What's Available Through EPA's

Toxics Release Inventory

U.S. EPA, TOXICS RELEASE INVENTORY PROGRAM

2019 INTERNATIONAL EMISSIONS INVENTORY CONFERENCE

Overview

- What is the Toxics Release Inventory (TRI)?
- What data and online tools are available through TRI?
  - What are the limitations?
- How can you access TRI data and tools?
- How do different stakeholders use TRI data?
  - Identifying source reduction opportunities at facilities using the TRI Pollution Prevention Tool
  - Modeling risk in communities using the Risk-Screening Environmental Indicators Model
  - Promoting awareness of TRI in tribal communities using the TRI Tribal Advanced Search Dashboard

What is TRI?

- TRI tracks the management of certain toxic chemicals that pose a threat to human health and the environment
- TRI can tell you about:

Releases

Waste transfers

Recycling

Pollution prevention

- TRI includes data about approximately **22,000 facilities** across the country and covers **595 individually-listed toxic chemicals and 33 chemical categories.**

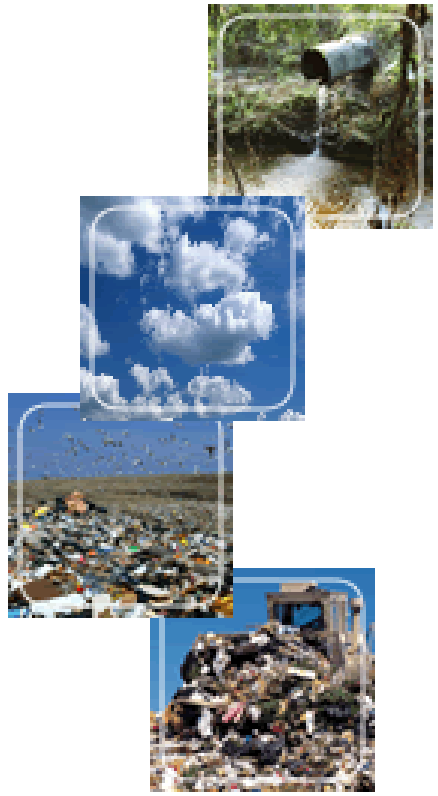
TRI is EPA's premier "Right-to-Know" program

Right to Know (RTK):

We all have the right to know about the chemicals to which we may be exposed to in our daily lives.

This principle is authorized under Section 313 of the Emergency Planning and Community Right-to-Know Act of 1986 (EPCRA).

This law requires EPA to collect, maintain, and provide public access to the TRI data.



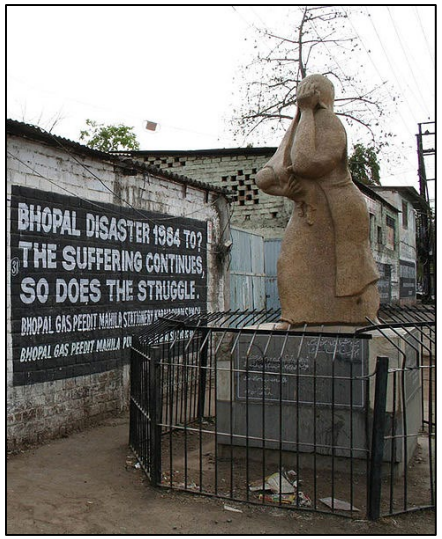
Why was the Toxics Release Inventory created?

Bhopal, India December 1984

- Methyl isocyanate gas was released at a Union Carbide chemical plant.
- Thousands died the first night, thousands more since.
- Survivors continue to suffer with permanent disabilities.

Institute, West Virginia August 1985

- Chemical release at a similar facility in the U.S.
- More than 100 people hospitalized.



Bhopal memorial for those killed and disabled by the 1984 toxic gas release

- These events led to increased concern about local preparedness for chemical emergencies and the availability of information on hazardous substances.
- The passage of the Emergency Planning and Community Right-to-Know Act in 1986 was part of the United States' response.

What is a “release”?

A **"release"** refers to different ways that toxic chemicals from industrial facilities enter the:

Air

Water

Land

The likelihood of people coming into contact with toxic chemicals depends on the type of release and other factors.

Which facilities must report to TRI?

1. Facility must be in a TRI-covered industry sector or category, including:

Manufacturing

Coal/Oil Electricity Generation

Certain Mining Facilities

Hazardous Waste Management

Federal Facilities

2. Facility must have the equivalent of at least 10 full-time employees.

3. Facility must manufacture, process or use more than a certain amount of a TRI-listed toxic chemical per year.

What information do facilities report to TRI?

