	6,116,646
47	GEORGETOWN	SC	6,024,714
48	VERMILION	IL	5,961,837
49	WARRICK	IN	5,917,853
50	PUTNAM	FL	5,886,370
51	CLERMONT	OH	5,815,137
52	ROANE	TN	5,712,127
53	CHESTERFIELD	VA	5,709,240
54	MONTOUR	PA	5,645,152
55	EAST BATON ROUGE	LA	5,616,248
56	FLOYD	GA	5,449,363
57	CALCASIEU	LA	5,405,489
58	ALLEGHENY	PA	5,402,060
59	JEFFERSON	AR	5,253,925
60	TOOELE	UT	5,249,077
61	COOK	IL	5,241,848
62	LOS ANGELES	CA	5,190,933
63	DE SOTO	LA	5,109,771
64	OTTAWA	MI	5,063,441
65	CHOCTAW	MS	5,036,140
66	POLK	FL	5,002,297
67	COLUMBUS	NC	5,002,094
68	GAGE	NE	4,895,989
69	MORGAN	AL	4,602,863
70	PRINCE GEORGES	MD	4,551,892
71	MONTGOMERY	IL	4,518,941
72	MASON	KY	4,454,679
73	CASS	TX	4,453,511
74	BRAZORIA	TX	4,449,368
75	FLORENCE	SC	4,345,535
76	SHELBY	AL	4,333,556
77	MACON	IL	4,296,072
78	SUSSEX	DE	4,289,294
79	DEARBORN	IN	4,258,237
80	LAKE	OH	4,218,884
81	COVINGTON CITY	VA	4,185,458
82	MONROE	NY	4,144,575
83	PEORIA	IL	4,141,500
84	SULLIVAN	TN	4,126,108
85	WOOD	WI	4,116,611
86	VERMILLION	IN	4,076,443
87	HOPEWELL CITY	VA	4,063,817
88	NEW HANOVER	NC	4,029,927
89	JACKSON	MS	4,006,943
90	HANCOCK	KY	3,945,329
91	NASSAU	FL	3,944,962
92	ELKHART	IN	3,944,696
93	COLBERT	AL	3,810,572
94	HARRISON	TX	3,809,877
95	NORTHAMPTON	PA	3,790,383
96	ALLEN	OH	3,693,514
97	HUDSON	NJ	3,686,974
98	ORANGE	TX	3,674,062
99	RUTHERFORD	NC	3,664,226
100	MONTGOMERY	MD	3,662,099

Appendix P. Air and Water Releases of Dioxins, 2004: By State

Rank	State	Total Air Emissions (grams)	Total Surface Water Emissions (grams)	Total (grams)
1	TX	87.44	751.81	839.24
2	LA	49.46	365.28	414.74
3	AL	42.05	124.19	166.24
4	NH	153.79	0.00	153.79
5	AR	26.76	53.55	80.31
6	KS	69.19	0.00	69.19
7	FL	58.86	3.29	62.15
8	IN	60.97	0.02	60.99
9	MS	13.50	46.47	59.97
10	PA	49.91	0.91	50.82
11	IL	43.48	0.04	43.52
12	TN	32.36	8.32	40.68
13	OH	39.61	0.42	40.03
14	KY	35.86	0.02	35.89
15	NY	30.32	4.64	34.96
16	MO	30.31	3.15	33.46
17	NJ	31.64	0.18	31.82
18	SC	29.16	1.28	30.44
19	VA	27.17	2.28	29.45
20	GA	24.52	4.63	29.14
21	WI	28.84	0.05	28.89
22	WV	13.97	14.25	28.21
23	NC	21.94	2.69	24.63
24	WA	15.80	8.33	24.13
25	CA	16.37	1.55	17.92
26	MI	16.13	1.57	17.70
27	IA	17.05	0.00	17.05
28	MD	15.86	0.22	16.08
29	AZ	13.34	0.00	13.34
30	MA	13.09	0.17	13.26
31	UT	11.69	0.00	11.69
32	NV	9.84	0.00	9.84
33	OK	9.18	0.28	9.46
34	WY	9.44	0.00	9.44
35	OR	8.24	0.68	8.92
36	MN	8.74	0.00	8.74
37	AK	8.18	0.00	8.18
38	ME	7.15	0.99	8.14
39	ND	7.02	0.00	7.02
40	MT	5.67	0.00	5.67
41	CO	5.54	0.04	5.57
42	SD	5.52	0.00	5.52
43	CT	5.44	0.06	5.50
44	ID	1.06	4.18	5.24
45	DE	4.25	0.32	4.57
46	HI	4.39	0.00	4.39
47	NM	2.96	0.00	2.96
48	NE	2.53	0.00	2.53
49	DC	0.00	0.00	0.00
49	RI	0.00	0.00	0.00
49	VT	0.00	0.00	0.00
National		**1,225.59**	**1,405.84**	**2,631.43**

Appendix Q. 100 U.S. Zip Codes Reporting the Most Air and Water Releases of Dioxins, 2004

