2017 TRI National Analysis Frequently Asked Questions

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Overview of the 2017 Data

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

Air releases continued to decline, with a 57% (757 million lb) decrease since 2007, and a 2% decrease from 2016 to 2017. Releases into surface water decreased 0.4% and on-site disposal to land increased 19% since 2016, with the latter due primarily to increased land disposal from the metal mining sector.

Production-related waste generated in 2017 was 30.6 billion pounds, an 11% increase from 2016. Approximately 25 billion pounds (87%) of production-related waste were not released because they were managed through preferred waste management practices such as recycling and treatment. The 3.9 billion pounds of total disposal or other releases in 2017 constitute a 13% increase from 2016. Without including the metal mining sector, disposal or other release quantities increased by less than 1% (6.5 million pounds) from 2016. In the 2017 National Analysis, EPA has provided more context and enabled better interpretation of the release data submitted by metal mining facilities.

Q: Why have air releases decreased by so much since 2007?

The 57% decrease in air releases from 2007-2017 is driven by electric utilities and is due to: decreased emissions of Hazardous Air Pollutants (HAPs), such as hydrochloric acid; a shift from coal to other fuel sources (e.g., natural gas); and the installation of control technologies at coal-fired power plants.

Q: How many facilities reported for 2017? Is it different from the number last year?

A total of 21,456 facilities reported to TRI for 2017, which was similar to the number of facilities than had reported for 2016. After many years of a downward trend in the number of facilities reporting to TRI, the trend levelled off in recent years with little change in the number of facilities reporting since 2010. Some facilities reported after the deadline and, depending upon how late TRI reports were submitted, EPA was not able to include the data contained in every late submission in this analysis. EPA will evaluate those facilities for appropriate follow up action.

Background:

There are many reasons why a facility may report to TRI one year but not report the next year. Each of the following reasons may account 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: is in an industry sector that is within the scope of sectors subject to TRI reporting; has at least 10 full-time employees; and within a calendar year manufactures, processes or otherwise uses a TRI-listed chemical in quantities above a threshold amount, it must file a TRI report.
- Some facilities have had 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 closed, and did not exceed a TRI reporting threshold during the reporting year.
- Some facilities have changed their processes so that they no longer use any chemicals on the TRI list.
- Some facilities have found ways to manufacture, process, or otherwise use a TRI-listed chemical throughout the reporting year in quantities that were below the reporting thresholds for these activities.
- 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:

- A summary of green chemistry activities reported to TRI (based on the first 6 years of green chemistry reporting).
- Expanded the use of the Risk Screening Environmental Indicators (RSEI) tool for data presentation.
- A section highlighting wastewater treatment techniques reported to TRI.
- An industry sector profile highlighting the paint and coating sector.
- New economic and employment data in the industry sector profiles.
- A new "TRI for Researchers" resource available from the TRI Program's website.

Q: Is the change in disposal or other release quantities from 2016 to 2017 comparable to that of prior years?

Total disposal or other release quantities increased by 13% from 2016 to 2017. From 2015 to 2016, the total quantities disposed and released increased by 1%, but larger changes are not uncommon. Much of the change from year to year is due to reporting by metal mines, which accounted for 50% of all disposal or other releases for 2017. Disposal or other release quantities reported by metal mines can vary significantly from year to year.

Q: How does EPA regulate metal mining waste?

Mining wastes include waste generated during the extraction, beneficiation, and processing of minerals. 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. EPA also provides a mining and mineral processing compliance assistance document focused on the gold and copper industries.

Q: What about PBT chemical releases?

There was a 46% increase in the quantities of PBT (persistent, bioaccumulative and toxic) chemicals disposed or otherwise released from 2016 to 2017. Lead and lead compounds accounted for 99% of the total quantities of PBTs disposed of or otherwise released during 2017; therefore, the disposal (release) data are more meaningful in the context of specific PBT chemicals.

Lead and Lead Compounds

- Total disposal or other release quantities of lead and lead compounds increased by 47% in 2017 mainly due to increased land disposal from the metal 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 release quantities of lead and lead compounds decreased by 13% (8.4 million pounds) from 2016 to 2017.
- The total quantity of lead and lead compounds released to air decreased by 1% from 2016 to 2017.

Mercury and Mercury Compounds

- From 2016 to 2017, total disposal or other release quantities of mercury and mercury compounds

increased by 12%. This increase is driven by increases in on-site land disposal of mercury at metal mines and by increases in off-site transfers of mercury to hazardous waste facilities, which dispose of mercury waste in secure landfills or other secure disposal units. This type of disposal to land is intended to prevent or at least minimize exposure to mercury and mercury compounds. The quantities of mercury and mercury compounds emitted to air decreased by 9%.

