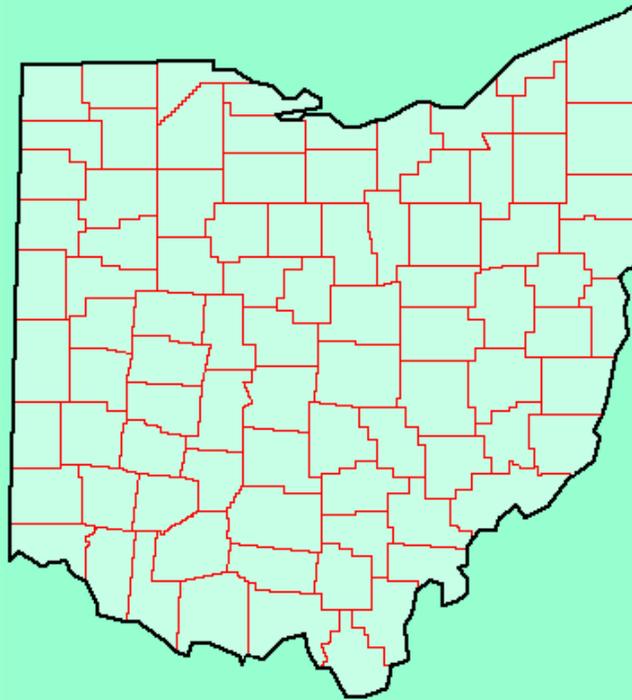




Toxic Release Inventory



2001 Annual Report

Ohio Environmental Protection Agency
Division of Air Pollution Control

May 2003

Executive Summary

Section 313 of the Emergency Planning and Community Right-to-Know Act (EPCRA) provides for the collection and public release of annual Toxic Release Inventory (TRI) reports regarding the release of toxic chemicals within the community. Since the first TRI reports were made available to the public in 1987, TRI has expanded to include information on waste generation, additional reportable chemicals and new industrial sectors (based on Standard Industrial Classification (SIC) codes). The most recent significant expansion, the persistent, bioaccumulative and toxic (PBT) chemicals rule, is in effect for its second year. Under this rule, the threshold quantities for several chemicals were significantly reduced and other chemicals were reportable under TRI for the first time in 2000. Reporting year 2001 recognizes lead and lead compounds as PBT chemicals and, with a few exceptions, reduces the reporting threshold for lead to 100 pounds.

For reporting year 2001, Ohio EPA received nearly 6,600 TRI reports from over 1,700 facilities. While about 35% of these facilities reported a single chemical, the average number of chemicals reported was four. Table 1 compares reporting years 2000 and 2001 TRI data for all reporting facilities. 2001 data includes the additional reporting of lead and lead compounds resulting from the lead rule. Nearly 400 additional reports, compared to reporting year 2000, were filed for lead and lead compounds, most resulting from the lower reporting threshold for lead. Even with the additional lead and lead compound forms filed, the total releases and transfers of lead and lead compounds decreased between 2000 and 2001 as reductions by previous reporters more than offset the amounts reported by new reporters.

Table 1: Comparison of 2000 and 2001 TRI Data

Environmental Medium	Amount Released in 2000 (lbs/yr)	Amount Released in 2001 (lbs/yr)	Percent Change
Releases to Air	145,218,803	121,616,112	-16.3%
Releases to Water	9,449,550	8,338,631	-11.8%
Deepwell Injection	30,288,747	31,993,954	5.63%
Releases to Land On-Site	46,809,370	35,606,198	-23.9%
Discharges to POTW	23,277,861	18,623,757	-20.0%
Transfers Off-Site for Disposal and Treatment	76,958,696	71,340,599	-7.30%
Total Releases and Transfers*	332,003,027	287,519,251	-13.4%
Energy Recovery On-Site	94,899,826	81,101,212	-14.5%
Energy Recovery Off-Site	46,239,716	40,936,284	-11.5%
Recycling On-Site	223,724,108	192,078,196	-14.1%
Recycling Off-Site	171,225,913	169,763,829	-0.85%
Treatment On-Site	221,652,188	258,100,472	16.44%
Number of Reporting Facilities	1,725	1,732	0.41%

* Does not include releases which were transferred off-site to facilities which reported the same chemical under TRI.

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Total releases and transfers decreased by over 13% from 2000 and 2001, while the number of reporting facilities increased slightly. This is the overall, net change. There is significant variation among the various releases and transfers among the more than 1,700 reporting facilities. Individual increases or decreases are attributable to many factors including changes in production, accuracy and types of measurement used, and pollution prevention efforts to minimize releases and develop uses or find markets for what might otherwise be a waste. For many Resource Conservation and Recovery Act (RCRA) facilities, which became subject to TRI reporting in 1998, minor waste stream and market changes greatly affect TRI reporting. Very small differences often determine what becomes a "waste" and whether it is treated, recycled or used for energy recovery.

The information presented here summarizes the information collected under Ohio's TRI program. Changes, some significant, are routinely processed as facilities perform "self-audits" or otherwise discover errors. Sometimes such reassessments are prompted by seeing data presented different ways in various reports or re-reviewing the data in response to citizen inquiries, subsequent to their review and evaluation of such data. Ideally, state and federal TRI data should be the same as facilities are required to submit TRI reports to both Ohio EPA and U.S. EPA. However, since the state and federal databases are maintained and updated separately, changes are not always made at the same time and some variation is always possible.

Ohio EPA contacted many of the facilities which reported significant changes in waste management or releases between 2000 and 2001 to determine the reasons for the changes. The following information was developed through review of summary data and facility responses, and is included to provide better insight to the dynamics of the annual reporting. We invite you to contact us or the individual reporting facilities for more information concerning toxic releases or other waste management.

Air Releases

2001 data showed a significant decrease in air releases, down over 23 million pounds or 16%, primarily from the power generating facilities. The seven largest decreases in air releases were reported by power generating facilities, averaging in excess of 2 million pounds. Dayton Power & Light Company determined that use of a U.S. EPA emission factor was a better indicator of actual releases than mass-balance efforts used in prior years. While this increased some reported sulfuric acid releases, it resulted in overall reported decreases, almost 5 million pounds at their J.M. Stuart Station in Adams County (primarily hydrochloric acid aerosols). The four largest increases in air releases were also reported by power generating facilities. These averaged less than 750,000 pounds. Ohio is a net electric power exporting state with more than 20 TRI reporting power generation facilities. Approximately half of these reported somewhat increased TRI releases while the other half reported more substantial decreases.

Water Releases

Releases to water decreased over 10%. Prior year reports were revised upward from the previous release of the annual report from 7.7 million to 9.4 million pounds. AK Steel Corporation's releases in Coshocton and Muskingum counties, which accounted for over half of the statewide releases (5.8 million pounds) were down significantly. AK Steel Corporation – Coshocton Works releases were down nearly 20%. The most released chemical category, nitrate compounds, with 7.5 million pounds released in 2001, are by-products of the treatment of

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- Water Releases (cont.)** nitric acid. Water releases of manganese and manganese compounds, the second most released toxic chemical to water ways, was also down over 20%, now under 250,000 pounds statewide.
- Land Releases On-Site** Overall releases to land on-site were down over 10 million pounds, a decrease of over 20% from 2000. The two facilities responsible for most of this change were Envirosafe Services of Ohio, Inc., a licensed RCRA disposal facility in Lucas County, and Eramet Marietta Inc., a manufacturing facility in Washington County. Each of these facilities reported approximately a 4 million pound decrease of TRI reportable releases between reporting years 2000 and 2001. For Envirosafe Services of Ohio, Inc., this reduction is a function of their customers and the market for waste disposal services. The facility accepted approximately the same quantity of waste, but the waste contained less TRI reportable chemicals, largely zinc and zinc compounds. Eramet's reduction was due to the shutdown of the electrolytic manganese process. This was an economic decision as the price of manganese has decreased over 40% in the global market. While less significant but still noteworthy, American Electric Power's Ohio Power generating facilities, which constitute six of the top ten land releasing facilities, generally reduced releases in 2001.
- Deepwell Injection** Overall deepwell injection increased over 5%. Only three facilities in Ohio use this monitored and regulated disposal option and two of them reduced releases from reporting year 2000 levels. BP Chemicals Inc. in Allen County, and Vickery Environmental, Inc., in Sandusky County averaged approximately a 16 million pound release each. This is a minor decrease for Vickery Environmental, Inc. and an almost 20% increase for BP Chemicals Inc.. The significantly smaller Lake County facility, with only 6,500 reported pounds of TRI chemicals injected, changed its name from "Tomen Agro, Inc." to "Arvesta Corporation."
- Treatment and Disposal Off-Site** Transfers off-site for treatment and disposal decreased over 7% with the ratio of decreasing to increasing facilities at approximately 2:1. Zinc and zinc compounds were responsible for most of the decrease, with 2001 releases and transfers down 7.5 million pounds from the prior year. The mix and order of treated and disposed of chemicals was similar to the prior year, with zinc and zinc compounds, manganese and manganese compounds and nitric acid constituting the top three reported, treated and disposed chemicals. While the 7.5 million pound reduction of zinc treatment and releases was a 40% reduction, the manganese and nitric acid reductions averaged approximately 2%. Onyx Environmental Services in Montgomery County reported the most significant increase, 2.9 million pounds.
- Recycling On-Site** On-site recycling decreased approximately 15%, compared to reporting year 2000. For 2001, the decrease to increase ratio was nearly 2:1 with ten facilities reducing on-site recycling by 1 million pounds or more. The three largest reductions were Noveon Hilton Davis, Inc. (down 8.5 million pounds), Techneglas, Inc. (down 8.3 million pounds) and Hukill Chemical Corporation (down 6.8 million pounds). Noveon

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- Recycling On-Site (cont.)** Hilton Davis Inc. which had used, recycled and also discharged methanol, has ceased operations. Techneglas, Inc. attributed its reduction in on-site recycling to economic conditions. The two biggest increasers were Chemical Solvents Inc. (up 7.7 million pounds) and Nippert Co. (up 6.4 million pounds). Chemical Solvents Inc. is a RCRA treatment facility subject to such business fluctuations. Nippert Co. was able to increase on-site to off-site recycling and noted that waste minimization, recycling and reuse were among the variables that “are constantly changing in a dynamic production environment from year to year.” Their words were echoed by numerous TRI reporters.
- Energy Recovery On-Site** On-site energy recovery decreased almost 15%. The decrease to increaser ratio was over 4:1 for this waste management activity. Less than thirty facilities reported on-site energy recovery efforts. The most significant reduction was at the LaFarge/Systech facility in Paulding County. This facility reported an 8.8 million pound reduction in the energy recovery of reportable chemicals. (A similar reduction was reported last year, though facility business, the manufacture of cement, was again up.) The second largest decrease, 3.4 million pounds at the Sunoco Haverhill (Scioto County) facility was attributable to a combination of decreased production and improved product yields resulting in less waste fuel production.
- Energy Recovery Off-Site** Off-site energy recovery was down by approximately 10%. The three largest decreaseers, Chemical Solvents Inc., Hukill Chemical Corporation and Research Organics Inc, all Cuyahoga County RCRA treatment facilities, were subject to the variations in the business cycle and the economics of various waste management options.
- POTW Releases** Statewide releases to publicly-owned treatment works (POTWs) were down 20%. The most significant reductions were in Hamilton County, where toxic chemical releases to POTWs were down 3 million pounds, constituting two-thirds of the 4.5 million pound total statewide reduction. Shepherd Chemical Co. in Cincinnati, showed the biggest single reduction, reducing releases to the Cincinnati Metropolitan Sewer District by 33%, the largest reduction being nitrate compounds. POTW releases in Cuyahoga and Montgomery Counties were similarly down, approaching 25% and 35% respectively. The most released chemicals to POTWs were, as in reporting year 2000, nitrate compounds, methanol and glycol ethers. Approximately 12.5 million pounds of nitrate compounds and 2.9 million pounds of methanol were released to POTWs in 2001.
- Recycling Off-Site** Off-site recycling was down only slightly (0.85%) with an almost 2:1 ratio of decreaseers to increasers. Brush Wellman (Ottawa Co.) recycled over 5 million pounds, a significant increase, due to their concerted effort to reduce scrap inventories combined with development of a reliable vendor, making it a cost-effective option. While Brush Wellman reported the biggest percent change between 2000 and 2001, both J&L Specialty Steel (Stark Co.) and North Star BHP Steel (Fulton Co.) each recycled well over 10 million pounds of metals.