Rank	Zip Code	City	State	Total Air and Water Emissions (grams)
1	77541	FREEPORT	TX	525.37
2	70765	PLAQUEMINE	LA	298.47
3	77571	LA PORTE	TX	239.37
4	03576	DIXVILLE NOTCH	NH	151.27
5	35035	BRIERFIELD	AL	74.97
6	67215	WICHITA	KS	57.01
7	71822	ASHDOWN	AR	43.77
8	70669	WESTLAKE	LA	43.24
9	38960	GRENADA	MS	36.77
10	36543	HUXFORD	AL	27.85
11	70057	HAHNVILLE	LA	22.00
12	08862	PERTH AMBOY	NJ	19.00
13	46304	CHESTERTON/BURNS HARBOR	IN	17.80
14	70805	BATON ROUGE	LA	17.00
15	26155	NEW MARTINSVILLE	WV	15.10
16	29448	HARLEYVILLE	SC	11.46
17	78112	ELMENDORF	TX	9.29
18	46402	GARY	IN	8.63
19	77015	HOUSTON	TX	8.42
20	62539	ILLIOPOLIS	IL	8.30
21	54603	LA CROSSE	WI	8.07
22	36427	BREWTON	AL	7.93
23	71635	CROSSETT	AR	7.67
24	99752	KOTZEBUE	AK	7.53
25	14652	ROCHESTER	NY	7.13
26	08871	SAYREVILLE	NJ	7.00
27	71601	PINE BLUFF	AR	6.80
28	39577	WIGGINS	MS	6.56
29	32226	JACKSONVILLE	FL	6.54
30	37134	NEW JOHNSONVILLE	TN	6.50
31	46312	EAST CHICAGO	IN	6.39
32	17929	CRESSONA	PA	6.00
33	77536	DEER PARK	TX	5.94
34	60450	MORRIS	IL	5.85
35	23692	YORKTOWN/GRAFTON	VA	5.59
36	32177	PALATKA	FL	5.34
37	36610	MOBILE	AL	5.33
38	36916	PENNINGTON	AL	5.20
39	61021	DIXON	IL	5.11
40	65440	BOSS	MO	5.00
41	85938	SPRINGERVILLE	AZ	4.94
42	11768	NORTHPORT	NY	4.90
43	44446	NILES	OH	4.80
44	83501	LEWISTON	ID	4.78
45	78012	CHRISTINE	TX	4.67
46	36079	TROY	AL	4.63
47	34956	INDIANTOWN	FL	4.57
48	71730	EL DORADO	AR	4.47
49	02726	SOMERSET	MA	4.44
50	21703	FREDERICK	MD	4.39
51	37662	KINGSPORT	TN	4.29
52	71836	FOREMAN	AR	4.16
53	98106	SEATTLE	WA	4.16
54	70791	ZACHARY	LA	4.13
55	75572	QUEEN CITY	TX	4.09
56	34219	PARRISH	FL	4.08
57	23004	ARVONIA	VA	4.04
58	59323	COLSTRIP	MT	4.00
59	37660	KINGSPORT	TN	3.95
60	75074	PLANO	TX	3.92
61	37050	CUMBERLAND CITY	TN	3.92
62	70734	GEISMAR	LA	3.85
63	52761	MUSCATINE	IA	3.83
64	62217	BALDWIN	IL	3.81
65	15077	SHIPPINGPORT	PA	3.63
66	23851	FRANKLIN	VA	3.63
67	63336	CLARKSVILLE	MO	3.61
68	43512	DEFIANCE	OH	3.60
69	27107	WINSTON-SALEM	NC	3.58
70	82201	WHEATLAND	WY	3.58
71	36769	PINE HILL	AL	3.57
72	71360	PINEVILLE	LA	3.57
73	29440	GEORGETOWN	SC	3.54
74	32831	ORLANDO	FL	3.50
75	57702	RAPID CITY	SD	3.48
76	34691	HOLIDAY	FL	3.40
77	84078	VERNAL	UT	3.40
78	24175	TROUTVILLE	VA	3.39
79	36426	BREWTON	AL	3.35
80	84029	GRANTSVILLE/ROWLEY	UT	3.26
80	98632	LONGVIEW	WA	3.26
82	39358	SCOOBA	MS	3.26
83	12550	NEWBURGH	NY	3.23
84	85654	RILLITO	AZ	3.23
85	33316	FORT LAUDERDALE	FL	3.22
86	97818	BOARDMAN	OR	3.21
87	63866	MARSTON	MO	3.20
87	11101	LONG ISLAND CITY	NY	3.20
87	78359	GREGORY	TX	3.20
90	14012	BARKER	NY	3.19
91	66536	SAINT MARYS	KS	3.18
92	02563	SANDWICH	MA	3.18
93	21226	BALTIMORE	MD	3.15
94	70764	PLAQUEMINE	LA	3.14
95	71052	MANSFIELD	LA	3.13
96	30901	AUGUSTA	GA	3.11
97	45620	CHESHIRE	OH	3.09
98	42337	DRAKESBORO	KY	3.08
98	27343	SEMORA	NC	3.08
100	34428	CRYSTAL RIVER	FL	3.05

Appendix R. 100 U.S. Counties Reporting the Most Air and Water Releases of Dioxins, 2004

Rank	County	State	Total Air and Water Emissions (grams)
1	BRAZORIA	TX	525.87
2	IBERVILLE	LA	301.64
3	HARRIS	TX	254.91
4	COOS	NH	151.86
5	BIBB	AL	74.97
6	SEDGWICK	KS	57.51
7	LITTLE RIVER	AR	47.93
8	CALCASIEU	LA	43.33
9	ESCAMBIA	AL	39.12
10	GRENADA	MS	37.22
11	MIDDLESEX	NJ	26.21
12	ST CHARLES	LA	23.81
13	EAST BATON ROUGE	LA	22.58
14	PORTER	IN	17.80
15	MARSHALL	WV	16.63
16	LAKE	IN	16.51
17	DORCHESTER	SC	11.46
18	BEXAR	TX	10.29
19	SANGAMON	IL	8.99
20	SCHUYLKILL	PA	8.73
21	JEFFERSON	AR	8.70
22	SULLIVAN	TN	8.24
23	DUVAL	FL	8.21
24	LA CROSSE	WI	8.07
25	JEFFERSON	AL	7.91
26	ASHLEY	AR	7.67
27	NORTHWEST ARCTIC	AK	7.53
28	MONROE	NY	7.33
29	HUMPHREYS	TN	7.18
30	NORTHAMPTON	PA	6.99
31	MOBILE	AL	6.87
32	STONE	MS	6.56
33	SUFFOLK	NY	6.20
34	SAN BERNARDINO	CA	5.89
35	GRUNDY	IL	5.85
36	COLLIN	TX	5.82
37	YORK	PA	5.62
38	YORK	VA	5.59
39	PUTNAM	FL	5.52
40	APACHE	AZ	5.39
41	CLARK	NV	5.31
42	CHOCTAW	AL	5.20
43	FREDERICK	MD	5.19
44	BEAVER	PA	5.14
45	LEE	IL	5.11
46	IRON	MO	5.00
47	TRUMBULL	OH	4.80
48	NEZ PERCE	ID	4.78
49	UNION	AR	4.77
50	ATASCOSA	TX	4.67
51	PIKE	AL	4.63
52	MARTIN	FL	4.57
53	RICHMOND	GA	4.47
54	BRISTOL	MA	4.44
55	JASPER	MO	4.29
56	BERKELEY	SC	4.28
57	PERSON	NC	4.24
58	KING	WA	4.16
59	CASS	TX	4.09
60	MANATEE	FL	4.08
61	NEW CASTLE	DE	4.07
62	BUCKINGHAM	VA	4.04
63	ROSEBUD	MT	4.00
64	QUEENS	NY	3.97
65	STEWART	TN	3.92
66	SHEBOYGAN	WI	3.88
67	JEFFERSON	OH	3.87
68	ASCENSION	LA	3.85
69	MERCER	ND	3.83
70	INDIANA	PA	3.82
71	RAPIDES	LA	3.82
72	CHATHAM	GA	3.82
73	RANDOLPH	IL	3.81
74	PIKE	MO	3.80
75	PIMA	AZ	3.76
76	ISLE OF WIGHT	VA	3.63
77	DEFIANCE	OH	3.60
78	FORSYTH	NC	3.58
79	PLATTE	WY	3.58
80	WILCOX	AL	3.57
81	GEORGETOWN	SC	3.54
82	ORANGE	FL	3.50
83	PENNINGTON	SD	3.48
84	NIAGARA	NY	3.46
85	ORANGE	NY	3.41
86	PASCO	FL	3.40
87	UINTAH	UT	3.40
88	BALTIMORE	MD	3.39
89	BOTETOURT	VA	3.39
90	LOS ANGELES	CA	3.31
91	HONOLULU	HI	3.30
92	WILL	IL	3.29
93	MUHLENBERG	KY	3.29
94	TOOELE	UT	3.26
94	COWLITZ	WA	3.26
96	DE SOTO	LA	3.26
97	KEMPER	MS	3.26
98	HENDERSON	KY	3.22
99	BROWARD	FL	3.22
100	MORROW	OR	3.21

