

American Council of Engineering Companies of NH

# National Air Quality Regulations – Industrial, Commercial and Institutional Boilers

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# Presentation Outline

- General Regulatory Overview
  - Recent Schedule of Events
  - Status of Boiler Regulations
  - Reconsideration
- Highlights of Boiler Area Source Rule
- Questions

# General Regulatory Overview

- EPA was required under Section 112(d) of the Clean Air Act to develop National Emission Standards for Hazardous Air Pollutants (NESHAP) for both major and area sources of Hazardous Air Pollutants (HAPs) from a list of source categories found in the CAA.
- List of 188 HAPs from the CAA can be found at <http://www.epa.gov/oar/toxicair/newtoxics.html>
- Major vs. Area Sources
  - Major sources have the Potential to Emit (PTE) greater than **10 tpy** individual HAP and **25 tpy** combined HAPs
  - Area sources are facilities that are not major sources - who do not have PTE above these levels either due to permit limitations or design capacity.
- Majority of Sources in NH are Area Sources for HAPs

# Recent EPA actions affecting boilers

EPA issued three rules that reduce emissions of HAPs:

- NESHAP for Industrial, Commercial, and Institutional Boilers and Process Heaters (40 CFR 63, Subpart DDDDD) (“Boiler MACT”)
- NESHAP for Area Sources: Industrial, Commercial, and Institutional Boilers (40 CFR 63, Subpart JJJJJJ) (“Boiler Area Source Rule”)
- CAA Section 129 NSPS and Emission Guidelines for Commercial and Industrial Solid Waste Incinerators (CISWI)

EPA also issued a final rule that defines “solid waste”

- 40 CFR 241 – Identification of Non-Hazardous Secondary Materials That Are Solid Waste under the Resource Conservation and Recovery Act (RCRA)
- Necessary to determine whether a source must meet boiler standards (Section 112) or an incinerator standard (Section 129)

# Schedule of Events

- Schedule
  - Proposals signed on April 29, 2010
  - Published in the Federal Register on **June 4, 2010**
  - Promulgations signed on February 21, 2011 (Court-ordered)
  - Published in the Federal Register on **March 21, 2011**
  - Effective Date: May 20, 2011
- EPA has initiated reconsideration of certain aspects of the 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.
- Stay
  - On May 18, 2011, EPA delayed the effective date of the Boiler MACT and CISWI

## **Schedule of Events (cont.)**

- Boiler Area Source Rule and Solid Waste Definition are in effect even during the reconsideration process for the boiler and incinerator regulations.
  - Facilities need to comply with rules as they were promulgated.
- June 24, 2011 EPA announced a timeline for re-proposal
  - Ensure standards are based on the best available data
  - Ensure public is given ample opportunity to provide additional input
  - Re-propose end of October 2011
  - Finalize end of April 2012

# Issues Listed in EPA's Reconsideration Notice

- Revisions to proposed subcategories in the Boiler MACT.
- Establishment of fuel specification in Boiler MACT through which gas-fired boilers that use a fuel other than natural gas may be considered Gas 1 units.
- Establishing work practice standards for limited use major source boilers. (Boiler MACT)
- Establishment of standards for biomass and oil-fired area source boilers based on generally available control technology.
- Providing affirmative defense for malfunction events for major and area source boilers.
- Revisions to the proposed dioxin emission limit and testing requirement for major source boilers.
- Establishing a full-load stack test requirement for carbon monoxide coupled with continuous oxygen monitoring for major source boilers.
- Setting PM standards under generally available control technology for new oil-fired area source boilers.

# Issues Raised in Petitions to EPA During Reconsideration Regarding Boiler MACT

- Subcategories
  - Create subcategory based on fuel type
  - Expand Gas 1 to include other gases
  - New subcategories assigned without public comment
  - Remove solid fuel subcategory
- Monitoring
  - Include CO CEM limit option
  - Remove PM CEM requirement
- Emission Limits
  - Incorporate new data
- MACT Floor Methodology
  - Switching to 99.9% UPL for CO limits
- Exemptions
  - Exempt small units from rule
- Compliance
  - Allow for averaging across subcategories
- No decision on whether any of these issues will be granted reconsideration

# Issues Raised in Petitions to EPA During Reconsideration Regarding Boiler Area Source Rule

- Initial Compliance Schedule
  - Provide alternative schedule for seasonal boilers
- Subcategories
  - Add subcategory for seasonal boilers
- Exemptions
  - Add temporary boiler exemption
- Detection Levels
  - Switched to using 3X DL with allowing comment
- MACT Floor Methodology
  - Switched to 99.9% UPL for CO limits with providing for comment
- Monitoring
  - Provide alternatives to O<sub>2</sub> monitoring
- Energy Assessments
  - Remove, lessen, expand, or clarify
- Surrogates
- No decision on whether any of these issues will be granted reconsideration

# Ongoing Legislative Action at the Federal Level

## EPA Regulatory Relief Act (HR 2250)

- On September 21, 2011, House Energy and Commerce committee approved HR 2250. (Vote was 36-14)
- HR 2250 expected to pass the House but will face stiffer opposition in the Senate.
- If enacted, HR 2250 would delay implementation of Boiler MACT, Boiler Area Source Rule and CISWI.
  - EPA would be required to re-propose and finalize new rules no earlier than 15 months after enactment.
  - The new rules would use “least burdensome regulatory alternatives” as opposed to MACT to set limits on emission.
  - Compliance deadlines would increase from 3 to at least 5 years.

