

Toxics Release Inventory (TRI) Data and Tools

Noteworthy Updates and Activities

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ABSTRACT

The last two years saw a number of changes and events, making the TRI dataset a more powerful tool in the arsenal for building and using emissions inventories. One of the largest legal settlements involving failure to submit timely, complete and correct TRI reports was recently finalized. This action highlights the fact data reported by a facility should not automatically be viewed as low quality. Violators are identified and do face legal penalties. A second major recent achievement is a significant reduction in the data gap of facility spatial data. This data gap shrunk from around 3% per year to 0.1 %. Success was due to the diligent work of data stewards matching TRI facilities with other records in EPA's Facility Registry System (FRS) and a lot of boots on the ground making site visits. TRI has also launched a new Pollution Prevention (P2) tool. The value added with this tool is the ability to associate specific P2 activities taken by a facility with changes in their emissions. New chemicals and changes with existing tools round out this set of TRI updates. The primary purpose of the Emergency Planning and Community Right-to-Know Act (EPCRA) is to inform communities and citizens of chemical hazards in their areas. The Toxics Release Inventory (TRI), under EPCRA, is a publicly available EPA database containing information on toxic chemical releases and waste management activities on nearly 630 chemicals and chemical categories.

HISTORY AND BACKGROUND

In 1984, an industrial accident in Bhopal, India resulted in the released of a deadly cloud of methyl isocyanate killed thousands of people and injuring over half a million. Shortly thereafter, another industrial accident in Institute, West Virginia resulted in leaks of toxics chemicals. These and other events spurred public interest and environmental organizations around the country to accelerated demands for information on toxic chemicals being released "beyond the fence line" -- outside of the facility. Against this background, the [Emergency Planning and Community Right-to-Know Act \(EPCRA\)](#) was enacted in 1986.

One of EPCRA's primary purposes is to inform citizens of toxic chemical releases in their areas. EPCRA Section 313 requires EPA and the States to collect data annually on releases and transfers of certain toxic chemicals from industrial facilities and make the data available to the public through the Toxics Release Inventory (TRI).

In 1990 Congress passed the [Pollution Prevention Act](#) which requires facilities to report additional data on waste management and source reduction activities to EPA under TRI. The goal of the Toxics Release Inventory Program is to provide communities with information about toxic chemical releases and waste management activities and to support informed decision making at all levels by industry, government, non-governmental organizations, and the public.

The inventory has constantly evolved since its beginning in 1987. It has grown not just in size, but also in quality, accessibility, and amount of integration with other data. The last two years has seen a number of changes which may be of interest to the TRI data user.

DISCUSSION

What is the Toxics Release Inventory?

The TRI is a federal program mandated by statute and regulated by the United States Environmental Protection Agency. Except for very small facilities, facilities within specific industries, and having specific chemicals over specific thresholds are required to report annually to both their state and to the USEPA. Covered industries which are required to report are listed in the EPA regulations at 40 CFR Part 372, in the TRI reporting instruction, and on the TRI website. Currently covered industries include most manufacturing industries, coal and most metal mining, electrical utilities, hazardous wastes facilities and a few other industries. The list of covered TRI chemicals are also found in the same previously mentioned locations. The current TRI toxic chemical list contains 594 individually-listed chemicals and 31 chemical categories (including four categories containing 68 specifically-listed chemicals). If the members of the four delimited categories are counted as separate chemicals, the TRI Program covers 689 chemicals and chemical categories (i.e., 594 + 27 + 68). The quantitative thresholds of the TRI reporting requirements are:

- Facility size -10 or more full time equivalent employees. This is the same as a total of 20,000 hours worked by full time, part, time and contract employees.
- Quantity of most listed chemicals manufactured or processed > 25,000 pounds
- Quantity of listed PBT chemicals manufactured or processed > 10 or 100 pounds (chemical specific)
- Quantity of dioxin or dioxin compounds manufactured or processed > 0.1 grams
- Quantity of a listed chemical otherwise used > 10,000 pounds

A unique components of the TRI is it is multi-media. The data reveals not only changes in a facility's toxics releases, but potentially can be used to observe diversions of a release from air to water or to land.

Key events since 2012 International Emissions Inventory Conference

Compliance

TRI data users often are unaware, covered facilities have a legal obligation to report timely and accurate data to the EPA. Generally, when EPA identifies anomalies with a facility's reported data or with a facility's reporting history and contacts the facility, the facility submits revised data or provides an explanation. When a matter cannot be resolved between the TRI program office and the facility, it may be turned over to EPA's Office of Enforcement and Compliance Assurance. Information on recent TRI enforcement actions may be found at: <http://www2.epa.gov/toxics-release-inventory-tri-program/tri-compliance-and-enforcement>. A sampling of a few cases which have been recently settle is shown below and include both large and small dollar amounts and in some situations only involved a single chemical during a single year.

