

US EPA ARCHIVE DOCUMENT



# 2013 TRI National Analysis



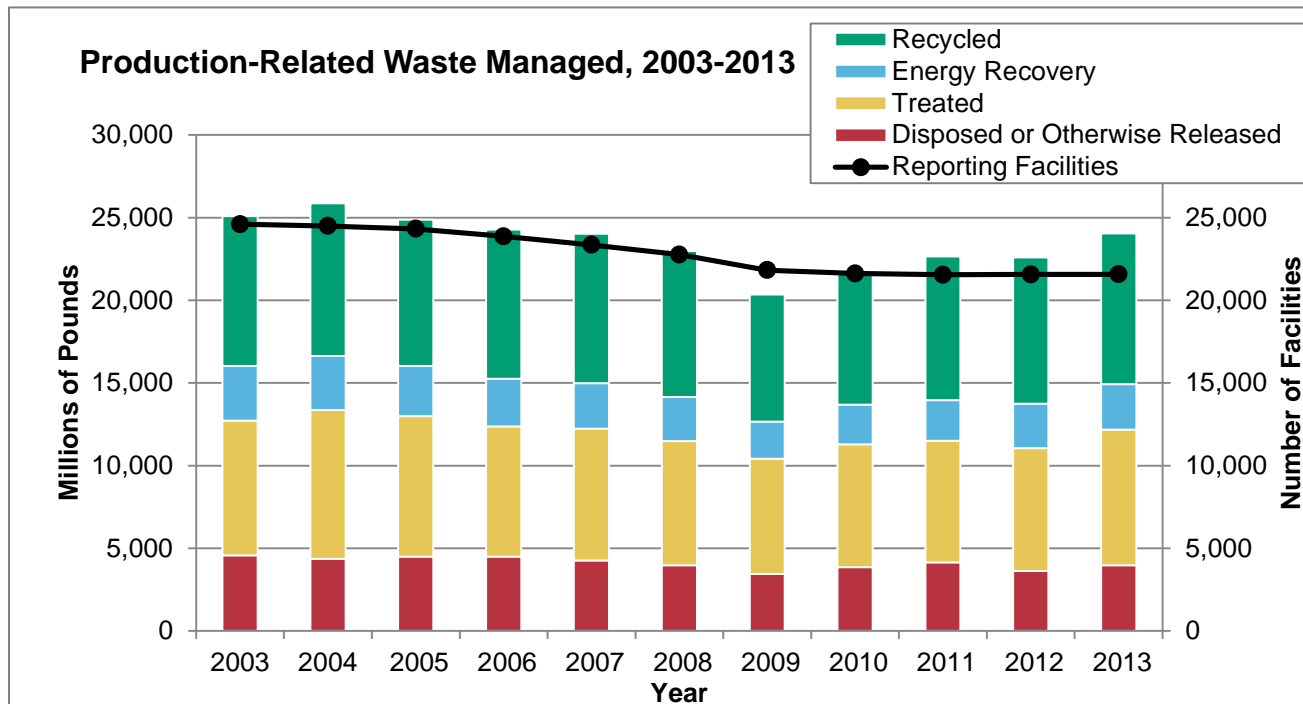
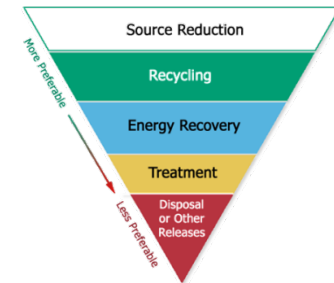
## Key Messages

- Total production-related waste increased 4% from 2012-2013
  - All pollution prevention activities increased
  - 2013: Of 25.6 billion pounds of waste managed, 21.6 billion pounds (84%) were not released due to preferred waste management practices like recycling.
- Total disposal or other releases increased 15% from 2012-2013
  - Land disposal increased – Metal mines
  - Air releases increased – Electric utilities and chemical manufacturing
  - Some industries, including primary metals and hazardous waste/solvent recovery, decreased
  - 2013: Of the 4 billion lbs released, 2.7 billion lbs (66%) were released to land and 780 million lbs (19%) were released to air
- New this year:
  - Transition to web-based format
  - Expanded analyses on risk, DMR, GHG, and emergency response information
  - Expanded focus on community-level analysis
  - More P2 information



# Trends – Total Waste Managed

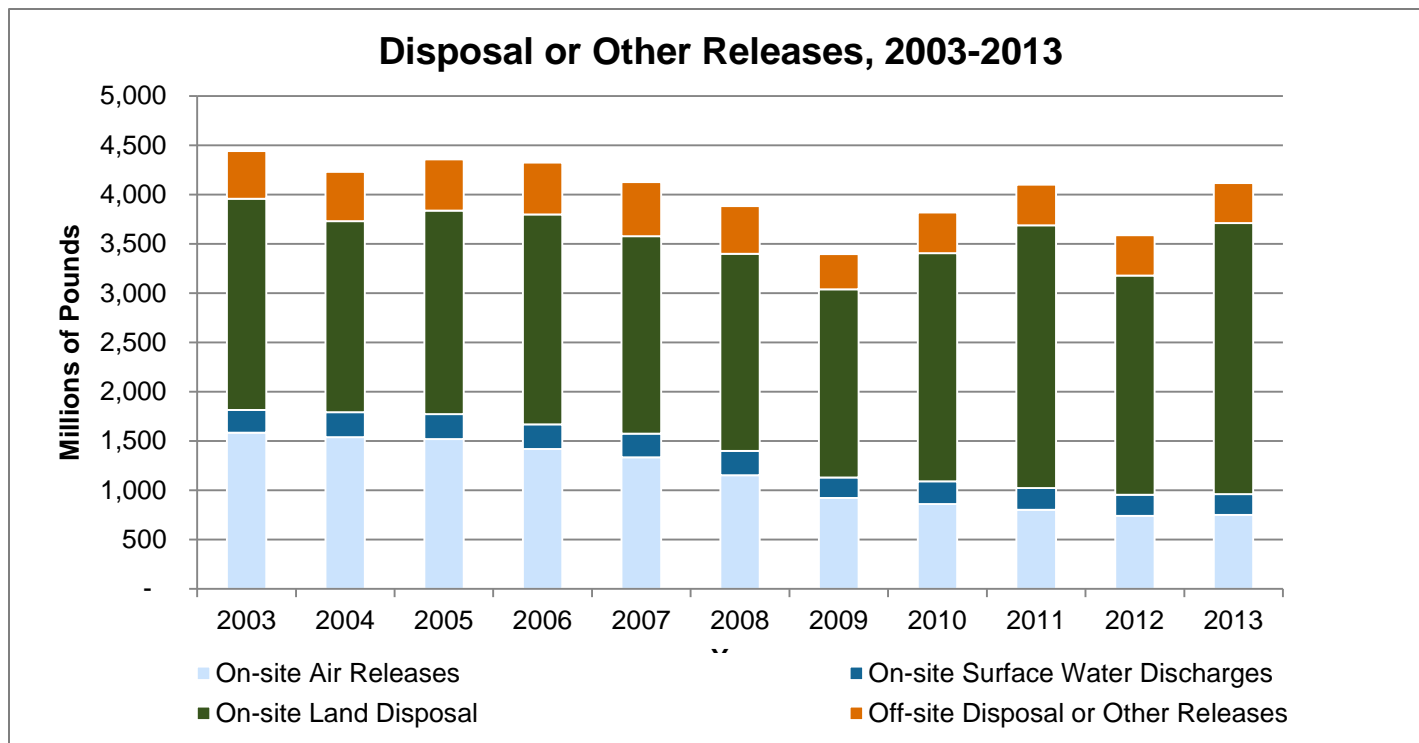
- 2013: Total waste managed was 25.6 billion lbs
- 2003-2013: Waste managed decreased by 4% (1.04 billion lbs)
- 2012-2013: Waste managed increased by 4% (911 million lbs)
  - Recycling increased 3% (293 million lbs)
  - Energy Recovery remained the same (change of <0.04%)
  - Treatment increased 3% (273 million lbs)
  - Releases increased 9% (344 million lbs)
- In 2013, a total of 3,362 facilities (16% of all TRI facilities) reported initiating 10,623 source reduction activities





