Past P2 Activities for TRI Program

• Quickly go over TRI and latest available data
• P2 activities using TRI
  – Green Engineering/Chemistry in the Pharmaceutical Sector
  – National Partnership for Environmental Priorities (NPEP)
  – Other –
    • Region 2 Priority Targeting Effort
Toxic Release Inventory
Who Has to Report?

Since 1987
- Manufacturers

Since 1995
- Federal Facilities

Starting July 1, 1999
- Electric Generating Facilities, Coal Mining and Metal Mining, Solvent Recyclers, Hazardous Waste Treatment Facilities, Chemical Distributors, Petroleum Distributors

With More Than 10 Employees
Exceed Thresholds of Any of Over 600 Chemicals and Chemical Categories

Toxic Release Inventory
What are the thresholds?

- **Manufacturing or Processing**
  - 25,000 pounds per chemical/year

- **Otherwise Using the chemical**
  - Does not become part of the final product
  - 10,000 pounds per chemical/year

- **Lowered thresholds in 2000 and 2001 for Persistent Bioaccumulative Toxins**
  - 100 pounds, 10 pounds or 0.1 gram for dioxin
Toxic Release Inventory
What are the lowered thresholds?

Persistent Bioaccumulative Toxins

<table>
<thead>
<tr>
<th>100 lbs/yr</th>
<th>Aldrin</th>
<th>PAC’s</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Methoxychlor</td>
<td>Tetrabromobisphenol A</td>
</tr>
<tr>
<td></td>
<td>Pendimethalin</td>
<td>Trifluralin</td>
</tr>
<tr>
<td></td>
<td>Lead</td>
<td>Lead Compounds</td>
</tr>
<tr>
<td>10 lbs/yr</td>
<td>Chlordane</td>
<td>Benzo(g,h,i)perylene</td>
</tr>
<tr>
<td></td>
<td>Heptachlor</td>
<td>Hexachlorobenzene</td>
</tr>
<tr>
<td></td>
<td>Mercury</td>
<td>Mercury compounds</td>
</tr>
<tr>
<td></td>
<td>Toxaphene</td>
<td>Octachlorostyrene</td>
</tr>
<tr>
<td></td>
<td>Isodrin</td>
<td>Pentachlorobenzene</td>
</tr>
<tr>
<td></td>
<td>PCBs</td>
<td></td>
</tr>
<tr>
<td>0.1 g/yr</td>
<td>Dioxin and dioxin-like compounds</td>
<td></td>
</tr>
</tbody>
</table>

* PBT’s most widely reported

Toxic Release Inventory
What is Reported?

Multi-media
Air, Water, Land, Transfers Off-site

Transfers Off-site for Further Waste Management

On-site Waste Management

Environmental Permit Information
Toxic Release Inventory
TRI 2008 National Data

• Regionally –
  – 8.7% decrease on on-site and offsite from 2007

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Virgin Islands</td>
<td>769,966</td>
<td>817,826</td>
<td>47,861</td>
<td>6.22</td>
</tr>
<tr>
<td>Puerto Rico</td>
<td>5,243,876</td>
<td>5,204,834</td>
<td>-39,042</td>
<td>-0.74</td>
</tr>
<tr>
<td>New Jersey</td>
<td>20,576,252</td>
<td>17,974,449</td>
<td>-2,601,803</td>
<td>-12.64</td>
</tr>
</tbody>
</table>

Toxic Release Inventory
TRI 2008 Data

Number of Facilities, Forms R, Forms A

• From 2007 – 2008
  – number of facilities reporting drop by 6%; Nationally there is a 5% drop
    • Data are from 2008, so much of the effect of the economic downturn may not be visible this year
  – Number of Forms R dropped by 2%
  – Number of Forms A dropped by 15%
Toxic Release Inventory
“TRI 2008 Regional Data

Region 2 Sectors 2008 Total Releases Pounds

- Total pounds (on and off-site) is around 55 million pounds
- Chemical Manufacturing and Electric Utilities are the Sectors that have the largest on and off-site releases: approx. 14 million each

Toxic Release Inventory
TRI 2008 Data

NJ 2001-2008 TRI Data

- From 2007 to 2008 there was a 33% decrease in air point source releases (~3 million pounds) however;
- Surface water release increased 18% from 2007
  - Mainly due to Dupont Deepwater and Conoco Philips Bayway
Toxic Release Inventory
TRI Trend NY 2001-2008

- Point source reduction
  - 25% from 2007-2008
    - Mostly due to Russell Station, Mirant Lovet and Eastman Kodak in Kodak Park
  - 63% reduction from 2001-2008
TRI 2008 Region 2 Carcinogens Total On-site Releases (Pounds)

- Dichloromethane
- Lead Compounds
- Asbestos (Friable)
- Polychlorinated Dioxins
- Styrene
- Trichloroethylene
- Benzene
- Formaldehyde
- Nickel Compounds

Toxic Release Inventory

"TRI 2008 Data

- Majority releases are due to Zinc Corporation of America which closed in 2008
So where does everything go in TRI 2008 Region 2?

