

January 2012

# 2010 Toxic Release Inventory Annual Report



John R. Kasich, Governor  
Mary Taylor, Lt. Governor  
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### What is the Toxic Release Inventory?

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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 require facilities report additional data on waste management and source reduction 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/or chemical categories being reported across the country since 1987.

EPA has reinstated the TRI reporting requirements for hydrogen sulfide as part of its ongoing effort to provide the public with helpful information on chemicals they may encounter in their daily lives. This action will be effective when the first 2012 TRI reports are due from facilities, July 1, 2013.

Finally, On November 26, 2010, EPA finalized a rule to provide communities with additional information about toxic chemicals being released to the environment. The rule, which went in effect on November 30, 2010, added 16 chemicals to the TRI list of reportable chemicals. This action is part of EPA's ongoing effort to examine the scope of TRI chemical coverage and provide more complete information on toxic chemical releases and is the first TRI program chemical expansion in over a decade. This rule became effective November 30, 2010, and first applied to the reporting year beginning January 1, 2011 (reports due July 1, 2012).

Each chemical that EPA added has been classified as “reasonably anticipated to be a human carcinogen” by the National Toxicology Program (NTP) in their Report on Carcinogens (RoC) document. EPA has concluded, based on a review of available studies, that these 16 chemicals could cause cancer in humans and therefore meet the EPCRA section 313(d)(2)(B) statutory listing criteria.

Four of the chemicals are being added to TRI under the polycyclic aromatic compounds (PACs) category. The PACs category is of special concern because PACs are persistent, bioaccumulative, toxic (PBT) chemicals and are likely to remain in the environment for extensive time periods, are not readily destroyed, and may build up or accumulate in body.

Figure 1: Information Collected Under TRI



### What are the limitations of TRI data?

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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 2010, 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 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 2010 TRI data show?

For reporting year 2010, Ohio facilities reported 187 million pounds of TRI regulated chemicals or compounds released, disposed, and managed. That number dropped to 154.8 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 4,862 TRI reports from 1,372 facilities. While one-third of these facilities reported a single chemical, the average number of chemicals reported was three. Table 1 compares reporting years 2009 and 2010 TRI data for all reporting facilities. Total releases and transfers decreased by 2.3 percent between 2009 and 2010, with the number of reporting facilities decreasing by 6 facilities.

**Table 1: Comparison of 2009 and 2010 TRI Data**

Comparison	2009 Amount	2010 Amount	Change
Releases to Air	74,624,178	65,011,688	-12.90%
Releases to Water	6,148,140	9,178,290	49.29%
Deepwell Injection	13,864,581	19,442,216	40.23%
Releases to Land On-Site	35,050,939	28,046,241	-20.00%
Discharges to POTW	16,488,519	18,222,383	10.52%
Off-Site Disposal/Treatment	41,693,375	47,704,337	14.42%
<b>Total Releases and Transfers*</b>	<b>158,510,626</b>	<b>154,765,946</b>	<b>-2.33%</b>
Energy Recovery On-Site	42,262,791	56,662,406	34.07%
Energy Recovery Off-Site	24,006,479	25,686,125	7.00%
Recycling On-Site	57,574,201	75,860,169	31.76%
Recycling Off-Site	107,588,398	143,265,331	33.16%
Treatment On-Site	427,790,767	368,661,088	-13.80%
Number of Chemicals Reported	307	303	-1.30%
Number of Reporting Facilities	1,378	1,372	-0.44%
Number of Form Rs	4,727	4,862	2.86%
Number of Form As	552	540	-2.17%
* 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 2.9 million pounds or 1.9 percent of reported releases and transfers. Of that total, lead and lead compounds accounted for 95 percent, or 2.77 million pounds, of PBTs. Total disposal or other releases for mercury and mercury compounds were 13,441 pounds and, for dioxin and dioxin-like compounds, total disposal and other releases were 7,297 grams.

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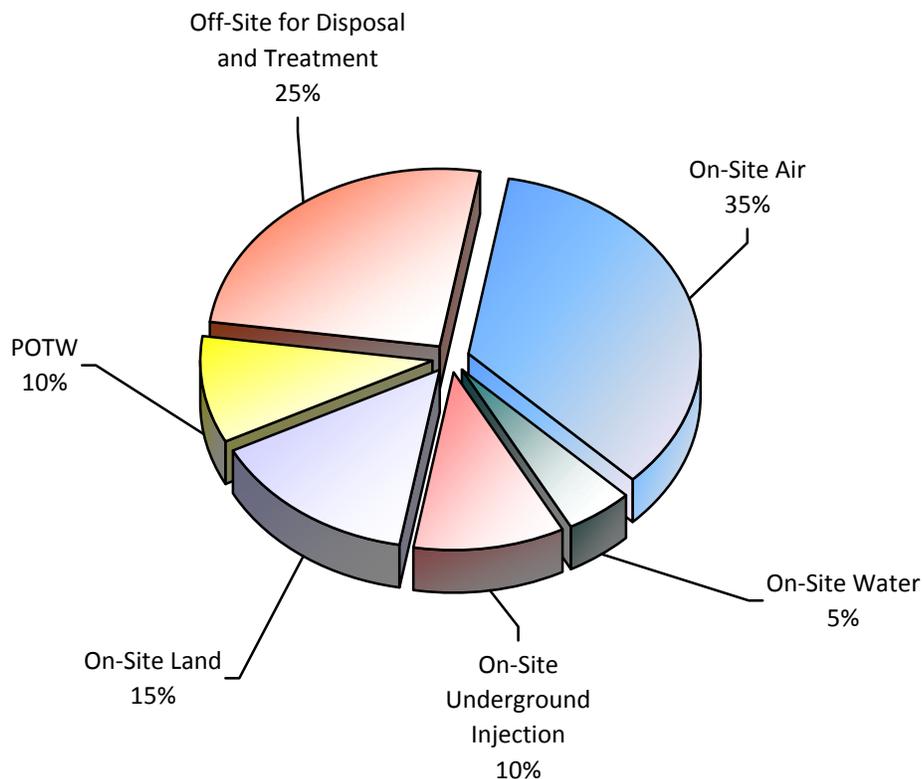
Increases and decreases are attributable to many factors including changes in production, types of measurement used, and efforts to minimize releases and develop uses or find markets for what might otherwise have been a waste. For many Resource Conservation and Recovery Act (RCRA) facilities, which were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

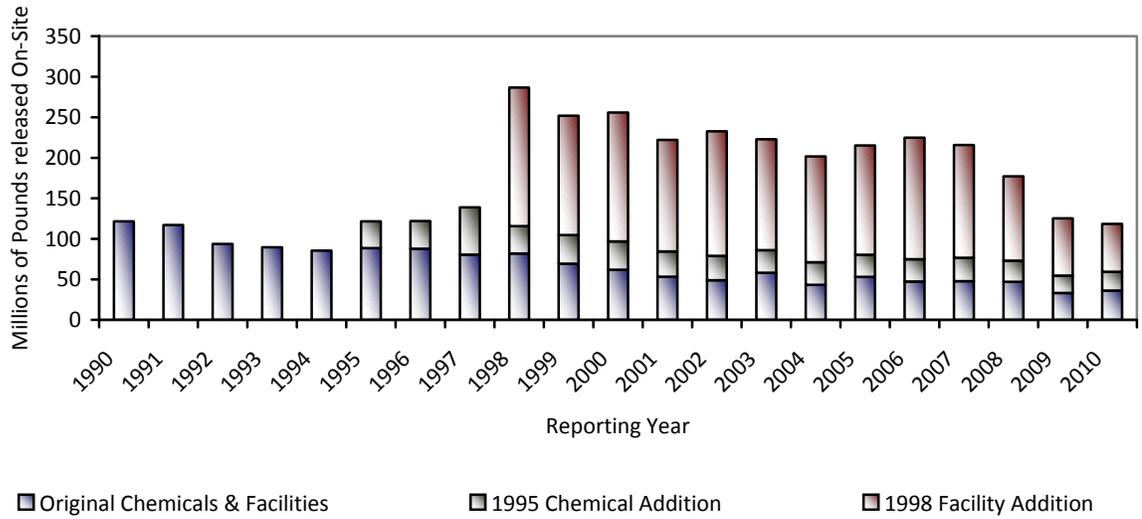
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In 2010, approximately 154.7 million pounds of toxic chemicals were reported as having been released to the environment or transferred off-site for treatment or disposal. The data presented for 2010, including the listings of companies, chemicals and 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 consistent form.