- The primary metals sector, which includes iron and steel manufacturers and smelting operations, accounted for 34% of the quantities of mercury and mercury compounds reported to TRI as released to air. This sector reported a 2% increase in the quantities of mercury it released to air in 2017 from 2016. Electric utilities accounted for 25% of the total quantities of mercury and mercury compound released to air in 2017 and reported a 25% decrease in the quantities of mercury and mercury compounds released to air from 2016 to 2017.

Background:
There is no mercury mining 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 release quantities of dioxins decreased by 6% from 2016 to 2017.

Background:
Dioxins and dioxin-like chemicals 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 dioxins and dioxin-like chemicals that are 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 on the TRI chemical list. These different chemicals are often called “dioxin congeners” or simply “dioxins.” Some of the congeners 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 considers both quantity and toxicity. This number helps in understanding the relative hazard of dioxin congeners; however, it does not compare the risk from different facilities, because it does not consider human exposure to the chemicals. TEQs enable the public to better understand the TRI release data for dioxins and make more informed environmental decisions. Expressing dioxin releases and waste management information in grams-TEQ also permits easier comparisons of TRI dioxin data with other EPA data and international dioxin 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 more than 90% of both the grams and grams-TEQ of dioxins disposed of or otherwise released in 2017; however, their ranking in terms of percentage of the total is quite different for grams and grams-TEQ. The primary metals sector accounted for 42% of the total grams of dioxins released, and the chemical manufacturing sector accounted for 51% of the total grams. However, the primary metals sector accounted for 81% of the total grams-TEQ released, and the chemical manufacturing sector accounted for 11%.

Q: What about known or suspected carcinogens?

Among the chemicals that are reportable to the TRI Program, a subset are classified as OSHA carcinogens.

- Total quantities of all of OSHA carcinogens disposed of or released increased by 2% from 2016 to 2017.

- Quantities of all of OSHA carcinogens disposed of or released to air increased by 1% from 2016 to 2017 and decreased by 37% from 2007 to 2017.
- In 2017, nickel and nickel compounds accounted for 23% of the total quantity of OSHA carcinogens disposed of or released, and styrene accounted for 15% of OSHA carcinogens disposed of or released.

Background:

Under the OSHA regulations adopted by the TRI program through rulemaking, an "OSHA carcinogen" includes chemicals listed by:

(i) National Toxicology Program (NTP), Annual Report on Carcinogens (latest edition);

(ii) International Agency for Research on Cancer (IARC) Monographs (latest editions); or

(iii) 29 CFR part 1910, subpart Z, Toxic and Hazardous Substances, Occupational Safety and Health Administration.

For IARC and NTP this includes chemicals with the following classifications:

IARC: 1–The chemical is carcinogenic to humans; 2A–The chemical is probably carcinogenic to humans; 2B–The chemical is possibly carcinogenic to humans.

NTP: K–The chemical is known to be a human carcinogen; RA–The chemical is reasonably anticipated to be a human carcinogen.

Q: Which industry sectors reported decreases in total disposal or other release quantities from 2016 to 2017?

Industry sectors that reported the largest decreases include:

- Electric utilities with a 20-million-pound decrease (-6%)
- Primary metals sector with an 18-million-pound decrease (-5%)
- Nonmetallic mineral products sector with a 1.5-million-pound decrease (-5%)

Q: Which industry sectors reported increases in total disposal or other release quantities from 2016 to 2017?

Industry sectors that reported the largest increases include:

- Metal mining sector with a 434-million-pound increase (29%)
- Hazardous waste sector with a 42-million-pound increase (29%)
- Food manufacturing sector with a 5-million-pound increase (4%)

Q: Which industry sectors reported decreases in the quantities of TRI chemicals released to air from 2016 to 2017?

Industry sectors that reported the largest decreases include:

- Chemical manufacturing with a 7.1-million-pound decrease (-4%)
- Electric utilities with a 4.4-million-pound decrease (-5%)
- Paper sector with a 2.5-million-pound decrease (-2%)

Q: Which industry sectors reported increases in the quantities of TRI chemicals released to air from 2016 to 2017?

Industry sectors that reported the largest increases include:

- Primary metals sector with a 4.2-million-pound increase (16%)
- Food manufacturing sector with a 2.4-million-pound increase (6%)
- Plastics and rubber manufacturing sector with a 291-thousand-pound increase (1%)

Q: Which industry sectors reported decreases in the quantities of TRI chemicals released to surface water from 2016 to 2017?

Industry sectors that reported the largest decreases include:

- Primary metals sector with a 5.6-million-pound decrease (-18%)
- Chemical manufacturing sector with a 1.8-million-pound decrease (-6%)
- Electric utilities with an 833-thousand-pound decrease (-25%)

Q: Which industry sectors reported increases in the quantities of TRI chemicals released to surface water from 2016 to 2017?

Industry sectors that reported the largest increases include:

- Food manufacturing sector with a 5.2-million-pound increase (8%)
- Petroleum sector with a 4.1-million-pound increase (16%)
- Paper sector with a 2.0-million-pound increase (12%)

Q: What is EPA doing to help sectors decrease the quantities of TRI chemicals they dispose of or otherwise release to the environment?

