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Overview of the 2010 Data

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

As with the RY 2009 data, the RY 2010 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 2011, with updates in August, September, and October. This gave communities unprecedented access to the raw data, while EPA was still completing the analysis and data quality checks.

There was a 16% increase in total disposal or other releases from 2009 to 2010. The increase reverses the downward trend since 2006. The recent increases in disposal or other releases may be due to a variety of reasons including: change in the composition of raw materials used at facilities, for example a change in the chemical composition of at the ore body at metal mines. Other possible reasons for an increase include changes in management methods, changes in release estimation methods, changes in production, increases in chemical use, or a change in the composition of the economy.

There was a 2% decrease in facilities reporting to TRI. The decrease is slightly smaller than last year (which was 5%). 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 2% decrease in reporting facilities may decrease slightly after the National Analysis has been released. Last reporting year, the percent decrease from 2008-2009 went from 7% at the release of the National Analysis in December 2010 to now only 5%. 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 increased by 50%, mainly due to increases in lead and lead compounds. 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. Polycyclic aromatic compounds (PACs) and polychlorinated biphenyls increased after decreasing from 2008 to 2009. Dioxins increased in both 2009 and 2010. On the other hand, total disposal or other releases of mercury and mercury compounds have decreased each year since 2007.

Q: How many facilities reported for 2010? Why is it different from the number last year?

A total of 20,904 facilities reported to TRI for 2010, a 2% decrease from 2009. 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 includes presentation of production measures in comparison with the TRI data, pollution prevention information submitted by the facilities on the TRI Form R, risk information from the RSEI program and expanded Spanish translations.

Continuing for the second year is an in-depth look at selected industry sectors (this year includes cement, chemical manufacturing, electric utilities, metal mining and paper). These analyses are displayed in the 2010 TRI National Analysis Overview document.

In addition, the National Analysis website continues to feature a presentation of reported disposal or other releases in some of the most populous urban communities (Metropolitan Statistical Areas) in the United States, in the largest aquatic ecosystems, like the Chesapeake Bay and the Great Lakes, and 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 2009 to 2010 comparable to that of prior years? Why did the change occur?

Total disposal or other releases increased 16% from 2009 to 2010. This year's increase reverses the downward trend from years past. 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 increase may be due to the following reasons:

- Changes in the largest industry sectors tend to drive changes in total releases. This year, a 43% increase from metal mines, a 19% increase from chemical manufacturers and a 20% increase in disposal or other releases from primary metals facilities (such as smelters, iron and steel mills).
- More specifically in 2010, four metal mining facilities, two in Nevada, one in Alaska and one in Utah, accounted for the majority of the overall increase in disposal or other releases for 2010. Facilities cited the following as the main reasons for their increases: changes in ore body composition, improved estimates for releases and no longer being eligible for the *de minimis* exemption for reporting certain chemicals.
- Some of the increase may reflect the economic conditions.
- While there was a decrease of 2% in the number of facilities reporting, there were 1,648 facilities that reported for 2010 that did not report for 2009.

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 Web page. <http://www.epa.gov/osw/nonhaz/industrial/special/mining/>

Q: What about PBT chemical releases?

There was a 50% increase in disposal or other releases of PBT (persistent, bioaccumulative and toxic) chemicals overall from 2009 to 2010. Lead and lead compounds account 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 increased 51% in 2010. Lead accounts for 98% 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 89% of total disposal or other releases of lead and lead compounds in 2010. The metal mining sector had an increase of 16% from 2009 to 2010.
- Even without the metal mining sector, total disposal or other releases of lead and lead compounds increased by 2%.
- Air releases of lead and its compounds increased 22% from 2009 to 2010.

Mercury and Mercury Compounds

From 2009 to 2010, total disposal or other releases for mercury and mercury compounds decreased 20%. Air emissions of mercury and mercury compounds decreased slightly (by 0.3%).

- Metal mining accounted for over 92% of the total disposal or other releases of mercury and mercury compounds in 2010. The sector reported an overall decrease of 19% from 2009 to 2010.
- Electric utilities accounted for 68% of all mercury and mercury compound releases to air. Electric utilities reported a 6% decrease in mercury air releases.
- The primary metals, cement, and chemicals sectors are the next biggest contributors to air releases of mercury in 2010. From 2009 to 2010, the primary metals sector more than tripled their air releases of mercury. The cement and chemicals sectors decreased their air releases of mercury.