On-site releases of TRI chemicals to:

- Air
- Water
- Land

Transfers of chemical waste to off-site locations

Waste management:

- Recycling
- Treatment
- Energy Recovery

Methods of estimation and treatment

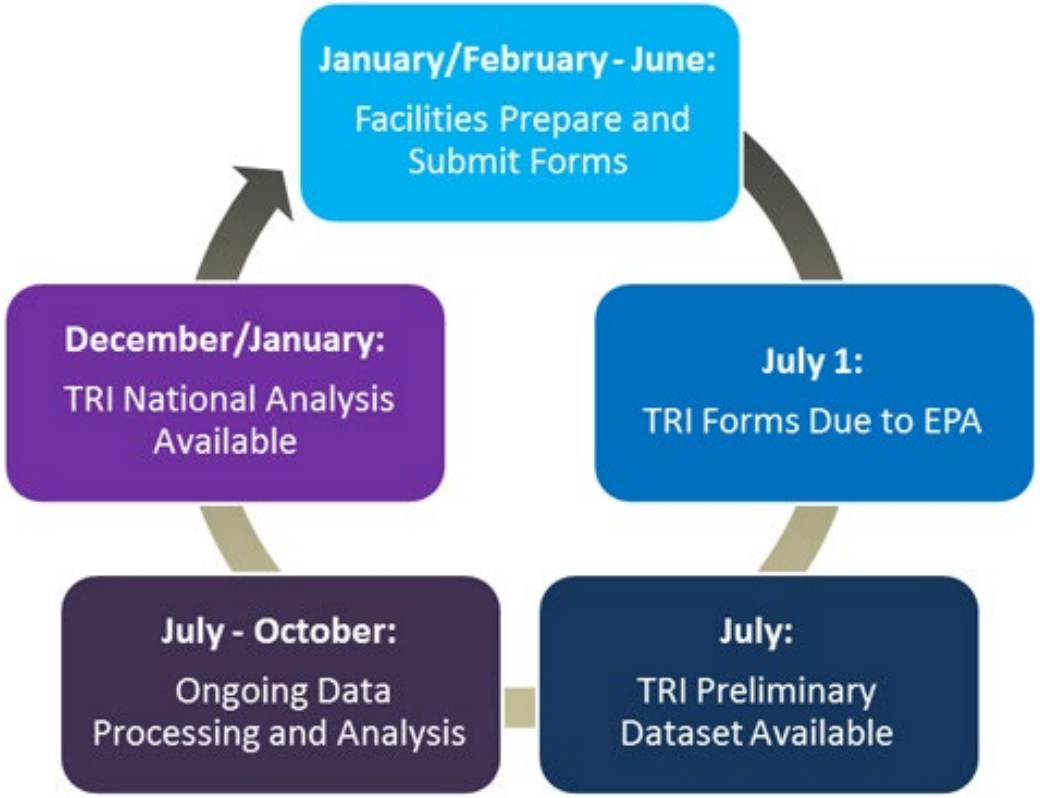
Pollution prevention activities (www.epa.gov/tri/p2)

Who uses TRI data?

- ***Individuals and Communities*** to start dialogues with local facilities over emissions reductions, pollution prevention, and safety
- ***Federal, state and local governments*** to develop environmental policies, establish priorities, and track performance
- ***EPA*** to complement chemical risk assessments and data quality efforts for other reporting programs
- ***Non-governmental organizations*** to evaluate local environmental conditions in the U.S. and design improvement goals
- ***Industry*** to measure progress in preventing pollution
- ***Academic institutions*** to research a wide range of topics including environmental justice, pollution & health, impact on stock value, and others
- ***Financial analysts*** to identify potential liabilities and environmentally responsible investment opportunities

www.epa.gov/toxics-release-inventory-tri-program/tri-data-uses

Annual TRI data cycle



- **Due by July 1:**
  Facilities submit their TRI reporting forms to EPA.
- **July – October:**
  EPA conducts data quality checks and compliance assistance activities.
- **December/January:**
  TRI National Analysis (EPA's official annual TRI report) published.

What are the limitations of TRI data?

Annual data – collected from TRI reporting facilities once/year.

Covers some, but **not all toxic chemicals and not all industry sectors.**

Small facilities are not included (under 10 employees).

Does not cover all sources of pollution, e.g. cars and trucks.

Does not describe how long or how often chemicals were released.

