

# 2014 TRI National Analysis Questions and Answers

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## Overview of the 2014 Data

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

Total production-related waste generated in 2014 was more than 25 billion pounds, a 2% increase from 2013. Almost 22 billion pounds (84%) of production-related waste were not released because they were managed through preferred waste management practices such as recycling, while four billion pounds (16%) were disposed of or otherwise released. The four billion pounds of total disposal or other releases in 2014 constitute a 6% decrease from 2013, 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 4% from 2013 to 2014, primarily caused by decreases from the chemical manufacturing and electric utilities sectors. Both sectors also experienced increased production over the past year. Releases into surface water increased 1% and on-site releases to land decreased 8% since 2013, with the latter again due primarily to the metal mining sector, as explained above.

### **Q: How many facilities reported for 2014? Why is it different from the number last year?**

A total of 21,783 facilities reported to TRI for 2014, which was 114 fewer facilities than had reported in 2013. 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 reduction in facilities.

- 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:

- the barriers that facilities reported which prevented implementing new source reduction activities.
- facilities' estimates of how much their source reduction activities will contribute to annual reductions in the future
- a case study demonstrating the ability of some facilities to reduce releases to zero while still managing other types of production-related waste.

In addition, this year's National Analysis continues the expansion of geographic-specific analyses from previous years 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 previous metrics of interest, such as air emissions or land disposal quantities for the selected area, new this year is the ability to select the RSEI score, as calculated by the publicly-available Risk-Screening Environmental Indicators (RSEI) model.

This year's 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 automotive manufacturing, as well as a look at federal facilities.

**Q: Is the change in disposal or other releases from 2013 to 2014 comparable to that of prior years? Why did the change occur?**

Total disposal or other releases decreased 6% (a 234 million pound decrease) from 2013 to 2014. Much of the change from year to year is due to reporting by metal mines, which accounted for 45% of all disposal or other releases for 2014.

The decrease in disposal or other releases from 2013 to 2014 is driven by two metal mines. If metal mining is excluded from the trend, then total on- and off-site releases decreased by 2% from 2013 to 2014.

**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 an 11% increase in disposal or other releases of PBT (persistent, bioaccumulative and toxic) chemicals overall from 2013 to 2014. 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 11% in 2014 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 10% from 2013 to 2014.
- Air releases of lead and its compounds decreased by 45%, mainly due to a large decrease in releases reported by a [lead smelter](#).

***Mercury and Mercury Compounds***

- From 2013 to 2014, total disposal or other releases for mercury and mercury compounds increased by 5%. Air emissions of mercury and mercury compounds decreased by 2%.
- Electric utilities accounted for 57% of all mercury and mercury compound releases to air. Electric utilities reported a 9% decrease in mercury air releases from 2013 to 2014.

**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 14% from 2013 to 2014. Total disposal or other releases of dioxins for 2014 were 88,423 grams, including 1,906 grams of air releases.

- The chemical manufacturing sector accounted for more than half of total disposal or other releases of dioxins in 2014. They reported an 11% decrease from 2013 to 2014.
- The primary metals sector reported the second largest total in 2014 and had a 92% increase in total disposal or other releases of dioxins from 2013 to 2014

#### 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 2014; however, their ranking in terms of percentage of the total is quite different for grams and grams-TEQ. The chemical manufacturing sector accounted for 52% of the total grams of dioxins released, while the primary metals sector accounted for 43% of the total grams. However, when TEFs are applied, the primary metals sector accounted for 91% of the total grams-TEQ, and the chemical manufacturing industry accounted for just 5%.

#### **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 16% from 2013 to 2014 primarily due to decreases in on-site land disposal of lead by the metal mining sector.
- Air releases of carcinogens increased by less than 1% from 2013 to 2014, and decreased by 48% from 2003 to 2014.
- In 2014, lead and lead compounds accounted for 67% of the disposal or other releases of carcinogens.
- Almost 93% of carcinogens were released to various forms of land disposal in 2014. Almost 96% of the total released to land was to surface impoundments, landfills, and other land disposal that were not RCRA Subtitle C facilities.
- Metal mines accounted for 75% of the disposal or other releases of carcinogens in 2014. Lead accounted for most of these disposal or releases; releases of lead and lead compounds from metal mines accounted for most of the land disposal that was not to RCRA Subtitle C facilities for all 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 2013 to 2014?**

Industry sectors with the largest decrease included:

- Metal mining facilities with a 10% decrease (195 million pounds)
- Chemical manufacturing industry with a 5% decrease (29 million pounds)
- Electric utilities with a 3% decrease (18 million pounds)
- Hazardous waste and solvent recovery with an 8% decrease (10 million pounds)

**Q: Which industry sectors reported increases in total disposal or other releases from 2013 to 2014?**

Industry sectors with the largest increase included:

- The petroleum refining and petroleum products sector reported a 13% increase (9.7 million pounds)
- The stone/clay/glass sector with a 13% increase (3.3 million pounds)
- The primary metals sector with a 1% increase (2.9 million pounds)

**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 Design for the Environment (DfE) helps companies use safer chemicals and technologies. 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 2013 to 2014?**

Industry sectors with the largest decrease included:

- Chemical manufacturing sector with a 22-million-pound decrease (12% )
- Electric utilities with a 16-million-pound decrease (8%)
- Paper sector with a 2.0-million-pound decrease (1%)

**Q: Which industry sectors reported increases in air releases from 2013 to 2014?**

Industry sectors with the largest increase included:

- The stone/clay/glass sector with a 3.6-million-pound increase (24%)
- The food/beverages/tobacco sector with a 2.7-million-pound increase (6%)
- The plastics and rubber sector with a 1.8-million-pound increase (6%)

**Q: Which industry sectors reported decreases in surface water discharges from 2013 to 2014?**

Industry sectors with the largest decrease included:

- The food/beverages/tobacco sector with a 4.3-million-pound decrease (6%)
- The chemicals sector with a 1.3-million-pound decrease (4%)

**Q: Which industry sectors reported increases in surface water discharges from 2013 to 2014?**

Industry sectors with the largest increase included:

- The petroleum refining and petroleum products sector with a 4.0-million-pound increase (17%)
- The paper sector with an 1.4-million-pound increase (8%)
- The stone/clay/glass sector with a 1.1-million-pound increase (26%)

**Q: What accounts for the 13% decline in disposal or other releases from 2003 to 2014?**

Most industry sectors covered by TRI had decreases in their total disposal or other releases from 2003 to 2014. The largest decreases occurred in the electric utility, primary metals, and hazardous waste management sectors. Within the electric utility sector, which had the largest decrease (539 million pounds from 2003 to 2014), likely reasons for the decrease include a shift from coal to other fuel sources and installation of control technologies at coal fired power plants.

**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 relating to the factors to consider when using TRI data is available on the [TRI webpage](#).

**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 2003 to 2014, total production-related waste managed by TRI facilities declined by 4% (more than 1 billion pounds). From 2013 to 2014, the total production-related waste managed increased by 2% (401 million pounds). From 2013 to 2014, facilities reported decreased quantities of TRI chemicals recycled (-13%), treated (-1%), and disposed of or otherwise released (-1%). The amount recovered for energy increased (+21%).

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 amount recycled or treated and a smaller amount disposed of or otherwise released. Table 1 shows the percent of the total production-related waste dedicated to each waste management practice in 2003, 2013 and 2014.

Table 1. Percent of total production-related waste recycled, used for energy recovery, treated or disposed of or otherwise released			
	2003	2013	2014
<b>Quantity Recycled</b>	36.1%	39.0%	38.4%
<b>Quantity Used for Energy Recovery</b>	13.1%	11.4%	13.6%
<b>Quantity Treated</b>	32.5%	32.8%	31.7%
<b>Quantity Disposed of or Otherwise Released</b>	18.3%	16.7%	16.3%

**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.

From 2013 to 2014, the number of Form Rs and Form As both changed by less than 1%.

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

TRI is part of the [Emergency Planning and Community Right-to-Know Act \(EPCRA\)](#) which encourages communication between facilities and the surrounding communities about chemical safety and chemical risks. While TRI provides extensive information on the toxic chemicals released and managed as waste as part of the facilities operations, other parts of EPCRA, as well as the Clean Air Act (CAA) section 112(r) [Risk Management Program](#), complement TRI with additional information to help prevent and minimize the impact of chemical releases. This year’s National Analysis includes a section that discusses the role of EPCRA and the Risk Management Plans (RMPs) in chemical safety and accident prevention and preparedness. The focus of this new section is on how RMP and TRI data complement each other when a facility reports under both programs. RMP submissions provide details on where the chemical is used and how the facility prevents and prepares for accidental releases. TRI data provide details on the process-related, non-accidental releases of the chemical.