

US EPA ARCHIVE DOCUMENT

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Overview of the 2013 Data

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

Total production-related waste generated in 2013 was 26 billion pounds, a 4% increase from 2012. Twenty-two 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. That 4 billion pounds of total disposal or other releases in 2013 constitute a 15% increase from 2012, mainly due to increases 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 increased by 1% from 2012 to 2013, primarily caused by increases from the chemical manufacturing and electric utilities sectors. Both sectors also experienced increased production over the past year. Releases into surface water decreased 2% and on-site releases to land increased 24% since 2012, with the latter again due primarily to the metal mining sector, as explained above.

Q: How many facilities reported for 2013? Why is it different from the number last year?

A total of 21,598 facilities reported to TRI for 2013, which was only 17 more facilities than had reported in 2012. 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. Note that there were 1,261 facilities that reported for 2013 that did not report for 2012, and a similar number that reported in 2012 but not in 2013.

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 expanded information on pollution prevention (P2) measures undertaken at TRI facilities. Also, P2 information is now available at the parent company (corporate) level. The adoption of "source reduction" activities can help eliminate waste at the source. The National Analysis presents the types of source reduction activities undertaken in 2013 and how waste and releases have declined at facilities undertaking such activities in recent years (from 2010 to 2013).

A new chapter of the National Analysis, *TRI & Beyond*, highlights three thematic areas that combine TRI with other data sources:

- Climate Change:
 - A comparison of TRI data and EPA's Greenhouse Gas Reporting Program (GHGRP) data collected under the Clean Air Act (CAA);
 - A comparison of TRI and GHG waste rates for different fuels using data from the Department of Energy's Energy Information Administration; and

- A look at projected sea level rise in the United States relative to TRI facility locations using National Oceanic and Atmospheric Administration (NOAA) data.
- Surface Water
 - An analysis of TRI and EPA's Discharge Monitoring Report (DMR) data collected under the Clean Water Act (CWA).
- Chemical Safety:
 - An analysis of TRI and emergency planning data collected under the Clean Air Act (CAA), including Risk Management Plans (RMPs), and other sections of the Emergency Planning and Community Right-to-Know Act (EPCRA).

In addition, this year's National Analysis consolidates and expands the geographic-specific analyses from previous years into 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. New this year, you can select your metric of interest, such as focusing on air emissions or land disposal quantities for the selected area.

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 petroleum refining.

Q: Is the change in disposal or other releases from 2012 to 2013 comparable to that of prior years? Why did the change occur?

Total disposal or other releases increased 15% (a 528 million pound increase) from 2012 to 2013. This year's increase brings total releases back to 2011 levels. Much of the change from year to year is due to reporting by metal mines, which accounted for 47% of all disposal or other releases for 2013.

The increase in disposal or other releases from 2012 to 2013 is driven by three metal mines, which reported a total increase in on-site releases of 426.6 million pounds (>80% of the 528 million lb total on- and off-site increase from 2012 to 2013). One metal mine cited the following reason for their increase in lead: "Total releases of Pb [lead] compounds are dependent on ore grade, among other things. Natural variation accounts for much of the difference in released Pb [lead] compounds from year to year." If metal mining is excluded from the trend, then total on- and off-site releases only increased by 0.4% from 2012 to 2013.

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 34% increase in disposal or other releases of PBT (persistent, bioaccumulative and toxic) chemicals overall from 2012 to 2013. Lead and lead compounds accounted for 99% 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 increased 36% in 2013. Lead accounts for 98.7% of the total disposal or other releases of PBTs.

Total disposal or other releases of lead and lead compounds 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.
- Metal mines accounted for 94% of total disposal or other releases of lead and lead compounds in 2013.

The metal mining sector had a 39% increase in total disposal or other releases of lead and lead compounds from 2012 to 2013.

- Without the metal mining sector, total disposal or other releases of lead and lead compounds decreased by 3% from 2012 to 2013.
- Air releases of lead and its compounds increased over the last two years, mainly due to releases reported by a [textile mill](#) and a [lead smelter](#).

