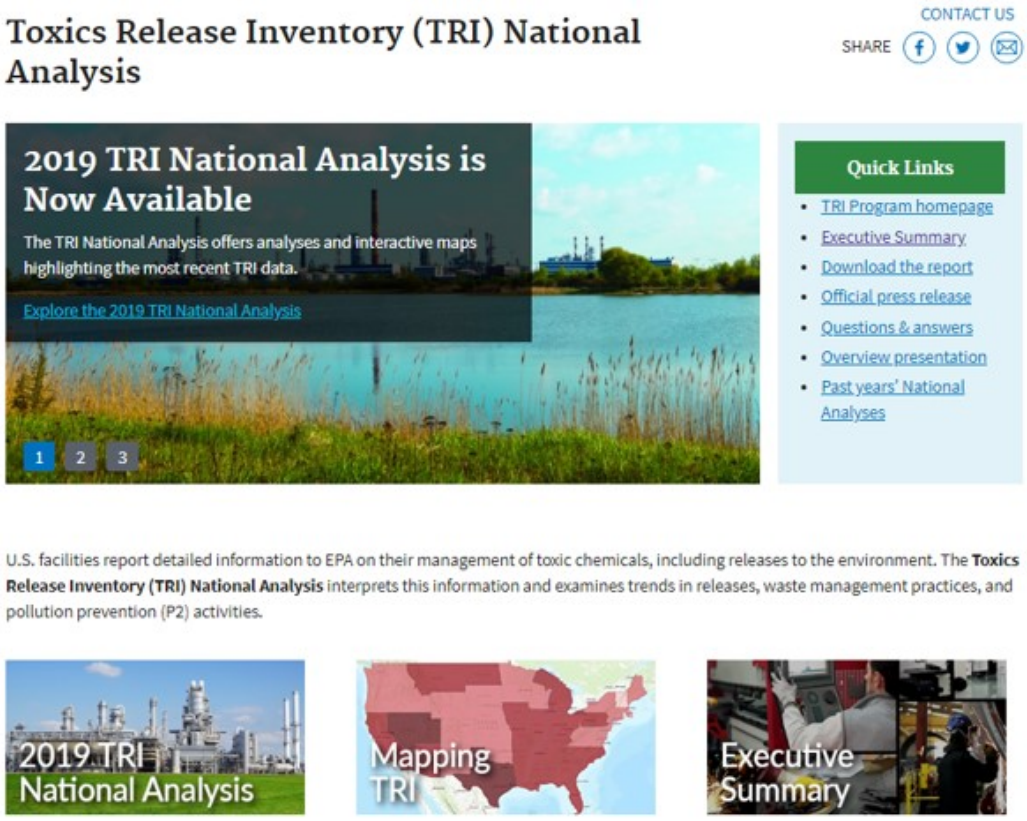
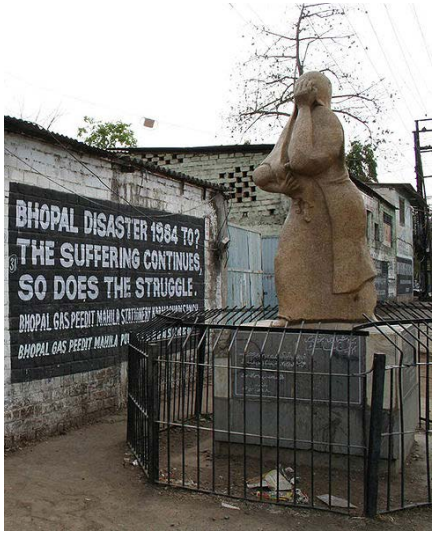
# Introduction to the
# Toxics Release Inventory and the 2019 TRI National Analysis Report



# Overview

- Introduction to TRI
- Reporting Year 2019 TRI National Analysis
- Updated web-based report
- New features in the National Analysis

# Why was the Toxics Release Inventory created?




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

## Bhopal, India **December 1984**

- Methyl isocyanate gas accidentally released at a Union Carbide chemical plant
- Thousands died the first night
- Thousands more have died due to long-term health effects
- Survivors continue to suffer with permanent disabilities

## Institute, West Virginia **August 1985**

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

Increased concern in the U.S. about chemical accident preparedness and availability of information on toxic chemical releases from industrial facilities

# What is the Toxics Release Inventory (TRI)?

- TRI tracks the waste management of certain chemicals that may pose a threat to human health and the environment.
- TRI includes information on:

Releases

Waste transfers

Recycling

Pollution prevention

And much more!

# What is a “release”?

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

Air

Water

Land

- The likelihood of residents coming into contact with TRI chemicals depends on the type of release and other factors

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

# What is a “release”?

- On-Site Release to **Air**
  - Includes both fugitive/non-point source emissions (e.g. leaks and evaporation) and stack/point-source emissions (e.g. releases from a duct or pipe)

- On-Site Release to **Water**
  - Discharges to surface water bodies such as streams, rivers, lakes, and oceans; also includes releases of TRI chemicals to surface water due to runoff, including stormwater runoff

- On-Site Release to **Land**
  - Eight categories of land releases or disposal reported to TRI. Examples include:
    - Placement of waste rock containing TRI chemicals into engineered piles or structures at metal mines
    - Disposal of chemical waste in landfills
    - Injection of liquid containing TRI chemicals into underground injection wells
    - Placement of waste materials into surface impoundments to volatize or settle
    - Application of certain waste products to farmlands as fertilizer

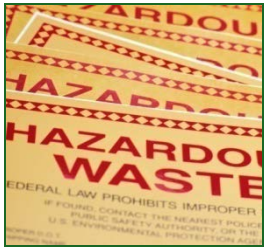
# Which facilities must report to TRI?

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 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

- Other waste management:
  - Recycling
  - Treatment
  - Energy Recovery

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

# TRI Information: Who Uses It?

- Community members
  - *Informs citizens of releases and other management of toxic chemical waste through portable locally-focused factsheets; interactive mapping tools; quick search interfaces*
- Industry stakeholders
  - *P2 success stories; parent company comparisons; facility rankings*
- Academic researchers
  - *Downloadable datasets used in research projects;*
  - *Robust search tools used to find customized cuts of TRI data;*
  - *Interactive data visualization apps used to present data*
- International stakeholders
  - *Harmonization efforts led by the Organisation for Economic Cooperation and Development (OECD);*
  - *Multi-national analyses conducted by the North American Commission on Environmental Cooperation (CEC) and other intergovernmental organizations and nongovernmental organizations;*
  - *Support the United National Institute for Training and Research (UNITAR) in helping countries develop new pollutant release and transfer register (PRTR) systems*

