Factors to Consider

When Using Toxics Release Inventory Data

Revised 2022

What is the Toxics Release Inventory?

EPA's Toxics Release Inventory (TRI) contains data on certain toxic chemicals that are manufactured, processed, otherwise used, and/or managed at thousands of facilities— including federal facilities— throughout the United States and its territories. TRI data reflect, among other things, quantities of chemicals managed by facilities as waste, including those quantities released into the environment, treated, burned for energy, recycled, and transferred from one facility to another for release or further management. The TRI also has information on how facilities are working to reduce or prevent formation of chemical wastes (referred to as "pollution prevention (P2)" and "source reduction").

The TRI is a valuable source of information that supports environmental and human health protection. It is widely used by researchers, community members, government agencies, companies and others for many purposes, including, for example:

- identifying the locations and quantities of chemical releases to air, water and land, and transfers of chemical waste sent off site to other facilities;
- learning about a facility's practices for managing toxic chemical wastes;
- identifying potential environmental concerns that may warrant further investigation;
- measuring industry progress toward improving environmental performance; and
- helping companies learn from each other's best practices for reducing toxic chemical use and the amount of chemical waste being managed.

TRI DOES...

- ✓ empower the public with information about how certain chemicals are managed.
- ✓ include information on chemical releases to air, water, land, other waste management activities, and source reduction practices at U.S. facilities.
- ✓ provide a starting point for evaluating potential impacts to human health and the environment.

TRI DOES NOT...

- ✗ cover all chemicals, facilities, or types of pollution (such as bacterial contamination).
- ✗ provide real-time monitoring data.
- ✗ require facilities to reduce releases.
- ✗ provide all information necessary to determine the health risks associated with chemical releases.

The rest of this document gives an overview of factors that should be considered to use TRI data appropriately and directs interested readers to other reference sources. For examples of how TRI data can be used, please see The Toxics Release Inventory in Action.

FACTORS TO CONSIDER

Looking at TRI Data

Consider the factors below when looking at TRI data for a chemical, facility, industry sector, or location of interest.

Although not all U.S. facilities are covered by the TRI, more than 20,000 facilities submit TRI reporting forms to EPA each year

TRI reporting forms must be filed by owners and operators of facilities that **meet the following three criteria**:

- The facility falls within a TRI-covered industry sector or is federally-owned or operated;
- The facility has 10 or more full-time employee equivalents; and
- The facility manufactures (including import) or processes more than 25,000 pounds or otherwise uses more than 10,000 pounds of a TRI-listed chemical during a calendar year.
    - Note that a lower reporting threshold applies to some TRI chemicals: a threshold of 10 or 100 pounds applies to "chemicals of special concern" (e.g., persistent bioaccumulative toxic (PBT) chemicals); a threshold of 0.1 gram applies to the dioxin and dioxin-like compounds category; and a threshold of 100 pounds applies to Per- and Polyfluoroalkyl Substances (PFAS).

If a facility **does not meet** all three of these criteria, it is not required to file a TRI reporting form.

The TRI chemical list includes more than 800 toxic chemicals and chemical categories

In general, the chemicals on the TRI chemical list are those that cause one or more of the following:

- Cancer or other chronic human health effects;
- Significant adverse acute human health effects; and
- Significant adverse environmental effects.

Note that although the TRI list does not include all chemicals used in commerce, it does include an important subset of chemicals. Additionally, the EPA continues to evaluate chemicals for possible addition to the TRI list.

TRI data are submitted annually

By July 1 each year, a facility meeting the three TRI reporting criteria must submit a TRI reporting form for each listed chemical for which it exceeded the chemical reporting threshold during the previous calendar year. Reporting forms cover, among other things, chemical waste management activities that occurred at the facility during that year. With data reported annually, TRI is one of EPA's most up-to-date data sources.

Note that the data facilities submit are usually annual estimates and do not reflect the duration or frequency of releases. Nonetheless, while the online TRI access and analysis tools are not displaying real-time monitoring data, facilities may use actual monitoring data to calculate annual estimates.

Facilities use best readily available data for TRI reporting purposes

TRI data are reported to EPA by facilities. Due to company policies or to regulations unrelated to the TRI Program, some facilities measure or monitor emissions or other waste management quantities. These existing data should be used by facilities for TRI reporting purposes. If, however, measured data are not "readily available" or are known to be non-representative for TRI reporting purposes, the TRI regulations require that facilities

determine release and other waste management quantities of TRI-listed chemicals by making "reasonable estimates."