Appendix S. Land Releases of Recognized Carcinogens, Developmental Toxicants, and Reproductive Toxicants, 2004: By State

Rank	State	Total On-Site Land Releases (pounds)
1	NV	217,684,550
2	AK	146,041,919
3	UT	71,046,244
4	MO	29,112,845
5	MT	19,213,010
6	TN	13,096,523
7	ID	11,561,621
8	AZ	9,051,038
9	AL	8,143,122
10	CA	8,055,481
11	OH	7,218,389
12	OR	7,178,954
13	CO	6,807,014
14	IN	5,429,586
15	TX	4,897,645
16	FL	4,660,221
17	WA	4,139,934
18	KY	3,879,206
19	PA	3,850,831
20	LA	3,270,052
21	IL	3,061,609
22	WV	2,967,047
23	NC	2,836,439
24	GA	2,623,216
25	NY	1,650,634
26	SD	1,521,688
27	VA	1,211,016
28	MI	1,130,688
29	MS	1,089,421
30	NM	977,681
31	OK	955,042
32	AR	821,229
33	WY	521,310
34	SC	485,847
35	ND	465,890
36	MD	365,227
37	MN	321,863
38	KS	304,377
39	DE	222,770
40	NJ	176,761
41	NE	151,277
42	HI	125,694
43	WI	114,161
44	IA	82,047
45	MA	58,794
46	ME	10,684
47	NH	3,446
48	CT	870
49	RI	250
50	DC	0
51	VT	0
National		**608,595,163**

Appendix T. 100 U.S. Zip Codes Reporting the Most Land Releases of Recognized Carcinogens, Developmental Toxicants, and Reproductive Toxicants, 2004

Rank	Zip Code	City	State	Total On-Site Land Releases (pounds)
1	99752	KOTZEBUE	AK	135,329,476
2	89419	LOVELOCK	NV	85,322,626
3	84006	BINGHAM CANYON/COPPERTON	UT	53,818,352
4	89414	GOLCONDA/MIDAS	NV	42,382,733
5	89803	ELKO	NV	35,016,558
6	89438	VALMY	NV	23,485,855
7	89822	CARLIN	NV	18,790,206
8	63629	BUNKER	MO	13,358,616
9	65440	BOSS	MO	12,435,901
10	84044	MAGNA	UT	11,398,156
11	59638	JEFFERSON CITY	MT	9,239,419
12	59701	BUTTE	MT	8,940,004
13	99801	JUNEAU	AK	8,431,523
14	37040	CLARKSVILLE	TN	8,010,194
15	89003	BEATTY	NV	7,845,810
16	97812	ARLINGTON	OR	7,158,025
17	83624	GRAND VIEW	ID	6,534,179
18	93239	KETTLEMAN CITY	CA	5,860,697
19	35459	EMELLE	AL	3,622,389
20	80860	VICTOR	CO	3,455,674
21	80468	PARSHALL	CO	3,021,010
22	84022	DUGWAY/CLIVE	UT	2,848,464
23	43616	OREGON	OH	2,673,566
24	99153	METALINE FALLS	WA	2,633,893
25	37134	NEW JOHNSONVILLE	TN	2,477,968
26	32831	ORLANDO	FL	2,463,302
27	89801	ELKO	NV	2,432,118
28	99712	FAIRBANKS	AK	2,239,090
29	84029	GRANTSVILLE/ROWLEY	UT	2,217,774
30	83846	MULLAN	ID	2,215,061
31	85532	CLAYPOOL	AZ	2,164,735
32	93206	BUTTONWILLOW	CA	1,922,463
33	36079	TROY	AL	1,917,766
34	61615	PEORIA	IL	1,891,630
35	70665	CARLYSS/SULPHUR	LA	1,876,552
36	85614	GREEN VALLEY	AZ	1,754,066
37	83276	SODA SPRINGS	ID	1,537,100
38	47670	PRINCETON	IN	1,478,806
39	57754	LEAD	SD	1,468,405
40	63048	HERCULANEUM	MO	1,468,275
41	85629	SAHUARITA	AZ	1,436,461
42	85235	HAYDEN	AZ	1,392,809
43	15698	YUKON	PA	1,362,057
44	14107	MODEL CITY	NY	1,256,700
45	63638	ELLINGTON	MO	1,239,617
46	16003	BUTLER	PA	1,049,897
47	45144	MANCHESTER	OH	1,011,109
48	28429	CASTLE HAYNE	NC	996,042
49	45620	CHESHIRE	OH	947,032
50	89821	CRESCENT VALLEY	NV	919,863
51	86321	BAGDAD	AZ	910,927
52	85237	KEARNY	AZ	880,157
53	32226	JACKSONVILLE	FL	871,132
54	39746	HAMILTON	MS	866,816
55	99352	RICHLAND	WA	851,786
56	73860	WAYNOKA	OK	794,539
57	45750	MARIETTA	OH	747,430
58	78380	ROBSTOWN	TX	722,090
59	42337	DRAKESBORO	KY	710,120
60	35186	WILSONVILLE	AL	700,296
61	37662	KINGSPORT	TN	668,556
62	83873	WALLACE	ID	655,826
63	89045	ROUND MOUNTAIN	NV	609,959
64	41045	GHENT	KY	608,579
65	89418	IMLAY	NV	606,830
66	30170	ROOPVILLE	GA	600,552
67	71901	HOT SPRINGS	AR	570,394
68	35580	PARRISH	AL	557,605
69	83227	CLAYTON	ID	554,423
70	32177	PALATKA	FL	542,602
71	98531	CENTRALIA	WA	530,654
72	26739	MOUNT STORM	WV	530,522
73	37050	CUMBERLAND CITY	TN	521,870
74	70765	PLAQUEMINE	LA	490,419
75	25265	NEW HAVEN	WV	483,418
76	78359	GREGORY	TX	481,067
77	26366	HAYWOOD	WV	465,868
78	47882	SULLIVAN	IN	462,895
79	27343	SEMORA	NC	442,704
80	26041	MOUNDSVILLE	WV	439,616
81	43913	BRILLIANT	OH	413,402
82	47928	CAYUGA	IN	387,146
83	87416	FRUITLAND	NM	383,254
84	47885	WEST TERRE HAUTE	IN	379,864
85	38401	COLUMBIA	TN	379,774
86	31061	MILLEDGEVILLE	GA	375,332
87	42452	ROBARDS/HENDERSON	KY	362,589
88	48161	MONROE	MI	359,320
89	35772	STEVENSON	AL	354,548
90	46402	GARY	IN	344,033
91	77536	DEER PARK	TX	342,263
92	26574	GRANT TOWN	WV	336,518
93	47601	BOONVILLE	IN	335,346
94	59759	WHITEHALL	MT	334,900
95	75691	TATUM	TX	332,797
96	40272	LOUISVILLE	KY	332,642
97	47629	NEWBURGH	IN	331,642
98	88043	HURLEY	NM	321,299
99	30263	NEWNAN	GA	320,219
100	62201	E.SAINT LOUIS/SAUGET	IL	318,614