# TRI Information: Who Uses It?

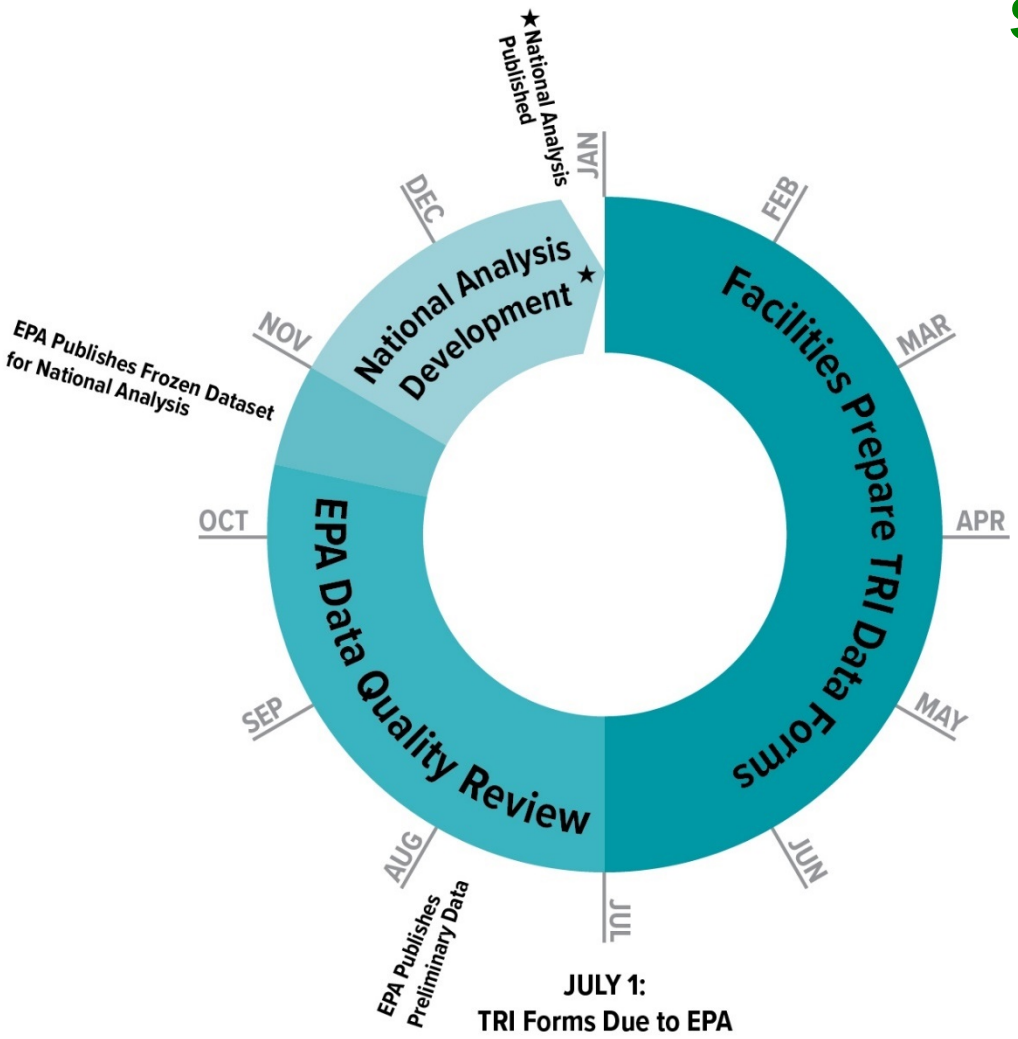
- EPA's Regional offices
  - *Regional factsheets used by EPA staff and communities/concerned citizens;*
  - *Regional breakdowns and comparisons of national data;*
  - *Data quality efforts to verify submissions from TRI facilities;*
  - *Used in Superfund program to determine pollution origins and inform site management*
- EPA's Office of Pollution Prevention & Toxics (OPPT) and many other EPA programs
  - *OPPT uses TRI extensively in risk evaluations and Pollution Prevention program activities;*
  - *Office of Air & Radiation uses TRI to fill in gaps in National Air Toxics Assessment data and track ozone-depleting substances;*
  - *Office of Research & Development uses TRI data in the Report on the Environment, and many other examples*

# Considerations When Using TRI

- The 2019 TRI National Analysis reflects data on the management, including releases, of chemical waste that occurred in calendar year 2019 and therefore does not indicate any potential impacts of the COVID-19 pandemic that began in the U.S. in early 2020.
- TRI doesn't include information about public exposure to chemicals
- TRI covers an important subset of chemicals managed at U.S. facilities, but doesn't cover all chemicals or facilities
- Data reflect annual totals and don't indicate the frequency or duration of a release
- Quantities reflect the TRI chemicals released to air, water and land, recycled, burned for energy recovery, and treated
- Toxicity varies among the chemicals on the TRI list
- Facility operations and releases are regulated under other EPA programs with requirements designed to limit human and environmental harm

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

# Annual TRI Cycle and Data Quality Process

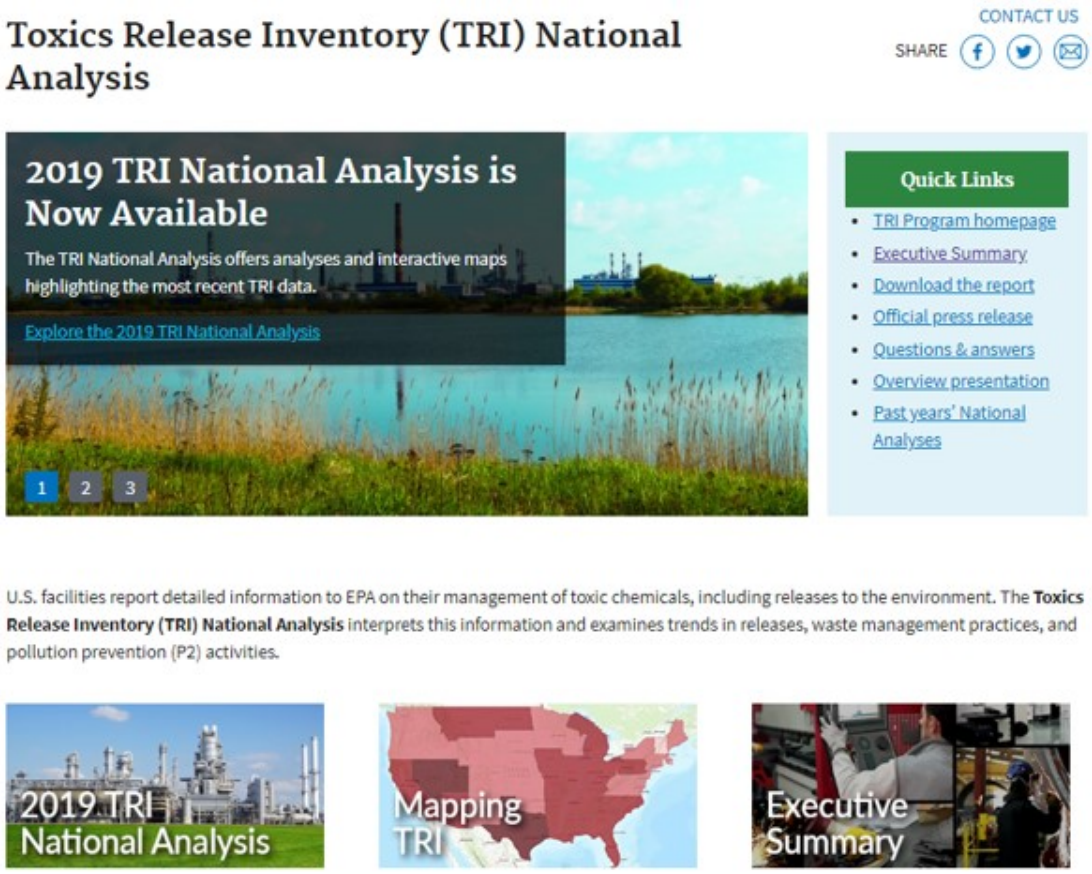



- Facilities submit their TRI forms for each calendar year to EPA by July 1st of the following year
- The preliminary TRI dataset is released in July
- EPA conducts data quality checks and compliance assistance activities from July - October
- The TRI National Analysis (EPA's official annual TRI report) is published early the following year