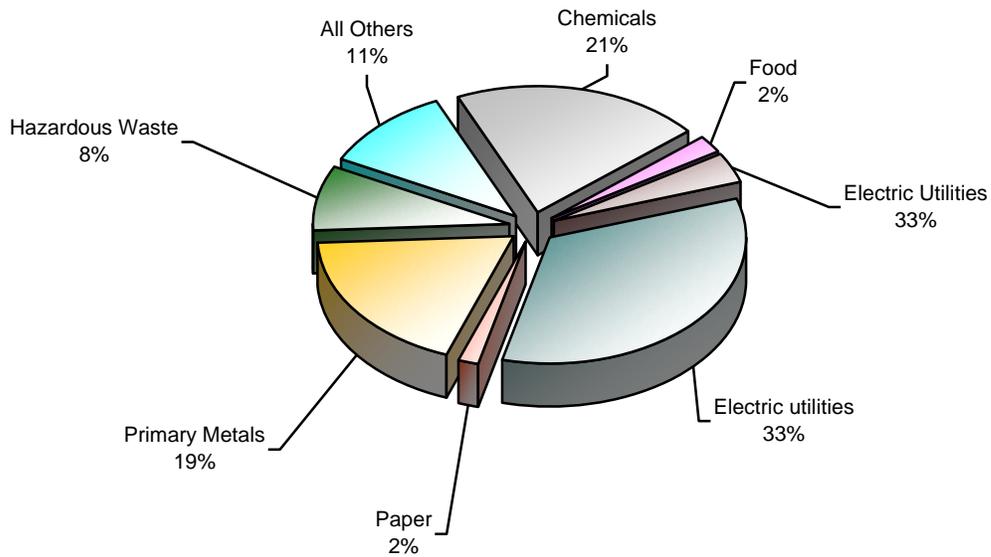
**Figure 2: TRI On-Site and Off-Site Releases and Transfers**



**Figure 3: Effect of Chemical and Facility Group Additions 1990-2010**



**Figure 4: 2010 TRI Total Disposal or Other Releases by Industrial Sector 154.8 million pounds**



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Ohio EPA contacted facilities reporting a significant increase or decrease in waste management or releases between 2009 and 2010 to determine the reason for the difference. The following information was developed through summary data and facility responses:

<b>Air Releases</b>	<p>Air releases were down 12.9 percent or 9.6 million pounds for 2010 to 65 million pounds. As in previous years, power-generating facilities in Ohio reported the largest TRI air releases, representing eight of the top 10 facilities. 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.</p> <p><b>Dayton Power &amp; Light Co, J.M Stuart Station (Adams County)</b> reported a decrease of 3.6 million pounds of air releases. In 2009 the flue gas desulfurization (FGD) systems were offline for repair during the first half of the year. This adversely affected their ability to treat acid gases, such as hydrochloric acid aerosols. During 2010, FGDs performed well in reducing hydrochloric acid aerosol emissions. The facility now estimates 98% reduction by multiple unit processes, including the FGD systems. In summary, increased usage of FGD and improved removals combined to reduce emissions.</p> <p><b>W.H. Sammis Plant (Jefferson County)</b> reduced air releases by more than 3.4 million pounds. The decrease is attributable to the installation and operation of wet scrubbers on all units located at Sammis. All acid gases were significantly reduced. However, the large decreases in total air releases resulted in significant increases in the on-site treatment of those same acid gases, while the production ratio increased by 41% from 2009 to 2010.</p> <p><b>Owens Corning Foam Insulation (Jefferson County)</b> reported a decrease of 0.97 million pounds. The decrease was the result of Owens Corning Foam having to phase out (by January 1, 2010) the reportable blowing agent, HCFC-142-b (CAS 75-68-3), based on the requirements established under the 1987 Montreal Protocol. Starting in 2010, the facility converted to a new replacement HFC blowing agent. That agent does not appear on the EPCRA 313 chemical list and therefore did not require reporting under the TRI program.</p>
<b>Water Releases</b>	<p>Water releases in Ohio increased by 49.3 percent or 3.03 million pounds from 2009. Nitrate releases accounted for about 92 percent of all reported releases to Ohio waterways in 2010. 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).</p> <p><b>AK Steel (Coshocton County)</b> led the state in TRI water releases with more than 5.5 million pounds of TRI reported discharges. Compared to 2009, this was an increase of about 2.5 million. The increase between the two reporting years was almost entirely due to an increase in nitrate discharges. This increase was due in part to increased plant production (1.41 production ratio for 2010 vs. 2009), but also to a change in product mix. The diversity of products finished at Coshocton Works in 2010 required more acid pickle tubs to be drained to the waste water treatment plant, resulting in higher nitric acid usage, even when taking into account the 41% increase in production. The result was higher overall flow rates, along with higher nitrate concentrations, and the subsequent increase in overall water releases.</p>

<p><b>Deepwell Injection</b></p>	<p>Only two facilities reported TRI deepwell injection for 2010, showing an increase of slightly more than 40 percent when compared to 2009 data.</p> <p><b>Vickery Environmental Services (Sandusky County)</b>, a RCRA-regulated disposal facility in Vickery, reported an increase of 4.5 million pounds. The increase in injection and subsequently total releases relates to the increases in waste receipts for disposal by deepwell injection. Specifically, hydrogen fluoride and nitric acid wastes increased significantly.</p> <p><b>INEOS USA, LLC in Lima (Allen County)</b> reported 9.9 million pounds, a 1 million pound increase from 2009. INEOS USA, LLC notes the increase is due to increased production levels at their plant.</p>
<p><b>Land On-Site</b></p>	<p>Land releases on-site were down in 2010, decreasing by 20 percent to slightly over 28 million pounds. <b>Envirosafe Services of Ohio (Lucas County)</b> reported the largest decrease of 11 million pounds compared to 2009. Envirosafe (ESOI) is a RCRA waste treatment and disposal facility. The chemicals reported, and their amounts, are primarily contained in waste materials that ESOI treats and/or disposes at its on-site RCRA landfill. Each year ESOI's customer base changes and there can be variations in the specific chemicals accepted. For example, ESOI accepted waste containing significant amounts of benzo(g,h,i)perylene in 2009, but did not exceed the reporting threshold quantity for that chemical in 2010. Due to changes in the economy in the last two years, ESOI accepted less waste on an annual basis than it did in previous years. The quantity of Electric Arc Furnace Dust (EAFD) the facility accepted formerly comprised 80 to 90 percent of the hazardous waste it received, and contained heavy metal hazardous constituents. This has been reduced to a small fraction of what it once was. Most of the EAFD with sufficient zinc content is now being recycled at a different facility. The quantity of dioxin-like compounds that the facility accepted in 2010 increased, because a large disposal job was accepted during 2010 containing that constituent, while the reporting threshold quantity for dioxin-like compounds was not exceeded in 2009.</p> <p><b>Midwest Elastomers Inc. (Auglaize County)</b> reported a decrease of less than 0.5 million pounds. The facility is a recycling corporation for rubber, plastic, and adhesive. At times they will accumulate materials that simply cannot be used in the market place due to quality constraints, and longevity of the finished product. The only disposal option for the nonconformance polymers is to send them to an off-site landfill. Midwest Elastomers has changed several of their internal collection programs, becoming stricter about the product quantity they receive. If the product does not meet specifications, the materials are rejected. This is helping to control the amount of polymers placed in a landfill.</p> <p><b>ArcelorMittal Cleveland (Cuyahoga County)</b> reported an increase of on-site land releases of 2.7 million pounds. The ArcelorMittal Cleveland facility was idled for most of 2009 due to economic market conditions. Production resumed in October 2009 and continued through 2010. This explains the increase in total and individual chemical releases from 2009 to 2010.</p> <p><b>RG-Steel, formerly known as Severstal Warren Inc. (Trumbull County)</b> reported an increase of on-site releases of 0.8 million pounds. This is due to the facility shut down in 2009 where no production occurred. When the plant restarted in March 2010, there were now land on-site releases for the 2010 reporting year.</p>

