
Executive Summary

The 2013 Toxics Release Inventory data set marks 27 years of data collected from covered facilities being made available to the public. The Toxics Release Inventory continues to strive to provide the public with information about chemical uses, releases, and waste management activities occurring at these facilities.

Overall on-site releases reported in Delaware decreased by 1,161,000 pounds (22%) for 2013 compared to 2012. Significant changes impacting on-site releases for 2013 were reductions reported by Delaware City Refinery (DCR) and Perdue Georgetown for the release of nitrate compounds to water. Total releases reported by DCR were down 650,000 pounds and total releases reported by Perdue Georgetown were down 173,000 pounds compared to 2012. The results from the 2013 TRI data are covered in greater detail throughout this report. Additional detailed 2013 TRI information for each reporting facility in Delaware is also presented via the **TRI Facility Profiles** (see the **Access to TRI Files** section under **For Further Information** on page 46). These profiles are a new feature this year that allow the public to more easily access information about the TRI facilities in their community.

Overall, a summary of the data shows (amounts rounded to the nearest 1,000 pounds):

- The total amount released on-site to water decreased by 896,000 pounds (24%) compared to 2012. This was largely due to reductions in releases of nitrate compounds reported by the Delaware City Refinery and the Perdue Georgetown facility. Excluding nitrate compounds, releases to water have trended downward over the last 10 years, with releases being down by 80% compared to 2003. (See **Releases to Water** on page 9 for additional information.)
- The total amount of TRI chemicals reported as released on-site to air for 2013 decreased by 110,000 pounds (10%), compared to 2012. The largest reduction in this category was hydrochloric acid (HCl) aerosols released to air from the Indian River Generating Station. Over the last 10 years, total releases to air have trended downward 86%. (See **Releases to Air** on page 8 for additional information.)
- The total amount released on-site to land decreased by 155,000 pounds (50%) compared to 2012. This was primarily the result of Indian River Generating Station reporting a reduction of 90,000 pounds in the release of barium compounds to land. Releases to land have trended downward 88% since 2003. (See **Releases to Land** on page 10 for additional information.)
- The trend for on-site release of carcinogens decreased by 59,000 pounds (30%) for 2013, and has declined 717,000 pounds, or 84%, since 1998. Decreases in on-site releases for 2013 were reported for vinyl acetate, vinyl chloride, and lead compounds. (See **Carcinogenic TRI Chemicals** on page 25 for additional information.)
- The trend for on-site release of persistent bioaccumulative toxins (PBTs) decreased by 3,700 pounds (30%) for 2013. This was primarily the result of reductions of releases to land for lead compounds by the Indian River Generating Station. (See **Persistent Bioaccumulative Toxic (PBT) Chemicals** on page 19 for additional information.)
- Total TRI waste, including releases on-site, transfers off-site for treatment and disposal, and waste management on-site, decreased by 0.4%, or 1.9 million pounds from 2012. On-site release amounts, reported above, were down 22%. Transfers off-site decreased 12%, primarily the result of decreases in off-site disposal and energy recovery. Waste managed on-site increased by 0.3%, primarily due to increases in on-site recycling.

Introduction

What is the Toxics Release Inventory?

The Toxics Release Inventory, or TRI, is a publicly available data set containing information reported annually for toxic chemicals manufactured, processed, or otherwise used by certain facilities in Delaware and throughout the United States. Each year, these facilities report releases and waste management information for covered chemicals. The reportable list of toxic chemicals for 2013 included 593 individual chemicals and 30 chemical categories. TRI was established in 1986 under Title III, Section 313, of the Federal Superfund Amendments and Reauthorization Act (SARA 313) to provide information to the public about the presence and release of toxic chemicals in their communities. Title III is also known as the Emergency Planning and Community Right-to-Know Act (EPCRA). See **Appendix A** for more information.

Covered facilities report TRI information to the EPA and to the state in which the facility is located. In Delaware, the EPCRA Reporting Program within the Department of Natural Resources and Environmental Control (DNREC) receives and compiles TRI data from facilities located within the State. The DNREC EPCRA Reporting Program maintains a TRI database that is updated as new reports and revisions to old reports are received. The database currently contains 27 years of reported data. Most releases reported under TRI are also regulated through Federal and/or State permits.