## Trends – Total Releases

- 2013: Total releases was 4.1 billion pounds
- 2012-2013: Total releases increased by 15% (528 million lbs)
  - Driver: On-site releases increasing by 17% due primarily to metal mining
  - Total releases increased by only 0.4% if you exclude metal mining

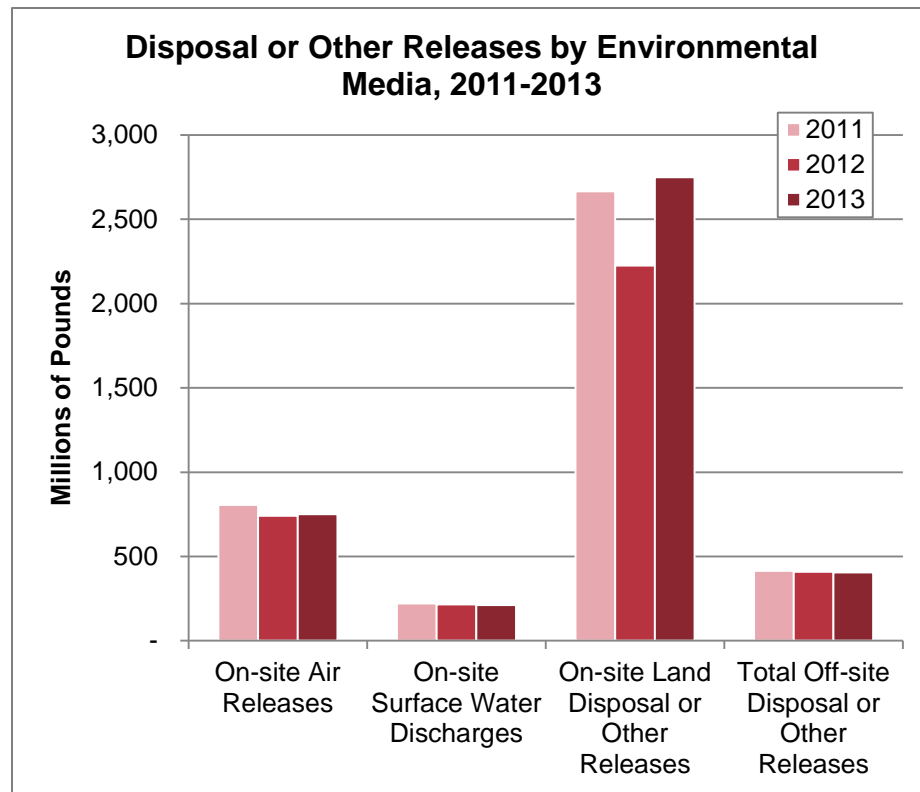




# Releases by Environmental Media

Changes from 2012:

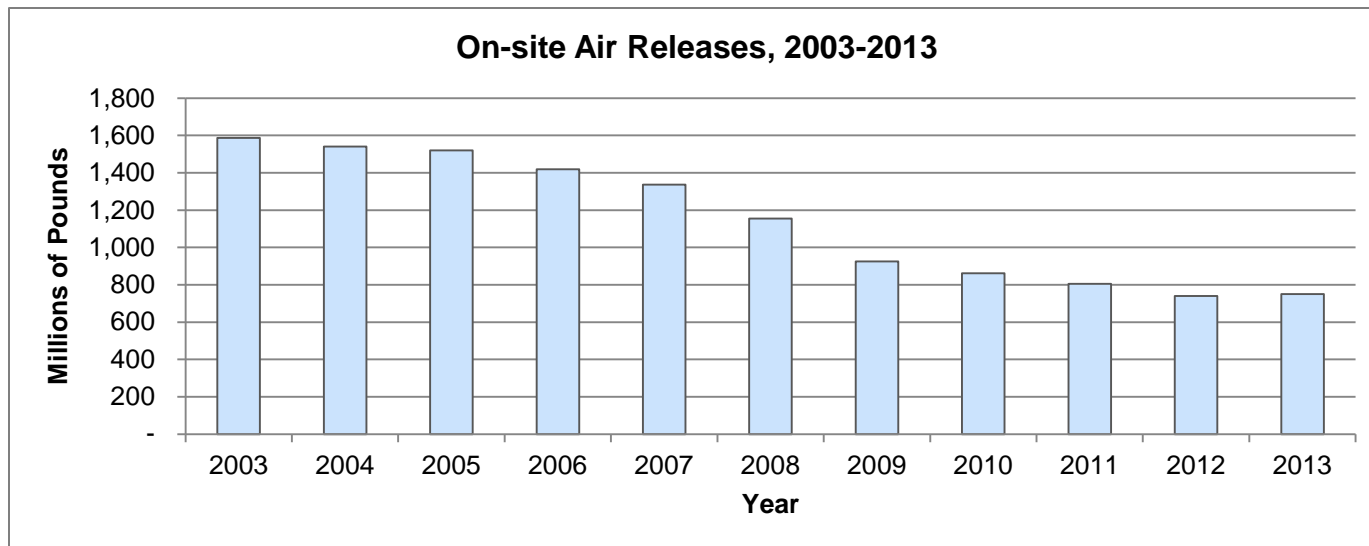
- Total on-site releases increased 17% (531 million lbs)
  - On-site land disposal increased 24% (525 million lbs)
    - Barium, arsenic, and lead compounds from metal mines
  - On-site air releases increased 1% (10 million lbs)
    - Hydrochloric acid and sulfuric acid from electric utilities
    - Methanol, ethylene, and ammonia from chemical manufacturing
  - On-site surface water discharges decreased 2% (4 million lbs)
- Off-site releases decreased 0.9% (3.8 million lbs)





