

Ten Years Later: STAR and Air Toxics in Louisville

Air Pollution Control District
July 20, 2016



Air Toxics

Responding to growing concerns about toxic emissions in Western Louisville, in 2005 the APCD developed and implemented the Strategic Toxic Air Reduction (STAR) Program.



Since STAR was enacted, levels of toxic air contaminants have dropped considerably, resulting in a significant reduction in the risk of negative health impacts on residents.

Air Toxics

The STAR Program addresses emissions of toxic air contaminants, which include:

“any air contaminant for which there is no national ambient air quality standard and that is, or may become harmful to public health or the environment when present in sufficient quantities and duration in the ambient air.”

Total Air Toxics

| Jefferson County, Ky. Sources | 2005 Air Releases in Pounds | 2014 Air Releases in Pounds | % Change |
|---|-----------------------------------|-----------------------------------|---------------|
| Electric Generating Utilities (NAICS 2211) | 4,710,016 | 4,753,327 | 1% Increase |
| All Other Sources | 5,141,564 | 2,497,341 | -51% Decrease |
| Total | 9,851,580 | 7,250,668 | -26% Decrease |

Source: EPA Toxics Release Inventory

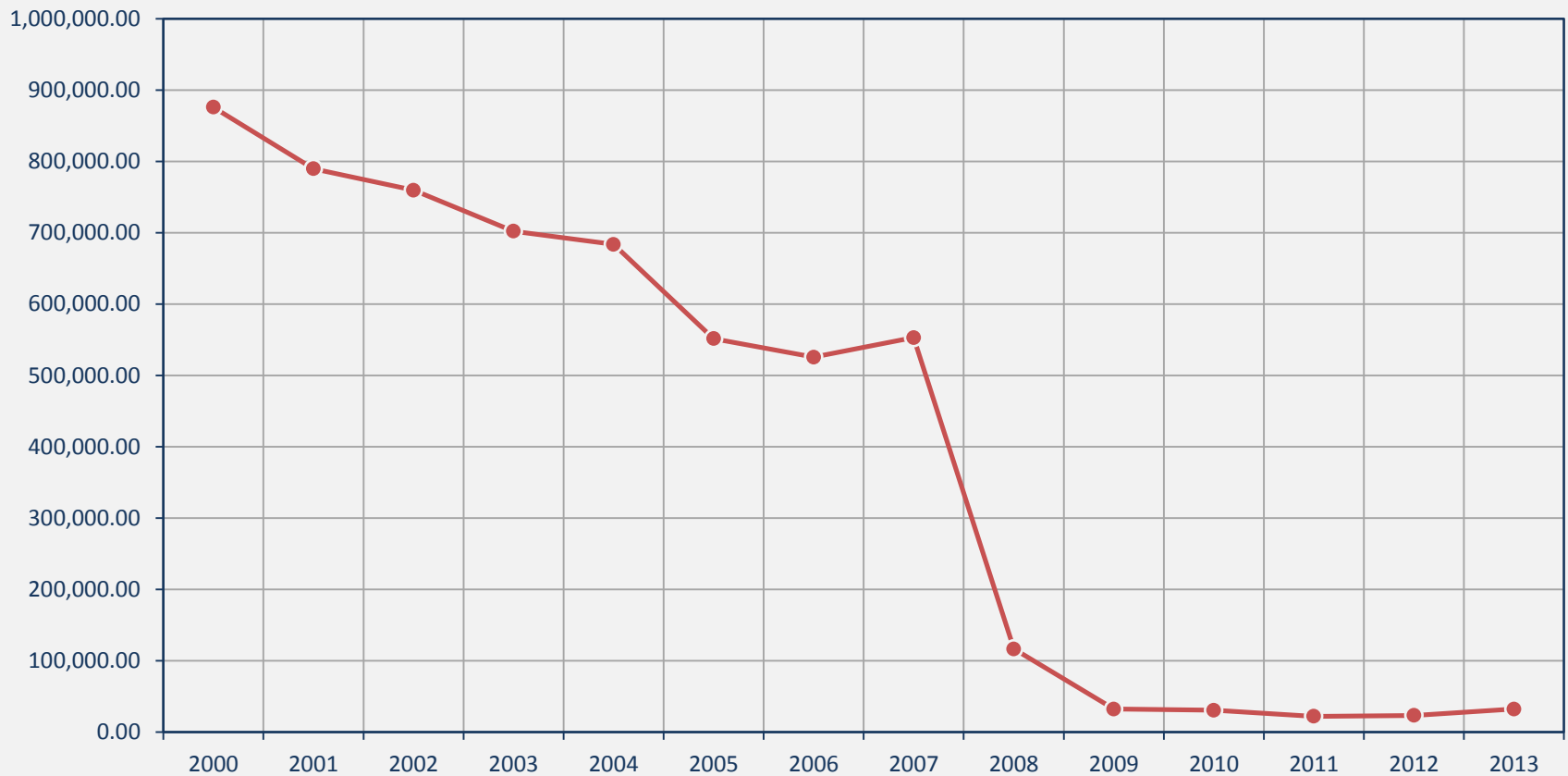
Category 1 Air Toxics

| Jefferson County, Ky. Sources | 2005 Air Releases in Pounds | 2014 Air Releases in Pounds | % Change |
|--|-----------------------------------|-----------------------------------|---------------|
| Electric Generating Utilities (NAICS 2211) | 3,112 | 2,471 | -21% Decrease |
| All Other Sources | 548,389 | 26,836 | -95% Decrease |
| Total | 551,501 | 29,307 | -95% Decrease |

