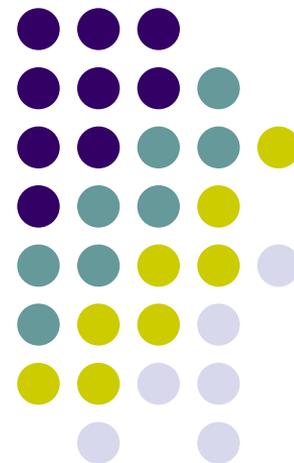
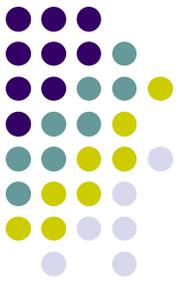


Air Toxics Program Discussion

Clean Air Act Advisory Committee

June 8, 2011





Overview

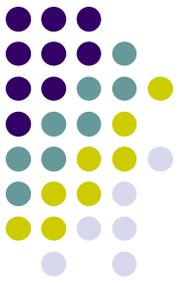
- History & Background
- Priority Sectors Overview
- Updates
 - Petroleum Refinery Sector Rulemakings
 - Chemical Sector Rulemakings
 - Iron and Steel Sector Rulemakings
 - Mercury and Air Toxics Standards for Power Plants
 - Oil and Gas Sector Rulemakings
- Discussion Questions for the CAAAC
- Appendix (Air Toxics Posing Highest Risks; Other Priority Sectors)

History of Regulating Air Toxics



- Toxic air pollutants cause or are suspected of causing cancer, birth defects, reproductive effects and other serious health problems (e.g., benzene, mercury)
- 1970 CAA air toxics provisions required EPA to list and regulate air toxics based on risks they posed
 - In 20 years, EPA listed 8 toxics and regulated 7
- 1990 Amendments changed approach
 - Lists more than 180 air toxics of concern
 - Requires EPA to identify and regulate major sources of toxics – more than 170 different source categories
 - Requires EPA to reduce emissions through technology-based standards (Maximum Achievable Control Technology (MACT))
 - Requires EPA to evaluate the remaining risks at sources and set more stringent standards if necessary
- Other Toxics Provisions
 - Integrated Urban Air Toxics Strategy to address smaller stationary sources
 - Technology and fuel requirements to reduce mobile source air toxics
 - Requirements for adding or delisting air toxics

Current Focus of Air Toxics Program



- **Stationary sources**

- Sector-based approach for priority sources
- Residual risk and technology reviews for major sources
- Priority air toxics for urban areas and reductions from area sources

- **Mobile sources**

- Tighter standards for new light-duty vehicles and fuels (Tier 3) and ongoing evaluation of renewable/alternative fuel impacts
- Implementation of recent standards (including vehicle air toxics standards (MSAT)) for all mobile source sectors
- Diesel retrofit and reduced idling, including targeted EJ actions and ports/goods movement efforts
- Near-roadway information and planning tools for communities
- Lead from aviation gasoline