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PBT Chemicals

2001 is the second reporting year for a category of persistent, bio-accumulative and toxic or PBT chemicals. It is the first year lead and lead compounds were included among these PBT chemicals (with exceptions for stainless steel, brass and bronze). While the number of Form R reports for lead and lead compounds increased significantly, from 205 to 594, total lead releases and transfers decreased by more than four million pounds (22.2 to 17.9 million pounds). The reporting threshold for lead was decreased to 100 pounds (with the previously noted exceptions). Releases of mercury, also a PBT chemical, reported as such for the first time last year, showed a good decrease in overall releases and transfers, from approximately 41,000 pounds to 27,000 pounds. Just under 100 facilities reported mercury and mercury compounds.

Figure 1: 10-Year TRI Trends
(Facilities/Chemicals Reportable Over The Entire Period)

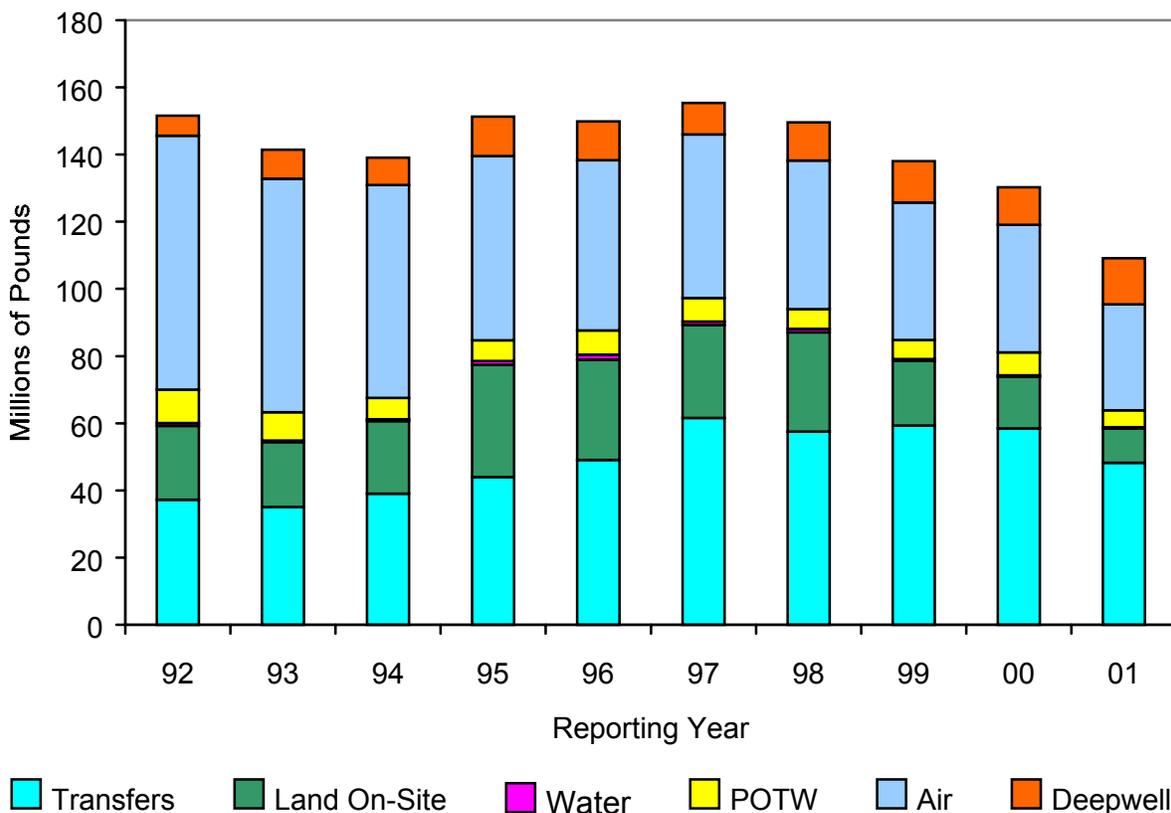


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What's New This Year

Lead Rule

On April 17, 2001, U.S. EPA announced that it will proceed with its TRI rule to significantly expand the information available to the public about lead emissions. The final TRI lead rule was issued January 17, 2001, but delayed (by 60 days) in accordance with the memorandum of January 20, 2001, from the Assistant to the President and Chief of Staff, entitled "Regulatory Review Plan." The first reports were submitted under the new rule on July 1, 2002 for the 2001 reporting year.

The TRI lead rule lowers (in most cases) the reporting thresholds for lead and lead compounds from 25,000 or 10,000 pounds (depending on use) to 100 pounds because they are persistent bioaccumulative toxic (PBT) chemicals. PBT chemicals are of concern not only because they are toxic, but also because they remain in the environment for long periods of time, are not readily destroyed, and build up or accumulate in body tissue. Lead, which cannot be destroyed, may remain in the environment indefinitely. In addition to bioaccumulating in aquatic organisms such as mussels, oysters, and snails, lead and lead compounds are known to bioaccumulate in humans. The lower reporting thresholds apply to lead and lead compounds except for lead contained in stainless steel, brass, and bronze alloys.

Understanding and Using TRI Information

SARA Overview

The Superfund Amendments and Reauthorization Act, "SARA," was passed in 1986. SARA is also known as the Emergency Planning & Community Right to Know Act, or "EPCRA." It was passed in part due to concerns following an incident which occurred in Bhopal, India. In December, 1984 a methyl isocyanate (MIC) gas leak from a plant operated by Union Carbide India Limited injured or killed thousands of people. SARA required that a chemical emergency response network be expanded to ensure national coverage. State Emergency Response Commissions (SERCs) coordinating with Local Emergency Planning Committees (LEPCs) and local fire departments are responsible for this network. SARA also created or updated four reporting requirements to ensure that chemical storage, use and release information was available to the potential emergency responders and the community. These reporting programs overlap depending upon whether the materials are "oils," "hazardous chemicals," "hazardous substances," "extremely hazardous substances" (EHSs) or toxic chemicals. Brief explanations of each requirement, including the SARA and enabling Ohio Revised Code (ORC) citations, are listed below.

EHS Notification (SARA 301-303, ORC 3750.02-.05) This notification provision is triggered by storage of one or more EHSs. There are 360 listed EHS chemicals, which are considered immediately dangerous to life or health. Chlorine gas is an example. A specific "threshold planning quantity" (TPQ) is specified for each chemical. Their TPQs vary, and, while 500 pounds is an approximate average, the TPQ may be as low as one pound. When a facility meets or exceeds the TPQ for a chemical, it must notify the response community (SERC, LEPC and local fire department) and designate contacts and coordinators to pre-plan emergency response activities and serve as emergency contacts. Contact the "Right-To-Know"/SERC Unit in the Division of Air Pollution Control (DAPC), for assistance or for a referral to the appropriate LEPC (614-644-2260).

Emergency Release Notification (SARA 304, ORC 3750.06) Release or spill reporting may be required when there is an offsite release of oil, a hazardous substance, or an extremely hazardous substance. The reporting triggers, known as the "Reportable Quantity" (RQ) varies, ranging from one to 5,000 pounds. The definition of "facility" includes trucks and tankers. Gasoline is included under the definition of "oil" and oil is reportable at 25 gallons or at any quantity entering the waters of the State. Spills or releases should be reported upon discovery to the Ohio EPA/SERC at 1-800-282-9378 or 1-614-224-0946. Hazardous substance spills may require National Response Center reporting. The Ohio EPA Spill Unit of the Division of Emergency and Remedial Response (DERR) can provide additional information (614-644-2080).

Chemical Inventory Reporting (SARA 311-312, ORC 3750.07-.08) The location, quantity, storage conditions and properties of EHSs or "hazardous chemicals" (hazardous due to OSHA hazard communication attributes) must be reported. Such reporting for EHSs is triggered when stored at quantities greater than 500 pounds or the chemical-specific TPQ (whichever is lower). Reporting for hazardous chemicals, a large universe determined by the attributes noted on the Material Safety Data Sheet (MSDS), is triggered by the storage of 10,000 pounds. Like EHS notifications, reports must be submitted to the SERC, LEPC and local fire department.

Ohio SERC forms (or Tier II forms) are used for "inventory reporting" and are due March 1st for the prior calendar year. Contact the "Right-To-Know"/SERC Unit in DAPC (614-644-2260) or the appropriate LEPC for assistance.

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Toxic Release Inventory Reporting (SARA 313, ORC 3751) Facilities within SIC codes 20-39 and seven other selected non-manufacturing SIC codes with 10 or more employees or equivalent are required to annually report "Form R" or "Form A" information if they manufacture, process or otherwise use any listed chemicals in amounts exceeding the reporting threshold. TRI "toxic" chemicals include 582 individually listed chemicals and 30 chemical categories, including 3 delimited categories containing 58 chemicals, for a total of 667 separate chemicals. Reported TRI information includes chemical use, release, recycling, energy recovery and treatment information, as well as pollution prevention activities at the facility. TRI reporting is on a calendar year basis with reports due July 1st for the prior calendar year. Reported information is readily available from Ohio EPA or U.S. EPA TRI websites (see page 27 for website information). The Ohio EPA TRI Unit can be contacted at 614-644-2270.

Ohio's TRI Program

In 1988, the Ohio General Assembly passed the Ohio Right-to-Know Act, Substitute Senate Bill 367. This law provided for state implementation of EPCRA. Under this law, Ohio EPA is charged with the administration of Section 313 (Ohio Administrative Code 3745-100). The law gave Ohio EPA authority to enforce Section 313 and established filing fees for covered facilities to support the TRI Program. Ohio EPA's Division of Air Pollution Control coordinates the TRI Program.

Ohio EPA annually inspects approximately 100 facilities. Typically, approximately 5% of the inspections result in enforcement actions against facilities which did not properly file TRI reports.

Who Must Report

A facility is required to report if it meets all three of the following requirements:

1. It has 10 or more full-time employees (or the equivalent of 20,000 man-hours per year).
2. It is included in the manufacturing facilities in Standard Industrial Classification (SIC) codes 20 through 39 or in any of seven non-manufacturing industrial sectors added on May 1, 1997. The non-manufacturing industrial sectors are: metal mining, coal mining, coal and oil-fired electricity generating facilities, commercial hazardous waste treatment facilities, chemicals and allied products (wholesale), petroleum bulk stations (wholesale), and solvent recovery services. Reports for these non-manufacturing industrial sectors were first filed July 1, 1999, covering calendar year 1998.
3. It manufactured, imported, processed or otherwise used a reportable toxic chemical in quantities exceeding the applicable threshold established by U.S. EPA for that year, chemical and usage. For most reportable chemicals, the thresholds for manufacturing, importing or processing are 25,000 pounds and "otherwise use" is 10,000 pounds. PBT chemicals have notably lower reporting thresholds of 100 pounds or less.

