



Emergency Planning and Community Right-to-Know Act (EPCRA) Section 313



## Showcasing Sustainability in Your TRI Report

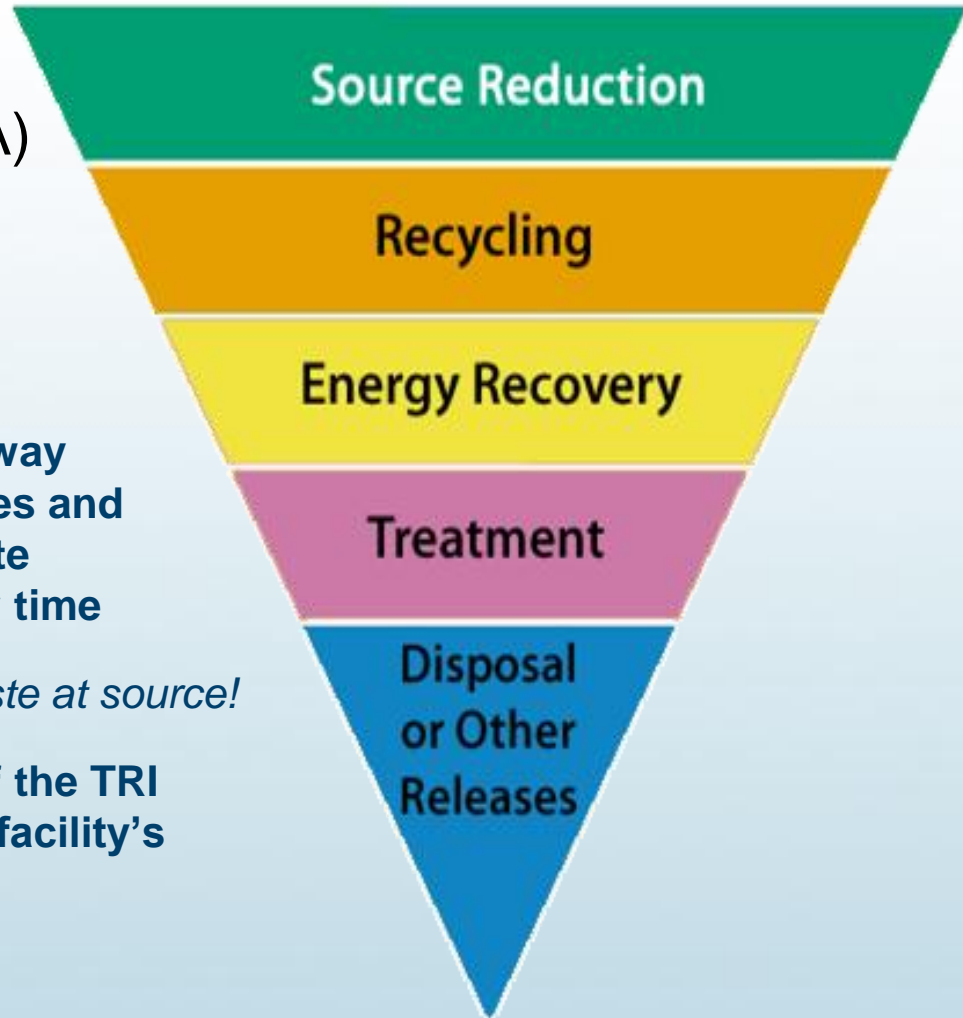
**TRI**

## Showcasing Sustainability in Your TRI Report

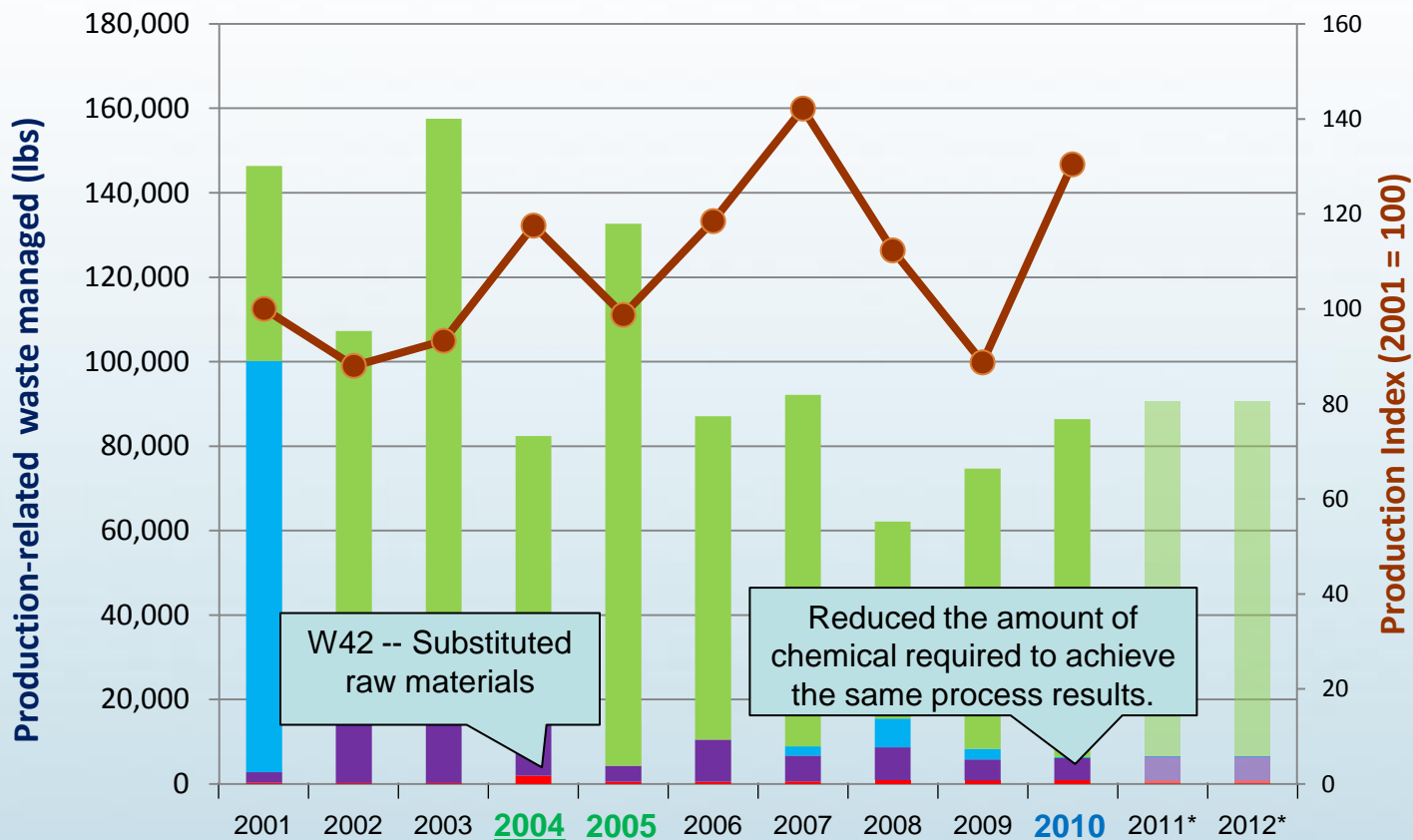
1. Background on Pollution Prevention (P2) and Source Reduction
2. Uses of TRI P2 Data and EPA's Plans for Promoting Them
3. P2 Reporting Requirements and Tips
  - a) *Waste Management Quantities*
  - b) *Production Ratio*
  - c) *Source Reduction Activities*
  - d) *Optional P2 Text*