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<p><b>Total Releases and Transfers</b></p>	<p>There was a slight decrease in total releases and transfers in 2010. Ohio facilities reported 187.6 million pounds in 2010 compared to 187.9 million pounds in 2009.</p> <p><b>Vickery Environmental Services (Sandusky County)</b>, a RCRA-regulated disposal facility in Vickery, reported an increase of 4.55 million pounds. The increase in total releases relates to the increases in waste receipts received by the facility for disposal by deepwell injection. Specifically, hydrogen fluoride and nitric acid wastes increased significantly.</p> <p><b>ArcelorMittal Cleveland (Cuyahoga County)</b> reported an increase of more than 3 million pounds of total releases. The ArcelorMittal Cleveland facility was idled for most of 2009 due to economic market conditions. Production resumed in October 2009 and continued through 2010.</p> <p><b>Envirosafe Services of Ohio (Lucas County)</b> reported the largest decrease, 11 million pounds, in 2010 compared to 2009. Envirosafe (ESOI) is a RCRA waste treatment and disposal facility. Each year their customer base exhibits annual changes and there can be variations in specific chemicals being accepted. Due to changes in the economy over the last two years, ESOI has accepted less waste.</p> <p><b>The Dayton Power &amp; Light Co, J.M Stuart Station (Adams County)</b> reported a decrease of 3.9 million pounds. As explained in the total air release section, this was the result of increased usage of FGD and improved removal for their reducing emissions.</p>
<p><b>POTW Releases</b></p>	<p>Publicly Owned Treatment Works (POTWs) in Ohio reported TRI total releases were up by 10.5 percent for 2010, from 16.5 million in 2009 to slightly more than 18 million pounds in 2010. Nitrate compounds represent the largest POTW releases, accounting for 84 percent of total statewide releases.</p> <p><b>Shepherd Chemical Company (Hamilton County)</b> reported an increase of more than 2.39 million pounds. The increase in POTW releases was due to an increase in production volumes and raw material usage. Nitrates are a major byproduct of most of the facility's processes.</p> <p><b>Charter Steel Risingsun (Wood County)</b> decreased its discharges by more than 2.37 million pounds from 2009. There was a significant decrease reported from 2,416,983 pounds in 2009 to 49,716 pounds in 2010. This was due to a calculation error was found by the facility in their 2009 report. The 2010 report corrects the finding and the facility submitted a revised 2009 TRI report.</p>
<p><b>Energy Recovery On-Site</b></p>	<p>Energy recovery on-site increased by 34 percent, up by more than 14 million pounds in 2010. <b>LaFarge North America (Paulding County)</b> reported an 11.9 million pound increase in on-site energy recovery. LaFarge North America is a RCRA TSD facility that supplies fuel-quality waste to an adjacent cement plant. The LaFarge North America Paulding Plant saw an increase in the amount of fuel consumed (gallons) due to the plant increasing production by over 40% from 2009 to 2010. In 2009 the Paulding plant produced 181,186 tons of clinker and in 2010 the plant produced 253,959 tons. The amount of clinker produced is directly correlated to the amount of fuel consumed. More fuel is needed to heat the cement kiln to produce more clinker. Also, the amount of water in the fuel increased by 1.2% from 2009 to 2010, causing the fuel to have a slightly lower heating value.</p> <p><b>Americas Styrenics LLC (Lawrence County)</b> originally reported a decrease of 1.8 million pounds of on-site energy recovery in 2010. Based on revised data (due to 2009 calculating error), the facility actually reported a decrease of less than 98,000 pounds from 2009.</p>

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<p><b>Energy Recovery Off-Site</b></p>	<p>Statewide, energy recovery off-site increased by 7 percent (1.68 million pounds) for 2010. Most energy recovery activity was reported by chemical manufacturing and RCRA regulated TSD facilities. <b>Veolia ES Technical Solutions (Montgomery County)</b> decreased off-site energy recovery by 2.3 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 the fire, the facility has not conducted solvent recycling or fuel blending operations. They do not anticipate resuming this operation until the fourth quarter 2011.</p> <p><b>Americas Styrenics LLC (Lawrence County)</b> originally reported a decrease of 1 million pounds in off-site energy recovery. The decrease is attributed to a calculation error in 2009. That error was since corrected in 2010. Based on the revised data, the facility actually reports a decrease of less than 308,000 pounds.</p> <p><b>Hukill Environmental Services (Cuyahoga County)</b> reported an increase in off-site energy recovery of more than 2.8 million pounds. This is due to the variation in the waste volume, and waste quality, that they receive from their customers.</p>
<p><b>Recycling On-Site</b></p>	<p>On-site recycling increased by almost 18 million pounds to 75.9 million pounds statewide in 2010. <b>Hukill Environmental Services (Cuyahoga County)</b> reported an increase in on-site recycling of more than 6.7 million pounds. This is due to the variation in the waste volume, and waste quality, that they receive from their customers.</p> <p><b>PPG Industries Ohio Inc. (Pickaway County)</b> increased on-site recycling by more than 4.5 million pounds. On-site recycling at the plant is directly correlated to annual production, and production is heavily influenced by demand from the automotive industry; annual totals declined during the economic downturn in 2008 and 2009. The significant increase of on-site recycling is tied to production returning to more typical rates after the improved economic position of the automotive industry.</p> <p><b>Veolia ES Technical Solutions (Montgomery County)</b> decreased on-site recycling by 1.5 million pounds. This was attributed to a reduction in operation due to a fire on May 4, 2009 that damaged the recycling and fuel-blending operations as described in the energy recovery off-site section.</p>
<p><b>Recycling Off-site</b></p>	<p>Off-site recycling was up 33 percent from 107 million pounds in 2009 to 143 million pounds in 2010. <b>Toxco Inc. (Fairfield County)</b> increased off-site recycling by more than 6 million pounds. Toxco, Inc. is a battery recycling facility. The increase in off-site recycling is a result of an increase in production numbers at the facility.</p> <p><b>Timken Company (Stark County)</b> reported an increase of more than 5.6 million pounds. The increase in the total amount recycled off-site is a direct result of the increase in the amount of steel tons tapped and production increase following the 2009 recession.</p> <p><b>GM North River Road facility (Trumbull County)</b> reported a decrease of off-site recycling of 3.9 million pounds. The decrease is attributed to an incorrect report. Based on revised numbers, there was an increase of slightly more than 2.8 million pounds of scrap copper as a result of increased production.</p>

### Treatment On-Site

Treatment on-site decreased by 13.8 percent or about 59.1 million pounds 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.

**W.H. Sammis Plant (Jefferson County)** reported an increase of 8.3 million pounds in on-site treatment. The on-site treatment increase is attributable to the installation and operation of wet scrubbers on all units located at Sammis. All acid gases were significantly reduced. The large decreases in total air releases, however, resulted in significant increases in the on-site treatment of those same acid gases. It should be noted that production ratio increased by 41% from 2009 to 2010.

**Millennium Inorganic (Ashtabula County)** reported a 52.7 million pound decrease in on-site treatment. The reason given for the significant decrease in amount of on-site treatment resulted from change in calculation method and assumptions incorporated by Millennium Inorganic. In 2009, on-site treatment quantities were based on the volume of acidic wastewater solution generated from the operation process. The 2010 report uses engineering calculations and assumptions of moisture content of raw materials to calculate the amount of hydrochloric acid aerosols generated from the process.

**Bailey-PVS Oxides LLC (Fulton County)** originally reported no on-site treatment for 2010, which resulted in a decrease of more than 14.8 million pounds compared to 2009. Subsequently, the facility revised their 2010 report to an actual decrease of 2.78 million pounds due to reduced volume of treated waste.

