

# There and Back Again: EPA's Boiler MACT Rule

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# OUTLINE

- History of EPA's Boiler and Incinerator Rules
  - Distinction between boiler and incinerator
  - Judicial challenge to rules
- Brief explanation of the four rules signed by EPA on February 21, 2011
- Future of the current rules



# INTRODUCTION

- On February 21, 2011, EPA signed four interrelated rules for boilers and incinerators:
  - Area Source Facilities Rule
    - Docket No. EPA-HQ-OAR-2006-0790
  - Major Source Facilities Rule
    - Docket No. EPA-HQ-OAR-2002-0058
  - Commercial and Industrial Solid Waste Incineration (CISWI) Units Rule
    - Docket No. EPA-HQ-OAR-2003-0119
  - Sewage Sludge Incinerations Rule
    - Docket No. EPA-HQ-OAR-2009-0559
  - Not yet published in the Federal Register
  - See <http://www.epa.gov/airquality/combustion/actions.html#feb11> to download copies of the rules.

# INTRODUCTION

- EPA Statements on Final Rule:
  - EPA estimates that compliance with emissions limits will cost regulated industries \$1.8 billion annually, not \$3.6 billion annually as originally estimated based on 2010 proposed rules.
  - EPA says the savings are largely because of revisions to emission standards for the largest categories of industrial boilers.

# HISTORY OF CURRENT RULES

- Important Distinction: Boiler or Incinerator?
  - CAA § 129 covers MACT standards for “solid waste incineration units”
    - EPA issued CISWI rule December 1, 2000, as amended September 22, 2005.
    - 2005 CISWI Definitions Rule drew new regulatory distinction.
    - Rule’s definition of “commercial and industrial waste” and “CISWI unit” essentially classified combustion units burning solid waste as “boilers” if they recovered (or were designed to recover) thermal energy for any useful purpose.
  - CAA § 112 covers MACT Standards for Boilers
    - EPA issued first Boiler rule September 13, 2004.

# JUDICIAL CHALLENGE TO FIRST RULES

- In *NRDC v. EPA*, environmental petitioners challenged both EPA's 2005 amended CISWI definitions rule and 2004 Boiler rule.
  - 489 F.3d 1250 (D.C. Cir. 2007).



# JUDICIAL CHALLENGE TO FIRST RULES

- *NRDC v. EPA* Decision:
  - Court vacated CISWI Definitions Rule
  - CAA § 129 definition of “solid waste incineration unit” was not ambiguous:
    - “...**any** facility which combusts **any** solid waste material...”
  - EPA could not limit scope of the CISWI definition to those units that do not recover thermal energy.
  - Boiler MACT rule also vacated because EPA would have to substantially revise Boilers Rule based on the now smaller boilers category.

# BASIS OF CURRENT PROMULGATION SCHEDULE

- Generally, CAA requires EPA to promulgate regulations governing discharge of certain hazardous air pollutants.
  - *Sierra Club v. Johnson*, 444 F. Supp. 2d 46 (D.D.C. 2006).
    - Sierra Club sued to set deadlines for EPA because EPA was generally behind schedule in its promulgation of these regulations.
  - Court in *Sierra Club* required EPA to promulgate these regulations by June 15, 2009.
  - EPA requested and was granted multiple extensions of this deadline.
    - Latest deadline was January 16, 2011.

# PROPOSED RULES

- On June 4, 2010, EPA published proposed emission standards for:
  - (1) area source boilers;
    - 75 Fed. Reg. 31896
  - (2) major source boilers; and
    - 75 Fed. Reg. 32006
  - (3) commercial and institutional solid waste incineration units (CISWI).
    - 75 Fed. Reg. 31938
- EPA received over 4,800 individual comments in response to the proposed rules.

# EPA REQUESTS EXTENSION

- With Jan. 16, 2011, deadline looming, EPA asked District of Columbia Court for another extension to promulgate its final rule:
  - Request for extension was opposed this time.
  - EPA argued it needed 15 months to re-propose the rules to ensure final rules are logical outgrowth of proposed rules.
  - Alternatively, EPA argued it needed 5 months to fulfill statutory duty of responding to significant comments.