Source: EPA Toxics Release Inventory

Category 1 Air Toxics

TRI-Reported Category 1 TAC Emissions



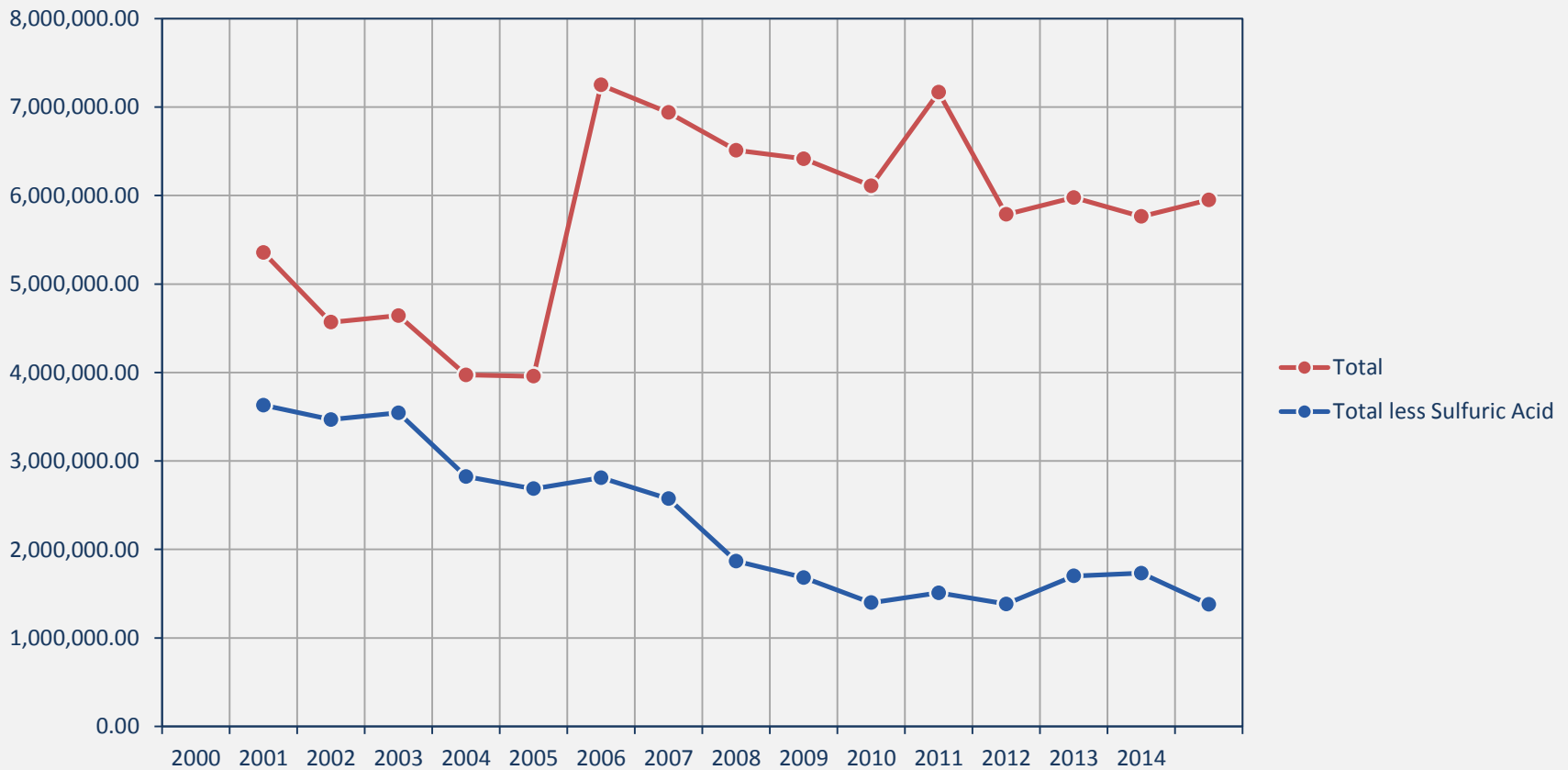
Category 2 Air Toxics

| Jefferson County, Ky. Sources | 2005 Air Releases in Pounds | 2014 Air Releases in Pounds | % Change |
|---|-----------------------------------|-----------------------------------|---------------|
| Electric Generating Utilities (NAICS 2211) | 4,699,509 | 4,741,600 | 1% Increase |
| All Other Sources | 2,549,340 | 1,209,276 | -53% Decrease |
| Total | 7,248,849 | 5,950,876 | -18% Decrease |

Source: EPA Toxics Release Inventory

Category 2 Air Toxics

TRI-Reported Category 2 TAC Emissions & Sulfuric Acid



Category 3 & 4 TACs

| Jefferson County, Ky. Sources | 2005 Air Releases in Pounds | 2014 Air Releases in Pounds | % Change |
|---|-----------------------------------|-----------------------------------|---------------|
| Electric Generating Utilities (NAICS 2211) | 7,395 | 9,256 | 25% Increase |
| All Other Sources | 2,043,835 | 1,261,229 | -38% Decrease |
| Total | 2,051,230 | 1,270,485 | -38% Decrease |