## The Waste Management Hierarchy

- Established by the Pollution Prevention Act of 1990 (PPA)
- Sets out hierarchy of waste management techniques
  - **Goal is for facilities to shift away from disposal or other releases and towards more preferable waste management techniques over time**
    - *Or, ideally, eliminating waste at source!*
  - **Pursuant to PPA, Section 8 of the TRI Form R is used to track each facility's progress towards this goal**



**Management of N-Methyl-2-Pyrrolidone at a TRI Facility**



**Waste Hierarchy**

- Recycled
- Energy Recovery
- Treated
- Releases
- Production Index

Key: YEAR – Source reduction reported | YEAR – Optional P2 text submitted | \*Projections

## Plans for Promoting TRI P2 Data

To encourage P2, EPA intends to:

- Identify facilities and parent companies that report P2 successes
  - e.g., **TRI National Analysis and TRI website**
- Modify TRI user interfaces
  - **Make reported P2 information more prominent and accessible**
- Promote use of TRI as a tool for:
  - **Identifying effective environmental practices**
  - **Publicizing successes**

# What is the TRI National Analysis?

- Homepage
- Basic Information
- Frequent Questions

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- TRI Data and Tools
- National Analysis

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- Laws, Regulations, and Notices
- Enforcement

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- Reporting Forms and Instructions
- TRI-MEweb Resources
- TRI-Covered Industries
- TRI-Listed Chemicals
- Training
- TRI Data Exchange

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- Communities
- Tribes
- International

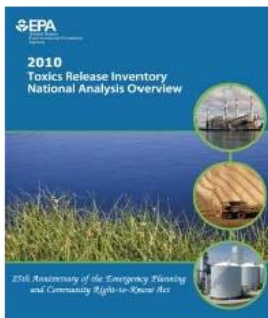
You are here: EPA Home » TRI Home » 2010 TRI National Analysis

[español](#) ▶ **2010 TRI National Analysis**

### What is the TRI National Analysis?

The EPA released the 2010 TRI National Analysis on January 5, 2012.

The TRI National Analysis is an annual report that displays EPA's analysis and interpretation of the most recent TRI data. It includes a variety of documents and webpages, available below, that outline national and local trends in toxic chemical disposal or other releases to the environment. It also includes trends in toxic chemicals managed by TRI facilities, and analyses of certain chemicals of interest, industry sectors, parent companies and geographic areas.



Click on graphic to view the National Analysis Overview



You will need Adobe Reader to view the Portable Document Format (PDF) files.

#### Additional Information


- [Briefing Slides \(13pp, 440KB, PDF\)](#)
- [Q's and A's \(9pp, 175KB, PDF\)](#)
- [TRI National Analysis Tables & Charts](#)  
[Table of Contents \(4pp, 152KB, PDF\)](#)
- [Previous Year's TRI National Analysis Reports](#)  
[2009 - December 16, 2010](#)

#### Geo-specific Analyses


- [State Fact Sheets](#)
- [Urban Communities](#)
- [Large Aquatic Ecosystems](#)
- [Indian Country and Alaska Native Villages](#)



# 2010 National Analysis Results




**2010 Toxics Release Inventory National Analysis Overview**



*25th Anniversary of the Emergency Planning and Community Right-to-Know Act*

## Industry Sector Profile: Paper and Paper Products

### Paper and Paper Products



**Quick Facts for 2010**

Number of TRI Facilities: 402

On-site and Off-site Disposal or Other Releases: 178.0 million lbs

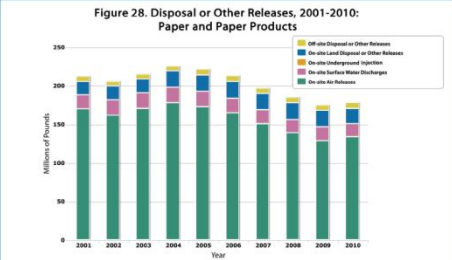
- On-site: 170.7 million lbs
  - Air: 133.6 million lbs
  - Water: 17.0 million lbs
  - Land: 20.1 million lbs
  - Underground Injection: none
- Off-site: 7.3 million lbs

Production-Related Waste Managed: 1,595.7 million lbs

- Recycled: 44.7 million lbs
- Energy Recovery: 206.9 million lbs
- Treated: 1,160.9 million lbs
- Disposed of or Otherwise Released: 183.1 million lbs

Facilities in this sector include pulp and paper mills, as well as manufacturers of paper products such as boxes and bags. Compared to other TRI industry sectors, the paper sector reported the fifth largest total disposal or other releases in 2010. It had the third largest air emissions of any sector, accounting for 16% of total air emissions. Total disposal or other releases from this sector decreased by 16% from 2001 to 2010, but increased by 1% from 2009 to 2010. Air emissions decreased by 21% from 2001 to 2010, but increased by 3% from 2009 to 2010.