- \$618,000 settlement with 3 Nevada gold mines for failure to submit timely, complete and correct TRI reports (Feb 2013)
- \$62,000 settlement with 2 Pennsylvania steel facilities for failure to submit timely TRI reports for chromium and lead (Jan 2014)
- \$153,000 in penalties for violations of RMP and TRI reporting (Oct 2014)
- \$20,000 settlement for failure to submit a TRI report for a PAC in 2012 (Dec 2014)

Decrease in size of data gap of spatial data

When facilities annually report TRI data to the US EPA, one of the data fields required to be completed is the street address of the facility. Occasionally some rurally located facilities only provide a descriptive address, such as 3 miles west of exit 81. Additionally some facilities may fail to specify a north or south when necessary or use a name which may commonly be used locally, but differs from the name commonly used on maps. All of these situations present challenges for automated geolocating tools, which may fail to identify a valid latitude and longitude coordinate. To maximize uniformity across the Agency, the database with TRI data pulls latitude and longitude from EPA's Facility Registry Service (FRS). FRS provides geolocating services based on the address. FRS maintains the latitude / longitude they generate or acquire from other sources, run a number of validation checks, and provides the spatial data both to EPA programs and the general public. Part of the data quality process and error correction processes involves a team of data stewards who can input recommended spatial data directly to FRS along with the appropriate metadata.

Whenever a valid latitude and longitude is not available there is a gap in the EPA data. Since the latitude and longitude is not a required data element under the TRI regulations, the management of the data quality does not formally fall under the TRI program. The TRI staff however understands the criticality of this element to many TRI data users. The TRI programs has worked with the FRS team to improve the spatial data for TRI facilities.

The TRI Headquarters' program office enlisted the TRI regional coordinators to perform a massive review of TRI facilities missing spatial data. Using some new tools developed within FRS and by performing site visits to collect the data directly, we were able to greatly reduce the size of the data gap for existing TRI facilities. We have also instituted a new collaborative approach between TRI and FRS where for facilities claiming to be reporting to the TRI for the first time, FRS receives basic facility identification information including the street address much earlier in the data flow. FRS can then have the latitude and longitude ready when the TRI data actually enters EPAs main data repository, Envirofacts.

Although the latitude and longitude associated with a street address may initially be used, the preferred spatial data included with TRI emissions data is the centroid of the facility if that data is available. In May of 2011, there were 437 facilities in the TRI database for which valid spatial was missing. As of March 2015 only 60 TRI facilities were missing this data. These values include any facility who ever reported to TRI. This includes facilities who may have only reported in 1987 and have since ceased operations. Of the 60 facilities identified in March of 2015, approximately half were reporting to TRI for the first time. This represents approximately 0.1 % of all TRI reporters for the reporting year 2012.

Pollution Prevention (P2) tool

Since reporting year 1991, TRI covered facilities also had to report certain waste management data in order to track progress in reducing waste generation. Although the data has been part of the TRI dataset and has been publically available, recently we have made more of the data more accessible and have launched a new tool. The P2 tool provides the ability to compare pollution prevention activities at the facility and the corporate level. The P2 tool is available at www.epa.gov/enviro/facts/tri/p2.html.

New chemicals

Since reporting year 2012, one new chemical and one new chemical category have been added. One chemical has also been reinstated to the list of reportable TRI chemicals. For reporting year 2014, CAS 88-72-2, o-Nitrotoluene was added and for reporting year 2015 the Nonylphenol category has been added. The Nonylphenol category includes only the following chemicals:

<u>CAS Number</u>	<u>Chemical Name</u>
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- 104-40-5 4-Nonylphenol
- 11066-49-2 Isononylphenol
- 25154-52-3 Nonylphenol
- 26543-97-5 4-Isononylphenol
- 84852-15-3 4-Nonylphenol, branched
- 90481-04-2 Nonylphenol, branched

The reporting of Hydrogen sulfide was stayed for reporting year 1995. The stay was lifted in 2011 and Hydrogen sulfide was included in the list of TRI chemicals for reporting year 2012.

2012 NAICS

The Emergency Planning and Community Right-to-Know Act originally required TRI reporting using four-digit Standard Industrial Classification (SIC) codes. However, the Office of Management and Budget replaced the SIC code system with the North American Industry Classification System (NAICS) code system developed by the U.S. Census Bureau, and TRI adopted this system in 2006. NAICS codes are updated every five years, and TRI facilities currently use OMB-revised 2012 six-digit NAICS codes on their TRI reporting forms.

Conclusion

For the past 26 years, the TRI program has continually evolved since its beginning with facilities reporting their toxics releases for 1987. The number of reportable chemicals and number of industries required to report under TRI has steadily grow. The quality has increased of both the reported TRI data and additional EPA data which is mashed-up to provide a more useful dataset. Access to the data has also improved from the original bound books with hundreds of data tables to a variety of online tools and downloadable datasets. Additional details about the TRI program, reporting requirements, Data quality, compliance and enforcement of the TRI regulations, and more may be found at www.epa.gov/tri.

KEY WORDS

Toxics Release Inventory

TRI

Emergency Planning and Community Right-to-Know Act (EPCRA)

Pollution Prevention Act

O-Nitrotoluene

Nonylphenol

Hydrogen sulfide