

2009 TRI National Analysis Qs and As

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Overview of the 2009 Data

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

As with the RY 2008 data, the RY 2009 raw TRI data were shared before EPA's National Analysis was released. To increase transparency and provide data to communities earlier than ever before, EPA shared the raw data with the public in July 2010, with updates in August and September. This gave communities unprecedented access to the raw data, while EPA was still completing the analysis and data quality checks. The analysis of the data will be available in the same calendar year that facilities submitted it to TRI.

There was a 12% decrease in total disposal or other releases from 2008 to 2009. The decrease is larger than last year's decrease, which was 5%, and continues a downward trend over the past several years. Recent decreases in disposal or other releases may be due to a variety of reasons including: decreases in production; a reduction in chemical use; a shift to other management methods, such as recycling and treatment of chemicals, which reduces the amounts disposed or otherwise released; a gradual decrease in the number of facilities reporting to TRI; or a change in the composition of raw materials including ore composition at metal mines.

There was a 7% decrease in facilities reporting to TRI. The decrease is slightly larger than last year (which was 3%). Some facilities that have previously reported to TRI may have closed or may have reduced their use of toxic chemicals so that they are no longer required to report to TRI. However, some facilities that meet the criteria to report to TRI may have missed the reporting deadline or failed to report at all. Because of these late reporters, the 7% decrease in reporting facilities may decrease slightly after the National Analysis has been released. Last reporting year, the percent decrease from 2007-2008 went from 5% at the release of the National Analysis in December 2009 to now only 3%. EPA will review the facilities that did not report to determine appropriate follow up action.

Disposal or other releases of persistent, bioaccumulative, and toxic (PBT) chemicals decreased by 18%. Total disposal or other releases of lead, mercury, and dioxins decreased. There was a decrease (of 3%) from 2008 to 2009, following several years of increases. It is important to look at PBT releases chemical by chemical to understand these increases and decreases.

Q: How many facilities reported for 2009? Why is it different from the number last year?

A total of 20,797 facilities reported to TRI for 2009, a 7% decrease from 2008. This continues the downward trend from previous years in the number of facilities reporting. 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 fits 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 has been streamlined to focus on the national numbers and expanded to present examples of regional and program analyses. New for this year, the National Analysis includes a more in depth look at select industry sectors and an analysis based on corporate parent companies. These analyses are displayed in the 2009 TRI National Analysis Overview document. Additionally the National Analysis website features a presentation of reported disposal or other releases in some of the most populous urban communities (Metropolitan Statistical Areas) in the United States. Also on the website is a presentation of reported disposal or other releases in the largest aquatic ecosystems, like the Chesapeake Bay and the Great Lakes. All ten large aquatic ecosystems (LAEs) covered under EPA's Council of Large Aquatic Ecosystem are highlighted. The Council was chartered in 2008 and focuses on protecting and restoring the health of critical aquatic ecosystems. Lastly, the National Analysis website features a tribal lands analysis which includes the total disposal or other releases on Indian country and Alaska Native Villages.

Q: Is the change in disposal or other releases from 2008 to 2009 comparable to that of prior years? Why did the change occur?

Total disposal or other releases decreased 12% from 2008 to 2009. This year's decrease continues a downward trend from years past, but is more than double the 5% decreased from 2007 to 2008. With the exception of 2004 to 2005, which saw a 3% increase, there has been between a 1 and 15% decrease in disposal or other releases from year to year since 2001.

This year's decrease may be due to the following reasons:

- Reporting facilities decreased 7% as of the reporting deadline. This accounts for a portion of, but not the entire, decrease since the national totals are driven by decreases from large facilities that continue to report.
- Changes in the largest industry sectors tend to drive changes in total releases. This year, a 38% decrease from primary metals facilities and a 12% decrease in disposal or other releases from electric utilities played a large role in the overall decrease.
- Some of the decrease may reflect the economic conditions.

Q: What about PBT chemical releases?

There was an 18% decrease in disposal or other releases of PBT (persistent, bioaccumulative and toxic) chemicals overall from 2008 to 2009. 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 18% in 2009. Lead accounts for 97% 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 84% of total disposal or other releases of lead and lead compounds in 2009. The metal mining sector had a decrease of 19% from 2008 to 2009, driving the overall decrease.
- Without the metal mining sector, total disposal or other releases of lead and lead compounds decreased by 10%.

Air releases of lead decreased 24% from 2008 to 2009.

Mercury and Mercury Compounds

From 2008 to 2009, disposal or other releases for mercury and mercury compounds decreased 3%. Air emissions of mercury and mercury compounds decreased 21%.

