
**STATUS OF EPA's
MACT RULEMAKINGS
FOR
BOILERS**

**CIBO Environmental, Energy &
Technical Committee Meeting
December 9, 2008**

Rulemakings

- Boiler MACT

- Industrial, Commercial, and Institutional Boiler and Process Heater NESHAP
- Subpart DDDDD of part 63
 - Promulgated – September 13, 2004
 - Vacated by Court – July 30, 2007
- Applies to boilers at major sources of HAP

- Area Source Rulemaking for Boilers

Overview of Section 112

- Mandates that EPA develop standards for hazardous air pollutants (HAP) for both major and area sources listed under section 112(c)
- Definitions
 - Major source is a facility that emits or has PTE 10 tons per year of single HAP or 25 tpy of total HAP
 - Area source is a facility that is not a major source
- Standards are based on maximum achievable control technology (MACT)
- Sets minimum stringency criteria (MACT Floor)
- Allows EPA to establish work practice requirements

MACT Floor

- **For existing sources:**

- “The average emission limitation achieved by the best performing 12 percent of existing sources..”

- **For new sources, the MACT floor is:**

- “The emission control achieved in practice by the best controlled similar source...”

Vacated Boiler MACT - Background

- Promulgated on September 13, 2004
 - Proposal Date – January 13, 2003
 - Compliance Date - September 13, 2007
 - **Vacated on July 30, 2007**
 - Source categories included:
 - Industrial Boilers
 - Institutional/Commercial Boilers
 - Process Heaters
 - Boilers not covered
 - Any boiler specifically listed as an affected source in another standard under part 63 or in another standard under section 129.
 - Boilers located at an area source of HAP
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Vacated Boiler MACT Litigation

- Litigation
 - Jointly filed by NRDC and Sierra Club
 - Combined with litigation on the CISWI Definition Rule
 - Issues
 - Failed to establish limits for all subcategories and HAP
 - “No emission reductions” MACT floor
 - Adopted individualized risk-based exemptions
 - Health-based compliance alternatives
 - Regulated solid waste incineration units under the Boiler MACT, instead of the CISWI rule
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LITIGATION

- March 13, 2007 - Brick Decision
 - “no emission reduction” MACT floors unlawful
 - Cannot use work practice without making finding required by 112(h)
 - Not practicable to enforce due to technical or economic limitations
 - June 19, 2007 – Boiler MACT Decision
 - Vacated CISWI Definition Rule
 - Could not define “solid waste” based on type of combustion unit
 - Vacated Boiler MACT
 - Court concluded that the Boiler MACT would be substantially revised due to vacatur of CISWI Definition Rule
 - Did not rule on Boiler MACT issues
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Boiler MACT - Revision

■ Schedule

- Parallel court-ordered schedules for Boiler MACT and area source boiler rule
 - Proposal – July 15, 2009
 - Promulgation – July 15, 2010

■ Revisions

- Define solid waste
 - EPA's Office of Solid Waste is leading the development of a definition of non-hazardous solid waste
 - Remove waste-burning units from Boiler MACT database
 - Reassess emission limits
 - In accordance with recent court decisions
 - Develop MACT floor “emission limits” for subcategories and HAP currently having no emission standards
 - Replace “no control floors”
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ICR

- ICR purpose is to address the court decisions
 - Revise population of affected units under section 112 and 129
 - Update existing emissions database
- ICR is for major source facilities with boilers and facilities with CISWI units
- ICR has two phases
 - First phase: survey
 - Questionnaire to collect info on materials combusted, controls, and emissions
 - Timing
 - Mailout August 15, 2008
 - Responses due in 45 days
 - Sent to all facilities (~3,000) that were subject to Boiler MACT
 - Sent to about 500 CISWI facilities
 - Second phase: testing
 - Up to 350 facilities

Summary of Available Emissions Tests from Survey (Based on ~1500 Responses)

Fuel	HAP	# of Boilers	# of Data Points	Data GAP?	No. of Fuel Analyses
Coal	PM	88	305	NO	--
	HCl	75	242	NO	246
	Hg	60	198	NO	229
	CO	22	75	NO?	--
	Metals	38	117	NO	146
Oil	PM	35	119	NO	--
	HCl	3	9	YES	25
	Hg	0	0	YES	14
	CO	37	166	NO?	--
	Metals	1	3	YES	13
Gas	CO	50	135	NO?	--
Biomass	PM	46	174	NO	--
	HCl	16	53	NO	148
	Hg	19	52	NO	160
	CO	46	184	NO?	--
	Metals	19	54	NO	180