For more information, see *"Factors to Consider When Using TRI Data"* at: www.epa.gov/toxics-release-inventory-tri-program/factors-consider-when-using-toxics-release-inventory-data

The TRI Program Covers:	The TRI Program Does Not Cover:
▪ More than 650 chemicals and chemical categories ▪ Facilities in the following sectors, as well as federal facilities: • manufacturing • metal mining • coal mining • coal and oil-fired electric utilities • chemical wholesale distributors • petroleum terminals • hazardous waste treatment and solvent recovery	▪ Anything other than the sectors listed to the left. Excluded sources include: • agriculture • wastewater treatment facilities • services such as airports and hospitals • retail businesses such as gas stations • mobile sources (i.e. cars, trucks, buses, airplanes) • municipal solid waste landfills • facilities that do not meet TRI thresholds for reporting • facilities with fewer than 10 full-time employees • nuclear power plants (unless they are federal facilities)

TRI information is only one piece of the puzzle

While TRI provides important information about toxic chemical releases, seeing the whole picture requires additional information about other types of environmental releases, as well as air monitoring, compliance with environmental regulations and more. Other information to consider can include:

- ❑ Motor vehicle emissions
- ❑ Gasoline stations
- ❑ Dry cleaners
- ❑ Car painting shops
- ❑ Drum burnings/forest fires
- ❑ Underground storage tanks
- ❑ Abandoned hazardous waste sites
- ❑ Drinking water quality
- ❑ Lead paint in homes
- ❑ And more...