Facilities, which are defined as "all buildings, equipment, structures, and stationary items which are located on a single site or on contiguous or adjacent sites and which is owned or operated

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by the same person,” must submit a Form R for each listed chemical used in amounts that exceed the reporting threshold, even if the chemical is not released to the environment.

Facilities using less than one million pounds of a listed toxic chemical in a calendar year and having less than 500 pounds of that toxic chemical as a reportable amount (released to the environment, treated, recycled or used for energy recovery) can file a certification statement (Form A) instead of the more detailed Form R. Form A cannot be used for reporting PBT chemicals.

Reportable Chemicals

The list of reportable toxic chemicals has evolved since the enactment of Section 313. Over 600 toxic chemicals and chemical categories (667 individual chemicals) are currently subject to reporting under Section 313. These chemicals vary widely in form (solid, liquid and gas) and in toxicity.

The Administrator of U.S. EPA has the authority to modify the list of chemicals that must be reported. Petitions to add and delete chemicals have been submitted by industry, environmental groups, and the state governors. U.S. EPA evaluates chemicals that may be added or deleted from the list of reportable chemicals. Chemicals are removed from the list because they have not been shown to cause significant adverse human health or environmental effects. The list of reportable chemicals can be obtained from Ohio EPA, U.S. EPA, or on the Internet at www.epa.gov/tri/chemical/chemlist2001.pdf.

TRI Data Uses and Limitations

Users of the TRI data should be aware of the limitations of the data in order to accurately interpret its significance. The TRI data has some significant limitations:

- TRI covers only certain manufacturing and seven non-manufacturing industries. Many other industries release toxic chemicals into the environment. The seven additional non-manufacturing industrial sectors reported for the fourth time on July 1, 2002.
- For reporting year 2001, TRI covers over 600 toxic chemicals and chemical categories. The TRI data does not represent all chemicals used by all industry.
- Releases are reported as total annual releases without reference to frequency or duration. The annual release totals alone are not sufficient to assess the health or environmental impact of the toxic chemicals released.
- The majority of releases are based on estimates. Facilities are required to base releases on monitoring data if it is available. When monitoring data is not available, estimates are used. Estimates result in significant variability among reporting facilities.
- High volume releases of relatively non-toxic chemicals may appear to be a more serious problem than lower volume releases of highly toxic chemicals, when just the opposite may be true. **TRI data summaries must be interpreted with care.**

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- The TRI report contains information regarding the release of chemicals, not the public's exposure to the chemicals. Some chemicals break down when exposed to the environment. Some chemicals disperse rapidly when released, eliminating their threat to public health and to the environment. Other highly toxic chemicals may not disperse when released. Disposal of toxic chemicals in underground injection wells does not expose the public since the material is injected thousands of feet below the ground. Also, off-site transfers may not expose the community to chemicals. Screening risk assessments must be completed before health and environmental assessments can be made.
- The addition of non-manufacturing industrial sectors can lead to double counting of toxic releases. To calculate total releases and transfers, Ohio EPA identified transfers off-site to a facility which reported TRI releases of the same chemical, and subtracted the transfer off-site from the total releases. If the off-site location name or permit number did not match a reporting facility, the transfer off-site was included in the total releases and transfers. Inconsistent reporting of facility names can lead to double counting.

Ohio EPA conducts extensive data quality efforts to make every attempt to ensure that the data compiled in this report accurately reflects the data reported by the facilities; however, we acknowledge the possibility of errors due to data entry or problems with the reporting software. Because the TRI data is based on estimates, facilities are encouraged to revise their reports when the estimates are improved.

TRI Rule Changes

The TRI Program continued to grow and change during the past year and it appears that the expansion of the program will continue into coming years. The following list summarizes significant changes that U.S. EPA has finalized in the past several years.

Federal Register/ Date	Title	Summary
66 FR 10585 February 16, 2001	Lead and Lead Compounds; Lowering of Reporting Thresholds; Delay of Effective Date	Delayed (by 60 days) the effective date of this rule in accordance with the memorandum of January 20, 2001, from the Assistant to the President and Chief of Staff, entitled "Regulatory Review Plan."
66 FR 4500 January 17, 2001	Lead and Lead Compounds; Lowering of Reporting Thresholds	Lowered reporting thresholds to 100 pounds for lead and all lead compounds except for lead contained in stainless steel, brass, and bronze alloys.
65 FR 39552 June 26, 2000	Phosphoric Acid	Deleted phosphoric acid from the list of chemicals subject to reporting requirements under TRI.
64 FR 58666 October 29, 1999	Persistent Bioaccumulative Toxic (PBT) Chemicals; Lowering of Reporting Thresholds for Certain PBT Chemicals; Addition of Certain PBT Chemicals	Lowered the reporting thresholds for certain persistent bioaccumulative toxic (PBT) chemicals subject to TRI reporting. Added a category of dioxin and dioxin-like compounds to the TRI list of toxic chemicals and established a 0.1 gram reporting threshold for the category. Added certain other PBT chemicals to the TRI list of toxic chemicals and established lower reporting thresholds for these chemicals. Removed the

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Federal Register/ Date	Title	Summary
64 FR 58666 October 29, 1999 (cont.)	Persistent Bioaccumulative Toxic (PBT) Chemicals; Lowering of Reporting Thresholds for Certain PBT Chemicals; Addition of Certain PBT Chemicals	fume or dust qualifier from vanadium and added all forms of vanadium with the exception of vanadium when contained in alloys. Also added vanadium compounds to the TRI list of toxic chemicals. However, EPA did not lower the reporting thresholds for either vanadium or vanadium compounds.
63 FR 19838 April 22, 1998	Deletion of Certain Chemicals	Deleted several chemicals and chemical categories from the list of chemicals subject to reporting. Section 372.65 was amended by deleting the entries for 2-bromo-2- nitropropane-1,3-diol, dimethyldichlorosilane, 2,6-dimethylphenol, methyltrichlorosilane, and trimethylchlorosilane under paragraph (a), and deleting the entire CAS No. entries for 52-51-7, 75-77-4, 75-78-5, 75-79-6, and 576-26-1 under paragraph (b).
62 FR 23834 May 1, 1997	Addition of Facilities in Certain Industry Sectors; Revised Interpretation of Otherwise Use	Added seven industry groups to the list of facilities subject to TRI reporting requirements. These industry groups are metal mining, coal mining, electric utilities, commercial hazardous waste treatment, chemicals and allied products-wholesale, petroleum bulk terminals and plants-wholesale, and solvent recovery services. Revised the interpretation of the threshold activity, "otherwise use" to include treatment for destruction, disposal, and waste stabilization.
59 FR 61432 November 30, 1994	Addition of Certain Chemicals	Added 286 chemicals and chemical categories, including 39 chemicals as part of two delineated categories, to the list of reportable toxic chemicals. Addition of these chemicals and chemical categories was based on their acute human health effects, carcinogenicity or other chronic human health effects, and/or their adverse effects on the environment. Reporting for these chemicals and chemical categories was required beginning with the 1995 calendar year.
59 FR 61488 November 30, 1994	Alternate Threshold for Facilities With Low Annual Reportable Amounts	Established an alternate threshold for facilities with low annual reportable amounts of listed toxic chemicals. Facilities that estimate that the total annual reportable amount of the chemical does not exceed 500 pounds per year, can take advantage of an alternate manufacture, process, or otherwise use threshold of 1 million pounds per year, for that chemical, provided that certain conditions are adhered to.

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Ohio EPA Programs Related to TRI Chemicals

The availability of TRI data has increased awareness of toxic chemicals within Ohio, and has focused attention on the reduction and management of these chemicals. TRI does not mandate the control of toxic releases or require reduction of the releases of toxic chemical or chemical usage. There are numerous other programs within Ohio EPA that directly impact the management of TRI chemicals through the issuance of permits or through other regulatory or non-regulatory activities. Most releases reported under TRI are regulated through air, water, and/or land disposal permits. The following descriptions provide an understanding of how some of these programs contribute toward reducing TRI releases, waste generation, and the risks associated with toxic chemicals.

Pollution Prevention: Ohio EPA's Office of Pollution Prevention (OPP) works with companies on a voluntary, non-regulatory basis to help them modify their operating processes to generate less pollution in a cost-effective and technically feasible manner. OPP provides several services to industrial facilities. OPP provides free on-site and other types of technical assistance for pollution prevention activities. Copies of hundreds of pollution prevention documents are available upon request or electronically through the internet at <http://www.epa.state.oh.us/opp>. OPP provides free assistance with completing pollution prevention plans and provides assistance in identifying and implementing pollution prevention credit projects to mitigate portions of environmental enforcement penalties in conjunction with other Ohio EPA Divisions and the Ohio Attorney General's Office. OPP provides low-interest loans (2/3rds of prime) from \$25,000 to \$150,000 to businesses and facilities with less than 500 employees on-site in conjunction with the Ohio Department of Development. OPP also provides recognition for pollution prevention

Division of Surface Water: Ohio EPA's Division of Surface Water (DSW) regulates industries which discharge toxic chemicals to Publicly Owned Treatment Works or POTWs through its pretreatment program. These industries are regulated by the community if the community has a state-approved pretreatment program, otherwise, Ohio EPA directly regulates these industries. In either case, significant industrial facilities are issued permits which contain discharge limitations as well as requirements for monitoring the waste streams. Noncomplying facilities face enforcement action by either the community or Ohio EPA.

DSW regulates direct surface water point discharges in Ohio primarily through the issuance of National Pollutant Discharge Elimination System (NPDES) permits. Of the approximately 400 pollutants regulated by NPDES permits, 126 have been designated as priority pollutants under the Clean Water Act. Approximately 80 of these are TRI chemicals.

Division of Drinking and Ground Water: Ohio EPA's Division of Drinking and Ground Water (DDAGW) regulates facilities which use underground injection in Ohio. All deep injection wells are permitted and routinely monitored by Ohio EPA. These permits include stringent requirements for monitoring pressures, volumes injected, and mechanical integrity of the wells.

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Division of Hazardous Waste Management: Ohio EPA's Division of Hazardous Waste Management (DHWM) regulates generators of hazardous waste and facilities which treat, store, or dispose of such waste. Ohio EPA assigns an identification number to hazardous waste handlers regulated under RCRA. Facilities using a surface impoundment to dispose of TRI chemicals may also fall under the regulations of the Clean Water Act and be regulated by the Division of Surface Water. Not all TRI chemicals are considered hazardous under RCRA. Some discharges to land may be considered solid waste, which is not regulated as hazardous. Large quantity generators and facilities that have a permit to treat, store, or dispose of RCRA-regulated waste must submit an Annual Hazardous Waste Report to DHWM.

Division of Air Pollution Control: Ohio EPA's Division of Air Pollution Control (DAPC) regulates new sources of toxic air emissions through the air permitting program. Each potential new source of air toxics undergoes a technical evaluation through which each toxic chemical's potential threat to human health and the environment is reviewed.

Six TRI chemicals are currently regulated under U.S. EPA's National Emission Standards for Hazardous Air Pollutants (NESHAP). They are benzene, asbestos, inorganic arsenic, vinyl chloride, beryllium and mercury. U.S. EPA creates NESHAP emission standards for air pollutants that may pose a serious health hazard on a national level, but are not covered by the National Ambient Air Quality Standards. The National Ambient Air Standards are levels of air quality established by U.S. EPA to protect the public and the environment. These levels have been adopted for ozone, lead, nitrogen dioxide, sulfur dioxide, particulate matter, and carbon monoxide.