Appendix U. 100 U.S. Counties Reporting the Most Land Releases of Recognized Carcinogens, Developmental Toxicants, and Reproductive Toxicants, 2004

Rank	County	State	Total On-Site Land Releases (pounds)
1	NORTHWEST ARCTIC	AK	135,329,476
2	PERSHING	NV	85,929,456
3	HUMBOLDT	NV	65,757,170
4	SALT LAKE	UT	65,216,816
5	ELKO	NV	36,696,303
6	EUREKA	NV	18,790,206
7	REYNOLDS	MO	14,598,233
8	IRON	MO	12,435,901
9	JEFFERSON	MT	9,574,327
10	SILVER BOW	MT	8,940,004
11	NYE	NV	8,463,426
12	JUNEAU	AK	8,431,523
13	MONTGOMERY	TN	8,010,194
14	GILLIAM	OR	7,158,025
15	OWYHEE	ID	6,534,179
16	KINGS	CA	5,860,697
17	TOOELE	UT	5,064,954
18	SUMTER	AL	3,623,093
19	GILA	AZ	3,557,544
20	TELLER	CO	3,455,674
21	PIMA	AZ	3,190,862
22	GRAND	CO	3,021,010
23	SHOSHONE	ID	2,873,920
24	LUCAS	OH	2,673,566
25	PEND OREILLE	WA	2,633,893
26	HUMPHREYS	TN	2,479,712
27	ORANGE	FL	2,463,302
28	FAIRBANKS NORTH STAR	AK	2,258,538
29	PEORIA	IL	2,034,692
30	KERN	CA	1,923,322
31	PIKE	AL	1,917,766
32	CALCASIEU	LA	1,877,303
33	CARIBOU	ID	1,537,100
34	JEFFERSON	MO	1,516,716
35	GIBSON	IN	1,478,806
36	LAWRENCE	SD	1,468,405
37	NIAGARA	NY	1,447,084
38	WESTMORELAND	PA	1,362,200
39	NEW HANOVER	NC	1,100,143
40	BUTLER	PA	1,049,897
41	WASHINGTON	OH	1,031,683
42	ADAMS	OH	1,011,109
43	GALLIA	OH	947,032
44	LANDER	NV	930,452
45	YAVAPAI	AZ	923,865
46	PINAL	AZ	880,157
47	WHITE PINE	NV	877,311
48	DUVAL	FL	871,259
49	MONROE	MS	866,816
50	BENTON	WA	851,786
51	SULLIVAN	TN	846,531
52	MAJOR	OK	794,539
53	NUECES	TX	749,153
54	SHELBY	AL	722,510
55	MUHLENBERG	KY	721,250
56	WARRICK	IN	666,988
57	CARROLL	KY	608,579
58	PERSON	NC	604,780
59	HEARD	GA	600,552
60	GARLAND	AR	570,950
61	WALKER	AL	557,605
62	CUSTER	ID	554,423
63	PUTNAM	FL	543,376
64	LEWIS	WA	530,654
65	GRANT	WV	530,522
66	STEWART	TN	521,870
67	JEFFERSON	KY	509,905
68	IBERVILLE	LA	490,780
69	INDIANA	PA	486,266
70	MASON	WV	483,418
71	SAN PATRICIO	TX	481,067
72	HARRISON	WV	465,868
73	SULLIVAN	IN	462,895
74	SAN JUAN	NM	461,412
75	MARSHALL	WV	440,702
76	JEFFERSON	OH	413,402
77	HARRIS	TX	402,603
78	MONROE	MI	399,290
79	MAURY	TN	389,463
80	JEFFERSON	AL	389,271
81	VERMILLION	IN	387,162
82	VIGO	IN	385,646
83	PUTNAM	GA	375,332
84	CLERMONT	OH	370,630
85	HENDERSON	KY	362,589
86	JACKSON	AL	354,548
87	LAKE	IN	347,466
88	GRANT	NM	340,529
89	MARION	WV	337,919
90	RUSK	TX	332,797
91	COWETA	GA	320,219
92	ST CLAIR	IL	320,119
93	LIMESTONE	TX	317,683
94	ANDREWS	TX	312,782
95	ROANE	TN	310,595
96	BALTIMORE	MD	306,584
97	COSHOCTON	OH	302,159
98	TITUS	TX	300,481
99	BARTOW	GA	299,087
100	HALIFAX	VA	297,582

Appendix V. Substances Reported to TRI in 2004 with Known or Suspected Health Effects

R= Recognized **S**= Suspected

These substances may pose other health threats, such as damage to the endocrine or cardiovascular systems. In addition, some of the chemicals not noted as *recognized* carcinogens, for example, may be *suspected* carcinogens. Refer to the methodology for details about how we compiled the list of health effects.