**Figure 28. Disposal or Other Releases, 2001-2010: Paper and Paper Products**



# 2010 National Analysis Results

## P2 activities reported to TRI from pulp and paper

- Reported source reduction:
  - **9% of facilities**
  
- Most common:
  - **raw materials modifications**
  
- Example:
  - **“substitut[ion of] sodium hypochlorite solution for chlorine in disinfecting applications” to reduce chlorine waste.**





## 2010 National Analysis Results

### P2 activities reported to TRI from parent companies

Parent Company	Description of pollution prevention
[Parent Company 1]	reported reducing toluene waste by implementing an in-line toluene recovery system to reuse recovered toluene as a raw material in the process rather than generate it as a waste
[Parent Company 2]	installed an improved valve configuration for their surfactant unloading to eliminate cross contamination and disposal of off-specification material
[Parent Company 3]	reduced lead use and waste through a new product development effort focused on no-lead solders
[Parent Company 4]	changed to a higher grade dicyclopentadiene in order to reduce the total solvent waste generated during the process

## Using TRI to Highlight P2 Successes

### Largest Year-to-Year Reductions in Toluene Releases Associated with P2, Textiles

Facility	Year	Reduction (lbs)	% Reduction	P2 Category
<a href="#">Facility A</a>	2008	54,000	98%	<a href="#">Process Mod.</a>
<a href="#">Facility B</a>	2009	47,000	83%	<a href="#">Op. Practices</a>
<a href="#">Facility C</a>	2007	9,400	68%	<a href="#">Unclassified</a>
<a href="#">Facility D</a>	2008	12,000	64%	<a href="#">Unclassified</a>
<a href="#">Facility E</a>	2008	2,700	58%	<a href="#">Unclassified</a>
<a href="#">Facility F</a>	2009	3,600	45%	<a href="#">Product Mod.</a>
<a href="#">Facility G</a>	2002	2,600	44%	<a href="#">Process Mod.</a>
<a href="#">Facility H</a>	2009	2,200	42%	<a href="#">Unclassified</a>

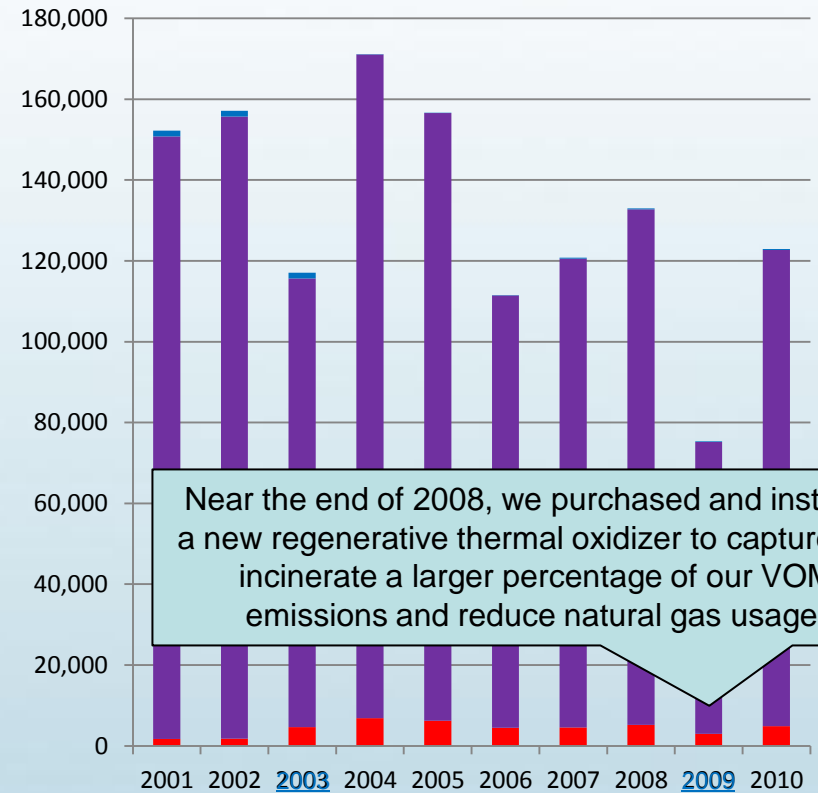
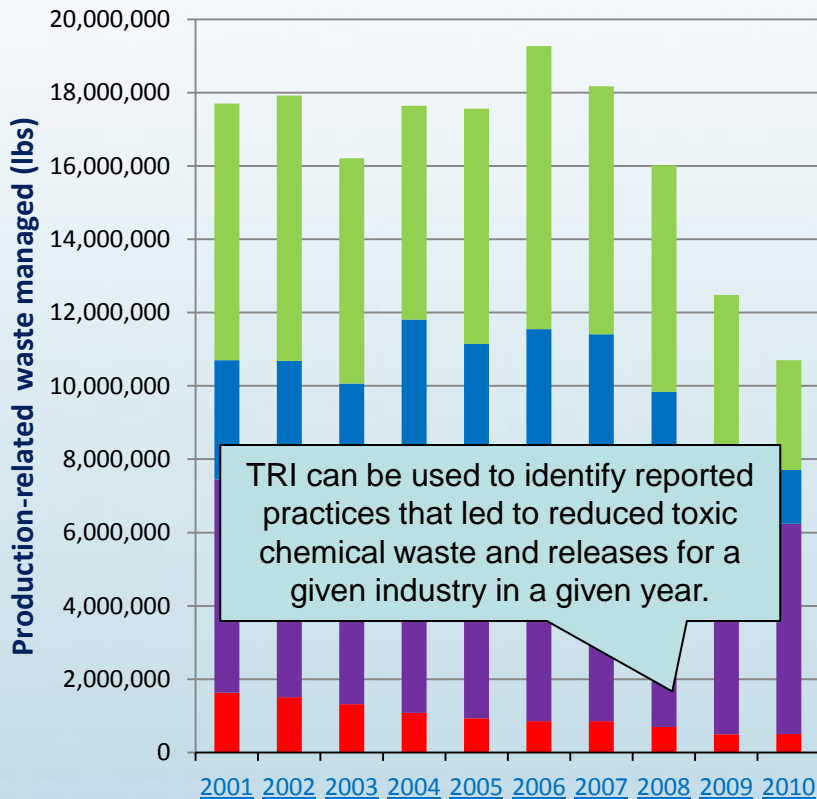
# Other Uses of TRI P2 Data