The Clean Air Act Amendments of 1990 requires U.S. EPA to regulate 189 additional air toxic chemicals, 173 of which are on the TRI list. U.S. EPA regulates sources of air toxics by issuing maximum achievable control technology (MACT) standards for source categories of these air toxics. U.S. EPA was mandated to issue MACT standards for 40 source categories by November 1992, with all categories covered in 10 years. Ohio EPA has been delegated authority to administer this program in Ohio.

Section 112(r) of the Clean Air Act Amendments of 1990 created a risk management planning (RMP) program. The purpose of these regulations is to prevent accidental releases of regulated substances and to reduce the severity of those releases that do occur. A facility is subject to the regulation if they have any listed regulated substance above a given threshold in a single on-site process. Approximately 500 facilities in Ohio have filed risk management plans since 1999. These plans are updated every five years or as-needed when changes occur at the facility.

TRI Terminology

Chemical Abstracts Service Registry Number (CAS No.) - A numerical identification given to each unique chemical which aids in the identification of a chemical with multiple synonyms (e.g., phenol, CAS No. 108-95-2, is also known as benzenol, carboic acid, hydroxybenzene, izal, monohydroxybenzene, monophenol etc.). TRI chemical categories (e.g., zinc compounds) do not have a CAS No. and are assigned category codes by U.S. EPA (e.g., N982 for zinc compounds).

Understanding and Using TRI Information

Discharge to Publicly Owned Treatment Works (POTWs) - A POTW is a wastewater treatment facility owned by a municipality or other unit of local government. Some TRI facilities generate wastewater which is transferred through pipes or sewers to a POTW. Treatment or removal of a chemical from the wastewater depends upon the nature of the chemical, as well as the treatment methods present at the POTW. Chemicals that are easily utilized as nutrients by microorganisms, or have a low solubility in water, are likely to be removed to some extent. Chemicals that are volatile and have a low solubility in water may evaporate into the atmosphere. Not all TRI chemicals can be treated or removed by a POTW. Some chemicals, such as metals, may be removed but are not destroyed, and may be disposed of in landfills or discharged into receiving waters.

Environmental Fate - The disposition, over time, of a chemical in the environment. The bioaccumulation of a chemical in fish or the decomposition of a chemical when exposed to sunlight are examples of environmental fate.

Manufacture - The production, preparation, compounding or importing of a TRI chemical, including the coincidental production of the chemical as an intermediate, by-product or impurity.

Otherwise Use - Any activity involving a TRI chemical that does not fall under the definition of manufacture or process. A chemical that is not intentionally incorporated into a product, like solvents that are used for parts cleaning, falls under the otherwise use category.

Process - Preparation of a TRI chemical, after its manufacture, for distribution in commerce. Processing includes intentionally incorporating a chemical into a product or the reaction of a chemical to form another chemical or product.

Quantity Recycled Off-Site - The quantity of toxic chemical that was shipped for recycling, not the amount of chemical recovered at the off-site location.

Quantity Recycled On-Site - The quantity of toxic chemical recovered at the facility that generated it and made available for further uses.

Quantity Treated On-Site - The quantity of toxic chemical destroyed or converted to a chemical that is not reportable under TRI in on-site waste treatment operations.

Quantity Used for Energy Recovery - This is the quantity of toxic chemical that was combusted (on-site or off-site) in some form of energy recovery device, such as a furnace or a boiler. The toxic chemical should have a heating value high enough to sustain combustion. The use of a chemical as a fuel constitutes energy recovery.

Recycle - The process of capturing a useful product from a waste stream. Solvent recovery, metals recovery and acid regeneration are examples of recycling.

Releases to Air - Releases to air are reported as stack or fugitive emissions. Stack emissions are releases to air that occur through stacks, vents or other confined air streams. Fugitive emissions are releases that are not through a confined air stream. Fugitive emissions include evaporative losses from surface impoundments, spills, and releases from building ventilation systems.

Understanding and Using TRI Information

Releases to Land - Releases to land occur within the boundaries of the reporting facility. Releases to land include disposal of toxic chemicals in landfills, land treatment/application farming (in which a waste containing a listed chemical is applied to or incorporated in soil), surface impoundments (uncovered holding areas used to evaporate and/or settle waste materials), and other land disposal methods (such as waste piles).

Releases to Water - Releases to water include discharges to streams, rivers, lakes, and other bodies of water. Releases due to stormwater runoff are also reportable under TRI.

Standard Industrial Classification (SIC) Code - A four-digit code established by the Federal Office of Management and Budget used to describe the type of activities at a facility. The first two digits indicate the major industrial grouping, the last two digits describe a facility activity within in the industrial grouping. For example, a facility with SIC 2813 is grouped within “chemicals and allied products” (28) producing industrial gases. Facilities that engage in a variety of activities may possess multiple SIC codes.

Transfers Off-Site for Treatment and Disposal - Waste transferred off-site for disposal is generally either released to land at an off-site facility or injected underground. Toxic chemicals transferred off-site for treatment may be treated through a variety of methods including neutralization, incineration, and physical separation. These methods result in varying degrees of destruction of the chemical.

Underground or Deepwell Injection - Underground injection is the contained release of a fluid into a subsurface well for the purpose of waste disposal. Class I wells are used to inject liquid hazardous wastes or dispose of industrial and municipal waste waters beneath the lowermost underground source of drinking water.

Summary of Data

In 2001, nearly 300 million pounds of toxic chemicals were reported as having been released to the environment and transferred off-site for treatment or disposal. The data presented for 2001, including the listings of top companies, chemicals and counties, reflects the TRI data reporting due July 1, 2002. The TRI Unit continually reviews this data and works with reporting facilities to assure data quality. Additional and revised data provided subsequent to July 1st has been incorporated into this report to the extent possible considering publication deadlines. Changes to the list of reportable chemicals create difficulties in presenting historical TRI data in an accurate and understandable form. This report presents the data in the following manner:

- Releases for chemicals which were “redefined” were modified in this report to reflect the change if it did not require a case by case evaluation. Non-aerosol forms of hydrochloric acid are no longer reportable. Therefore, only air releases of hydrochloric acid were included in the TRI data presented in this report. Ammonia was “redefined” for calendar year 1994; only 10% of aqueous ammonia is now reportable. Because this change requires a case by case evaluation, past years’ data was not modified. Ammonium nitrate was delisted for calendar year 1995. However, the ammonia portion is still reportable and the nitrate portion is reportable as nitrate compounds. Due to the change in the reporting requirement for ammonia in 1994, only ten percent of the ammonia portion of ammonium nitrate was reportable for calendar year 1995. Only ten percent of the ammonia portion of ammonium nitrate was included in the data presented in this report.
- To accurately represent trends in the toxic releases, the chemicals which were added, “redefined” or delisted, and the expansion industries were not included in the calculation of trends for the executive summary and the figures representing trends within this report. Table 2A represents the TRI data as it was reported each year. Table 2B represents the TRI data used to calculate trends. All Phase 1 expansion chemicals, delisted chemicals or “redefined” chemicals, and the expansion industries were excluded from the data in Table 2B, so that the historical trends analysis would reflect true changes in the reported releases and not reflect changes in the reporting requirements.
- Throughout this report, TRI data are referred to as “total releases and transfers.” Total releases and transfers refer to on-site releases to air, water, land; deepwell injection; discharges to POTWs; and off-site transfers for treatment and disposal only. The Pollution Prevention Act of 1990 added the reporting of transfers off-site for recycling and energy recovery. For the purpose of this report, transfers for recycling and energy recovery are grouped separately from transfers for treatment and disposal.
- The addition of hazardous waste treatment facilities, and other non-manufacturing industrial sectors has resulted in the potential to double count releases. Manufacturing facilities report transfers off-site to these non-manufacturing facilities, and, in turn, the non-manufacturing facilities report their releases to the air, water, land and transfers off-site. To calculate total releases and transfers within the state, transfers off-site by manufacturing facilities to facilities which reported the same chemical were not included in the data presented as transfers off-site or total releases and transfers. To calculate county totals, transfers off-site by manufacturing facilities to facilities located in the same county which reported the same chemical were not included in the data presented as transfers off-site or total releases and transfers.

Summary of Data

Statewide totals of on-site releases, off-site transfers, and on-site waste management for reporting years 1992 to 2001 are provided in Table 2A and 2B. Table 2A represents the TRI data as reported by facilities, including the data for delisted, added, and modified chemicals and the expansion industrial sectors. Table 2B does not include data for: (1) chemicals that have been delisted, added or modified; and (2) new industrial sectors which were added to TRI in order to allow for historical trend analysis.

Table 2A: 10-Year-Trend: All Facilities and Chemicals (millions of pounds)

Environmental Medium	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Air	92.0	85.3	81.0	76.4	73.5	70.4	162.4	150.7	145.2	121.6
Water	4.8	4.8	1.2	7.6	7.9	7.8	8.0	8.6	9.4	8.3
Deepwell Injection	24.0	25.2	14.5	14.5	13.7	11.6	28.8	27.6	30.3	32.0
Land On-Site	22.1	19.4	21.7	33.6	30.0	27.8	94.2	70.5	46.8	35.6
POTW	21.0	16.3	8.5	18.7	18.8	19.2	19.4	19.8	23.3	18.6
Transfers Off-Site for Treatment and Disposal	58.2	60.2	47.0	45.8	51.1	63.5	77.9	76.9	77.0	71.3
Total Releases & Transfers	222.1	211.2	173.9	196.5	195.0	200.2	390.7	354.2	332.0	287.5
Transfers Off-Site to Facilities Reporting Under TRI									44.3*	22.1
Adjusted Total Releases and Transfers (Does not include transfers off-site to facilities which report under TRI)									284.8	288.9
Off-Site Energy Recovery	34.4	28.3	37.2	38.0	40.7	33.0	101.4	60.0	46.2	40.9
On-Site Energy Recovery	106.8	104.3	95.2	90.4	96.3	107.7	117.0	124.6	95.0	81.1
Off-Site Recycling	188.7	205.1	228.9	217.5	189.3	190.3	190.7	184.8	171.2	169.8
On-Site Recycling	678.2	581.1	263.7	348.6	322.2	215.7	288.4	233.5	223.7	192.1
On-Site Treatment	482.4	376.9	261.4	160.1	151.9	139.4	218.3	262.4	221.7	258.1
Number of Reporting Facilities	1,745	1,750	1,721	1,680	1,644	1,634	1,716	1,712	1,725	1,732
Number of Form Rs	6,239	6,178	5,780	5,207	4,986	4,733	5,427	5,317	5,597	5,682
Number of Form As	NA	NA	NA	507	573	777	1,091	893	1,008	897
Number of Chemicals Reported	185	192	185	244	232	219	317	315	320	315

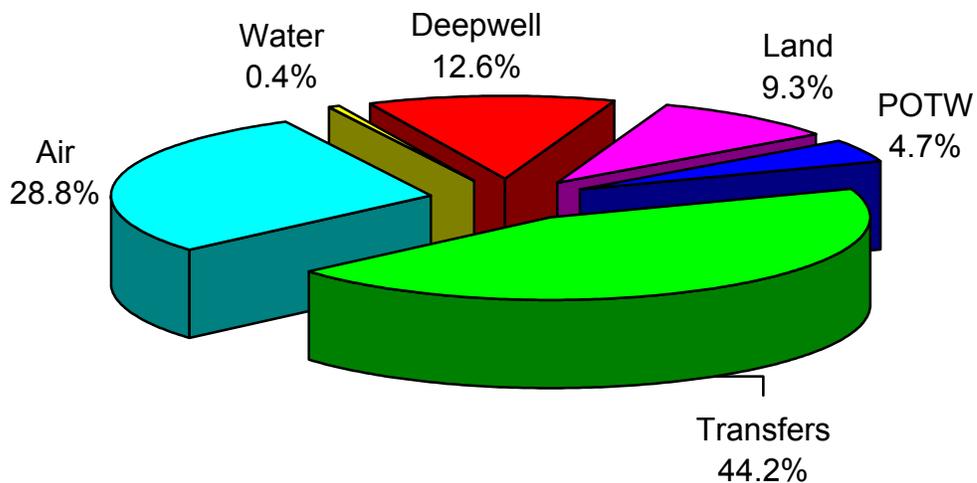
* - Based on original 2000 data, subsequent changes not considered.