- **Indoor air toxics**

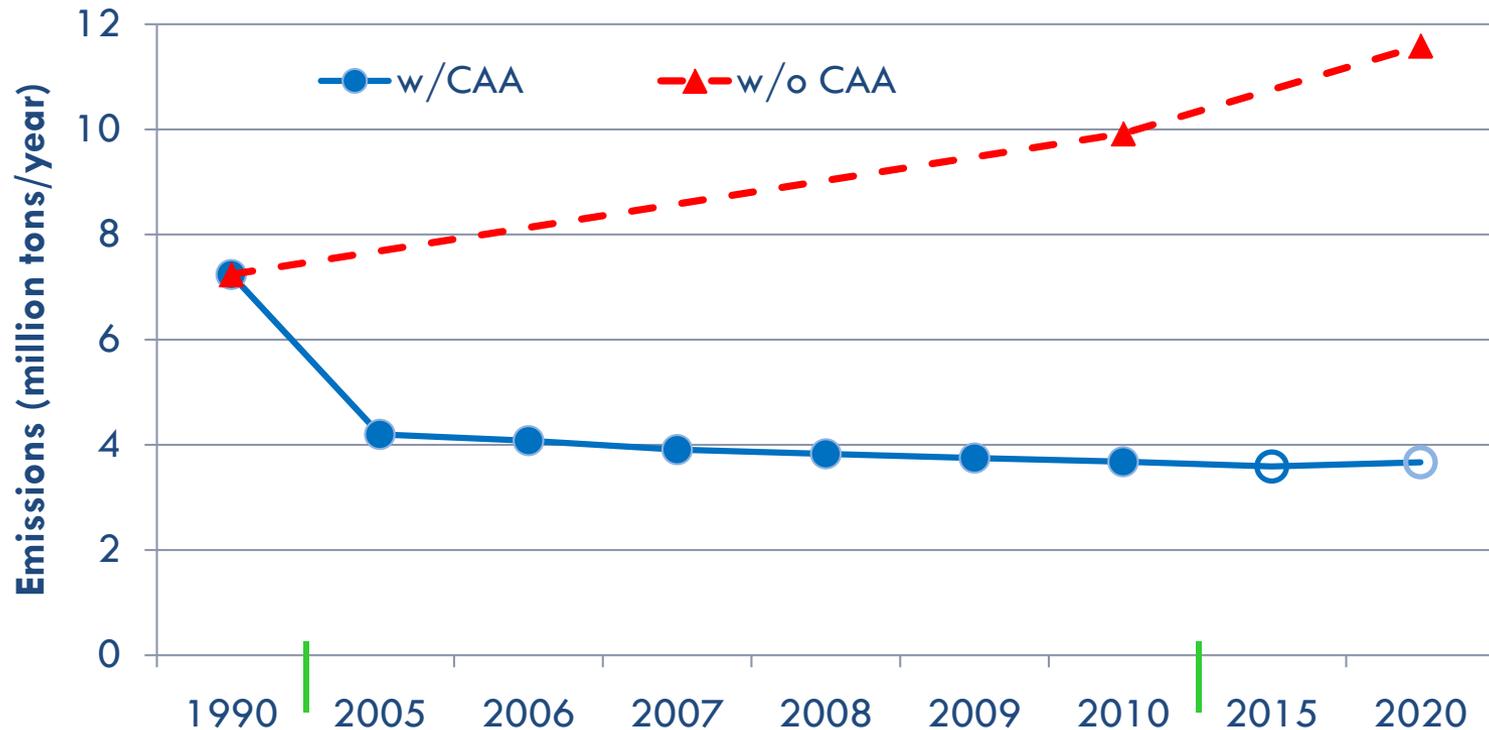
- Actions to address major sources and environments (e.g., asthma communities in action; indoor air quality tools for schools; international partnership to replace cookstoves)
- Focus on reducing radon risks

- **Voluntary programs and public information**

- Community Action for a Renewed Environment (CARE) grant program
- National Air Toxics Assessment
- Monitoring

Success Story: Reducing Toxic Emissions

Total Emissions for All Air Toxics with and without the Clean Air Act



- Emission reductions came from on-road mobile sources and stationary sources

Addressing Air Toxic Risks in an Era of Declining Budgets

The air toxics problem

- Toxic emission sources are often clustered in urban areas and areas already facing other air quality challenges.
- Low income, minority, and indigenous populations often bear a disproportionate share of the health impacts.

EPA is targeting priority emission sources to get the largest risk reductions given existing resources

- Although many toxics rules have court-ordered schedules, EPA is prioritizing efforts based on public health concerns.
- EPA is bringing to bear a wide array of regulatory, monitoring, public outreach and enforcement tools.

Tools that Improve Public Awareness

- Emissions Monitoring
 - Greater use of established remote measurement approaches (e.g., optical fence line monitoring, DIAL)
 - Continuation of emerging remote measurement technology development
- Public Transparency
 - Emission inventories (e.g., National Emissions Inventory, Toxics Release Inventory)
 - Rule requirements for electronic submission of compliance data
- Neighborhood Monitoring
 - Community-scale Air Toxics Monitoring Grant Program
- Enforcement
 - Use monitoring to identify at-risk communities and specific emissions sources
 - Obtain injunctive relief where violations are found

... and how we are using the tools

Target priority categories of emission sources

Utilize a more cost-effective “sector-based” approach to rulemaking

Reduce air toxics through voluntary programs

Improve data collection and provide better information to the public through monitoring and national assessments

Provide tools to help communities and other stakeholder participate in rulemaking.