Mercury and Mercury Compounds

- From 2012 to 2013, total disposal or other releases for mercury and mercury compounds decreased 1%. Air emissions of mercury and mercury compounds increased by 15%.
- The metal mining sector accounted for 92% of the total disposal or other releases of mercury and mercury compounds in 2013.
- Electric utilities accounted for 52% of all mercury and mercury compound releases to air. Electric utilities reported almost no change in mercury air releases from 2012 to 2013.

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 23% from 2012 to 2013. Air releases of dioxins decreased by 52%. Total disposal or other releases of dioxins for 2013 were about 77,687 grams, including almost 2,586 grams of air releases.

- The chemical manufacturing sector accounted for two-thirds of total disposal or other releases of dioxins in 2013. They reported a 37% increase from 2012 to 2013.
- The primary metals sector reported the second largest total in 2013 and had a 3% decrease in total disposal or other releases of dioxins from 2012 to 2013.

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 90% of both the grams and grams-TEQ of dioxin disposed of or otherwise released in 2013; however, their ranking in terms of percentage of the total is quite different for grams and grams-TEQ. The chemical manufacturing sector accounted for 67% of the total grams of dioxins released, while the primary metals sector accounted for only 26% of the total grams. However,

when TEFs are applied, the primary metals sector accounted for 70% of the total grams-TEQ, and the chemical manufacturing industry accounted for just 10%.

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 increased by 35% from 2012 to 2013 primarily to increases in on-site land disposal of lead by the metal mining sector.
- Air releases of carcinogens decreased by 2% from 2012 to 2013, and decreased by 48% from 2003 to 2013.
- In 2013, lead and lead compounds accounted for 64% of the disposal or other releases of carcinogens.
- Over 87% of carcinogens were released to various forms of land disposal in 2013. Over 97% of the total released to land was to on-site surface impoundments, landfills, and other land disposal that were not RCRA Subtitle C facilities.
- Metal mines accounted 79% of the disposal or other releases of carcinogens in 2013. Lead accounted for most of these disposal or releases; releases of lead and lead compounds from metal mines accounted for 70% of the surface impoundments and land disposal that were not RCRA Subtitle C sites of 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. Sixteen carcinogens were added to the TRI list for 2011.

Q: What about hydrogen sulfide?

Reporting year 2013 was the second year TRI required information on hydrogen sulfide. For 2013, 512 facilities reported hydrogen sulfide. Total disposal or other releases of hydrogen sulfide for 2013 were 26.98 million pounds; very similar to 2012 which was 26.24 million pounds. The paper, chemical manufacturing, and petroleum refining sectors reported 90% of the total hydrogen sulfide disposed of or otherwise released. Air releases accounted for 81% (21.9 million pounds).

Other sectors that reported on hydrogen sulfide include facilities in food/beverage/tobacco and plastics and rubber sectors. For facilities classified in NAICS 211112, Natural Gas Liquid Extraction, reporting is only required for facilities that recover sulfur from natural gas, that is, the facilities are "manufacturing" sulfur and for TRI purposes are classified in the chemical manufacturing sector.

Q: Which industry sectors reported decreases in total disposal or other releases from 2012 to 2013?

Industry sectors with the largest decrease included:

- Hazardous waste management facilities with a 9% decrease (14 million pounds)
- The primary metals industry with a 3% decrease (11 million pounds)
- The paper industry with a 2% decrease (3 million pounds)

Q: Which industry sectors reported increases in total disposal or other releases from 2012 to 2013?

Industry sectors with the largest increase included:

- The metal mining industry reported a 36% increase (519 million pounds)
- Electric utilities with a 5.4% increase (28 million pounds)
- The chemical industry with a 1% increase (5 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 2012 to 2013?

Industry sectors with the largest decrease included:

- The primary metals sector with a 5% decrease (2.0 million pounds)
- The paper sector with a 1% decrease (1.4 million pounds)
- The transportation equipment sector with a 4% decrease (1 million pounds)
- The fabricated metal sector with an 4% decrease (0.9 million pounds)

Q: Which industry sectors reported increases in air releases from 2012 to 2013?