Facilities base such estimates on published or site-specific emission factors, mass balance calculations, or other engineering estimation methods or best engineering judgement. As required by law, a facility's senior management official must certify that the quantities reported on TRI chemical forms are reasonable estimates.

EPA continually works to optimize the quality of the data submitted by facilities. To learn about the TRI data quality process, visit the TRI Data Quality webpage. Additionally, EPA investigates cases of TRI non-compliance and may issue civil penalties, including monetary fines, and may also require correction of the violation. For more information, see the TRI Compliance and Enforcement webpage.

The TRI is an information disclosure program that can influence industry behavior

The TRI regulations do not require facilities to reduce the amount of chemical waste they generate or release into the environment. However, disclosure of facilities' reported data to the public (as required by law), serves as a strong incentive for facilities to improve their environmental performance and showcase their improvements.

Additionally, the TRI Program collects information about what facilities are doing to prevent pollution and reduce the amount of TRI-listed chemicals entering the environment. EPA encourages companies to use this information to learn from each other's pollution prevention and source reduction successes.

Many releases of TRI chemicals are regulated under other environmental laws

Many waste management activities (including chemical releases) at facilities that report to the TRI Program are subject to other environmental laws and regulations designed to reduce potential risks to human health and the environment. For example, TRI-reported releases of chemicals into surface waters may be limited under the terms of a facility's National Pollutant Discharge Elimination System (NPDES) permit, issued under the Clean Water Act.

If an accidental or one-time chemical release occurs at a facility that meets TRI reporting criteria, the facility is required to report the total annual quantity of the chemical(s) released, in addition to any required data about chemical uses related to the facility's normal production processes.

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Using TRI Data to Draw Conclusions About Health Impacts

TRI data can be used as a **starting point** for evaluating potential exposures to certain chemicals and associated risks to human health or the environment. When using TRI data in this way, consider the factors below.

TRI does not cover all sources of pollution

While facilities reporting to TRI can be major sources of toxic chemical releases into the environment, they may not account for all releases of a TRI chemical in a given area. When evaluating potential exposure to a TRI chemical and associated health risks, one should also consider other sources of releases of the chemical, such as vehicle exhaust or use or disposal of household products that contain the chemical, or releases of the chemical from facilities that do not report to the TRI Program.

TRI chemicals can vary in toxicity

The level of hazard potential varies among the chemicals on the TRI chemical list. For example, exposure to small quantities of a certain TRI chemical may pose a greater risk of causing harm than exposure to large quantities of another TRI chemical.

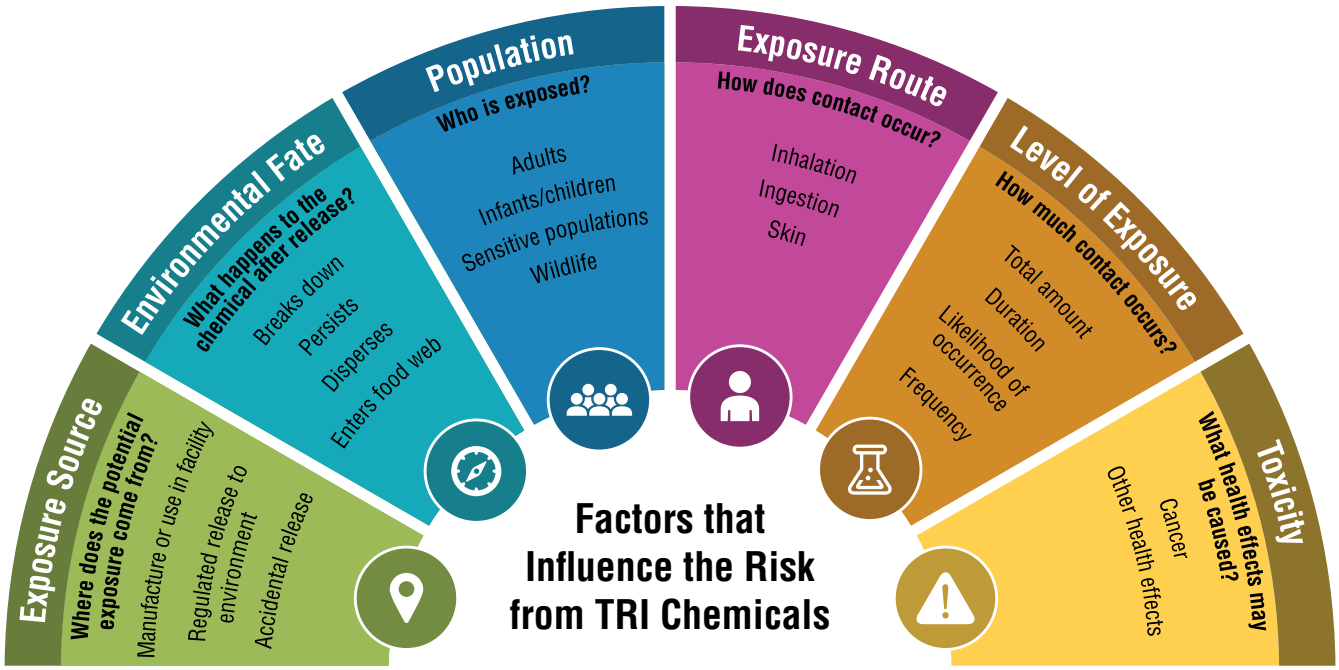
It is not necessarily "unsafe" to live near a facility that reports to the TRI Program

