

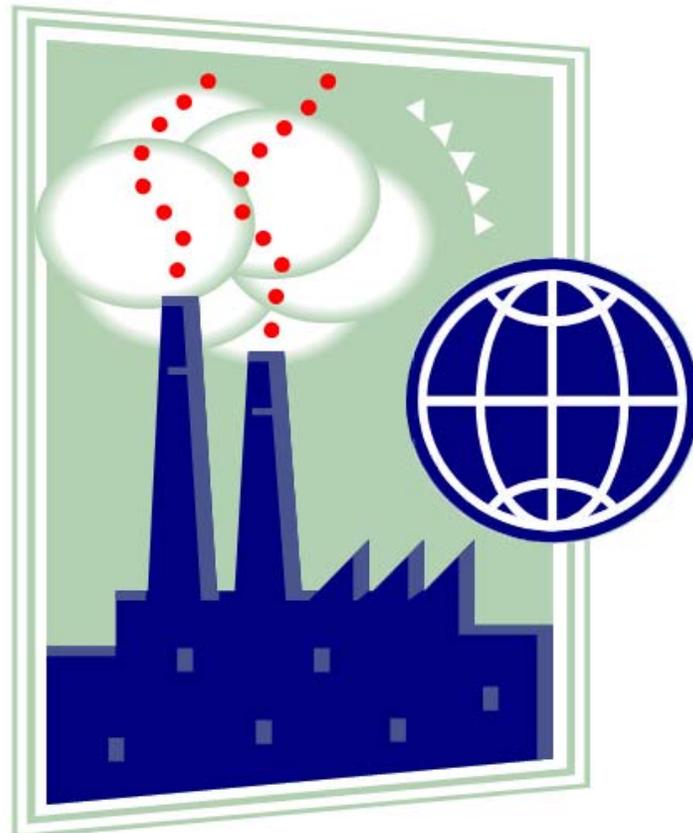
December 2010



Environmental  
Protection Agency

Division of Air Pollution Control

# 2009 Toxic Release Inventory



Ted Strickland, Governor  
Lee Fisher, Lt. Governor  
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## **What is the Toxic Release Inventory?**

The Toxic Release Inventory (TRI) program was authorized by the Federal Emergency Planning and Community Right-to-Know Act (EPCRA), Section 313, in 1986. The intent of the program is to give the public a “right-to-know” about hazardous chemicals being used, manufactured, processed, and/or released into the environment. EPCRA Section 313 requires U.S. EPA and the states to collect data annually on releases and transfers of certain toxic chemicals from industrial facilities and make the data available to the public in the TRI.

In 1988, the Ohio General Assembly passed Substitute Senate Bill 367. This bill provides for state implementation of the federal EPCRA. Ohio’s legislative law is codified in Ohio Revised Code Chapter 3751 and Ohio Administrative Code 3745-100. Ohio EPA is charged with the administration of Chapter 3751 of the Revised Code. The law gave Ohio EPA authority to administer, inspect, enforce, and establish a filing fee schedule in Ohio. Ohio EPA has designated the agency’s Division of Air Pollution Control to coordinate the TRI program in Ohio.

The TRI reporting elements were expanded when Congress passed the Pollution Prevention Act of 1990, which requires facilities to report additional data on waste management and source reduction activities to U.S. EPA under TRI. This expansion amended the goal of the TRI Program “to provide communities with information about toxic chemical releases and waste management activities.” The information also supports decision making at various levels by industry, government, non-governmental organizations and the public.

Annually, U.S. EPA compiles the TRI data submitted electronically by regulated facilities and makes the data available through various TRI databases and online software access tools.. The national TRI database contains information on nearly 650 chemicals and chemical categories being reported across the country for all reporting years since 1987.

On October 29, 1999, U.S. EPA adopted regulations establishing lower reporting thresholds for certain chemicals that are persistent, bioaccumulative and toxic (PBT). Under the “PBT Rule,” effective for reporting year 2000, the reporting threshold is 100 pounds per year for chemicals that are PBT. For a subset of PBT chemicals that are highly persistent and highly bioaccumulative, the reporting threshold is 10 pounds per year. Dioxins and dioxin-like compounds were added to the EPCRA Section 313 list of toxic chemicals and a separate reporting threshold of 0.1 gram (0.0002 pound) per year was established. Ohio Administrative Code (OAC) 3745-100-16, “Lower Thresholds for Chemicals of Special Concern,” which became effective May 7, 2001, reflects the PBT Rule in Ohio regulations.



Figure 1: Information Collected Under TRI

### What are the limitations of TRI data?

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 does not cover all industries that release toxic chemicals.
- For reporting year 2009, TRI covers over 650 toxic chemicals and chemical categories.
- Releases are reported as total annual releases which 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 report releases based on monitoring data, if such data is available. When monitoring data is not available, estimates are to be used. Estimates result in significant variability among reporting facilities.
- The TRI report contains information regarding the release and/or waste management of chemicals, not the public's exposure to the chemicals. Screening risk assessments must be completed before health and environmental assessments can be made. **TRI data summaries must be interpreted with care.**

### What do the 2009 TRI data show?

For reporting year 2009, Ohio facilities reported 187 million pounds of TRI regulated chemicals or compounds released, disposed, and managed. That number dropped to 158.5 million pounds after subtracting the releases that were transferred off-site to other Ohio facilities that, in turn, reported the same chemical under TRI. Ohio EPA received 4,717 TRI reports from 1,374 facilities. While one-third of these facilities reported a single chemical, the average number of chemicals reported was three. Table 1 compares reporting years 2008 and 2009 TRI data for all reporting facilities. Total releases and transfers decreased by 29 percent between 2008 and 2009, with the number of reporting facilities decreasing by nearly 7 percent.

**Table 1: Comparison of 2008 and 2009 TRI Data**

Comparison	2008 Amount	2009 Amount	Change
Releases to Air	90,358,906	74,595,700	-17.4%
Releases to Water	8,490,027	6,147,382	-27.6%
Deepwell Injection	22,940,948	13,864,581	-39.6%
Releases to Land On-Site	59,212,883	35,050,939	-40.8%
Discharges to POTW	17,383,669	16,488,524	-5.15%
Off-Site Disposal / Treatment	63,283,696	41,614,968	-34.2%
<b>Total Releases and Transfers*</b>	<b>224,095,920</b>	<b>158,510,626</b>	<b>-29.3%</b>
Energy Recovery On-Site	69,388,508	42,262,791	-39.1%
Energy Recovery Off-Site	31,282,382	24,006,479	-23.3%
Recycling On-Site	84,930,868	57,556,429	-32.2%
Recycling Off-Site	158,093,152	107,237,141	-32.2%
Treatment On-Site	403,233,767	427,790,767	6.09%
Number of Chemicals Reported	309	307	0.01%
Number of Reporting Facilities	1,472	1,374	-6.66%
Number of Form Rs	5,232	4,717	-9.84%
Number of Form As	621	551	-11.27%

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

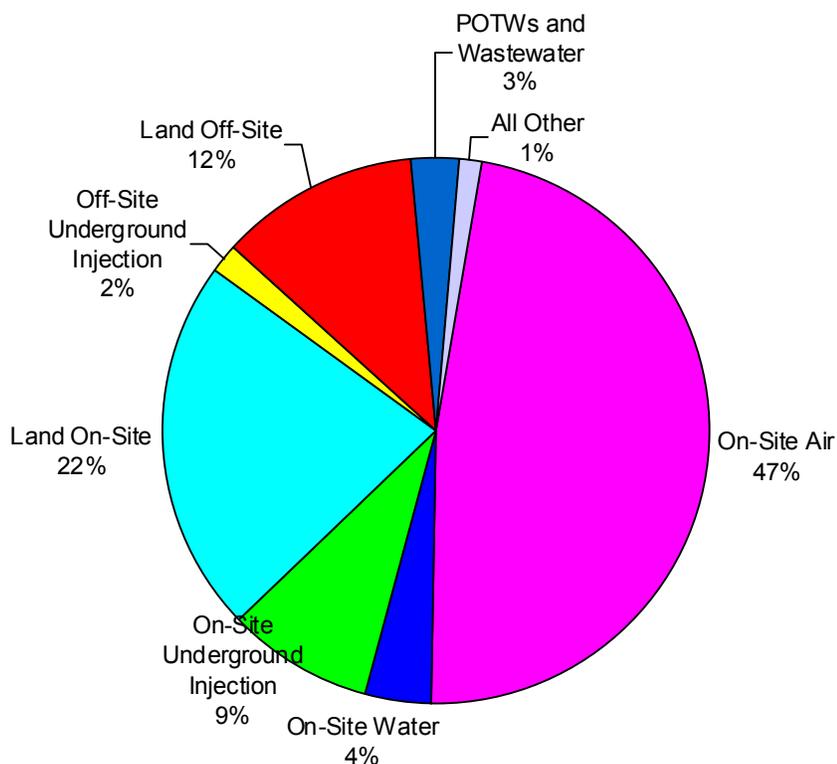
Persistent Bioaccumulative Toxic (PBT) chemicals accounted for 5.2 million pounds or 2.8 percent of reported releases and transfers. Of that total, lead and lead compounds accounted for 98 percent, or 5.1 million pounds, of PBTs. Total disposal or other releases for mercury and mercury compounds were 14,257 pounds and, for dioxin and dioxin-like compounds, total disposal and other releases were 2,101 grams.