- Metal mining accounts for over 90% of the total disposal or other releases of mercury and mercury compounds. The sector reported a very slight decrease (less than -0.3%) from 2008 to 2009.
- Electric utilities accounted for 71% of all mercury and mercury compound releases to air. Electric utilities reported a 21% increase in mercury air releases.
- The cement, primary metals, and chemicals sectors are the next biggest contributors to air releases of mercury, and all of these sectors decreased their releases as well.

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 decreased 18% from 2008 to 2009. Air releases of dioxins decreased by 24%.

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. Also, sometimes facilities change or refine estimation techniques, which also can affect reported totals. For example, the facility with the largest amount of dioxins in production-related waste managed, the Dow Chemical Plant in Midland, Michigan, changed from disposing of the waste in an on-site landfill to treating the waste on-site. This reduction in disposal or other releases accounted for a reduction of 6,825 grams from 2008 to 2009. The overall reduction in dioxins from all TRI facilities was 7,210 grams.

Polychlorinated Biphenyls (PCBs)

PCB total disposal or other releases decreased 22% from 2008 to 2009.

Background:

Because PCBs are no longer manufactured or used in new products, the disposal or other releases of PCBs represents amounts that are being cleaned up or capacitors and transformers being taken out of service and properly disposed of in facilities that minimize risk to human health and the environment.

PCB total disposal or other releases typically fluctuate from year to year based on how many significant cleanup activities are underway or how many PCB transformers are removed from service.

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

There are actually 17 different chemicals in the category of dioxins and dioxin-like compounds in TRI. They are all very toxic, but some of them are much more toxic than others. TEQ (Toxic Equivalency) values provide a weighted sum 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 necessarily 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:

<http://www.epa.gov/TRI/lawsandregs/teq/teqfinalrule.html>

Q. What about known or suspected carcinogens?

This category of analysis was added to the Key Findings in 2005 at the request of stakeholders, and it is now in the TRI National Analysis Overview.

- About 65% of TRI facilities reported disposal or other releases of carcinogens.
- Total disposal or other releases of carcinogens decreased 15% from 2008 to 2009 compared to a decrease of 12% for all TRI chemicals.
- Air releases of carcinogens decreased by 28%.
- Lead and lead compounds accounted for 60% of the disposal or other releases of carcinogens.
- Almost 90% of carcinogens were released to various forms of land disposal, including two-thirds (68%) to surface impoundments and land disposal that were not RCRA Subtitle C facilities.
- Metal mines accounted for almost two-thirds (65%) of the disposal or other releases of carcinogens; lead accounts for most of these disposal or releases and lead from metal mines accounted for 95% of the surface impoundments and land disposal that were not RCRA Subtitle C sites.

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 2008 to 2009?

All industry sectors except for the apparel industry reported decreases from 2008 to 2009.

The primary metals industry reported a 38% decrease.

The hazardous waste/solvent recovery industry reported a 35% decrease.

Electric utilities reported a 12% decrease.

The chemical manufacturing industry reported a 9% decrease.

The paper products industry reported a 6% decrease.

The food/beverage industry reported a 5% decrease.

The metal mining industry reported a slight (less than 2%) decrease.

Q: Which industry sectors reported increases from 2008 to 2009?

Only the apparel industry reported an increase, of 65% (7,555 pounds). This industry sector is comprised of only four TRI facilities, each with increases in releases this year.

Q: Did all industry sectors report a decrease in air emissions from 2008 to 2009?

All industry sectors had a decrease (or reported no increase) in air emissions from 2008 to 2009.

Electric utilities accounted for 42% of all air emissions for 2009 and reported a decrease of 27%. Electric utilities' air emissions are comprised of mainly hydrochloric acid.

Chemical manufacturers accounted for 17% of the total and reported a decrease of 6%.

Q: Did all industry sectors report a decrease in surface water discharges from 2008 to 2009?

The food/beverage industry accounted for 40% of total surface water discharges, mainly nitrate compounds, and reported a decrease of 15% from 2008 to 2009.

However, the paper industry, accounting for 9% of the total, reported an increase of 3%.

Q: What accounts for the 30% decline in disposal or other releases from 2001 to 2009?

Definitive answers for this question are only possible at the facility-specific level following consultation with the particular facility. A large portion of the change is accounted for by the metal mining industry, which reported a decrease of 50% during this time. In large part, this decrease is associated with a court decision that mining facilities could use the *de minimis* exemption when reporting TRI chemicals in waste rock. The decrease from metal mining accounts for almost half of the overall decrease.

