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## Overview of the 2015 Data

### **Q: What are the highlights of this year's data analysis?**

Total production-related waste generated in 2015 was more than 27 billion pounds, a 3% decrease from 2014. Almost 24 billion pounds (87%) of production-related waste were not released because they were managed through preferred waste management practices such as recycling, while 3.4 billion pounds (13%) were disposed of or otherwise released. The 3.4 billion pounds of total disposal or other releases in 2015 constitute a 14% decrease from 2014, mainly due to decreases in land disposal at metal mines, which typically involve large facilities handling large volumes of material. In this sector, even a small change in the chemical composition of the ore being mined - which EPA understands is one of the asserted reasons for the year to year changes in total reported releases - can lead to big changes in the amounts of toxic chemicals reported nationally.

Air releases decreased by 8% from 2014 to 2015, primarily caused by decreases from electric utilities and chemical manufacturing. Releases into surface water decreased 12% and on-site releases to land decreased 20% since 2014, with the latter again due primarily to the metal mining sector, as explained above. Air releases have decreased by 56% since 2005, totaling 851 million pounds. Chemicals with the greatest decreases in air releases include hydrochloric acid, sulfuric acid, hydrogen fluoride, methanol, and toluene.

### **Q: Why have air releases decreased by so much since 2005?**

Air releases have decreased considerably since 2005, with coal- and oil-fired electric utilities accounting for more than 90% of nationwide reductions in hydrochloric acid, sulfuric acid, and mercury. The chemical manufacturing sector has also reported large reductions in air releases of toxic chemicals. Reasons for these reductions in nationwide air releases include a shift from coal to other fuel sources (e.g. natural gas) at electric utilities, the installation of control technologies (e.g. scrubbers), and the implementation of national and state-level environmental regulations.

### **Q: How many facilities reported for 2015? Why is it different from the number last year?**

A total of 21,849 facilities reported to TRI for 2015, which was similar to the number of facilities that had reported in 2014. After many years of a downward trend in the number of facilities reporting to TRI, the trend has levelled off in recent years with little change in the number of facilities reporting since 2010. Some facilities reported after the deadline and EPA was not able to include them in this analysis. EPA will evaluate those facilities for appropriate follow up action.

#### Background:

There are many reasons that a facility may report to TRI one year and not report the next year; each of these reasons likely accounts for some portion of the annual changes in facilities reporting to TRI.

- Each year a facility must evaluate whether it meets the criteria to report to TRI. If the facility has at least 10 employees and manufactures, processes or otherwise uses the threshold amount of the chemical, it must report.
- Some facilities have a reduction in employees or in production that causes them to drop below the reporting threshold.
- Some facilities have stopped production, either temporarily or because the facility has closed.
- Some facilities have found ways to reduce releases or have changed their processes so that they no longer use any toxic chemicals on the TRI list.
- Some facilities may have failed to report to TRI even though they fit the criteria. EPA will review these facilities for appropriate follow-up action.

### **Q: What is new in the presentation of the data this year?**

This year's National Analysis includes new information on pollution prevention (P2) including:

- an embedded data analysis "dashboard" that allows users to view the TRI releases reported for any chemical or sector.

- a profile of the food processing sector.
- a section focused on the overlap between the chemicals reported to TRI and those that are the preliminary focus of Toxic Substances Control Act (TSCA) which was recently amended and signed into law.

In addition, this year's National Analysis continues to provide geographic-specific analyses in the *Where You Live* chapter. In this chapter, you can look at toxic chemical disposal or other releases at various geographical levels throughout the United States such as by state, by county, by metropolitan area, or by watershed. Alongside the metrics on air emissions, water discharges, and land disposal quantities for the selected area, *Where You Live* also presents a risk-screening indicator, as calculated by the publicly-available Risk-Screening Environmental Indicators (RSEI) model.

The National Analysis also includes a Story Map that overlays the locations of TRI facilities with the demographic information of populations that live near them to help facilitate an understanding of who lives near facilities.

