

BOILER AREA MACT
40 CFR PART 63 SUBPART JJJJJJ

Applicability: Industrial Boilers used in manufacturing processing, mining, refining or other industry.

Commercial Boilers used in stores/malls, laundries, apartments, restaurants, and hotels/motels.

Institutional Boilers used in medical centers (hospitals, clinics, nursing homes) educational and religious facilities and government buildings (courthouses, prisons, etc.).

Boilers Regulated based upon fuel used (coal, oil, or biomass).

Emission Limits are established for particulate matter (PM), mercury and carbon monoxide.

Implementation Dates - Three years for units subject to emission limits or an energy assessment.

One year for units with new work practice standard requirements.

After June 4, 2010, upon startup for new units, or 60 days from rule publication.

EMISSION STANDARDS

	Mercury lb/mmBtu	CO ppmv
Existing Coal Fired (10 mmBTU/hr. or greater)	.0000048	<400 (dry basis corrected to 3% O ₂)

Compliance with emission limits for other existing units are demonstrated by following work practice standards summarized below.

WORK PRACTICE STANDARDS

New or Existing Coal Fired <10 mmBTU/hr.	Biennial tune-up (63.11223)
New or Existing Biomass or Oil	Biennial tune-up (63.11223)
Existing Coal, Biomass, or Oil (10 mmBTU/hr. or greater)	One time energy assessment (on or after 01/01/2008)
New in Existing Coal Fired (10 mBTU/hr. or greater)	Minimize startup and shutdown periods following the manufacturer's recommended procedures

Limits for new units are included in Table 1 at the end of this summary followed by the June 4, 2010 proposed limits.

TUNE-UP REQUIREMENTS

A summary of the tune-up standards and a few important definitions related to these work practice standards are included below.

- (1) 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).
- (2) 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.
- (3) Inspect the system controlling the air-to-fuel ratio, as applicable, and ensure that it is correctly calibrated and functioning properly.
- (4) Optimize total emissions of carbon monoxide. This optimization should be consistent with the manufacturer's specifications, if available.
- (5) 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).
- (6) Maintain on-site and submit, if requested by the Administrator, biennial reports containing the information in paragraphs (b) (6) (i) through (iii), of this section.
 - (i) The concentrations of CO in the effluent stream in parts per million, by volume, and oxygen in volume percent, measured before and after the tune-up of the boiler.
 - (ii) A description of any corrective actions taken as a part of the tune-up of the boiler.
 - (iii) The type and amount of fuel used over the twelve months prior to the biennial tune-up of the boiler.
- (7) 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.

IMPORTANT DEFINITIONS IN THE RULE

Oil subcategory includes any boiler that burns any liquid fuel and is not in either the biomass or coal subcategories. Gas-fired boilers that burn liquid fuel during periods of gas curtailment, gas supply emergencies, or for periodic testing, not to exceed 48 hours during any calendar year, are not included in this definition.

Energy assessment means the following only as this term is used in Table 3 to this Subpart:

- (1) Energy assessment for facilities with affected boilers using less than 0.3 trillion Btu (TBtu) per year heat input will be one day in length maximum. The boiler system and energy use system accounting for at least 50 percent of the affected boiler(s) energy output will be evaluated to identify energy savings opportunities, within the limit of performing a one-day energy assessment.
- (2) Energy assessment for facilities with affected boilers and process heaters using 0.3 to 1 TBtu/year will be three days in length maximum. The boiler system(s) and energy use system(s) accounting for at least 33 percent of the affected boiler(s) energy output will be evaluated to identify energy savings opportunities, within the limit of performing a three-day energy assessment.
- (3) Energy assessment for facilities with affected boilers and process heaters using greater than 1.0 TBtu/year, the boiler system(s) and any energy use system(s) accounting for at least 20 percent of the affected boiler(s) energy output will be evaluated to identify energy savings opportunities.

Qualified Energy Assessor means a specialist in evaluating energy systems, such as, a person who has successfully completed the Department of Energy's Qualified Specialist program for all systems, Certified Energy Managers certified by the Association of Energy Engineers, or a person who has demonstrated capabilities to perform and evaluate a full assessment of energy savings opportunities available for boiler and energy use systems and technical expertise and tools to estimate cost and energy savings.