This report contains detail from every 2013 TRI report or report revision from Delaware facilities received by DNREC as of October 1, 2014. Facilities must submit these reports to DNREC and the EPA by July 1 of each year. Several types of analyses are presented in this report based on this data and data from prior years. See **Access to TRI Files, under For Further Information**, on page 46 for details.

Reporting Requirements

A facility is required to submit a report for a listed toxic chemical if the facility meets all of the following criteria:

1. Employs the equivalent of 10 or more full-time employees,
2. Is a covered industry, or is a Federal facility (See Table 1 on the next page for a list of reporting industries), and,
3. Manufactures or processes more than 25,000 pounds, or otherwise uses more than 10,000 pounds, of the listed toxic chemical during the course of the calendar year. Threshold limits for specific chemicals known as PBTs (Persistent Bioaccumulative Toxics) are lower (see Table 7 on page 19).

Note that from time to time, the EPA proposes changes in reporting requirements. It gives agencies, reporting facilities, and other interested parties time to comment on these changes prior to making a final decision about the proposed change. See page 5 for more details.

Facilities that meet the criteria for reporting must submit one report for each listed toxic chemical if it was manufactured, processed, or otherwise used above threshold quantities. The reports cover releases and waste management activities during the prior calendar year.

It is important to note that a facility may need to report even if it has no releases of toxic chemicals, because reporting is based on the amount manufactured, processed, or otherwise used, and not the amount released.

Table 1 is a list of covered industries reporting to the Delaware TRI program for 2013, along with the corresponding three primary digits of the North American Industrial Classification System (NAICS) Codes. NAICS 6-digit codes are used to identify the type of activities performed at a facility. Each industry sector represented by facilities reporting in Delaware for 2013 is shown in Table 5 on page 15. NAICS codes were used in TRI starting in 2006 to provide more discrimination between the various industry sectors reporting to TRI.

**TABLE 1
COVERED INDUSTRIES**

NAICS CODES	INDUSTRY
212	Mining
221	Utilities
311	Food Manufacturing
313	Textile Products Mfg.
324	Petroleum and Coal Products Mfg.
325	Chemical Manufacturing
326	Plastics and Rubber Manufacturing
331	Primary Metal Manufacturing
332	Fabricated Metal Product Mfg.
334	Computer and Electronic Product Mfg.
335	Electrical Equipment Mfg.
337	Furniture Manufacturing
339	Misc. Manufacturing
424	Wholesalers, Non-Durable Goods
454	Non-Store Retailers
928	National Security

The standard Form R report (see **Appendix L** for Form R) contains general facility information and complete data about on-site releases, off-site transfers, and on-site waste management activities. Form R can be used for all TRI reports. In lieu of Form R, the optional short Form A report (see **Appendix M** for Form A) may be used

provided certain criteria are met. Form A, initiated in the 1997 reporting year, is a two-page report that provides facility information (essentially the same as Form R) and identification of the chemical, but does not provide any release, transfer, or waste management data. In Delaware, 14% of the TRI reports were filed as Form A for 2013. After a facility determines that it must report on a given chemical, the facility is eligible to use Form A if:

For non-PBT chemicals:

1. The total annual reportable amount (including the sum of on and off-site releases, disposal, treatment, recovery for recycle or energy) is less than 500 pounds; and,
2. The total annual amount of the chemical manufactured, processed, or otherwise used does not exceed 1,000,000 pounds.

For Persistent Bioaccumulative Toxic (PBT) Chemicals including dioxins:

1. **PBTs, including dioxins and dioxin-like compounds, may not be reported on Form A.**
2. Form R, Schedule 1 is an additional for that is required for dioxins.

Because of the lack of data in the Form A reports, DNREC has been collaborating with the reporting facilities and emphasizing the importance of reporting on Form R.

Limitations of TRI Data

The user of TRI data should be aware of its limitations in order to interpret its significance accurately.