TRI Data & Tools

Accessing TRI Data

Downloadable data files

National Analysis report

Web-based access and analysis tools

Data dashboards

Mobile application and other materials in Spanish

TRI Explorer

P2 Search Tool

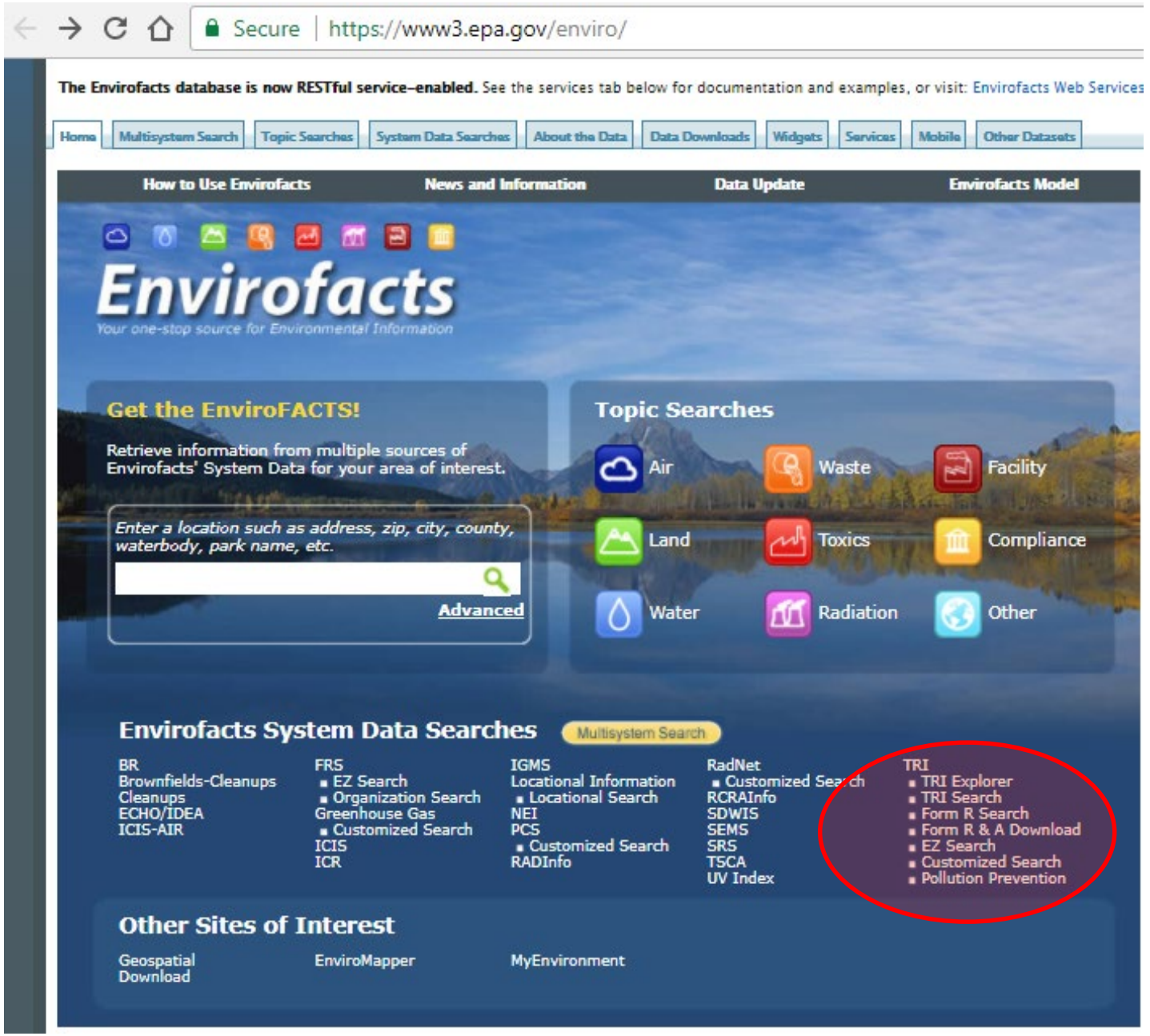
Using TRI Tools

Different tools may be better for different uses and data needs

For example:

- The number of facilities included in TRI or other permitted programs (**Use:** Envirofacts, myRTK, TRI Explorer)
- The chemicals these facilities emit (**Use:** Envirofacts, TRI Explorer, myRTK)
- The health effects associated with these chemicals (**Use:** myRTK, TRI-CHIP)
- How the facilities rank compared to others in the county or nation (**Use:** myRTK, RSEI, TRI Explorer)

www.epa.gov/enviro



How to Search for Multiple Facilities or Multiple Chemicals at Once

- Form R and A Download
  - Access to all data elements on TRI Reporting Form R (492)
  - 18 available search parameters
  - Selection of data elements by data element name

OR

- TRI EZ Search

Select Subject Area = “Chemical releases to Air”

  - 35 data elements
  - Most (or all) data elements may be a search parameter
  - 6 additional elements to describe ‘Coded’ elements
  - Selection of data elements by Plain English text
  - Options to modify layout of output tables

Both options provide powerful search capabilities (Click ‘Operator Definition’ or ‘Search Options help’ column header for assistance.)

How to Search for Multiple Facilities or Multiple Chemicals at Once (cont'd)

- Customized Query
  - Access to all data elements on reporting forms, and a few group functions (sum, count, average, etc.)
  - Selection of data elements by relevant Envirofacts data table
  - Options to modify output layout or order of data display