Steam and energy use systems include, but are not limited to:

- a. Boiler combustion management.
- b. Boiler thermal energy recovery.
 1. Conventional feedwater economizer.
 2. Conventional combustion air preheater.
 3. Condensing economizer.

- c. Boiler blowdown thermal energy recovery.
- d. Primary energy resource selection.
 - 1. Fuel (primary energy source) switching.
 - 2. Applied steam energy versus direct-fired energy versus electricity.
- e. Insulation issues.
- f. Steam trap and steam leak management.
- g. Condensate recovery.
- h. Steam end-use management.

Capabilities and knowledge includes, but is not limited to:

- a. Background, experience, and recognized abilities to perform the assessment activities, data analysis, and report preparation.
- b. Familiarity with operating and maintenance practices for steam or process heating systems.
 - 1. Additional potential steam system improvement opportunities including improving steam turbine operations and reducing steam demand.
 - 2. Additional process heating system opportunities including effective utilization of waste heat and use of proper process heating methods.
 - 3. Boiler-steam turbine cogeneration systems.
 - 4. Industry specific steam end-use systems.

presented, along with the GACT emission limits for PM (as a surrogate for urban metals), in Table 1 of this preamble. The units are pounds of PM or mercury per million British thermal units (lb/MMBtu) and ppm for CO.

Table 1. Emission Limits for Area Source Boilers

Subcategory	Heat Input (MMBtu/h)	Pollutants	Emission Limits
New coal-fired boiler	≥ 30	a. Particulate Matter	0.03 lb per MMBtu of heat input.
		b. Mercury	0.0000048 lb per MMBtu of heat input.
		c. Carbon Monoxide	400 ppm by volume on a dry basis corrected to 3 percent oxygen.
	≥ 10 and < 30	a. Particulate Matter	0.42 lb per MMBtu of heat input.
		b. Mercury	0.0000048 lb per MMBtu of heat input.
		c. Carbon Monoxide	400 ppm by volume on a dry basis corrected to 3 percent oxygen.
New biomass-fired boiler	≥ 30	Particulate Matter	0.03 lb per MMBtu of heat input.
	≥ 10	Particulate Matter	0.07 lb per MMBtu of heat

	and < 30		input.
New oil-fired boiler	≥ 30	Particulate Matter	0.03 lb per MMBtu of heat input.
	≥ 10 and < 30	Particulate Matter	0.03 lb per MMBtu of heat input.
Existing coal-Fired boiler	≥ 10	a. Mercury	0.0000048 lb per MMBtu of heat input.
		b. Carbon Monoxide	400 ppm by volume on a dry basis corrected to 7 percent oxygen.

The emission limits for PM apply only to new boilers. The emission limits for mercury and CO apply only to boilers in the coal subcategory; the emission limits for existing area source boilers in the coal subcategory are applicable only to area source boilers that have a designed heat input capacity of 10 million MMBtu/h or greater.

If your boiler burns any solid fossil fuel and no more than 15 percent biomass on a total fuel annual heat input basis, the boiler is in the coal subcategory. If your boiler burns at least 15 percent biomass on a total fuel annual heat input basis, the unit is in the biomass subcategory. If your boiler burns any liquid fuel and is not in either the coal or the biomass subcategory, the unit is in the oil subcategory, except if the unit burns oil only during periods of gas curtailment.

IV. Summary of This Proposed Rule

A. Do the proposed standards apply to my source?

This proposed rule applies to you if you own or operate a boiler combusting coal, biomass, or oil located at an area source. The standards do not apply to boilers that are subject to another standard under 40 CFR part 63 or to a standard developed under CAA section 129.

This proposed rule applies to you if you own or operate a boiler combusting natural gas, located at an area source, which switches to combusting coal,

biomass, or oil after the date of proposal.

B. What is the affected source?

The affected source is the collection of all existing boilers within a subcategory located at an area source facility or each new boiler located at an area source facility.

C. When must I comply with the proposed standards?

The owner or operator of an existing source would be required to comply with the rule no later than 3 years after the date of publication of the final rule in the **Federal Register**. The owner or operator of a new source would be

required to comply upon the date of publication of the final rule in the **Federal Register** or startup of the facility, whichever is later.