Continuing last year's in-depth look at selected industry sectors, this year's National Analysis includes profiles of chemical manufacturing, electric utilities, metal mining, and food processing, as well as a look at federal facilities and at manufacturing as a whole.

**Q: Is the change in disposal or other releases from 2014 to 2015 comparable to that of prior years? Why did the change occur?**

Total disposal or other releases decreased 15% (a 574-million-pound decrease) from 2014 to 2015. Much of the change from year to year is due to reporting by metal mines, which accounted for 37% of all disposal or other releases for 2015.

The decrease in disposal or other releases from 2014 to 2015 is driven by one metal mine. If metal mining is excluded from the trend, then total on- and off-site releases decreased by 2% from 2014 to 2015.

**Q: How does EPA regulate metal mining waste and what health impacts/risks are associated metal mining waste?**

Mining wastes include waste generated during the extraction, beneficiation, and processing of minerals. At some facilities disposal of these wastes has caused significant environmental harm. Most [extraction and beneficiation](#) wastes from hardrock mining (the mining of metallic ores) and 20 specific mineral processing wastes are exempt from hazardous waste regulations under Subtitle C of the Resource Conservation and Recovery Act (RCRA). Mining and mineral processing plants remain subject to applicable federal environmental regulations (such as the Clean Air Act, the Clean Water Act, CERCLA, and EPCRA) and applicable state regulations. For more information, visit EPA's [mining waste webpage](#).

**Q: What about PBT chemical releases?**

There was a 24% decrease in disposal or other releases of PBT (persistent, bioaccumulative and toxic) chemicals overall from 2014 to 2015. Lead and lead compounds accounted for 98% of the total disposal or other releases of PBTs; therefore, the data are more meaningful in the context of specific PBT chemicals.

**Lead and Lead Compounds**

- Total disposal or other releases of lead and lead compounds decreased 24% in 2015 and are affected greatly by the mining sector.
  - Lead is sometimes mined for its own value and sometimes is a byproduct resulting from mining other metals.
  - Without the metal mining sector, total disposal or other releases of lead and lead compounds increased by 40% (25.0 million pounds) from 2014 to 2015. This increase is

primarily due to one [hazardous waste management facility](#) that reported releases of 24.9 million pounds of lead compounds in 2015 compared to 0.2 million pounds in 2014.

- Air releases of lead and lead compounds increased by 35% from 2014 to 2015 due to primarily releases from a [motor vehicle metal stamping facility](#) that reported for the first time in 2015.

### **Mercury and Mercury Compounds**

- From 2014 to 2015, total disposal or other releases for mercury and mercury compounds decreased by 20%. Air emissions of mercury and mercury compounds decreased by 18%.
- Electric utilities accounted for 48% of all mercury and mercury compound releases to air. Electric utilities reported a 30% decrease in mercury air releases from 2014 to 2015.

#### Background:

There is no mercury mining per se in the United States. Mercury releases are a byproduct associated with mining other metals, especially gold and silver.

### **Dioxin and Dioxin-like Compounds**

Total disposal or other releases of dioxins increased 1% from 2014 to 2015. Total disposal or other releases of dioxins for 2015 were 89,423 grams.

- The primary metals sector accounted for 49% in 2015 of total disposal or other releases of dioxins in 2015. Facilities in the sector reported a 14% increase in total disposal or other releases of dioxins from 2014 to 2015.
- The chemical manufacturing sector reported the second largest total, accounting for 46% of total disposal or other releases of dioxins in 2015. Facilities in the sector reported a 10% decrease in total disposal or other releases of dioxins from 2014 to 2015.

#### Background:

Dioxins are not created intentionally, but are formed during some high-temperature processes such as smelting and recycling metals. Different materials and temperature levels can change the amount of dioxin that is formed in the process.