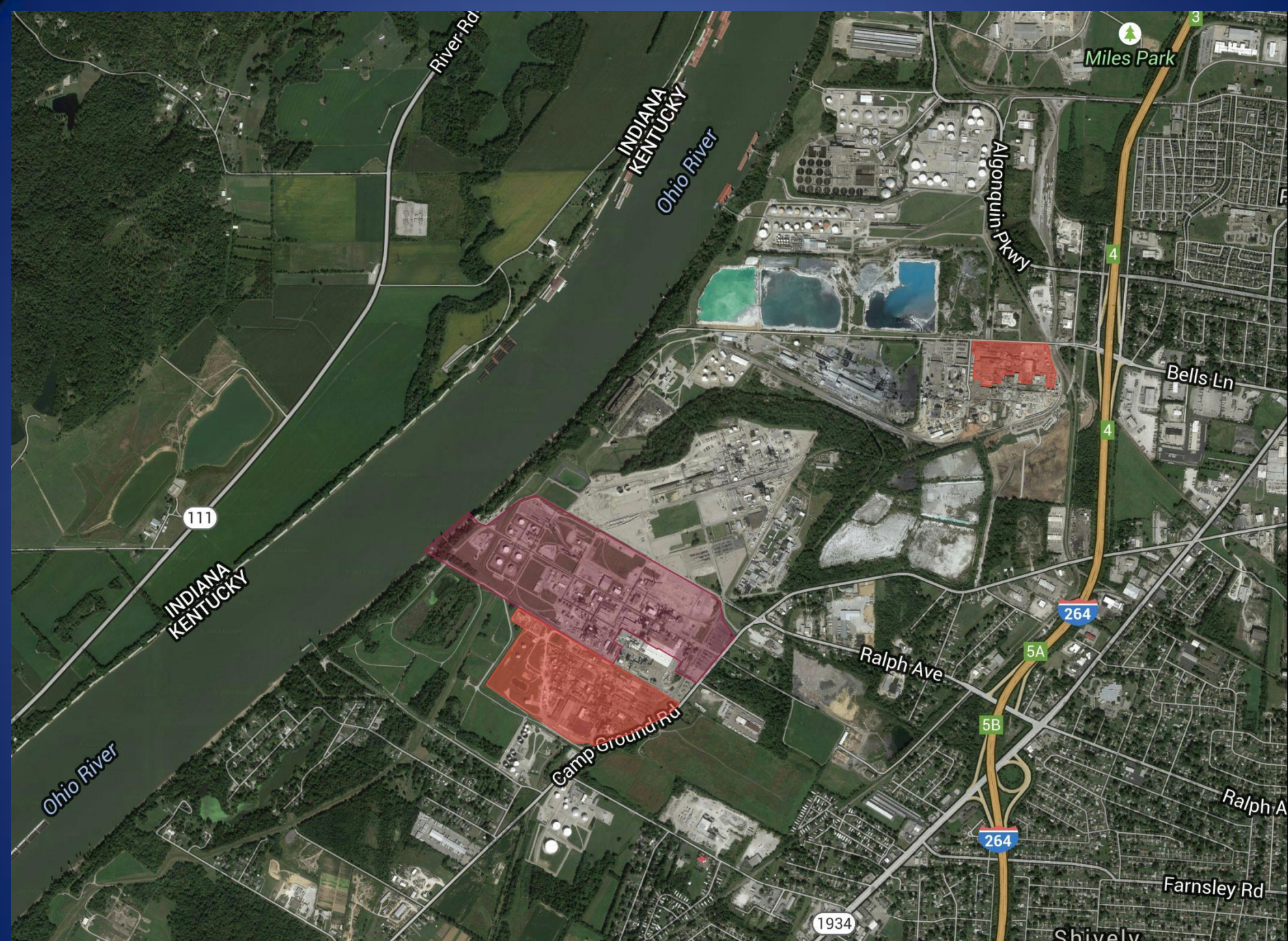
Source: EPA Toxics Release Inventory

1,3-Butadiene Emissions

West Louisville Air Toxics Study:

5.9.7 Conclusions of the trend analysis

1,3-Butadiene demonstrated the largest year-to-year variation and consistently contributes the greatest cancer risk at all sites with the exception of the control site, Site E. 1,3-Butadiene is produced through petroleum processing and is primarily used in the production of synthetic rubber. It is also found in smaller amounts in plastics and fuel. Sites A, C, F, I, and M are located in areas where industrial emissions (i.e., Rubbertown) are expected to have a large influence on the ambient levels of air toxic contaminants. Site E is located farther east, and was chosen as an urban anthropogenic control site. 1,3-Butadiene was measured in much lower concentrations at Site E compared to the other sites due to its distance from the Rubbertown industrial plants. Therefore, the measure data are consistent with onsite observations.