Summary of Data

Table 2B: 10 Year-Trend: Original Facilities and Chemicals (millions of pounds)

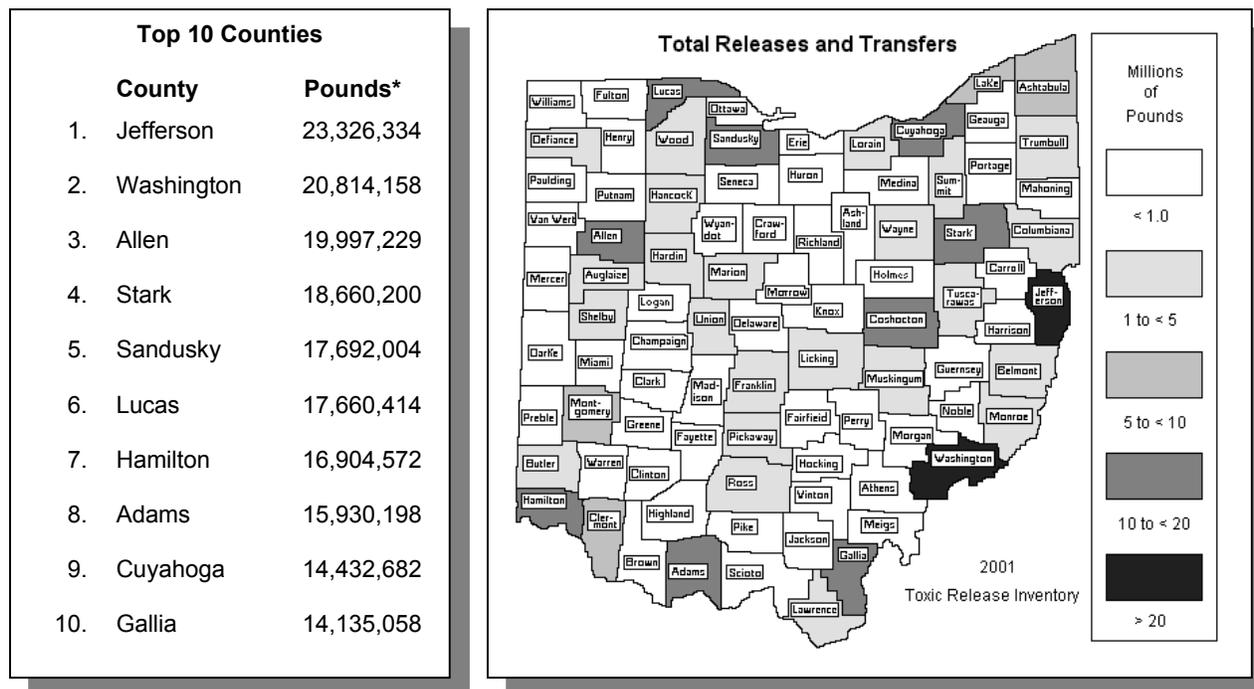
Environmental Medium	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Air	75.6	69.5	63.4	54.9	50.6	48.7	44.2	40.9	38.0	31.5
Water	0.8	0.6	0.6	1.2	1.5	1.0	1.0	0.5	0.4	0.4
Deepwell Injection	6.0	8.6	8.2	11.8	11.6	9.4	11.4	12.3	11.2	13.8
Land On-Site	22.0	19.3	21.6	33.5	29.9	27.7	29.6	19.3	15.3	10.2
POTW	10.0	8.3	6.3	6.1	7.2	7.0	5.9	5.7	6.8	5.1
Transfers Off-Site for Treatment and Disposal	37.2	35.0	39.0	43.9	49.0	61.6	57.5	59.3	58.5	48.3
Total Releases & Transfers	151.6	141.4	139.1	151.3	149.8	155.4	149.6	138.0	130.2	109.2
Off-Site Energy Recovery	34.4	28.3	37.2	37.4	40.2	32.4	33.3	29.9	26.4	23.8
On-Site Energy Recovery	106.7	104.1	95.0	82.7	87.5	98.1	107.5	110.6	81.9	69.6
Off-Site Recycling	172.6	186.8	213.6	215.8	187.9	188.7	186.3	177.6	167.4	165.8
On-Site Recycling	293.0	240.0	209.3	332.6	297.7	195.8	244.9	184.4	168.2	142.4
On-Site Treatment	181.3	167.3	119.0	125.9	130.0	117.7	118.6	128.1	120.8	110.2

Figure 2: 2001 Toxic Releases and Transfers



Summary of Data

Total Releases And Transfers For 2001



Top 10 Chemicals	
Chemical	Pounds *
1. Hydrochloric acid (aerosols)	53,916,462
2. Zinc and zinc compounds	28,198,317
3. Manganese and manganese compounds	21,959,715
4. Nitrate compounds	20,767,511
5. Sulfuric acid (aerosols)	15,876,569
6. Ammonia	13,852,202
7. Hydrogen fluoride	11,277,772
8. Nitric acid	11,269,036
9. Methanol	7,921,477
10. Barium and barium compounds	7,800,224

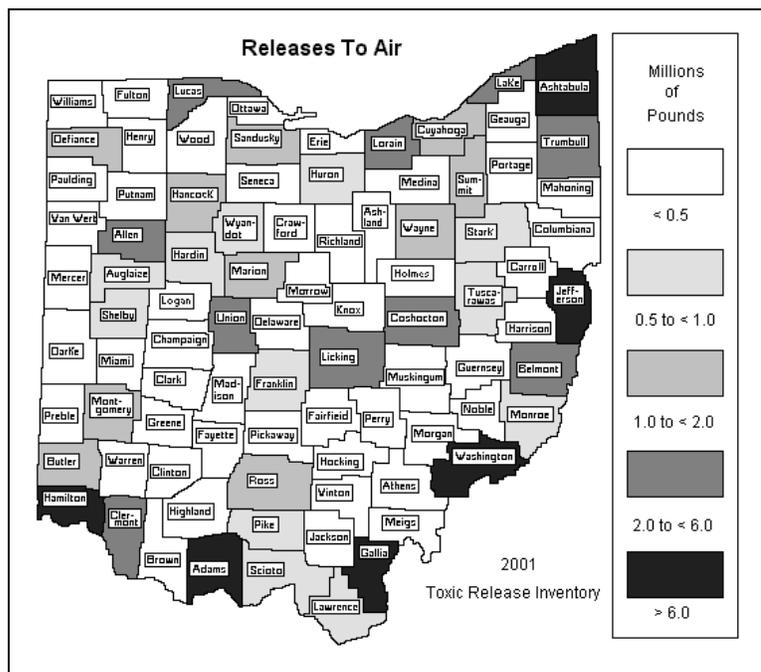
Top 10 Facilities	
Facility / County	Pounds
1. Vickery Environmental Inc. / Sandusky	16,323,970
2. BP Chemicals Inc. / Allen	15,965,769
3. EnviroSAFE Services of Ohio Inc. / Lucas	12,772,954
4. Dayton Power & Light Co. J.M Stuart Station / Adams	12,210,530
5. First Energy W.H. Sammis Plant / Jefferson	9,275,477
6. Ohio Valley Electric Corp. Kyger Creek Plant / Gallia	8,560,177
7. Cardinal Operating Co. Cardinal Plant / Jefferson	8,335,040
8. Eramet Marietta Inc. / Washington	7,073,060
9. American Electric Power Co. Muskingum River Plant / Washington	6,720,519
10. Envirite of Ohio Inc. / Stark	6,514,719

* Does not include transfers off-site to facilities reporting the same chemical.

Summary of Data

Releases To Air For 2001*

Top 10 Counties		
	County	Pounds
1.	Jefferson	14,238,545
2.	Adams	11,960,696
3.	Gallia	10,441,907
4.	Washington	10,421,525
5.	Hamilton	7,074,073
6.	Ashtabula	6,124,695
7.	Clermont	5,917,885
8.	Coshocton	5,660,918
9.	Allen	3,586,885
10.	Lake	3,584,940



Top 10 Chemicals		
Chemical		Pounds
1.	Hydrochloric acid (aerosols)	53,893,538
2.	Sulfuric acid (aerosols)	15,873,998
3.	Ammonia	10,488,588
4.	Hydrogen fluoride	6,147,565
5.	Carbonyl sulfide	5,403,537
6.	Certain glycol ethers	3,474,632
7.	Xylene (mixed isomers)	2,993,505
8.	Methanol	2,278,594
9.	Toluene	1,983,524
10.	Methyl ethyl ketone	1,866,424

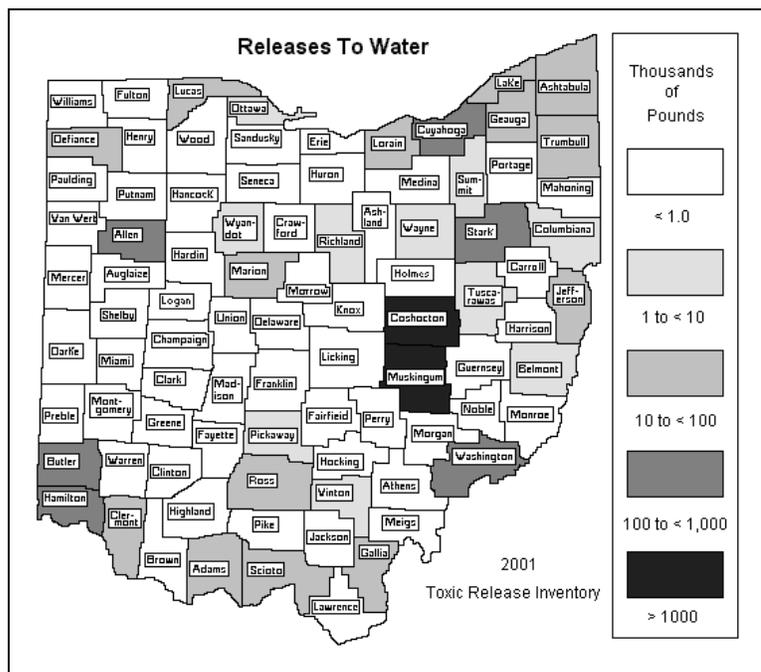
Top 10 Facilities		
Facility / County		Pounds
1.	Dayton Power & Light Co. J.M. Stuart Station / Adams	9,206,533
2.	Ohio Valley Electric Corp. Kyger Creek Plant / Gallia	7,726,920
3.	First Energy W.H. Sammis Plant / Jefferson	7,504,786
4.	Cardinal Operating Co. Cardinal Plant / Jefferson	6,517,837
5.	American Electric Power Co. Muskingum River Plant / Washington	5,752,093
6.	CG&E Miami Fort Station / Hamilton	5,612,900
7.	American Electric Power Co. Conesville Plant / Coshocton	5,106,229
8.	Cinergy Corp. Beckjord Generating Station / Clermont	4,782,660
9.	Millennium Inorganic Chemicals / Ashtabula	4,442,156
10.	First Energy Eastlake Plant / Lake	2,765,469

* All data included.