Additionally, electric utilities decreased 12% from 2008 and 25% from 2001.

For all other industries, the overall decrease was 21% from 2008 and 37% from 2001.

Some of the reasons for this decrease may include:

- reductions in chemical use,
- a shift to different management methods, such as recycling and treatment of chemicals, which reduces the amounts released, and
- a gradual decrease in the number of facilities reporting to TRI from 2001 to the present.

Federal Facilities

Q: How did federal facilities fare this year?

Total disposal or other releases from federal facilities decreased 29% from 2008 to 2009.

The Tennessee Valley Authority (TVA) electric utilities reported 50% of the total disposal or other releases from federal facilities for 2009 and a 40% (23 million pounds) decrease from 2008 to 2009.

One reason for the decrease this year was the 2008 large accidental release of coal ash from the Tennessee Valley Authority (TVA) Kingston plant. This release accounted for a large increase from 2007 and 2008 with a nearly 8 million pounds decrease from 2008 to 2009.

Many federal facilities that report to TRI are national defense sites. Department of Defense facilities accounted for 40% of total disposal or other releases from federal facilities for 2009. They reported a 9% decrease from 2008. When the primary mission of one of these sites changes, it can lead to either a sudden increase or a sudden decrease in their releases. These sites are required to report to TRI because they are federal facilities, even though they do not fit into the industry categories that normally report to TRI.

For 2009, 390 federal facilities reported over 72 million pounds of total on- and off-site disposal or other releases and 227 million pounds of total production-related waste.

We received 1,238 forms from federal facilities, almost all of which are Form Rs (1,209).

- 67% of the forms came from DOD facilities.
- 17% of the forms came from TVA facilities.
- EPA submitted 10 TRI forms for 1.1 million pounds of waste, almost all of which was from site cleanup.

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. Additionally 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 and is available at

<http://www.epa.gov/tri/tritools/index.htm>. More information relating to the factors to consider when using TRI data is available at <http://epa.gov/tri/tridata/>.

Q: Should I worry about releases in my community? EPA provides lists of the top 50 facilities with the largest disposal or other releases by industry sector. Should the communities around these facilities be concerned about the chemicals coming out of these facilities?

The list of top 50 facilities, and other ranking lists, are best used as screening tools to identify facilities that may warrant a closer examination. 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.

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 2001 to 2009, total production-related waste managed by TRI facilities declined by 26% (more than 7 billion pounds), and from 2008 to 2009, the total production-related waste decreased 12%. Facilities reduced the quantity of TRI chemicals recycled by 16%, recovered for energy by 18%, treated by 6%, disposed of or otherwise released 13%.

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 over time. A smaller percent was disposed of or otherwise released in 2009 than in 2001 or 2008. Table 1 shows the percent of the total production-related waste dedicated to each waste management practice in 2001, 2008 and 2009.

Table 1. Percent of total production-related waste recycled, used for energy recover, treated or disposed of or otherwise released.

	2001	2008	2009
Quantity Recycled	35.35%	38.21%	36.67%
Quantity Used for Energy Recovery	12.37%	11.85%	11.14%
Quantity Treated	31.20%	32.77%	35.14%
Quantity Disposed of or Otherwise Released	21.08%	17.18%	17.04%

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. Several chemicals may be reported on one Form A; only one chemical may be reported on each Form R submission.

The distribution of Form Rs and Form As reported to EPA may have been affected by the 2009 Omnibus Appropriations Act (H.R. 1105-225-226, Section 425: Toxics Release Inventory Reporting) and the recession of the 2006 TRI Burden Reduction Rule. With the rescission of the Burden Reduction Rule, the 2008 data were collected with the same rules for Form A eligibility as before the rule was enacted. It should be noted that many facilities that became eligible to submit Form As under the rule still submitted Form Rs. But for RY 2008, the first reporting year after the rule was rescinded for which facilities submitted data to EPA, the number of Form As dropped 19% from RY 2007, reducing Form A use to less than it was before the Burden Reduction Rule. The number of Form Rs decreased 0.5% from RY 2007 to RY 2008 and total number of forms submitted to decreased 3%. There was then a 9% decrease in Form As submitted to TRI from RY 2008 to RY 2009, with an 8% decrease in the number of Form Rs and an 8% decrease in the number of total forms.

Q: Does the preliminary dataset reflect releases resulting from the British Petroleum offshore oil well in the Gulf of Mexico?

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, 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 in TRI Reporting Web site available at <http://www.epa.gov/tri/lawsandregs/naic/ncodes.htm> .