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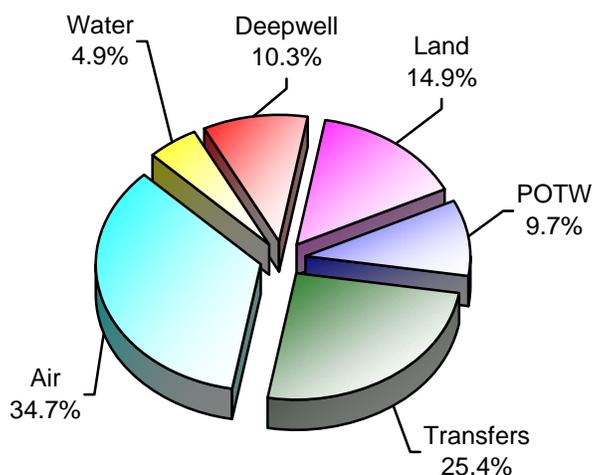
Statewide totals of on-site releases, off-site transfers, and on-site waste management for reporting years 2001 to 2010 are provided in Tables 2 and 3. Table 2 represents all data including the data for delisted, added and modified chemicals and the expansion industrial sectors. Table 3 does not include 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	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Releases to Air	122.1	134.1	132.2	128.2	126.3	120.3	114.9	90.4	74.6	65.0
Releases to Water	10.0	8.9	8.0	8.0	6.9	8.3	9.3	8.5	6.2	9.2
Deepwell Injection	32.0	29.6	29.3	22.6	24.5	22.5	22.3	22.9	13.9	19.4
Releases to Land On-Site	65.6	67.7	67.6	49.7	62.5	79.5	74.2	59.2	35.1	28.0
Discharges to POTW	18.8	17.4	17.3	18.6	19.8	16.6	17.8	17.4	16.5	18.2
Off-Site Disposal/ Treatment	83.9	68.5	65.6	71.3	82.5	97.5	80.3	63.3	41.6	47.7
<b>Total Releases and Transfers*</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>	<b>154.8</b>
Energy Recovery On-Site	81.0	104.6	81.2	84.3	82.1	97.5	73.9	69.4	42.3	56.7
Energy Recovery Off-Site	41.0	53.8	42.8	37.6	36.0	35.0	31.7	31.3	24.0	25.7
Recycling On-Site	205.6	167.1	171.7	157.8	132.4	98.1	109.9	84.9	57.6	75.9
Recycling Off-Site	172.7	169.0	150.9	148.4	160.2	162.3	164.9	158.1	107.2	143.3
Treatment On-Site	255.1	271.4	427.3	385.4	338.7	351.3	381.6	403.2	427.8	368.7
Number of Reporting Facilities	1,798	1,737	1,693	1,647	1,636	1,602	1,528	1,474	1,378	1,372

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

**Figure 5: 2010 Toxic Releases and Transfers**

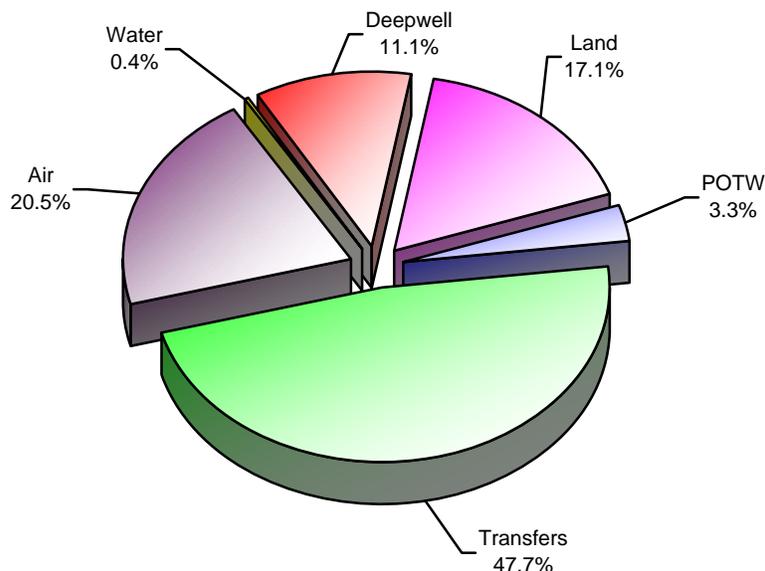


**Table 3: 10 Year-Trend: Original Facilities and Chemicals (millions of pounds)**

Comparison	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Releases to Air	30.0	29.6	28.0	27.5	26.2	25.7	23.9	21.5	16.1	15.4
Releases to Water	0.4	0.3	0.6	0.3	0.4	0.4	0.3	0.4	0.3	0.3
Deepwell Injection	13.8	11.6	14.6	8.6	14.2	10.0	7.6	9.0	7.5	8.3
Releases to Land On-Site	10.2	9.0	16.3	7.6	13.1	12.7	16.4	16.7	9.3	12.8
Discharges to POTW	5.1	4.3	4.4	4.7	5.6	4.6	4.2	3.1	4.3	2.5
Off-Site Disposal/ Treatment	49.0	50.3	46.5	56.5	64.9	83.5	65.3	50.7	31.0	35.9
<b>Total Releases and Transfers*</b>	<b>109.4</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>	<b>75.3</b>
Energy Recovery On-Site	65.1	84.4	71.9	81.6	79.1	93.8	70.7	67.3	41.0	55.1
Energy Recovery Off-Site	22.2	43.3	20.3	21.9	20.0	26.4	19.2	17.4	14.9	16.6
Recycling On-Site	152.3	129.0	113.3	78.2	63.8	64.0	59.8	54.7	43.4	52.1
Recycling Off-Site	165.7	161.7	143.4	142.2	142.3	138.7	130.3	127.7	83.0	113.5
Treatment On-Site	100.0	117.1	148.0	149.7	110.9	106.8	109.0	110.6	100.5	104.1
Number of Reporting Facilities	1,570	1,510	1,473	1,423	1,419	1,407	1,340	1,281	1,195	1,189

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

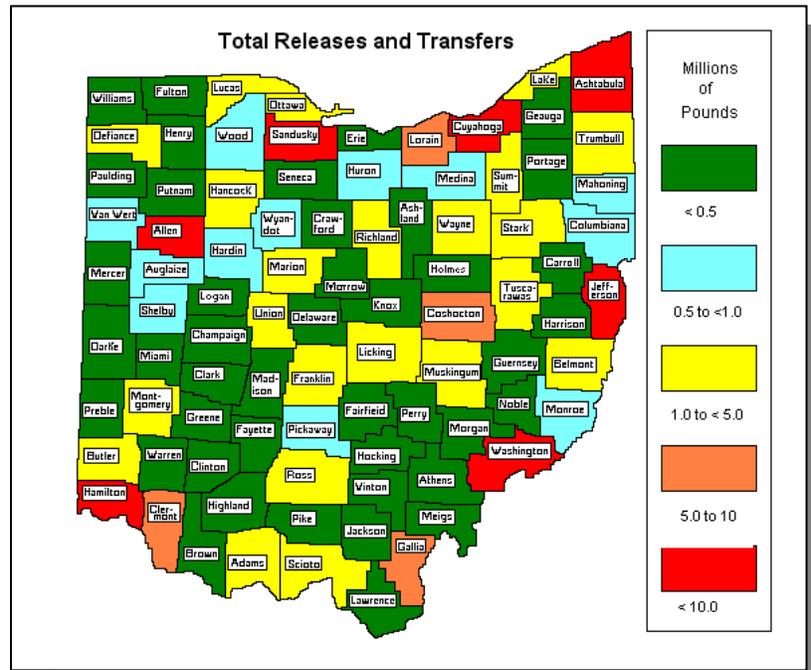
**Figure 6: 2010 Toxic Releases and Transfers  
Original Chemicals**



Total Releases and Transfers for 2010\*

**Top 10 Counties**

County	Pounds
1. Hamilton	16,181,162
2. Washington	14,938,125
3. Allen	14,175,300
4. Cuyahoga	13,039,195
5. Jefferson	11,138,558
6. Ashtabula	10,723,663
7. Sandusky	10,441,757
8. Coshocton	9,129,909
9. Gallia	8,842,641
10. Clermont	7,147,002



