



# Toxic Release Inventory

2006  
Annual Report

Ohio Environmental Protection Agency  
Division of Air Pollution Control  
June 2008

## 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 in 2000, the persistent, bioaccumulative toxic (PBT) chemicals rule, is in effect for its sixth year. Under this rule, the threshold quantities for several chemicals were significantly reduced and other chemicals became reportable under TRI. Reporting year 2001 recognized lead and lead compounds as PBT chemicals and, with a few exceptions, and reduced the reporting threshold for lead to 100 pounds. Reporting year 2006 chemicals and thresholds remain the same as reporting year 2005.

The TRI Burden Reduction final rule became effective in 2006. The rule expands eligibility for the Form A Certification Statement for PBT and non-PBT chemicals. For PBT chemicals, the rule allows the use of Form A for facilities with zero releases (both on-site and off-site) and 500 pounds or less of treatment, recycling, and/or energy recovery of PBT chemicals. The rule applies to all PBT chemicals except dioxin and dioxin-like compounds. For non-PBT chemicals, the rule allows the use of Form A for a non-PBT chemical with 5,000 pounds or less of releases (both on and off-site), treatment, recycling, and/or energy recovery, and the contribution of on-site and off-site releases is limited to 2,000 pounds or less.

**Table 1: Comparison of 2005 and 2006 TRI Data**

Comparison	2005 Amount	2006 Amount	Change
Releases to Air	126,446,094	120,502,378	-4.70%
Releases to Water	6,925,974	8,333,606	20.32%
Deep well Injection	24,468,117	22,532,386	-7.91%
Releases to Land On-Site	62,536,273	79,570,678	27.24%
Discharges to POTW	19,706,786	17,855,681	-9.39%
Off-Site Disposal / Treatment	82,497,598	97,739,666	18.48%
<b>Total Releases and Transfers*</b>	<b>292,548,383</b>	<b>315,019,137</b>	<b>7.68%</b>
Energy Recovery On-Site	82,091,319	97,525,800	18.80%
Energy Recovery Off-Site	35,874,383	34,921,560	-2.66%
Recycling On-Site	107,645,452	98,760,486	-8.25%
Recycling Off-Site	156,293,603	164,991,401	5.57%
Treatment On-Site	365,622,723	351,843,667	-3.77%
Number of Chemicals Reported	308	315	2.30%
Number of Facilities Reporting	1,621	1,552	-4.26%
Number of Form Rs	5,522	5,409	-2.00%
Number of Form As	709	853	20.31%

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

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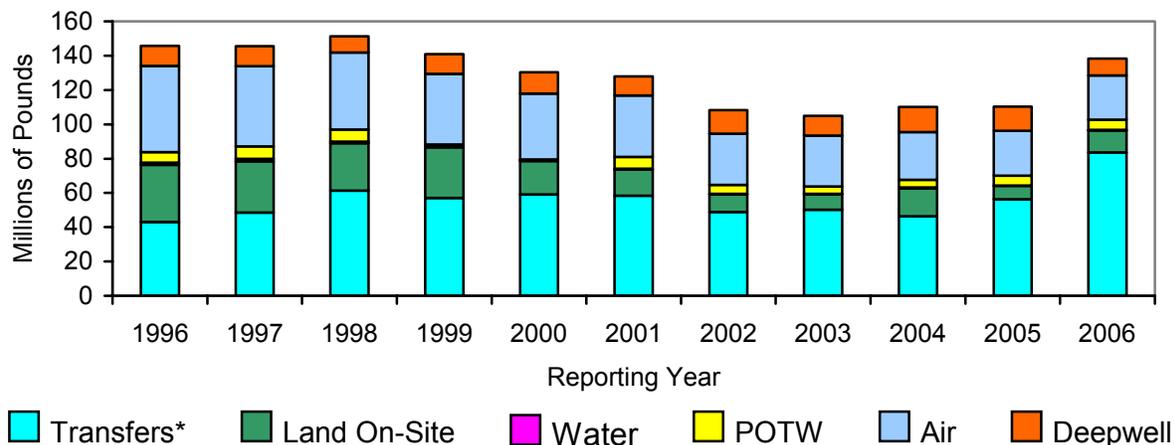
For reporting year 2006, Ohio EPA received 6,262 TRI "Form R" reports from 1,552 facilities. While one-third of these facilities reported a single chemical, the average number of chemicals reported was four. Table 1 compares reporting years 2005 and 2006 TRI data for all reporting facilities.

Total releases and transfers increased by 7.68% between 2005 and 2006 with the number of total reporting facilities dropping by 4 percent. Facility TRI data increases and/or decreases are attributable to many factors including, but not limited to, changes in production, the types of measurement used, pollution prevention efforts implemented to minimize releases, and to 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. There can be subtle differences in what makes a material a "waste" and whether it is treated, recycled or used for energy recovery.

This report is a summary of the information collected under Ohio's TRI program. New and revised reports are routinely processed by Ohio EPA as facilities perform "self-audits" or otherwise discover errors. Ideally, federal and state TRI data should be the same, as facilities are required to submit TRI reports to both U.S. EPA and Ohio 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 occurs.

Ohio EPA contacted those facilities who reported significant increase and/or decrease in their waste management or releases between 2005 and 2006 to determine the reasons for the changes. The following information was developed through review of summary data and facility responses.

**Figure 1: 10-Year TRI Trends**  
(Original Industries and Chemicals Only)



\* - Transfers off-site for disposal and treatment.

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### Air Releases

TRI air releases in Ohio were down 4.7% in 2006 to slightly over 120.5 million pounds. As in past year's, Ohio power generating facilities reported the largest TRI releases, occupying nine (9) of the top ten (10) spots. Power generating facility releases consist primarily of hydrochloric and sulfuric acid aerosols, resulting from the combustion of coal. These two chemicals constitute over 65% of the reported air releases. Trace amounts of various metals within the coal, including barium and chromium are released as combustion compounds. Three (3) power plants reported air release reductions of 1 million pounds or more: AEP's Conesville (Coshocton County), Ohio Valley Electric Corporation's Kyger Creek (Gallia County) and First Energy's Sammis (Jefferson County). AEP notes that the Conesville reduction is due to the combination of reduced production and changes in coal supply.

Millennium Inorganic Chemical Company facilities (Ashtabula County) reported the highest air releases of the manufacturing sector facilities. The two facilities in Ashtabula County manufacture inorganic pigment and collectively reported over 7.3 million pounds in air releases, primarily carbonyl sulfide.

### Water Releases

Water releases in Ohio increased 20.3%. AK Steel (Coshocton County) led the state in TRI water releases reporting 4 million pounds of TRI chemicals discharged. This is an increase from the 3.3 million pounds reported for 2005. The AK Steel releases remain primarily nitrates and the increase is primarily attributed to increased production activities at the plant. Brush Wellman (Ottawa County) ranked second in water releases. Brush Wellman reported 1.8 million pounds of water releases for 2006 compared to slightly less than 1 million pounds in 2005. Brush Wellman notes that the increases were attributed to nitrate compounds alone, an 11% increase in production, and an increase in production of wire, thin wall tubing, and custom engineered products with a higher surface area per pound thus requiring greater use of caustics and nitric solutions.

Nitrate releases accounted for almost 90% of all 2006 water releases in Ohio. Nitrate compounds are coincidentally manufactured during the treatment of nitric acid and are routinely permitted and monitored under the terms of NPDES (National Pollution Discharge Elimination System) permits, monitored by this Agency through the Division of Surface Water.

### Deep well Injection

In Ohio, only two (2) facilities reported TRI deep well injection for 2006 with a net reduction of 7.9%. INEOS USA LLC (formerly BP Chemicals), in Lima (Allen County), reported a 4.7 million pound reduction from the 16.5 million pounds in 2005 to 11.8 million pounds reported in 2006. Vickery Environmental Services, a Resource Conservation and Recovery Act regulated disposal facility in Vickery (Sandusky County) reported 10.7 million pounds released which accounts for a 2.5 million increase from their 2005 data. INEOS USA LLC notes that injection disposal varies with product focus and operational changes, further noting that "a concentration change of 10 parts per million for any chemical results in a reported TRI change of almost 20,000 pounds."

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### Land Releases On-Site

On-Site land releases increased significantly for 2006, increasing by 17 million pounds to a statewide total of 79.5 million pounds. This reflects a 27.2% increase from 2005. The increase is primarily attributed to increased, secured disposal at the Resource Conservation and Recovery Act regulated EnviroSAFE Engineered Landfill (Lucas County). Increases at the EnviroSAFE location exceeded 18 million pounds. If Ohio excludes EnviroSAFE from the data analysis, state-wide on-site land releases would have decreased by approximately 1.5 million pounds.

Bag house dust and other steel mill wastes constitute the major portion of TRI reported releases in this area. Reprocessed galvanized steel produces zinc waste, which is a major portion of bag house dust. This in turn is captured and ultimately disposed at EnviroSAFE and other secure, RCRA disposal facilities. The on-site land disposal of zinc and zinc compounds increased by 15 million pounds from 2005 and led all TRI statewide increases. EnviroSAFE reported 44.3 million total pounds of zinc fume or dust releases to land on site. This represents a 15.9 million pound increase from the 28.4 million pounds reported in 2005.

On-site land releases of manganese, lead and lead compounds, and other metals typically in bag house waste, also increased in 2006. EnviroSAFE reported a 1.9 million pound increase in manganese disposal, from 2.6 to 4.5 million pounds and a 0.6 million pound increase of lead disposal, from 2.5 to 3.1 million pounds. These EnviroSAFE increases for manganese and lead slightly raised the reported on-site land releases, up 1.7 and 0.4 million pounds, respectively. Among the manufacturing facilities, the two Millennium Inorganic Chemical facilities in Ashtabula County reported almost 5 million pounds in on-site land releases, mostly manganese. The Eramet facility in Marietta (Washington County), reported 3.9 million pounds of on-site manganese releases.

Five of the top ten facilities reporting releases to land on-site are power plants. Their releases are related to production and the type and quantities of coal burned and include barium, manganese, vanadium and other metals.