Increases and decreases are attributable to many factors including changes in production, types of measurement used, and efforts to minimize releases and develop uses or find markets for what might otherwise have been a waste. For many Resource Conservation and Recovery Act (RCRA) facilities, which were subject to TRI reporting in 1998, minor waste stream and market changes greatly affected 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.

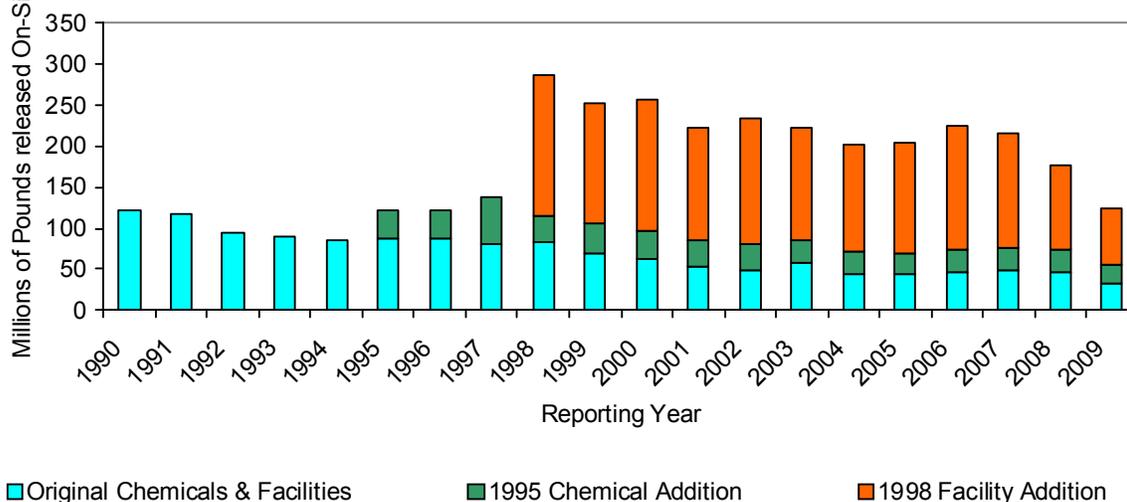
### Why does TRI data change over time?

In 2009, approximately 158.5 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 2009, including the listings of top companies, chemicals and counties, reflects the TRI data reports due July 1, 2010. Ohio EPA's TRI Unit continually reviews this data and works with reporting facilities to assure data quality. Additional and revised data provided subsequent to July 1, 2010 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.

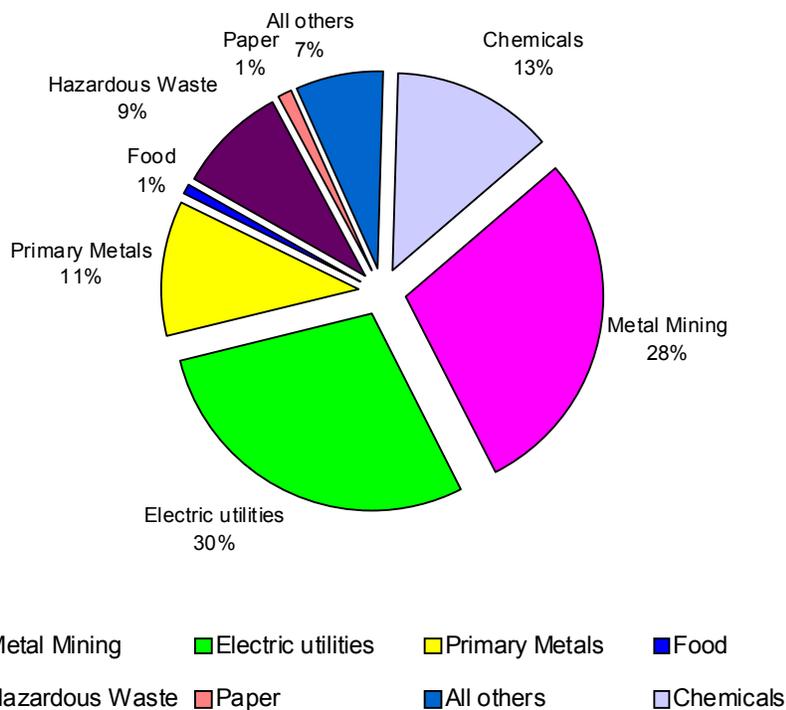
**Figure 2: TRI On-Site and Off-Site Disposal or Other releases**



**Figure 3: Effect of Chemical and Facility Group Additions 1990-2009**



**Figure 4: 2009 TRI Total Disposal or Other Releases by Industrial Sector 158.5 million pounds**



**Total Releases and Transfers**

Total releases and transfers decreased by almost 73.9 million pounds (28 percent) from 2008 to 188 million pounds in 2009. This decrease was due in part to reported decreases by Envirosafe, which attributed the decreases to the changing composition in the waste accepted at their site for disposal.

Ohio EPA contacted facilities reporting a significant increase or decrease in waste management or releases between 2008 and 2009 to determine the reason for the difference. The following information was developed through summary data and facility responses:

**Air Releases**

Air releases were down 17 percent or 15.7 million pounds for 2009 to 74.6 million pounds. As in previous years, power-generating facilities in Ohio reported the largest TRI air releases, representing eight of the top 10 facilities for air releases. Power-generating facility releases primarily contain hydrochloric and sulfuric acid aerosols that result from coal combustion. These two chemicals make up 60 percent of all reported air releases. Trace amounts of various metals within coal, including barium and chromium, are also released as combustion compounds.

AEP Cardinal Power Plant (Jefferson County) reported an increase of 0.9 million pounds of air releases. AEP notes the increase is due to year-round operation of the Selective Catalyst Reduction modules installed on units 1 & 2.

AEP Conesville Plant (Coshocton County) reported a decrease of 4.4 million pounds of air releases. The decrease is attributed to the installation of a Flue Gas Desulfurization module on Unit 4 and a 35 percent decrease in production.

W.H. Sammis Plant (Jefferson County) reduced air releases by more than 2.3 million pounds. The plant had a significant decrease in production, about 40 percent, in 2009, which resulted in burning significantly less coal in 2009.

Millenium Inorganic Chemicals (Ashtabula County) reported a reduction of more than 1.5 million pounds of air releases due to process efficiency improvements designed to decrease air emissions.

Duke Energy Beckjord (Clermont County) reported an increase of more than 1.4 million pounds of air releases. The increase resulted from increased generation and fuel consumption in 2009; electrical generation and coal consumption were each up about 52 percent compared to 2008.

**Water Releases**

Water releases in Ohio decreased by 27.6 percent or 2.3 million pounds from 2008. Nitrate releases accounted for more than 88 percent of all reported releases to Ohio waterways in 2009. Nitrate compounds are manufactured by way of the treatment of nitric acid and are routinely permitted and monitored under the terms of NPDES (National Pollutant Discharge Elimination System permits).

AK Steel (Coshocton County) led the state in TRI water releases with more than 3 million pounds of TRI reported discharges. Compared to 2008, this was an 800,000-pound decrease attributed to the economic downturn causing considerably lower production in 2009. AK Steel releases remain primarily nitrate.

Brush Wellman Inc.(Ottawa County) reported a decrease of more than 750,000 pounds of releases to water. The decrease is attributed to nitrate compounds and was due to changes in production rates and product mix of materials that are pickled with nitric acid.

**Deepwell Injection**

In Ohio, only two facilities reported TRI deepwell injection for 2009, showing a decrease of 39.6 percent when compared to 2008 data. INEOS USA, LLC in Lima (Allen County) reported 8.8 million pounds, a 1.8 million pound decrease from 2008. INEOS USA, LLC notes the decrease is due to decreased production levels at their plant.

Vickery Environmental Services (Sandusky County), a RCRA-regulated disposal facility in Vickery, reported a decrease of 7.3 million pounds. The decrease is related to less waste received by the facility for deepwell injection disposal, as well as waste minimization efforts undertaken by the facility.