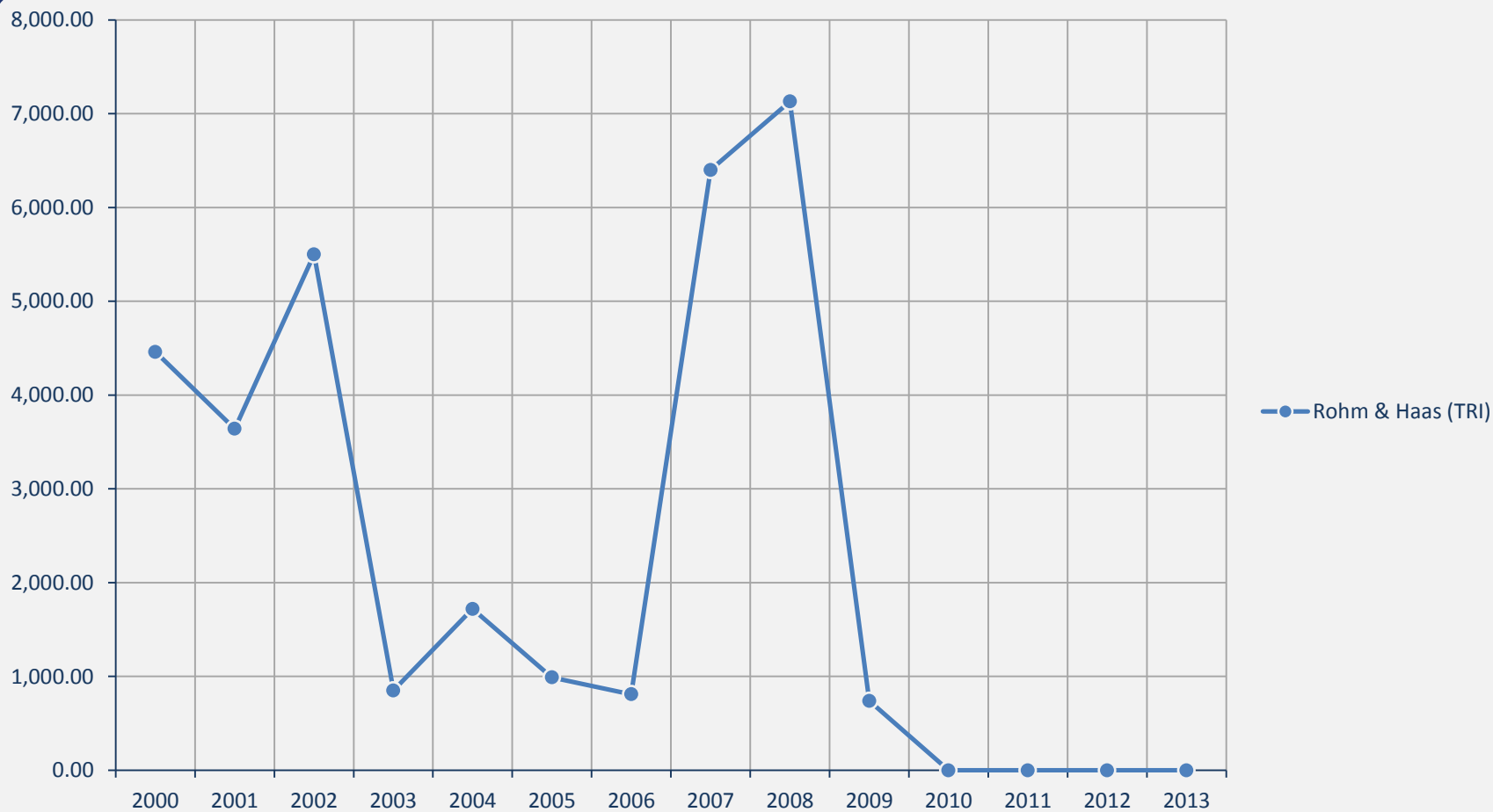
Rohm & Haas

1,3-Butadiene Emissions

- Pre-STAR average - 2,860 lbs
- Pre-STAR high in TRIs - 5500 lbs in 2002
- Post-STAR average (2007-2013) - 1,885 lbs
- 34.09% Reduction in average
- As of 2010, 100% eliminated