Using TRI Explorer

www.epa.gov/triexplorer

TRI Explorer

Five steps to generate a report

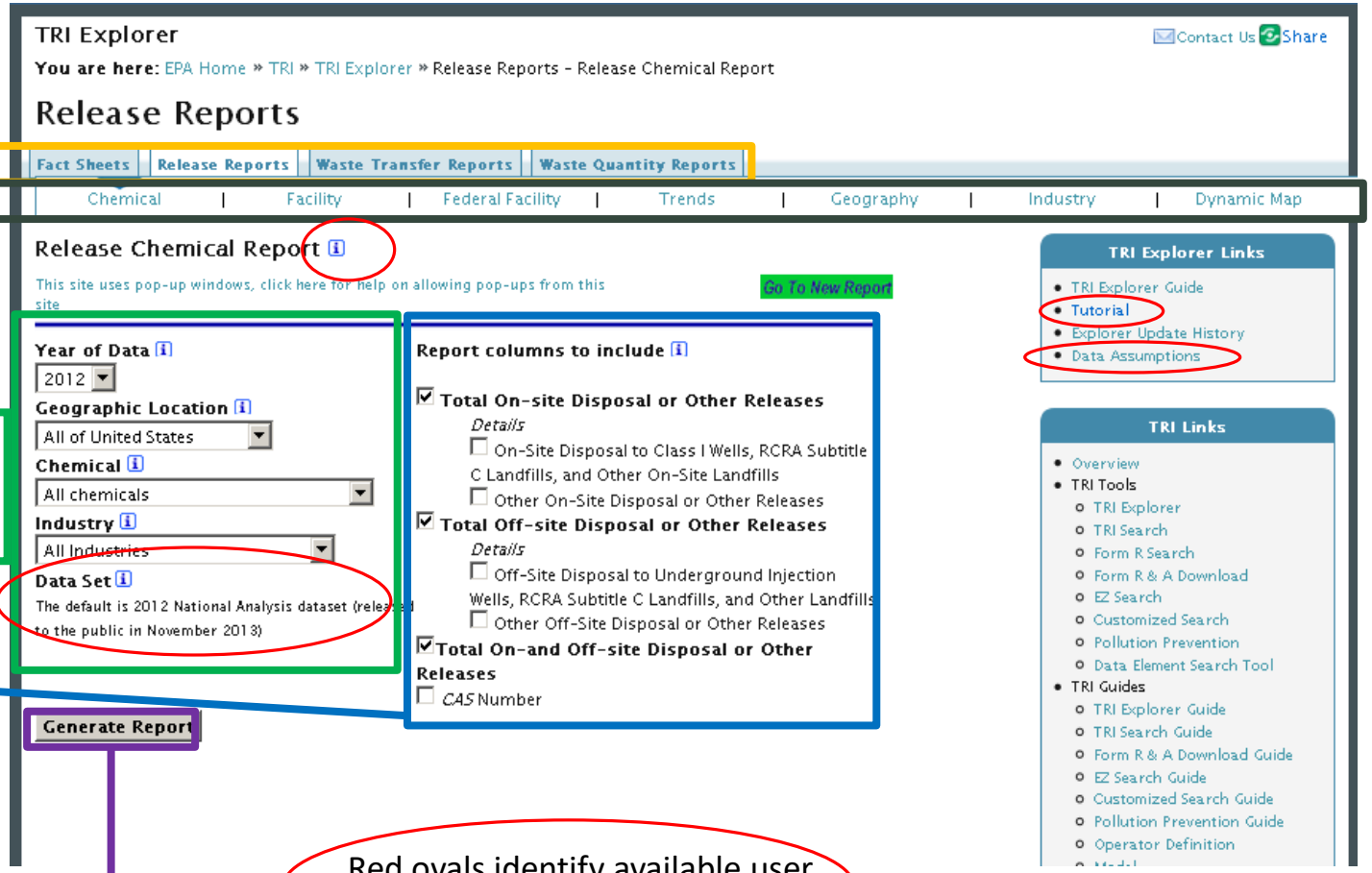
Step 1. Choose *Report Type*

Step 2. Select a *Report Grouping* (How data will be summarized)

Step 3. Choose *Filters (Optional - All filters have a default)*

Step 4. Choose *Columns* to be displayed *(All options have a default)*

Step 5. Click on the *Generate Report* button.



Red ovals identify available user aids or key references

Uses of TRI Data

Examples of TRI Data Use

- Identifying source reduction opportunities at facilities using the TRI Pollution Prevention Tool
- Modeling risk in communities using the Risk-Screening Environmental Indicators Model
- Promoting awareness of TRI in tribal communities using the TRI Tribal Advanced Search Dashboard

TRI and Pollution Prevention (P2)

The goal of pollution prevention (P2) is to eliminate or reduce the creation of pollutants (also called “source reduction”).

TRI tracks industrial facilities’ progress toward this goal and collects data on effective P2 practices.

TRI can be used to:

- Identify facilities that are implementing P2 to reduce their toxic emissions.
- Promote “tech transfer” of innovative P2 activities from facilities that have successfully used P2 to facilities that could be doing more.

Access P2 Information

- Find source reduction information by industry sector, parent company, geographic area, or chemical(s)
- Data available through:
  - P2 Search Tool - https://www3.epa.gov/enviro/facts/tri/p2.html
    - Displays annual P2 measures, year-to-year release changes, and other P2 data submitted
    - Compares source reduction data over time, by facility, industry, or parent company
    - Provides information for facilities interested in new/additional source reduction measures, and similar facilities/industries that implement them
  - Downloadable Excel files
  - Industry Profile Dashboard - www.epa.gov/toxics-release-inventory-tri-program/tri-p2-industry-profile
    - Interactive Qlik dashboard to analyze and filter among chemicals, industry sectors, geographic areas
    - Highlights featured industry profiles

P2 Industry Profile Dashboard

Select a Featured Profile

Food Manufacturing

Auto Manufacturing

Pharmaceutical Manufacturing

Or Search for an Industry

Industry Sector

NAICS Code

Use the TRI P2 Industry Profile dashboard to analyze an industrial sector

Questions that may be answered include:

Where are TRI facilities located?

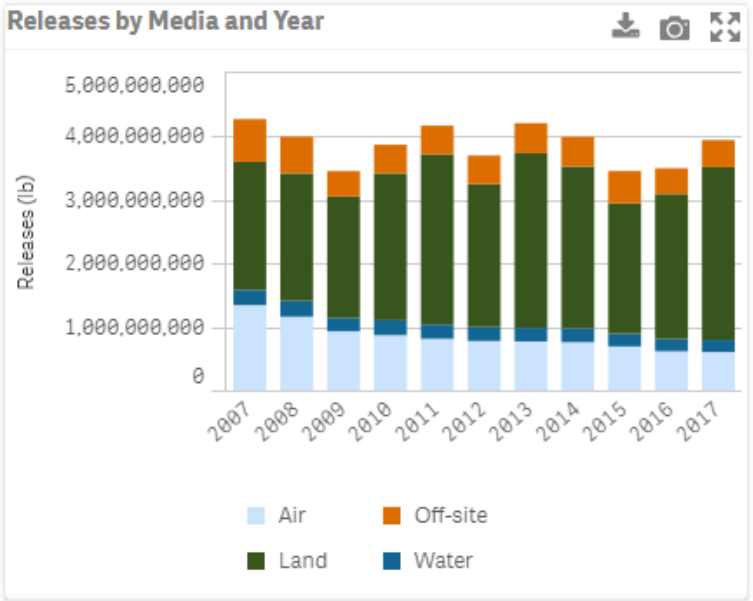
To what environmental medium are chemicals released?