### POTW Releases

Publicly Owned Treatment Works (POTWs) reported TRI releases were down 9.39% in 2006, from 19.7 to 17.8 million pounds. A reduction of 2.2 million pounds of nitrate compounds represents the greatest change. A reduction of more than 0.6 million pounds of methanol was also reported.

While overall POTW releases were down for 2006, zinc and zinc compounds and nickel and nickel compounds were included in the top ten chemicals discharged to POTWs this year. Charter Steel (Wood County) contributed to this by reporting 1.1 million pounds (over 860,000 pounds of zinc compounds and more than 250,000 pounds of nickel) sent to the POTW in 2006. Facility representatives attributes this increase to a 30% production increase and a related threefold increase in releases to the POTW. This is combined with process reviews and materials testing of cleaning and pickling operations. The process reviews are part of routine operating procedures.

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Hamilton County facilities remain among the largest POTW dischargers with Shepherd Chemical, Cognis Corp., Rhodia, Inc. (previously Grace Davidson), and PMC Specialties Group reporting releases. Each of these facilities reported reduced releases for 2006 ranging from approximately 7% for the Shepherd Chemical Company to over 50% for Rhodia, Inc./Grace Davidson. Rhodia, Inc./Grace Davidson's reduction from 1.4 to 0.63 million pounds of TRI reported releases are attributed to 2006 business trends and a reduction in operations from seven to five days per week.

**Treatment On-Site** Treatment on-site decreased 3.8% or 13.8 million pounds in Ohio and remains the primary waste management activity reported by Ohio facilities. Traditional manufacturing facilities, power generation, and RCRA TSDs all report significant on-site waste treatment.

Millennium Inorganic, Plant 1 (Ashtabula County) and AEP's Gavin Plant (Gallia County) each reported over 50 million pounds (57.5 million and 53.9 million respectively) in on-site treatment.

Millennium Inorganic, Plant 1 reported an 8.3 million pound decrease in on-site treatment being attributed to decreases in plant production rate from 2005. The AEP's Gavin Plant reported an increase of 4 million pounds of on-site treatment which primarily was the net result of increased ammonia treatment combined with decreases in the treatment of other reportable chemicals. AEP noted that urea is used in the ozone season to reduce emissions of nitrogen oxides.

Sunoco (R&M) Haverhill (Scioto County) reported the biggest decrease from 2005, a reduction of 2.4 million pounds, from over 3.2 million pounds to just under 0.8 million pounds. Sunoco noted that on-site treatment was performed by several control devices, as well as, the facility waste water treatment plant. Sunoco also refined its calculation methodology for 2006, basing the treatment calculation on both inlet and outlet stack test data and the associated production rates.

**Off-Site Disposal and Treatment** Statewide transfers off-site for disposal and treatment increased 18.48%. This reflects an increase of slightly more than 15 million pounds up to a statewide total of 97.7 million pounds.

This is primarily the disposal of zinc and zinc compounds, also noted in the land disposal on-site. The Wheeling Pittsburg Steel's McLister Avenue Facility in Mingo Junction (Jefferson County) reported the largest increase in off-site treatment and disposal totaling more than 4 million pounds.

A smaller increase of 2 million pounds in off-site disposal and treatment was reported by ISG Cleveland, Inc. (Cuyahoga County). The ISG Cleveland location reported 7.9 million total pounds from the 5.9 million pounds in 2005. Zinc compounds accounted close to 1.5 million pounds of this increase.

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### Energy Recovery On-Site

Energy recovery on-site exhibited an 18.8% increase of over 15 million pounds that pushed the statewide total to 97.5 million pounds. LaFarge North America/Systech Environmental (Paulding County) ranked at the top, reporting 68 million pounds. This is an increase of more than 7 million pounds from 2005. Systech is a RCRA permitted facility which stores and blends waste for use as fuel in cement kilns. Systech obtains this waste from a variety of generators, brokers and treatment facilities. Significant changes in customers (both primary and secondary), volume and composition of waste are routine. Kraton Polymers, U.S., LLC, located in Belpre (Washington County) reported a 6.3 million pound increase in on-site energy recovery. Kraton notes that for the 2006 calendar year, the facility initiated energy recovery under the Resource Conservation and Recovery Act's "Comparable Fuel Rules". In previous years, such materials had been sold, and as a result did not appear in the TRI reporting.

### Energy Recovery Off-Site

Statewide energy recovery off-site decreased 2.66% from 35.9 million in 2005 to 34.9 million pounds for 2006. Most energy recovery activity was reported by chemical manufacturing facilities and RCRA regulated Treatment, Storage and Disposal (TSD) facilities. Research Organics, (Cuyahoga County) led the chemical manufacturing facilities, increasing off-site energy recovery of methanol to 3.1 million pounds which represents an increase of more than 800,000 pounds from 2005. BASF (Darke County) reduced their off-site energy recovery by over 150,000 pounds for 2006, but still reported over 3 million pounds of TRI chemicals, primarily methyl isobutyl ketone (MIBK) & xylene. Onyx Environmental Services (Montgomery County), a RCRA waste management facility, reported reduced off-site energy recovery of 6.4 million pounds, a reduction of more than 440,000 pounds from 2005.

### Recycling On-Site and Off-site

On-site recycling decreased over 8% from 107.6 million pounds in 2005 to 98.7 million in 2006. Three facilities are collectively responsible for more than 5 million pounds of this decrease are PPG Industries in Circleville, Momentive Performance Materials Quartz, Inc. (previously GE Quartz) in Willoughby and Hukill Chemicals in Bedford. PPG Industries reduced on site recycling 2.3 million pounds (from 13.8 million pounds in 2005 to 11.5 million pounds in 2006); Momentive Performance Materials Quartz, Inc. reported 2.2 million pounds of on-site recycling in 2005, but reported 1.9 million pounds of off-site recycling in 2006. Hukill Chemical of Bedford reported a 1.3 million pound reduction, reporting 11.8 million pounds recycled on-site in 2005 and 10.4 million pounds recycled on-site in 2006. Hukill Chemical notes that this change is due to the facility handling less waste which generators and customers provide to the facility.

Off-site recycling was up 5.57%, from 156 million pounds in 2005 to 164 million pounds in 2006. Luvatna Ohio (Delaware County), a manufacturing facility (copper rolling and extruding) reported the largest increase of an additional 6.1 million pounds of copper compounds. Toxco Inc. (Fairfield County) reporting an increase of nearly 6 million pounds of lead compound. Toxco Inc. is a RCRA regulated treatment and disposal facility that specializes in recycling batteries. They note that

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various recycling operations were started in 2005 and 2006, thereby increasing the release and management numbers reported under TRI. Lead accounted for almost 95% of approximately 19 million pounds of TRI reported chemicals recycled.

Nucor Steel in Marion (Marion County) and North Star BlueScope Steel in Delta (Fulton County) each reported decreases of over 3.1 million pounds. Nucor Steel noted that for 2006, bag house dust was sent to secure RCRA landfills, including EnviroSAFE, rather than recycling facilities. North Star BlueScope Steel attributes increased manufacturing efficiencies and corresponding reduction of bag house dust resulting in their 3.1 million pound (17% reduction) at their facility, primarily zinc compounds. Facility production remained constant.

### **PBT Chemicals**

The overall releases and waste transfers for persistent bioaccumulative toxic (PBT) chemicals increased 28% for reporting year 2006. Ohio had a 22,496 pounds (22%) decrease in air releases of PBT chemicals.

There were 946 Form Rs submitted for PBT chemicals in 2006.

The PBT chemical list consists of 16 individual chemicals and 4 chemical categories. The chemical categories are dioxin and dioxin-like compounds, lead compounds, mercury compounds and polycyclic aromatic compounds (PACs). The top four PBTs with the largest volume of reported releases, transfers and treatment in Ohio for 2006 were, in descending order: Lead and lead compounds, PACs, mercury and mercury compounds, and pendimethalin.

There were 582 Form R reports submitted for lead and/or lead compounds in 2006, compared to 600 reports for 2005. Lead and/or lead compounds were reported from nearly every major SIC code classification required to report to TRI. In 2006, over five million pounds of the lead and lead compounds reported as released or disposed on or off-site were reported by two facilities: EnviroSAFE Services (Lucas County) reported on-site disposal of 2.5 million pounds of lead and/or lead compounds and Techneglas (Franklin County) reported off-site disposal of 2.9 million pounds of lead and/or lead compounds sent to Michigan disposal facilities.

Mercury and mercury compounds were reported by 117 facilities in 2006, compared to 115 facilities in 2005. Reporting facilities were in many SIC groups, including power plants, paper mills, steel works, refuse systems, glass manufacturing, and electric light manufacturing.

Most PACs and the individually listed benzo(g,h,i)perylene are constituents of fossil fuels. Other industrial processes are also sources of PACs, such as hot mix asphalt plants, asphalt roofing manufacturers, iron foundries, primary aluminum producers, coke ovens, pulp mills, Portland cement kilns and carbon black manufacturing. A total of 171 Ohio facilities reported PACs and/or benzo(g,h,i)perylene in 2006.

Dioxin and dioxin-like compounds were reported by 54 facilities, which

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are 4 facilities less than the number of reporters in 2005. Those industries reporting dioxin and dioxin-like compounds include fossil fueled power plants, paper mills, foundries and petroleum refiners. Small quantities of dioxins are formed as a result of combustion processes, chlorine bleaching of pulp and paper, certain types of chemical manufacturing and processing, and other industrial processes.

Pendimethalin is a selective herbicide used to control most annual grasses and certain broadleaf weeds in field corn, potatoes, rice, cotton, soybeans, tobacco, peanuts and sunflowers. It is also used on crops and residential lawns and ornamentals.

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## What's New This Year

### Ohio EPA Accepts TRI Reports through the Central Data Exchange

Facilities located in Ohio can now submit their TRI information to both U.S. EPA and the Ohio EPA/Toxic Release Inventory Program simultaneously through the Federal Central Data Exchange (CDX) using the TRI-ME software. CDX will automatically forward the data to Ohio EPA. This method eliminates the need to generate a diskette or CD to mail separately to Ohio EPA.