Summary of Data

Releases To Water For 2001*

Top 10 Counties		
	County	Pounds
1.	Coshocton	3,832,853
2.	Muskingum	2,001,104
3.	Stark	705,321
4.	Washington	565,482
5.	Hamilton	247,820
6.	Butler	206,278
7.	Allen	137,913
8.	Cuyahoga	109,875
9.	Jefferson	90,333
10.	Geauga	63,026



Top 10 Chemicals

Chemical	Pounds
1. Nitrate compounds	7,526,763
2. Manganese and manganese compounds	237,325
3. Methanol	123,614
4. Ammonia	98,746
5. Barium and barium compounds	68,792
6. Zinc and zinc compounds	56,069
7. Formic acid	50,230
8. Ethylene glycol	43,276
9. Formaldehyde	29,516
10. Copper and copper compounds	22,944

Top 10 Facilities

Facility / County	Pounds
1. AK Steel Corp. Coshocton Works / Coshocton	3,804,193
2. AK Steel Corp. Zanesville Works / Muskingum	2,000,369
3. Massillon Stainless Inc. / Stark	691,860
4. Kraton Polymers US LLC / Washington	381,372
5. AK Steel Corp. / Butler	199,164
6. Eramet Marietta Inc. / Washington	148,021
7. Solutia-Port Plastics / Hamilton	139,000
8. LTV Steel Co. – Cleveland Works / Cuyahoga	107,726
9. Bayer Port Plastics / Hamilton	100,195
10. Cardinal Operating Co. Cardinal Plant / Jefferson	84,163

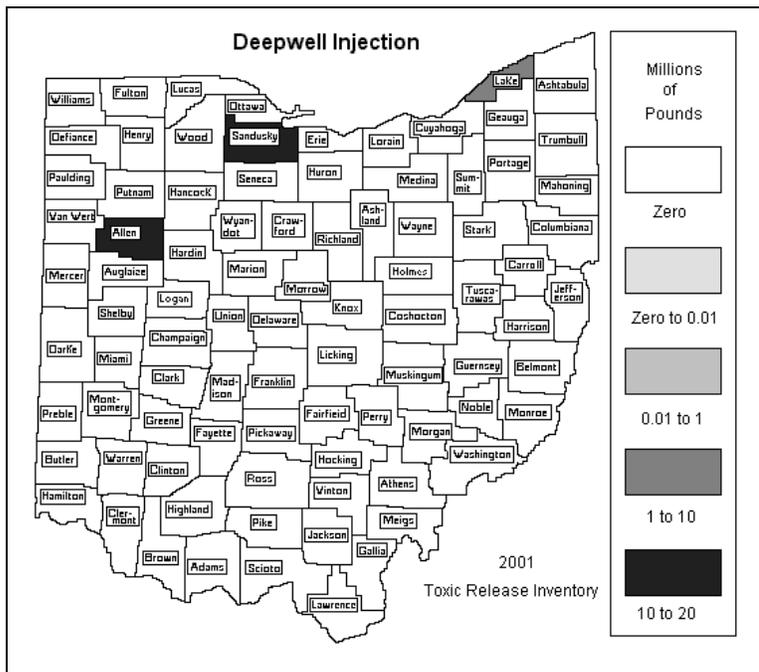
* All data included.

Summary of Data

Deepwell Injection For 2001*

Top 10 Counties	
County	Pounds
1. Sandusky	16,266,250
2. Allen	15,721,175
3. Lake	6,529

Note: Only 3 facilities reported on-site deepwell injection.



Top 10 Chemicals	
Chemical	Pounds
1. Nitric acid	6,700,000
2. Acetonitrile	5,900,000
3. Acrylonitrile	4,400,000
4. Hydrogen fluoride	4,400,000
5. Manganese and manganese compounds	2,400,250
6. Ammonia	2,006,500
7. Chromium and chromium compounds	1,300,660
8. Acrylamide	1,300,000
9. Cyanides	690,000
10. Nickel and nickel compounds	606,600

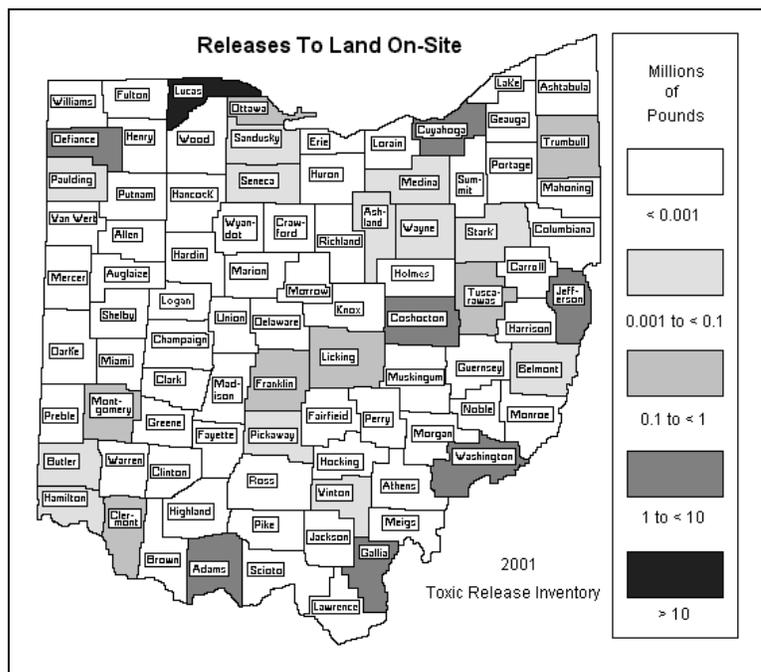
Top 10 Facilities	
Facility / County	Pounds
1. Vickery Environmental Inc. / Sandusky	16,266,250
2. BP Chemicals Inc. / Allen	15,721,175
3. Arvesta Corp. / Lake	6,529

* All data included.

Summary of Data

Releases To Land On-Site For 2001*

Top 10 Counties		
	County	Pounds
1.	Lucas	13,326,706
2.	Washington	5,749,622
3.	Adams	3,920,414
4.	Gallia	3,635,907
5.	Jefferson	1,786,556
6.	Defiance	1,727,050
7.	Cuyahoga	1,674,062
8.	Coshocton	1,145,998
9.	Franklin	619,936
10.	Trumbull	585,722



Top 10 Chemicals

Chemical	Pounds
1. Manganese and manganese compounds	9,916,082
2. Zinc and zinc compounds	8,936,604
3. Barium and barium compounds	4,612,867
4. Lead and lead compounds	3,038,409
5. Chromium and chromium compounds	2,784,778
6. Vanadium and vanadium compounds	1,921,306
7. Copper and copper compounds	1,764,998
8. Nickel and nickel compounds	911,233
9. Arsenic and arsenic compounds	504,651
10. Aluminum (fume or dust)	358,862

Top 10 Facilities

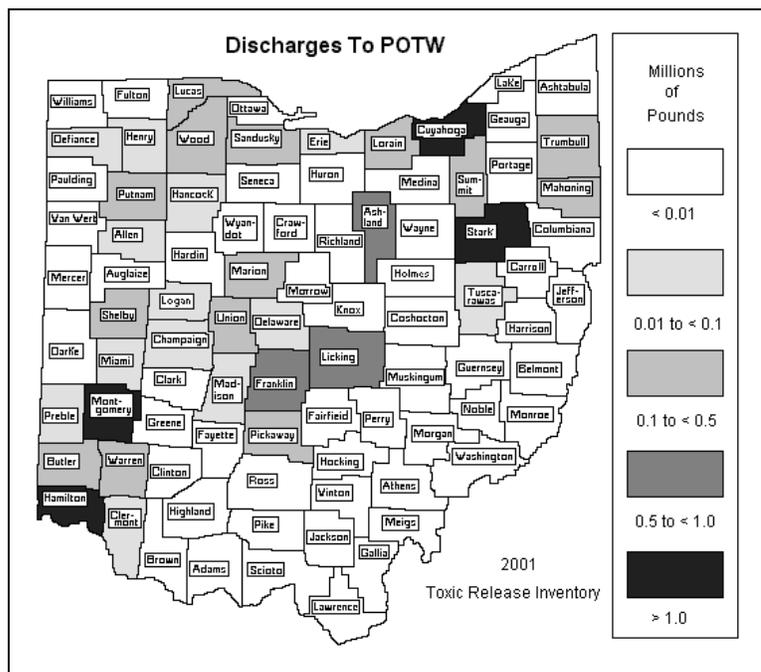
Facility / County	Pounds
1. EnviroSAFE Services of Ohio Inc. / Lucas	12,760,581
2. Eramet Marietta Inc. / Washington	4,792,662
3. Dayton Power & Light Co. J.M Stuart Station / Adams	2,987,584
4. American Electric Power Co. Gavin Plant / Gallia	2,809,525
5. Cardinal Operating Co. Cardinal Plant / Jefferson	1,713,397
6. LTV Steel Co. – Cleveland Works / Cuyahoga	1,674,062
7. GM Powertrain Defiance / Defiance	1,671,695
8. American Electric Power Co. Conesville Plant / Coshocton	1,144,910
9. American Electric Power Co. Muskingum River Plant / Washington	956,960
10. Dayton Power & Light Co. Killen Station / Adams	932,830

* All data included.

Summary of Data

Discharges To POTW For 2001*

Top 10 Counties		
	County	Pounds
1.	Hamilton	8,716,957
2.	Cuyahoga	1,743,099
3.	Stark	1,244,649
4.	Montgomery	1,194,025
5.	Licking	863,315
6.	Franklin	625,877
7.	Ashland	561,273
8.	Mahoning	408,944
9.	Shelby	313,719
10.	Warren	270,131



Top 10 Chemicals		
	Chemical	Pounds
1.	Nitrate compounds	12,511,194
2.	Methanol	2,913,269
3.	Certain glycol ethers	869,263
4.	Ammonia	646,898
5.	Sodium nitrate	358,881
6.	Ethylene glycol	224,569
7.	Formaldehyde	180,170
8.	Allyl alcohol	148,739
9.	Phenol	118,730
10.	Chlorine	102,606

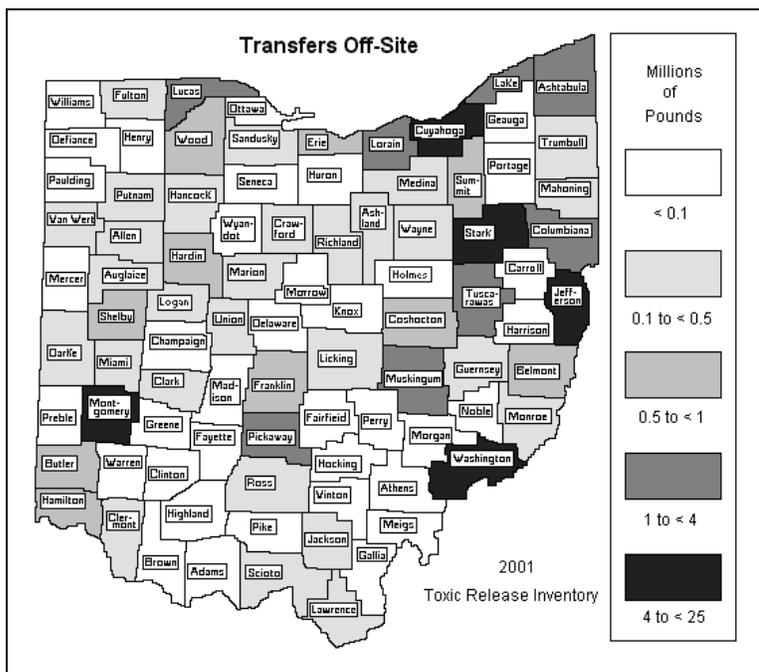
Top 10 Facilities		
	Facility / County	Pounds
1.	Shepherd Chemical Co. / Hamilton	3,774,856
2.	Cognis Corp. / Hamilton	1,507,415
3.	Grace Davison / Hamilton	1,243,000
4.	Cincinnati Specialties LLC / Hamilton	783,064
5.	Anomatic Corp. / Licking	700,351
6.	Tremco Inc. / Ashland	560,000
7.	J&L Specialty Steel, Inc. / Stark	526,565
8.	Ansell Healthcare Inc. / Stark	517,024
9.	Snow Metal Products / Cuyahoga	410,038
10.	GE Co. Austintown Products Plant / Mahoning	400,000

* All data included.