**Top 10 Chemicals**

Chemical	Pounds
1. Hydrochloric acid (aerosols)	25,977,747
2. Nitrate compounds	24,053,174
3. Zinc and zinc compounds	17,520,278
4. Manganese and manganese compounds	16,581,364
5. Sulfuric acid (aerosols)	13,180,832
6. Barium and barium compounds	9,469,270
7. Ammonia	9,393,439
8. Nitric Acid	7,115,179
9. Hydrogen Fluoride	6,635,983
10. Methanol	6,280,631

**Top 10 Facilities**

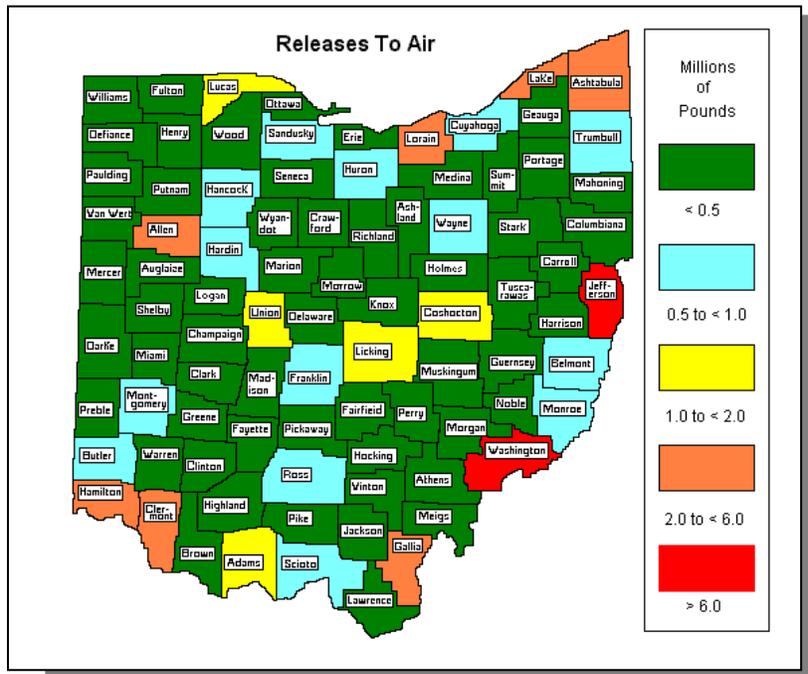
Facility/County	Pounds
1. INEOS USA LLC / Allen	10,065,207
2. Vickery Environmental Inc./Sandusky	9,588,410
3. Shepherd Chemical Co./Hamilton	8,538,035
4. AEP, Muskingum River Plant/Washington	7,346,833
5. AK Steel Corp Coshocton Works/Coshocton	5,869,020
6. Millennium Inorganic Chemicals/Ashtabula	5,656,678
7. American Electric Power Cardinal Plant/Jefferson	5,534,950
8. W. H. Sammis Plant/Jefferson	4,976,694
9. Ohio Valley Electric Corp. Kyger Creek Station/Gallia	4,704,960
10. American Electric Power Gavin Plant/Gallia	4,137,161

\* All data included.

Releases to Air for 2010\*

**Top 10 Counties**

County	Pounds
1. Washington	8,452,056
2. Jefferson	6,301,191
3. Clermont	5,431,358
4. Ashtabula	5,072,486
5. Gallia	4,656,273
6. Hamilton	3,913,608
7. Allen	3,394,869
8. Lake	3,078,658
9. Lorain	2,624,909
10. Licking	1,672,338



**Top 10 Chemicals**

Chemical	Pounds
1. Hydrochloric acid (aerosols)	25,652,520
2. Sulfuric acid (aerosols)	13,180,832
3. Ammonia	7,041,672
4. Carbonyl sulfide	4,810,867
5. Hydrogen fluoride	2,584,643
6. Certain glycol ethers	1,787,535
7. N-Hexane	1,247,600
8. Methanol	1,133,536
9. N-Butyl alcohol	1,071,578
10. Styrene	984,578

**Top 10 Facilities**

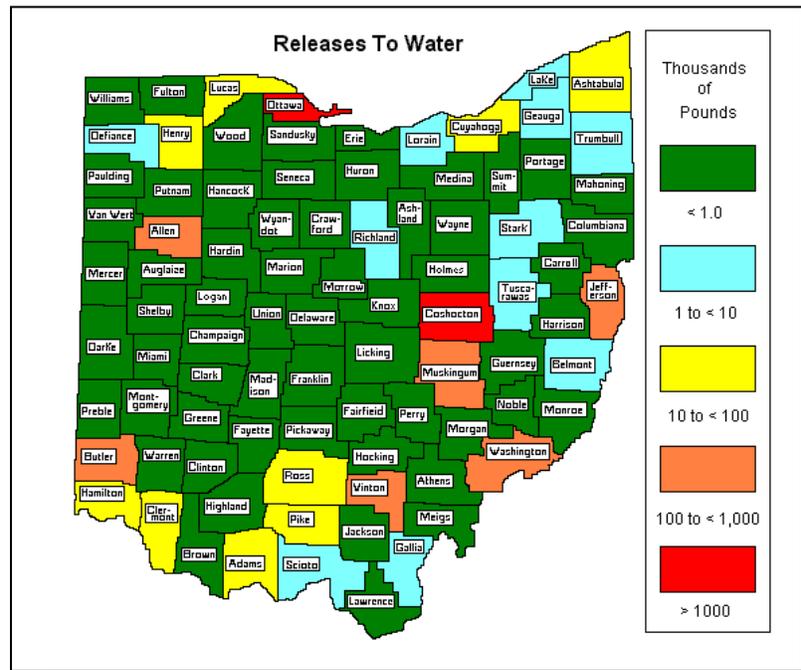
Facility/County	Pounds
1. American Electric Power Muskingum River Plant/Washington	6,540,388
2. American Electric Power Cardinal Plant/Jefferson	3,787,516
3. Ohio Valley Electric Corp. Kyger Creek Station/Gallia	3,515,518
4. Duke Energy, Beckjord Generating Station/Clermont	3,365,042
5. Millennium Inorganic Chemicals Plant 2/Ashtabula	3,118,548
6. PCS Nitrogen of Ohio L.P./Allen	2,963,774
7. Duke Energy Corp Miami Fort Generating Station/Hamilton	2,854,117
8. W. H. Sammis Plant/Jefferson	2,471,330
9. Eastlake Plant/Lake	2,411,196
10. Avon Lake Power Plant/Lorain	2,165,521

\* All data included.

Releases to Water for 2010\*

**Top 10 Counties**

County	Pounds
1. Coshocton	5,557,316
2. Ottawa	1,246,457
3. Washington	964,211
4. Allen	304,521
5. Muskingum	220,501
6. Vinton	197,676
7. Butler	189,032
8. Jefferson	117,664
9. Ashtabula	58,322
10. Ross	48,053



**Top 10 Chemicals**

Chemical	Pounds
1. Nitrate compounds	8,427,082
2. Ammonia	347,687
3. Manganese and manganese compounds	232,776
4. Barium and barium compounds	36,929
5. Zinc and zinc compounds	30,432
6. Copper and copper compounds	19,318
7. Methanol	17,695
8. Chromium and chromium compounds	13,624
9. Ethylene glycol	13,512
10. Acetaldehyde	8,104

**Top 10 Facilities**

Facility/County	Pounds
1. AK Steel Corp. Coshocton Works/Coshocton	5,500,750
2. Materion Brush Inc./Ottawa	1,246,454
3. Kraton Polymers US LLC/Washington	756,631
4. PCS Nitrogen of Ohio LP/Allen	225,020
5. AK Steel Corp – Zanesville Works/Muskingum	220,501
6. Sands Hill Mining LLC/Vinton	192,388
7. Eramet Marietta Inc./Washington	167,087
8. AK Steel Corp./Butler	111,907
9. Titanium Metals Corp./Jefferson	104,651
10. Lima Refining Co./Allen	79,493

