

# **Toxics Release Inventory (TRI)**

- **Data and Tools**

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## Topics

- TRI Program History
- What is the TRI?
- Improvements in data utility
- Accessing the data
- Future directions



# TRI Program History

- 1970s and 80s - Growth of environmental awareness
- 1984 - Bhopal, India – Major industrial accident
- 1985 - Institute, West Virginia - Chemical leak
- 1986 - Emergency Planning and Community Right-to-Know Act (EPCRA), Section 313 Toxics Release Inventory
  - Annual data collection of quantities of toxic chemicals released to the environment by media or transferred off site.
  - Data publicly available
- 1990 - Pollution Prevention Act
  - Added Waste Management and Source Reduction Reporting
- 1993 - Executive Order 12856
  - Added Federal Facilities



## What Is The Toxics Release Inventory (TRI)?

- Largest cross-media inventory of toxic chemical release and other waste management data provided directly from facilities in the United States.



- Goal is to provide communities with information about toxic chemical releases and other waste management activities and to support informed decision-making by industry, government, non-governmental organizations and the public.



## What Has Changed Since The Beginning?

	Reporting Year	
	1987	2011
Number of Chemicals	Approx. 300	Nearly 700
Industry Sectors	Manufacturing	Manufacturing, Metal Mining, Electric Utilities (Oil or Coal Combustion), Hazardous Wastes, et al.
Data In / Out	Approx 24 months	< 1 month (with caveats)
Available Formats	Paper only	Electronic only Data files Web access tools Downloadable tools RESTful data service



# Improvements In Data Utility

## Data Quality

- Improvements at point of submission
  - TRI-ME web (2008)
    - Standardized pick lists
    - Pre-loaded prior year data
    - GIS service to locate nearest water body
    - Search feature for transfers to POTWs and RCRA sites
    - Data validation checks
- Increased effort to improve “non-quantity” data
  - Parent Company
  - RCRA ID
  - Lat / Long
  - Address



# Improvements In Data Utility

## Fewer Data Gaps

- 54,290 TRI facilities (1987 to 2010)
  - Facilities w/o latitude and longitude
    - May 2011 – 437 facilities
    - July 2011 – approximately 290 facilities
    - July 2012 – approximately 30 facilities (pending updating of FRS records) excluding first time reporters for RY2011
    - Today - activities are continuing to identify and validate needed spatial data



# Improvements In Data Utility

## Data Integration

- Addition of filters & data from other datasets
  - Tribal lands (names and distance to)
  - Watershed
  - MSAs
  - and more
- Addition of TRI data alongside pollutant loading calculations from permit data
  - Discharge Monitoring Report (DMR) Pollutant Loading Tool



# Improvements In Data Utility

## Data Integration

- Development of tools to look at potential commonalities across EPA programs
  - TRI Comparative Analysis Tool
    - TRI and [Air Facility System \(AFS\)](#)
    - TRI and [Permit Compliance System \(PCS\)](#) and [ICIS-National Pollutant Discharge Elimination System \(ICIS-NPDES\)](#)
    - TRI and [Resource Conservation and Recovery Act Information system \(RCRAInfo\)](#)



# Improvements In Data Utility

## More Coverage

- Addition of National Toxicology Program (NTP) Carcinogens
  - 16 new chemicals
    - 12 Individually listed
    - 4 Listed under polycyclic aromatic compounds (PACs) category
    - All are classified as “reasonably anticipated to be a human carcinogen”
- More government leaders with petition authority
  - Tribal Rule Finalized, (Federal Register Notice April 19, 2012)
  - Tribal government leaders may petition EPA to:
    - Add individual facility located in Indian Country
    - Add or remove a TRI chemical



## Accessing The Data

- One Stop
  - Most of the tools discussed in this presentation are accessible at:  
[www.epa.gov/tri](http://www.epa.gov/tri), under Data and Tools tab on left sidebar
  - Information on RESTful services is available at:  
<http://www.epa.gov/enviro/facts/services.html>



# Accessing The Data Bulk Data

- RESTful data service API
  - Loads data directly into an application or Web mash-up
- Downloadable files
  - Basic – Most frequently requested data elements
    - One file per reporting year
    - By individual state or all U.S.
  - Basic Plus – All data elements on the submission forms
    - Seven files per reporting year
    - By entire U.S.