### TRI Reporting Changes

The following information updated the *Reporting Forms and Instructions for Reporting Year 2006* as well as highlights new resources developed by EPA.

- Minor changes were made to the TRI reporting forms as part of the TRI Reporting Forms Modification Rule (39931 Federal Register / Vol. 70, No. 132, Tuesday, July 12, 2006):
- Beginning with Reporting Year 2005, the *de minimis* level for naphthalene has been changed from 1.0% to 0.1% since naphthalene is now classified as an OSHA carcinogen.
- Beginning with Reporting Year 2005, methyl ethyl ketone (CAS number 78-93-3) has been removed from the EPCRA section 313 list of reportable toxic chemicals.
- Beginning in the 2006 Reporting Year, there are two *de minimis* levels for cobalt compounds, inorganic cobalt compounds have a 0.1% *de minimis* level and organic cobalt compounds have a 1.0% *de minimis* level.
- TRI Burden Reduction Rule. The TRI Burden Reduction final rule is effective for Reporting Year 2006. The rule expands eligibility for the Form A Certification Statement for PBT and Non-PBT chemicals. The new eligibility criteria are listed below.
  - PBT Chemicals - The rule allows the use of Form A for facilities with zero releases (both on-site and off-site) and 500 pounds or less of treatment, recycling, and/or energy recovery of PBT chemicals. The rule applies to all PBT chemicals except dioxin and dioxin-like compounds.
  - Non-PBT Chemicals -The rule allows the use of Form A for a non-PBT chemical with 5000 pounds or less of releases (both on-site and off-site), treatment, recycling, and/or energy recovery, and the contribution of on-site and off-site releases is limited to 2000 pounds or less.

### North American Industry Classification System (NAICS) Codes in TRI Reporting

The list of TRI-covered NAICS codes was developed using 2002 NAICS codes. The list of industries subject to reporting under the TRI program is commonly divided into two groups called "Original" and "New". Original industries are those covered under the original legislation. New industries are those which were added in 1998. For more information on NAICS and complete SIC to NAICS crosswalk tables, please go to the Census Bureau NAICS website.

## What's New This Year

The NAICS is reviewed every five years for potential revisions so that the classification system can keep pace with the changing economy. The codes were last updated on March 16, 2006, when OMB published a final notice of the NAICS revision for 2007 (71 FR 28532) that states that "data published for reference years beginning on or after January 1, 2007, should be published using the 2007 NAICS United States Codes." EPA will publish a rule implementing use of the 2007 NAICS codes for TRI in 2008 for the 2008 Reporting Year.

The full list of NAICS codes for facilities that must report to TRI (including exceptions and/or limitations) if all other threshold determinations are met can be found at: [www.epa.gov/tri/tridata/naics/ncodes.htm](http://www.epa.gov/tri/tridata/naics/ncodes.htm). The facility should determine its own NAICS code (s), based on its activities on-site, using the NAICS Manual and by referring to the extensive OMB crosswalk tables found on the Census Bureau website: [www.census.gov](http://www.census.gov).

### **Reporting, Updating Latitude/Longitude, and Program ID Data in RY 2006.**

As part of the TRI Forms Modification Rule, latitude and longitude data (Part I, Section 4.6 of Forms R and A) and Program identification (ID) numbers including RCRA, NPDES and UIC ID numbers (Part 1, Section 4.8, 4.9, and 4.10 of Forms R and A) will no longer be collected by the TRI program. However these data elements will still be part of the TRI data disseminations. TRI data users will obtain these data elements from the Facility Registry System (FRS), EPA's centralized database system for facility information. That system will gather these data elements from existing data, other EPA programs, state and local governments and commercial sources.

If they choose, TRI facilities will still have the ability to review, update and insert latitude and longitude values and Program ID numbers that are being used to represent them. Facilities that use TRI-ME and file their reports over the Internet will be able to do this by signing into the Central Data Exchange (CDX). Links to CDX and this process will also be available to facilities through the electronic Facility Data Profile, the electronic Facility Data Release and on the TRI-ME web page. Facilities may also review and update their latitude and longitude values on the Internet via the Envirofacts FRS Query at:

[http://www.epa.gov/enviro/html/fii/fii\\_query\\_java.html](http://www.epa.gov/enviro/html/fii/fii_query_java.html)

Facilities that do not have Internet access will be able to update their latitude and longitude coordinates and Program ID values by contacting the EPA Facility Error Notification/Correction Center at 703-243-8307. Or by mail at:

Lockheed Martin B NEISEC  
Error Notification/Correction Center  
1010 North Glebe Road  
Arlington, VA 22201

## 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-.06) 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. 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 305, 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) vary, 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, Tier II forms, or electronic "Tier2Submit" reporting are used for "inventory reporting" and are due March 1<sup>st</sup> for the prior calendar year. Contact the

## Understanding and Using TRI Information

“Right-To-Know”/SERC Unit in DAPC (614-644-2260), or the appropriate LEPC for assistance.

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 581 individually listed chemicals and 30 chemical categories, including 3 delimited categories containing 58 chemicals, for a total of 666 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 1<sup>st</sup> for the prior calendar year. Reported information is readily available from Ohio EPA or U.S. EPA TRI Web sites (see page 28 for Web site 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 inspects potential non-reporting facilities each year. Approximately 5% of the inspections result in enforcement actions against facilities, which did not properly file TRI reports.

### Who Must Report

Facilities are required to report if they meet all three of the following requirements:

1. Have 10 or more full-time employees (or the equivalent of 20,000 hours worked per year).
2. The facility is in a SIC (as in effect on January 1, 1987) major group or industry code listed in paragraph (A) of rule 3745-100-17 of the Administrative Code (for which the corresponding NAICS (as in effect on January 1, 2002) sub sector and industry codes are listed in paragraphs (B) and (C) of rule 3745-100-17 of the Administrative Code) by virtue of the fact that it meets one of the following criteria:
  - (a) The facility is an establishment with a primary SIC major group or industry code listed in paragraph (A) of rule 3745-100-17 of the Administrative Code, or a primary NAICS sub sector or industry code listed in paragraph (B) or (C) of rule 3745-100-17 of the Administrative Code.
  - (b) The facility is a multi-establishment complex where all establishments have primary SIC major group or industry codes listed in paragraph (A) of rule 3745-100-17 of the Administrative Code, or primary NAICS sub

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sector or industry codes listed in paragraph (B) or (C) of rule 3745-100-17 of the Administrative Code.

- (c) The facility is a multi-establishment complex in which one of the following is true:
  - (i) The sum of the value of services provided and/or products shipped and/or produced from those establishments that have primary SIC major group or industry codes listed in paragraph (A) of rule 3745-100-17 of the Administrative Code, or primary NAICS sub sector or industry codes listed in paragraph (B) or (C) of rule 3745-100-17 of the Administrative Code is greater than fifty per cent of the total value of all services provided and/or products shipped from and/or produced by all establishments at the facility.
  - (ii) One establishment having a primary SIC major group or industry code listed in paragraph (A) of rule 3745-100-17 of the Administrative Code, or a primary NAICS sub sector or industry code listed in paragraph (B) or (C) of rule 3745-100-17 of the Administrative Code contributes more in terms of value of services provided and/or products shipped from and/or produced at the facility than any other establishment within the facility.
  - (iii) The facility manufactured (including imported), processed or otherwise used a toxic chemical in excess of an applicable threshold quantity of that chemical as set forth in rule 3745-100-06, 3745-100-14, or 3745-100-16 of the Administrative Code.

3. 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 are owned or operated 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 are currently subject to reporting under Section 313. These chemicals vary widely in form (solid, liquid and gas) and in toxicity.

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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 <http://www.epa.gov/tri/chemical/index.htm> and select "Current List of TRI Chemicals."

### Chemical Qualifiers

Some TRI reportable chemicals have qualifiers associated with them. Most TRI chemicals are not listed with a qualifier, and are subject to reporting in all forms that they may be manufactured, processed, or otherwise used. TRI reportable chemicals with qualifiers are discussed below:

<b>Chemical</b>	<b>Qualifier</b>
Aluminum	Only fume or dust is reportable.
Aluminum oxide	Only fibrous forms are reportable.
Ammonia (aqueous)	10% of total aqueous ammonia from water dissociable salts and other sources is reportable (100% of anhydrous ammonia is reportable).
Asbestos	Friable forms (can be crumbled or reduced to powder with hand pressure) only.
Chromium compounds	Reportable only if not chromite ore mined in the Transvaal Region of South Africa and the unreacted ore component of the chromite ore processing residue (COPR).
Dioxin and dioxin-like compounds	PBT chemicals reportable if manufactured at the facility or processed or otherwise used when present as contaminants in a chemical but only if they were created during the manufacture of that chemical. Reported in grams instead of pounds (454 grams = 1 pound).

<b>Chemical</b>	<b>Qualifier</b>
Hydrochloric acid	Acid aerosols only.
Isopropyl alcohol	Reportable only if manufactured by the strong acid process.
Lead and lead compounds	Reportable as a PBT (100 pound threshold) unless contained in a stainless steel, bronze or brass alloy (in which case it is reportable at a 25,000 pound processing threshold).
Nitrate Compounds	Water dissociable; reportable only when in aqueous solution.
Phosphorus	Only the yellow and white forms are reportable.
Saccharin	Only manufacturers must report.
Sulfuric acid	Acid aerosols only.
Vanadium	Only reportable if not an alloy constituent.
Zinc	Only fume or dust is reportable.

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### 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.
- For reporting year 2006, 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.**
- 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.

## Understanding and Using TRI Information

### TRI Rule Changes

The following list summarizes significant changes that U.S. EPA has finalized in the past several years.