## Toluene Managed, Textile Facilities

### Waste Hierarchy

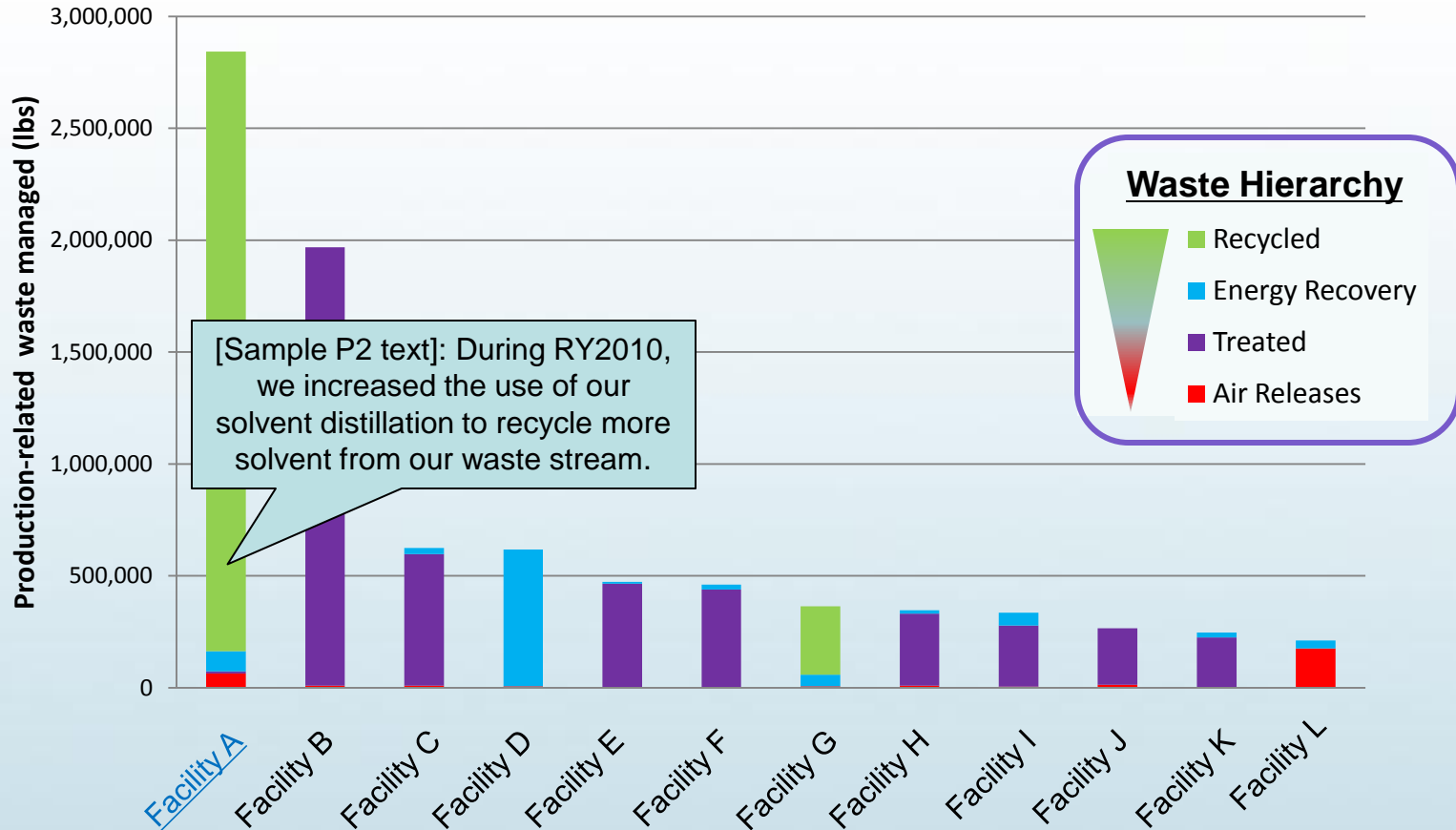


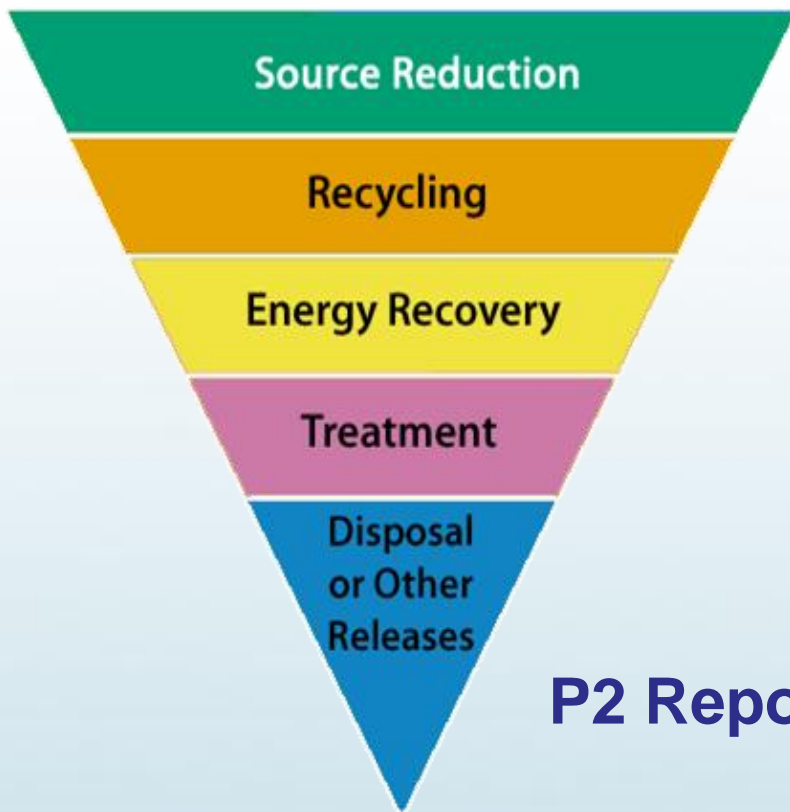
## Toluene Managed, Facility H



# Other Uses of TRI P2 Data

## Toluene Managed by Textile Facilities (2010)





## P2 Reporting Requirements and Tips

## Reporting Waste Management Quantities

- The sum of sections 8.1 through 8.7 represents the total quantity of waste generated at your facility for the reporting year