Rohm & Haas

1,3-Butadiene Emissions



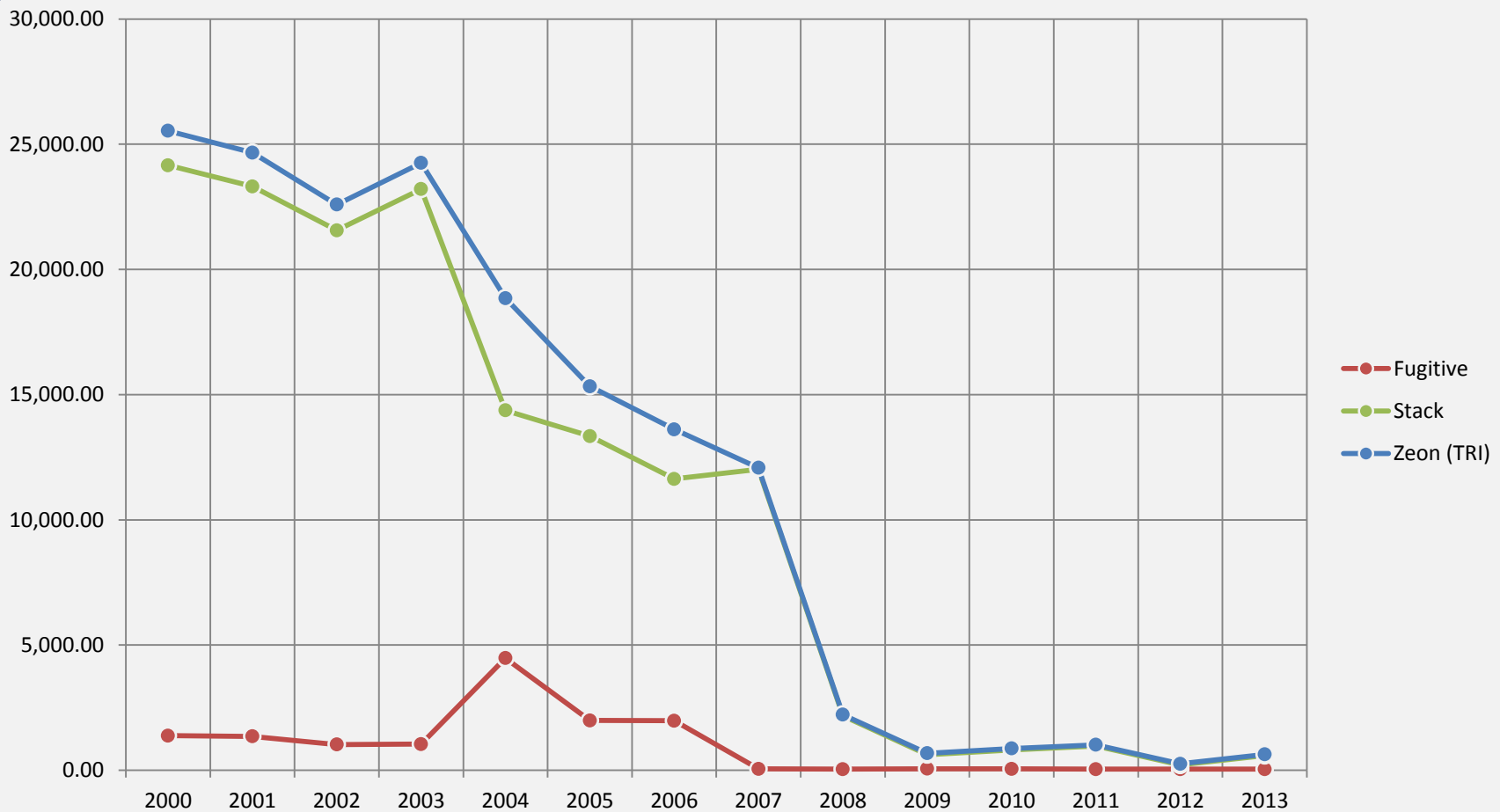
Zeon Chemicals

1,3-Butadiene Emissions

- Pre- STAR average 21,869.50 lbs
- Pre-STAR high in TRIs - 32,903 lbs in 1998
- Post-STAR average - 3,919.25 lbs
- 82.08% Reduction