### **Q: What are dioxin TEQs and why is EPA including them in the analysis?**

There are 17 different chemicals in the category of dioxins and dioxin-like compounds in TRI. These different chemicals are called dioxin “congeners,” and they are all very toxic. However, some of them are much more toxic than others. TEQ (Toxic Equivalency) values provide a weighted sum of dioxin congeners for each facility so that there is one number that takes into account both quantity and toxicity. This number helps in understanding the relative hazard from dioxins; however, it does not compare the risk from different facilities, because it does not take into account human exposure to the chemical. TEQs will allow the public to make more informed environmental decisions within their communities. Expressing dioxin releases and waste management information in grams TEQ also permits easier comparisons between TRI data and other EPA and international data. For more information, see TRI’s webpage on the [dioxin TEQ rule](#).

Various industry sectors may dispose of or otherwise release very different mixes of dioxin congeners. Two industry sectors accounted for about 95% of both the grams and grams-TEQ of dioxin disposed of or otherwise released in 2015; however, their ranking in terms of percentage of the total is quite different for grams and grams-TEQ. The primary metal sector accounted for 49% of the total grams of dioxins released, and the chemical manufacturing sector accounted for a similar proportion at 46% of the total grams. However, when TEFs are applied, the primary metals sector accounted for 84% of the total grams-TEQ, and the chemical manufacturing industry accounted for just 12%.

### **Q: What about known or suspected carcinogens?**

A carcinogens’ category of analysis was added to the EPA’s analysis of TRI data in 2005 at the request of stakeholders.

- Total disposal or other releases of carcinogens decreased by 11% from 2014 to 2015.

- Air releases of carcinogens decreased by 3% from 2014 to 2015, and decreased by 46% from 2005 to 2015.
- In 2015, lead and lead compounds accounted for 58% of the disposal or other releases of carcinogens.

**Background:**

The list of known or suspected carcinogens is actually a list of chemicals derived from the three sources: National Toxicology Program (NTP), International Agency for Research on Cancer (IARC) and/or 29 CFR 1910, Subpart Z, Toxic and Hazardous Substances, Occupational Hazardous Safety and Health Administration (OSHA). If the chemical is listed according to the criteria on any of the three lists, it is included as a carcinogen under TRI.

**Q: Which industry sectors reported decreases in total disposal or other releases from 2014 to 2015?**

Industry sectors with the largest decrease included:

- Metal mining with a 529-million-pound decrease (-30%)
- Electric utilities with a 98-million-pound decrease (-18%)
- Paper manufacturing with a 13-million-pound decrease (-7%)

**Q: Which industry sectors reported increases in total disposal or other releases from 2014 to 2015?**

Industry sectors with the largest increase included:

- Hazardous waste sector with an 85-million-pound increase (67%)
- Primary metals with a 4.3-million-pound increase (1%)
- Transportation equipment sector with a 1.2-million-pound increase (3%)

**Q: What is EPA doing to help these sectors decrease releases?**

EPA's Pollution Prevention Program helps identify pollution prevention (P2) options in all industry sectors through a variety of assistance and information-sharing programs. For instance, the Economy, Energy and Environment (E3) initiative helps manufacturers become more sustainable, and the Safer Choice program helps consumers identify safer chemical-containing products. In addition, the TRI program is making its pollution prevention information more accessible to promote the implementation of effective P2 practices through the [TRI P2 webpage](#).

**Q: Which industry sectors reported decreases in air releases from 2014 to 2015?**

Industry sectors with the largest decrease included:

- Electric utilities with a 50-million-pound decrease (-27%)
- Chemical manufacturing sector with a 6.8-million-pound decrease (-4%)
- Paper sector with a 6.3-million-pound decrease (-4%)

**Q: Which industry sectors reported increases in air releases from 2014 to 2015?**

Industry sectors with the largest increase included:

- Primary metals with a 1.6-million-pound increase (5%)
- Transportation equipment sector with a 930-thousand-pound increase (4%)
- Petroleum products sector with a 325-thousand-pound increase (1%)

**Q: Which industry sectors reported decreases in surface water discharges from 2014 to 2015?**

Industry sectors with the largest decrease included:

- Primary metals with a 6.9-million-pound decrease (-19%)
- Chemical manufacturing with a 5.4-million-pound decrease (-16%)

- Food processing with a 3.7-million-pound decrease (-6%)

**Q: Which industry sectors reported increases in surface water discharges from 2014 to 2015?**

Industry sectors with the largest increase included:

- The beverages sector with a 250,000-pound increase (14%)
- Computers and electronic products sector with an 85,000-pound increase (5%)

**Q: What accounts for the 24% decline in disposal or other releases from 2005 to 2015?**

Most industry sectors covered by TRI had decreases in their total disposal or other releases from 2005 to 2015. The largest decreases occurred in the electric utility and primary metals sectors. This long-term decrease is driven mainly by declining air releases, down 56% (851 million pounds) since 2005. The decrease is driven by electric utilities due to a shift from coal to other fuel sources and the installation of control technologies at coal-fired power plants, which has led to decreases in hazardous air pollutant (HAP) emissions, such as hydrochloric acid.

## General

**Q: What factors should I consider when using TRI data?**

Users of TRI information should be aware that TRI release estimates alone are not sufficient to determine human exposure to toxic chemicals or to calculate potential risks to human health and the environment. Different chemicals can pose different health hazards including cancer, neurological hazards, respiratory hazards, developmental hazards, etc. In addition, chemicals can have these different effects at different concentrations of exposure.

TRI data, in conjunction with other information, such as the toxicity of the chemical, the release medium, and site-specific conditions, can be used as a starting point in evaluating exposures that may result from releases of toxic chemicals. Factors that users of TRI data might consider include:

- Toxicity of the chemical
- Exposure
- Bioconcentration of the chemical in the food chain
- Type of disposal or release (environmental medium)
- Fate and transport of the chemical in the environment
- Type of off-site facility receiving the chemical and the efficiency of its waste management practices
- On-site waste management of the toxic chemical

[TRI Chemical Hazard Information Profiles](#) (TRI-CHIP) is a tool that EPA has developed to provide critical effects toxicity information to the public. More information related to understanding and using TRI data is available on the TRI webpage in the [Factors to Consider](#) document.

**Q: Should I worry about releases in my community?**

When using TRI data one should be aware that a release of toxic chemicals does not automatically mean that local communities are at risk. Large release numbers do not necessarily mean there is a large risk, nor do small releases necessarily mean there is a low risk. "Disposal or other releases" represent a wide variety of management methods. These range from highly controlled disposal, such as in hazardous waste landfills, to uncontrolled releases due to accidental leaks or spills. Many releases reported to TRI are subject to permits and/or environmental standards that establish emissions limits under Federal or State laws such as, for example, air permits issued under the Clean Air Act. Other factors, such as exposure to the release, route of exposure (e.g., breathing, via skin), bioavailability from the exposure

route, and sensitivity of exposed individuals to effects caused by a toxic chemical must be considered before any judgments regarding risk can be made.

However, TRI data can provide lists of the top facilities with the largest disposal or other releases, which can be used as screening tools to identify facilities that may warrant a closer examination. This closer examination should include considering factors mentioned above like toxicity of chemicals and potential exposure. In these cases TRI data should be supplemented with data from other sources.

**Q: What is total production-related waste managed and why does EPA include information about this number as well as total disposal or other releases?**

Total production-related waste managed represents a focus on management of toxic chemicals rather than only on their final disposition. It includes reporting for on- and off-site recycling, energy recovery, and treatment as well as on- and off-site disposal or other releases. Total production-related waste managed represents how facilities are managing their toxic chemicals and includes counting these chemicals each time they are managed whether that is by recycling, energy recovery, treatment or disposal or other releases.

From 2005 to 2015, total production-related waste managed by TRI facilities increased by 4% (952 million pounds). From 2014 to 2015, the total production-related waste managed decreased by 3% (925 million pounds). From 2014 to 2015, facilities reported decreased quantities of TRI chemicals recycled (-2%), recovered for energy (-6%), and disposed of or otherwise released (-14%). The amount treated increased slightly (1%).

EPA encourages facilities to first eliminate waste at its source. However, for waste that is generated, the preferred management methods are recycling, followed by burning for energy recovery, treating and, as a last resort, disposing of or otherwise releasing the waste. The percent of the total production-related waste allocated to each of these management practices has changed only slightly over time, with a larger proportion recycled and a smaller proportion disposed of or otherwise released. Table 1 shows the percent of the total production-related waste dedicated to each waste management practice in 2005, 2014 and 2015.