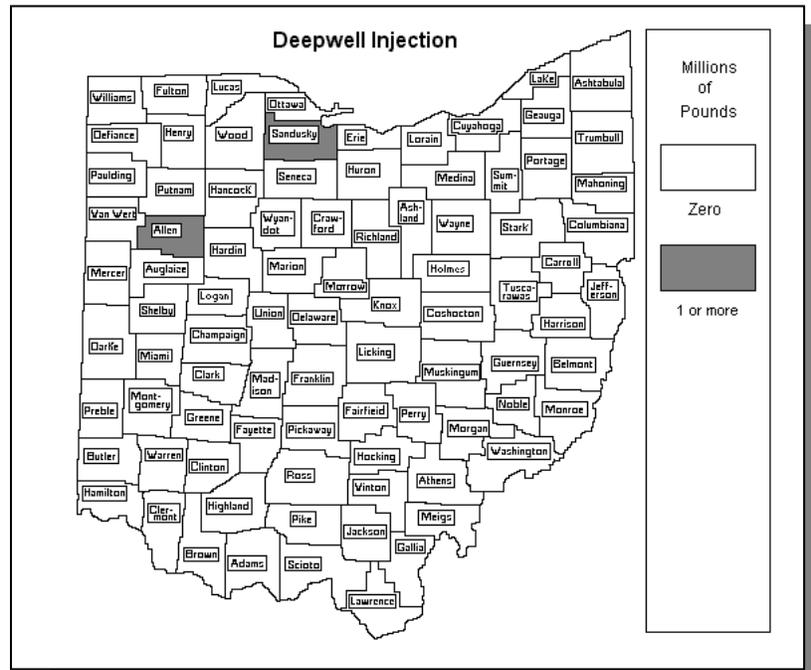
\* All data included.

Deepwell Injection for 2010\*

**Top Counties**

County	Pounds
1. Allen	9,867,504
2. Sandusky	9,574,712

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



**Top 10 Chemicals**

Chemical	Pounds
1. Nitric acid	4,318,121
2. Acetonitrile	4,300,000
3. Hydrogen fluoride	3,410,470
4. Ammonia	1,393,383
5. Acrylonitrile	1,100,000
6. Acrylamide	1,000,000
7. Methanol	880,000
8. Acrylic Acid	470,000
9. Chromium and chromium compounds	449,394
10. Zinc and zinc compounds	247,611

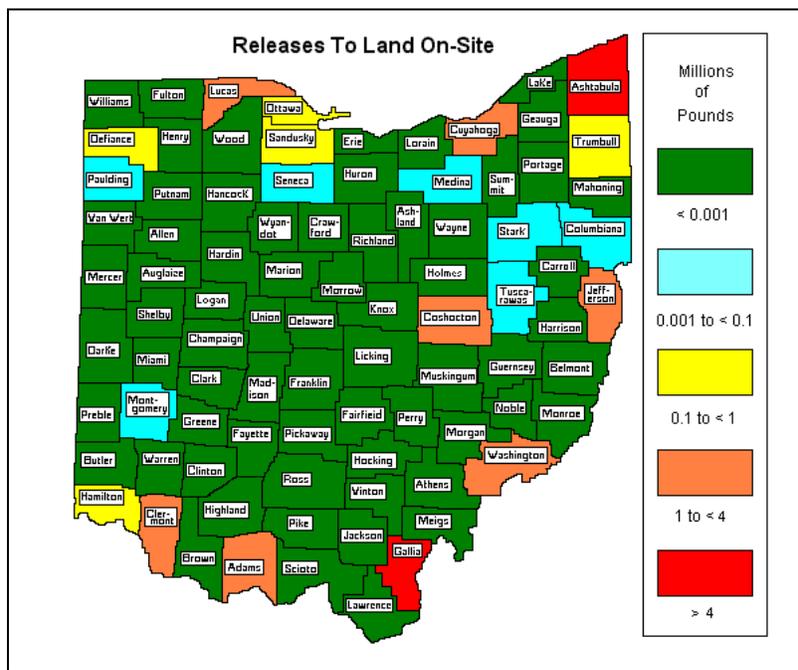
**Top Facilities**

Facility/County	Pounds
1. INEOS USA LLC/Allen	9,867,504
2. Vickery Environmental Inc./Sandusky	9,574,712

\* All data included.

## Releases to Land On-Site for 2010\*

Top 10 Counties		
County	Pounds	
1. Ashtabula	4,700,438	
2. Gallia	4,176,491	
3. Cuyahoga	3,551,627	
4. Washington	3,440,418	
5. Adams	3,184,351	
6. Lucas	2,155,887	
7. Jefferson	1,797,991	
8. Clermont	1,693,629	
9. Coshocton	1,041,617	
10. Defiance	852,610	



## Top 10 Chemicals

Chemical	Pounds
1. Manganese and manganese compounds	10,460,297
2. Barium and barium compounds	5,271,787
3. Zinc and zinc compounds	4,820,587
4. Vanadium and vanadium compounds	1,683,632
5. Copper and copper compounds	1,249,540
6. Lead and lead compounds	1,195,241
7. Chromium and chromium compounds	1,004,532
8. Nickel and nickel compounds	852,098
9. Arsenic and arsenic compounds	581,532
10. Cobalt & Cobalt compounds	336,574

## Top 10 Facilities

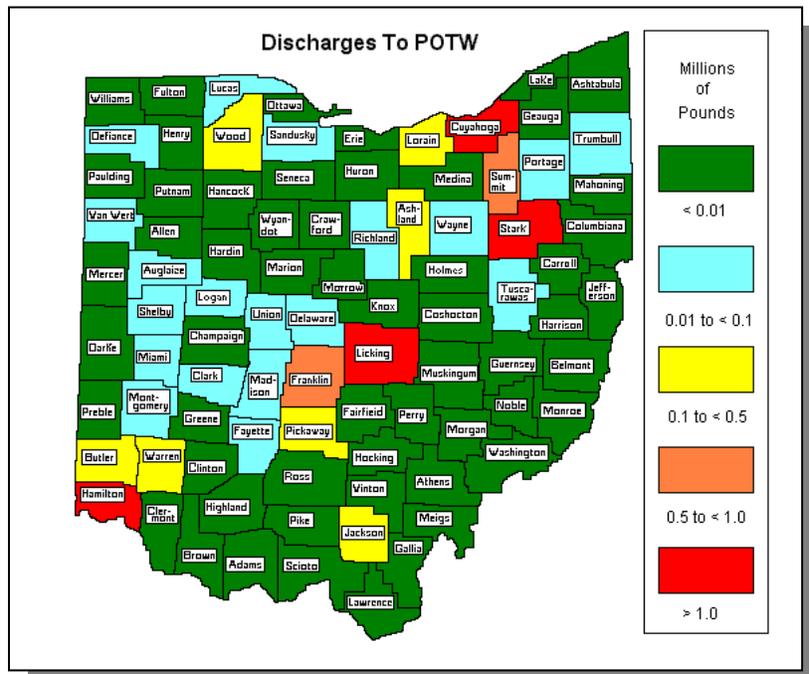
Facility/County	Pounds
1. Arcelormittal Cleveland Inc./Cuyahoga	3,551,312
2. American Electric Power Gavin Plant/Gallia	2,991,552
3. Eramet Marietta Inc./Washington	2,652,115
4. Millennium Inorganic Chemicals #2/Ashtabula	2,500,129
5. Dayton Power & Light Co. J.M Stuart Station/Adams	2,444,351
6. Millennium Inorganic Chemicals #1/Ashtabula	2,200,246
7. American Electric Power Cardinal Plant/Jefferson	1,739,067
8. Envirosafe Services of Ohio Inc./Lucas	1,485,239
9. Ohio Valley Electric Corp. Kyger Creek Station/Gallia	1,184,939
10. Zimmer Generating Station/Clermont	1,044,217

\* All data included.