Chemical Name	Carcinogen	Developmental Toxicant	Reproductive Toxicant	Neurotoxicant	Respiratory Toxicant
1,1,1,2-TETRACHLOROETHANE				S	
1,1,1-TRICHLOROETHANE				S	
1,1,2,2-TETRACHLOROETHANE	R			S	S
1,1,2-TRICHLOROETHANE	R			S	
1,1-DICHLORO-1-FLUOROETHANE				S	
1,1-DIMETHYL HYDRAZINE	R			S	S
1,2,3-TRICHLOROPROPANE	R			S	S
1,2,4-TRICHLOROBENZENE				S	
1,2,4-TRIMETHYLBENZENE				S	S
1,2-BUTYLENE OXIDE					S
1,2-DIBROMO-3-CHLOROPROPANE	R		R	S	S
1,2-DIBROMOETHANE	R	R	R	S	S
1,2-DICHLOROBENZENE				S	
1,2-DICHLOROETHANE	R			S	S
1,2-DICHLOROETHYLENE				S	S
1,2-DICHLOROPROPANE	R			S	S
1,2-DIPHENYLHYDRAZINE	R				
1,2-PHENYLENEDIAMINE	R				
1,3-BUTADIENE	R	R	R	S	S
1,3-DICHLOROBENZENE					S
1,3-DICHLOROPROPYLENE	R			S	S
1,4-DICHLORO-2-BUTENE	R			S	S
1,4-DICHLOROBENZENE	R			S	S
1,4-DIOXANE	R			S	S
2,4,5-TRICHLOROPHENOL					S
2,4,6-TRICHLOROPHENOL	R				S
2,4-D				S	S
2,4-D 2-ETHYL-4-METHYLPENTYL ESTER				S	
2,4-D 2-ETHYLHEXYL ESTER				S	
2,4-D BUTOXYETHYL ESTER				S	
2,4-D BUTYL ESTER				S	
2,4-D ISOPROPYL ESTER				S	
2,4-D SODIUM SALT				S	
2,4-DB			R		
2,4-DIAMINOANISOLE	R				
2,4-DIAMINOANISOLE SULFATE	R				
2,4-DIAMINOTOLUENE	R			S	S
2,4-DIMETHYLPHENOL					S
2,4-DINITROPHENOL				S	
2,4-DINITROTOLUENE	R		R	S	
2,4-DITHIOBIURET				S	
2,4-DP				S	
2,6-DINITROTOLUENE	R		R	S	
2,6-XYLIDINE	R				
2-ACETYLAMINOFLUORENE	R				
2-CHLOROACETOPHENONE				S	S
2-ETHOXYETHANOL		R	R	S	S
2-MERCAPTOBENZOTHIAZOLE				S	
2-METHOXYETHANOL		R	R	S	S
2-METHYLLACTONITRILE				S	S
2-METHYLPYRIDINE				S	
2-NITROPHENOL				S	

Chemical Name	Carcinogen	Developmental Toxicant	Reproductive Toxicant	Neurotoxicant	Respiratory Toxicant
2-NITROPROPANE	R			S	S
2-PHENYLPHENOL	R			S	S
3,3'-DICHLOROBENZIDINE	R			S	S
3,3'-DICHLOROBENZIDINE DIHYDROCHLORIDE	R				
3,3'-DIMETHOXYBENZIDINE	R				S
3,3'-DIMETHOXYBENZIDINE DIHYDROCHLORIDE	R				
3,3'-DIMETHYLBENZIDINE	R				
3-CHLORO-2-METHYL-1-PROPENE	R				
3-CHLOROPROPIONITRILE				S	
3-IODO-2-PROPYNYL BUTYLCARBAMATE				S	
4,4'-DIAMINODIPHENYL ETHER	R				
4,4'-ISOPROPYLIDENEDIPHENOL				S	
4,4'-METHYLENEBIS(2-CHLOROANILINE)	R			S	S
4,4'-METHYLENEBIS(N,N-DIMETHYL)BENZENAMINE	R				
4,4'-METHYLENEDIANILINE	R			S	
4,6-DINITRO-O-CRESOL				S	S
4-AMINOAZOBENZENE	R				
4-AMINOBIPHENYL	R			S	S
4-DIMETHYLAMINOAZOBENZENE	R				
4-NITROPHENOL				S	
ACEPHATE				S	
ACETALDEHYDE	R			S	S
ACETAMIDE	R				
ACETONE				S	S
ACETONITRILE				S	S
ACIFLUORFEN, SODIUM SALT	R				
ACROLEIN				S	S
ACRYLAMIDE	R			S	
ACRYLIC ACID					S
ACRYLONITRILE	R			S	S
ALACHLOR	R				
ALDICARB				S	
ALDRIN	R			S	S
ALLYL ALCOHOL				S	S
ALLYL CHLORIDE				S	S
ALLYLAMINE					S
ALPHA-NAPHTHYLAMINE	R				
ALUMINUM (FUME OR DUST)				S	S
ALUMINUM OXIDE (FIBROUS FORMS)				S	
ALUMINUM PHOSPHIDE				S	S
AMETRYN				S	
AMITRAZ		R		S	
AMITROLE	R				
AMMONIA				S	S
AMMONIUM SULFATE (SOLUTION)				S	S
ANILINE	R			S	S
ANTIMONY				S	S
ANTIMONY COMPOUNDS					S
ARSENIC	R	R		S	S
ARSENIC COMPOUNDS	R	R		S	S
ASBESTOS (FRIABLE)	R				S
ATRAZINE				S	
BARIUM				S	S
BENDIOCARB				S	
BENOMYL		R	R	S	
BENZAL CHLORIDE				S	S
BENZENE	R	R	R	S	S
BENZIDINE	R			S	
BENZOIC TRICHLORIDE	R			S	S
BENZOYL CHLORIDE					S
BENZYL CHLORIDE	R			S	S
BERYLLIUM	R				S
BERYLLIUM COMPOUNDS	R				S