Zeon Chemicals

1,3-Butadiene Emissions



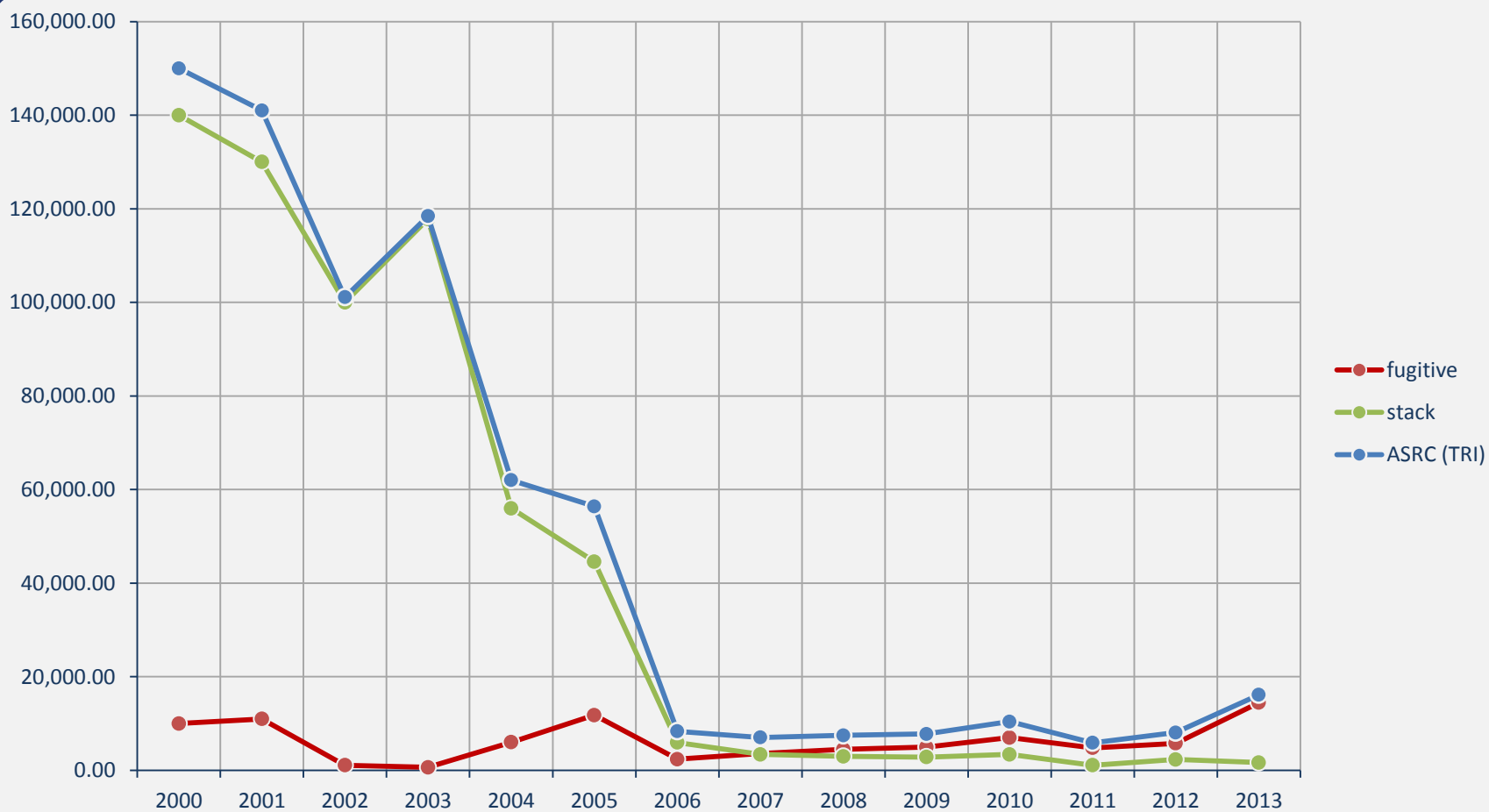
ASRC

1,3-Butadiene Emissions

- Pre-STAR average 104,824.67 lbs
- Pre-STAR high in TRIs - 231,000 lbs in 1999
- Post-STAR average - 8,895.88 lbs
- 91.51% Reduction

ASRC