# What is the TRI National Analysis?

- EPA makes TRI data available through several online tools and other sources, including through its annual National Analysis.
- The TRI National Analysis is the Agency's yearly publication that summarizes the TRI data submitted for the most recent reporting cycle.
- The TRI National Analysis also compares the most recent reporting year data to TRI data submitted in previous years to identify, characterize and describe trends in the data over time, and presents the Agency's interpretation of the data.
- The TRI National Analysis is interactive, and users can use it to conduct their own analyses and explore the data on their own.

# 2019 TRI National Analysis




www.epa.gov/trinationalanalysis

# Summary of the 2019 TRI National Analysis

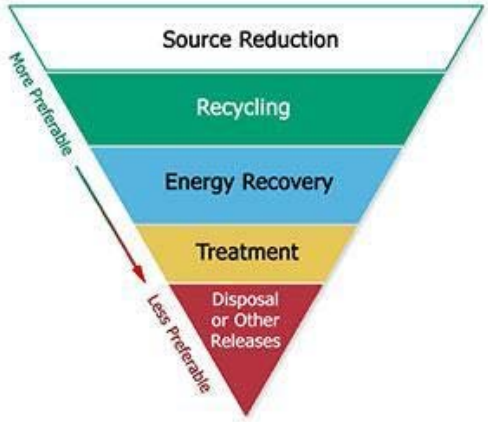
- TRI data demonstrate that economic growth and improved environmental performance can coexist
  - Facilities implemented 3,285 new pollution reduction activities in 2019, a 4% increase from 2018,
  - Source reduction success stories in the National Analysis highlight recent and actionable opportunities for knowledge transfer
- Nationally, percent of production-related waste that is recycled continues to increase
  - Recycling is a more preferred method of managing chemical waste compared to releasing waste to the environment, as outlined in the waste management hierarchy in the Pollution Prevent Act
- Releases of TRI chemicals to air continue to decline
  - 2007-2019: Releases to air decreased by 756 million pounds (-57%)
    - 2018-2019: Releases to air decreased by 23 million pounds (-4%)
  - Almost every sector has reduced their releases to air since 2007
- Regional profiles in this year's National Analysis highlight the geographic diversity of industrial operations in the U.S.
- The National Analysis increases transparency and understanding of TRI information: www.epa.gov/trinationalanalysis
  - Explanation, illustration, and interpretation of TRI information improve understanding of environmental data
  - Interactive, embedded tools, such as data visualization, support access to and exploration of TRI data

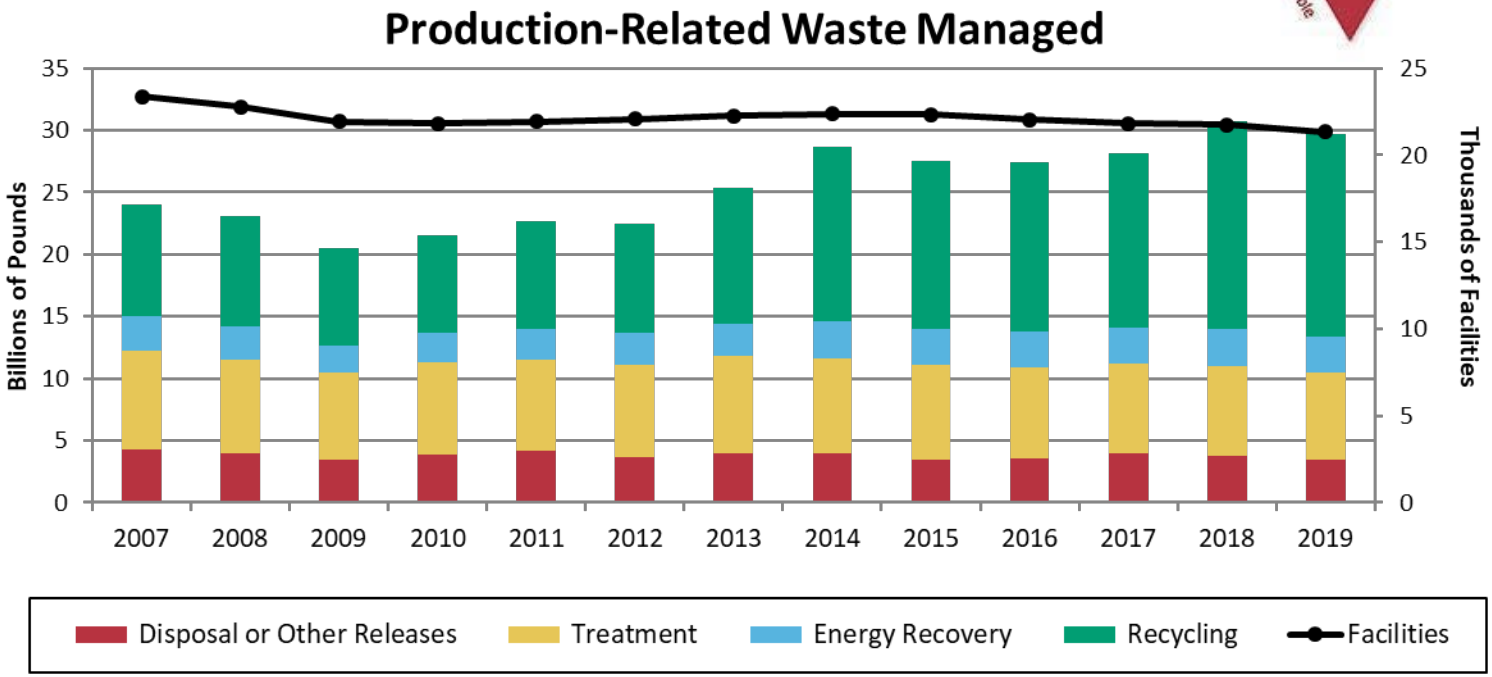
# Summary of the 2019 TRI National Analysis