Coordinate compliance and enforcement efforts towards priority sectors and areas of concern

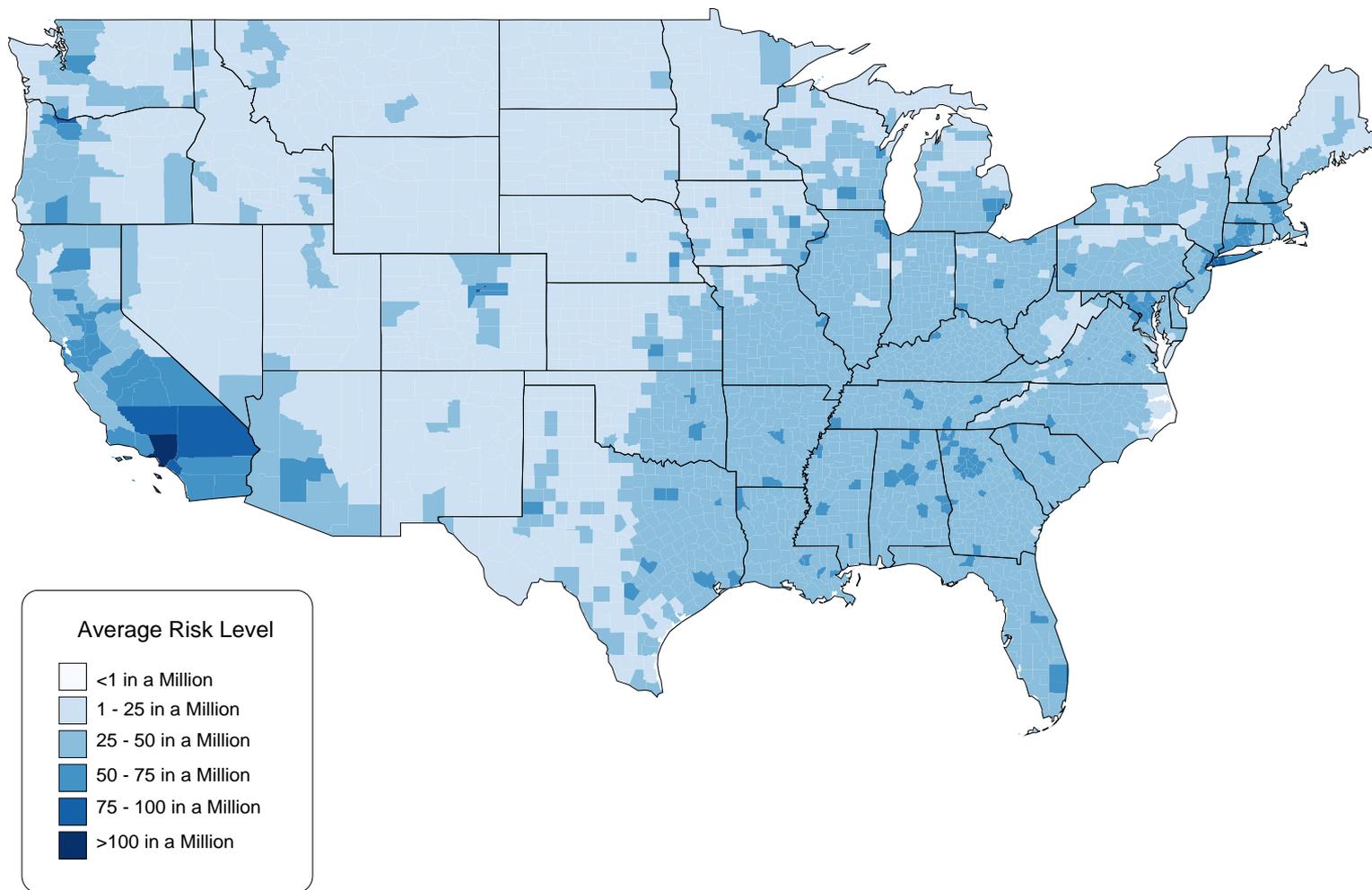


**Reduce
pollution in
communities**



Air Toxics Risks Highest in Urban Areas

**2005 NATA - National Scale Assessment
Predicted County Level Carcinogenic Risk**



Combustion and Chemical Facilities Pose Highest Risks From Stationary Sources



Target: Stationary Sources **Priority Sectors**

- Petroleum Refining
- Chemical Manufacturing
- Iron & Steel
- Utilities
- Oil & Gas
- Portland Cement