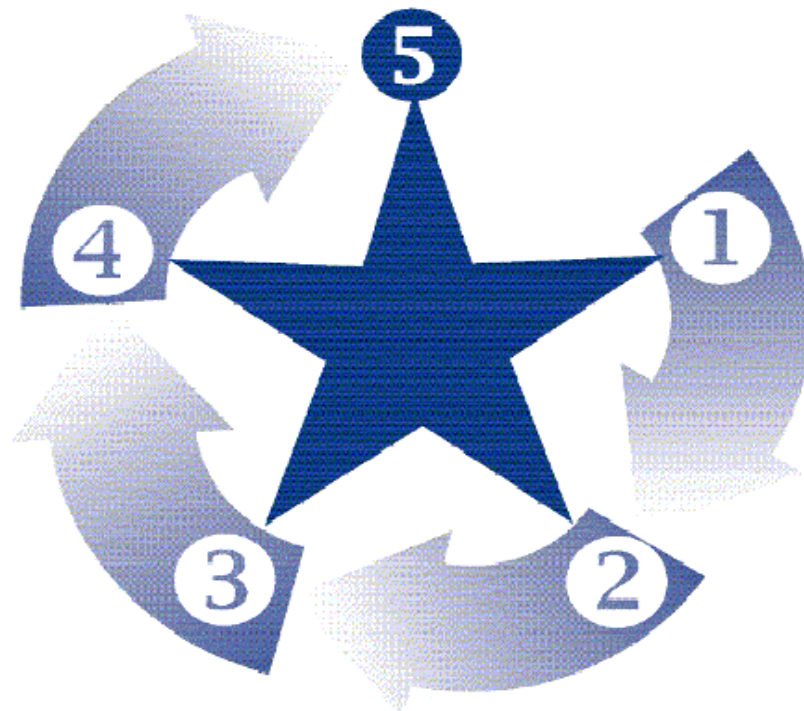
1,3-Butadiene Emissions





STAR Program

Strategic Toxic Air Reduction



- 1 Emissions levels**
- 2 Release points**
- 3 Modeling**
- 4 Reduction plan**
- 5 Compliance**

Questions?

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