- Production-related waste decreased 4% from 2018-2019 to 30.7 billion pounds
  - Of this total, 27.3 billion pounds (89%) were not released due to preferred waste management practices such as recycling
  - All waste management activities decreased by quantity, but the % of chemical waste that is recycled continues to increase nationally
- Disposal or other releases decreased 9% from 2018-2019 to 3.4 billion pounds
  - Reductions driven by decreased land disposal by metal mines
  - Release to air decreased by 4%, and water releases increased 3%
  - 2019: Of the 3.0 billion lb released on site, 2.2 billion lb (73%) were released to land, 600 million lb (20%) to air, and 201 million lb (7%) to water
- New this year:
  - Dynamic and interactive Executive Summary
  - New sector highlighted: fabricated metals manufacturing
  - EPCRA infographic
  - New regional comparison
  - First year of data on nonylphenol ethoxylates

# Waste Management Trends in the 2019 National Analysis

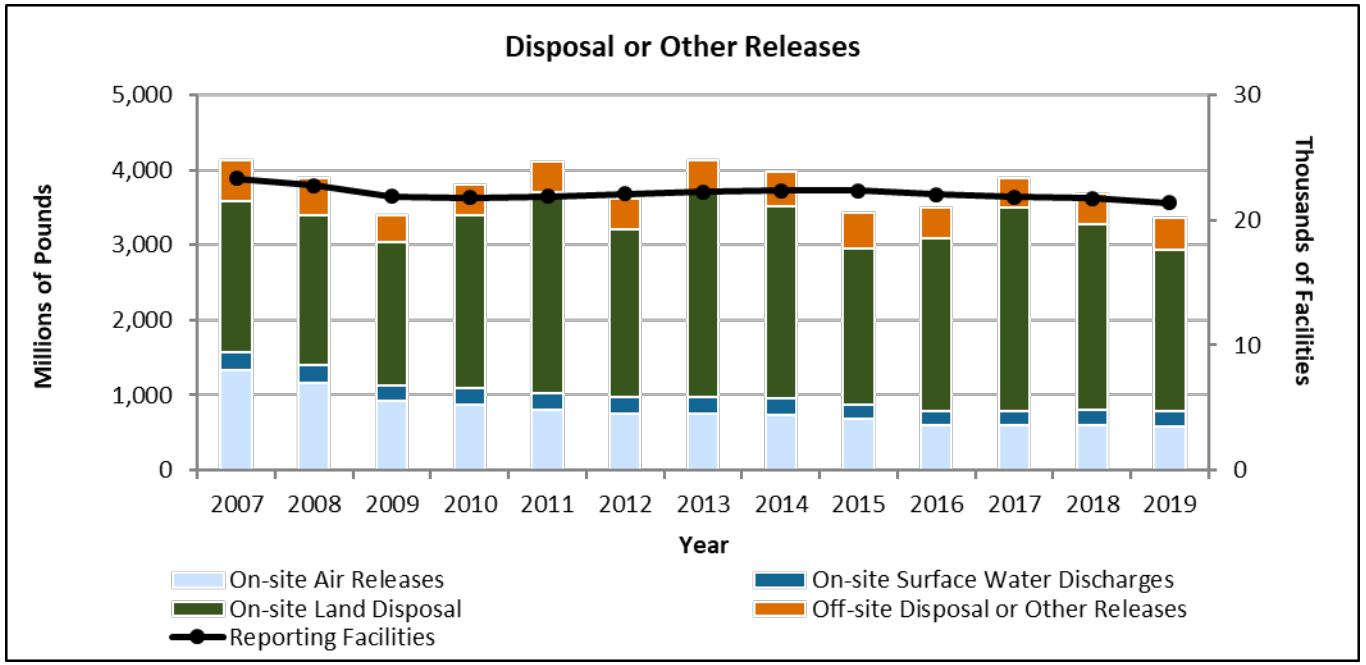
- 2018-2019: Total production-related waste managed decreased by 4% to 30.7 billion pounds
- 2007-2019: Recycling increased 78% (7.1 billion pounds)
- For 2019, facilities reported initiating 3,285 **new** pollution reduction projects
  - This represents a 4% increase from 2018, the first increase in 5 years



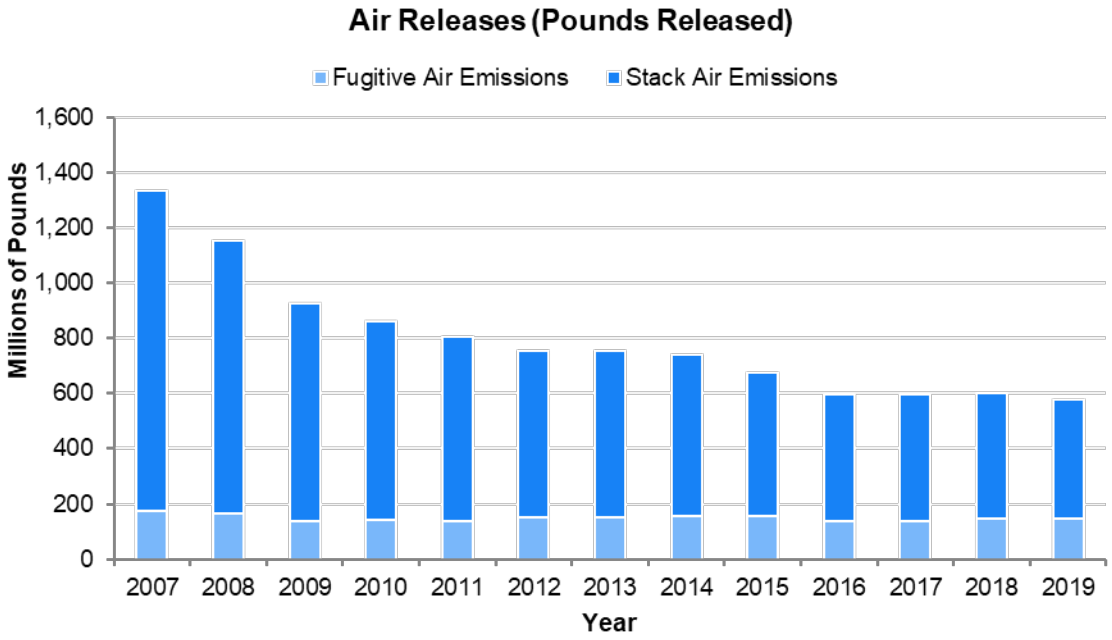
# Chemical Release Trends in the 2019 National Analysis

- 2019: Total releases of 3.4 billion pounds
- 2018-2019: Total releases decreased by 9% (-329 million pounds)
  - Metal mining on-site land disposal decreased by 228 million pounds
    - Decreased land disposal quantities reported by metal mining facilities may reflect changes in the chemical composition of mineral deposits rather than improved environmental performance or changes in production.
- Excluding metal mining, releases decreased by 5% driven by electric utilities, chemical manufacturing, and hazardous waste management facilities



# Trends – Releases to Air

- 2018-2019: Releases to air decreased by 4% (-23 million lb)
- 2007-2019: Releases to air decreased by 57% (-756 million lb)
  - Decreased from 2008-2009 largely due to economic recession
    - 2019 releases lower than 2009 despite economic recovery
      - 2009 GDP = $15.2 trillion; 2018 GDP = $21.4 trillion