**Land On-Site**

Land releases on-site were down in 2009, decreasing by 40.8 percent to slightly over 35 million pounds. Envirosafe Services of Ohio (Lucas County) reported the largest decrease of 16 million pounds compared to 2008. During 2009, Envirosafe Services of Ohio, Inc. began a transition from a RCRA waste treatment and landfill facility that primarily handled Electric Arc Furnace Dust (RCRA EPA HW Number K061) to a facility that handled a much more diversified universe of waste materials. In 2008, the percentage of K061 waste that Envirosafe handled was 84.3 percent. Waste of this type that was suitable for reclamation for its metal content, mostly zinc, was directed to a metals recycling facility. Envirosafe's receipt of K061 waste in 2009 was only 24.6 percent of the total, and the overall tonnage of all waste accepted by Envirosafe during 2009 was only 55 percent of what it had been in 2008. The waste that Envirosafe accepted for treatment and disposal during 2009 also contained different concentrations of reportable constituents, some higher and some lower. All of these factors contributed to a net difference in the quantities of chemical constituents reported for 2009, resulting in a decrease in the total number of pounds of chemical constituents "released" to the landfill for disposal during reporting year 2009.

ArcelorMittal Cleveland (Cuyahoga County) reported a decrease of on-site releases of 3 million pounds. ArcelorMittal Cleveland Inc. was idled (production shutdown from January to September) for nine months in 2009 compared to only two months in 2008.

Severstal Warren Inc. (Trumbull County) reported a decrease of on-site releases by 2.6 million pounds. This decrease is due to the idling of iron making, steel making and other production units at the Mingo Junction plant after the first quarter of 2009.

#### **POTW Releases**

Publicly Owned Treatment Works (POTWs) in Ohio reported TRI total releases were down statewide by 5.15 percent for 2009, from 17.4 million in 2008 to slightly more than 16.4 million pounds in 2009. Nitrate compounds represent the largest POTW releases, accounting for 71 percent of total statewide releases.

Shepherd Chemical Company (Hamilton County) reported a decrease of more than 800,000 pounds. The Shepherd Chemical Company experienced a substantial decrease in production during 2009.

Charter Steel Risingsun (Wood County) increased its discharges by more than 2.2 million pounds. Zinc compounds released from this facility account for 12 percent of the total discharges to the POTW. Charter Steel is required to sample semi-annually and this data is utilized in calculating the discharges to POTW in the TRI report. In 2009, the company noticed an increase in the zinc concentration in the wastewater discharge by 2 to 3 times what it had previously tested. This, combined with increased discharge volumes, resulted in a net increase in total discharge of zinc calculated in the TRI report. Due to the increased zinc concentrations, Charter Steel began engineering to upgrade the water system at the facility in 2009; this project is scheduled to be completed at the end of 2010 or early 2011.

#### **Treatment On-Site**

Treatment on-site data increased by 6 percent or about 24.6 million pounds in Ohio and remains the primary waste management activity reported by facilities. Traditional manufacturing, power generation, and RCRA treatment, storage and disposal facilities (TSDs) all report on-site waste treatment in some manner.

AEP's Cardinal Plant (Jefferson County) reported a 16 million pound increase in on-site treatment. This can be attributed to the year-round operation of the Selective Catalytic Reduction modules installed on Units 1& 2.

P.H. Glatfelter Co. (Ross County) reported a 6.4 million pound increase in on-site treatment attributed to using actual monitoring data compared to published emission factors for 2008.

Sunoco Chemicals Inc. (Scioto County) treated 4.4 million pounds less in 2009 due to reduced processing and production rates in 2009.

ASA Bloomingburg, LLC (Fayette County) reported a 3.6 million pound decrease in on-site treatment. The reason for the significant decrease for the Bloomingburg facility in 2009 was that the facility was not operated. The facility was idled on December 20, 2008 and did not restart production until March 1, 2010. The Bloomingburg facility was purchased in January 2010 by Valero and operates as Valero Renewable Fuels Company, LLC.

**Energy Recovery  
On-Site**

Energy recovery on-site decreased by 39 percent (more than 27 million pounds) lowering levels to 42.3 million pounds in 2009. LaFarge North America (Paulding County) reported 22.3 million pounds reduction of on-site energy recovery. LaFarge North America is a RCRA TSD facility that supplies fuel-quality waste to an adjacent cement plant. There was a decrease in the amount of material used for energy recovery due to a 30 percent drop in the amount of material produced through the cement kilns at the Paulding facility. Due to this drop in production, the facility used less fuel to make cement.

Sunoco Chemicals, Inc Haverhill (Scioto County) reported a decrease of more than 1.5 million pounds. The decrease is attributed to reduced processing and production rates in 2009.

**Energy Recovery  
Off-Site**

Statewide, energy recovery off-site decreased by 23.3 percent (7.3 million pounds) for 2009. Most energy recovery activity was reported by chemical manufacturing and RCRA regulated TSD facilities. Veolia ES Technical Solutions (Montgomery County) decreased off-site energy recovery by 3.3 million pounds. That is attributed to a reduction in operations due to a fire on May 4, 2009, that damaged the recycling and fuel-blending operations. Since May 4, 2009, the facility has not conducted solvent recycling or fuel blending operations. They do not anticipate the resumption of these operations until the fourth quarter of calendar year 2011.

Chemical Solvents Inc. (Cuyahoga County) reported a decrease of more than 1.3 million pounds. The facility experienced an overall decrease of most phases of its business in 2009 compared to 2008. This was a direct result of the economic recession.

Americas Styrenics LLC (Lawrence County) had a 1.4 million pound increase in energy recovery off-site. This increase is attributed to the Train 2 production line that was shut down from February 2008 to the second quarter in 2009 for a process conversion. This conversion created a lot of hazardous and nonhazardous waste that went out of the facility for energy recovery. While bringing Train 2 under the new process formulation, there were several off-specification incidents that necessitated sending waste generated for disposal as energy recovery off-site. Additionally, a general facility power loss episode due to a local utility malfunction produced a significant amount of waste that was sent

for energy recovery off site. These unforeseen occurrences account for the increase in the Energy Recovery TRI category from 2008 to 2009.

**Recycling On-Site and Off-site**

On-site recycling decreased by almost 27 million pounds to 57.6 million pounds statewide in 2009. Severstal Warren Inc. (Trumbull County) reported a decrease of 8.3 million pounds. The facility was temporarily idled for the entire calendar year of 2009. No production took place.

Veolia ES Technical Solutions (Montgomery County) decreased on-site recycling by 5.5 million pounds. This was attributed to a reduction in operations due to a fire on May 4, 2009 that damaged the recycling and fuel-blending operations. Since May 4, 2009, the facility has not conducted solvent recycling or fuel blending operations. They do not anticipate the resumption of these operations until the fourth quarter of calendar year 2011.

Off-site recycling was down 32 percent from 158 million pounds in 2008 to 107 million pounds in 2009. Toxco Inc. (Fairfield County) decreased off-site recycling by more than 5.9 million pounds. Toxco, Inc. is a battery recycling facility. The facility had a decrease in shipments of waste offsite in 2009. Toxco implemented a process change in 2009 that reduced the quantity of lead shipped offsite as hazardous waste.

Timken Company (Stark County) reported a decrease of more than 5.4 million pounds. The total amount of material recycled off-site decreased because of a significant decline in production. The total amount of steel processed decreased significantly due to customer demands.

Faxon Machining Inc. (Hamilton County) decreased off-site recycling by 5 million pounds. Business significantly decreased during 2009. The automotive business virtually stopped and other areas had a significant slowdown.

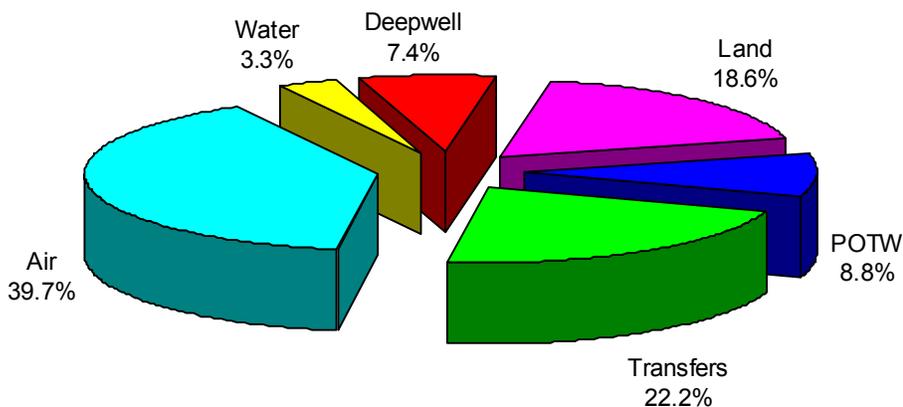
Statewide totals of on-site releases, off-site transfers, and on-site waste management for reporting years 1999 to 2009 are provided in Table 2 and 3. Table 2 represents all data including the data for delisted, added and modified chemicals and the expansion industrial sectors. Table 3 does not include data for: (1) chemicals that have been delisted, added or modified; and (2) new industrial sectors which were added to TRI in order to allow for historical trend analysis.