Industry sectors with the largest increase included:

- The chemical manufacturing sector with a 5% increase (9.2 million pounds)
- Electric utilities with a 3% increase (5.2 million pounds)
- The plastics and rubber sector with a 4% increase (1.1 million pounds)
- The petroleum refining and petroleum products sector with a 2% increase (1.0 million pounds)

Q: Which industry sectors reported decreases in surface water discharges from 2012 to 2013?

Industry sectors with the largest decrease included:

- The primary metals sector with a 15% decrease (6.5 million pounds)
- The petroleum refining and petroleum products sector with a 4% decrease (0.9 million pounds)
- The chemicals sector with a 2% decrease (0.8 million pounds)

Q: Which industry sectors reported increases in surface water discharges from 2012 to 2013?

Industry sectors with the largest increase included:

- The food/beverages/tobacco sector with a 2% increase (1.7 million pounds)
- The stone/clay/glass sector with a 70% increase (1.7 thousand pounds)
- The metal mining sector with a 53% increase (0.5 million pounds)

Q: What accounts for the 7% decline in disposal or other releases from 2003 to 2013?

Most industry sectors covered by TRI had decreases in their total disposal or other releases from 2003 to 2013. The largest decreases occurred in the electric utility, hazardous waste management, primary metals sectors. Within the electric utility sector, which had the largest decrease (528 million pounds from 2003 to 2013), likely reasons for the decrease include a shift from coal to other fuel sources and installation of control technologies at coal fired power plants.

Federal Facilities**Q: How did federal facilities fare this year?**

For 2013, 459 federal facilities reported more than 58 million pounds of total on- and off-site disposal or other releases and over 184 million pounds of total production-related waste managed.

Total disposal or other releases from federal facilities increased by 8% from 2012 to 2013. The Tennessee Valley Authority (TVA) electric utilities reported 42% of the total disposal or other releases from federal facilities in 2013 and a 7% (1.9 million pounds) decrease from 2012 to 2013.

Many federal facilities that report to TRI are national defense sites. Department of Defense facilities accounted for 42% of total disposal or other releases from federal facilities for 2013. They reported a 12% (2.5 million pounds) increase from 2012. These facilities are required to report to TRI even though they do not fit into the industry categories that normally report to TRI because they are federal facilities.

EPA received 1,209 forms from federal facilities, almost all of which were Form Rs (1,200).

- 62% of the forms came from DOD facilities.
- 14% of the forms came from TVA facilities.
- EPA submitted 5 TRI forms.

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 2013, total production-related waste managed by TRI facilities declined by 4% (more than 1 billion pounds). From 2012 to 2013, the total production-related waste managed increased by 4% (911 million pounds). From 2012 to 2013, facilities reported increased quantities of TRI chemicals recycled (+3%), treated (+3%), and disposed of or otherwise released (+9%). The amount recovered for energy remained the same (change of less than 0.1%).

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 amount recycled or treated and a smaller amount used for energy recovery. Table 1 shows the percent of the total production-related waste dedicated to each waste management practice in 2003, 2012 and 2013.

Table 1. Percent of total production-related waste recycled, used for energy recovery, treated or disposed of or otherwise released			
	2003	2012	2013
Quantity Recycled	36.1%	39.2%	37.9%
Quantity Used for Energy Recovery	13.1%	11.9%	11.4%
Quantity Treated	32.5%	32.8%	34.1%
Quantity Disposed of or Otherwise Released	18.3%	16.1%	16.5%

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 2012 to 2013, the number of Form Rs and Form As both decreased 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](#).

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.

Q: I heard that there is a lawsuit related to a petition to add the oil & gas sector to TRI. Is there additional information on that lawsuit or the petition?

EPA is not in a position to comment on the litigation until the agency is formally served with the Complaint. It will then be reviewed and comment will be provided at a later point, if appropriate. If you would like to learn more about EPA’s work related to oil and gas extraction, please visit our website: <http://www2.epa.gov/hydraulicfracturing>.