# EPA REQUESTS EXTENSION



- Court denied both of EPA's extension requests.
- Court gave EPA until February 21, 2011, to promulgate its final Boiler MACT rule.
  - *Sierra Club v. Jackson*, No. 01-1537, 2011 U.S. Dist. LEXIS 5316 (D.D.C. Jan. 20, 2011).

# EPA REQUESTS EXTENSION

- On February 21, 2011, EPA signed four boiler/incinerator rules.
- Rules divided into four categories:
  - Area source industrial, commercial and institutional facilities;
  - Major source industrial, commercial and institutional facilities;
  - CISWI units; and
  - Sewerage sludge incinerators.

# *NRDC v. EPA* DEFINITION ISSUE RESOLVED

- Boiler or Incinerator:
  - Concurrently with the new Boiler MACT Rule, EPA also finalized a definition of non-hazardous solid waste for combustion units.
    - <http://www.epa.gov/epawaste/nonhaz/define/index.htm>
  - Combustion units that burn solid waste are incinerator units subject to § 129 **even if they recover thermal energy**, unless they meet limited statutory exclusions.
  - Moves units previously considered “boilers” to the “incinerator” category.

# FUEL VS. WASTE DISTINCTION

- Materials defined as solid wastes subject to stricter incineration standards of CAA § 129.
- Materials defined as fuel subject to less strict boiler standards of CAA § 112.
- Materials now categorized as fuels:
  - Scrap tires
  - Resinated wood residuals
  - Abandoned coal refuse

# AREA SOURCE INDUSTRIAL, COMMERCIAL & INSTITUTIONAL RULE

- This category covers boilers located at area source facilities that burn coal, oil, or biomass, or non-waste materials, but not boilers that burn only gaseous fuels or any solid waste.
- The final rule establishes standards to address emissions of mercury, particulate matter (PM) (as a surrogate for non-mercury metals), and carbon monoxide (CO) (as a surrogate for organic air toxics).
- All area source facilities with large boilers are required to conduct an energy assessment to identify cost-effective energy conservation measures.
- Rule will become effective 60 days after date of final publication of rule in Federal Register.
- Compliance Dates:
  - New sources must comply on date of publication of rule in Federal Register or upon start-up.
  - Existing sources must comply within 3 years of date of publication of rule in Federal Register.

# AREA SOURCE INDUSTRIAL, COMMERCIAL & INSTITUTIONAL RULE

Category	Fuel Source	Regulated Pollutant	New Source	Existing Source
Area Source	<ul style="list-style-type: none"> <li>• Coal</li> <li>• Oil</li> <li>• Biomass</li> <li>• Non-waste</li> </ul>	<ul style="list-style-type: none"> <li>• Mercury</li> <li>• Particulate matter</li> <li>• Carbon monoxide</li> </ul>	<ul style="list-style-type: none"> <li>• Coal fired, <math>\geq 10</math> MMBtu/hr must meet emissions limits for all 3 pollutants</li> <li>• Oil or biomass fired, <math>\geq 10</math> MMBtu/hr must meet emissions limits for PM</li> <li>• Boilers <math>&lt; 10</math> MMBtu/hr must perform tune-up every 2 years</li> </ul>	<ul style="list-style-type: none"> <li>• Coal fired, <math>\geq 10</math> MMBtu/hr must meet emission limits for mercury and CO</li> <li>• Oil, biomass or small boilers, no emission limits but work practice standard</li> </ul>

# AREA SOURCE INDUSTRIAL, COMMERCIAL & INSTITUTIONAL RULE

- Key changes from proposed rule:
  - Changed CO limits for biomass and oil-fired area source boilers from requiring maximum achievable technology to generally available control technology – now standard based on management practices of tune-ups.
  - Changed requirements for new small units to a work practice standard instead of emission limits.