D. What are the proposed MACT and GACT standards?

Emission standards expressed in the form of emission limits are being proposed for new and existing area source boilers. The proposed MACT emission limits for mercury and CO (as a surrogate for POM) are presented, along with the proposed GACT standards for PM (as a surrogate for urban metals), in Table 1 of this preamble.

TABLE 1—EMISSION LIMITS FOR AREA SOURCE BOILERS
[Pounds per million British thermal units heat input]

Source	Subcategory	Particulate matter (PM)	Mercury	Carbon monoxide (CO) (ppm)
New Boiler	Coal	0.03	3.0E-06	310 (@ 7% oxygen).
	Biomass	0.03		100 (@ 7% oxygen).
	Oil	0.03		1 (@ 3% oxygen).
Existing Boiler	Coal		3.0E-06	310 (@ 7% oxygen).
	Biomass			160 (@ 7% oxygen).
	Oil			2 (@ 3% oxygen).

The emission limits for existing area source boilers are only applicable to area source boilers that have a designed heat input capacity of 10 million British thermal units per hour (MMBtu/h) or greater. If your boiler burns at least 10 percent coal on a total fuel annual heat input basis, the boiler is in the coal fuel subcategory. If your boiler burns biomass or biomass in combination with a liquid or gaseous fuel, the unit is in the biomass subcategory. If your boiler burns oil, or oil in combination with a gaseous fuel, the unit is in the oil subcategory, except if the unit burns oil only during periods of gas curtailment.

As allowed under CAA section 112(h), a work practice standard is being proposed for existing area source boilers that are units with designed heat input capacity of less than 10 MMBtu/h. The work practice standard for existing small area source boilers requires the implementation of a tune-up program.

An additional standard is being proposed for existing area source facilities having an affected boiler with a designed heat input capacity of 10 MMBtu/h or greater that requires the performance of an energy assessment, by qualified personnel, on the boiler and the facility to identify cost-effective energy conservation measures.

E. What are the Startup, Shutdown, and Malfunction (SSM) requirements?

The United States Court of Appeals for the District of Columbia Circuit vacated portions of two provisions in EPA's CAA section 112 regulations governing the emissions of HAP during periods of startup, shutdown, and malfunction (SSM). *Sierra Club v. EPA*, 551 F.3d 1019 (D.C. Cir. 2008), cert. denied, 2010 U.S. LEXIS 2265 (2010). Specifically, the Court vacated the SSM exemption contained in 40 CFR 63.6(f)(1) and 40 CFR 63.6(h)(1), that are part of a regulation, commonly referred to as the "General Provisions Rule," that EPA promulgated under section 112 of the CAA. When incorporated into CAA Section 112(d) regulations for specific source categories, these two provisions exempt sources from the requirement to comply with the otherwise applicable CAA section 112(d) emission standard during periods of SSM.

Consistent with *Sierra Club v. EPA*, EPA has established standards in this rule that apply at all times. EPA has attempted to ensure that we have not incorporated into proposed regulatory language any provisions that are inappropriate, unnecessary, or redundant in the absence of an SSM exemption. We are specifically seeking comment on whether there are any such provisions that we have inadvertently incorporated or overlooked. We also

request comment on whether there are additional provisions that should be added to regulatory text in light of the absence of an SSM exemption and provisions related to the SSM exemption (such as the SSM plan requirement and SSM recordkeeping and reporting provisions).

In establishing the standards in this rule, EPA has taken into account startup and shutdown periods and, for the reasons explained below, has not established different standards for those periods. The standards that we are proposing are daily or monthly averages. Based upon continuous emission monitoring data, obtained as part of the information collection effort for the major source boiler and process heater rulemaking, which included periods of startup and shutdown, over long averaging periods, startups and shutdowns will not affect the achievability of the standard. Boilers, especially solid fuel-fired boilers, do not normally startup and shutdown more than once per day. Thus, we are not establishing a separate emission standard for these periods because startup and shutdown are part of their routine operations and, therefore, are already addressed by the standards.

Periods of startup, normal operations, and shutdown are all predictable and routine aspects of a source's operations. However, by contrast, malfunction is