EPA's Pollution Prevention Program helps identify pollution prevention (P2) options in all industry sectors through a variety of assistance and information-sharing programs. In addition, the TRI program makes its pollution prevention information accessible to promote the implementation of effective P2 practices through the TRI P2 webpage.

Q: What accounts for the 7% decline in disposal or other release quantities from 2007 to 2017?

Most industry sectors covered by TRI decreased the total quantities of TRI chemicals they disposed of or otherwise released into the environment over the 2007 to 2017 timeframe. This long-term decrease is driven mainly by declining releases of TRI chemicals to air, down 57% (757 million pounds) since 2007. 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 emissions.

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 chemicals or to calculate 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 cause these different effects at different levels 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 TRI-listed chemicals. Factors that users of TRI data might consider include:

- Toxicity of the chemical
- Exposure (proximity of populations to where releases or disposal occur)
- Bioaccumulation of the chemical in the food web
- Type of disposal or release (environmental medium), and magnitude of the release quantity
- 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 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 TRI-listed chemical does not automatically mean that local communities are at risk of experiencing harm from the chemical. Large release quantities do not necessarily mean there is need to be concerned, 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 the extent of exposure to the TRI chemical following its release, route(s) of exposure (e.g., inhalation, dermal), bioavailability from the exposure route, and sensitivity of exposed individuals to effects caused by a TRI-listed chemical must be considered before any judgments regarding risk can be made.

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

Production-related waste consists of on-site environmental disposal or other releases, on-site waste management (recycling, treatment, and combustion for energy recovery), and off-site transfers for

disposal, treatment, recycling, and energy recovery. The quantity of total production-related waste of a TRI chemical or TRI chemicals is the sum of the quantities of the TRI chemical (or chemicals): released or disposed of on-site and off-site, and otherwise managed as waste on-site or off-site. Production-related waste does not include chemical waste quantities resulting from remedial actions, catastrophic events, or other one-time events not associated with normal or routine production processes. Production-related waste managed represents a focus on management of TRI-listed chemicals rather than only on their final disposition.

EPA encourages facilities to strive to eliminate waste at its source. In other words, facilities should avoid generating the waste in the first place whenever feasible. For waste that is generated, the preferred management methods are recycling, followed by combusting for energy recovery, treating and, as a last resort, disposing of or otherwise releasing the waste. The percent of the quantities of production-related waste allocated to each of these management practices has changed over time, with a larger proportion recycled and a smaller proportion disposed of or otherwise released. The table below shows the percent of the production-related waste quantities for each waste management method in 2007, 2016 and 2017.

Percent of production-related waste recycled, combusted for energy recovery, treated or disposed of or otherwise released			
	2007	**2016**	**2017**
Quantity Recycled	38%	46%	50%
Quantity Combusted for Energy Recovery	11%	11%	10%
Quantity Treated	33%	30%	27%
Quantity Disposed of or Otherwise Released	18%	13%	13%

Note that the proportion of total production-related waste that was recycled increased to 50% in 2017, and recycling is a preferable management activity than disposal or otherwise releasing the chemical waste.

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

Reporting 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). Reporting Form A provides the name of the chemical and certain facility identification information. Reporting 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. For more information on the requirements and data elements for each form, see the TRI Reporting Forms and Instructions.

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 and companies that extract natural gas through hydraulic fracturing, are classified in NAICS 211111, which is not within the scope of sectors 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?

The TRI contains information on one-time releases of non-production-related waste, which includes accidental releases, along with releases associated with remediation activities, natural disasters, and other causes of one-time releases. This information is reported in section 8.8 of the TRI Reporting Form R. Note that this information is only reported to TRI if the facility met all three of the TRI reporting criteria of 1) exceeding the chemical activity threshold; 2) exceeding the employment threshold; and 3) is operating within a TRI-covered sector. While the TRI database provides extensive information on the TRI-listed 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 of TRI-listed chemicals.

Q: Does TRI include information on releases related to natural disasters, such as hurricanes?

Releases of TRI-listed chemicals due to natural disasters are reported to TRI as "non-production-related waste," meaning waste that is not associated with normal production processes. These are wastes resulting from one-time events (e.g., remedial actions), or from catastrophic events (e.g., natural disasters such as hurricanes). Note that this information is only reported to TRI if the facility met all three of the TRI reporting criteria of 1) exceeding the chemical activity threshold; 2) exceeding the employment threshold; and 3) is operating within a TRI-covered sector.

Q: Does TRI cover greenhouse gases?

TRI covers a wide range of chemicals, and some of these chemicals are also regulated by EPA's Greenhouse Gas Reporting Program.

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

TRI data for a given calendar (reporting) year are to be reported to EPA by 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 extensive data quality analyses 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 typically published in January. The publication of the 2017 National Analysis was delayed due to the partial government shutdown that occurred from late December 2018 through January 2019.