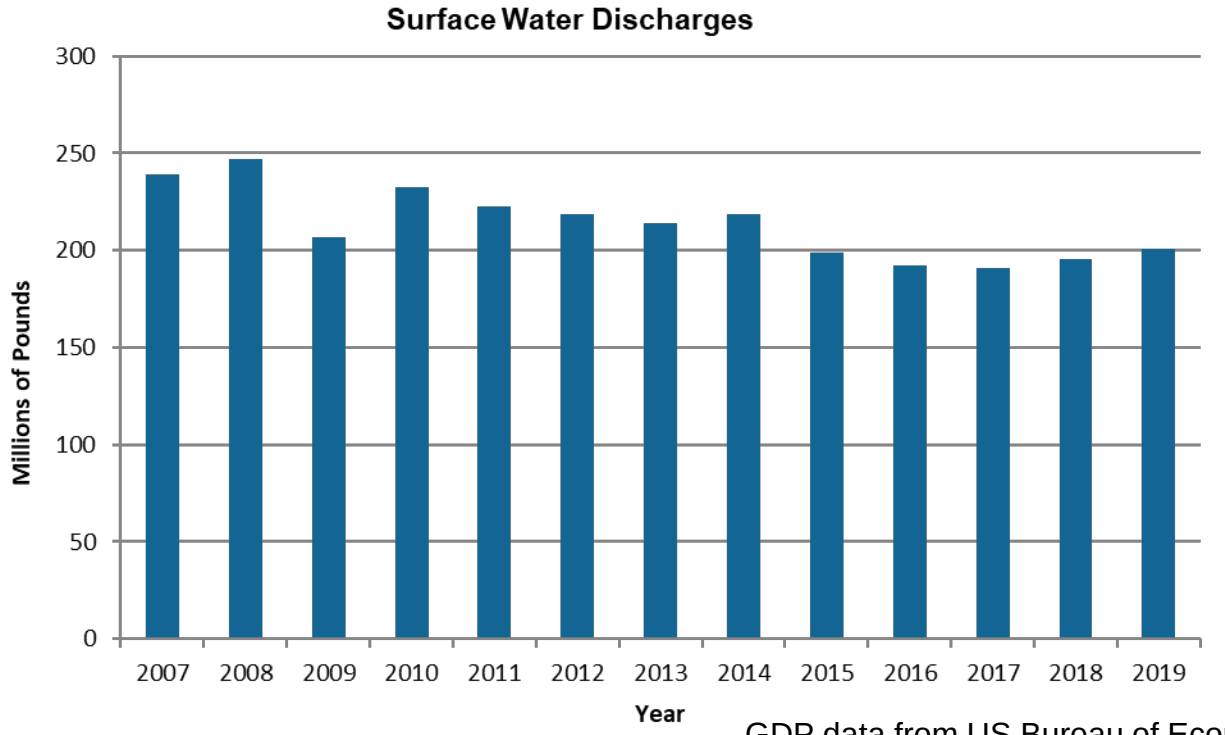





GDP data from US Bureau of Economic Analysis, 2012 dollars

# Trends – Releases to Water

- 2007-2019: Surface water discharges of TRI chemicals decreased by 16% (-38 million pounds)
  - 2018-2019: Surface water discharges increased by 3% (5.5 million pounds)
  - Decreased from 2008-2009 due to economic recession
    - 2019 releases are lower than 2009 releases despite economic recovery
      - 2009 GDP = $15.2 trillion; 2018 GDP = $21.4 trillion



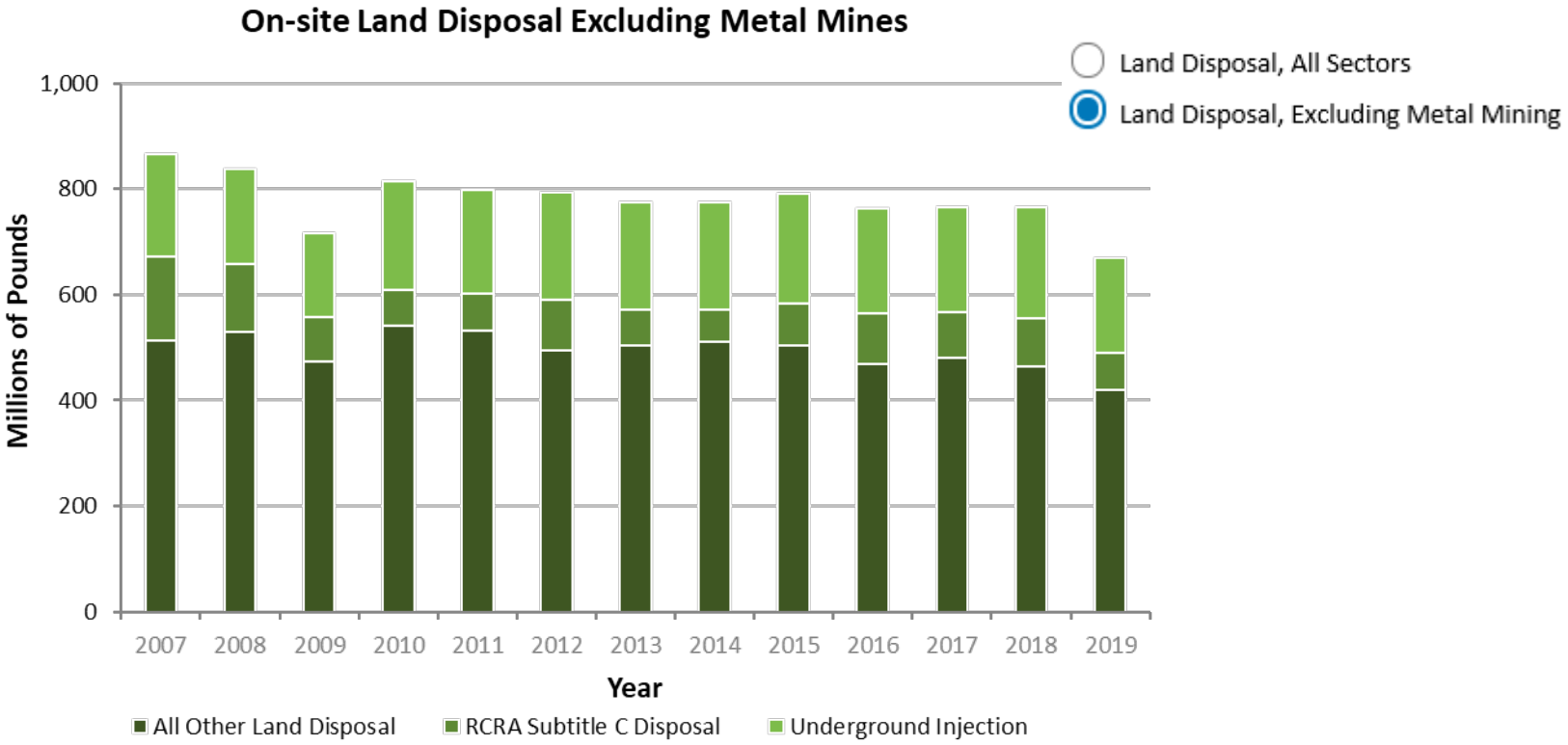

GDP data from US Bureau of Economic Analysis, 2012 dollars

# Trends – Releases to Land (all sectors)

- 2018-2019: On-site land disposal decreased by 13% (-327 million lb)
  - Decrease is driven by the metal mining sector for which land disposal decreased by 228 million pounds
- 2007-2019: On-site land disposal increased by 7% (146 million lb)
  - Annual fluctuations are primarily due to changes in waste quantities reported as "other land disposal," which includes chemicals disposed of in waste piles

