

National Emission Standards for Hazardous Air Pollutants for Area Sources

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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 JJJJJ 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 DDDD 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.

Estimated Annual Health Benefits

<i>Health Effect</i>	<i>Estimated # Avoided</i>
Premature deaths	24 to 61
Work loss days	3200
Emergency room visits , respiratory	21
Upper respiratory symptoms	350
Acute bronchitis cases	38
Asthma exacerbation	420
Minor restricted activity days	19,000
Lower respiratory symptoms	460

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** ($\geq 10\text{mm/BTU}$)
 - **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** ($< 10\text{mm/BTU}$)
 - **Coal, Biomass, Oil**
 - Tune-up every other year
 - No numeric emission limits

Area source boiler rule: Compliance requirements

- **New large boilers** (≥ 10 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 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:

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Appendix - Emission Limits for Area Source Boilers

Subcategory	Proposed Emission Limits			Final Emission Limits		
	Hg, lb/TBtu	CO, ppm	PM, lb/MMBtu	Hg, lb/TBtu	CO, ppm	PM, lb/MMBtu
New Coal	3.0	310	0.03	4.8	400	0.03 (> 30 MMBtu/h) 0.42 (10 to 30 MMBtu/h)
New Biomass	-	100	0.03	-	-	0.03 (> 30 MMBtu/h) 0.07 (10 to 30 MMBtu/h)
New Oil	-	1	0.03	-	-	0.03
Existing Coal	3.0	310	-	4.8	400	-
Existing Biomass	-	160	-	-	-	-
Existing Oil	-	2	-	-	-	-

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

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