Discharges to POTW for 2010\*

**Top 10 Counties**

County	Pounds
1. Hamilton	10,339,019
2. Licking	1,492,202
3. Cuyahoga	1,194,392
4. Stark	1,016,033
5. Franklin	788,004
6. Summit	725,239
7. Lorain	341,477
8. Butler	341,399
9. Jackson	274,010
10. Ashland	224,038



**Top 10 Chemicals**

Chemical	Pounds
1. Nitrate compounds	15,162,121
2. Methanol	1,059,510
3. Ethylene glycol	341,329
4. Ammonia	303,438
5. Sodium Nitrite	286,112
6. Allyl Alcohol	229,088
7. Certain Glycol Ethers	156,044
8. Acrylonitrile	145,126
9. Formaldehyde	113,349
10. Aniline	98,500

**Top 10 Facilities**

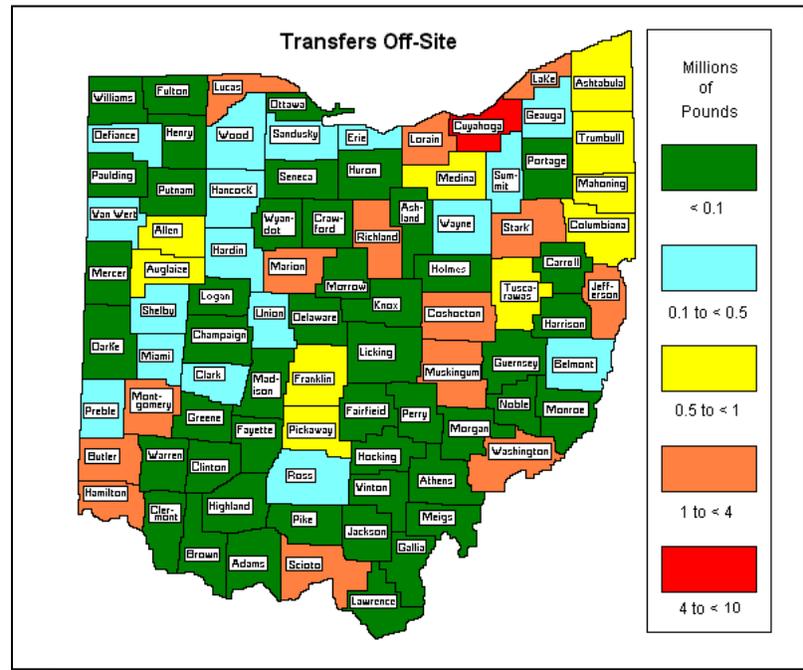
Facility/County	Pounds
1. Shepherd Chemical Co./Hamilton	6,524,286
2. Anomatic Corp./Licking	1,335,282
3. Jewel Acquisition LLC – Louisville/Stark	634,568
4. Emery Oleochemicals LLC Cincinnati/Hamilton	488,052
5. Rhodia Inc./Hamilton	449,423
6. PPG Industries Inc. Barberton/Summit	447,037
7. Diamond Innovations Inc./Franklin	388,995
8. Graftech International Holdings Inc./Cuyahoga	346,408
9. GFS Chemicals Inc./Franklin	346,000
10. Cognis Corp Cincinnati Plant/Hamilton	345,012

\* All data included.

Transfers Off-Site To Disposal or Treatment for 2010\*

**Top 10 Counties**

County	Pounds
1. Cuyahoga	7,586,096
2. Jefferson	2,921,711
3. Marion	2,889,140
4. Montgomery	2,887,095
5. Richland	2,532,889
6. Scioto	2,451,533
7. Lorain	2,244,831
8. Washington	2,081,429
9. Lake	1,889,952
10. Stark	1,836,499



**Top 10 Chemicals**

Chemical	Pounds
1. Zinc and zinc compounds	12,150,231
2. Manganese and manganese compounds	5,627,333
3. Barium and barium compounds	4,063,392
4. Methanol	3,189,888
5. Nitric Acid	2,508,288
6. Chromium and chromium compounds	2,070,252
7. 4,4'-Isopropilidenediphenol	1,936,574
8. Lead and lead compounds	1,519,075
9. Copper and copper compounds	1,260,667
10. Nickel and nickel compounds	1,226,888

**Top 10 Facilities**

Facility/County	Pounds
1. Charter Steel Cleveland/Cuyahoga	2,822,724
2. DuPont Electronic polymers/Montgomery	2,628,596
3. AK Steel Corp. – Mansfield Works/Richland	2,452,624
4. FirstEnergy W.H. Sammis Plant/Jefferson	2,434,182
5. Sunoco Haverhill North Coke Co./Scioto	2,238,623
6. NUCOR Steel Marion Inc./Marion	1,762,341
7. Energizer Battery Mfg. Inc./Washington	1,688,558
8. AK Steel Corp. – Zanesville Works/Muskingum	1,584,775
9. Hukill Environmental Services/Cuyahoga	1,333,254
10. Eastlake Plant/Lake	1,262,677

\* All data included.

### PBT Chemicals

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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 decreased 43 percent for reporting year 2010. There was a 16 percent decrease (8,115 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 2010 were: lead and lead compounds, PACs, mercury and mercury compounds, and pendimethalin.

In 2010, 828 Form Rs were submitted for PBT chemicals. Mercury and mercury compounds were reported by 105 facilities in 2010, compared to 97 in 2009. Reporting facilities include power plants, paper mills, steel works, refuse systems, glass manufacturing, and electric light manufacturers.

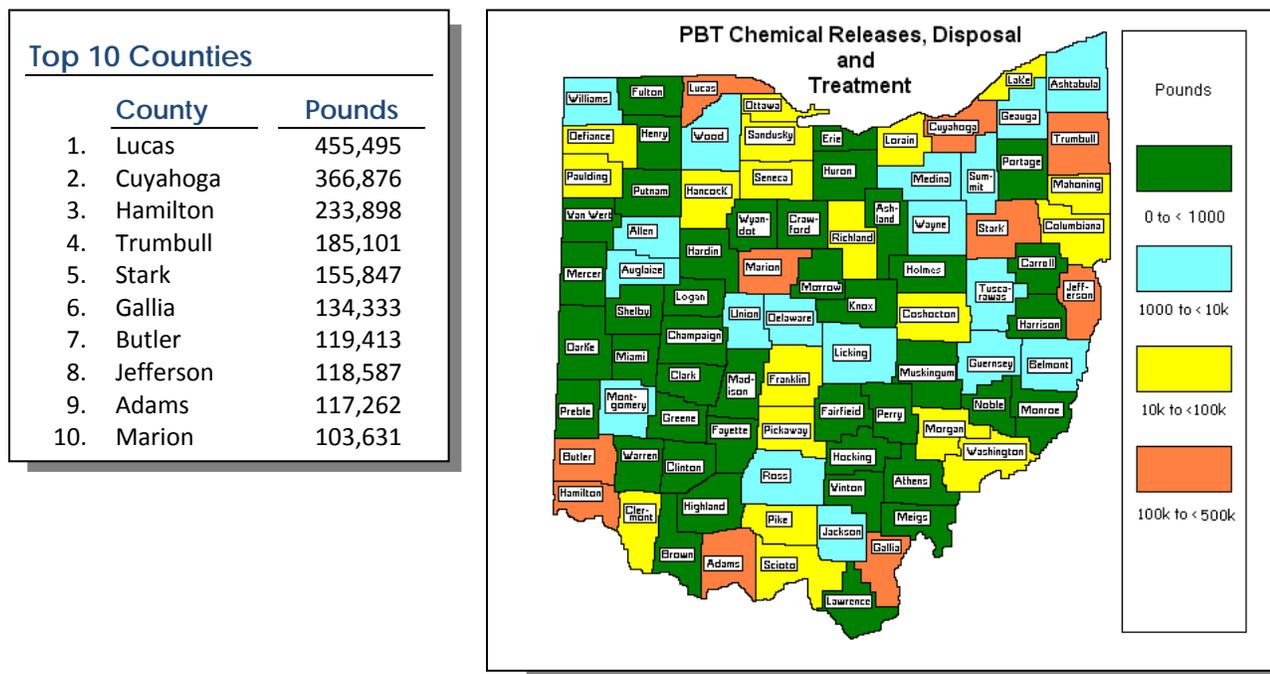
More reports (515) were submitted for lead and lead compounds in 2010, compared to 511 reports for 2009. Lead and lead compounds were reported from nearly every major NAICS code classification required to report to TRI. EnviroSAFE Services (Lucas County) reported more than 3 million pounds of lead and 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 2010.