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

Comparison	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Releases to Air	145.5	122.1	134.1	132.2	128.2	126.3	120.3	114.9	90.4	74.6
Releases to Water	11.4	10.0	8.9	8.0	8.0	6.9	8.3	9.3	8.5	6.2
Deepwell Injection	30.3	32.0	29.6	29.3	22.6	24.5	22.5	22.3	22.9	13.9
Releases to Land On-Site	76.8	65.6	67.7	67.6	49.7	62.5	79.5	74.2	59.2	35.1
Discharges to POTW	23.1	18.8	17.4	17.3	18.6	19.8	16.6	17.8	17.4	16.5
Off-Site Disposal / Treatment	77.2	83.9	68.5	65.6	71.3	82.5	97.5	80.3	63.3	41.6
<b>Total Releases &amp; Transfers*</b>	<b>334.0</b>	<b>305.9</b>	<b>281.9</b>	<b>279.8</b>	<b>258.6</b>	<b>276.9</b>	<b>290.5</b>	<b>276.3</b>	<b>224.1</b>	<b>158.5</b>
Off-Site Energy Recovery	46.3	41.0	53.8	42.8	37.6	36.0	35.0	31.7	31.3	24.0
On-Site Energy Recovery	94.7	81.0	104.6	81.2	84.3	82.1	97.5	73.9	69.4	42.3
Off-Site Recycling	175.1	172.7	169.0	150.9	148.4	160.2	162.3	164.9	158.1	107.2
On-Site Recycling	223.1	205.6	167.1	171.7	157.8	132.4	98.1	108.9	84.9	57.6
On-Site Treatment	222.2	255.1	271.4	427.3	385.4	338.7	351.3	381.6	403.2	427.8
Reporting Facilities	1,749	1,798	1,737	1,693	1,647	1,636	1,601	1,526	1,472	1,374

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

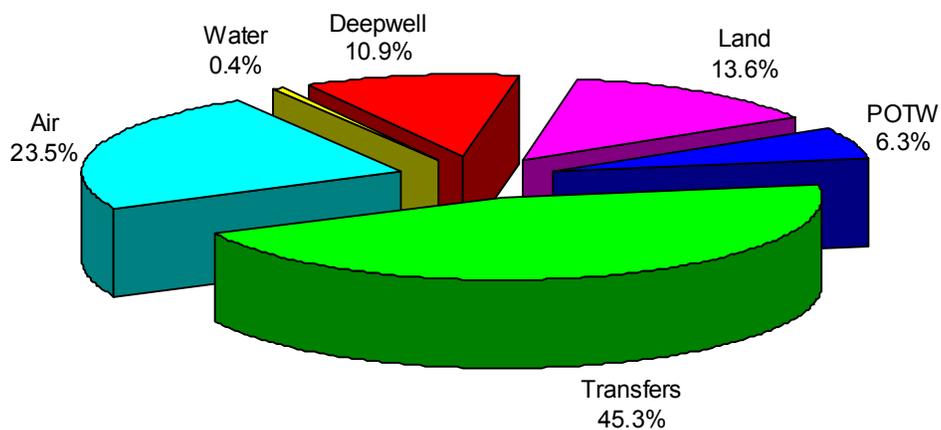
**Figure 5: 2009 Toxic Releases and Transfers**



**Table 3: 10 Year-Trend: Original Facilities and Chemicals (millions of pounds)**

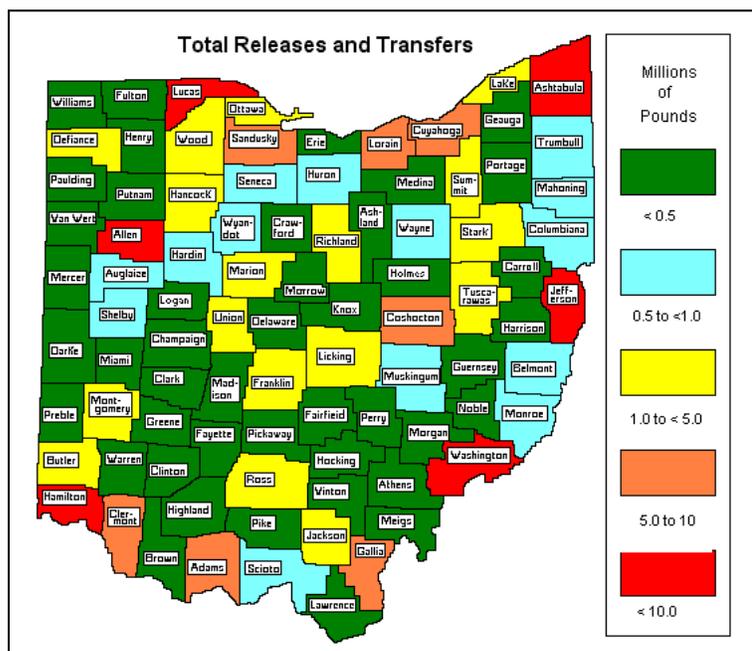
Comparison	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Releases to Air	35.6	30.0	29.6	28.0	27.5	26.2	25.7	23.9	21.5	16.1
Releases to Water	0.5	0.4	0.3	0.6	0.3	0.4	0.4	0.3	0.4	0.3
Deepwell Injection	11.2	13.8	11.6	14.6	8.6	14.2	10.0	7.6	9.0	7.5
Releases to Land On-Site	15.3	10.2	9.0	16.3	7.6	13.1	12.7	16.4	16.7	9.3
Discharges to POTW	6.9	5.1	4.3	4.4	4.7	5.6	4.6	4.2	3.1	4.3
Off-Site Disposal / Treatment	58.4	49.0	50.3	46.5	56.5	64.9	83.5	65.3	50.7	31.0
<b>Total Releases &amp; Transfers</b>	<b>127.7</b>	<b>108.4</b>	<b>105.1</b>	<b>110.3</b>	<b>105.1</b>	<b>124.4</b>	<b>136.8</b>	<b>117.7</b>	<b>101.4</b>	<b>68.5</b>
Off-Site Energy Recovery	24.5	22.2	43.3	20.3	21.9	20.0	26.4	19.2	17.4	14.9
On-Site Energy Recovery	77.0	65.1	84.4	71.9	81.6	79.1	93.8	70.7	67.3	41.0
Off-Site Recycling	167.9	165.7	161.7	143.4	142.2	142.3	138.7	130.3	127.7	83.0
On-Site Recycling	165.2	152.3	129.0	113.3	78.2	63.8	64.0	59.8	54.7	43.4
On-Site Treatment	110.8	100.0	117.1	148.0	149.7	110.9	106.8	108.0	109.6	100.5
Reporting Facilities	1,509	1,570	1,510	1,473	1,423	1,419	1,406	1,338	1,279	1,191

**Figure 6: 2009 Toxic Releases and Transfers**



**Total Releases and Transfers for 2009\***

Top 10 Counties		
County	Pounds	
1. Jefferson	16,872,668	
2. Washington	16,730,293	
3. Lucas	15,584,425	
4. Allen	13,410,566	
5. Hamilton	12,510,518	
6. Ashtabula	11,642,671	
7. Adams	8,822,802	
8. Gallia	8,088,598	
9. Cuyahoga	7,191,222	
10. Clermont	6,758,208	