## Trends – Air releases

- 2012-2013: Air releases increased by 1% (11 million lbs)
  - Chemical manufacturing air releases increased by 5% (9.2 million lbs – Basin Electric [ND, Region 8])
  - Electric utilities air releases increased by 3% (5.2 million lbs)
- 2003-2013: Air releases decreased by 53% (836 million lbs)
- Long term decline primarily due to:
  - Decreases in HAP emissions such as hydrochloric acid at electric utilities
  - Shift from coal to other fuel sources (starting in 2008)
  - Implementation of CAIR\* regulations from 2005-2010 and state regulations
  - Installation of control technologies at coal-fired power plants



\*CAIR is the Clean Air Interstate Rule



# Persistent Bioaccumulative Toxic Chemicals (PBTs)

From 2012 – 2013:

## Lead & Lead Compounds

- Total releases increased 36% (220 million lbs)
- Air releases of lead and lead compounds increased 15% (104,065 lbs)

## Mercury & Mercury Compounds

- Total releases decreased 1% (70,000 lbs)
- Air releases increased 15% (12,155 lbs)

## Dioxin & Dioxin-like Compounds

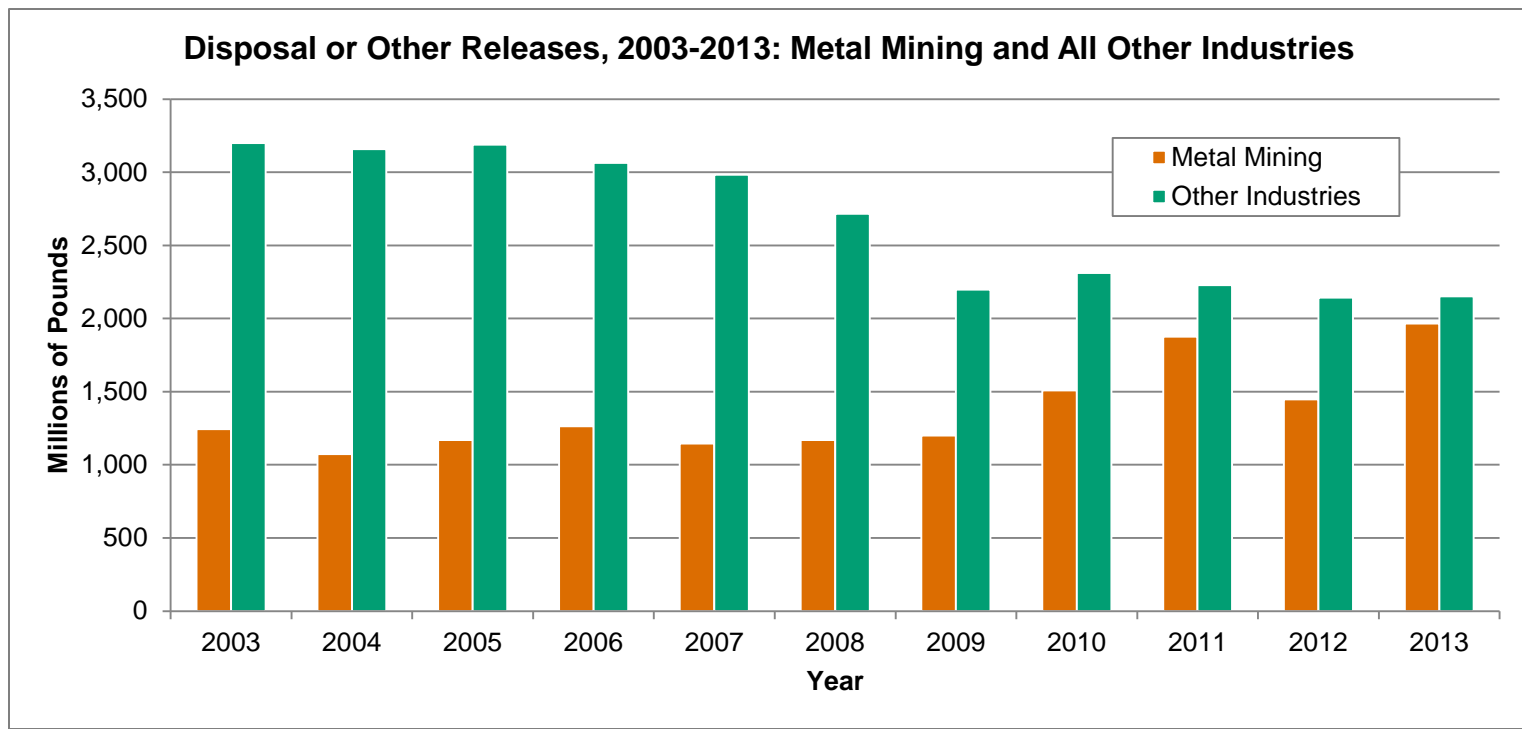
- Total releases increased by 23% (14,747 grams)
- Air releases decreased by 52% (2,837 grams)
- Off-site disposal increased by 90% (26,843 grams)
  - Oxy Vinyls VCM Plant (TX – Region 6) contributed 60% of total dioxin off-site releases





# Trends - Metal Mining & Other Industry Sectors

- Releases by metal mining have increased from 2003-2013
  - Metal mining comprises almost half of total releases
- All other industries show net decrease from 2003-2013
  - Electric Utilities (NAICS 2211) – Releases decreased 49%
  - Manufacturing (NAICS 31-33) – Releases decreased 25%
  - Chemical Manufacturing (NAICS 325) – Releases decreased 9%