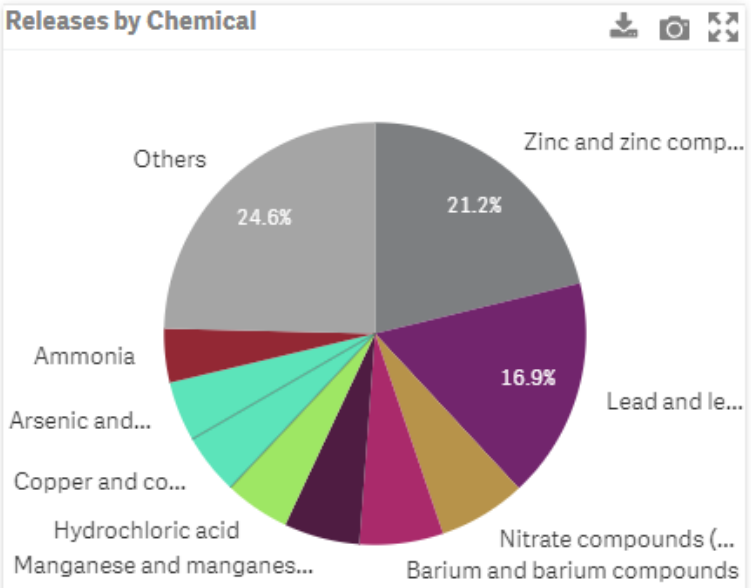
How do facilities manage chemical waste?

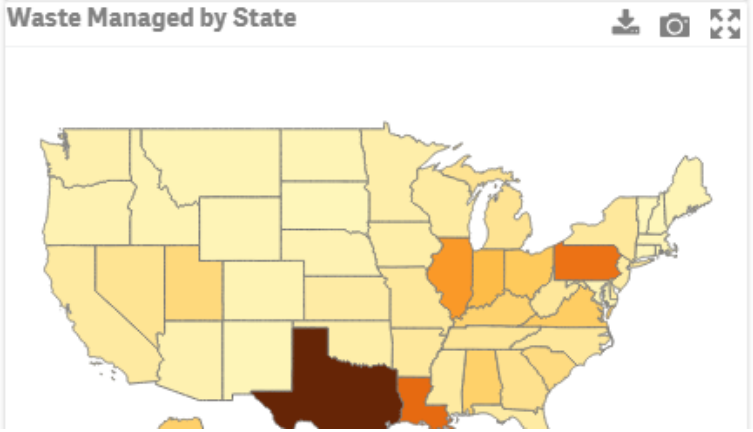
How much waste is sent off-site to other facilities?

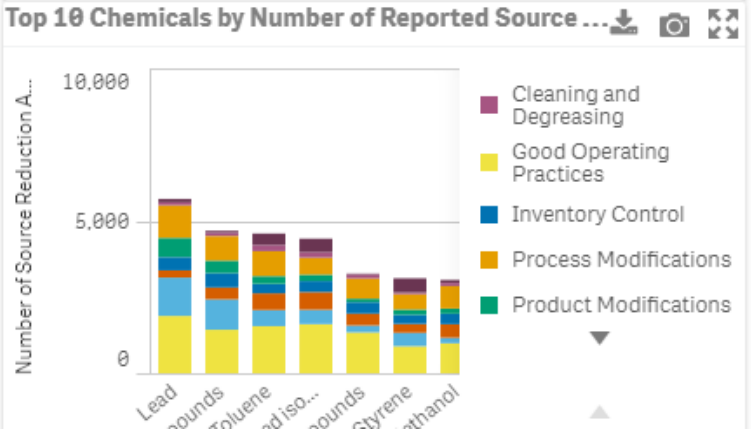
What chemicals are being released and/or otherwise managed?