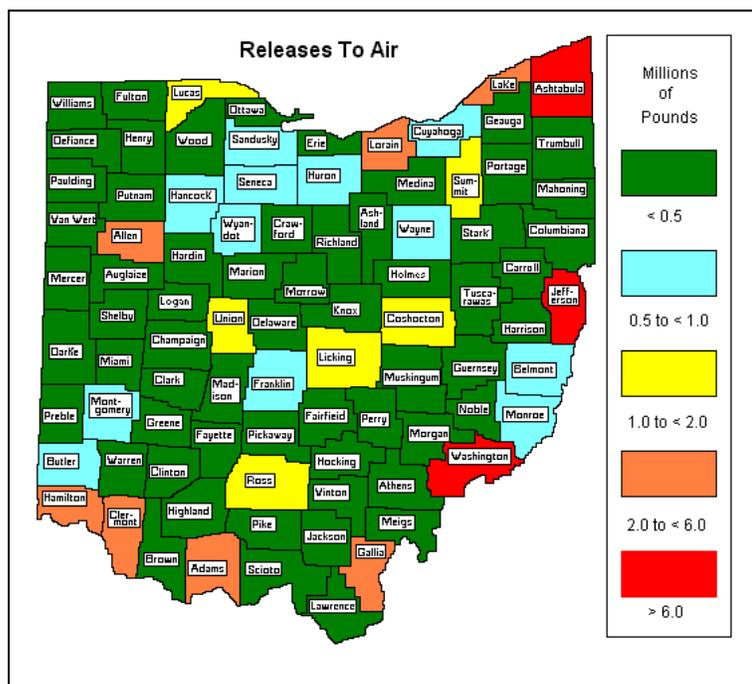
Top 10 Chemicals		
Chemical	Pounds	
1. Hydrochloric acid (aerosols)	35,961,109	
2. Zinc and zinc compounds	23,004,421	
3. Nitrate compounds	17,456,882	
4. Manganese and manganese compounds	14,649,784	
5. Sulfuric acid (aerosols)	11,292,498	
6. Ammonia	9,681,821	
7. Barium and barium compounds	8,207,613	
8. Carbonyl sulfide	5,991,290	
9. Methanol	5,769,687	
10. Lead and lead compounds	5,056,925	

Top 10 Facilities		
Facility / County	Pounds	
1. EnviroSAFE Services of Ohio Inc. / Lucas	12,544,897	
2. INEOS USA LLC / Allen	9,224,215	
3. AEP, Muskingum River Plant / Washington	8,452,505	
4. W. H. Sammis Plant / Jefferson	7,569,780	
5. DP&L J.M. Stuart Station / Adams	7,373,074	
6. Millennium Inorganic Chemicals / Ashtabula	6,450,777	
7. American Electric Power Cardinal Plant / Jefferson	6,163,754	
8. Shepherd Chemical Co. / Hamilton	6,146,383	
9. Vickery Environmental Inc. / Sandusky	5,037,675	
10. Duke Energy Beckjord Generating Station / Clermont	4,421,743	

\* All data included.

**Releases to Air for 2009\***

Top 10 Counties		
County	Pounds	
1. Jefferson	10,201,234	
2. Washington	10,045,263	
3. Ashtabula	6,171,769	
4. Clermont	5,756,582	
5. Adams	5,251,431	
6. Gallia	3,950,119	
7. Allen	3,839,402	
8. Hamilton	3,562,371	
9. Lake	3,304,563	
10. Lorain	2,527,906	



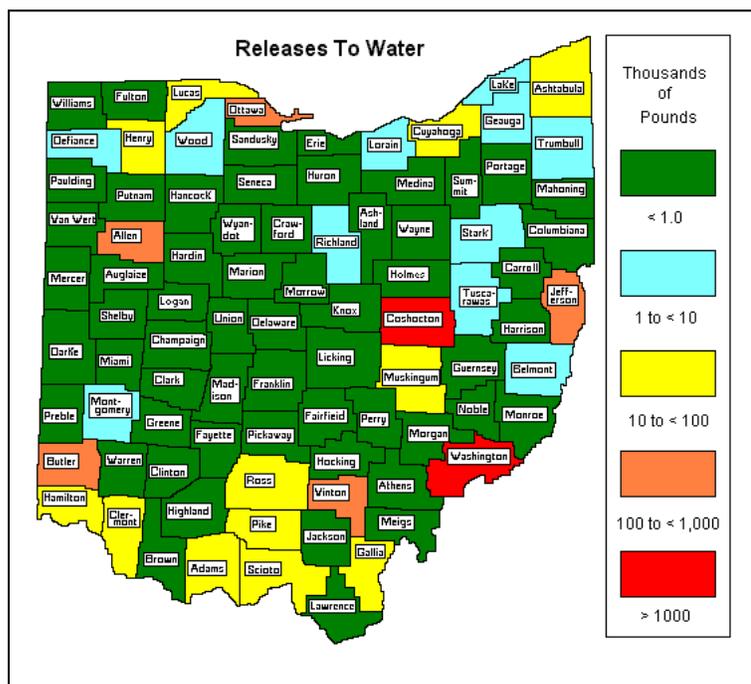
Top 10 Chemicals		
Chemical	Pounds	
1. Hydrochloric acid (aerosols)	34,037,167	
2. Sulfuric acid (aerosols)	11,292,499	
3. Ammonia	7,645,710	
4. Carbonyl sulfide	5,991,289	
5. Hydrogen fluoride	3,362,334	
6. Certain glycol ethers	1,627,770	
7. Methanol	1,511,011	
8. 1-chloro-1,1-difluoroethane	1,094,990	
9. N-Hexane	1,077,115	
10. N-Butyl alcohol	1,074,257	

Top 10 Facilities		
Facility / County	Pounds	
1. American Electric Power Muskingum River Plant / Washington	7,421,385	
2. FirstEnergy W.H. Sammis Plant / Jefferson	5,892,136	
3. DP&L J.M. Stuart Station / Adams	4,566,123	
4. American Electric Power Cardinal Plant / Jefferson	4,291,005	
5. Duke Energy, Beckjord Generating Station / Clermont	4,262,008	
6. Millennium Inorganic Chemicals Plant 2 / Ashtabula	4,027,245	
7. PCS Nitrogen of Ohio L.P. / Allen	3,192,214	
8. FirstEnergy Eastlake Plant / Lake	3,008,604	
9. Duke Energy Corp Miami Fort Generating Station / Hamilton	2,802,811	
10. Ohio Valley Electric Corp. Kyger Creek Station / Gallia	2,790,304	

\* All data included.

**Releases to Water for 2009\***

Top 10 Counties	
County	Pounds
1. Coshocton	3,047,575
2. Washington	1,000,977
3. Ottawa	985,266
4. Butler	265,640
5. Allen	171,634
6. Jefferson	151,969
7. Vinton	147,153
8. Henry	52,302
9. Ross	36,135
10. Ashtabula	36,050



Top 10 Chemicals	
Chemical	Pounds
1. Nitrate compounds	5,463,846
2. Ammonia	274,516
3. Manganese and manganese compounds	198,357
4. Zinc and zinc compounds	38,120
5. Arsenic and Arsenic compounds	36,694
6. Barium and barium compounds	33,155
7. Copper and copper compounds	25,868
8. Methanol	20,253
9. Chromium and chromium compounds	14,377
10. Ethylene glycol	9,461

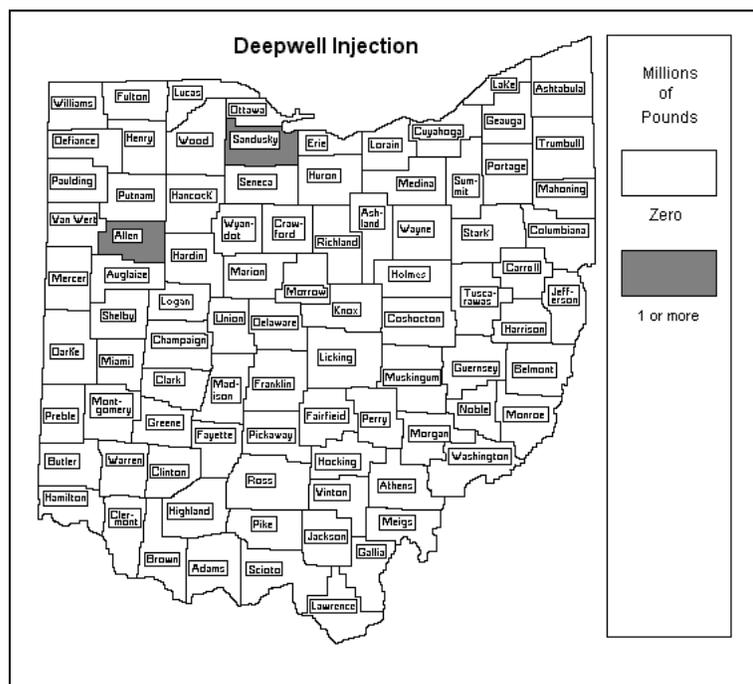
Top 10 Facilities	
Facility / County	Pounds
1. AK Steel Corp. Coshocton Works / Coshocton	3,001,250
2. Brush Wellman Inc. / Ottawa	985,260
3. Kraton Polymers US LLC / Washington	784,794
4. Eramet Marietta Inc. / Washington	206,236
5. Miller Coors LLC – Trenton Brewery / Butler	180,467
6. Sands Hill Mining LLC / Vinton	141,865
7. Titanium Metals Corp. / Jefferson	129,988
8. PCS Nitrogen of Ohio LP / Allen	90,760
9. AK Steel Corp. / Butler	82,014
10. Lima Refining Co. / Allen	80,866

\* All data included.