# Accessing The Data

## Data Access Tools

- MyRTK
  - Designed for mobile devices as a Web application
  - Displays location of TRI, and some CAA, CWA, RCRA facilities
  - Release / transfer data at facility-level only
- TRI Explorer
  - Facility-level and aggregated data across multiple facilities
  - Results by: chemical, facility, geography, or industry
  - Multiple filter options
  - Drill down capability
  - Generous linkage to supporting / explanatory information



# Accessing The Data - MyRTK

The collage shows five overlapping mobile device screens displaying the myRight-to-Know website interface. The screens are arranged from left to right, showing different views of the data:

- Screen 1 (Map):** Shows a map of the Grand Traverse area with several blue location pins. The interface includes a search bar, a menu icon, and a 'Map' button.
- Screen 2 (Facility List):** Displays a 'List of 62 Facilities on the map'. The list includes:
  - CORNILLIE CONCRETE PLANT:** 9.9 miles, Pounds Released: 0
  - SARA LEE BAKERY:** 10.2 miles, Pounds Released: 17722
  - TEXTRON CONE DRIVE:** 10.8 miles, Pounds Released: 0
  - GRAND TRAVERSE OVERALL:** 11.0 miles
  - LEAR CORP:** 11.1 miles, Pounds Released: 3262
- Screen 3 (Reports):** Shows 'ON SITE RELEASES - BY CHEMICAL (lbs)'.

Chemical	Amount (lbs)
HYDROCHLORIC ACID (1995 AND AFTER "ACID AEROSOLS" ONLY)	244288
METHANOL	162986
SULFURIC ACID (1994 AND AFTER "ACID AEROSOLS" ONLY)	54304
ACETALDEHYDE	38331
PHENOL	19605
NITRATE COMPOUNDS	12533
BENZENE	9461
FORMALDEHYDE	8807
MANGANESE COMPOUNDS	6149
AMMONIA	1948
- Screen 4 (Compliance):** Shows 'COMPLIANCE' for 'ACETALDEHYDE'. It includes a '3 Year Compliance Status (quarterly)' bar chart and a 'Last Full Inspection: Formal Enforcement Actions (5yr):' section.
- Screen 5 (Information):** Provides a 'Map Legend' stating: 'Facilities that reported to the Toxics Release Inventory (TRI) for 2008. TRI reporters are typically large users or...'. It also includes a 'Feedback' button.



# Accessing The Data - TRI Explorer

**TRI Explorer**  
 You are here: EPA Home » TRI » TRI Explorer » Release Reports - Release Chemical Report

**Release Reports**

State Fact Sheet | Release Reports | Waste Transfer Reports | Waste Quantity Reports

Chemical | Facility | Federal Facility | Trends | Geography

**Release Chemical Report**

This site uses pop-up windows, click here for help on allowing pop-ups from this site

**Year of Data** 2010

**Geographic Location** All of United States

**Chemical** All chemicals

**Industry** All Industries

**Data Set** The default is the current data update (as of March 2012).  
 Select 2010 National Analytical data set (released to the public in October 2011)

**Report columns to include**

Total On-site Disposal or Other Releases  
 Details  
 On-Site Disposal to Class I Wells, RCRA Subtitle C Landfills, and Other On-Site Landfills  
 Other On-Site Disposal or Other Releases

Total Releases  
 CAS

**Generate Report**

TRI On-site and Off-site Reported Disposed of or Otherwise Released (in pounds), for All industries, for All chemicals, U.S. , 2010

Row #	Chemical	Total On-site Disposal or Other Releases	Total Off-site Disposal or Other Releases	Total On- and Off-site Disposal or Other Releases
1	1,1,1,2-TETRACHLORO-2-FLUOROETHANE	0	0	0
2	1,1,1,2-TETRACHLOROETHANE	3,527	38	3,565
3	1,1,1-TRICHLOROETHANE	84,482	3,421	87,903
4	1,1,2,2-TETRACHLORO-1-FLUOROETHANE	0	0	0
5	1,1,2,2-TETRACHLOROETHANE	4,413	134	4,547
6	1,1,2-TRICHLOROETHANE	19,293	541	19,834
7	1,1-DICHLORO-1-FLUOROETHANE	116,705	12	116,717
8	1,1-DIMETHYL HYDRAZINE	3	3	11
9	1,2,3-TRICHLOROPROPANE	3,500	3	3,503
10	1,2,4-TRICHLOROBENZENE	9,116	0	9,205
				5,854,421

TRI On-site and Off-site Reported Disposed of or Otherwise Released (in pounds), Trend Report for facilities in All industries, for 1988 Core Chemicals, U.S. 1988-2010

Are year to year changes comparable?