Summary of Data

Transfers Off-Site To Disposal or Treatment For 2001*

Top 10 Counties		
	County	Pounds
1.	Stark	16,065,584
2.	Cuyahoga	9,228,514
3.	Jefferson	7,210,900
4.	Montgomery	7,019,014
5.	Washington	4,077,523
6.	Muskingum	2,747,897
7.	Ashtabula	2,082,535
8.	Lake	1,428,209
9.	Lorain	1,416,161
10.	Lucas	1,364,838



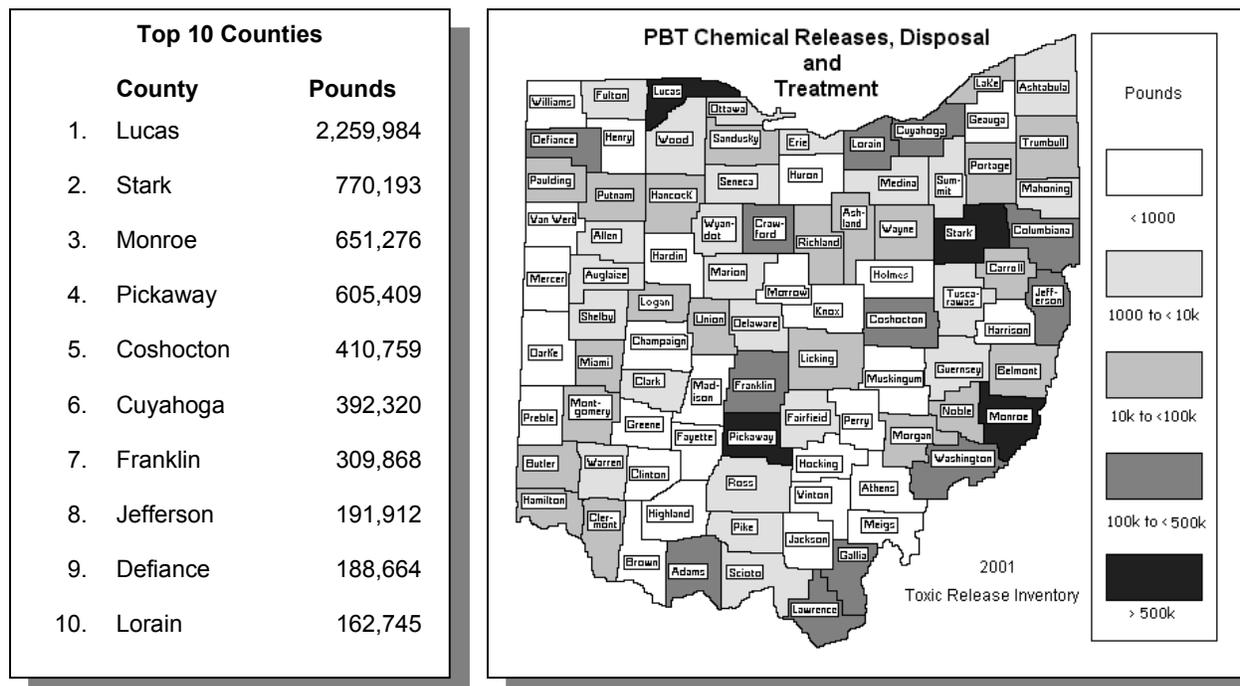
Top 10 Chemicals		
Chemical		Pounds
1.	Zinc and zinc compounds	18,589,598
2.	Manganese and manganese compounds	8,876,928
3.	Nitric acid	4,338,642
4.	Lead and lead compounds	3,513,253
5.	Nickel and nickel compounds	3,467,887
6.	Chromium and chromium compounds	3,317,083
7.	Barium and barium compounds	3,002,394
8.	Methyl isobutyl ketone	2,828,862
9.	Xylene (mixed isomers)	2,389,858
10.	Methanol	2,366,000

Top 10 Facilities		
Facility / County		Pounds
1.	Envirite of Ohio Inc. / Stark	6,460,365
2.	Timken Co. Faircrest Steel / Stark	5,237,200
3.	Wheeling-Pittsburgh Steel Corp. Mingo / Jefferson	5,148,384
4.	Onyx Environmental Services LLC / Montgomery	4,167,640
5.	Hukill Chemical Corp. / Cuyahoga	3,916,112
6.	Eveready Battery Co. / Washington	3,327,880
7.	AK Steel Corp. – Zanesville Works / Muskingum	2,705,446
8.	Timken Co. Harrison Steel / Stark	2,121,124
9.	FirstEnergy W.H. Sammis Plant / Jefferson	1,768,593
10.	ChemFirst Electronic Materials L.P. / Montgomery	1,662,341

* All data included.

Summary of Data

PBT Chemical Releases, Disposal and Treatment For 2001*



PBT Chemical Release, Disposal and Treatment Summary†

PBT Chemical	Air	Water	Deepwell Injection	Land	POTW	Transfers Off-Site For Disposal / Treatment
Aldrin	0	0	0	0	0	0
Benzo(G,H,I)perylene	2,444	8	0	1	3	15,766
Chlordane	1	0	0	0	0	31
Dioxin	52 gr	1gr	0 gr	156 gr	0 gr	522 gr
Heptachlor	1	0	0	0	0	15
Hexachlorobenzene	0	4	0	0	10	543
Isodrin	0	0	0	0	0	429
Lead/lead compounds	91,139	5,747	0	3,038,409	3,083	6,666,631
Mercury/mercury compounds	11,397	528	150	4,343	23	21,479
Methoxychlor	1	0	0	0	0	28
Pendimethalin	231	0	0	0	0	12,062
Pentachlorobenzene	0	0	0	0	0	0
PCBs	0	0	0	51	1	543
PACs	411,977	103	0	1359	45	785,445
Tetrabromobisphenol A	0	0	0	0	0	303
Toxaphene	0	0	0	0	0	262
Trifluralin	1155	0	0	0	10	1,782

† Quantities rounded to whole numbers, units are pounds unless specified otherwise.

* All data included.

Summary of Data

Releases By Industry

Figure 3 and Table 3 presents the TRI releases and transfers by industrial group or Standard Industrial Classification (SIC) codes. Facilities report their SIC code on the Form R. Manufacturing facilities in SIC codes 20 through 39 were required to report under TRI through 2001. Seven industrial groups (within SIC codes 10, 12, 49, 51 and 73) which began reporting in 1998 are metal mining, coal mining, coal and oil-fired electricity generating facilities, commercial hazardous waste treatment facilities, chemicals and allied products (wholesale), petroleum bulk stations (wholesale), and solvent recovery services. In addition, federal facilities are required to report to TRI under a presidential executive order. Federal facilities may fall in a variety of SIC codes, both within and outside of the TRI reportable SIC codes. Federal facilities which fall outside of the TRI SIC codes are grouped within "other" in Table 3.

In analyzing releases by manufacturing industry, trends remain fairly constant. The industry groups with the largest quantities of TRI releases and transfers for treatment and disposal in 2001 were SIC code 49 - electric, gas and sanitary services (128.5 million pounds) and SIC code 28 - chemicals and allied products (52.6 million pounds). The following figure represents the industrial categories and their reported releases and transfers under TRI. (SIC code 49 is broken out into electric and sanitary services in the figure.)

The new industrial sectors accounted for somewhat less than 50% of the releases and transfers for treatment and disposal reported. SIC code 49 includes both electric services (coal and oil fired electric generating facilities) and sanitary services (hazardous waste treatment facilities subject to RCRA Subtitle C). The electric generating facilities accounted for releases and transfers for treatment and disposal of 87.3 million pounds, and the hazardous waste treatment facilities accounted for 41.2 million pounds of releases and transfers for treatment and disposal.

Figure 3: Releases and Transfers By SIC

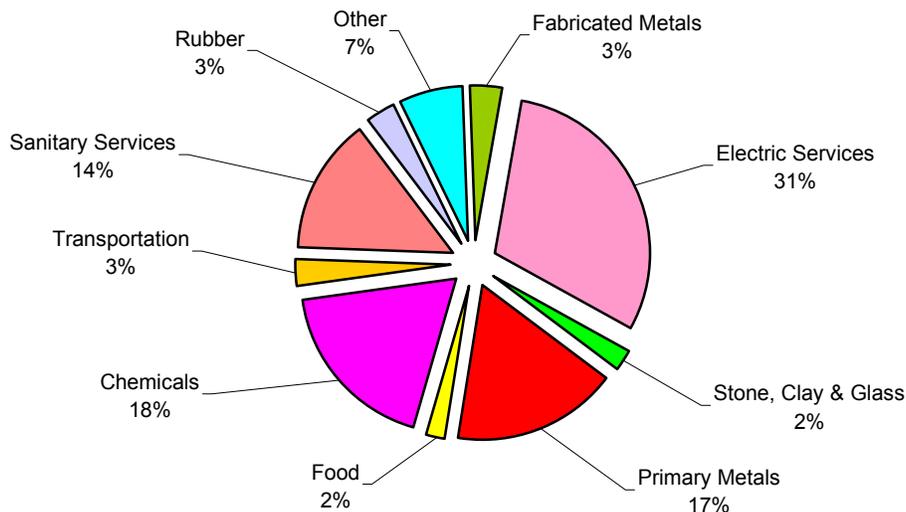


Table 3: Releases and Transfers by SIC Code

SIC Code	Industry Group	Number of Reporting Facilities	Number of Reports	On-Site Releases (Air, Water, Land On-Site and Deepwell Injection)	Discharges to POTW & Transfers Off-Site for Treatment & Disposal	Transfers Off-Site for Energy Recovery & Recycling	On-Site Recycling, Treatment, and Energy Recovery
12	Coal Mining	4	36	20,079	0	0	606
20	Food & Kindred Products	65	122	5,204,144	308,113	194,456	1,525,000
22	Textile Mill Products	12	43	980,229	319,090	274,199	3,120,631
23	Apparel	2	9	123,671	4,413	71,350	1,068,670
24	Lumber & Wood Products	21	69	380,562	69,806	2,707,757	2,841,920
25	Furniture & Fixtures	6	16	222,437	266,331	234,996	0
26	Paper & Allied Products	31	121	3,261,439	447,004	1,165,601	24,580,751
27	Printing & Publishing	16	20	125,569	2,771	42,726	666,721
28	Chemicals & Allied Products	267	1,347	30,732,646	21,879,569	29,802,158	123,238,573
29	Petroleum Refining	27	146	777,205	722,640	1,964,555	7,213,967
30	Rubber & Miscellaneous Plastics	204	488	5,484,850	2,974,192	3,498,783	4,944,761
32	Stone, Clay, Glass & Concrete	91	241	4,612,851	1,852,556	1,974,694	112,755,807
33	Primary Metal Industries	225	796	22,923,662	26,466,807	79,783,358	62,163,496
34	Fabricated Metal Products	301	810	4,378,405	5,136,744	20,717,443	14,408,109
35	Industrial Machinery	98	221	329,660	906,143	4,822,785	883,272
36	Electronic Equipment	86	202	1,095,414	2,801,998	15,136,639	6,679,734
37	Transportation Equipment	126	583	4,103,283	3,641,530	28,385,701	4,475,838
38	Instruments and Medical Goods	19	34	99,705	502,535	1,244,368	176,002
39	Miscellaneous Manufacturing	18	35	198,841	730,754	50,660	138,360
49	Electric, Gas & Sanitary Services	38	670	112,158,223	16,317,410	9,197,048	134,475,338
51	Wholesale Trade – Chemical and Petroleum Products	55	482	164,001	4,011,788	6,034,554	16,979,358
73	Business Services	10	63	75,082	596,381	3,392,311	8,942,165
-	Other	10	22	102,933	5,780	3,974	800

Summary of Data

Management of TRI Chemicals In Waste

The Pollution Prevention Act (PPA) of 1990 required facilities to report information about the quantities of TRI chemicals in waste, managed both on-site and off-site. The PPA established a hierarchy of waste management options in which source reduction is the preferred approach to managing waste. Source reduction is defined as a means of preventing waste from being generated. In situations where source reduction cannot be implemented, the preferred management techniques in order of preference are recycling, energy recovery, and treatment.