Although a facility may produce, import, store, process, use, distribute, dispose of, release, or otherwise manage a TRI chemical as waste, a person living near the facility may not necessarily be exposed to the chemical or, if exposed, be at risk. The properties of the chemical, how it was released, how much was released, and what happened to it once it entered the environment all influence the potential for exposure and likelihood of adverse health impacts to the nearby population.

TRI data can be used as a starting point for evaluating potential exposures to certain chemicals

The TRI provides useful information about quantities of chemicals released from reporting facilities, serving as an indicator of where further investigation may be warranted. TRI data alone, however, **do not** indicate whether or to what degree a person is exposed to these chemicals, **nor** does TRI include all the information necessary to answer questions about individuals' health risks from these chemicals. Many factors determine the risks to human health or the environment from TRI-listed chemicals, some of which are summarized in the figure below.

For additional information on the range of factors associated with health risks, visit EPA's risk assessment website.



FACTORS TO CONSIDER

Analysis of Trends

TRI data are particularly useful for tracking trends in chemical releases and other waste management practices. When using the data this way, consider only data that were reported under consistent TRI reporting requirements. Using comparable data will better ensure that any changes in the data over time are driven by actual changes in the use, release or other management of a chemical, and are not simply due to modifications in reporting requirements. Consider the factors below when looking at trends across multiple years of TRI data.

Changes to the TRI Program may impact historical and future data analysis

Over the years, the TRI Program has evolved as EPA extended reporting requirements to additional industry sectors, added or deleted chemicals from the TRI list, and raised or lowered chemical activity reporting thresholds. These changes can influence release and waste management quantities for a given year and may impact multi-year trend analyses or year-to-year comparisons of TRI data.

Facilities may meet TRI reporting criteria in some years, but not in others

Facilities may not be required to submit TRI forms for the same chemicals each year and in some years, may not meet the TRI reporting criteria at all. Changes in facility operations, production volume, and type of chemicals used, for example, can influence whether a facility meets the "manufacture, process or otherwise use" reporting criteria in a given year. These changes in the TRI "reporting universe" may impact multi-year trend analyses or year-to-year comparisons of TRI data.

For More Information

EPA revised this document in 2022 to provide a clearer, more concise discussion of the factors to consider when using TRI data. EPA is developing a more detailed companion guide for using TRI data for analysis. In the meantime, please refer to the resources below for more information.

- TRI homepage: www.epa.gov/tri
- TRI Reporting for Facilities: www.epa.gov/tri/reporting
- GuideME (TRI guidance documents, FAQs, reporting instructions, and training materials): https://ofmpub.epa.gov/apex/guideme_ext/f?p=104:1
- TRI for Researchers: www.epa.gov/toxics-release-inventory-tri-program/tri-researchers
- Glossary of Terms: www.epa.gov/toxics-release-inventory-tri-program/common-tri-terms
- TRI Data & Tools: www.epa.gov/tri/tri-data-and-tools
- Risk-Screening Environmental Indicators (RSEI) model: www.epa.gov/rsei
- TRI Pollution Prevention Search Tool: https://enviro.epa.gov/facts/tri/p2.html
- TRI Information Center: 1-800-424-9346 (select menu option #3)
- TRI Program at EPA Headquarters: tri.help@epa.gov