**Deepwell Injection for 2009\***

Top 10 Counties	
County	Pounds
1. Allen	8,839,490
2. Sandusky	5,025,091

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



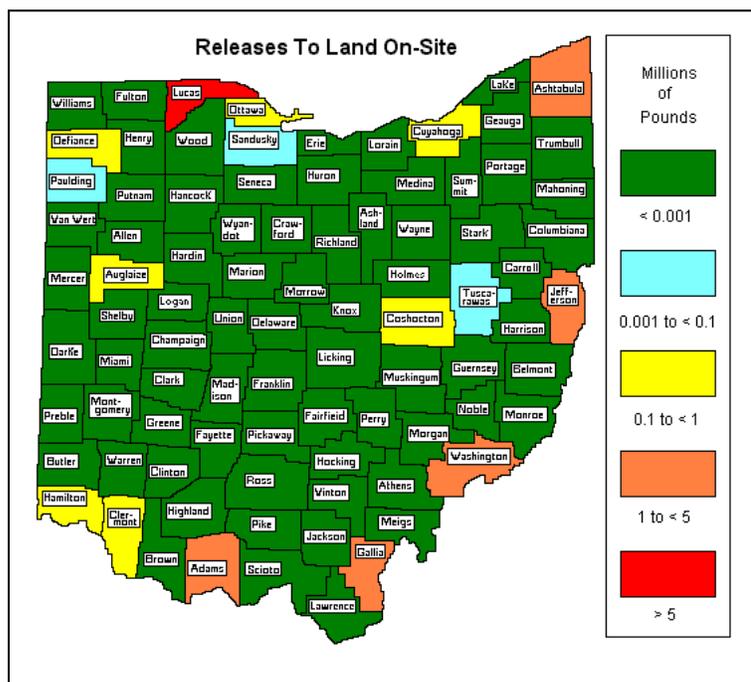
Top 10 Chemicals	
Chemical	Pounds
1. Acetonitrile	3,700,000
2. Nitric acid	2,264,391
3. Hydrogen fluoride	1,215,892
4. Ammonia	1,214,957
5. Acrylamide	890,000
6. Methanol	890,000
7. Formaldehyde	720,000
8. Chromium and chromium compounds	441,576
9. Acrylonitrile	420,000
10. Zinc and zinc compounds	358,233

Top 10 Facilities	
Facility / County	Pounds
1. INEOS USA LLC / Allen	8,839,490
2. Vickery Environmental Inc. / Sandusky	5,025,091

\* All data included.

**Releases to Land On-Site for 2009\***

Top 10 Counties	
County	Pounds
1. Lucas	13,050,367
2. Ashtabula	4,401,849
3. Gallia	4,096,674
4. Adams	3,545,510
5. Washington	3,480,365
6. Jefferson	1,853,815
7. Defiance	985,286
8. Clermont	965,180
9. Coshocton	904,443
10. Cuyahoga	891,532



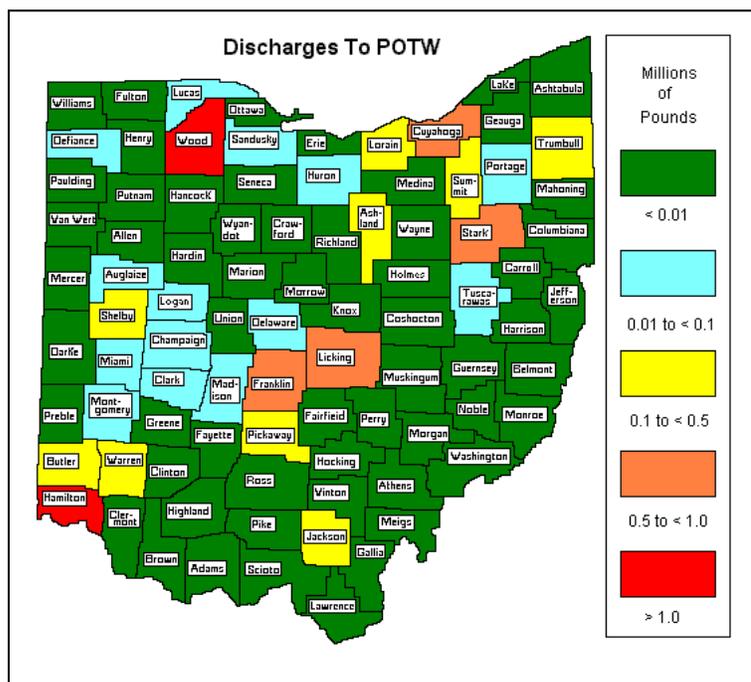
Top 10 Chemicals	
Chemical	Pounds
1. Manganese and manganese compounds	8,944,160
2. Zinc and zinc compounds	8,796,714
3. Barium and barium compounds	5,222,627
4. Lead and lead compounds	3,528,052
5. Aluminum (Fume or Dust)	2,360,000
6. Vanadium and vanadium compounds	1,620,881
7. Copper and copper compounds	1,284,378
8. Chromium and chromium compounds	1,128,815
9. Nickel and nickel compounds	796,419
10. Arsenic and arsenic compounds	484,928

Top 10 Facilities	
Facility / County	Pounds
1. EnviroSAFE Services of Ohio Inc. / Lucas	12,544,380
2. American Electric Power Gavin Plant / Gallia	2,996,208
3. Dayton Power & Light Co. J.M Stuart Station / Adams	2,783,243
4. Eramet Marietta Inc. / Washington	2,456,822
5. Millennium Inorganic Chemicals #2/ Ashtabula	2,400,531
6. Millennium Inorganic Chemicals #1 / Ashtabula	2,001,317
7. American Electric Power Cardinal Plant / Jefferson	1,853,815
8. Ohio Valley Electric Corp. Kyger Creek Station / Gallia	1,100,466
9. American Electric Power Muskingum Plant / Washington	1,018,675
10. GM Powertrain Defiance / Defiance	985,286

\* All data included.

**Discharges to POTW for 2009\***

Top 10 Counties		
County	Pounds	
1. Hamilton	7,512,846	
2. Wood	2,477,515	
3. Licking	978,739	
4. Cuyahoga	864,388	
5. Stark	805,755	
6. Franklin	561,092	
7. Summit	490,934	
8. Jackson	453,072	
9. Butler	324,315	
10. Ashland	310,951	



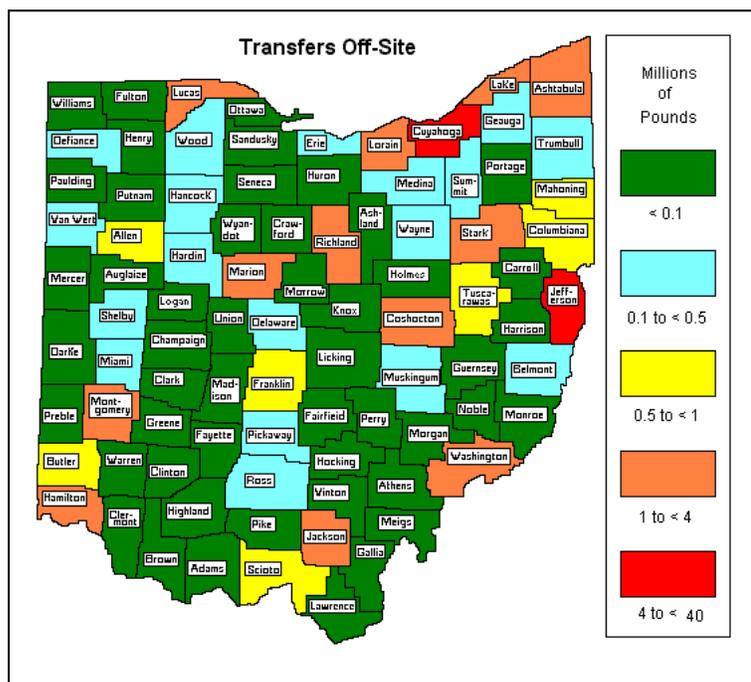
Top 10 Chemicals		
Chemical	Pounds	
1. Nitrate compounds	11,672,087	
2. Zinc and zinc compounds	2,117,504	
3. Methanol	886,668	
4. Sodium nitrite	294,344	
5. Nickel and nickel compounds	290,528	
6. Ammonia	205,237	
7. Certain glycol ethers	190,316	
8. Ethylene glycol	181,970	
9. Allyl alcohol	164,472	
10. Formaldehyde	103,622	

Top 10 Facilities		
Facility / County	Pounds	
1. Shepherd Chemical Co. / Hamilton	6,135,958	
2. Charter Steel Risingsun / Wood	2,416,983	
3. Anomatic Corp. / Licking	844,305	
4. Jewel Acquisition LLC – Louisville / Stark	594,570	
5. Ohio Precious Metals LLC / Jackson	453,072	
6. Emery Oleochemicals LLC Cincinnati / Hamilton	384,344	
7. Tremco Inc. / Ashland	310,866	
8. PPG Industries Inc. Barberton / Summit	303,866	
9. Cognis Corp. Cincinnati Plant / Hamilton	294,567	
10. Diamond Innovations Inc. / Franklin	279,436	

\* All data included.