Chemical Name	Carcinogen	Developmental Toxicant	Reproductive Toxicant	Neurotoxicant	Respiratory Toxicant
BETA-NAPHTHYLAMINE	R				
BIFENTHRIN				S	
BIPHENYL				S	S
BIS(2-CHLORO-1-METHYLETHYL) ETHER	R			S	
BIS(2-CHLOROETHYL) ETHER	R			S	S
BIS(CHLOROMETHYL) ETHER	R				S
BIS(TRIBUTYLTIN) OXIDE				S	S
BORON TRIFLUORIDE				S	S
BROMINE				S	S
BROMOCHLORODIFLUOROMETHANE				S	
BROMOFORM	R			S	S
BROMOMETHANE		R		S	S
BROMOTRIFLUOROMETHANE				S	
BROMOXYNIL		R			
BROMOXYNIL OCTANOATE		R			
BUTYL ACRYLATE					S
BUTYL BENZYL PHTHALATE		R		S	
BUTYRALDEHYDE					S
C.I. ACID RED 114	R				
C.I. DIRECT BLUE 218	R				
C.I. FOOD RED 15	R				
C.I. SOLVENT YELLOW 14	R				
C.I. SOLVENT YELLOW 3	R				
C.I. SOLVENT YELLOW 34	R				
CADMIUM	R	R	R	S	S
CADMIUM COMPOUNDS	R	R	R		S
CALCIUM CYANAMIDE					S
CAPTAN	R			S	
CARBARYL				S	
CARBOFURAN				S	
CARBON DISULFIDE		R	R	S	S
CARBON TETRACHLORIDE	R			S	S
CARBONYL SULFIDE				S	
CARBOXIN				S	
CATECHOL	R			S	
CERTAIN GLYCOL ETHERS				S	S
CHLORDANE	R			S	S
CHLORENDIC ACID	R				
CHLORINE				S	S
CHLORINE DIOXIDE					S
CHLOROACETIC ACID				S	S
CHLOROBENZENE				S	
CHLOROBENZILATE	R				
CHLORODIFLUOROMETHANE				S	S
CHLOROETHANE	R			S	
CHLOROFORM	R			S	S
CHLOROMETHANE		R		S	S
CHLOROMETHYL METHYL ETHER	R				S
CHLOROPICRIN				S	S
CHLOROPRENE	R			S	S
CHLOROTHALONIL	R			S	S
CHLORPYRIFOS METHYL				S	
CHLORSULFURON		R	R		
CHROMIUM	R				S
CHROMIUM COMPOUNDS	R				S
COBALT	R			S	S
COBALT COMPOUNDS	R				S
COPPER					S
COPPER COMPOUNDS					S
CREOSOTE	R			S	
CRESOL (MIXED ISOMERS)				S	S
CROTONALDEHYDE					S
CUMENE				S	

Chemical Name	Carcinogen	Developmental Toxicant	Reproductive Toxicant	Neurotoxicant	Respiratory Toxicant
CUMENE HYDROPEROXIDE					S
CUPFERRON	R				
CYANAZINE		R		S	S
CYANIDE COMPOUNDS				S	S
CYCLOATE		R		S	
CYCLOHEXANE				S	
CYCLOHEXANOL				S	S
CYFLUTHRIN				S	
CYHALOTHRIN				S	
DAZOMET				S	S
DESMEDIPHAM				S	
DI(2-ETHYLHEXYL) PHTHALATE	R	R	R		S
DIAMINOTOLUENE (MIXED ISOMERS)	R				
DIAZINON				S	
DIBUTYL PHTHALATE		R	R	S	
DICHLOROBROMOMETHANE	R			S	
DICHLORODIFLUOROMETHANE				S	S
DICHLOROFLUOROMETHANE				S	
DICHLOROMETHANE	R			S	S
DICHLOROTETRAFLUOROETHANE (CFC-114)				S	
DICHLORVOS	R			S	
DICOFOL				S	
DICYCLOPENTADIENE				S	
DIEPOXYBUTANE	R				S
DIETHANOLAMINE				S	S
DIETHYL PHTHALATE				S	S
DIETHYL SULFATE	R				
DIGLYCIDYL RESORCINOL ETHER	R			S	
DIHYDROSAFROLE	R				
DIISOCYANATES					S
DIMETHOATE				S	S
DIMETHYL PHTHALATE				S	S
DIMETHYL SULFATE	R			S	S
DIMETHYLAMINE				S	S
DIMETHYLCARBAMYL CHLORIDE	R				S
DINITROBUTYL PHENOL		R	R	S	S
DINITROTOLUENE (MIXED ISOMERS)	R		R	S	S
DINOCAP		R			S
DIPHENYLAMINE				S	S
DIPROPYL ISOCINCHOMERONATE	R				
DISODIUM CYANODITHIOIMIDOCARBONATE		R			
DIURON	R				
EPICHLOROHYDRIN	R		R	S	S
ETHOPROP	R			S	
ETHYL ACRYLATE	R			S	S
ETHYL CHLOROFORMATE					S
ETHYL DIPROPYLTHIOCARBAMATE		R		S	
ETHYLBENZENE	R			S	S
ETHYLENE				S	S
ETHYLENE GLYCOL				S	S
ETHYLENE OXIDE	R		R	S	S
ETHYLENE THIOUREA	R	R			
ETHYLENEIMINE	R			S	S
ETHYLIDENE DICHLORIDE	R			S	
FAMPHUR				S	
FENOXYCARB	R				
FENPROPATHRIN				S	
FENTHION				S	S
FERBAM				S	
FLUAZIFOP BUTYL		R			
FLUORINE					S
FLUOROURACIL		R		S	
FLUVALINATE		R			