Emissions from these sectors often affect low-income and minority communities

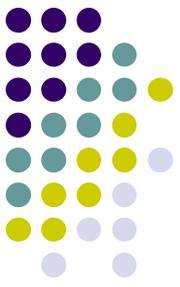


The Petroleum Refinery Sector



- 150 domestic refineries
- Second largest industrial source of greenhouse gases (GHGs)

Pollutant	2005 Emissions (tons/year)
Nitrogen oxides (NO _x)	146,185
Sulfur dioxide (SO ₂)	247,239
Volatile organic compounds (VOCs)	114,852
Hazardous air pollutants (HAP)	14,000
Fine particulate matter (PM _{2.5})	30,333
GHGs	220 MTCO ₂ e



Petroleum Refinery Sector Rulemakings

- Petroleum Refinery Sector National Emissions Standards for Hazardous Air Pollutants (NESHAP) and New Source Performance Standards (NSPS)
 - Proposal: December 10, 2011
 - Final: November 10, 2012
- Taking an integrated approach across the sector to coordinate MACT and NSPS requirements that currently exist in many separate rules
- Key issues
 - Accurate emission data
 - Scope of the rulemakings
 - Options to address GHGs
 - Addressing environmental justice concerns and children's health
 - Approach for addressing malfunctions

Integrated Sector-Based Approach: Petroleum Refinery Sector

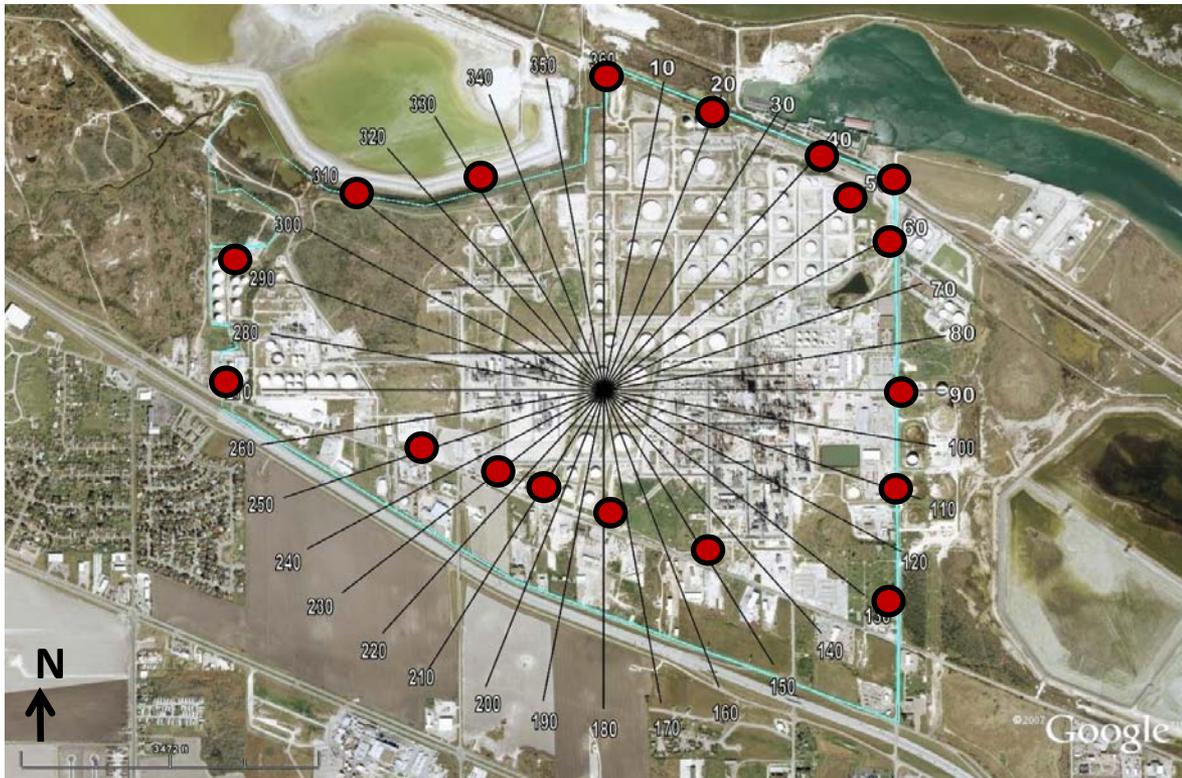
Emission Point	Current Regulations	Rulemaking Approach
Boilers	NSPS, MACT	MACT and NSPS amended
Process Heaters	NSPS	
Flares	NSPS, MACT	
FCCU, Reformer, Sulfur Plant	NSPS, MACT	
Process Vents	MACT	To be amended to reference the Uniform Standards
Heat Exchangers	MACT	
Wastewater	MACT, NESHAP, NSPS, CTG	
Storage	MACT, NESHAP, NSPS, CTG	
Loading	MACT, NESHAP	
Equipment Leaks	MACT, NSPS, NESHAP, CTG	