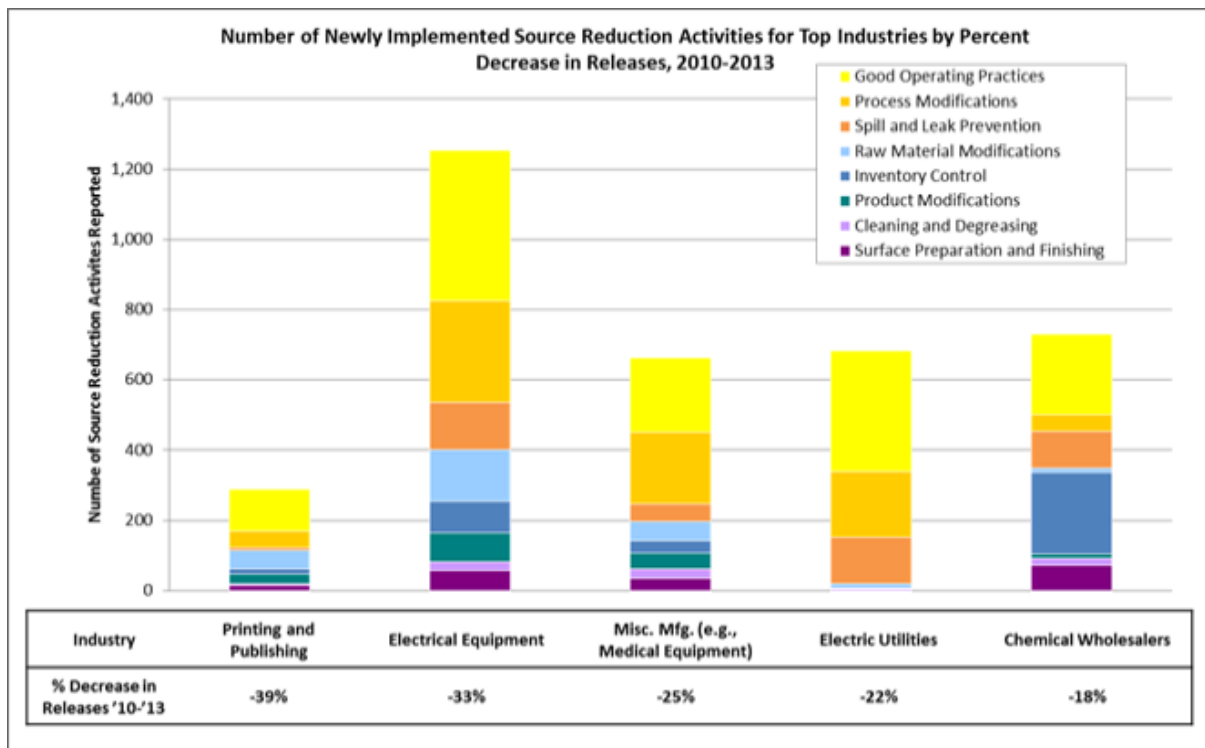
# Facilities with Largest Increases in Total Releases

- Metal Mining:
  - Red Dog Lead/Zinc Mine (AK - R10)
    - 2013 releases: 906 million pounds
    - Increase from 2012: 92.4 million pounds
  - Kennecott Utah Copper Mine (UT - R8)
    - 2013 releases: 290 million pounds
    - Increase from 2012: 141 million pounds
  - Kennecott Barneys Canyon Gold Mine (UT - R8)
    - 2013 releases: 193 million pounds
    - Increase from 2012: 193 million pounds
- All Other Sectors:
  - Clean Harbors Buttonwillow LLC (CA – R9)
    - 2013 releases: 26.9 million pounds
    - Increase from 2012: 16.5 million pounds
  - Basin Electric (ND – R8)
    - 2013 releases: 25.4 million pounds
    - Increase from 2012: 9.9 million pounds
  - Prairie State Generating Co (IL – R5)
    - 2013 releases: 21.9 million pounds
    - Increase from 2012: 9.7 million pounds
- These three facilities make up 71% of all metal mining releases



# New Analyses – More P2 Information

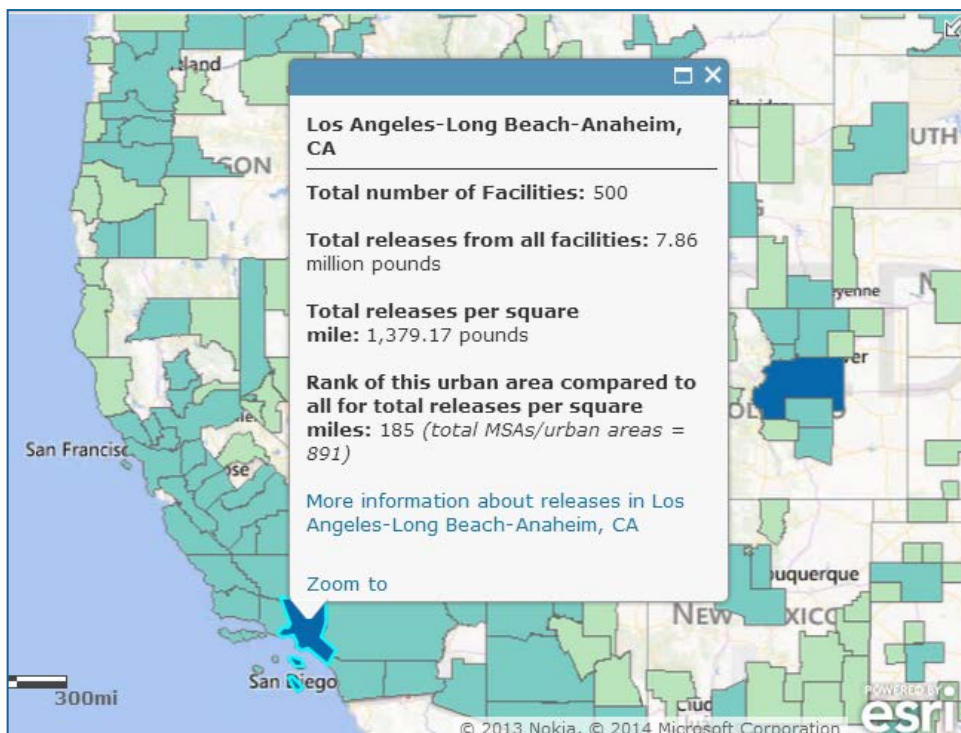
- New: P2 reporting by Parent Companies (standardized)
- New: Wastewater treatment methods for chemicals with biggest decreases in waste releases
- Highlighting P2 activities for sectors and chemicals with greatest reductions in releases
  - Printing & Publishing and Electrical Equipment had the greatest % decreases in releases