Dioxin and dioxin-like compounds were reported by 50 facilities. That is three facilities more than in 2009. 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 2010\*



### 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	392.63	40.94	0	2.21	1.0	5246
Chlordane	3.93	0	0	0	0	1,018
Dioxin & compounds	32.37 gr	0.47 gr	0	7,153.30 gr	0	111 gr
Heptachlor	2.28	0	0	0	0	338
Hexachlorobenzene	0.29	0	0	0	0	1,129
Isodrin	0	0	0	0	0	0
Lead & compounds	28,344.48	5,232	9,550	1,195,241	9,743.28	1,519,075
Mercury & compounds	5,991.58	25.82	23	3,598.14	8.88	3,794
Methoxychlor	1.15	0	0	0	0	837
Pendimethalin	680	0.004	0	0	0.62	7,152
Pentachlorobenzene	186.65	0	0	0	0	184
PCBs	0	0	0	40.20	0	2
PACs	5,526.31	124.36	0	530.3	5.26	116,444
Tetrabromobisphenol A	0	0	0	0	0	0
Toxaphene	1.27	0	0	0	0	459
Trifluralin	190	0	0	0	0	0

† Units are pounds unless specified otherwise.

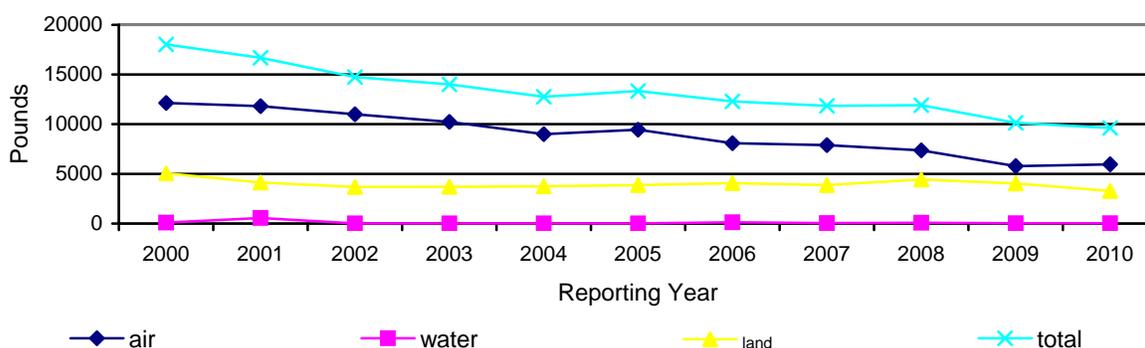
\* All data included.

### Mercury and Mercury Compounds

Mercury and mercury compounds were reported by 97 facilities in 2010, compared to 110 in 2009. Reporting facilities include power plants, paper mills, steel works, refuse systems, glass manufacturing, and electric light manufacturers.

Facilities in Ohio reported a decrease of 5.2 percent of on-site releases of mercury and mercury compounds in 2010. American Electric Power Gavin Plant reported 1,979 pounds of mercury released on-site, a decrease from 2,093 pounds reported in 2009. Heritage-WTI Inc. reported 2766 pounds recycled off-site in 2010, compared to 167 pounds in 2009.

**Figure 7: Ohio Mercury Trends On-Site Releases**

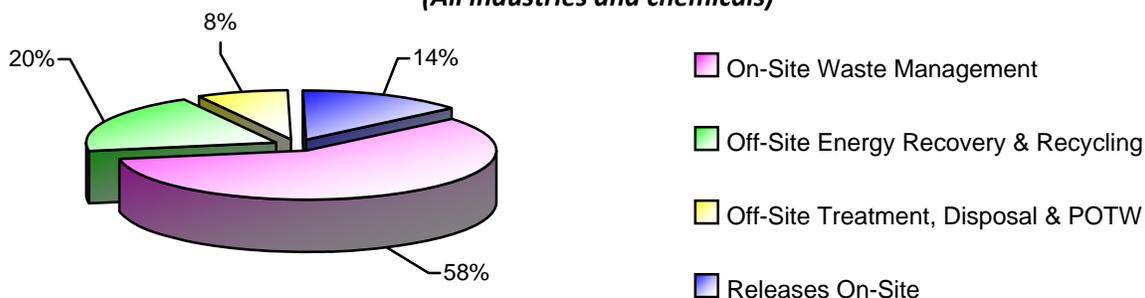


### Management of TRI Chemicals in Waste

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.

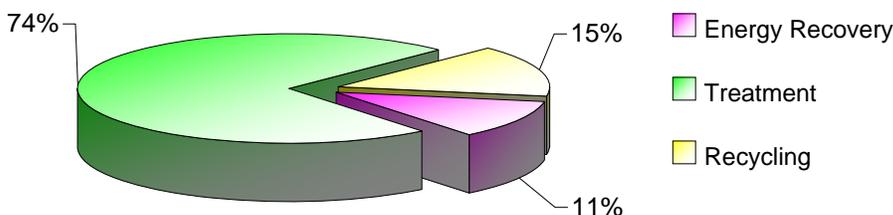
The TRI data can be used to analyze trends in total quantities of TRI chemicals in waste to determine if facilities are reducing the amount of waste generated. As reported under TRI, waste falls under one of four categories based upon its final disposition. The first category is releases on-site, which 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 135 facilities implemented source reduction activities during 2010 for more than 336 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 2010, nearly 56 percent of the TRI reports indicated an increase in production when compared to the data for 2009. Table 4 indicates the changes in production reported by facilities covered by TRI.

**Table 4: Changes in Production from 2009 to 2010**

Change in Production (Production Ratio)	Number of Form Rs	Percent Reporting
Increase by $\geq$ 30%	1522	28.0%
Increase by $\geq$ 20%, less than 30%	433	8.0%
Increase by $\geq$ 10%, less than 20%	600	11.0%
Less than 10% increase	495	9.0%
No Change	315	6.0%
Less than 10% decrease	435	8.0%
Decrease by $\geq$ 10%, less than 20%	258	5.0%
Decrease by $\geq$ 20%, less than 30%	218	4.0%
Decrease by $\geq$ 30%	1126	21.0%

## National Perspective

Ohio, a leader in technology and industry, continues to represent a significant portion of the national TRI reporting industries and releases. Table 5 shows Ohio's national ranking for each type of release. The following tables are based on U.S. EPA's national database.

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

National Rank In:	2008	2009	2010
Air Releases	1	1	1
Water Releases	13	13	9
Land On-Site Releases	5	11	12
Deepwell Injection	3	6	5
Reporting Facilities	1,445	1,358	1,372

**Table 6: Number of Reporting Facilities**

Number of Reporting Facilities – RY 2010		
Rank	State	Number of Facilities
1	Texas	1,500
2	Ohio	1,372
3	California	1,278
4	Pennsylvania	1,158
5	Illinois	1,046

**Table 7: Top States for 2010 Releases**

Medium	Rank	State	Release (pounds)
Air	1	Ohio	65,011,688
	2	Texas	61,851,104
	3	Kentucky	57,282,772
	4	Indiana	47,097,739
	5	Louisiana	46,729,973
Water	1	Indiana	27,384,933
	2	Virginia	18,078,770
	3	Nebraska	14,727,942
	4	Texas	14,325,128
	5	Georgia	12,620,709
	9	Ohio	9,192,337
Land On-Site	1	Alaska	807,357,583
	2	Nevada	472,142,277
	3	Utah	202,144,789
	4	Arizona	75,951,823
	12	Ohio	28,046,241
Deepwell Injection	1	Texas	74,373,553
	2	Louisiana	46,379,730
	3	Florida	32,332,205
	4	Alaska	27,452,902
	5	Ohio	19,442,216

### Additional Information

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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

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TRI staff takes 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

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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	<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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Ohio EPA TRI Program	(614) 644-2260
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