**Transfers Off-Site To Disposal or Treatment for 2009\***

Top 10 Counties	
County	Pounds
1. Cuyahoga	4,881,046
2. Jefferson	4,665,650
3. Marion	3,267,466
4. Jackson	2,590,878
5. Lorain	2,590,616
6. Washington	2,203,686
7. Stark	2,184,848
8. Montgomery	1,614,252
9. Lake	1,357,776
10. Richland	1,355,959



Top 10 Chemicals	
Chemical	Pounds
1. Zinc and zinc compounds	11,527,528
2. Manganese and manganese compounds	5,246,200
3. Barium and barium compounds	2,877,530
4. Methanol	2,461,753
5. Hydrochloric acid (aerosols)	1,830,150
6. Chromium and chromium compounds	1,672,847
7. Nitric Acid	1,550,250
8. Copper and copper compounds	1,529,967
9. Lead and lead compounds	1,477,378
10. Toluene	1,344,109

Top 10 Facilities	
Facility / County	Pounds
1. Severstal Wheeling Inc. / Jefferson	2,701,592
2. Ohio Precious Metals LLC / Jackson	2,357,660
3. NUCOR Steel Marion Inc. / Marion	2,224,637
4. Energizer Battery Mfg. Inc. / Washington	1,750,893
5. FirstEnergy W.H. Sammis Plant / Jefferson	1,667,533
6. Chemtron Corp. / Lorain	1,605,352
7. Envirote of Ohio Inc. / Stark	1,455,951
8. Charter Steel Cleveland / Cuyahoga	1,374,199
9. DuPont Electronic polymers / Montgomery	1,364,157
10. AK Steel Corp. – Mansfield Works / Richland	1,284,811

\* All data included.

## **PBT Chemicals**

Persistent, bioaccumulative, and toxic chemicals (PBTs) are highly toxic, long-lasting substances that can build up in the food chain to levels that are harmful to human and ecosystem health. They are associated with a range of adverse human health effects including effects on the nervous system, reproductive and developmental problems, cancer and genetic impacts. The challenge in reducing risks from PBTs stems from the chemicals' ability to travel long distances; to transfer among air, water, and land; and to linger for generations in the environment. The populations especially at risk from PBTs such as mercury, dioxins, and polychlorinated biphenyls (PCBs) are children and the developing fetus.

Overall releases and transfers of PBT chemicals increased 20 percent for reporting year 2009. However, there was a 49 percent decrease (48,111 pounds) in releases of PBTs to the air

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 four PBTs with the largest volume of reported releases, transfers and treatment in Ohio for 2009 were: lead and lead compounds, PACs, mercury and mercury compounds, and pendimethalin.

In 2009, 812 Form Rs were submitted for PBT chemicals. Mercury and mercury compounds were reported by 97 facilities in 2009, compared to 109 in 2008. Reporting facilities include power plants, paper mills, steel works, refuse systems, glass manufacturing, and electric light manufacturers.

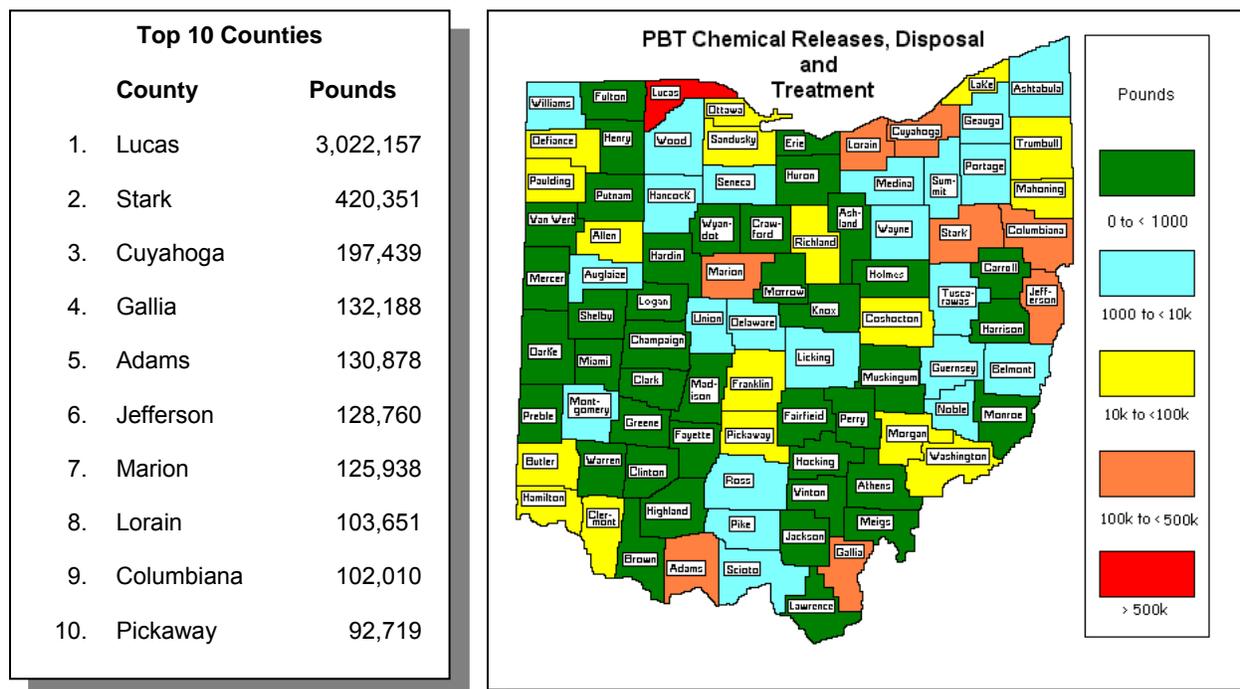
Fewer reports (511) were submitted for lead and lead compounds in 2009, compared to 552 reports for 2008. Lead and lead compounds were reported from nearly every major NAICS code classification required to report to TRI. EnviroSafe Services (Lucas County) reported more than 3 million pounds of lead and lead compounds released or disposed on or off-site.

Most PACs, including individually listed benzo(g,h,i)perylene, are constituents of fossil fuels. Other industrial processes that produce PACs include hot mix asphalt plants, asphalt roofing manufacturers, iron foundries, primary aluminum producers, coke ovens, pulp mills, Portland cement kilns and carbon black manufacturers. A total of 132 Ohio facilities reported PACs and/or benzo(g,h,i)perylene in 2009.

Dioxin and dioxin-like compounds were reported by 47 facilities. That is one facility less than in 2008. Those industries reporting dioxin and dioxin-like compounds include fossil fuel power plants, paper mills, foundries and petroleum refiners. Small quantities of dioxins are formed as a result of combustion processes, chlorine bleaching 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, residential lawns and ornamental shrubs and trees. The chemical was reported by three companies in Ohio: Turf Care Supply (Belmont County), Anderson Lawn Products (Lucas County), and The Scotts Company (Union County).