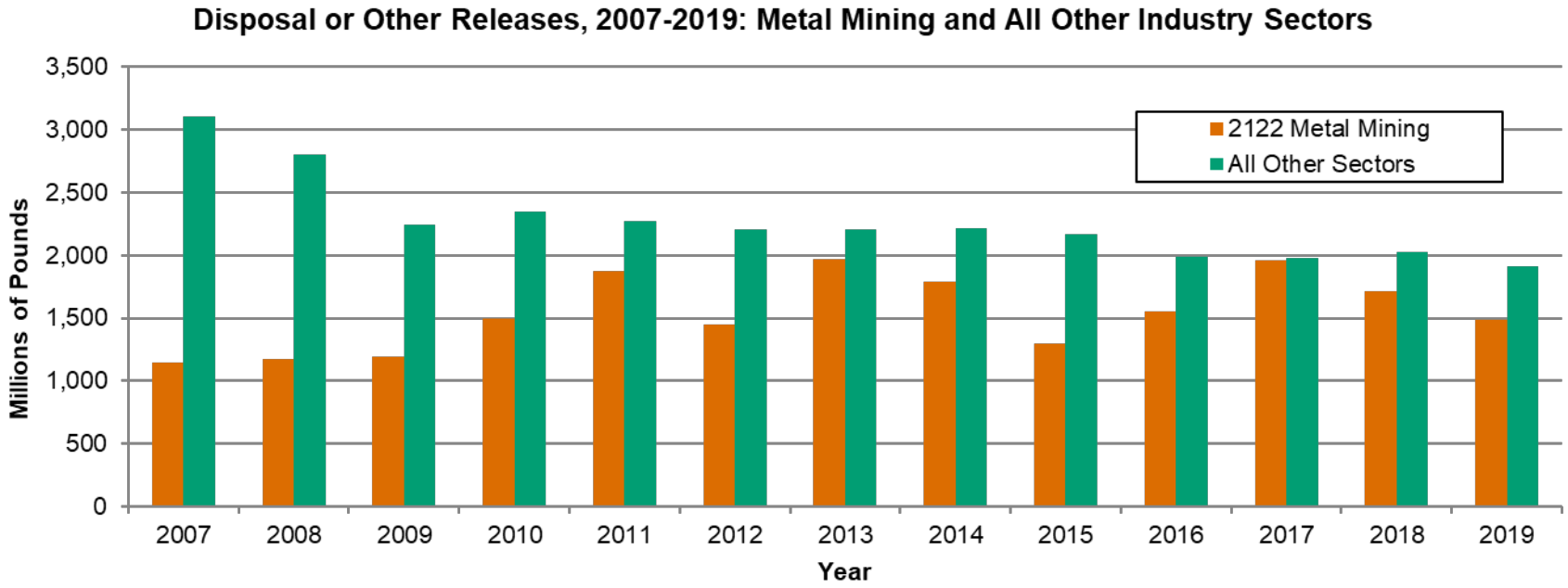
# Trends – Releases to Land (excluding metal mining)

- 2018-2019: Excluding metal mining, land disposal decreased by 13% (-98 million lb)
- 2007-2019: Excluding metal mining, land disposal decreased 23% (-197 million lb)

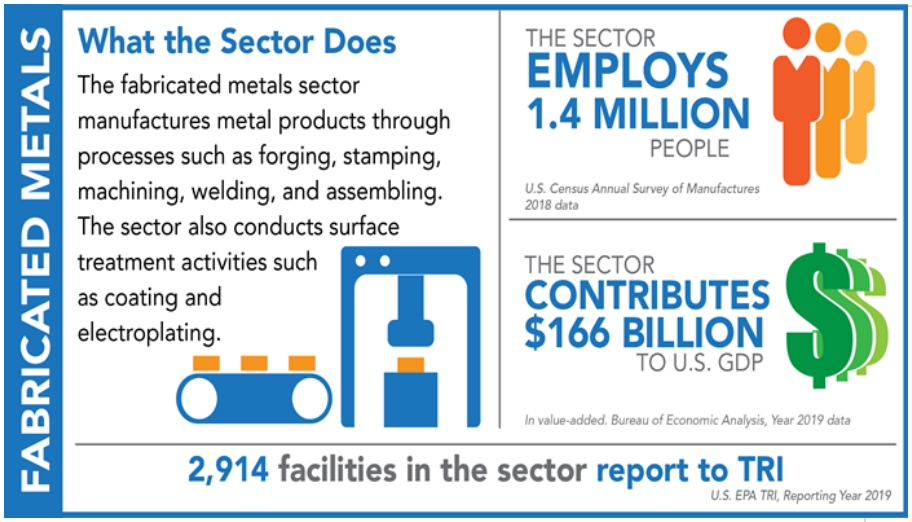


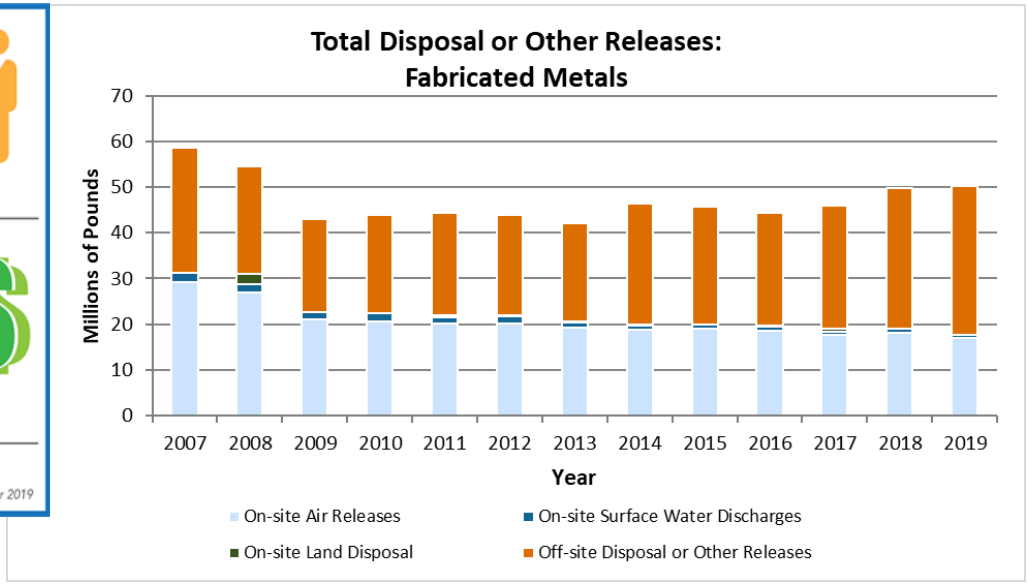
# Trends - Metal Mining & Other Industry Sectors