Waste Management Description	Prior Year (RY2010)	Current Year (RY2011)	Following Year (RY2012) (in pounds)		Second Following Year (RY2013) (in pounds)	
8.1a) Total on-site disposal...	0	NA	<input type="text"/>	<input checked="" type="checkbox"/> NA	<input type="text"/>	<input checked="" type="checkbox"/> NA
8.1b) Total other on-site disposal...	150	200	<input type="text" value="200"/>	<input type="checkbox"/> NA	<input type="text" value="207"/>	<input type="checkbox"/> NA
8.1c) Total off-site disposal...	0	NA	<input type="text"/>	<input checked="" type="checkbox"/> NA	<input type="text"/>	<input checked="" type="checkbox"/> NA
8.1d) Total other off-site disposal...	0	NA	<input type="text"/>	<input checked="" type="checkbox"/> NA	<input type="text"/>	<input checked="" type="checkbox"/> NA
8.2) Quantity used for energy recovery onsite	0	NA	<input type="text"/>	<input checked="" type="checkbox"/> NA	<input type="text"/>	<input checked="" type="checkbox"/> NA
8.3) Quantity used for energy recovery offsite	0	NA	<input type="text"/>	<input checked="" type="checkbox"/> NA	<input type="text"/>	<input checked="" type="checkbox"/> NA
8.4) Quantity recycled onsite	4000	5000	<input type="text" value="5200"/>	<input type="checkbox"/> NA	<input type="text" value="5170"/>	<input type="checkbox"/> NA
8.5) Quantity recycled offsite	0	NA	<input type="text"/>	<input checked="" type="checkbox"/> NA	<input type="text"/>	<input checked="" type="checkbox"/> NA
8.6) Quantity treated onsite	0	1000	<input type="text" value="1200"/>	<input type="checkbox"/> NA	<input type="text" value="1180"/>	<input type="checkbox"/> NA
8.7) Quantity treated offsite	0	NA	<input type="text"/>	<input checked="" type="checkbox"/> NA	<input type="text"/>	<input checked="" type="checkbox"/> NA

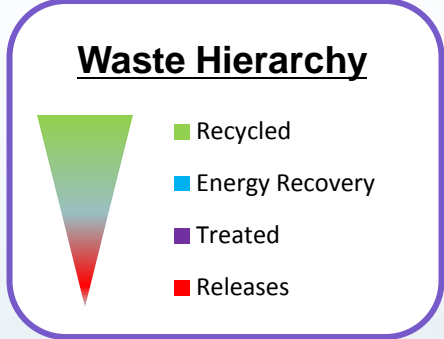
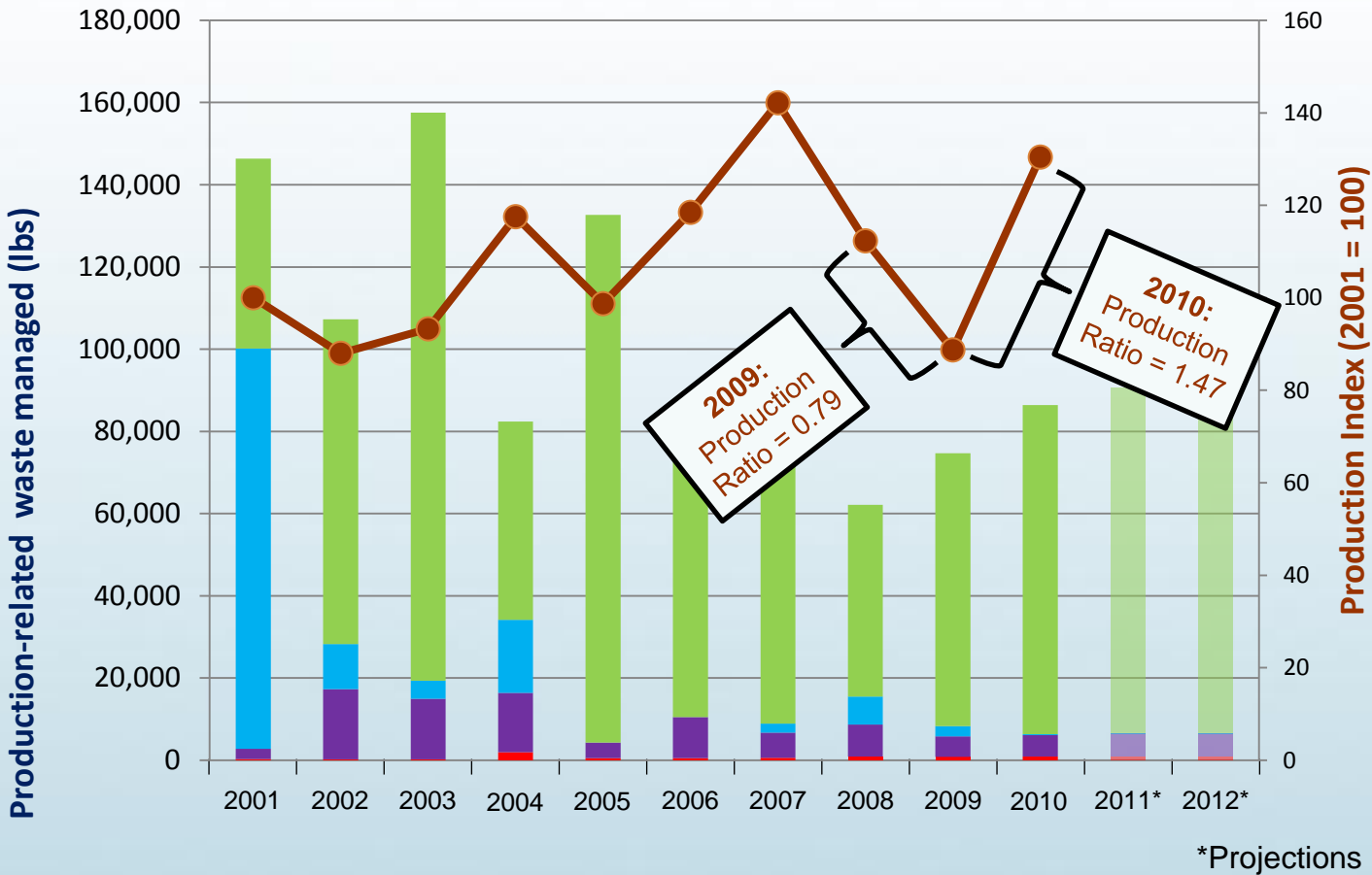
- TRI-MEweb pre-populates for the “Current Year” based on values reported in other parts of the Form R
- “Prior Year” is pre-populated if you reported this chemical last year

## Production Ratio or Activity Index

- The Production Ratio or Activity Index is a unit-less ratio:
  - **Production Ratio:**
    - *a ratio of current year:prior year production*
  - **Activity Index:**
    - *a ratio of current year:prior year activity based on a variable that is not production (e.g., cleaning of equipment)*
  - **Select a variable that most directly affects the quantities of the chemical recycled, used for energy recovery, treated, and disposed or otherwise released**
- Production Ratio and Activity Index serve the same purpose:
  - **Used to put year-to-year changes in quantities released and managed as waste into context of production:**
    - *e.g., Have releases increased more than production has increased?*