Table 1. Percent of total production-related waste recycled, used for energy recovery, treated or disposed of or otherwise released			
	2005	2014	2015
<b>Quantity Recycled</b>	36%	43%	44%
<b>Quantity Used for Energy Recovery</b>	12%	12%	11%
<b>Quantity Treated</b>	34%	31%	32%
<b>Quantity Disposed of or Otherwise Released</b>	18%	14%	13%

**Q: What is the difference between Form R and Form A?**

Form R provides details about releases and other waste management (e.g., total quantity of releases to air, water, and land and underground injection; and on- and off-site recycling, treatment, and combustion for energy recovery). Form A provides the name of the chemical and certain facility identification information. Form A can be used by the public as a “range report,” i.e., an indication that the facility manages between 0 and 500 pounds of a non-PBT chemical as waste.

**Q: Do the TRI data reflect releases from hydraulic fracturing?**

No. Under section 313 of the Emergency Planning and Community Right-to-Know Act, the TRI reporting requirements apply only to facilities in industrial sectors designated by certain North American Industrial Classification System (NAICS) codes. Facilities that extract crude petroleum or natural gas from the earth, such as the British Petroleum offshore oil well facility in the Gulf of Mexico and companies that extract

natural gas through hydraulic fracturing, are classified in NAICS 211111, which is not currently subject to TRI reporting requirements. For a list of all TRI-covered NAICS categories please see the North American Industry Classification System (NAICS) Codes as described on the [TRI webpage](#).

In October 2015, EPA issued a response to a 2012 petition to add the Oil and Gas Extraction sector to the scope of industries subject to TRI reporting requirements. EPA has determined that natural gas processing facilities may be appropriate for addition to the scope of TRI, but the rest of the Oil and Gas Extraction sector is not amenable to the scope of TRI. As a result of the petition response, EPA will commence the rulemaking process to propose adding natural gas processing facilities to the scope of TRI and determine the specific NAICS codes that may be covered under the proposed rule. For more information, visit [TRI's Laws and Regulatory Activities webpage](#).

**Q: Does TRI cover greenhouse gases?**

TRI reporting focuses on toxic chemicals and as a result covers different chemicals from EPA's Greenhouse Gas Reporting Program. Some TRI chemicals are a result of combustion of fuels for energy (as most GHG emissions are), but others are used in and released from additional processes ranging from metal mining to surface cleaning.

**Q: Is EPA adding a new industrial sector to TRI?**

EPA is proposing to add natural gas processing facilities to the scope of industrial sectors covered by the Toxics Release Inventory Program. Natural gas processing facilities that primarily recover sulfur from natural gas are already an industrial sector covered by TRI. This action proposes to expand coverage to all natural gas processing facilities. These facilities receive natural gas and then refine this gas. Facilities primarily engaged in natural gas extraction (e.g., exploration, fracking, etc.) are not included in this proposal.

**Q: Can I find information about chemical accidents in TRI?**

While the TRI database provides extensive information on the toxic chemicals managed as waste as part of facility operations, other parts of the [Emergency Planning and Community Right-to-Know Act \(EPCRA\)](#) provide additional information about chemical releases including accidents. Also, the Clean Air Act (CAA) section 112(r) [Risk Management Program](#) complements TRI with additional information to help prevent and minimize the impact of chemical releases. TRI data provide details on the management of production-related chemical waste, as well as information on non-production-related and/or accidental chemical releases.

**Q: What is the usual schedule for the TRI National Analysis?**

TRI data for the most recent reporting year are reported to EPA by industrial facilities by July 1 of the following year, and the preliminary dataset is posted online by the end of July. The data are then subject to an extensive data quality analysis by the TRI Program, and the dataset is refreshed throughout the fall to incorporate any revisions or late submissions received by EPA. The dataset used to create the TRI National Analysis is frozen in mid-October, and the report is developed from October to January. The National Analysis report is then published in mid-January.