Federal Register/Date	Title	Summary
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	Allows reporting TRI chemicals on a simplified certification form (Form A) if the amount of the chemical manufactured, processed or otherwise used is not greater than a million pounds and the reportable amount is less than 500 pounds in that year.
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.
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).
64 FR 58666 / October 29, 1999	Persistent Bioaccumulative Toxic (PBT) Chemicals; Lowering of Reporting Thresholds for Certain PBT Chemicals; Addition of Certain PBT Chemicals 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 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.

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65 FR 39552 / June 26, 2000	Phosphoric Acid	Deleted phosphoric acid from the list of chemicals subject to reporting requirements under TRI.
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.
66 FR 10685 / 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."
70 FR 39931 / July 12, 2005	Toxic Release Inventory Reporting Forms Modification Rule	EPA will no longer require TRI facilities to report location information (latitude and longitude data) and several facility identifiers (regulatory assigned identification codes for each facility). Instead, the data will be obtained from existing EPA databases and made available to TRI data users. The proposal also: <ul style="list-style-type: none"> <li>• Includes several minor reporting changes related to waste management activities,</li> <li>• Simplifies the reporting of pollution prevention activities, and</li> <li>• Improves public access to information about source reduction and pollution control activities undertaken by some facilities.</li> </ul>
71 FR 32464 / June 6, 2006	Community Right-to-Know; Toxic Chemical Release Reporting Using North American Industry Classification System (NAICS)	Requires facilities reporting to TRI to use North American Industry Classification System (NAICS) codes in place of the Standard Industrial Classification (SIC) codes previously used on TRI reporting forms. Facilities that report to TRI are required to use 2002 NAICS codes on reporting Form R and the Form A Certification Statement.
71 FR 76932 / December 22, 2006	Toxic Release Inventory Burden Reduction Final Rule	The final TRI Rule announced December 18, 2006 expands eligibility for use of the Form A Certification Statement (Form A) in lieu of the more detailed Form R by TRI facilities submitting required annual reports on releases and other waste management. This rule provides incentives for facilities to improve environmental performance by eliminating or reducing releases and managing remaining wastes using preferred methods such as recycling and treatment.
72 FR 26544 / May 10, 2007	Dioxin and Dioxin-like Compounds; Toxic Equivalency Information; Community Right-To- Know Toxic Chemical Release Reporting	The final rule requires that, in addition to reporting total gram quantities for the category, facilities are required to report the mass quantity of each individual member of the category. The mass quantity data for the individual members of the category will be used by EPA to perform toxic equivalency (TEQ) computations which will be made available to the public. TEQs are a weighted quantity measure based on the toxicity of each member of the dioxin and dioxin-like compounds category relative to the most toxic members of the category, i.e., 2,3,7,8-tetrachlorodibenzo-p-dioxin and 1,2,3,7,8-pentachlorodibenzo-p-dioxin. The final rule also eliminates the reporting of the single generic distribution for the members of the dioxin and dioxin-like compounds category.

## Understanding and Using TRI Information

### 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 Compliance Assistance and Pollution Prevention (OCAPP) 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. OCAPP provides several services to industrial facilities. OCAPP 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/ocapp>. OCAPP 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.

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. Non-complying 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.

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

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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).

Discharge to Publicly Owned Treatment Works (POTWs) - A POTW is a wastewater treatment facility owned by a public authority such as a municipality or county. Some TRI facilities generate wastewater and discharge it through pipes or sewers to a POTW. At the POTW further treatment of the chemical occurs through biodegradation by microorganisms or removal from the wastewater occurs if the chemical enters the sludge generated during the biodegradation process. Next, the treated wastewater is released to waters of the state. The sludge generated from the process may be incinerated, land-applied, or land filled. Generally, chemicals that are easily utilized as nutrients by microorganisms, have a low solubility in water,

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or are volatile are treatable by the POTW. Not all TRI chemicals can be treated or removed by a POTW. So POTWs limit the industrial contribution of those pollutants.

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.

NAICS: North American industrial classification system

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.

PACs: Polycyclic aromatic compounds. There are 21 chemicals that comprise the PAC category. Benzo(g,h,i)perylene, another PAC, is individually listed in the EPCRA list of chemicals. The PAC category is designated as "N590" in the chemical list. Most PACs are constituents of fossil fuels (coal and oil), but also come from other sources such as hot mix asphalt plants and asphalt roofing, iron foundries, coke ovens, primary aluminum producers, pulp mills, cement kilns and carbon black manufacturing. If a facility burns approximately 5000 gallons of No. 6 fuel oil in a year, it would meet the reporting threshold for PACs for that year.

PBTs: In October, 1999, U.S. EPA promulgated the final rule on persistent bioaccumulative toxic chemicals, or PBTs. The PBT chemicals contain several insecticide/pesticides along with the PACs discussed above, lead and mercury and their compounds and dioxin and dioxin-like compounds. For chemicals designated as PBTs, the reporting threshold has been significantly reduced (e.g., from 25,000 pounds to 100 pounds). Other requirements on PBT chemicals help assure accurate reporting of these chemicals (i.e., the de minimis exemption was eliminated, range reporting was eliminated, and data can be entered in fractions of a pound). TRI Burden Reduction Rule became effective for Reporting Year 2006. The rule expands eligibility for the Form A Certification Statement for PBT and Non-PBT chemicals. The rule allows the use of Form A for facilities with zero releases (both on-site and off-site) and 500 pounds or less of treatment, recycling, and/or energy recovery of PBT chemicals. The rule applies to all PBT chemicals except dioxin and dioxin-like compounds.

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.

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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.

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 storm water 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 wastewater beneath the lowermost underground source of drinking water.

## Summary of Data

In 2006, approximately 322 million pounds of toxic chemicals were reported as having been released to the environment or transferred off-site for treatment or disposal. The data presented for 2006, including the listings of top companies, chemicals and counties, reflects the TRI data reporting due July 1, 2006. The TRI Unit continually reviews this data and works with reporting facilities to assure data quality. Additional and revised data provided subsequent to July 1<sup>st</sup> 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 de-listed 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 de-listed, 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, de-listed 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; deep well 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 1996 to 2006 are provided in Table 2A and 2B. Table 2A represents all data including the data for de-listed, added, and modified chemicals and the expansion industrial sectors. Table 2B does not include data for: (1) chemicals that have been de-listed, added or modified; and (2) new industrial sectors which were added to TRI in order to allow for historical trend analysis.

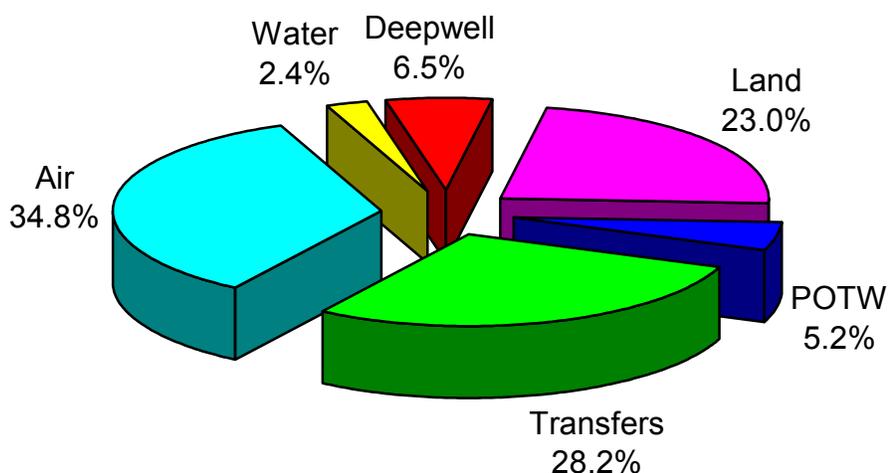
**Table 2A: 10-Year-Trend: All Facilities and Chemicals (millions of pounds)**

Comparison	1997	1998*	1999	2000	2001	2002	2003	2004	2005	2006
Releases to Air	70.41	162.57	150.97	145.52	122.13	134.06	132.18	128.39	126.45	120.50
Releases to Water	34.48	9.65	10.33	11.44	10.00	8.85	7.99	8.00	6.93	8.33
Deep well Injection	11.58	28.77	27.65	30.23	31.99	29.61	29.30	22.61	24.47	22.53
Releases to Land On-Site	27.77	94.22	70.53	76.81	65.62	67.71	67.60	49.72	62.54	79.57
Discharges to POTW	19.20	19.33	19.75	23.12	18.78	17.36	17.32	18.58	19.71	17.86
Off-Site Disposal / Treatment	63.47	77.91	77.26	77.21	83.87	68.38	65.45	71.27	82.50	97.74
<b>Total Releases &amp; Transfers**</b>	<b>226.92</b>	<b>368.23</b>	<b>326.72</b>	<b>334.02</b>	<b>305.85</b>	<b>299.18</b>	<b>298.59</b>	<b>276.49</b>	<b>292.55</b>	<b>315.01</b>
Off-Site Energy Recovery	33.03	101.41	60.04	46.31	40.99	53.82	42.81	37.55	35.88	34.92
On-Site Energy Recovery	107.66	116.97	124.57	94.73	81.03	104.62	81.22	84.25	82.09	97.53
Off-Site Recycling	190.42	190.75	186.93	175.05	172.73	168.53	150.06	147.45	156.29	165.00
On-Site Recycling	215.90	288.52	233.75	223.11	205.55	167.12	171.73	160.09	107.65	98.76
On-Site Treatment	139.45	218.22	262.38	222.17	255.13	271.36	427.00	385.07	365.62	351.84
Reporting Facilities	1,644	1,728	1,735	1,749	1,796	1,734	1,689	1,639	1,621	1,552

\* First reporting year for 7 additional industrial sectors.