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 18% from 2009 to 2010. Air releases of dioxins increased by 10%.

- Chemical manufacturers accounted for almost 64% of total disposal or other releases of dioxins in 2010. They reported a 7% decrease from 2009 to 2010.
- Hazardous waste management facilities and primary metals sector reported the largest increase in total disposal or other releases of dioxins from 2009 to 2010, primarily as on-site land disposal.
- Electric utilities accounted for 35% of all releases to air of dioxins in 2010 and reported an increase of 5% from 2009 to 2010.

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. Total disposal or other releases of dioxins for 2010 were 54,426 grams, including 1,234 grams of air releases.

Polychlorinated Biphenyls (PCBs)

PCB total disposal or other releases increased 23% from 2009 to 2010.

Background: Because PCBs are no longer manufactured or used in new products, the disposal or other releases of PCBs represent 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 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:

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

Various industry sectors may dispose of or otherwise release very different mixes of dioxin congeners. Three industry sectors accounted for over 96% of both the grams and grams-TEQ of dioxin disposed of or otherwise released in 2010; however, their ranking in terms of percentage of the total is quite different for grams and grams-TEQ. The chemicals sector reported 64% of total grams of dioxins in 2010 but ranked behind the primary metals sector in terms of grams-TEQ. The hazardous waste management facilities ranked third in both grams and grams-TEQ.

Q: What about known or suspected carcinogens?

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

- About 65% of TRI facilities reported disposal or other releases of carcinogens.
- Total disposal or other releases of carcinogens increased 67% from 2009 to 2010 compared to an increase of 16% for all TRI chemicals.
- Air releases of carcinogens increased by 7%.
- Lead and lead compounds accounted for 54% of the disposal or other releases of carcinogens.
- Almost 89% of carcinogens were released to various forms of land disposal. Almost 79% of the total was to surface impoundments and land disposal that were not RCRA Subtitle C facilities.
- Metal mines accounted more than three-quarters (76%) of the disposal or other releases of carcinogens; lead accounts for most of these disposal or releases and lead from metal mines accounted for 56% of the surface impoundments and land disposal that were not RCRA Subtitle C sites 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 increases in total disposal or other releases from 2009 to 2010?

Industry sectors with the largest increase included:

- The metal mining industry reported a 43% increase (487 million pounds)
- The chemical manufacturing industry reported a 19% increase (83 million pounds)
- The primary metals industry reported a 20% increase (63 million pounds)
- The transportation equipment sector reported a 19% increase (5.6 million pounds)
- The paper and paper products sector with a 1% increase (2.6 million pounds)
- The petroleum sector with a 2% increase (1.5 million pounds)

Q: Which industry sectors reported decreases from 2009 to 2010?

Industry sectors with the largest decrease included:

- Electric utilities with a 12% decrease (100 million pounds)
- Hazardous waste management facilities with a 2% decrease (2.2 million pounds)
- The plastics and rubber sector with a 5% decrease (1.9 million pounds)

Q: Which industry sectors reported increases in air releases from 2009 to 2010?

Industry sectors with the largest increase included:

- The transportation equipment industry with a 26% increase (5.6 million pounds)
- The paper and paper products sector with a 3% increase (4.4 million pounds)
- The chemicals sector with a 3% increase (4.3 million pounds)
- The primary metals sector with a 10% increase (3.2 million pounds)
- The food/beverage/tobacco industry with a 6% increase (2.3 million pounds)

Q: Which industry sectors reported decreases in air releases from 2009 to 2010?

Industry sectors with the largest decrease included:

- Electric utilities with a 19% decrease (74 million pounds)
- The plastics and rubber industry with an 11% decrease (3.5 million pounds)

Q: Which industry sectors reported increases in surface water discharges from 2009 to 2010?

Industry sectors with the largest increase included:

- The primary metals sector with a 57% increase (16 million pounds)
- The chemicals sector with a 23% increase (6.7 million pounds)
- The metal mining sector with a 275% increase (1.4 million pounds)

Q: Which industry sectors reported decreases in surface water discharges from 2009 to 2010?

Industry sectors with the largest decrease included:

- The food/beverage/tobacco industry with a 4% decrease (3.6 million pounds)
- The stone/clay/glass sector with a 29% decrease (1.5 million pounds)

Q: What accounts for the 30% decline in disposal or other releases from 2001 to 2010?