NSPS = New Source Performance Standards; MACT = Maximum Achievable Control Technology Standard;
NESHAP = National Emission Standards for Hazardous Air Pollutants; CTG= Control Techniques Guidelines

Fenceline Monitoring



- Locate passive samplers around the perimeter of each refinery
- If any concentration exceeds the action level, initiate tiered approach to positively identify facility contribution to risk
- If facility contribution to risk is unacceptable, initiate steps to reduce it



Chemical Sector Rulemakings

- Over 550 major source facilities emitting 15,000 tons/year (tpy) of HAP across entire sector
- Taking an integrated approach across the chemical sector to coordinate MACT and NSPS requirements that currently exist in many separate rules
- Propose consolidated set of regulations for HAP and VOCs from chemical plants
- Court orders require proposal for portions of this sector as early as November 2011



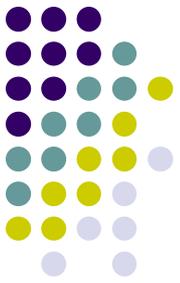
	Pollutant	Emissions (tpy)
	Methanol	3,139
	Hexane	3,080
	Toluene	1,324
	Styrene	848
Risk-driving pollutants	Benzene	661
	1,3-Butadiene	629
	Xylenes	531
	Ethylene glycol	464

Iron and Steel Sector Rulemakings



- Nationwide emissions
 - PM_{2.5}: 14,210 tons
 - Metal HAP: 377 tons
 - Coke oven emissions: 390 tons
- Revision of the electric arc furnace (EAF) area source MACT rule
 - Compiling data collected from the information collection request (ICR)
 - Considering Hg emission limits with enhanced monitoring
 - Plan to propose revised rule in late 2011/early 2012
- List EAFs as a major source for MACT standards
- Review NSPS for EAF and Integrated Iron & Steel
- Address remand of Integrated Iron & Steel MACT
- Evaluate Coke Oven residual risk

Mercury and Air Toxics Standards for Power Plants



- Proposal published on May 3, 2011
 - Comment period ends July 5, 2011
- Proposed rule would reduce emissions of heavy metals, including mercury, arsenic, chromium, and nickel, and acid gases, including hydrogen chloride and hydrogen fluoride from new and existing coal- and oil-fired electric utility steam generating units (EGUs)
 - 90 percent reduction in mercury emissions from burned coal
- Final rule must be signed by November 16, 2011