Row #	Year	Fugitive Air	Stack Air	Total Air Emissions	Surface Water Discharges	Underground Injection Class I Wells	Underground Injection Class II-V Wells	Total Underground Injection	RCRA Subtitle C Landfills	Other Landfills	Total Landfills
1	1988	637,263,533	1,398,972,311	2,036,235,844	41,572,731	.	.	161,652,002	.	.	164,930,029
2	1989	588,631,245	1,309,312,261	1,897,943,506	34,331,627	.	.	157,528,565	.	.	149,367,762
3	1990	521,201,038	1,168,857,469	1,690,058,507	31,151,076	.	.	158,241,476	.	.	130,408,633
4	1991	462,698,425	1,033,018,402	1,495,716,827	31,729,784	.	.	139,315,684	.	.	123,747,014
5	1992	405,829,779	1,002,798,810	1,408,628,589	28,017,366	.	.	120,989,729	.	.	97,627,845
6	1993	346,679,643	891,914,912	1,238,594,555	18,771,102	.	.	112,947,443	.	.	85,288,894
7	1994	324,534,703	883,228,674	1,207,763,377	18,940,410	.	.	113,638,116	.	.	74,564,204
8	1995	280,935,142	851,894,728	1,132,829,870	16,962,799	.	.	153,973,323	.	.	79,734,790



# Accessing The Data

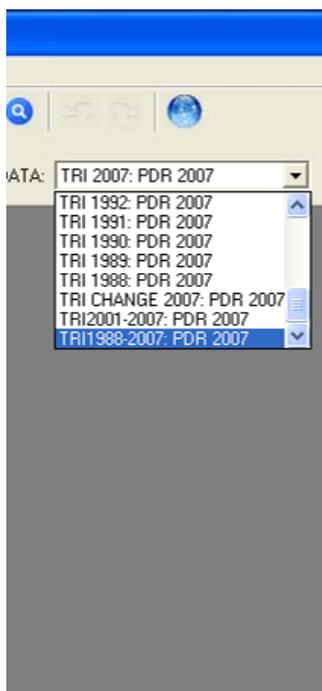
## Data Access Tools

- TRI.Net
  - High-performance downloadable desktop application
  - Highly-customized queries
  - Ad hoc capabilities – user can modify SQL script
  - Radius search feature from a location
  - Mapping to Google Earth
  - Mapping to Google Maps with additional EJ data
  - Assumes user is knowledgeable about TRI data and reporting changes over life of TRI Program
  - Update with latest RY2010 TRI data has not occurred

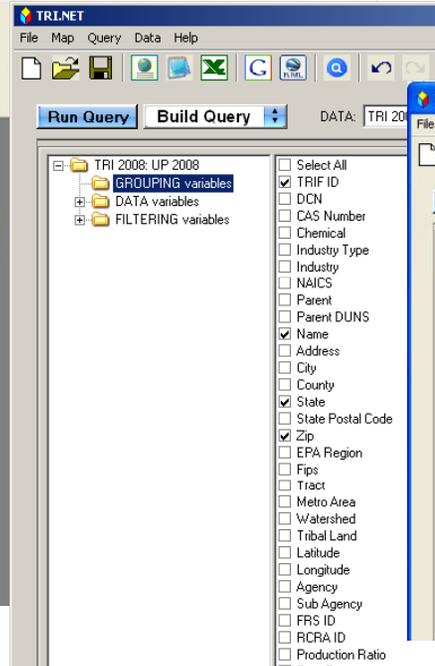


# Accessing The Data - TRI.Net

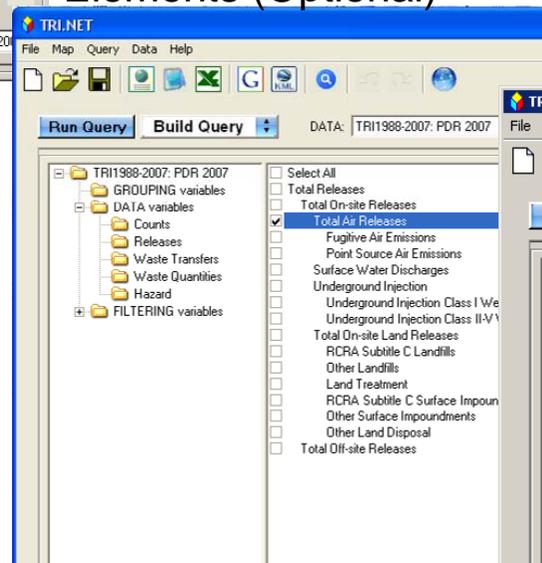
1) Pick Dataset



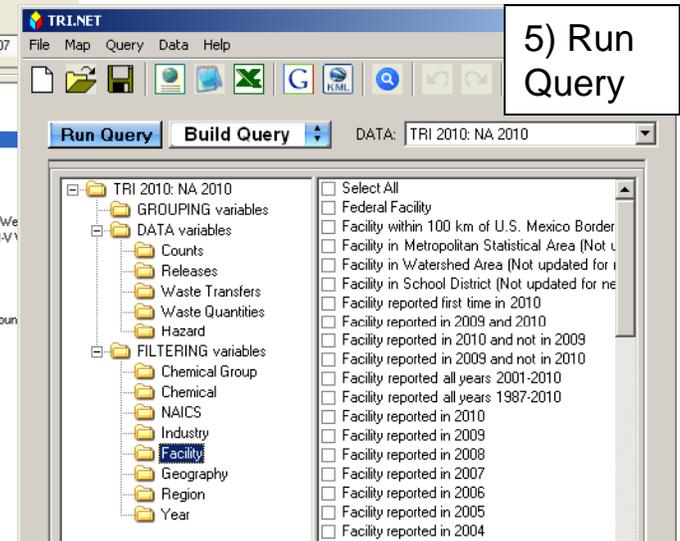
2) Pick principal columns to display



3) Pick TRI Data Elements (Optional)