Fuels/Materials Combusted at Facilities

Adulterated wood fines	painted, plywood particleboard	Spent sulfuric acid
Animal Fat/Oils/Tallow	pallets and 2x4s	Sun Flower Hulls, Oat Hulls, Other Crop Residue, and Ag Feedstock By-prod
Brewer's spent grains	pitch residue	Tall oil, tall oil derivatives
Chipped Railroad Ties	Non Chlorinated Polyolefin Plastics	Tar
chipped up wood pallets & crates	Office Papers	Tire Derived Fuel (TDF)
Construction/Demolition Derived Material	Oil Booms	Tires (whole)
Corn Seed	Oily rags	Turpentine
Corrugate Cardboard or Container Scraps	On-spec waste oil	Used crankcase and gearbox oils
Cotton seed hulls	Paint Rags/Residues	Used oil
creosote treated wood	Paper and Paper Residues	Vegetable Oil
Deinking residuals	Plant-based Agricultural Residue	Waste Derived Liquid Fuel
Dewatered dairy manure solids	Plastics	Waste Oil
Dewatered sludge from Wastewater Treatmentl	plywood sanderdust	Wastewater Treatment Residuals
Fish Oil	Primary Clarifier Sludge	Wax
Fuel cubes (paper diaper clippings/refuse)	process waste from OSB manufacture	urban wood
ground toilet seats	Railroad ties	Wood Pellets
broiler litter, turkey litte, brooder litter..	Recycle Fiber Sludge	Wood: treated
solids from papermaking and deinking operations	Refuse	Wood: Painted or Varnished
Industrial Commercial or Municipal Sludge	Scrap Soybean Oil	Wood: Plywood, Particleboard (containing glues or resins)
Knots and Knotter Rejects	Screen rejects	
Laminate waste from sanders	Spent Alcohol	

Boiler MACT – MACT Floor

- Based on surrogates
 - PM – for non-mercury metals
 - Mercury – mercury
 - HCl – for acid gases
 - CO – for organic HAP

 - Based on control technology
 - Control technology = best performing
 - Lowest emitting = best performing

 - MACT Floor Technology Basis
 - PM/metals = Fabric Filters
 - Mercury = Fabric Filters
 - HCl = Wet Scrubber
 - CO = GCP (CO limit/monitoring)
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Boiler MACT

Emissions Limits – Existing Units

- Vacated Boiler MACT
 - Existing large solid fuel units
 - PM or TSM
 - HCl
 - Hg
 - No limit for CO
 - Existing limited use solid fuel units
 - PM
 - No limit for Hg, HCl, CO
 - No emissions standards (MACT floor was “**no emission reduction**”) for
 - existing small solid fuel units
 - existing liquid fuel units
 - existing gaseous fuel units

Boiler MACT

Emission Limits – New Units

- **Vacated Boiler MACT**
 - **New solid fuel units**
 - PM or TSM, HCl, Hg
 - CO (not for small units)
 - **New liquid fuel units**
 - PM, HCl,
 - CO (not for small units)
 - No limit for Hg
 - **New gaseous fuel units**
 - CO (not for small units)

Boiler MACT - Subcategories

- Vacated Boiler MACT
 - Three main subcategories based on fuel type:
 - Solid fuel units
 - Liquid fuel units
 - Gaseous fuel units
 - Further subcategorized based on size and use
 - Large (Greater than 10 MM Btu/hr heat input)
 - Small (less than 10 MM Btu/hr)
 - Limited-use (less than 10% capacity factor)
 - Total of 9 subcategories
- Revised Boiler MACT
 - Maybe just 4 subcategories
 - Coal, biomass, liquid, gas
 - Maybe by sectors

Boiler Area Source Rulemaking

- Source categories
 - Industrial boilers
 - Institutional/Commercial boilers
- Projected population = 1.3 million boilers
 - Many small businesses and nontraditional sources
 - Generally not been subjected to regulation/permitting, so little is known about them.
 - Mostly gas-fired, but many do combust wood or coal
- Schedule
 - Court-ordered promulgation date – December 15, 2007
 - Proposal – delayed due to court decisions
 - Proposal by July 15, 2009
 - Promulgation by July 15, 2010

Area Source Provisions

- Section 112(d)(5) allows for area source standards based on GACT (Generally Available Control Technology)
 - Major source standards are based on MACT
 - Under GACT may consider costs and economic impacts

 - Focus of standards is on the 30 Urban HAP

 - Section 112(c)(6) requires listed categories be subject to MACT
 - Both industrial boilers and institutional/commercial boilers are on list of 112(c)(6) source categories
 - Mercury
 - POM

 - Section 112(h) allows EPA to promulgate a work practice standard, if it is not feasible to enforce an emission standard
 - Not feasible means the application of measurement methodology is not practicable due to technical or economic limitations

 - May exempt area sources from Title V if compliance would be impracticable, infeasible, or unnecessarily burdensome
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Boiler Area Source Options Being Considered

- Mercury & POM
 - MACT emission limits
 - Carbon monoxide (CO) limit as surrogate for POM
 - Work practice standard
 - Allowed under section 112(h)
 - Good combustion controls
 - Annual tune-up
 - Energy audits
 - Other HAP (metals, organic HAP)
 - GACT emission limits
 - PM as surrogate for metals
 - CO as surrogate for organic HAP
 - GACT work practice standard
 - Good combustion controls
 - Annual tune-up
 - Energy audits
 - Installation of energy efficient boiler (New boilers)
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INFORMATION AND CONTACT

- Information on the MACT and area source rulemakings for industrial, commercial, and institutional boilers is available on EPA's web site at:
 - www.epa.gov/ttn/atw/combust/list.html
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