# Boiler Area Source Rule

- Rule applicability:
  - Owners and operators of an industrial, commercial or institutional boiler located at an area source of HAPs
- Rule is broken down based on:
  - Boiler size:
    - Small (<10 MMBtu/hr)
    - Large (≥10 MMBtu/hr)
  - Fuel type:
    - Coal-fired units
    - Biomass-fired units
    - Oil-fired units
  - Boiler Construction:
    - Existing prior to June 4, 2010
    - New or reconstructed after June 4, 2010

## **Are any boilers not subject to this subpart?**

- Any boiler covered by another NESHAP
- Any boiler covered by CISWI
- Hazardous waste boilers
- A boiler that is used specifically for research and development.
  - This exemption does not include boilers that solely or primarily provide steam (or heat) to a process or for heating at a research and development facility.
- Any boiler that is used as a control device to comply with another Subpart of 40 CFR 63, provided that at least 50 percent of the heat input to the boiler is provided by the gas stream that is regulated under another subpart.

# Are any boilers not subject to this subpart? (continued)

- A hot water heater as defined in this subpart.
  - **Hot water heater** means a closed vessel with a capacity of no more than 120 U.S. gallons in which water is heated by combustion of gaseous or liquid fuel and is withdrawn for use external to the vessel at pressures not exceeding 160 psig, including the apparatus by which the heat is generated and all controls and devices necessary to prevent water temperatures from exceeding 210°F.
- A gas-fired boiler as defined in this subpart.
  - **Gas-fired boiler** includes any boiler that burns gaseous fuels not combined with any solid fuels, burns liquid fuel only during periods of gas curtailment, gas supply emergencies, or periodic testing on liquid fuel. Periodic testing of liquid fuel shall not exceed a combined total of 48 hours during any calendar year.

# Fuel Switching Rule Provisions

- A boiler is a **new** affected source if you commenced fuel switching from natural gas to solid fossil fuel, biomass, or liquid fuel after June 4, 2010.
- If you intend to switch fuels, and this fuel switch may result in the applicability of a different subcategory or a switch out of Subpart JJJJJJ due to a switch to 100 percent natural gas, you must provide **30 days** prior notice of the date upon which you will switch fuels.
- If you own or operate an industrial, commercial, or institutional boiler and would be subject to this subpart except for the exemption for units covered by the CISWI rules, and you cease combusting solid waste, you must be in compliance with this subpart on the effective date of the waste to fuel switch.
- If you intend to commence or recommence combustion of solid waste, you must provide **30 days** prior notice of the date upon which you will commence or recommence combustion of solid waste.

Fast Facts: Area Source Requirements  
**Industrial, Commercial, and Institutional Boilers**  
 40 CFR Part 63, Subpart JJJJJJ

**Do the Emission Limits Requirements Apply?**

	Existing Coal Units	New Coal Units	Existing Oil Units	New Oil Units	Existing Biomass Units	New Biomass Units
≥ 10 MM Btu/hr	Yes	Yes	No	Yes	No	Yes
< 10 MM Btu/hr	No	No	No	No	No	No

**Do I do a One-Time Energy Assessment?**

	Existing Coal Units	New Coal Units	Existing Oil Units	New Oil Units	Existing Biomass Units	New Biomass Units
≥ 10 MM Btu/hr	Yes	No	Yes	No	Yes	No
< 10 MM Btu/hr	No	No	No	No	No	No

**Do I do a Biennial (every other year) Tune-Up?**

	Existing Coal Units	New Coal Units	Existing Oil Units	New Oil Units	Existing Biomass Units	New Biomass Units
≥ 10 MM Btu/hr	No	No	Yes	Yes	Yes	Yes
< 10 MM Btu/hr	Yes	Yes	Yes	Yes	Yes	Yes

# Emission Limits for Area Source Boilers

Subcategory	Final Emission Limits			
	Hg (lb/TBtu)	CO (ppm)	PM (lb/MMBtu)	
			10 – 30 MMBtu/hr	>30 MMBtu/hr
<b>New Coal</b>	<b>4.8</b>	<b>400</b>	<b>0.42</b>	<b>0.03</b>
<b>New Biomass</b>	-	-	<b>0.07</b>	<b>0.03</b>
<b>New Oil</b>	-	-	<b>0.03</b>	<b>0.03</b>
<b>Existing Coal</b>	<b>4.8</b>	<b>400</b>	-	-
<b>Existing Biomass</b>	-	-	-	-
<b>Existing Oil</b>	-	-	-	-