- Releases by metal mines fluctuated from 2007-2019
  - Metal mines contribute approximately 40% of all TRI releases
- Other industries show decreased releases from 2007-2019
  - Electric Utilities (NAICS 2211) – Releases decreased 72% (-731 million lb)
    - Only electric utilities burning coal or oil report to TRI
  - Manufacturing (NAICS 31-33) – Releases decreased 21% (-372 million lb)
    - Primary Metals (NAICS 331) – Releases decreased 43% (-256 million lb)

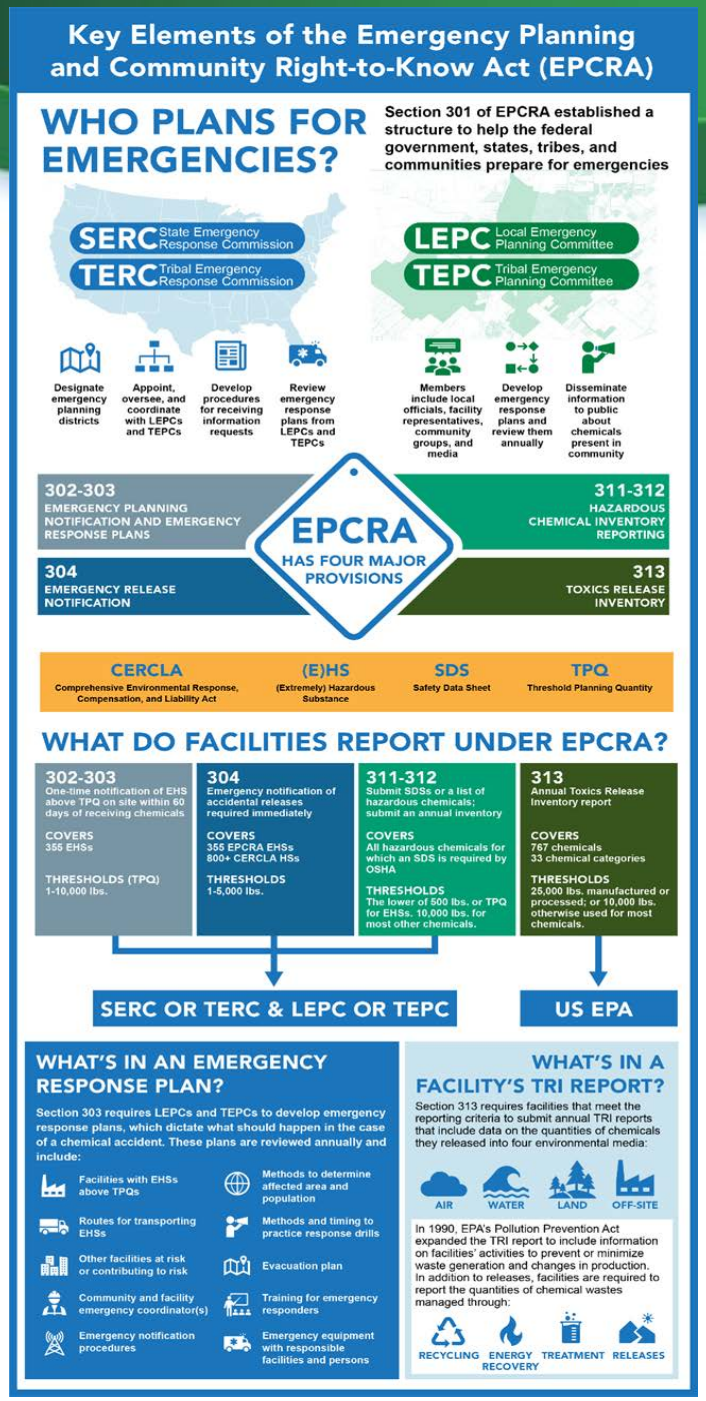


# New Analysis – Fabricated Metals Manufacturing




- 2007-2019: Total releases decreased by 8.3 million pounds (14%)
  - Air releases decreased by 12.3 million pounds (42%)
- The fabricated metals sector is part of the P2 Program's Metal Manufacturing and Fabrication National Emphasis Area (NEA).

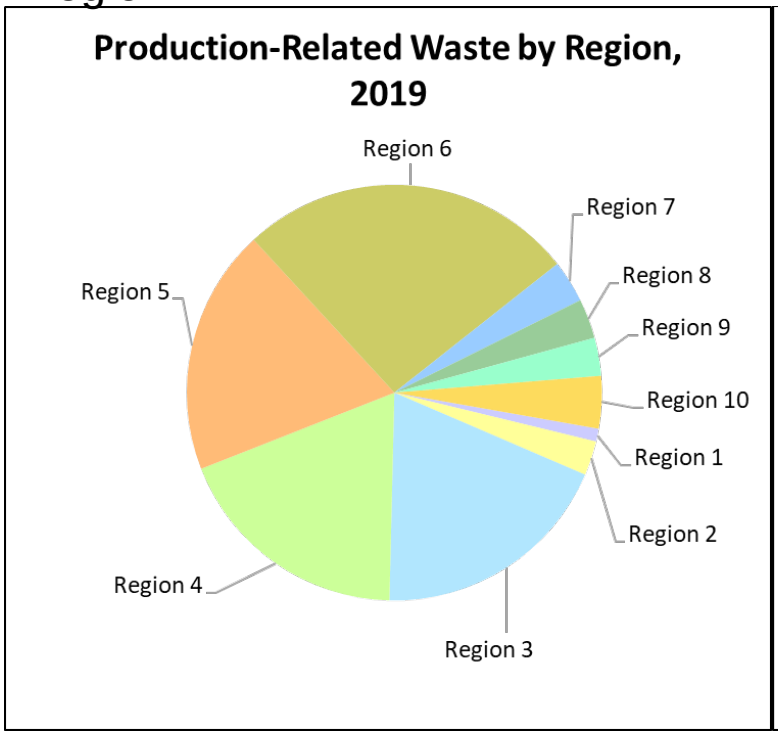


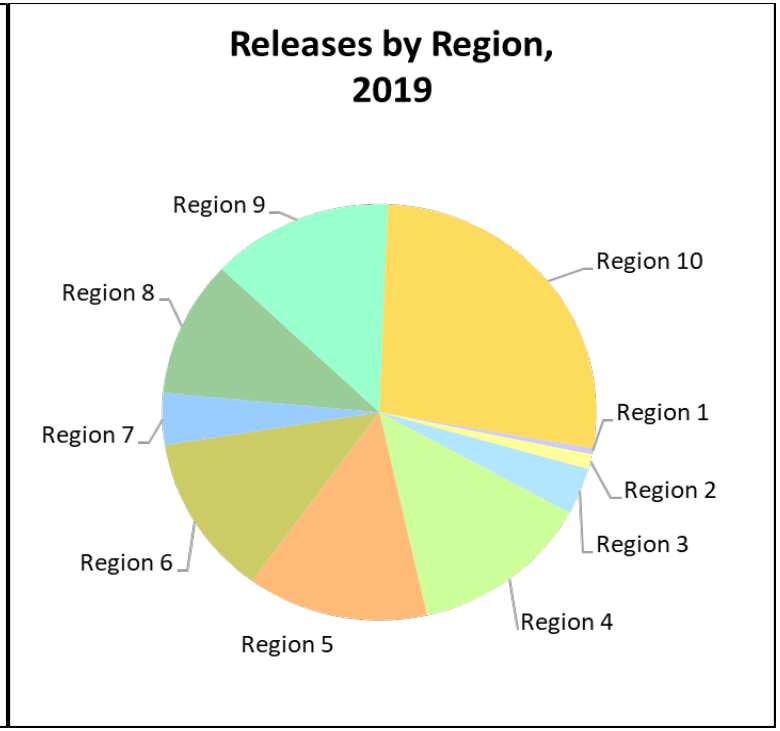

# New Feature – EPCRA Infographic

New infographic illustrates the whole of EPCRA and shows how TRI (EPCRA section 313) fits into the bigger picture of emergency planning, chemical safety, and community right-to-know