The TRI data can be used to analyze trends in total quantities of TRI chemicals in waste to determine if facilities are reducing the amount of waste generated. As reported under TRI, waste falls under one of four categories based upon its final disposition. The first category is releases on-site, which includes releases to air, water, deepwell injection, and land on-site. The second category is discharges to POTWs and transfers off-site for treatment and disposal. The third category is transfers off-site for recycling and energy recovery, and includes waste recycled or used as fuel. The fourth category is waste management on-site, which includes on-site treatment, recycling, and energy recovery. The following figures provide the relative percentages of the total amount of waste generated in these four categories. As illustrated by the pie chart, almost half of the waste generated never leaves the facility, but is managed on-site through treatment, recycling, or energy recovery. The on-site waste management data, when combined with the amounts released on-site and transferred off-site, is important in understanding the overall annual amount of waste which is generated by a facility.

Figure 4: Management Of Total Waste

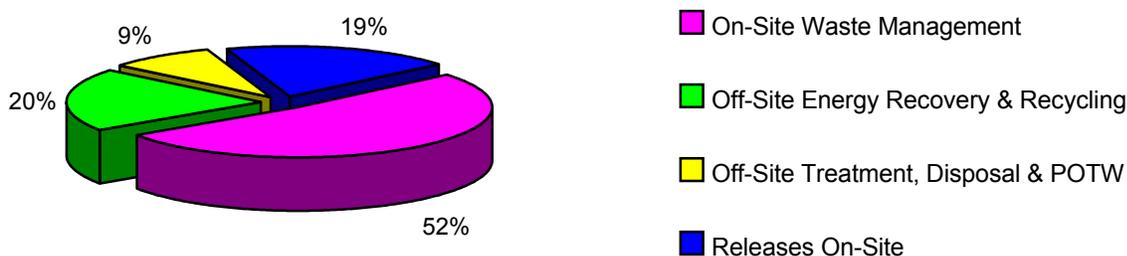
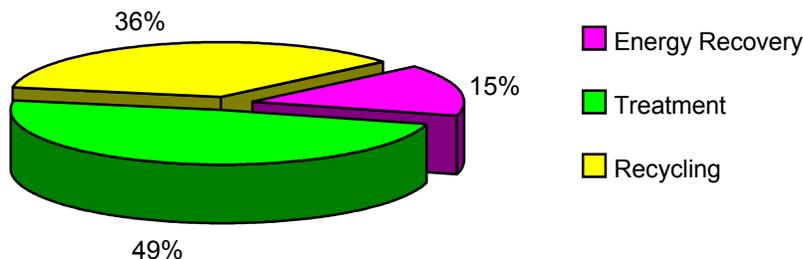


Figure 5: On-Site Waste Management



Summary of Data

About 280 facilities implemented source reduction activities during calendar year 2001. Source reduction means any activity which: (1) reduces the amount of any chemical entering any waste stream or released into the environment prior to recycling, treatment, or disposal; and (2) reduces the hazard to public health and the environment associated with the release(s) of such substances. Source reduction includes equipment or technology modifications, process or procedure modifications, reformulation or redesign of products, substitution of raw materials, and improvements in housekeeping, maintenance, training, or inventory control. This continued level of source reduction by the reporting facilities demonstrates their commitment to continue to reduce toxic releases beyond environmental regulations.

Facilities also report their production ratios or an activity index for the current reporting year as compared to the prior reporting year. This ratio is to demonstrate the relative (to the prior year) use of a particular toxic chemical. The production ratio (or index) must be based on some variable of production or activity which reflects the toxic chemical usage. A ratio of 1.1 would indicate a 10% increase in production related to the reported chemicals. In 2001, about 26% of the TRI reports indicated an increase in production when compared to the same chemical-facility data for 2000. Table 4 indicates the changes in production reported by facilities covered by TRI.

Table 4: Changes in Production From 2000 to 2001

Changes in Production (Production Ratio)	% of Reporting Industry
Production increased more than 30%	6.1
Production increased between 20% - 30%	3.0
Production increased between 10% - 20%	5.1
Production increased less than 10%	10.7
No Change in Production	8.0
Production decreased less 10%	14.7
Production decreased between 10% - 20%	12.0
Production decreased between 20% - 30%	9.0
Production decreased more than 30%	10.3
Not applicable, not reported or zero	21.0

National Perspective

Ohio, a leader in technology and industry, continues to represent a significant portion of the national TRI reporting industries and releases. Table 5 shows Ohio's national ranking for each type of release. Because the complete 2001 national data was not available prior to the drafting of this report, the national ranking for 2001 was not yet available. Tables 6 and 7 identify the top ranked states for 2000 TRI data based on U.S. EPA's national TRI report.

Table 5: Ohio's National Rank

Environmental Medium	1998	1999	2000
Air	1	1	1
Water	13	12	10
Land On-Site	8	9	12
Deepwell Injection	3	5	5
Reporting Facilities	1,744	1,678	1,696

Table 6: Number of Reporting Facilities

Number of Reporting Facilities		
Rank	State	Number of Facilities
1	Ohio	1,696
2	California	1,442
3	Texas	1,436
4	Pennsylvania	1,377
5	Illinois	1,321

Table 7: Top States For Releases

Medium	Rank	State	Release (pounds)
Air	1	Ohio	144,849,286
	2	North Carolina	125,660,985
	3	Tennessee	104,129,125
	4	Texas	103,203,480
	5	Pennsylvania	96,898,649
Water	1	Pennsylvania	43,260,726
	2	Texas	33,064,455
	3	Indiana	17,951,843
	4	Mississippi	13,541,571
	5	Louisiana	12,868,235
	10	Ohio	7,670,188
Land On-Site	1	Nevada	1,002,437,400
	2	Utah	903,988,120
	3	Arizona	737,242,453
	4	Alaska	495,737,280
	5	New Mexico	121,181,868
	12	Ohio	46,810,886
Deepwell Injection	1	Texas	94,832,009
	2	Louisiana	51,703,983
	3	Alaska	36,790,623
	4	Florida	34,849,655
	5	Ohio	30,288,567

Additional Information

Ohio EPA's Division of Air Pollution Control (DAPC) has the primary responsibility in Ohio for collecting, processing, and distributing information submitted under TRI. Additional information not contained in this report is available to the public through the TRI Program located in DAPC.

Ohio TRI Report Access	The reports submitted by facilities are available for review at Ohio EPA's office located at 122 South Front Street in Columbus from 8:00 a.m. to 5:00 p.m. Photocopies are also available.	
Information Requests	TRI staff can take requests by phone to provide information on individual facilities. TRI information can be supplied by fax or by mail as either a hard copy or electronically. Data searches and summaries can also be performed. Call the TRI staff at (614) 644-2270 during business hours.	
U.S. EPA TRI Public Data Release	U.S. EPA's most recent annual TRI report is available. It covers information nationwide and provides a good perspective on how Ohio compares to other states. This report may be obtained by contacting U.S. EPA's hotline at 1-800-424-9346 or from the U.S. EPA website.	
Web Resources	Ohio EPA TRI	www.epa.state.oh.us/dapc/tri/tri.html
	U.S. EPA TRI	www.epa.gov/tri/
	U.S. EPA TRI Explorer	www.epa.gov/triexplorer
	Toxnet	www.toxnet.nlm.nih.gov
	Envirofacts	www.epa.gov/enviro/index_java.html
	RTK Network	www.rtk.net
	Ohio County Profiles	www.odod.state.oh.us/osr/profiles/
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TRI Related Acronyms

ATSDR	Agency for Toxic Substances and Disease Registry
BACT	Best Available Control Technology
BIF	Boiler and Industrial Furnace
CAA	Clean Air Act
CEM	Continuous Emissions Monitoring
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
CWA	Clean Water Act
EHS	Extremely Hazardous Substance
EIS	Environmental Impact Statement
EIS	Emissions Inventory System
EPA	Environmental Protection Agency
EPCRA	Emergency Planning & Community Right-to-Know Act
ERNS	Emergency Response Notification System
ESA	Environmental Site Assessment
FIFRA	Federal Insecticide, Fungicide & Rodenticide Act
FINDS	Facility Index System
FOIA	Freedom of Information Act
FR	Federal Register
HAP	Hazardous Air Pollutant
HCFC	Hydrochlorofluorocarbon
HMR	Hazardous Materials Regulations
HON	Hazardous Organic NESHAP
HSWA	Hazardous & Solid Waste Amendments - 1984 Amendments to RCRA
LEPC	Local Emergency Planning Committee
MACT	Maximum Achievable Control Technology
MSDS	Material Safety Data Sheet
NAAQS	National Ambient Air Quality Standard
NACEPT	National Advisory Committee on Environmental Policy and Technology
NESHAP	National Emission Standard for Hazardous Air Pollutant
NOx	Abbreviation for oxides of nitrogen
NPDES	National Pollutant Discharge Elimination System
PACs	Polycyclic Aromatic Compounds
PAH	Polynuclear Aromatic Hydrocarbon

TRI Related Acronyms

PCB	Polychlorinated Biphenyls
PEL	Permissible Exposure Limit
PIC	Product of Incomplete Combustion
PM	Particulate Matter
POTW	Publicly Owned Treatment Works
PPA	Pollution Prevention Act of 1990
ppb	Parts per billion
ppm	Parts per million
RCRA	Resource Conservation & Recovery Act
RQ	Reportable Quantity
SARA	Superfund Amendments & Reauthorization Act
SDWA	Safe Drinking Water Act
SERC	State Emergency Response Commission
SIC	Standard Industrial Classification
SIP	State Implementation Plan
SO_x	Sulfur Oxides
TAP	Toxic Air Pollutant
THC	Total Hydrocarbons
TITLE III	(SARA) Emergency Planning and Community Right-to-Know Act
TLV	Threshold Limit Value
TPH	Total Petroleum Hydrocarbons
TPQ	Threshold Planning Quantity
TRI	Toxic Release Inventory
TSCA	Toxic Substance Control Act
TSDF	Treatment, Storage and Disposal Facility
TSP	Total Suspended Particulates
TWA	Time Weighted Average
UIC	Underground Injection Control
USC	United States Code
UST	Underground Storage Tank
VOC	Volatile Organic Compounds
VOL	Volatile Organic Liquid
WQM	Water Quality Management
WQS	Water Quality Standards