Definitive answers for this question are only possible at the facility-specific level following consultation with the particular facility.

The metal mining sector accounts for a large portion of the total disposal or other releases every year (40% in 2001 and 41% in 2010) so how they change will determine to a large extent the overall change. The metal mining sector reported a decrease of 29% from 2001 to 2010. 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 over a third of the overall decrease.

Note: The *de minimis* exemption allows facilities to disregard certain minimal concentrations of non-PBT chemicals in mixtures or other trade name products when making threshold determinations and release and other waste management calculations.

In addition, electric utilities accounted for the second largest total disposal or other releases of all industry sectors (19% in 2001 and 18% in 2010). Electric utilities decreased 34% from 2001 to 2010.

For all other industries, the overall decrease from 2001 to 2010 was 31%. Some 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,
- changes in sampling or estimation methods at facilities, and
- a gradual decrease in the number of facilities reporting to TRI from 2001 to the present.

Q: What accounts for the recent reductions in utility mercury emissions?

Decreases in reported mercury emissions may be due to changes in reporting, economic conditions, changes in the way utilities operate, and/or responses to federal and state actions such as state guidelines or rules, federal rules, or enforcement actions. Combinations of recent federal and state regulations, along with decreased generation have likely contributed to the utility mercury reductions. For example, the Clean Air Interstate Rule (CAIR)'s sulfur dioxide (SO₂) program began in 2010, and many facilities installed scrubbers and other pollution controls to comply with the rule. Because these controls can reduce mercury emissions in addition to SO₂, much of the drop in mercury in the eastern U.S. in the past 3 years is due to the installation and use of pollution controls by power plants under CAIR. Another factor may be reductions since 2001 in the amount of power generated.

Despite these reductions, TRI data show that electric utilities account for 68% of all mercury releases to the air, and once final, EPA's Mercury and Air Toxics Standards (MATS) for power plants would prevent increases in mercury and other air toxic emissions in the future. In fact, the rule will lower mercury emissions and provide a nationally consistent, level playing field by closing loopholes for big polluters.

Federal Facilities

Q: How did federal facilities fare this year?

Total disposal or other releases from federal facilities increased 11% from 2009 to 2010. The Tennessee Valley Authority (TVA) electric utilities reported 53% of the total disposal or other releases from federal facilities for 2010 and a 20% (7.2 million pounds) increase from 2009 to 2010.

Many federal facilities that report to TRI are national defense sites. Department of Defense facilities accounted for 34% of total disposal or other releases from federal facilities for 2010. They reported a 5% (1.5 million pounds) decrease from 2009. 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 even though they do not fit into the industry categories that normally report to TRI because they are federal facilities.

For 2010, 407 federal facilities reported over 80 million pounds of total on- and off-site disposal or other releases and 247 million pounds of total production-related waste.

We received 1,248 forms from federal facilities, almost all of which are Form Rs (1,235).

- 67% of the forms came from DOD facilities.
- 17% of the forms came from TVA facilities.
- EPA submitted 10 TRI forms for 904 thousand pounds of waste, 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. 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 and is available at <http://www.epa.gov/tri/tridata/index.html>. 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 2010, total production-related waste managed by TRI facilities declined by 19% (more than 5 billion pounds). However, from 2009 to 2010, the total production-related waste managed increased by 7% (1.4 billion pounds). From 2009 to 2010, facilities increased the quantity of TRI chemicals recycled by 3%, recovered for energy by 7%, treated by 8%, and disposed of or otherwise released 15%.

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 2010 than in 2001 although it was somewhat higher in 2010 than in 2009. Table 1 shows the percent of the total production-related waste dedicated to each waste management practice in 2001, 2009 and 2010.

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

	2001	2009	2010
Quantity Recycled	35%	38%	36%
Quantity Used for Energy Recovery	12%	11%	11%
Quantity Treated	31%	34%	35%
Quantity Disposed of or Otherwise Released	21%	17%	18%

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 2010 Omnibus Appropriations Act (H.R. 1105-225-226, Section 425: Toxics Release Inventory Reporting) and the rescission 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.

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 only slightly (by 0.3%) from RY 2007 to RY 2008. From 2009 to 2010, Form Rs decreased by 1% while the number of Form As stayed essentially the same (increase of one form).

Q: Does the TRI data 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>.