- **NOT ALL FACILITIES ARE REQUIRED TO REPORT.** A relatively small number of facilities in Delaware are required to report under TRI, based on the criteria listed on pages 2-3. TRI facilities are primarily industrial/manufacturing facilities and facilities report releases and other waste management activity to TRI. TRI does not account for amounts of hazardous material stored at facilities. The DNREC program addressing inventories of material stored on site, the Hazardous Chemical Reporting program known as “Tier II” (also administered under EPCRA), includes a much greater number of facilities. Facilities report amounts and the location of chemicals stored on-site to Tier II, but not releases. For further information, see *Hazardous Chemical Reporting in Appendix A*.
- **OTHER SOURCES NOT COVERED UNDER TRI ALSO RELEASE TOXIC CHEMICALS.** Other significant sources of pollution include small businesses, motor vehicles and agricultural operations. For example, on-road motor vehicles released an estimated 7,633 tons to air in Delaware just for the chemicals ammonia (NH₃) and volatile organic compounds (VOCs), for 2008. NH₃ and many VOCs are also TRI chemicals. See page 6, which shows that total TRI on-site releases for 2013 are 4,032,792 pounds, or 2,016 tons, about 26% of the on-road vehicle amount for these TRI chemicals.
- **FACILITIES ARE REQUIRED TO BASE TRI DATA ON MEASUREMENTS AND MONITORED DATA ONLY IF THESE ARE AVAILABLE AT THE FACILITY.** If such data is not available, quantities may be estimated based on published emission factors, mass balance calculations, or good engineering judgment. Additional monitoring equipment and measurements are not required. For 2013, 11% of the reports representing 22% of reported on-site release amounts were estimated using monitoring data, with the balance being split between emission factors, mass balance calculations, and other methods.
- **THE DATA ESTIMATION METHODS MAY CHANGE OR VARY.** The methods of estimating or basis of calculating data used by different facilities, or even the same facility over time, may vary, and may result in significant changes in reporting while the actual release may remain relatively unchanged. DNREC performs cross-checks of the data with other information sources to verify its accuracy and contacts facilities concerning apparent discrepancies.
- **FACILITIES MAY REVISE FORM R DATA AT ANY TIME.** These revisions sometimes involve significant changes for data previously reported by the facility.
- **THE DATA DOES NOT INDICATE THE AMOUNT OF HUMAN EXPOSURE.** An important consideration to keep in mind is that TRI does not provide an indication of potential exposure to the reported releases and cannot be used by itself to determine the impact on public health. The chemical's release rate, toxicity, and environmental fate, as well as local weather and wind direction and the proximity of nearby communities to the release must be considered when assessing exposures. Small releases of highly toxic chemicals may pose greater risks than large releases of less toxic chemicals. The

potential for exposure increases the longer the chemical remains unchanged in the environment. Some chemicals may quickly break down into less toxic forms, while others may accumulate in the environment, becoming a potential source of long-term exposure. The chemical exposure of a population depends on the environmental media (air, water, land) into which the chemical is released. The media also affect the type of exposure possible, such as inhalation, dermal exposure, or ingestion.

Despite these limitations, TRI serves as a valuable screening tool to identify areas of concern that may require further investigation.

Recent Developments in TRI Reporting

The TRI reporting requirements change as the EPA seeks to improve the program through changes to the list of reportable chemicals and through program expansions. Because of these changes, considerable caution must be exercised when comparing TRI data from previous years. Notations will be made to indicate which data is presented with adjustments in order to show it on a uniform year-to-year basis.

- **Recently Added Chemicals - Hydrogen Sulfide and PACs.** In the 2012 reporting year, hydrogen sulfide was added to the list of reportable chemicals. Hydrogen Sulfide reports accounted for the majority of TRI waste reported as managed on-site, accounting for 84%. In 2011, **16 new carcinogens**, four of which are in the polycyclic aromatic compounds (PAC) category, were added to the list of reportable chemicals. None of the 12 individually listed new chemicals were reported in Delaware for 2013. PACs are reported as a category, so it is not possible to determine if any of the 8 facilities reporting PACs reported any of the four new PAC chemicals.
- **Upcoming Changes -** For the 2014 reporting year, O-nitrotoluene is being added to the list of reportable TRI chemicals. EPA published the final rule for the addition of this chemical on November 7, 2013. Reports for the chemical will be due July 1, 2015. Per the National Toxicology Program (NTP), o-nitrotoluene has been classified as “reasonably anticipated to be a human carcinogen”.