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

**Figure 2A: 2006 Toxic Releases and Transfers**

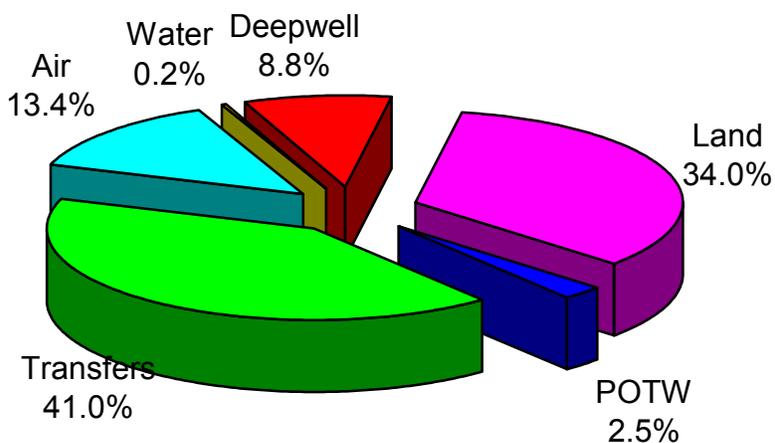


## Summary of Data

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

Comparison	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
Releases to Air	44.78	41.23	38.39	35.58	30.00	29.57	27.96	27.44	26.13	25.78
Releases to Water	1.04	0.97	0.46	0.45	0.42	0.29	0.55	0.32	0.35	0.42
Deep well Injection	9.42	11.40	12.28	11.15	13.75	11.61	14.55	8.58	14.19	9.97
Releases to Land On-Site	27.65	29.55	19.33	15.34	10.17	9.04	16.28	7.64	13.13	12.66
Discharges to POTW	7.00	5.87	5.70	6.85	5.06	4.27	4.42	4.68	5.62	5.87
Off-Site Disposal / Treatment	61.30	57.12	59.22	58.35	49.00	50.24	46.37	56.44	64.87	83.68
<b>Total Releases &amp; Transfers</b>	<b>151.20</b>	<b>146.16</b>	<b>135.37</b>	<b>127.72</b>	<b>108.40</b>	<b>105.01</b>	<b>110.13</b>	<b>105.10</b>	<b>124.29</b>	<b>138.38</b>
Off-Site Energy Recovery	28.96	30.73	27.18	24.53	22.17	43.29	20.29	21.86	19.81	26.34
On-Site Energy Recovery	92.02	100.20	100.30	77.00	65.14	84.40	71.92	81.55	79.10	93.81
Off-Site Recycling	185.81	183.18	176.35	167.87	165.71	161.22	142.53	141.25	138.80	141.83
On-Site Recycling	194.22	243.06	181.66	165.19	152.31	128.96	113.29	80.46	66.10	64.51
On-Site Treatment	108.37	108.16	117.84	110.82	99.96	117.12	147.65	149.32	110.78	107.36
Reporting Facilities	1,500	1,490	1,486	1,509	1,568	1,506	1,468	1,414	1,404	1,360

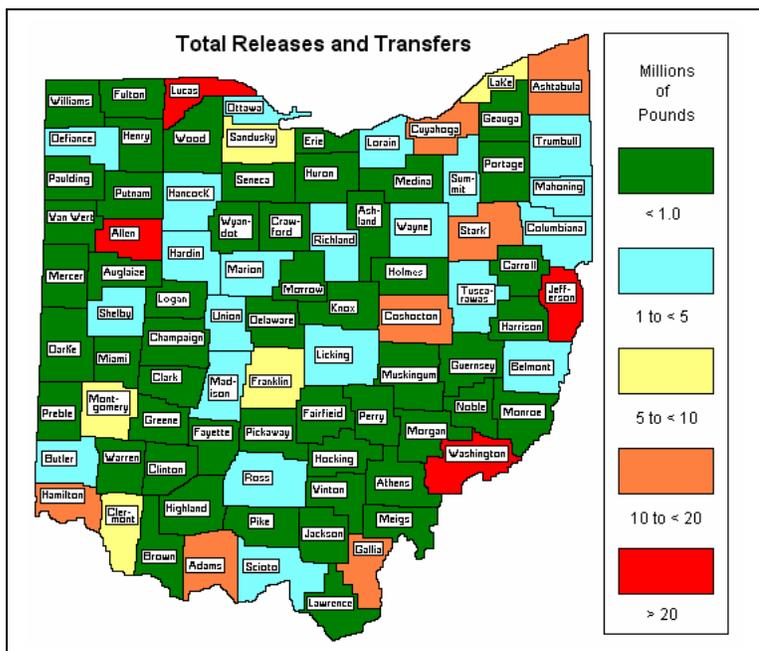
**Figure 2B: 2006 Toxic Releases and Transfers**



## Summary of Data

### Total Releases and Transfers for 2006\*

Top 10 Counties		
County	Pounds	
1. Lucas	58,910,808	
2. Jefferson	41,161,389	
3. Washington	21,450,738	
4. Stark	21,027,566	
5. Cuyahoga	18,684,656	
6. Adams	16,841,377	
7. Allen	16,376,071	
8. Hamilton	13,743,298	
9. Ashtabula	13,559,254	
10. Coshocton	11,590,185	



Top 10 Chemicals		
Chemical	Pounds	
1. Zinc and zinc compounds	92,659,869	
2. Hydrochloric acid (aerosols)	65,609,523	
3. Manganese and manganese compounds	32,118,432	
4. Nitrate compounds	19,115,222	
5. Sulfuric acid (aerosols)	13,551,405	
6. Methanol	10,329,454	
7. Ammonia	10,210,781	
8. Barium and barium compounds	9,549,832	
9. Hydrogen Fluoride	9,285,156	
10. Chromium and Chromium Compounds	7,693,546	

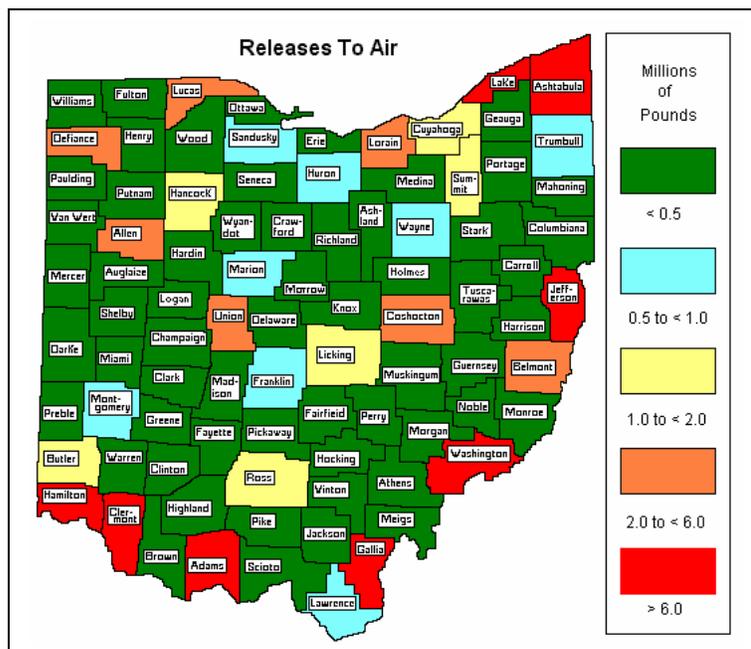
Top 10 Facilities		
Facility / County	Pounds	
1. EnviroSAFE Services of Ohio Inc. / Lucas	53,319,895	
2. Wheeling-Pittsburgh steel Corp. Mingo / Jefferson	15,833,755	
3. DP&L J.M.Stuart Station / Adams	13,453,861	
4. AEP - Cardinal Plant / Jefferson	13,274,682	
5. INEOS USA LLC / Allen	12,068,409	
6. W. H. Sammis Plant / Jefferson	11,542,774	
7. Vickery Environmental Inc. / Sandusky	10,730,036	
8. Muskingum River Plant / Washington	9,439,327	
9. The Timken Co. – Harrison Steel Plant / Stark	8,725,155	
10. Millennium Inorganic chemicals / Ashtabula	8,130,921	

\* All data included.

## Summary of Data

### Releases to Air for 2006\*

Top 10 Counties		
County	Pounds	
1. Jefferson	20,446,024	
2. Adams	13,538,708	
3. Washington	11,306,009	
4. Ashtabula	7,764,628	
5. Clermont	6,974,828	
6. Gallia	6,672,291	
7. Hamilton	6,532,624	
8. Lake	5,991,181	
9. Coshocton	5,197,654	
10. Allen	3,422,577	



### Top 10 Chemicals

Chemical	Pounds
1. Hydrochloric acid (aerosols)	65,022,358
2. Sulfuric acid (aerosols)	13,380,448
3. Ammonia	7,283,127
4. Carbonyl sulfide	7,238,348
5. Hydrogen fluoride	5,538,736
6. Methanol	3,061,556
7. Certain glycol ethers	2,475,977
8. 1-chloro-1,1-difluoroethane	1,743,383
9. Xylene (mixed isomers)	1,636,356
10. N-Butyl Alcohol	1,613,732

### Top 10 Facilities

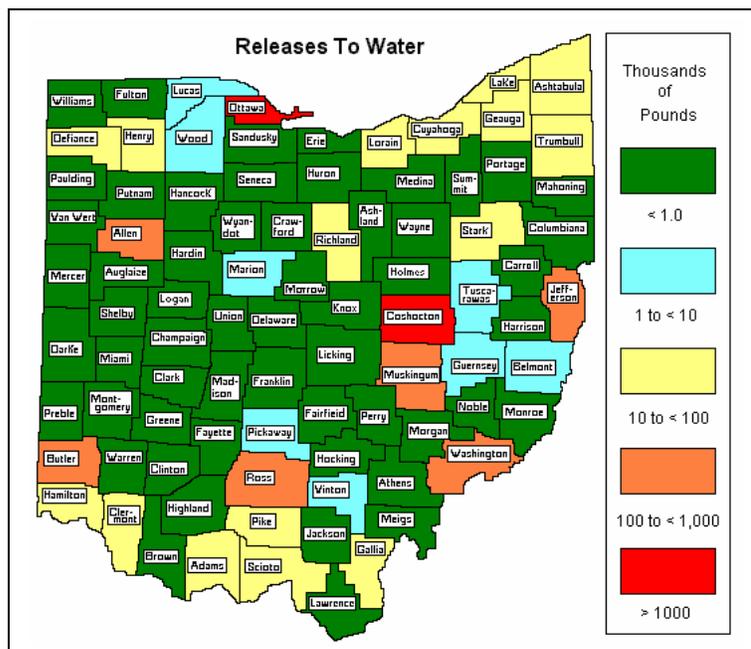
Facility / County	Pounds
1. AEP - Cardinal Plant / Jefferson	11,338,817
2. DP&L J.M.Stuart Station / Adams	10,868,852
3. FirstEnergy W.H. Sammis Plant / Jefferson	9,039,726
4. American Electric Power Muskingum River Plant / Washington	8,371,439
5. Cinergy Corp. Miami Fort Generating Station / Hamilton	5,297,901
6. Millennium Inorganic Chemicals Plant 2 / Ashtabula	5,163,889
7. FirstEnergy Eastlake Plant / Lake	5,029,899
8. Cinergy Corp. Beckjord Generating Station / Clermont	5,016,879
9. Kyger Creek Station / Gallia	4,928,765
10. American Electric Power Conesville Plant / Coshocton	4,910,206

\* All data included.