# MAJOR SOURCE INDUSTRIAL, COMMERCIAL & INSTITUTIONAL RULE

Category	Fuel Source	Regulated Pollutant	Work Practice Standard for Both New & Existing Sources
Major Source	<ul style="list-style-type: none"> <li>• Natural gas</li> <li>• Refinery gas</li> </ul>	<ul style="list-style-type: none"> <li>• No numeric emissions limits</li> </ul>	<ul style="list-style-type: none"> <li>• Annual tune-up</li> <li>• &lt; 10 MMBtu/hr, tune-up every 2 years</li> </ul>
Major Source	<ul style="list-style-type: none"> <li>• All other fuels</li> </ul>	<ul style="list-style-type: none"> <li>• Mercury</li> <li>• Dioxin</li> <li>• PM (surrogate non-mercury metals)</li> <li>• Hydrogen chloride (surrogate acid gases)</li> <li>• Carbon monoxide (surrogate non-dioxin organic air toxics)</li> </ul>	<ul style="list-style-type: none"> <li>• &gt; 10 MMBtu/hr, monitor oxygen as measure for good combustion</li> </ul>
Major Source	<ul style="list-style-type: none"> <li>• Limited use boilers (operate &lt; 10% of year)</li> </ul>	<ul style="list-style-type: none"> <li>• No numeric emissions limits</li> </ul>	<ul style="list-style-type: none"> <li>• Tune-up every 2 years</li> </ul>

# MAJOR SOURCE INDUSTRIAL, COMMERCIAL & INSTITUTIONAL RULE

- **Monitoring and Assessment Requirements:**
  - The final rule requires monitoring to assure compliance with emission limits. The largest major source boilers must continuously monitor their particle emissions as a surrogate for metals such as lead and chromium. All units larger than 10 MMBtu/hr must monitor oxygen as a measure of good combustion. The final rule also requires monitoring to assure the boiler and pollution controls are operating within appropriate parameters.
  - Existing major source facilities are required to conduct a one-time energy assessment to identify cost-effective energy conservation measures.
- Rule will become effective 60 days after date of final publication of rule in Federal Register.
- **Compliance Dates:**
  - New ore reconstructed sources must comply within 60 days after date of publication in Federal Register or upon start-up.
  - Existing sources must comply no later than 3 years after date of publication in Federal Register.

# MAJOR SOURCE INDUSTRIAL, COMMERCIAL & INSTITUTIONAL RULE

- Key changes from proposed rule:
  - Created a solid fuel category instead of separate biomass and coal subcategories for PM, mercury, and HCl. Biomass fuel emissions are generally lower in mercury and HCl than coal emissions.
  - Units burning gases other than natural gas and refinery gas can qualify for work practice standards by demonstrating that their fuel contaminant levels are similar to natural gas.
  - Added subcategories for combination suspension/grate burners, limited-use units, and non-continental liquid units.
  - Replaced emissions limits with work practice standards for new boilers with a heat input capacity less than 10 MMBtu/hr and extended work practice standards to limited-use units.
  - Added work practice standards, in lieu of numeric emission limits, for periods of startup and shutdown.

# COMMERCIAL AND INDUSTRIAL SOLID WASTE INCINERATION UNITS RULE

- CISWI unit is any device used to burn solid waste at a commercial or industrial facility.
- The emission limits will require reductions for 85 of the 88 currently operating CISWI.
- The units will need to comply no later than three years after EPA approves a state plan to implement these standards or by February 21, 2016, whichever is earlier.
- CISWI units must either comply with the emission limits in the final rule (*i.e.*, install add-on controls to capture emissions), or use alternative waste disposal options such as diverting waste to a landfill.

# COMMERCIAL AND INDUSTRIAL SOLID WASTE INCINERATION UNITS RULE

CISWI Subcategory	Regulated Pollutant	Other Requirements
<ul style="list-style-type: none"> <li>• Incinerators</li> <li>• Energy Recovery Units</li> <li>• Waste Burning Kilns</li> <li>• Small Incinerators in Remote Locations</li> </ul>	<ul style="list-style-type: none"> <li>• mercury</li> <li>• lead</li> <li>• cadmium</li> <li>• hydrogen chloride</li> <li>• particulate matter</li> <li>• carbon monoxide</li> <li>• dioxins / furans</li> <li>• nitrogen oxides</li> <li>• sulfur dioxide</li> </ul>	<ul style="list-style-type: none"> <li>• Stack testing</li> <li>• Monitoring</li> <li>• Additional monitoring for new sources</li> <li>• Annual inspections of emission control devices</li> <li>• Annual visible emissions test of ash handling operations</li> <li>• Owner/operators to follow certain procedures for test data submittal</li> </ul>