## New Analyses – Expanded Focus on Communities

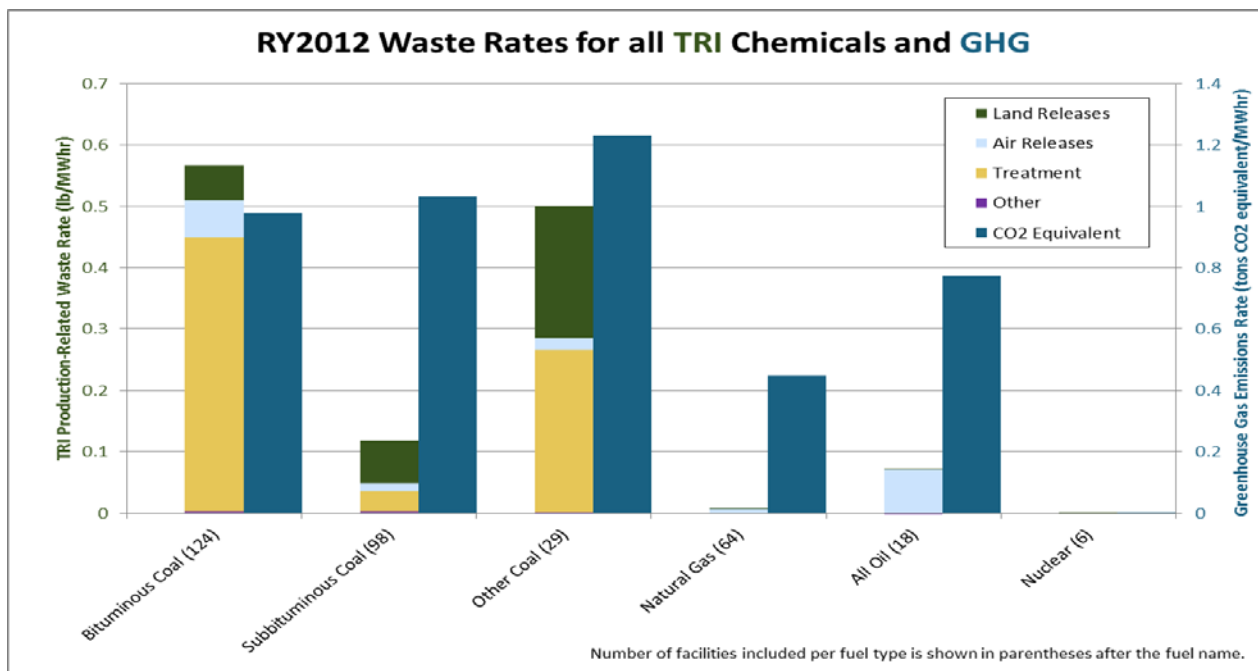
- TRI analysis available at a local level through an interactive map
- Users can see TRI data & print fact sheets for each state, county, city, zip-code, U.S. metropolitan and micropolitan area, and large aquatic ecosystem





## New Analyses – Fuel Type Analysis

- Combines data from TRI, GHG Reporting Program, and the DOE's Energy Information Administration
- Non-coal fuels tend to release both fewer toxic chemical and fewer GHGs, though the variation for TRI quantities is more dramatic than for GHGs



Number of facilities for each fuel type reporting to TRI shown in parentheses



## New Analyses – Greenhouse Gas Reporting

- New map of projected sea level rise and TRI facilities' locations
- Compares TRI data with GHG Reporting Program data, similar to 2012 analysis



## New Analyses – EPCRA and RMP Overview

- Information on renewed focus on chemical safety and accident preparedness
- Overview of programs that aim to reduce chemical risks at the community level
- Example of a chemical covered by both RMP and TRI and how information can be used to complement analyses



## New Analyses – DMR and TRI

- Information on toxic chemicals released to water reported to both TRI and DMR
- Information on conventional water pollutants and on facilities not included in TRI





# Questions



## Appendix 1: Industry Trends

Factors other than production play a role in TRI releases (e.g. composition of ore for metal mining, source reduction, control technologies)

2003 – 2013:

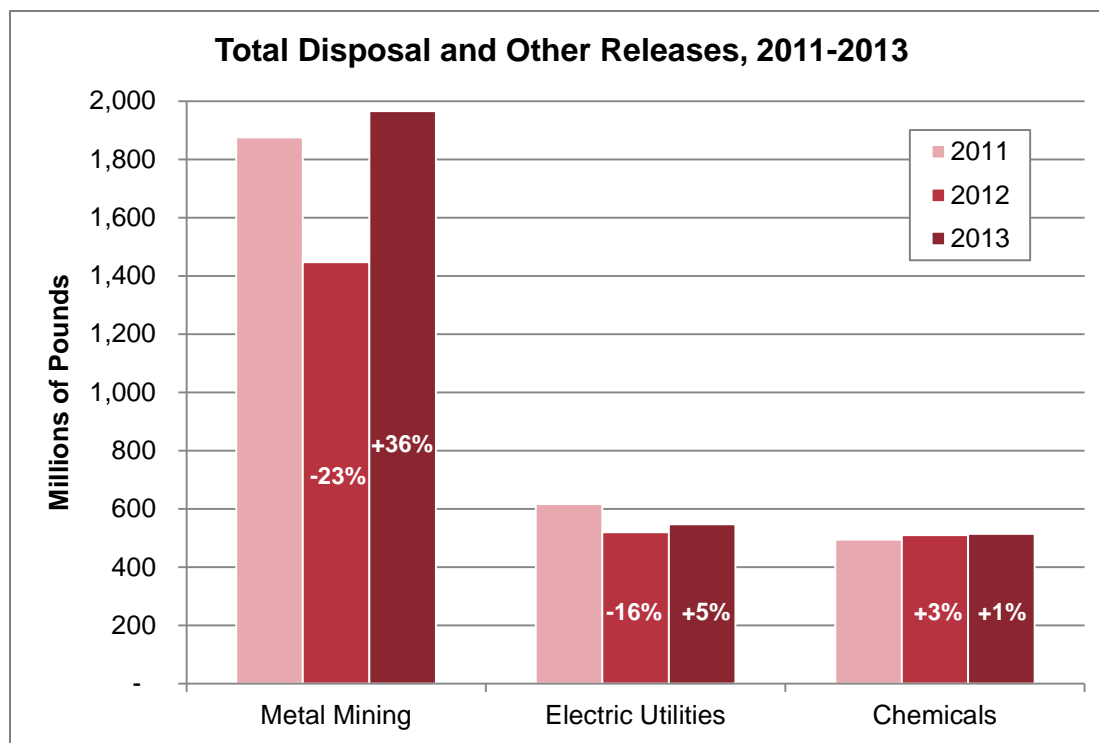
- Manufacturing
  - Releases decreased 25% while production decreased 4%
- Chemical Manufacturing
  - Releases decreased 9% while production increased 1%
- Metal Mining
  - Releases increased 58% but production has not changed
- Electric Utilities
  - Releases decreased 49% and net generation decreased 23%