Oil and Gas Sector Rulemakings

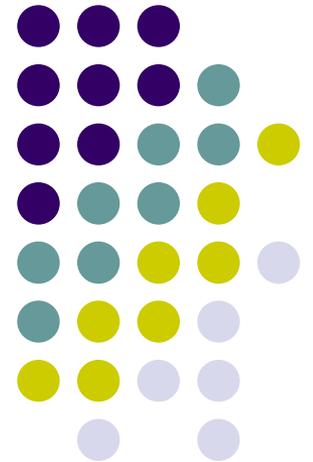


- Oil and Gas Sector NESHAP and NSPS
 - Proposal: July 28, 2011
 - Final: February 28, 2012
- Nationwide emissions
 - Methane: 15.7 million tons (300 MMT CO₂e) (40% of U.S. methane emissions)
 - VOC emissions of 3 million tons
 - HAP emissions of 130,000 tons
- NSPS improvements are being considered for several emission points, including:
 - Completions of hydraulically fractured (“fracked”) gas wells
 - Compressors
 - Storage vessels
 - Pneumatic devices
 - Equipment leaks
- NESHAP revisions are being considered for:
 - Glycol dehydrators
 - Storage tanks

Discussion Questions

- What are your concerns?
- Where should we focus our efforts?
- What efforts have been most effective?
- How can we work with the CAAAC to attain the goals of the Air Toxics Program?

APPENDIX



Air Toxics with Greatest Risks Nationally



- The air toxics* with the greatest risks from inhalation include:
 - Acrolein (mobile sources, combustion, open burning)
 - Arsenic (combustion, non-ferrous metal production, iron and steel, incineration, mobile sources)
 - Benzene (mobile sources, combustion, oil and gas production and distribution, petroleum refining and distribution)
 - 1,3-Butadiene (mobile sources, chemical manufacturing, petroleum refining and distribution)
 - Chlorine (primary magnesium refining, incineration, combustion)
 - Chromium, hexavalent (electroplating, non-ferrous metal production, iron and steel, mobile sources)
 - Coke Oven Emissions (iron and steel)
 - Diesel exhaust (mobile sources)
 - Formaldehyde (mobile sources, combustion, plywood, pulp and paper, oil and gas production and distribution)
 - Hydrogen Chloride (combustion, incineration)
 - Manganese (iron and steel, non-ferrous metal production, combustion)
 - Perchloroethylene (dry cleaning, solvent use)
 - Polycyclic Organic Matter (POM) (mobile sources, open burning, combustion, incineration)
- The greatest risks from non-inhalation pathways occur when air toxics deposit from the air, persist in the environment, and contaminate food we eat. These include:
 - Dioxins (backyard burning, incineration, electric utilities)
 - Mercury (coal combustion, Portland cement, incineration, mining)

* Source: *National Air Toxics Assessment (NATA)*.

Other Priority Sector Projects

Rule	Proposal	Promulgation
Boiler MACT/Commercial and Industrial Solid Waste Incinerators Reconsideration		
Secondary Lead Smelting RTR NESHAP	4/29/11 (completed)	12/16/11
Compression Ignition Engines NSPS; Amendments	5/22/10 (completed)	6/8/11
Pulp & Paper RTR NESHAP	6/15/11	1/31/12
Chromium Electroplating and Steel Pickling RTR NESHAP	9/14/10 (completed)	6/30/11
Aerospace Manufacturing RTR NESHAP	8/31/11	6/29/12
Nitric Acid NSPS	9/30/11	11/15/11
Shipbuilding/Wood Furniture RTR NESHAP	9/14/10	10/31/11
Primary Lead RTR NESHAP		10/31/11
Mineral Wool Production/Wool Fiberglass RTR NESHAP	10/31/11	6/29/12

Other Priority Sector Projects (continued)

Rule	Proposal	Promulgation
Ferroalloys RTR NESHAP	10/31/11	6/29/12
Primary Aluminum RTR NESHAP	10/31/11	6/29/12
Secondary Aluminum RTR NESHAP	1/31/11 (completed)	10/31/11
Flexible Polyurethane Foam Prod. RTR NESHAP	10/31/12	
Acrylic and Modacrylic Fibers RTR NESHAP	10/31/12	
Polycarbonate Production RTR NESHAP	10/31/12	
Off-Site Waste and Recovery RTR NESHAP	10/31/12	
Phosphoric Acid RTR NESHAP	10/31/12	
Phosphate Fertilizer RTR NESHAP	10/31/12	
Group III Polymers and Resins RTR NESHAP	10/31/12	