National Emission Standards for Hazardous Air Pollutants for Area Sources

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U.S. EPA Region I

CT SIPRAC Meeting
July 14, 2011
Presentation Overview

- Background Air Toxics Program
- Status Area Source Program
- Overview of Recent National Emission Standard for Hazardous Air Pollutants (NESHAP) for Area Sources: Industrial, Commercial, and Institutional Boilers
- Resources for More Information
Background

- 1990 Clean Air Act Amendments
- 187 Hazardous Air Pollutants (HAP) Listed
  - Chemicals known or suspected to cause cancer or other serious health effects
- Maximum Achievable Control Technology (MACT) Regulations Required for Major Sources of HAP
  - EPA has completed over 90 MACT regulations covering over 170 industry categories for major sources
Area Source Program Background

- **July 19, 1999 Urban Air Toxics Strategy**
  - EPA required to list 30 Hazardous Air Pollutants (HAPs) from area sources which pose the greatest potential public health threat in urban areas
  - EPA must regulate area sources categories accounting for 90 percent of the emissions of 30 listed HAPs
  - EPA listed 70 area source categories
Area Sources – What are they?

- Small stationary sources of air toxics

- Any Source that emits some hazardous air pollutant (HAP) but is not a major source of HAP

- “Has a potential to emit less than 10 tpy for a single HAP or less than 25 tpy for combined HAP”
Area Source Program Status

- March 21, 2011 Federal Register Notice (FR 76 15308)
  - EPA announced completion of emissions standards for all area source categories required to meet statutory goals
    - EPA must regulate area sources categories accounting for 90 percent of the emissions of 30 listed HAPs
  - Rules for 68 source categories promulgated
Overview of EPA recent actions affecting boilers

- On March 21, 2011, EPA issued three separate but related rules:
  - NESHAP for Industrial, Commercial, and Institutional Boilers and Process Heaters (Subpart DDDDD of Part 63) (“Boiler MACT”)
    - Boilers at large (“major”) sources of HAP
  - NESHAP for Area Sources: Industrial, Commercial, and Institutional Boilers (Subpart JJJJJJJJ of Part 63) (“Boiler Area Source Rule”)
    - Boilers at small (“area”) sources of HAP
  - New Source Performance Standards (NSPS) and Emission Guidelines for Commercial and Industrial Solid Waste Incinerators (CISWI) Amendments (Subparts CCCC and DDDDD of Part 60)
    - Boilers that burn solid waste at industrial and commercial facilities
Overview of EPA recent actions affecting boilers

- **On March 21, 2011, EPA also issued a final rule that defines “solid waste”**
  - Necessary to determine whether a source must meet boiler standards or an incinerator standard

- **On March 21, 2011, EPA announced it would initiate reconsideration of certain aspects of boiler and CISWI rules**
  - Some of the comments raise difficult technical issues that would benefit from additional public involvement.
  - Stakeholders have petitioned for reconsideration of other issues
Overview of EPA recent actions affecting boilers

- **Stay**
  - On May 18, 2011, EPA delayed the effective date of the Boiler MACT for major sources and CISWI
  - Boiler Area Source Rule is still in effect

- **Schedule for Reconsideration**
  - In June, EPA filed a schedule with court for reconsidering the Boiler MACT, the boiler area source rule and CISWI rule
    - Proposed Standards by end of October 2011
    - Finalize Standards by end of April 2012
BOILER AREA
SOURCE RULE
Boiler Area Source Rule

• An area source facility emits or has potential to emit less than 10 tons per year (tpy) of any single HAP and less than 25 tpy of any combination of HAP.

• Expected to apply to about 187,000 boilers located primarily at commercial facilities (e.g., hotels, office buildings, restaurants) and institutional facilities (e.g., schools, universities, hospitals, prisons)

• Rule does NOT apply to boilers that are gas-fired
Reduces Toxic Emissions and Protects Human Health

- Burning biomass, coal, and oil results in emissions of mercury, dioxin, furans, formaldehyde, lead, and hydrochloric acid.
- The technologies to reduce toxic air pollution have largely been available and in use for decades.
- Health effects are significant:
  - Mercury can cause adverse effects on children’s developing brains, including effects on IQ, learning and memory.
  - Air toxics can cause cancer and other serious health effects in adults and children.
  - Controlling air toxics will also reduce fine particle pollution and carbon monoxide.
    - Fine particles are linked to serious cardiovascular and respiratory effects, even premature death.
    - Carbon monoxide reduces oxygen delivery to heart and brain, can cause angina and other problems for people with heart disease.
<table>
<thead>
<tr>
<th>Health Effect</th>
<th>Estimated # Avoided</th>
</tr>
</thead>
<tbody>
<tr>
<td>Premature deaths</td>
<td>24 to 61</td>
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<tr>
<td>Work loss days</td>
<td>3200</td>
</tr>
<tr>
<td>Emergency room visits, respiratory</td>
<td>21</td>
</tr>
<tr>
<td>Upper respiratory symptoms</td>
<td>350</td>
</tr>
<tr>
<td>Acute bronchitis cases</td>
<td>38</td>
</tr>
<tr>
<td>Asthma exacerbation</td>
<td>420</td>
</tr>
<tr>
<td>Minor restricted activity days</td>
<td>19,000</td>
</tr>
<tr>
<td>Lower respiratory symptoms</td>
<td>460</td>
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</table>
Area Source Subcategories