## Summary of Data

### Releases to Water for 2006\*

Top 10 Counties	
County	Pounds
1. Coshocton	4,041,325
2. Ottawa	1,805,116
3. Washington	776,497
4. Allen	302,834
5. Butler	198,919
6. Muskingum	190,504
7. Ross	187,226
8. Jefferson	137,047
9. Ashtabula	91,130
10. Lorain	87,393



### Top 10 Chemicals

Chemical	Pounds
1. Nitrate compounds	7,492,105
2. Manganese and manganese compounds	288,952
3. Ammonia	212,676
4. Zinc and zinc compounds	54,727
5. Formic acid	48,250
6. Methanol	45,625
7. Copper and copper compounds	35,257
8. Barium and barium compounds	31,519
9. Sodium nitrite	30,800
10. Chromium and chromium compounds	23,156

### Top 10 Facilities

Facility / County	Pounds
1. AK Steel Corp. Coshocton Works / Coshocton	4,001,742
2. Brush Wellman Inc. / Ottawa	1,805,101
3. Kraton Polymers US LLC / Washington	550,718
4. PCS Nitrogen of Ohio LP / Allen	220,870
5. Eramet Marietta Inc. / Washington	214,701
6. AK Steel Corp. Zanesville Works / Muskingum	190,504
7. P.H. Glatfelter Co. – Chillicothe / Ross	187,226
8. AK Steel Corp. / Butler	160,616
9. Titanium Metals Corp. / Jefferson	106,287
10. Republic Engineered Prods. Inc. / Lorain	84,861

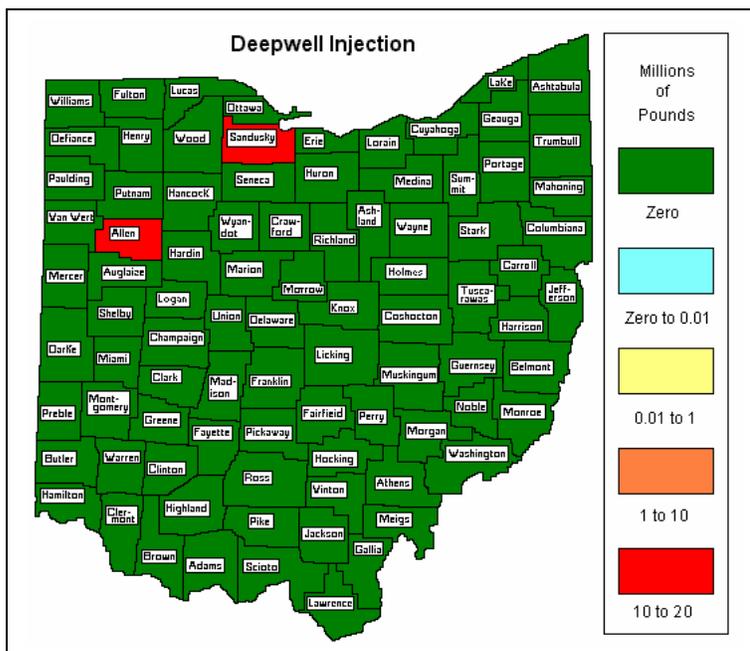
\* All data included.

## Summary of Data

### Deep well Injection for 2006\*

Top 10 Counties	
County	Pounds
1. Allen	11,832,332
2. Sandusky	10,700,054

Note: Only 2 facilities reported on-site deepwell injection.



Top 10 Chemicals	
Chemical	Pounds
1. Acetonitrile	5,100,000
2. Nitric acid	4,610,532
3. Hydrogen fluoride	3,074,982
4. Ammonia	1,625,140
5. Acrylamide	1,400,000
6. Chromium and chromium compounds	1,391,091
7. Methanol	1,200,000
8. Acrylonitrile	840,000
9. Cyanides	450,741
10. Acrylic Acid	380,000

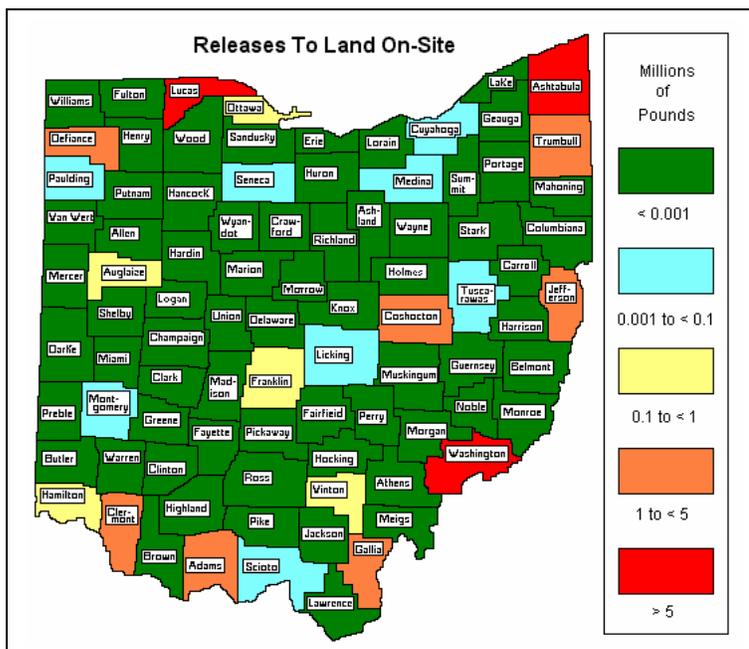
Top 10 Facilities	
Facility / County	Pounds
1. INEOS USA LLC / Allen	11,832,332
2. Vickery Environmental Inc. / Sandusky	10,700,054

\* All data included.

## Summary of Data

### Releases to Land On-Site for 2006\*

Top 10 Counties		
County	Pounds	
1. Lucas	54,015,917	
2. Ashtabula	5,000,420	
3. Washington	4,982,593	
4. Gallia	3,810,328	
5. Adams	3,272,071	
6. Jefferson	1,911,722	
7. Coshocton	1,708,014	
8. Trumbull	1,210,922	
9. Clermont	1,062,023	
10. Defiance	1,056,658	



### Top 10 Chemicals

Chemical	Pounds
1. Zinc and zinc compounds	30,855,787
2. Manganese and manganese compounds	14,501,598
3. Barium and barium compounds	5,803,378
4. Lead and lead compounds	3,292,335
5. Chromium and chromium compounds	1,979,086
6. Vanadium and vanadium compounds	1,727,135
7. Copper and copper compounds	1,586,341
8. Nickel and nickel compounds	997,259
9. Arsenic and arsenic compounds	536,890
10. Cobalt and cobalt compounds	350,381

### Top 10 Facilities

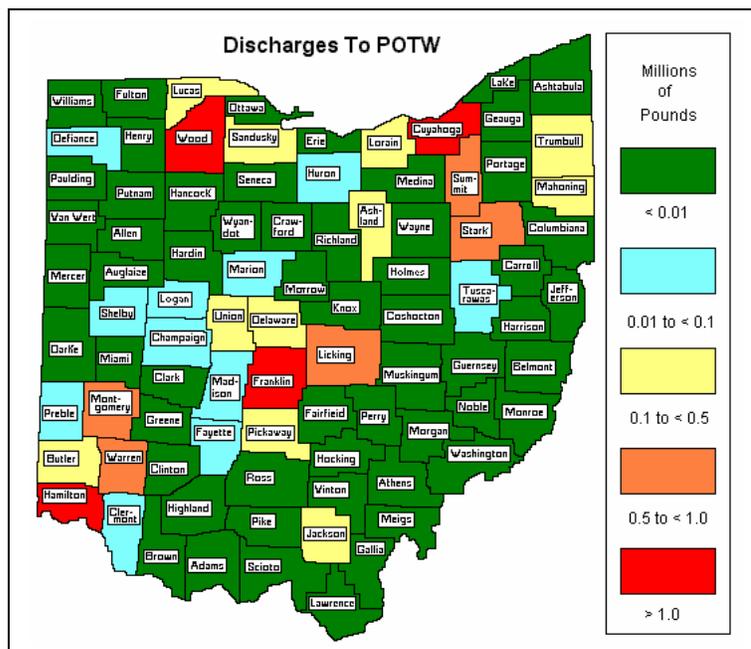
Facility / County	Pounds
1. EnviroSAFE Services of Ohio Inc. / Lucas	53,318,374
2. Eramet Marietta Inc. / Washington	3,928,698
3. Millennium Inorganic Chemicals #2/ Ashtabula	2,900,013
4. Dayton Power & Light Co. J.M Stuart Station / Adams	2,556,636
5. American Electric Power Gavin Plant / Gallia	2,447,570
6. Millennium Inorganic Chemicals #1 / Ashtabula	2,100,124
7. American Electric Power Cardinal Plant / Jefferson	1,911,722
8. Kyger Creek Station / Gallia	1,362,758
9. American Electric Power Conesville Plant / Coshocton	1,355,159
10. WCI Steel Inc.	1,210,370

\* All data included.