### PBT Chemical Releases, Disposal and Treatment for 2009\*



**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	675.5	46	0	341.29	5.0	1,220
Chlordane	1.1	0	0	0	0	456
Dioxin & compounds	34.07 gr	0.78 gr	0	1,939.49 gr	0	128.0 gr
Heptachlor	0.06	0	0	0	0	2,298
Hexachlorobenzene	0.08	0	0	0	5.0	951
Isodrin	0	0	0	0	0	0
Lead & compounds	33,855.1	4,207.84	10,554	3,532,922.7	4,138.83	1,516,356
Mercury & compounds	5,853.3	30.58	262	4,183.71	11.06	3,914
Methoxychlor	0.05	0	190	0	0	457
Pendimethalin	1,165.7	0.004	0	0	0.0	6,282
Pentachlorobenzene	268.96	0	0	0	0	135
PCBs	0.01	0	0	1,380	0	69
PACs	7,333.53	68	136	2,347.11	5.26	33,850
Tetrabromobisphenol A	0	0	0	0	0	0
Toxaphene	0.23	0	12	0	0	675
Trifluralin	280.11	0.09	0	0	0.19	1.0

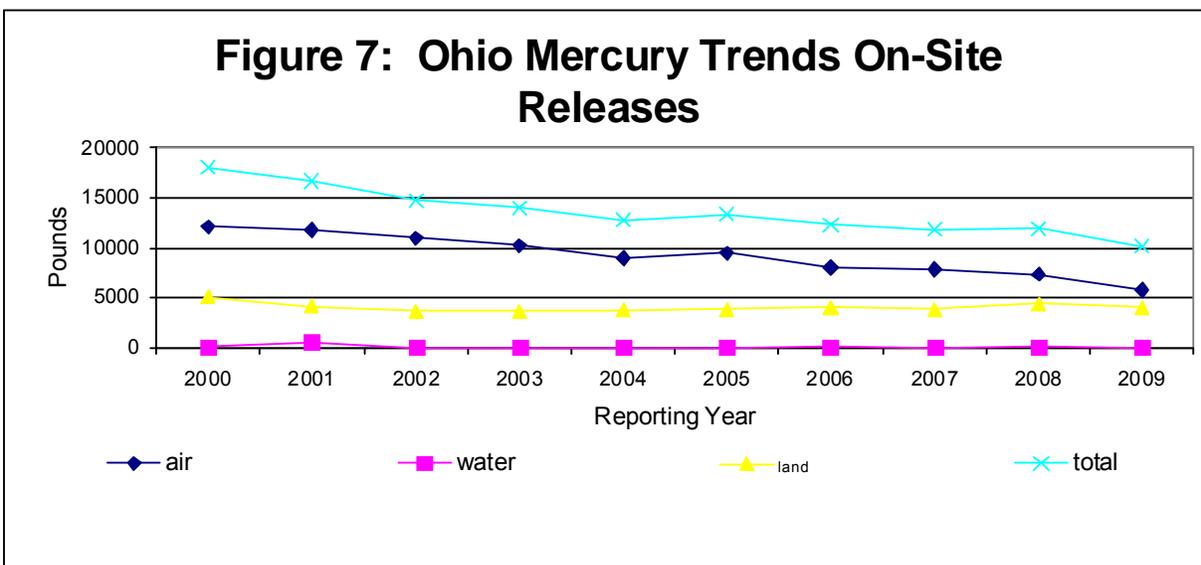
† Quantities rounded to whole numbers, units are pounds unless specified otherwise.

\* All data included.

## Mercury and Mercury Compounds

Mercury and mercury compounds were reported by 97 facilities in 2009, compared to 109 in 2008. Reporting facilities include power plants, paper mills, steel works, refuse systems, glass manufacturing, and electric light manufacturers.

Facilities in Ohio reported a decrease of 15 percent of on-site releases of mercury and mercury compounds in 2009. American Electric Power Gavin Plant reported 2,083 pounds of mercury released on-site, a decrease from 2,249 pounds reported in 2008. Ashta Chemicals reported 5,730 pounds recycled off-site in 2009, compared to 6,984 pounds in 2008.

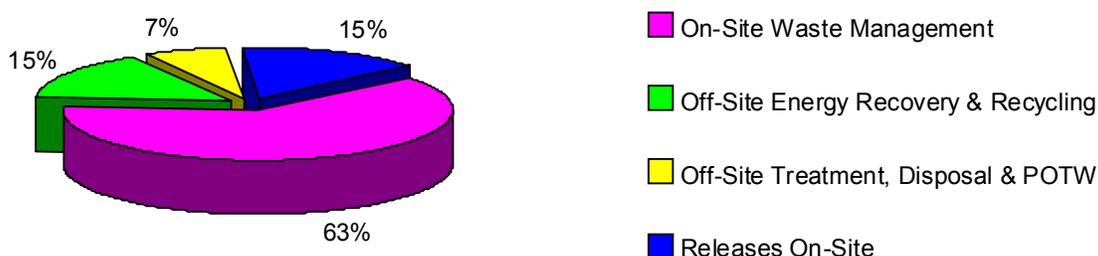


## Management of TRI Chemicals in Waste

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.

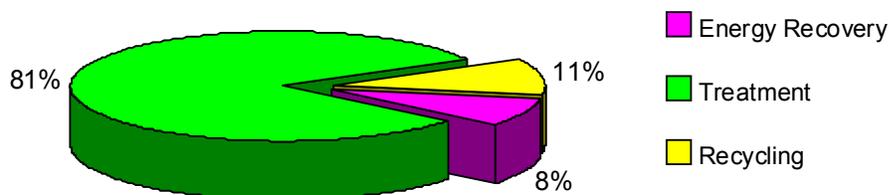
The TRI data can be used to analyze trends in total quantities of TRI chemicals in waste to determine if facilities are reducing the amount of waste generated. As reported under TRI, waste falls under one of four categories based upon its final disposition. The first category is releases on-site, which include releases to air, water, deepwell injection, and land on-site. The second category is discharges to POTWs and transfers off-site for treatment and disposal. The third category is transfers off-site for recycling and energy recovery, and includes waste recycled or used as fuel. The fourth category is waste management on-site, which includes on-site treatment, recycling, and energy recovery. The following figures provide the relative percentages of the total amount of waste generated in these four categories. As illustrated by Figure 8, much of the waste generated never leaves the facility, but is managed on-site through treatment, recycling, or energy recovery.

**Figure 8: Management Of Total Waste**  
(All industries and chemicals)



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 generated by a facility.

**Figure 9: On-Site Waste Management**  
(All industries and chemicals)



Nearly 114 facilities implemented source reduction activities during 2009 for more than 318 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 percent increase in production related to the reported chemical. In 2009, nearly 73 percent of the TRI reports indicated a decrease in production when compared to the data for 2008. Table 4 indicates the changes in production reported by facilities covered by TRI.

**Table 4: Changes in Production from 2008 to 2009**

Change in Production (Production Ratio)	Number of Form Rs	Percent Reporting
Increase by ≥ 30%	316	6.7%
Increase by ≥ 20%, less than 30%	145	3.1%
Increase by ≥ 10%, less than 20%	206	4.4%
Less than 10% increase	369	7.8%
No Change	248	5.3%
Less than 10% decrease	445	9.4%
Decrease by ≥ 10%, less than 20%	620	13.1%
Decrease by ≥ 20%, less than 30%	680	14.4%
Decrease by ≥ 30%	1688	35.8%

## 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 December 16, 2010, national data release.

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

National Rank In:	2007	2008	2009
Air Releases	1	1	1
Water Releases	7	13	13
Land On-Site Releases	5	5	11
Deepwell Injection	4	3	6
Reporting Facilities	1,472	1,445	1,358

**Table 6: Number of Reporting Facilities**

Number of Reporting Facilities – RY 2009		
Rank	State	Number of Facilities
1	Texas	1,487
2	<b>Ohio</b>	<b>1,358*</b>
3	California	1,286
4	Pennsylvania	1,162
5	Illinois	1,047

\* According to Ohio EPA's data the number of reporting facilities is 1,374.

Table 7: Top States for 2009 Releases

Medium	Rank	State	Release (pounds)
Air	1	Ohio	75,123,705
	2	Texas	62,696,316
	3	Pennsylvania	54,012,237
	4	Florida	52,608,616
	5	Georgia	50,026,655
Water	1	Virginia	18,572,616
	2	Nebraska	15,174,936
	3	Indiana	15,033,513
	4	Texas	12,562,450
	5	Georgia	11,989,647
	13	Ohio	6,138,486
Land On-Site	1	Alaska	668,912,257
	2	Nevada	179,536,919
	3	Utah	138,110,285
	4	Kentucky	82,544,688
	11	Ohio	35,049,404
Deepwell Injection	1	Texas	55,198,412
	2	Louisiana	34,475,158
	3	Alaska	26,150,779
	4	Florida	17,473,242
	6	Ohio	13,864,581

## Additional Information

Ohio EPA's Division of Air Pollution Control 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 division's TRI program.

### Information Requests

TRI staff 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) 644-2260 during business hours.

### Web Resources

Ohio EPA TRI	<a href="http://www.epa.ohio.gov/dapc/tri/tri.aspx">www.epa.ohio.gov/dapc/tri/tri.aspx</a>
U.S. EPA TRI web address:	<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/">www.epa.gov/enviro/</a>
RTK Network	<a href="http://www.rtknet.org/">www.rtknet.org/</a>
Ohio County Profiles	<a href="http://development.ohio.gov/research/RegionalProfiles.htm">http://development.ohio.gov/research/RegionalProfiles.htm</a>

### Ohio TRI Program Contacts:

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