# Waste Management Quantities and Production Ratio

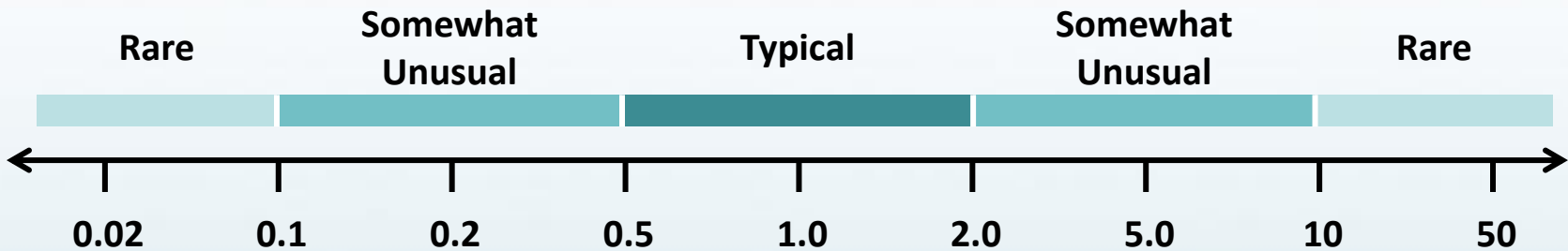
## Management of N-Methyl-2-Pyrrolidone at a TRI Facility



\*Projections



## Production Ratio Values



- **Not Applicable (NA):** Reported only if the manufacture, processing, or use of the chemical began during the current year.
- **0:** Reported only if production in the current year is less than 1/200 production in the prior year.

## Tips for Reporting Production Ratio or Activity Index

- Remember, Production Ratio or Activity Index is not:
  - A percent change in production between reporting years (e.g., for a 6% increase in production, report 1.06, not 6% or 6)
  - A measure of production in the current year (e.g., 1,000 widgets)
- Production ratio or activity index may vary among chemicals
- A production ratio or activity index of “1” indicates no change from the prior year

## Example: Calculating Production Ratio

- Your facility manufactures inorganic pigments, including titanium dioxide
- Hydrochloric acid aerosol (a TRI chemical) is produced as a waste byproduct during the production of titanium dioxide
  - As  $\text{TiO}_2$  production increases/decreases, HCl aerosol produced increases/decreases
- Variable selected for Production Ratio on TRI report for HCl:
  - Annual titanium dioxide production

## Example: Calculating Production Ratio (cont'd)

- Your facility produced:
  - 20,000 pounds of  $\text{TiO}_2$  in the current reporting year (2011)
  - 26,000 pounds of  $\text{TiO}_2$  in the prior year (2010)

- Calculate the Production Ratio:

$$\text{Production Ratio} = \frac{\text{Production in Current Year}}{\text{Production in Prior Year}}$$

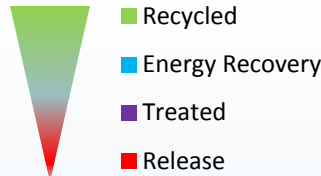
$$\text{Production Ratio} = \frac{20,000 \text{ lbs TiO}_2}{26,000 \text{ lbs TiO}_2}$$

$$\text{Production Ratio} = 0.77$$

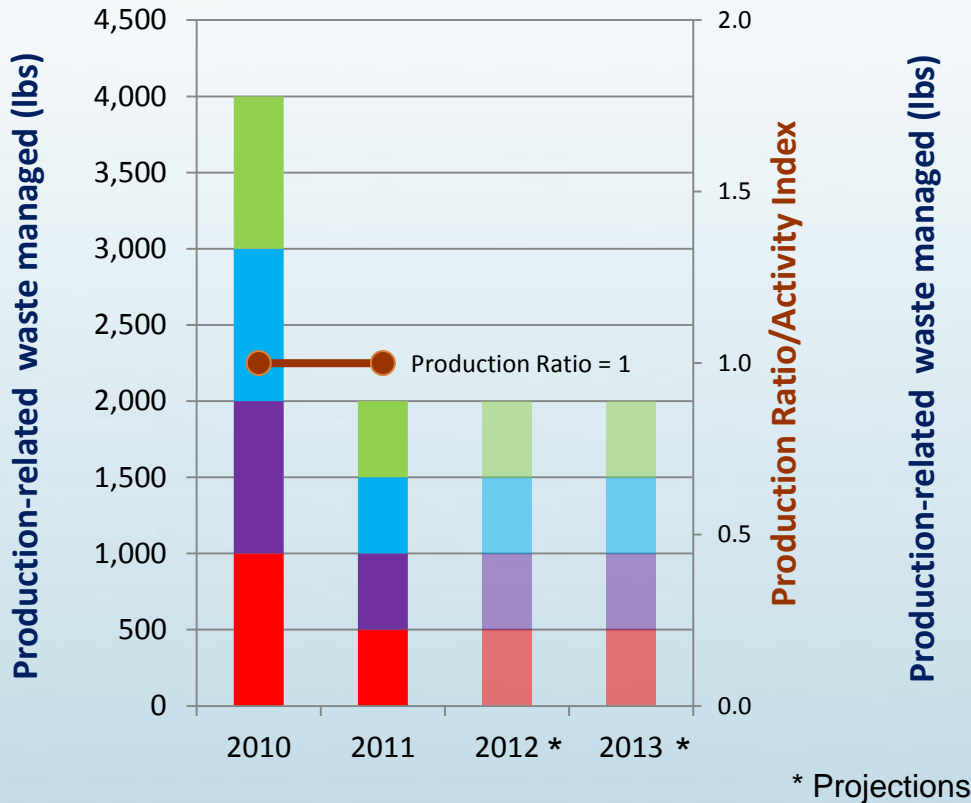
- A Production Ratio of 0.77 indicates a 23% decline in production of  $\text{TiO}_2$
- Pounds of HCl aerosol generated as waste may have decreased by more than 23%
  - e.g., if process improvements resulted in less HCl generated per lb of  $\text{TiO}_2$  produced
  - REPORT THE EFFICIENCY IMPROVEMENTS IN SUBSEQUENT SECTIONS OF THE FORM
- Pounds of HCl aerosol manufactured may have decreased by less than 23% or increased
  - Indicating more waste generated per lb of  $\text{TiO}_2$  produced