## Appendix 2: Total Releases by Industry Sectors

2012 to 2013:

- Metal mines increased by 519 million lbs (36%)
- Electric utilities increased by 28 million lbs (5%)
- Chemical manufacturing increased by 5 million lbs (1%)



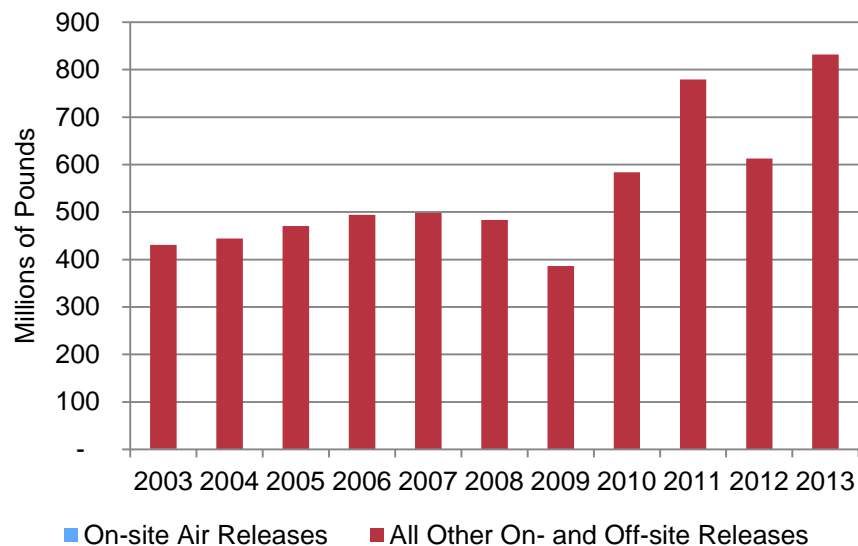


# Appendix 3: Releases of PBTs – Lead and Lead Compounds

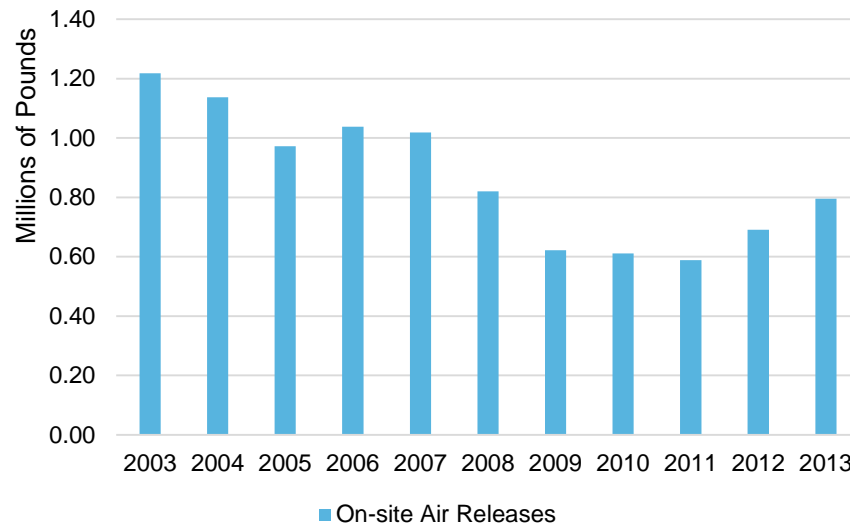
Changes from 2012:

- Total releases of Lead and Lead Compounds increased 36% (220 million lbs)
- Air releases of lead and lead compounds increased 15% (104,065 lbs)

Total Disposal or Other Releases of Lead and Lead Compounds, 2003-2013



Air Releases Lead and Lead Compounds, 2003-2013



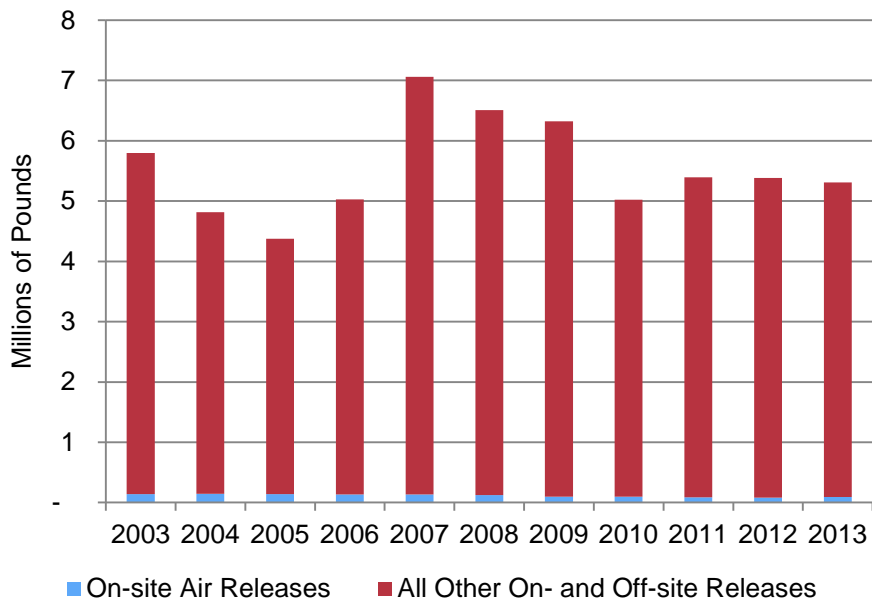


# Appendix 4: Releases of PBTs – Mercury and Mercury Compounds

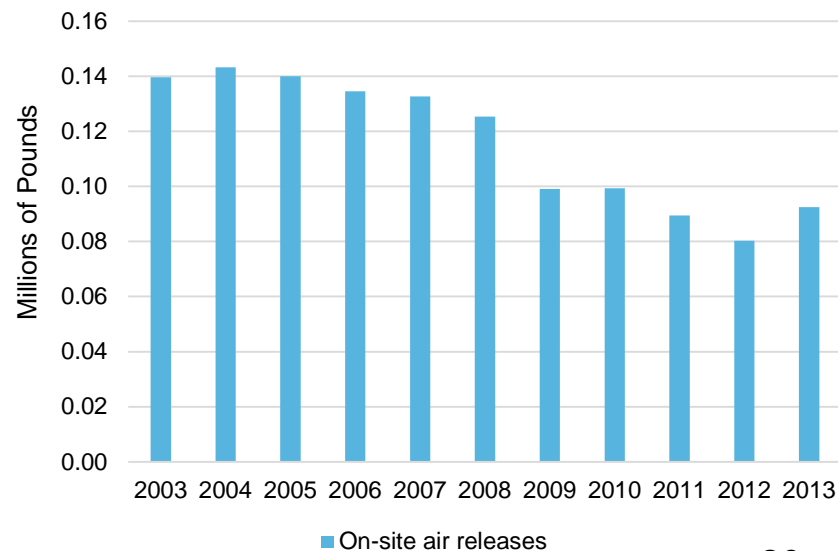
Changes from 2012:

- Total releases of Mercury and Mercury Compounds decreased 1% (70,000 lbs)
- Air releases of Mercury and Mercury compounds increased 15% (12,155 lbs)

### Total Disposal or Other Releases Mercury and Mercury Compounds, 2003-2012



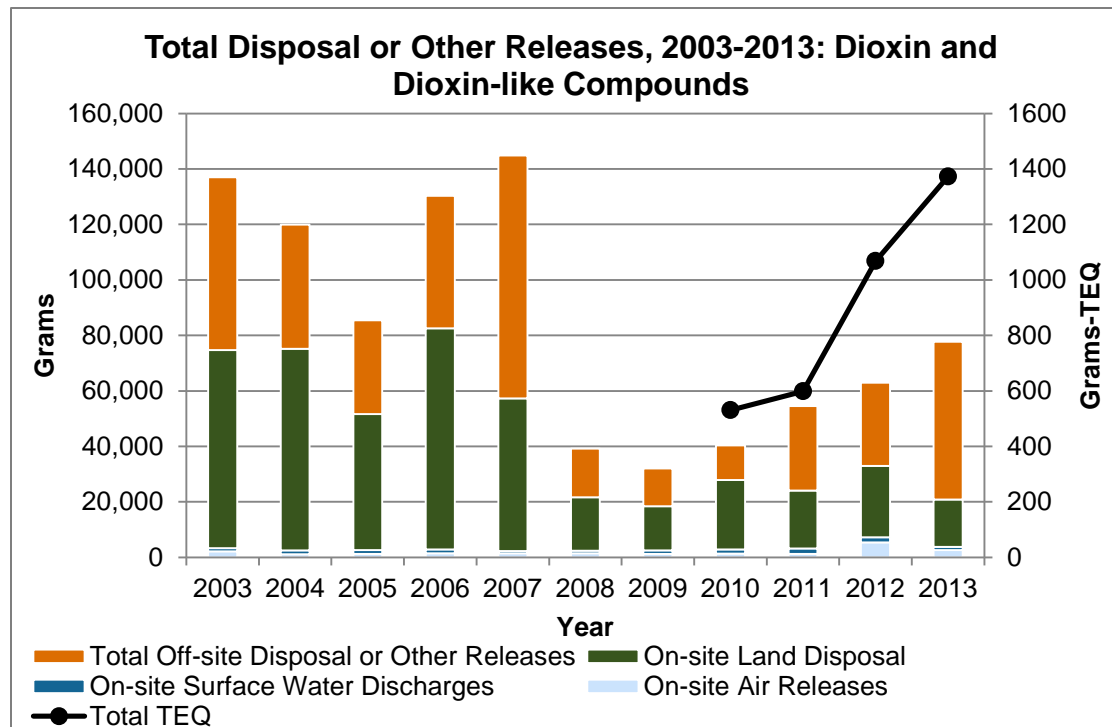
### Air Releases Mercury and Mercury Compounds, 2003-2013





## Appendix 5: Releases of PBTs – Dioxins and Dioxin-Like Compounds

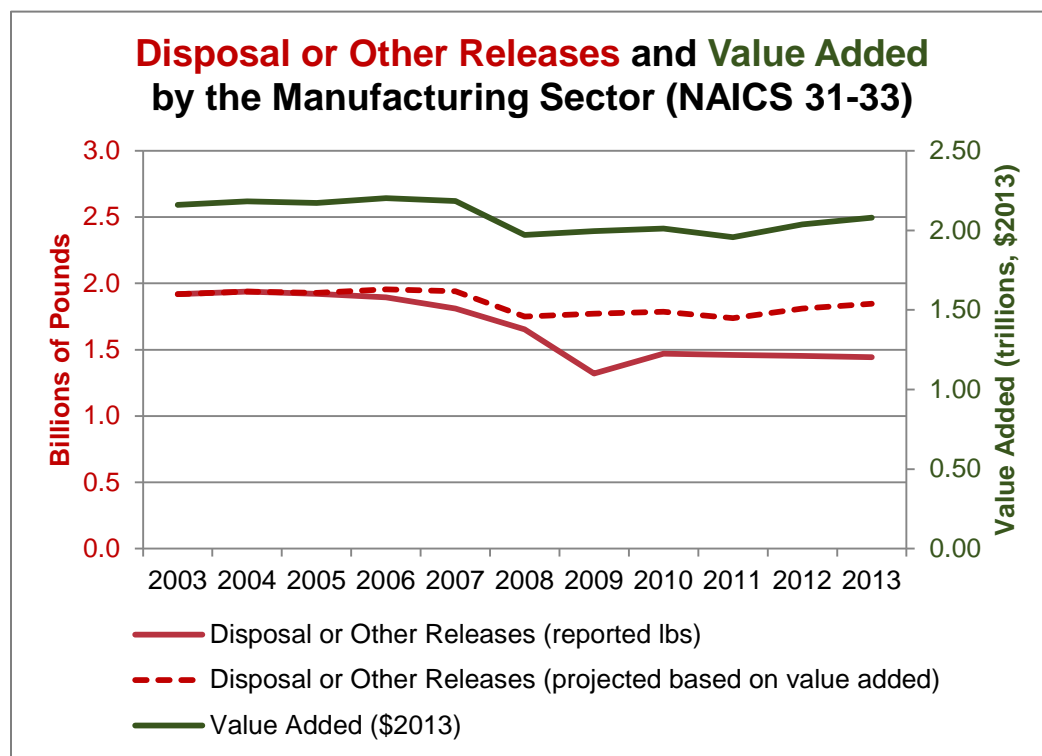
- 2012-2013: Dioxin releases increased by 23% (14,747 grams)
  - Off-site disposal increased by 90% (26,843 grams)
    - Oxy Vinyls VCM Plant (TX – Region 6) contributed 60% of total dioxin off-site releases
  - Air releases decreased by 52% (2,837 grams)
- 2010-2013: Grams-TEQ increased more than dioxin grams (159% compared to 92%)
  - Toxic Equivalence (TEQ) is the product of the concentration of an individual dioxin-like compound in an environmental mixture and its corresponding Toxic Equivalence Factor for that compound