4) Pick Filters (optional)



5) Run Query



# Accessing The Data

## Data Access Tools

- **Envirofacts**
  - **TRI Search**
    - Results contains summary and detailed level data for an individual facility over entire reporting history
  - **TRI Form R Search**
    - Results appears as an individual chemical submission
  - **TRI Form R and A Download**
    - Results for multiple facilities, selection by reporting form data elements
  - **TRI EZ**
    - Simpler of 2 customized queries
  - **TRI Customized**
    - Maximum query options to all TRI data elements



# Accessing The Data TRI Envirofacts and Web Services

The screenshot shows the Envirofacts website interface. At the top, a navigation bar includes links for Home, Multisystem Search, Topic Searches, System Data Searches, About the Data, Data Downloads, Widgets, **Services**, Mobile, and Other Datasets. The **Services** link is highlighted with a red box. Below the navigation bar, the main content area features a search box and a 'Topic Searches' section with icons for Air, Land, Water, Waste, Toxics, Facility, Compliance, Radiation, and Other. The 'Toxics' icon is highlighted with a red box. Below this, the 'Envirofacts System Data Searches' section lists various data sources, including TRI, which is highlighted with a red box. Under the TRI section, a list of services is shown, including 'Customized', 'EZ', 'Form R', 'Form R & A Download', 'State Reports', and 'TRI Explorer'. The 'TRI Explorer' link is highlighted with a red box. At the bottom, the 'Other Sites of Interest' section includes links for Geospatial Download, EnviroMapper, MyEnvironment, and **TRI Explorer**, which is also highlighted with a red box.



## Accessing The Data Closely Associated Tools

- TRI-CHIP (TRI Chemical Hazard Information Profiles)
  - Toxicity information for chemicals on TRI list
  - Filter by quantitative toxicity criteria or health effects
- RSEI (Risk-Screening Environmental Indicators)
  - Screening tool
  - Analyze trends or rankings of toxic chemicals released to the environment



# Accessing The Data

## Data Comparative Tools

- TRI Comparative Analysis Tool
  - Compare TRI facility records with those collected under EPA air, water and waste programs.
- DMR (Discharge Monitoring Report) Pollutant Loading Tool
  - Determine who is discharging into waterways, including the what, how much and where of the discharge.
  - Incorporates wastewater discharge data from TRI.



## What to Expect in the Future

- Pollution Prevention (P2) data
  - More data elements available
  - Improved visibility and access to data
- New ETL (Extract Transform and Load) tool
  - Improved speed to update data access points
  - Improved internal efficiencies
  - Potential to send data to other EPA application



## What to Expect in the Future

- EPA's GeoPlatform
  - Agency-wide capability
  - Unify how we overlay emissions data with spatial data
  - Tribal data layer likely first to be used with TRI data
  - Generated maps can be published to public websites
- Tribal Identification Per Federal Register
  - Current identifiers from IND3 file, an older collection of boundaries.
  - Scheduled change prior to December 2012



## What to Expect in the Future

- TRI Tool Consolidation
  - Looking at reorganizing existing capabilities to reduce number of entry points to TRI data
  - Desire to automate additional data quality reviews
  - Goal to make access more efficient and easier to understand



## What to Expect in the Future

- **Increased Community Awareness**
  - 4 Community Engagement pilots are underway
- **Increased Student Awareness**
  - Working to develop sustained relationships between TRI Program and colleges and universities
  - Goal to improve environmental outcomes when using TRI data



## For Additional Information

Please visit [www.epa.gov/tri](http://www.epa.gov/tri)

Or contact:

For information on the TRI Program in general  
[tri.help@epa.gov](mailto:tri.help@epa.gov)

For information in this presentation  
Steve Witkin at [witkin.steve@epa.gov](mailto:witkin.steve@epa.gov)



## For Additional Information

- Most TRI data access points include a user guide
- Most of the tools discussed in this presentation are accessible at:  
[www.epa.gov/tri](http://www.epa.gov/tri), under Data and Tools tab on left sidebar
- Information on RESTful services is available at:  
<http://www.epa.gov/enviro/facts/services.html>