# Source Reduction Illustrations

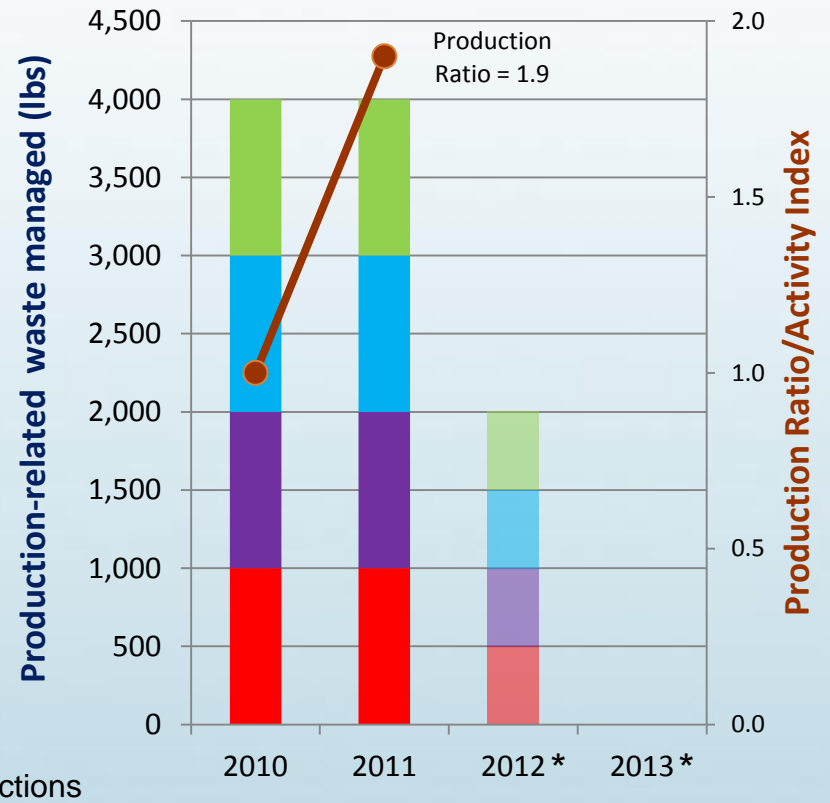
## Waste Hierarchy



### Example A



### Example B



## Source Reduction Activities

- Report any source reduction activity that was newly implemented during the reporting year (Section 8.10)

**Source Reduction Activity 1**

W21 - Instituted procedures to ensure that materials do not stay in inventory beyond shelf-life Optional Section 8.11 Info

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**Methods to identify Activity 1**

T02 - External Pollution Prevention Opportunity Audit(s) Optional Section 8.11 Info

Select a Source Reduction Method ▼

Select a Source Reduction Method ▼

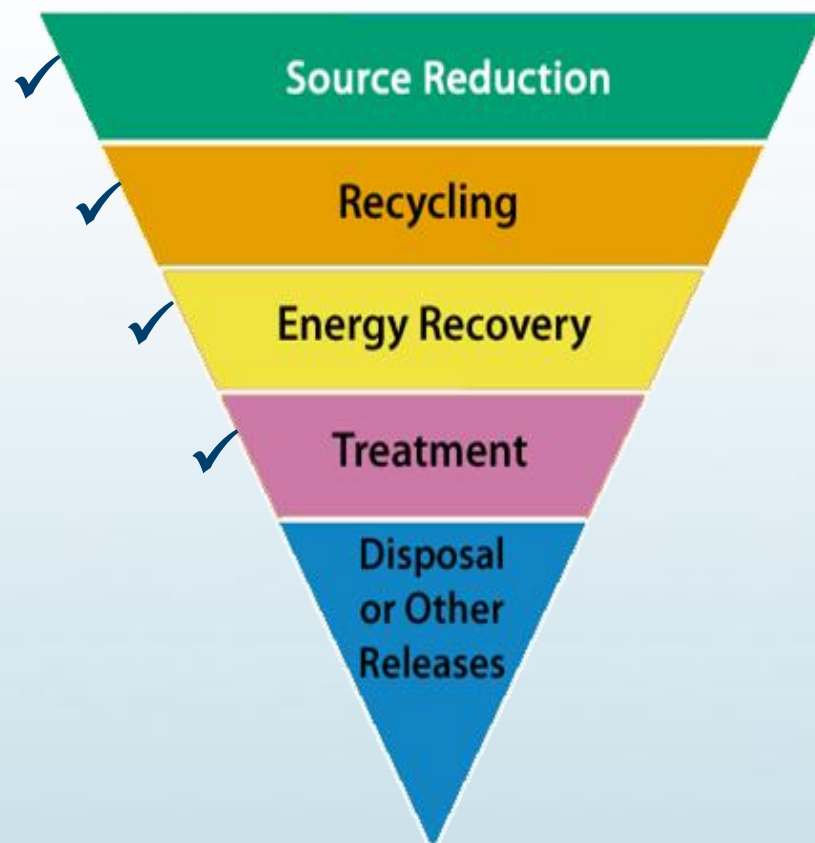
- Source reduction activities include practices that reduce the total quantity of chemical waste released (including disposal), recycled, combusted for energy recovery, or treated.

## Select Applicable Source Reduction Activities

- **43 selections in drop down list**
- **Categories include:**
  - **Good Operating Practices**
    - *e.g., improved maintenance scheduling, record keeping, or procedures*
  - **Inventory Control**
    - *e.g., better labeling procedures*
  - **Spill and Leak Prevention**
    - *e.g., installed overflow alarms or automatic shut-off valves*
  - **Raw Materials Modifications**
    - *e.g., increased purity of raw materials*
  - **Process Modifications**
    - *e.g., modified equipment, layout, or piping*
  - **Cleaning and Degreasing**
    - *e.g., improved rinse equipment operation*
  - **Surface Preparation and Finishing**
    - *e.g., substituted coating materials used*
  - **Product Modifications**
    - *e.g., modified design or composition of product*

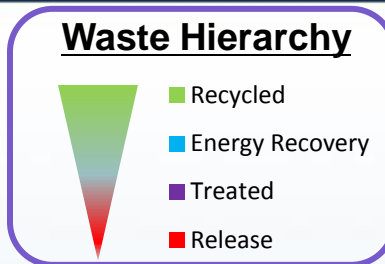
## Optional Pollution Prevention Information/Text

- Report additional information in the open-ended Pollution Prevention Text field (Section 8.11):
  - **Source reduction,**
  - **Recycling, or**
  - **Pollution control activities for the chemical.**
- Opportunity to publicly highlight any steps your facility took to reduce the amount of toxic chemicals entering the environment