## Appendix 6: Manufacturing Production

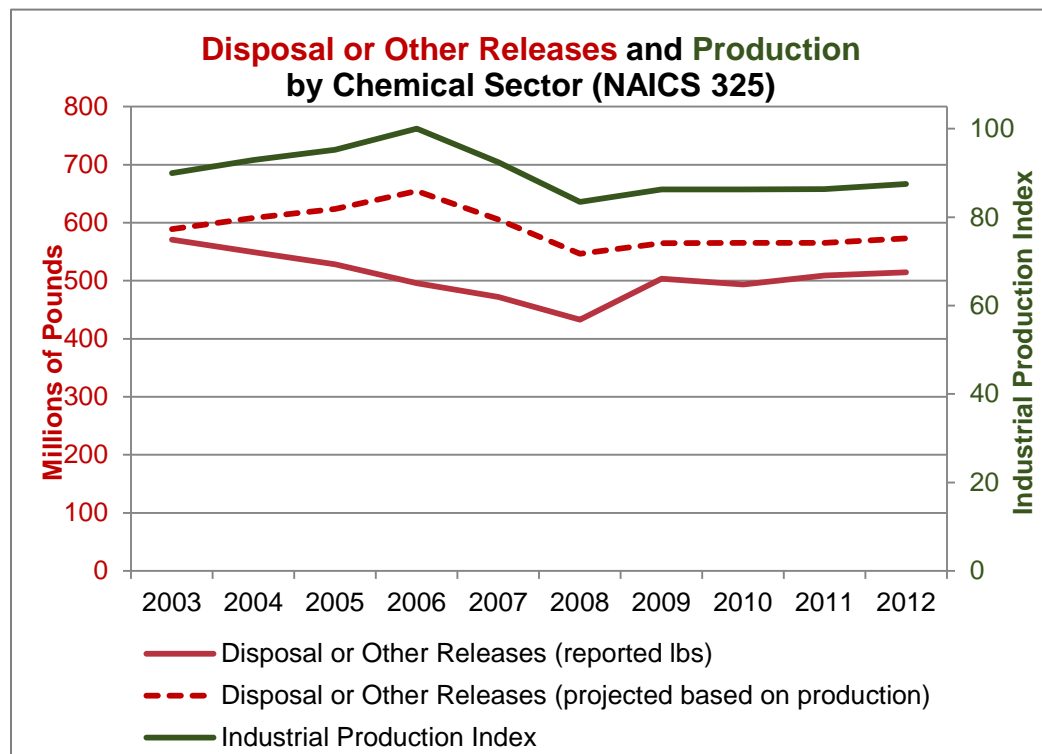
- Disposal or other releases decreased 25% since 2003
- Value added decreased 4% since 2003
- Dotted line shows projected releases if releases per \$ value added were constant since 2003 (i.e., releases expected based only on production changes)
  - Difference between solid and dotted lines suggests factors other than the economy play a role in reducing TRI releases
- Possible factors: source reduction; shift to other management methods; shift to non-TRI chemicals; outsourcing outside the U.S.; raw material changes.





## Appendix 7: Chemical Production

- Disposal or other releases decreased 9% since 2003
- Industrial production index increased 1% since 2003
- Dotted line shows projected releases if releases per unit of production were constant since 2003 (i.e., releases expected based only on production changes)
  - Difference between solid and dotted lines suggests factors other than the economy play a role in reducing TRI releases

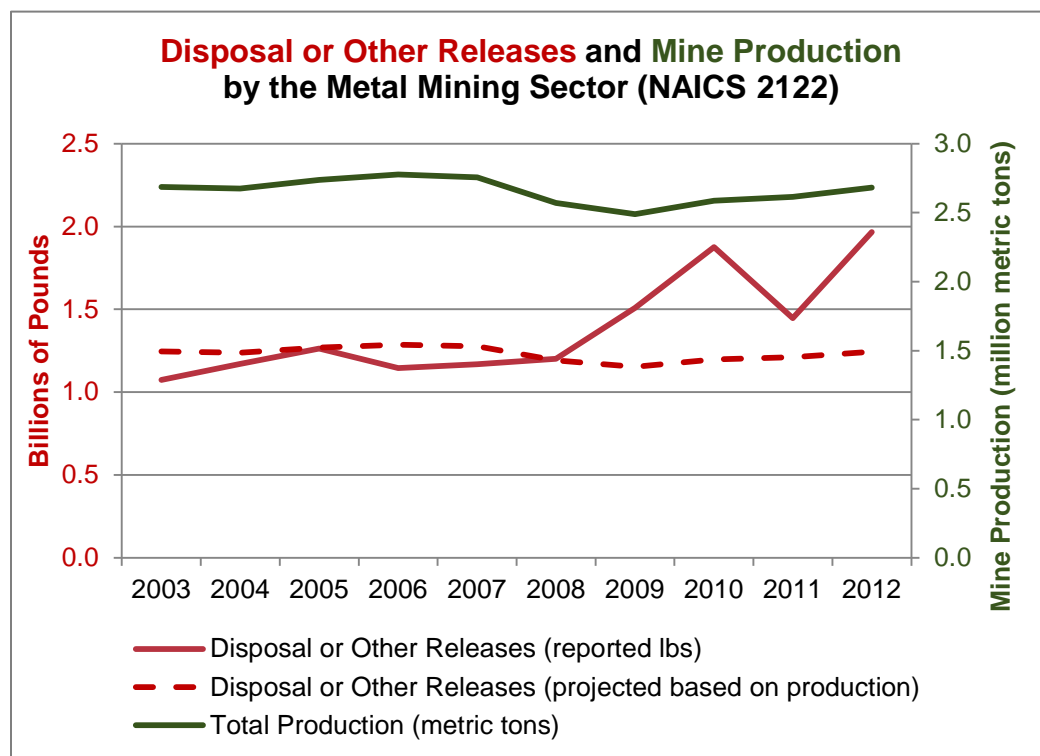






## Appendix 8: Metal Mining Production

- Disposal or other releases increased 58% since 2003
- Mine production has remained constant since 2003 but increased 3% from 2012-2013
- Dotted line shows projected releases if releases per ton of mine production were constant since 2003 (i.e., releases expected based only on production changes)
  - Releases and production remained relatively flat until 2009
  - Difference between the dotted and solid lines after 2009 indicates factors other than production drove the increase in releases (e.g., changes in composition of ore and waste rock)





# Appendix 9: Electric Utilities Production

- Disposal or other releases decreased 49% since 2003
- Net generation decreased 23% since 2003
- Dotted line shows projected releases if releases per GWh were constant since 2003 (i.e., releases expected based only on production changes)
  - The difference between the solid and dotted lines suggests factors other than the production played an increasing role in reducing TRI releases