# COMMERCIAL AND INDUSTRIAL SOLID WASTE INCINERATION UNITS RULE

- Key changes from proposed rule:
  - Further subcategorized the Energy Recovery Units (ERUs) to create two subcategories (solid and liquid ERUs).
  - Limited fuel switching provisions to prevent sources from switching more frequently than every 6 months (to avoid bouncing between boiler and CISWI categories).
  - Removed cyclonic burn barrels from the definition of an incinerator.
  - Provided a process for waiving civil penalties for emissions during unavoidable malfunctions.

# SEWERAGE SLUDGE INCINERATOR RULE

- SSI unit is an incinerator or combustion device used to burn dewatered sewage sludge, typically located at wastewater treatment facilities.
- Units incinerating sewage sludge at other types of facilities (e.g., commercial, industrial, and institutional) will be covered under different air pollution incineration standards.
- The final rules cover two SSI subcategories based on the type of incinerator: multiple hearth (MH) and fluidized bed (FB).
- Effective date of rule is earlier of:
  - 5 years after date of publication of final rule in Federal Register.
  - 3 years after effective date of state plan approval.

# SEWERAGE SLUDGE INCINERATOR RULE

SSI Subcategories	Regulated Pollutant	Other Requirements
<ul style="list-style-type: none"><li>• Multiple Hearth</li><li>• Fluidized Bed</li></ul>	<ul style="list-style-type: none"><li>• mercury</li><li>• lead</li><li>• cadmium</li><li>• hydrogen chloride</li><li>• particulate matter</li><li>• carbon monoxide</li><li>• dioxins/furans</li><li>• nitrogen oxides</li><li>• sulfur dioxide</li></ul>	<ul style="list-style-type: none"><li>• Testing</li><li>• Monitoring</li><li>• Recordkeeping</li><li>• Operator training</li><li>• Reporting</li></ul>

# SEWERAGE SLUDGE INCINERATOR RULE

- Key changes from proposed rule:
  - Clarifying the applicability to state that this rule applies only to sources that combust sewage sludge at wastewater treatment facilities treating domestic sewage sludge;
  - Revising the subcategories for new multiple hearths (MH) to be consistent with the subcategory for existing MH;
  - Revising the baseline emissions, costs, and impacts based on new information received. This revision resulted in a determination that the beyond-the-floor emission limits for mercury for the MH subcategory were no longer cost-effective; and
  - Revising the requirements for opacity to no longer require opacity for sources subject to parametric monitoring and annual testing.

# FUTURE OF THE CURRENT RULE

- Potential for legal challenges from industry or environmental groups to the final rule.
- EPA issued Reconsideration Notice same day it released the rule.
  - Clean Air Act § 307(d)(7)(B) allows for administrative reconsideration of final rules.

# FUTURE OF THE CURRENT RULE

- EPA identified the following areas for reconsideration:
  - Revisions to the proposed subcategories in the major source boilers rule.
  - Establishment of a fuel specification in the major source boilers rule 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.
  - Establishment of standards for biomass and oil-fired area source boilers based on generally available control technology.
  - Revision of the proposed subcategory for energy recovery units for CISWI units.
  - Establishment of limitations on fuel switching provisions for CISWI units.
  - Revision to the proposed definition of CISWI to exclude cyclonic burn barrels.
  - Providing an affirmative defense for malfunction events for major and area source boilers and for CISWI units.
  - Revisions to the proposed monitoring requirements for carbon monoxide for major source boilers and for CISWI units.
  - 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 and CISWI units.
  - Establishing a definition of “homogenous waste” in the CISWI rule.
  - Setting PM standards under generally available control technology for oil-fired area source boilers.
  - Certain findings regarding the applicability of Title V permitting requirements for area source boilers.

# FUTURE OF THE CURRENT RULE

- Legal implications of Reconsideration:
  - Reconsideration does not necessarily postpone the effectiveness of the rule.
  - Effectiveness may be stayed by EPA Administrator or court during reconsideration, not to exceed period of 3 months.

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