2008 Region 2 Total Waste Management

- Total On-site Releases
- Total Off-site Releases
- Energy Recovery On-site (8.2)
- Energy Recovery Off-site (8.3)
- Recycled On-site (8.4)
- Recycled Off-site (8.5)
- Treated On-site (8.6)

Region 2 and Pollution Prevention

- P2 activities using TRI
  - Green Engineering/Chemistry in the Pharmaceutical Sector
  - National Partnership for Environmental Priorities (NPEP)
  - Other –
    - Region 2 Priority Targeting Effort
Pharmaceutical Sector

- Region 2 looked at the sectors that emitted carcinogens in the Region
  - Pharmaceutical sector emitted most of the carcinogens
    - In 1988 it was over 20 million pounds on site releases
  - Region 2 has the highest number of pharmaceutical companies in the nation
    - 33% of pharmaceutical sector
    - 21% of the medicinal and botanical manufacturing
Pharmaceutical Sector

- Green Engineering/Chemistry P2 grant awarded to address this sector starting in 2005
  - Rowan University
    - “Green engineering” application to phase I and II production of a Bristol-Myers Squibb pharmaceutical.
    - Extended partnerships with Novartis and Pfizer
      - These corporations have around 15 facilities in Region 2

Trends - Dichloromethane in R2
National Partnership for Environmental Priorities (NPEP)

- National Partnership for Environmental Priorities (NPEP)
  - RCRA partnership program focused on reducing the use of potentially hazardous chemicals from products and processes.
  - Chemicals focused in Region 2
    - Naphthalene
    - Mercury
    - Lead

Reducions achieved:
- Lead: 1.7 million pounds
- Mercury: 1,163 pounds

Reducions committed:
- Naphthalene: 116,454 lbs
Region 2 Priority Targeting Effort

• Identify candidates for Clean Water Act sampling inspections and/or non-sampling P2 inspections to be conducted by:
  • Division of Environmental Science & Assessment
  • Division on Environmental Planning & Protection

Region 2 Priority Targeting Effort

• Monitoring and Assessment Branch
  – Conducts monitoring inspections
    • sampling and non-sampling work in various media
  – Prepares reports documenting
    • Inspection and findings (including analytical sampling results)
  – Conducts P2 inspections
• RSEI Water Analysis was shared
  – Interest in having P2 inspections and water sampling at greater risk facilities emerged
## 2003 RSEI Region 2 Water

<table>
<thead>
<tr>
<th>Facility Name</th>
<th>Location</th>
<th>RSEI score</th>
</tr>
</thead>
<tbody>
<tr>
<td>CWM Chemical Services, LLC</td>
<td>Model City, Niagara County, NY</td>
<td>96672.33</td>
</tr>
<tr>
<td>Gulf Oil L.P. Linden Terminal</td>
<td>Linden, Union County, NJ</td>
<td>16363.37</td>
</tr>
<tr>
<td>Kennedy Valve</td>
<td>Elmira, Chemung County, NY</td>
<td>9876.81</td>
</tr>
<tr>
<td>Vineland Municipal Electric Utility – H. M. Down Station</td>
<td>Vineland, Cumberland County, NJ</td>
<td>5647.56</td>
</tr>
<tr>
<td>GE Noryl LLC</td>
<td>Selkirk, Albany County, NY</td>
<td>3277.38</td>
</tr>
<tr>
<td>Sytron Chemicals Inc</td>
<td>Birmingham, Burlington County, NJ</td>
<td>2115.42</td>
</tr>
<tr>
<td>Delphi Thermal &amp; Interior Lockport</td>
<td>Lockport, Niagara County, NY</td>
<td>2085.88</td>
</tr>
</tbody>
</table>

## Region 2 Priority Targeting Effort

- First inspection with a sampling component looking to identify TRI issues was:
  - Gulf Oil LP Linden Terminal, Linden NJ
  - Petroleum bulk terminal that discharges to the Rahway River in NJ
  - Reported 420 pounds water emissions
  - 2003 RSEI ranked it the 2nd facility that contributes to the overall water risk in the Region
Region 2 Priority Targeting Effort

- Chemicals emitted by the facility to water are chemical components of gasoline
- Facility has a Stormwater NPDES permit to emit to Rahway River
- Close to the EPA Region 2 Edison Facility
- Served as test of priority setting exercise
- CWA inspection with monitoring and P2 inspection was conducted
What we learned!

- NPDES Permit is for Oil & Grease and suspended solids
  - No specific TRI chemical was targeted

- Facility used amount of oil and grease to calculate TRI Releases; speciation based on gasoline components

What we learned!

- Releases reported to TRI in 2003
  - (420 pounds) based on yearly stormwater quantity instead of gallons emitted when the sampling was conducted, as per state instructions
  - Possible overestimation of releases

- Many petroleum bulk stations in the area discharge to same water body
  - NJDEP could modify permits to include monitoring of specific TRI chemicals in discharges to the river
What we learned!

- Future inspections under the priority targeting effort now include sampling for TRI chemical contributing to RSEI water risk
- Petroleum bulk stations in the area have changed business operations and might not be covered by TRI
- Approach has started the dialog with the Water Program that could provide further direction in the Region