What types of source reduction activities have









Risk-Screening Environmental Indicators (RSEI) Model

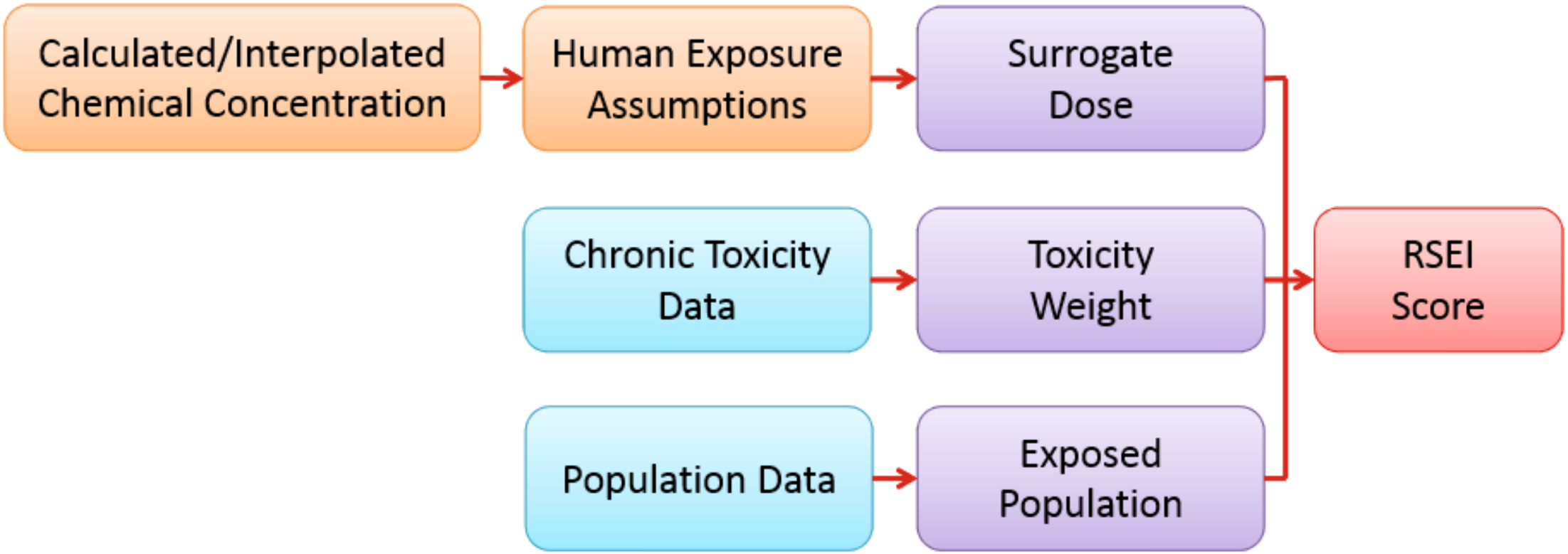
RSEI is a screening-level model for assessing potential chronic human health impacts of TRI chemical releases.

NOT a formal risk assessment, but does incorporate:

- Quantities of chemicals released
- Chemical toxicity
- Fate and transport
- Route and extent of human exposure
- Nearby populations

Provides starting point for modeling risk based on TRI releases, chemical toxicity, and additional data.

www.epa.gov/rsei


Calculated/Interpolated Chemical Concentration
Human Exposure Assumptions
Surrogate Dose
Chronic Toxicity Data
Toxicity Weight
RSEI Score
Population Data
Exposed Population

RSEI toxicity data & calculations

- RSEI toxicity weights describe the toxicity of TRI chemicals relative to each other:
  - Based on the single most sensitive pathway (oral/inhalation)
    - Oral slope factor (OSF) in risk per mg/kg-day
    - Inhalation unit risk (IUR) in risk per mg/m3
    - Reference dose (RfD) in mg/kg-day
    - Reference concentration (RfC) in mg/m3
  - Based only on *chronic human health* effects, including both cancer and noncancer effects
  - Weights range from 0.02 – 1,400,000,000
- Toxicity weights are taken from IRIS, when possible
  - Other sources are provided in the methodology documentation and ranked in order of preference (e.g., NATA; EPA Office of Pesticide Programs' Acute, Chronic and Reference Dose tables; ATSDR, etc.)