## Summary of Data

### Discharges to POTW for 2006\*

Top 10 Counties		
	County	Pounds
1.	Hamilton	6,373,685
2.	Cuyahoga	1,849,701
3.	Wood	1,250,356
4.	Franklin	1,011,667
5.	Montgomery	985,746
6.	Stark	820,604
7.	Warren	666,635
8.	Licking	577,949
9.	Summit	557,889
10.	Trumbull	483,775



### Top 10 Chemicals

Chemical	Pounds
1. Nitrate compounds	10,929,702
2. Methanol	2,345,053
3. Zinc and Zinc Compounds	910,887
4. Certain glycol ethers	899,630
5. Ammonia	599,791
6. Sodium nitrite	396,182
7. Ethylene glycol	371,590
8. Nickel and Nickel Compounds	276,005
9. Allyl alcohol	207,539
10. Chlorine	170,137

### Top 10 Facilities

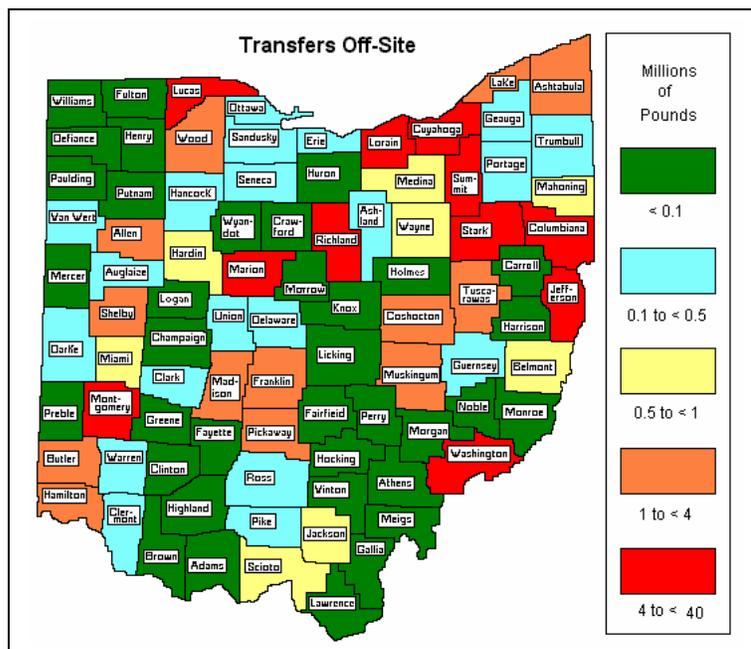
Facility / County	Pounds
1. Shepherd Chemical Co. / Hamilton	3,133,544
2. Cognis Corp. / Hamilton	1,235,885
3. Charter Steel Rising Sun / Wood	1,160,887
4. Grace Davidson Cincinnati Plant / Hamilton	629,886
5. PMC Specialties Group Inc. / Hamilton	606,206
6. GFS Chemicals Inc / Franklin	592,721
7. Sumco Phoenix Corp. / Warren	570,002
8. Cargill Inc. Corn Milling / Montgomery	531,603
9. Anomatic Corp. / Licking	499,559
10. Research Organics Inc. / Cuyahoga	438,803

\* All data included.

## Summary of Data

### Transfers Off-Site to Disposal or Treatment for 2006\*

Top 10 Counties	
County	Pounds
1. Stark	19,815,044
2. Jefferson	18,666,596
3. Cuyahoga	15,649,069
4. Washington	4,385,636
5. Marion	4,101,747
6. Summit	3,476,886
7. Richland	3,419,564
8. Lorain	2,889,782
9. Montgomery	2,273,026
10. Lucas	2,130,770



### Top 10 Chemicals

Chemical	Pounds
1. Zinc and zinc compounds	44,709,311
2. Manganese and manganese compounds	14,983,781
3. Chromium and chromium compounds	5,460,354
4. Barium and barium compounds	3,970,033
5. Methanol	3,677,217
6. Lead and lead compounds	3,387,429
7. Aluminum (fume or dust)	3,224,077
8. Nitric Acid	2,704,052
9. Copper and Copper Compounds	2,018,405
10. Nickel and Nickel Compounds	1,750,436

### Top 10 Facilities

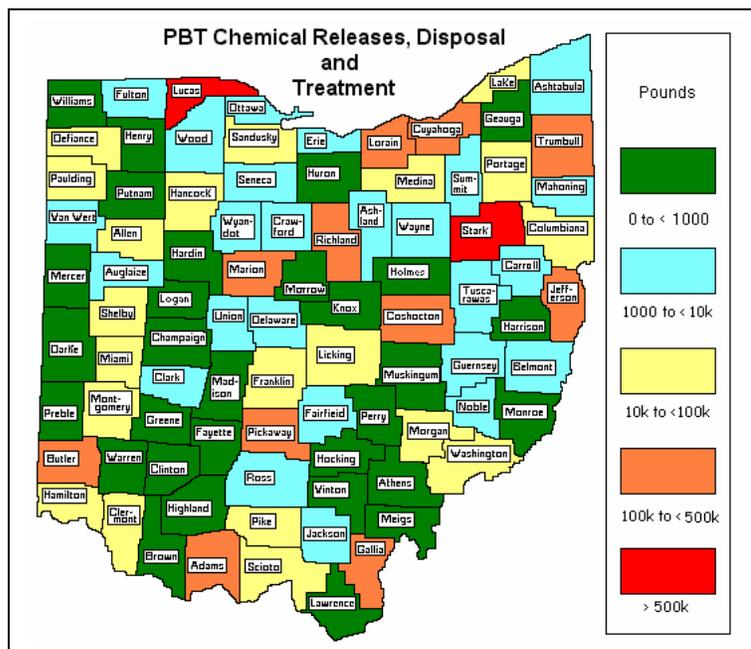
Facility / County	Pounds
1. Wheeling-Pittsburgh Steel Corp. Mingo / Jefferson	15,800,361
2. Timken Co. Harrison Steel / Stark	8,680,764
3. ISG Cleveland Inc. / Cuyahoga	7,925,568
4. Timken Co. Faircrest Steel / Stark	5,152,999
5. Envirote of Ohio Inc. / Stark	4,569,441
6. Energizer Battery Mfg. Inc. / Washington	4,013,632
7. AK Steel Corp. – Mansfield Works / Richland	3,330,878
8. NUCOR Steel Marion Inc. / Marion	3,204,782
9. FirstEnergy W.H. Sammis Plant / Jefferson	2,492,696
10. Universal Materials Inc. / Summit	2,428,230

\* All data included.

## Summary of Data

### PBT Chemical Releases, Disposal and Treatment for 2006\*

Top 10 Counties		
County	Pounds	
1. Lucas	3,152,402	
2. Stark	975,575	
3. Pickaway	491,935	
4. Cuyahoga	441,574	
5. Jefferson	309,978	
6. Marion	290,674	
7. Lorain	167,853	
8. Gallia	126,576	
9. Coshocton	126,573	
10. Trumbull	121,320	



### PBT Chemical Release, Disposal and Treatment Summary†

PBT Chemical	Air	Water	Deepwell Injection	Land	POTW	Off-Site Disposal / Treatment
Aldrin	0	0	0	0	0	0
Benzo(G,H,I)perylene	1,611	107	0	1	5	709
Chlordane	1	0	0	0	0	689
Dioxin & compounds	30.47 gr	0.57 gr	0	182.37 gr	0	73 gr
Heptachlor	0.13	0	0	0	0	390
Hexachlorobenzene	0.08	0	0	0	17.3	1,918
Isodrin	0	0	0	0	0	0
Lead & compounds	60,478	10,557	7,171	3,810,287	5,653	3,387,429
Mercury & compounds	8,110	128	33,296	4,063	33	8,827
Methoxychlor	0	0	0	0	0	0
Pendimethalin	36	0.42	0	0	0.16	7,493
Pentachlorobenzene	118	0	0	0	0	417
PCBs	0.01	0	0	0	0	89
PACs	5,991	3.54	907	42	215	19,224
Tetrabromobisphenol A	0	0	0	0	0	0
Toxaphene	0.27	0	0	0	0	303
Trifluralin	48	0.42	0	0	0.16	15

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

\* All data included.

## Summary of Data

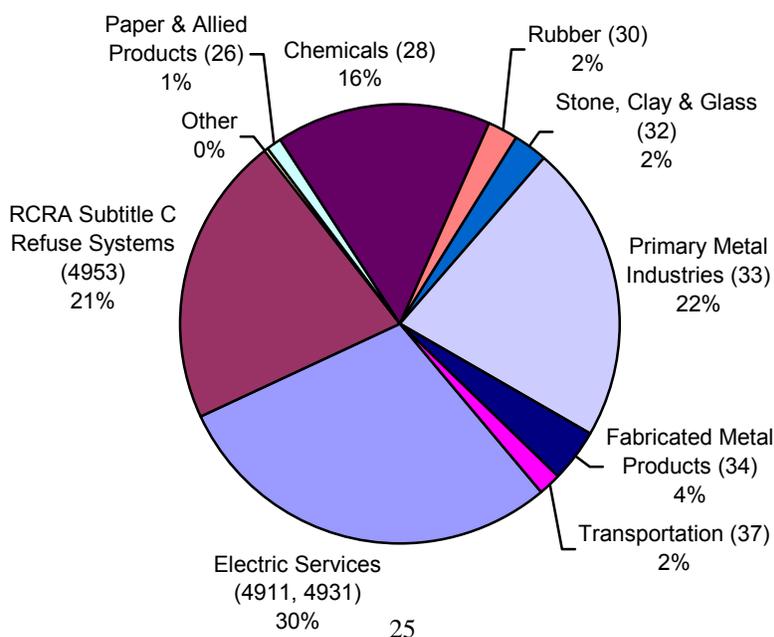
### Releases by Industry

Figure 3 and Table 3 present the TRI releases and transfers by industrial group or Standard Industrial Classification (SIC) codes. Facilities report their SIC code on the Form R or A. Only manufacturing facilities in SIC codes 20 through 39 were initially required to report under TRI. Seven industrial groups within major SIC codes 10, 12, 49, 51 and 73 began reporting in 1998. These are metal mining (10), coal mining (12), coal and oil-fired electricity generating facilities (4911 and 4931), RCRA Subtitle C refuse system facilities (4953), chemicals and allied products (wholesale, 5169), petroleum bulk stations (wholesale, 5171), and solvent recovery services (7389). 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 2006 were those reporting facilities in major SIC code 49 (Electric, Gas, and Sanitary Services), major SIC code 33 (Primary Metal Industries), and major SIC code 28 (Chemicals and Allied Products). The reporters in major SIC code 49 are limited to coal or oil fired electric generating plants distributing electric power in commerce (4911 and 4931) and to RCRA Subtitle C refuse systems (4953). The following figure represents the industrial categories and their reported releases and transfers under TRI. (Major SIC codes 49 are broken out into electric generating and refuse systems in the figure.)