Chemical Name	Carcinogen	Developmental Toxicant	Reproductive Toxicant	Neurotoxicant	Respiratory Toxicant
FOLPET	R				
FORMALDEHYDE	R			S	S
FORMIC ACID				S	S
FREON 113				S	S
HEPTACHLOR	R	R		S	
HEXACHLORO-1,3-BUTADIENE				S	
HEXACHLOROBENZENE	R	R		S	
HEXACHLOROCYCLOPENTADIENE				S	S
HEXACHLOROETHANE	R			S	S
HEXACHLOROPHENE				S	S
HEXAMETHYLPHOSPHORAMIDE	R		R	S	S
HYDRAMETHYLNON		R	R		
HYDRAZINE	R			S	S
HYDRAZINE SULFATE	R			S	S
HYDROCHLORIC ACID AEROSOLS					S
HYDROGEN CYANIDE				S	S
HYDROGEN FLUORIDE				S	S
HYDROQUINONE				S	S
IRON PENTACARBONYL				S	S
ISOBUTYRALDEHYDE					S
ISOPROPYL ALCOHOL				S	S
LACTOFEN	R				
LEAD	R	R	R	S	S
LEAD COMPOUNDS	R	R	R	S	
LINDANE	R			S	S
LINURON		R			
LITHIUM CARBONATE		R		S	
MALATHION				S	S
MALEIC ANHYDRIDE					S
MALONONITRILE				S	S
MANEB	R			S	
MANGANESE				S	S
MANGANESE COMPOUNDS				S	S
M-CRESOL				S	S
M-DINITROBENZENE			R	S	S
MERCURY		R		S	S
MERCURY COMPOUNDS		R		S	
MERPHOS				S	
METHACRYLONITRILE				S	S
METHAM SODIUM	R	R			
METHANOL				S	S
METHIOCARB				S	
METHOXONE				S	
METHOXONE SODIUM SALT				S	
METHOXYCHLOR				S	S
METHYL ACRYLATE				S	S
METHYL CHLOROCARBONATE					S
METHYL ETHYL KETONE				S	S
METHYL HYDRAZINE	R			S	S
METHYL IODIDE	R			S	S
METHYL ISOBUTYL KETONE				S	S
METHYL ISOCYANATE					S
METHYL ISOTHIOCYANATE				S	
METHYL METHACRYLATE				S	S
METHYL PARATHION				S	S
METHYL TERT-BUTYL ETHER				S	S
METHYLENE BROMIDE				S	
METHYLENEBIS(PHENYLISOCYANATE)					S
MEVINPHOS				S	S
MICHLER'S KETONE	R				
MOLINATE				S	
MOLYBDENUM TRIOXIDE				S	S
MONOCHLOROPENTAFLUOROETHANE				S	

Chemical Name	Carcinogen	Developmental Toxicant	Reproductive Toxicant	Neurotoxicant	Respiratory Toxicant
M-XYLENE				S	S
MYCLOBUTANIL		R	R		
N,N-DIMETHYLANILINE				S	
N,N-DIMETHYLFORMAMIDE				S	S
NABAM		R			
NALED				S	
NAPHTHALENE	R			S	S
N-BUTYL ALCOHOL				S	S
N-HEXANE				S	S
NICKEL	R			S	S
NICKEL COMPOUNDS	R				S
NICOTINE AND SALTS		R		S	S
NITRAPYRIN	R	R			
NITRIC ACID					S
NITRILOTRIACETIC ACID	R				
NITROBENZENE	R			S	S
NITROFEN	R			S	S
NITROGEN MUSTARD	R	R			
NITROGLYCERIN				S	S
N-METHYL-2-PYRROLIDONE		R		S	
N-METHYLOLACRYLAMIDE	R			S	
N-NITROSODIETHYLAMINE	R				S
N-NITROSODIMETHYLAMINE	R			S	S
N-NITROSODI-N-BUTYLAMINE	R				S
N-NITROSODI-N-PROPYLAMINE	R				S
N-NITROSODIPHENYLAMINE	R				S
N-NITROSOMETHYLVINYLAMINE	R				
N-NITROSO-N-ETHYLUREA	R			S	
N-NITROSO-N-METHYLUREA	R				
N-NITROSOPIPERIDINE	R				S
O-ANISIDINE	R			S	
O-CRESOL				S	S
O-DINITROBENZENE			R	S	
OSMIUM TETROXIDE					S
O-TOLUIDINE	R			S	S
O-TOLUIDINE HYDROCHLORIDE	R				
OXYDEMETON METHYL			R	S	
OXYDIAZON	R	R			
O-XYLENE				S	S
OZONE				S	S
PARALDEHYDE				S	
PARAQUAT DICHLORIDE				S	S
PARATHION				S	S
P-CHLOROANILINE	R				
P-CRESIDINE	R				
P-CRESOL				S	S
P-DINITROBENZENE			R	S	
PEBULATE				S	
PENTACHLOROBENZENE				S	
PENTACHLOROETHANE				S	
PENTACHLOROPHENOL	R			S	S
PENTOBARBITAL SODIUM		R		S	
PERCHLOROMETHYL MERCAPTAN					S
PERMETHRIN				S	
PHENANTHRENE					S
PHENOL				S	S
PHENOTHRIN				S	
PHENYTOIN	R	R		S	S
PHOSGENE					S
PHOSPHINE				S	S
PHOSPHORIC ACID				S	S
PHOSPHORUS (YELLOW OR WHITE)				S	S
PHTHALIC ANHYDRIDE				S	S