www.epa.gov/rsei/rsei-toxicity-data-and-calculations

RSEI data & analytical tools

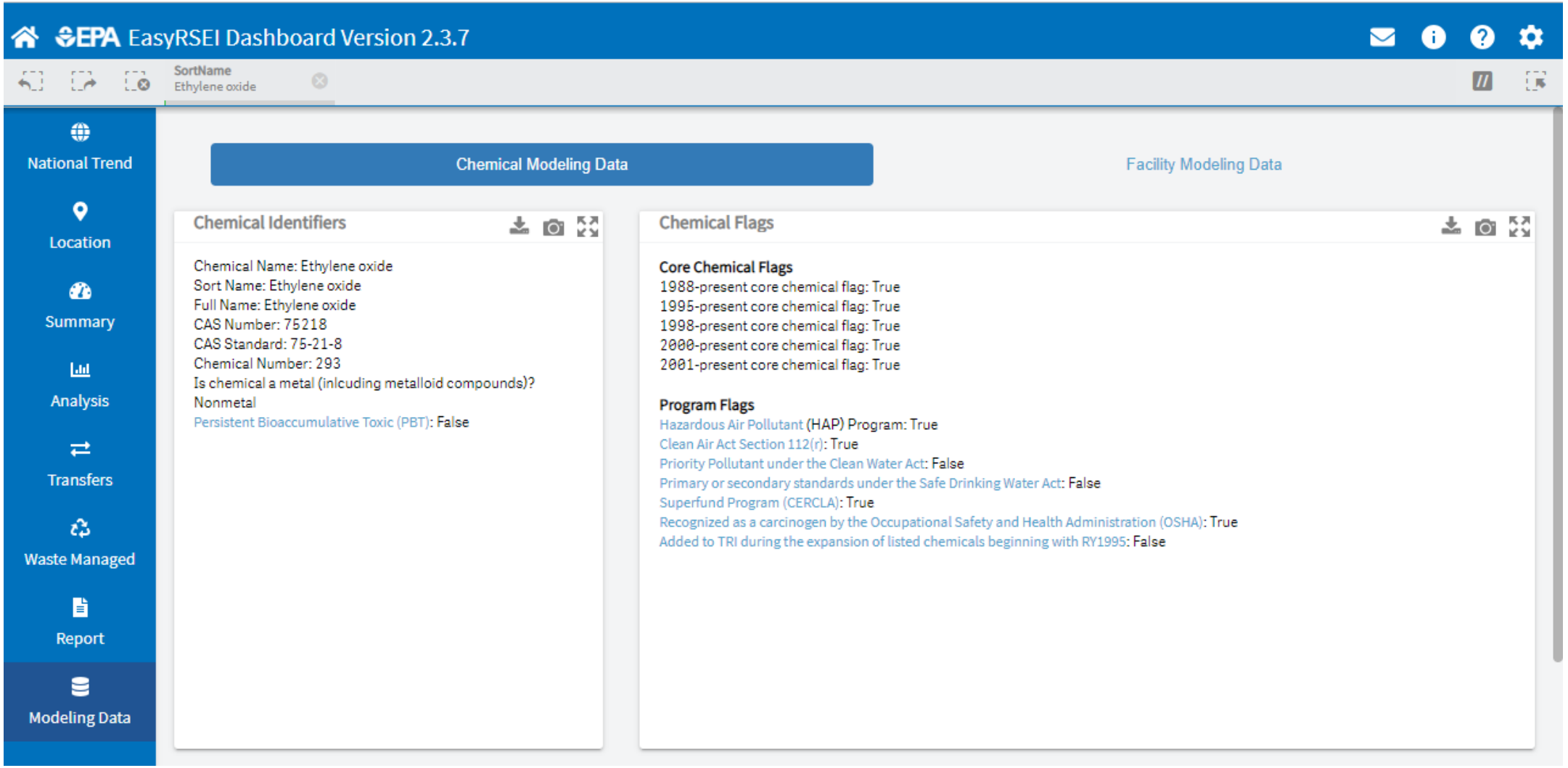
EasyRSEI dashboard: https://edap.epa.gov/public/extensions/EasyRSEI/EasyRSEI.html

- User-friendly tool to search and analyze RSEI scores by geographic area, chemical(s), facilities, release pathways, waste management type, and other modeling data
- *See next slide*

Geographic microdata: www.epa.gov/rsei/rsei-geographic-microdata-rsei-gm

- Raw RSEI model microdata for air releases for each 810m x 810m cell in the US, per year
  - Includes chemical concentrations, toxicity-weighted concentrations, and RSEI scores per cell

EasyRSEI Dashboard



TRI for Tribal Communities Dashboard

- New dashboard is a user-friendly application to search for TRI facilities and chemical release data on or within a certain distance of tribal lands
- Filters based on:
  - Tribe
  - Chemical
  - industry sector
  - media type
  - waste management method
  - geographic area
- Tool designed to promote TRI data accessibility and usability for tribal communities

TRI for Tribal Communities Dashboard