# Energy Assessment

## [40 CFR 63, Subpart JJJJJJ - Table 2]

- One-time energy assessment performed by a qualified energy assessor.
- An energy assessment completed on or after January 1, 2008, that meets or is amended to meet the energy assessment requirements satisfies the energy assessment requirements.
- The energy assessment must include:
  - A visual inspection of the boiler system,
  - An evaluation of operating characteristics of the facility, specifications of energy using systems, operating and maintenance procedures, and unusual operating constraints,
  - Inventory of major systems consuming energy from affected boiler(s),
  - A review of available architectural and engineering plans, facility operation and maintenance procedures and logs, and fuel usage,
  - A list of major energy conservation measures,
  - A list of the energy savings potential of the energy conservation measures identified,
  - A comprehensive report detailing the ways to improve efficiency, the cost of specific improvements, benefits, and the time frame for recouping those investments.

# Tune-up Requirement [63.11223(b)]

- As applicable, **inspect the burner**, and clean or replace any components of the burner as necessary (you may delay the burner inspection until the next scheduled unit shutdown, but you must inspect each burner at least once every 36 months).
- **Inspect the flame pattern**, as applicable, and adjust the burner as necessary to optimize the flame pattern. The adjustment should be consistent with the manufacturer's specifications, if available.
- Inspect the system controlling the air-to-fuel ratio, as applicable, and ensure that it is correctly calibrated and functioning properly.
- **Optimize total emissions of carbon monoxide**. This optimization should be consistent with the manufacturer's specifications, if available.

# Tune-up Requirement [63.11223(b)] (continued)

- **Measure the concentrations** in the effluent stream of **carbon monoxide** in parts per million, by volume, and **oxygen** in volume percent, **before and after the adjustments** are made (measurements may be either on a dry or wet basis, as long as it is the same basis before and after the adjustments are made).
- Maintain onsite and submit, if requested, **biennial report** containing the following information:
  - The concentration of CO in the effluent stream in ppm, by volume, and oxygen in volume percent, measured before and after the tune-up of the boiler.
  - A description of any corrective actions taken as a part of the tune-up of the boiler.
  - The type and amount of fuel used over the 12 months prior to the biennial tune-up of the boiler.
- If the unit is not operating on the required date for a tune-up, the tune-up must be conducted within one week of startup.

# Notification and Reporting Guidance

- Sample Initial Notifications, Notifications of Compliance Status, and Tune-up Guidance and Example Recordkeeping Forms for Area Sources can be found under “Implementation Tools” at EPA’s website: <http://www.epa.gov/boilercompliance/> and DES website: <http://www.des.nh.gov> go to “A to Z LIST” and click on “Boiler Rule”
- Send required copies of paperwork to:

EPA Region 1 US Environmental Protection Agency  
5 Post Office Square, Suite 100, Mail code: OES04-2,  
Boston MA 02109-3912  
Attention: Air Clerk

and in the case of NH permitted sources:

New Hampshire Department of Environmental Services  
Air Resources Division  
29 Hazen Drive  
P.O. Box 95  
Concord, NH 03302-0095  
Attention: Section Supervisor, Compliance Bureau

# EPA Contacts

Regulation	Contact	Office	Telephone Number	E-mail
Boiler MACT	Brian Shrager	USEPA Headquarters - OAQPS	(919) 541-7689	<a href="mailto:Shrager.brian@epa.gov">Shrager.brian@epa.gov</a>
	Susan Lancey	USEPA – Region 1	(617) 918-1656	<a href="mailto:Lancey.susan@epa.gov">Lancey.susan@epa.gov</a>
Boiler Area Source Rule	Jim Eddinger	USEPA Headquarters - OAQPS	(919) 541-5426	<a href="mailto:Eddinger.jim@epa.gov">Eddinger.jim@epa.gov</a>
	Susan Lancey	USEPA – Region 1	(617) 918-1656	<a href="mailto:Lancey.susan@epa.gov">Lancey.susan@epa.gov</a>
CISWI	Toni Jones	USEPA Headquarters - NRCG	(919) 541-0316	<a href="mailto:Jones.toni@epa.gov">Jones.toni@epa.gov</a>
Solid Waste Definition	George Faison	USEPA Headquarters – RCRA	(703) 305-7652	<a href="mailto:Faison.george@epa.gov">Faison.george@epa.gov</a>
	Jui-Yu Hsieh	USEPA - Region 1	(617) 918-1646	<a href="mailto:Hsieh.juiyu@epa.gov">Hsieh.juiyu@epa.gov</a>

# Questions?

Contact:

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