# New Analysis – Regional Comparison

The geographic diversity of industrial operations across the U.S. influences the quantities of TRI chemical waste managed, and the management methods utilized, in each Region.

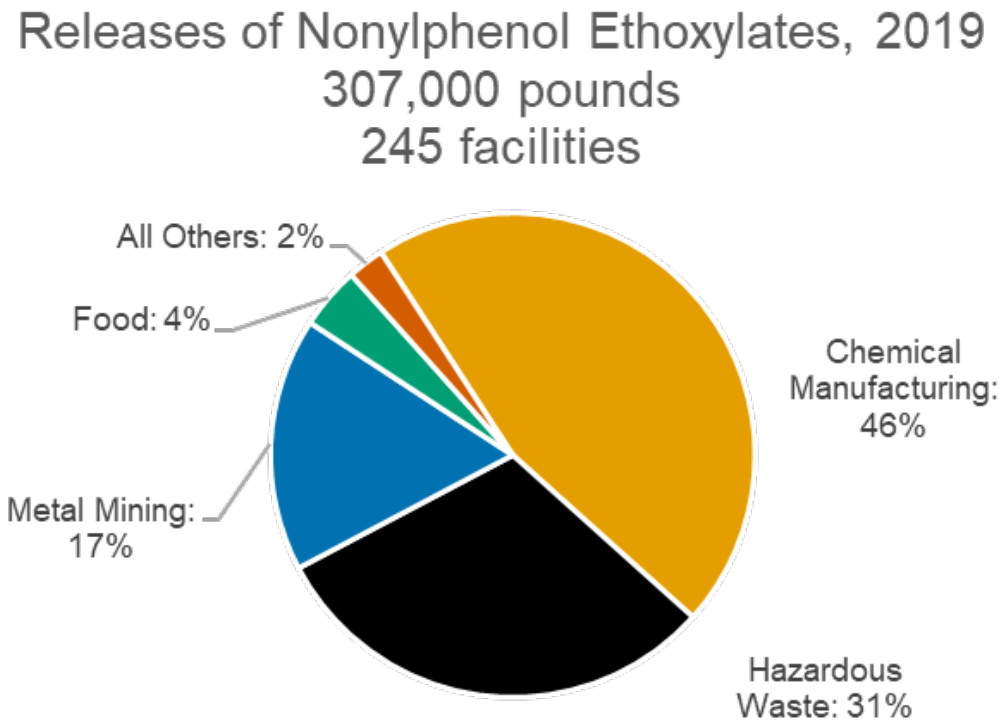


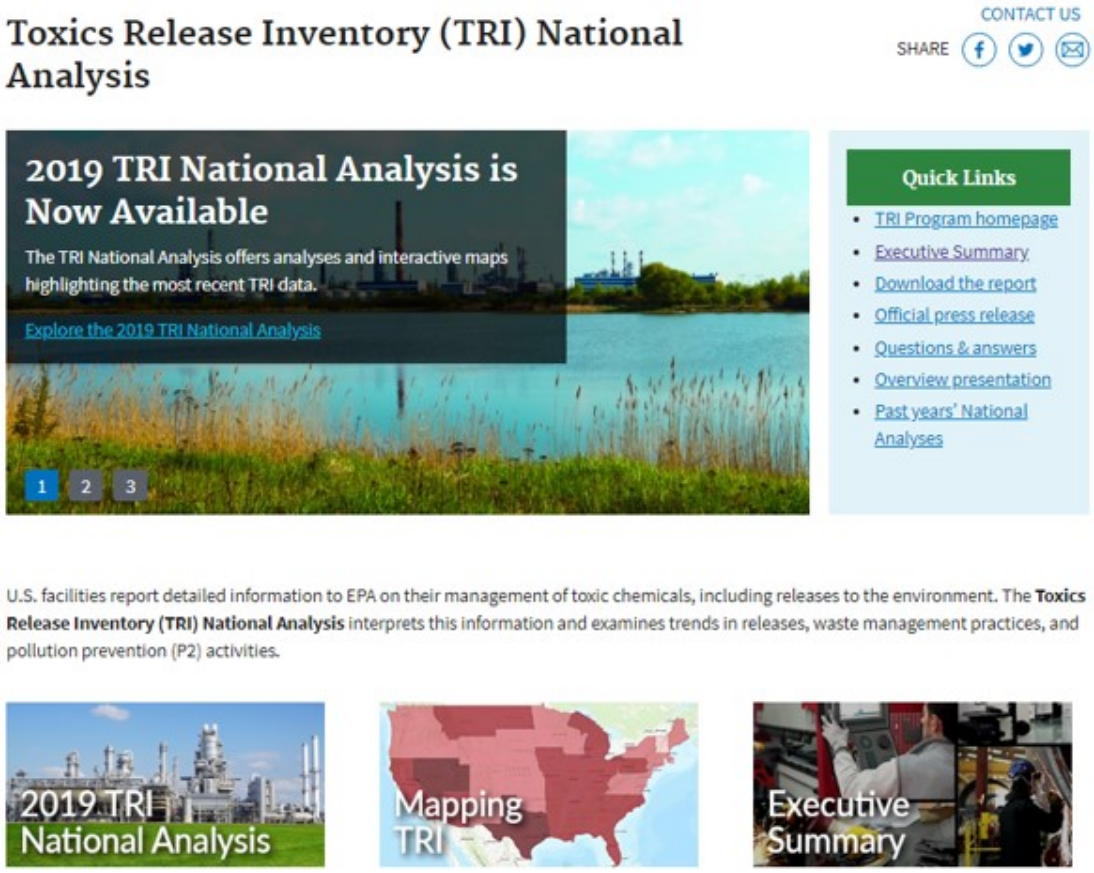

Production-related waste is defined as the combined total of production-related releases, treatment, energy recovery, and recycling.

# New Data – First year of reporting for Nonylphenol Ethoxylates

Nonylphenol ethoxylates are surfactants used in adhesives, dispersants, cleaners, paints, coatings, and other products



# 2019 National Analysis Website






www.epa.gov/trinationalanalysis