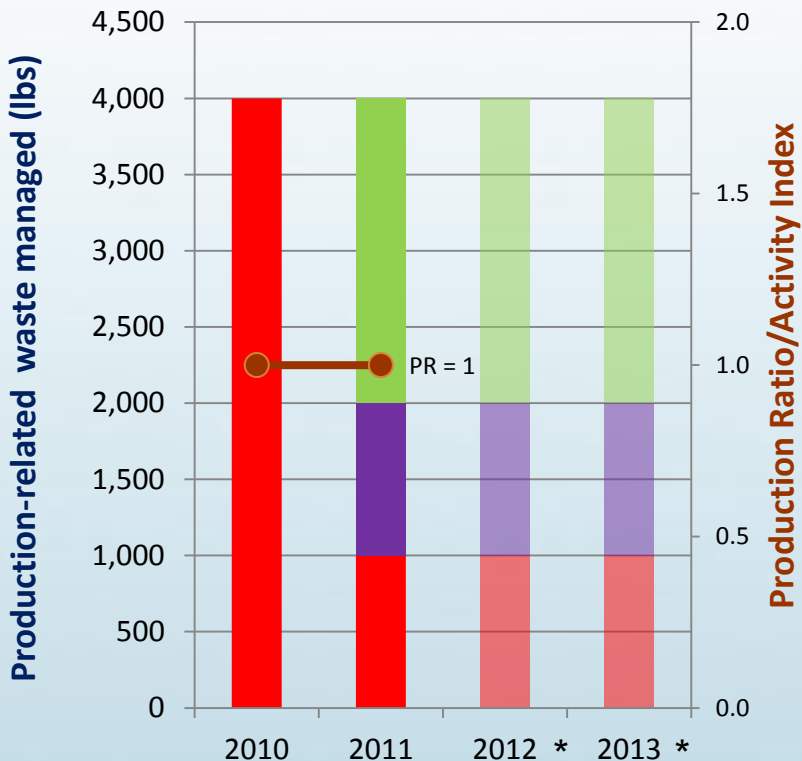




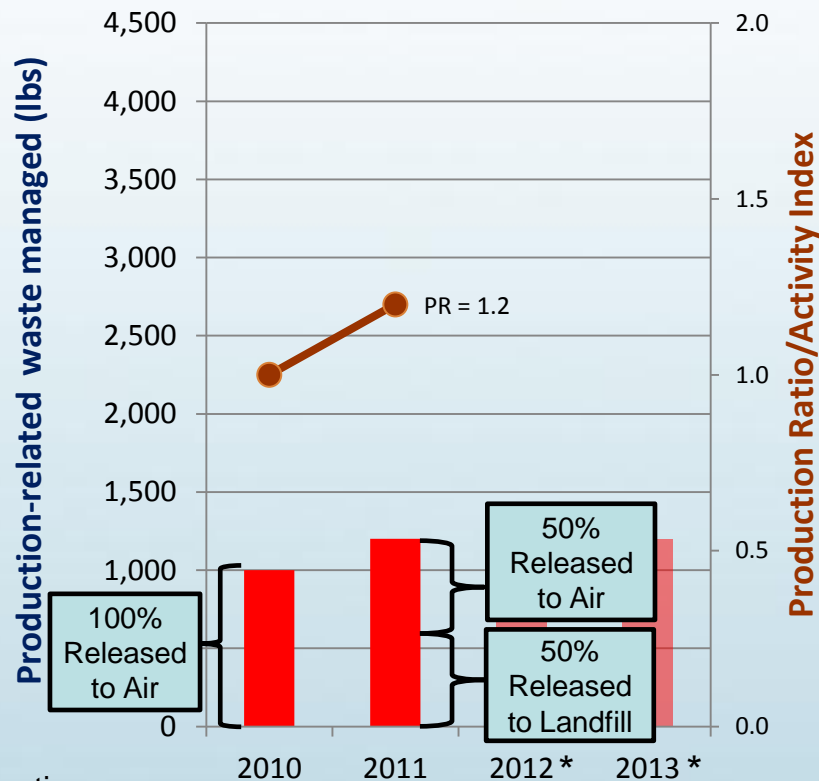
# Other Scenarios Applicable to Optional P2 Text Field



**Example C**



**Example D**



\* Projections

## Pollution Prevention (P2) Text: Examples

- Facilities can use the open-ended information field to enter details about reported source reduction activities

### Text Examples: Source Reduction Activities

Source Reduction Activity	Pollution Prevention Text (Section 8.11)
W42: Substituted raw materials	We have reduced our air emissions by substituting #6 fuel oil with B50; a product that is 50% vegetable oil.
W60: Changed to mechanical stripping / cleaning devices (from solvents or other materials)	Grit blasting has been used in place of some of our acid stripping operations. Our customer satisfaction with this process will determine if it will be used as a permanent change. Otherwise our acid use will increase with expected increase in production requirements.
W21: Instituted procedures to ensure that materials do not stay in inventory beyond shelf-life	We found customers for paint at the end of its shelf life that did not require high performance standards of paint within its shelf life. This reduced the amount in the waste stream.

## Optional Pollution Prevention (P2) Text: Examples

- Meaningful detail helps TRI data users understand what your facility did to reduce or limit quantities reported to TRI

### Text Examples: Good Operating Practices for Styrene

Usefulness	Pollution Prevention Text (Section 8.11)
<b>Most Useful</b>	Operator knowledge of equipment and material increased, providing better and more efficient start ups and product change overs. Added a third shift to run 24 hours and reduce daily shutdowns and start ups. As part of our source reduction efforts we periodically evaluate current practices that generate resin waste. [Our company] has developed a source reduction method to recover the usable resin and limestone mixture from cartridges which fall short of quality standards. The recovered material is returned to the manufacturing process. We estimate that our resin recovery program will eliminate 126,000 lbs of material being transported to landfill per year.
<b>Moderately Useful</b>	Process parameters and employee retention and training programs dramatically reduced scrap rates, or improved yields, in 2011.
<b>Least Useful</b>	Continuous improvement of a waste reduction activity.

## Tips for Optional Pollution Prevention (P2) Text Entry

- **Be Specific**
  - Which processes and products were affected?
  - Which technologies and materials were used?
  - How was the P2 opportunity identified?
  - Did specific release or waste management quantities change?
  
- **Enter useful URLs**
  - Equipment manufacturers
  - P2 information sources
  - Corporate sustainability pages
  
- **Put information unrelated to P2 in Section 9.1, Miscellaneous Information**
  - Changes in production
  - Facility closures
  - Staffing changes
  - Calculation methods, e.g., emission factors
  
- **Remember, TRI data users may be unfamiliar with your facility**

## For More Information

- **TRI Website:**
  - <http://www.epa.gov/tri/>
  - <http://www.epa.gov/tri/training/index.htm>
- **TRI Information Call Center:**
  - (800) 424-9346 - select option 3