- **Oil subcategory**
  - Any boiler that burns any liquid fuel and is not in biomass or coal subcategories. Gas-fired boilers that burn liquid fuel during periods of gas curtailment, gas supply emergencies, or periodic testing up to 48 hours per calendar year not included

- **Coal subcategory**
  - Any boiler that burns solid fossil fuel and no more than 15 percent biomass on an annual heat input basis

- **Biomass subcategory**
  - Any boiler that burns at least 15 percent biomass on an annual heat input basis
Area source boiler rule: Compliance requirements

- **Existing large boilers** ($\geq 10\text{mm}/\text{BTU}$)
  - Coal
    - Numeric emission limits for 2 pollutants
      - mercury, carbon monoxide (CO)
    - 1-time energy assessment
  - **Biomass, Oil**
    - Tune-up every other year
    - 1-time energy assessment
    - No numeric emission limits
- **Existing small boilers** ($<10\text{mm}/\text{BTU}$)
  - Coal, Biomass, Oil
    - Tune-up every other year
    - No numeric emission limits
Area source boiler rule: Compliance requirements

- **New large boilers** ($\geq 10\text{mm/BTU}$)
  - Coal
    - Numeric emission limits for 3 pollutants
      - mercury, carbon monoxide (CO), particulate matter (PM)
  - Biomass, Oil
    - Numeric emission limit for 1 pollutant
      - particulate matter (PM)
    - Tune-up every other year
- **New small boilers** ($< 10\text{mm/BTU}$)
  - Coal, Biomass, Oil
    - Tune-up every other year
    - No numeric emission limits
Area Source Rule
Testing and Monitoring Requirements

- Boilers 10 million Btu/hour or greater with emission limits
  - Testing requirements
    - Initial and triennial stack tests:
      - PM, mercury, CO (as applicable)
    - Establish operating parameter limits during initial tests:
      - For example, pressure drop, injection rate, power input, oxygen
  - Monitoring requirements
    - Continuous process parameter or opacity
Area Source Rule – Initial Notification and Compliance Dates

- **Existing Sources (commenced construction before June 4, 2010)**
  - Tune-up required by March 21, 2012
  - Compliance with emission limits and energy assessment by March 21, 2014
  - *Initial notification due to EPA Region I by September 17, 2011*

- **New Sources (commenced construction on or after June 4, 2010)**
  - Must comply by May 20, 2011, or upon startup, whichever is later
  - Initial notification due September 17, 2011, or 120 days after the source becomes subject to the standard*

*Additional Notifications and Reports required under the rule*
Where to Send Reports

For Sources In New England:

U.S. EPA New England
5 Post Office Square
Suite 100 (OES04-2)
Boston, MA 02109-3912
Attn: Air Clerk
For More Information

All Area Source Standards

http://www.epa.gov/ttn/atw/area/arearules.html
- Brochures, Fact Sheets
- Example Notifications
- Regulations
- Other resources

Boilers

http://www.epa.gov/ttn/atw/boiler/boilerpg.html
- Fact Sheets
- Regulations
- Example Notifications
- Tune-up Guidance
- Other resources
For More Information

- For Sources in New England:

  Susan Lancey  
  U.S. EPA New England  
  617-918-1656  
  lancey.susan@epa.gov
## Appendix - Emission Limits for Area Source Boilers

<table>
<thead>
<tr>
<th>Subcategory</th>
<th>Proposed Emission Limits</th>
<th>Final Emission Limits</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Hg, lb/TBtu</td>
<td>CO, ppm</td>
</tr>
<tr>
<td>New Coal</td>
<td>3.0</td>
<td>310</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>New Biomass</td>
<td>-</td>
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<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>New Oil</td>
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<td>1</td>
</tr>
<tr>
<td>Existing Coal</td>
<td>3.0</td>
<td>310</td>
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<tr>
<td>Existing Biomass</td>
<td>-</td>
<td>160</td>
</tr>
<tr>
<td>Existing Oil</td>
<td>-</td>
<td>2</td>
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</table>

New and existing small (<10 MMBtu/hr) boiler, existing and new biomass-fired boilers, and new and existing oil-fired boilers are subject to a biennial tune-up requirement.
Appendix - Image Credits

- MS Office Clip Art