The industrial sectors most recently added accounted for almost 49% of the releases and transfers for treatment and disposal reported. The electric generating facilities accounted for releases and transfers for treatment and disposal of over 97 million pounds, and the RCRA Subtitle C refuse system facilities accounted for over 71 million pounds of releases and transfers for treatment and disposal.

**Figure 3: Releases & Transfers By SIC**



## Summary of Data

**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	2	23	148,459	0	0	0
20	Food & Kindred Products	49	116	2,188,384	871,145	34,395	1,408,117
22	Textile Mill Products	6	25	80,966	61,682	2,848	10,012
23	Apparel	2	5	2,423	48,836	0	0
24	Lumber & Wood Products	18	56	186,119	159,850	1,359,834	3,202,135
25	Furniture & Fixtures	5	11	75,644	63,915	56,723	0
26	Paper & Allied Products	30	101	2,656,413	478,329	756,362	26,482,346
27	Printing & Publishing	14	25	71,655	123,808	78,380	504,183
28	Chemicals & Allied Products	244	1,248	31,982,660	21,305,830	32,664,107	175,288,702
29	Petroleum Refining	26	255	2,191,096	869,881	1,338,924	25,584,289
30	Rubber & Miscellaneous Plastics	194	456	5,047,944	1,966,490	3,232,059	4,290,858
32	Stone, Clay, Glass & Concrete	87	236	4,398,467	3,563,367	4,638,419	68,278,361
33	Primary Metal Industries	168	651	16,240,836	56,520,348	43,753,355	37,357,149
34	Fabricated Metal Products	269	774	5,320,856	7,543,080	33,846,141	22,362,705
35	Industrial Machinery	76	225	211,241	1,729,239	7,386,625	774,059
36	Electronic Equipment	53	137	901,130	1,674,347	17,117,700	3,451,628
37	Transportation Equipment	130	641	3,066,279	2,770,312	19,872,823	3,257,760
38	Instruments and Medical Goods	48	78	7,858	1,075,343	1,883,522	1,801,948
39	Miscellaneous Manufacturing	15	30	67,651	704,620	1,502	120,286
4911 4931	Electric Services (coal and/or oil fired)	28	347	90,926,701	5,820,809	880,886	106,998,523
4953	RCRA Refuse Systems	16	358	64,048,031	7,298,446	27,615,957	49,293,007
51	Wholesale Trade – Chemical and Petroleum Products	40	375	123,432	109,289	853,986	10,724,458
73	Business Services	2	32	46,204	833,375	2,261,726	6,939,427
-	Other	30	56	948,602	3,004	276,687	0

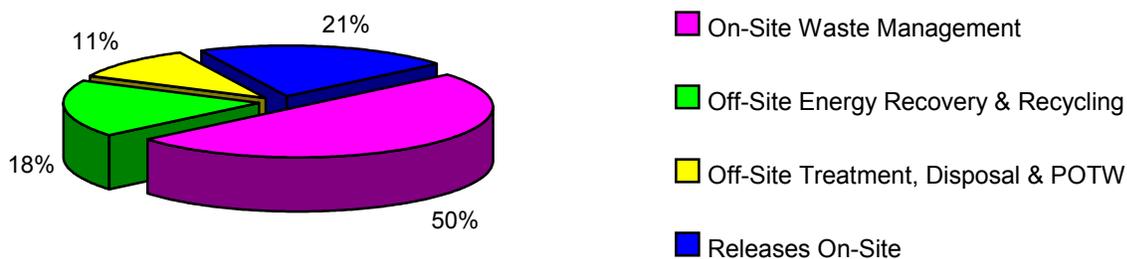
## Summary of Data

### Management of TRI Chemicals in Waste

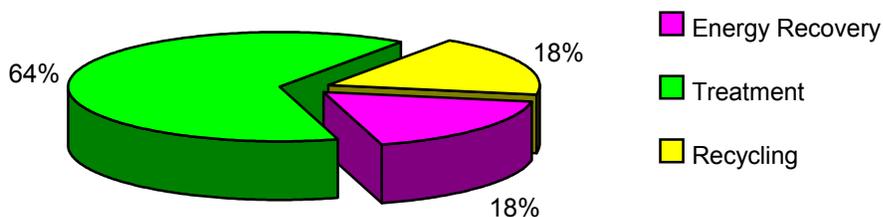
The Pollution Prevention Act (PPA) of 1990 required facilities to report information about the quantities of TRI chemicals in waste managed both on-site and off-site. The PPA established a hierarchy of waste management options in which source reduction is the preferred approach to managing waste. Source 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, deep well 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, much 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**  
(All industries and chemicals)



**Figure 5: On-Site Waste Management**  
(All industries and chemicals)



## Summary of Data

Nearly 201 facilities implemented source reduction activities at their facility during 2006 for over 461 chemicals. 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 chemical. In 2006, nearly 44% of the TRI reports indicated an increase in production when compared to the data for 2005. Table 4 indicates the changes in production reported by facilities covered by TRI.

**Table 4: Changes in Production From 2005 to 2006**

Change in Production (Production Ratio)	Number of Form Rs	Percent Reporting
Increase by $\geq$ 30%	546	10.0%
Increase by $\geq$ 20%, less than 30%	243	4.5%
Increase by $\geq$ 10%, less than 20%	617	11.4%
Less than 10% increase	992	18.3%
No Change	432	8.0%
Less than 10% decrease	966	17.9%
Decrease by $\geq$ 10%, less than 20%	522	9.7%
Decrease by $\geq$ 20%, less than 30%	308	5.7%
Decrease by $\geq$ 30%	403	7.5%
Not applicable, not reported or zero	380	7.0%

## 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. The following tables are based on U.S. EPA's national TRI report and data from the February 21, 2008 national data release.

**Table 5: Ohio's National Rank**

National Rank In:	2004	2005	2006
Air Releases	1	1	1
Water Releases	11	14	13
Land On-Site Releases	13	5	6
Deepwell Injection	4	4	4
Reporting Facilities	1,608	1,580	1,552

**Table 6: Number of Reporting Facilities**

Number of Reporting Facilities – RY 2006		
Rank	State	Number of Facilities
1	Ohio	1,547*
2	Texas	1,475
3	California	1,462
4	Pennsylvania	1,256
5	Illinois	1,141

\* According to Ohio EPA's data the number of reporting facilities is 1,552.

**Table 7: Top States for Releases**

Medium	Rank	State	Release (pounds)
<b>Air</b>	1	Ohio	119,704,450
	2	Georgia	97,970,599
	3	North Carolina	94,967,690
	4	Texas	81,089,105
	5	Pennsylvania	79,621,841
<b>Water</b>	1	Indiana	29,456,049
	2	Virginia	19,477,574
	3	Nebraska	18,842,321
	4	Texas	13,929,491
	5	Louisiana	12,234,848
	13	Ohio	8,354,562
<b>Land On-Site</b>	1	Alaska	645,342,793
	2	Nevada	204,937,965
	3	Utah	121,076,970
	4	Arizona	85,595,852
	5	Missouri	83,598,667
	6	Ohio	79,628,640
<b>Deep well Injection</b>	1	Texas	80,703,525
	2	Louisiana	40,182,445
	3	Florida	30,716,853
	4	Ohio	22,499,123
	5	Alaska	19,821,247

## 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.

<b>Ohio TRI Report Access</b>	The reports submitted by facilities are available for review at Ohio EPA's office located at 50 West Town Street in Columbus from 8:00 a.m. to 5:00 p.m. Photocopies are also available.	
<b>Information Requests</b>	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.	
<b>U.S. EPA Electronic Facility Data Release (e-FDR) and Public Data Release (PDR)</b>	U.S. EPA's TRI PDR covers information nationwide and provides a good perspective on how Ohio compares to other states. The e-FDR will be available until the PDR is made and gives access to data, on a form-by-form basis, until the PDR is made. Information pertaining to the e-FDR or PDR can be obtained from U.S. EPA via their hotline at 1-800-424-9346 or from the U.S. EPA Web site.	
<b>Web Resources</b>	Ohio EPA TRI	<a href="http://www.epa.state.oh.us/dapc/tri/tri.html">www.epa.state.oh.us/dapc/tri/tri.html</a>
	U.S. EPA TRI	<a href="http://www.epa.gov/tri/">www.epa.gov/tri/</a>
	U.S. EPA TRI Explorer	<a href="http://www.epa.gov/triexplorer">www.epa.gov/triexplorer</a>
	Toxnet	<a href="http://www.toxnet.nlm.nih.gov">www.toxnet.nlm.nih.gov</a>
	Envirofacts	<a href="http://www.epa.gov/enviro/index_java.html">www.epa.gov/enviro/index_java.html</a>
	RTK Network	<a href="http://www.rtk.net">www.rtk.net</a>
	Ohio County Profiles	<a href="http://www.odod.state.oh.us/osr/profiles/">www.odod.state.oh.us/osr/profiles/</a>
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## TRI Related Acronyms

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

## TRI Related Acronyms

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

## TRI Related Acronyms

**WQM** Water Quality Management