Chemical Name	Carcinogen	Developmental Toxicant	Reproductive Toxicant	Neurotoxicant	Respiratory Toxicant
PICRIC ACID				S	
PIPERONYL BUTOXIDE				S	
PIRIMIPHOS METHYL				S	
P-NITROANILINE				S	
P-NITROSODIPHENYLAMINE	R				
POLYBROMINATED BIPHENYLS	R	R		S	
POLYCHLORINATED BIPHENYLS	R	R		S	S
POLYCYCLIC AROMATIC COMPOUNDS	R				S
POTASSIUM BROMATE	R				
POTASSIUM DIMETHYLDITHIOCARBAMATE		R		S	
P-PHENYLENEDIAMINE				S	S
PROFENOFOS				S	
PROMETRYN				S	S
PRONAMIDE	R				
PROPACHLOR	R			S	S
PROPANE SULTONE	R			S	S
PROPANIL				S	S
PROPARGITE	R	R			
PROPARGYL ALCOHOL				S	
PROPETAMPHOS				S	
PROPIONALDEHYDE				S	
PROPOXUR	R			S	
PROPYLENE					S
PROPYLENE OXIDE	R			S	S
PROPYLENEIMINE	R			S	S
P-XYLENE				S	S
PYRIDINE	R			S	S
QUINOLINE	R			S	S
QUINONE				S	
QUIZALOFOP-ETHYL			R		
RESMETHRIN		R		S	
S,S,S-TRIBUTYLTRITHIOPHOSPHATE				S	
SAFROLE	R			S	
SEC-BUTYL ALCOHOL				S	S
SELENIUM				S	S
SELENIUM COMPOUNDS				S	S
SIMAZINE				S	
SODIUM AZIDE				S	S
SODIUM DIMETHYLDITHIOCARBAMATE		R		S	
SODIUM FLUOROACETATE			R	S	S
SODIUM HYDROXIDE (SOLUTION)					S
SODIUM NITRITE				S	S
SODIUM O-PHENYLPHENOXIDE	R				
STRYCHNINE AND SALTS				S	
STYRENE				S	S
STYRENE OXIDE	R				S
SULFURIC ACID AEROSOLS					S
SULFURYL FLUORIDE				S	S
TEBUTHIURON				S	
TEMEPHOS				S	
TEREPHTHALIC ACID				S	
TERT-BUTYL ALCOHOL				S	
TETRACHLOROETHYLENE	R			S	S
TETRACHLORVINPHOS				S	
TETRACYCLINE HYDROCHLORIDE		R			
TETRAMETHRIN				S	
THALLIUM				S	
THIABENDAZOLE				S	
THIOACETAMIDE	R				
THIOBENCARB				S	
THIODICARB	R			S	
THIOPHANATE-METHYL			R	S	
THIOUREA	R				

Chemical Name	Carcinogen	Developmental Toxicant	Reproductive Toxicant	Neurotoxicant	Respiratory Toxicant
THIRAM				S	S
THORIUM DIOXIDE	R				
TITANIUM TETRACHLORIDE					S
TOLUENE		R		S	S
TOLUENE DIISOCYANATE (MIXED ISOMERS)	R			S	S
TOLUENE-2,4-DIISOCYANATE	R			S	S
TOLUENE-2,6-DIISOCYANATE	R				S
TOXAPHENE	R			S	S
TRANS-1,3-DICHLOROPROPENE	R				
TRANS-1,4-DICHLORO-2-BUTENE	R				
TRIADIMEFON		R	R	S	
TRIALLATE				S	
TRIBUTYLTIN METHACRYLATE		R		S	
TRICHLORFON				S	
TRICHLOROETHYLENE	R			S	S
TRICHLOROFLUOROMETHANE				S	S
TRIETHYLAMINE				S	S
TRIFORINE		R			
TRIPHENYLTIN HYDROXIDE	R	R			
TRIS(2,3-DIBROMOPROPYL) PHOSPHATE	R			S	
TRYPAN BLUE	R				
URETHANE	R	R			S
VANADIUM					S
VINCLOZOLIN	R	R			
VINYL ACETATE				S	S
VINYL BROMIDE	R			S	
VINYL CHLORIDE	R			S	S
VINYLIDENE CHLORIDE				S	S
WARFARIN AND SALTS		R		S	
XYLENE (MIXED ISOMERS)				S	S
ZINC (FUME OR DUST)					S
ZINC COMPOUNDS					S
ZINEB				S	

END NOTES

[1] H.R. Conf. Rep. No. 962, 99th Cong., 2dSESS. (1986), "Joint explanatory statement of the Committee of Conference."
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[12] U.S. Agency for Toxic Substances and Disease Registry, *ToxFAQs for Toluene*, February 2001.
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[14] Lead compounds are not specifically identified as developmental or reproductive toxicants under Proposition 65. Environmental Defense, however, classifies lead compounds as "recognized" developmental and reproductive toxicants on its Scorecard.org website. The TOXNET database of the National Library of Medicine cites several studies suggesting that exposure to inorganic lead compounds can lead to reproductive problems and impaired neurological development in children. As a result, we include lead compounds as recognized developmental and reproductive toxicants for purposes of this study. We made a similar determination for cadmium compounds, even though Proposition 65 lists only elemental cadmium as a developmental and reproductive toxicant.
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[27] Lead compounds are not specifically identified as developmental or reproductive toxicants under Proposition 65. Environmental Defense, however, classifies lead compounds as "recognized" developmental and reproductive toxicants on its Scorecard.org website. The TOXNET database of the National Library of Medicine cites several studies suggesting that exposure to inorganic lead compounds can lead to reproductive problems and impaired neurological development in children. As a result, we include lead compounds as recognized developmental and reproductive toxicants for purposes of this study. We made a similar determination for cadmium compounds, even though Proposition 65 lists only elemental cadmium as a developmental and reproductive toxicant.
[28] 40 C.F.R. § 372.65; EPA EPCRA 313 Chemical list for Reporting Year 2004, accessed March 5, 2007 at http://www.epa.gov/tri/chemical/RY2004ChemicalLists.pdf.
[29] For Form R reporting requirements *see* 40 C.F.R. § 372.85
[30] For Form A reporting requirements *see* 40 C.F.R. § 372.95
[31] 71 Fed. Reg. 76,932, 76,934 (Dec. 22, 2006)
[32] 40 C.F.R. § 372.27 (establishing Form A eligibility if facility does not exceed threshold level of 500 pounds of total quantities of a toxic released, disposed, treated, recycled or combusted at the facility, and amounts transferred from the facility to offsite locations for treatment, disposal, recycling or combustion), *amended by* 71 Fed. Reg. 76,944 (Dec. 22, 2006)(expanding Form A eligibility from 500 pound total quantity threshold to 5,000 pounds if total onsite releases and disposal do not exceed 2,000 pounds)
[33] 71 Fed. Reg. 76,932 *et seq.* (Dec. 22, 2006) (Toxics Release Inventory Burden Reduction Final Rule)
[34] 71 Fed. Reg. 76,935
[35] 64 Fed. Reg. 58,732 (Oct. 29, 1999); 40 C.F.R. § 372.28 (exempting persistent bioaccumulative toxins from alternative threshold certification)
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