SMALL ENTITY COMPLIANCE GUIDE
FOR
MAJOR SOURCE BOILERS
AND
PROCESS HEATERS

National Emission Standards for Hazardous Air Pollutants for Major Sources:
Industrial, Commercial, and Institutional Boilers and Process Heaters

40 CFR Part 63, Subpart DDDDD

NOTICE

This guide was prepared pursuant to section 212 of the Small Business Regulatory Enforcement Fairness Act of 1996 (SBREFA), Pub. L. 104-121 as amended by Pub. L. Number 110-28. THIS DOCUMENT IS NOT INTENDED, NOR CAN IT BE RELIED UPON, TO CREATE ANY RIGHTS ENFORCEABLE BY ANY PARTY IN LITIGATION WITH THE UNITED STATES. The statements in this document are intended solely as guidance to aid you in complying with the NESHAP for Major Sources: Industrial, Commercial, and Institutional Boilers and Process Heaters, 40 CFR Part 63, Subpart DDDDD.

The full text of the rule and additional information are available online at
http://www.epa.gov/ttn/atw/boiler/boilerpg.html

ABOUT THIS GUIDE

The U.S. Environmental Protection Agency (EPA) published this document as a compliance guide for small entities, as required by the Small Business Regulatory Enforcement Fairness Act. The guide is designed to help small businesses determine if and how they are affected by the National Emission Standards for Hazardous Air Pollutants (NESHAP) for Major Sources: Industrial, Commercial, and Industrial Boilers and Process Heaters, commonly, and throughout this document, referred to as the "Boiler MACT."

Who should use this guide?

If you own or operate a boiler or process heater, then you should use this guide. This guide will help you determine if and how your boiler or process heater is affected by the Boiler MACT.

How do I use this guide?

This guide is organized into four major sections:

- **SECTION 1: INTRODUCTION** presents three rules that were published on March 21, 2011 and amended in early 2013 that affect owners and operators of boilers, process heaters, and incinerators that burn solid waste at industrial and commercial facilities. The section presents an overview of the rules, identifies the types of affected sources, and presents the current status of the rules.
- **SECTION 2: SUMMARY OF THE BOILER MACT RULE** summarizes the requirements of the Boiler MACT.
- **SECTION 3: HOW TO COMPLY** helps you determine your subcategory, which is based on your boiler's fuel, type, and date of construction. The section also describes five overall tasks that you have to complete, depending on your subcategory.
- **SECTION 4: OTHER INFORMATION** presents the estimated benefits and costs of the Boiler MACT, provides compliance assistance resources, and tells you where to obtain additional information on the rule.

This guide is intended to summarize rule requirements and provide some examples and clarifications where EPA anticipates that small entities will have questions about rule requirements. Throughout this guide, citations to the actual regulatory text are referenced for both the Boiler MACT and the applicable overarching requirements from the General Provisions. You can use the Electronic Code of Federal Regulations (e-CFR) to find the appropriate sections regulatory language cited in this guide.

- To access the e-CFR regulatory text for the Boiler MACT or for the General Provisions go to: www.ecfr.gov.

TABLE OF CONTENTS

Page

LIST OF TABLES

Page

1.0 INTRODUCTION

1.1 Background on Boilers and CISWI Rules

This section will help you determine what regulations cover different types of boilers.

EPA published three final air emissions standards in the Federal Register on March 21, 2011. They will reduce emissions of air pollutants from:

- Boilers and process heaters at major sources of air toxics ("major sources")
- Boilers not at major sources of air toxics ("area sources")
- Commercial and Industrial Solid Waste Incinerators (CISWI)

Under the Clean Air Act, EPA classifies sources by the amount of toxic pollution they emit. A "major source" facility emits 10 or more tons per year of any single air toxic (i.e., hazardous air pollutant) or 25 or more tons per year of any combination of hazardous air pollutants (HAP). Any facilities that are not major sources are classified as area sources.

For more information on how to estimate the amount of emissions from your source, see the EPA Emission Inventory Improvement Program document, "Preferred and Alternative Methods for Estimating Air Emissions from Boilers" (http://www.epa.gov/ttn/chief/eiip/techreport/volume02/ii02.pdf). Chapters 4 and 5 show emissions calculation methods.

Boilers burn coal and other substances such as oil, biomass (e.g., wood), or natural gas to produce steam or hot water, which is then used to generate energy or for heating.

Process heaters burn fuels indirectly to heat a process material (liquid, gas, or solid) for use in a process unit. Process heaters are devices in which the combustion gases do not come into direct contact with process materials.

The majority of **major source boilers and process heaters** are located at industrial facilities such as refineries, chemical and manufacturing plants, and paper mills. However, some also provide heat for commercial facilities, such as warehouses, or institutional facilities, such as universities.

In contrast, the majority of **area source boilers** are located at commercial and institutional facilities, such as medical centers, schools, or municipal buildings. But, area source boilers can also be used in manufacturing, processing, mining, refining, or any other industry.

Boilers or process heaters that combust any material identified as a non-hazardous solid waste are subject to air emission standards for incinerators rather than for boilers, with limited exceptions. This means that owners or operators must first determine whether the combustion unit is subject to one of the boiler standards or to the incinerator standards.

Boilers at commercial and industrial facilities that combust solid waste are most likely subject to air emission standards for Commercial and Industrial Solid Waste Incinerators (CISWI). The CISWI rule does not differentiate between major and area sources. More information on this rule can be found at http://www.epa.gov/ttn/atw/129/ciwi/ciwipg.html.

1.2 Rule Reconsideration

On March 21, 2011, EPA announced that it planned to reconsider the major and area source boiler rules, as well as the CISWI rule. This allowed EPA time to seek and review additional public input on the final standards for boilers and certain solid waste incinerators. The agency reconsidered the standards because the public did not have sufficient opportunity to comment on some of the provisions of the final rules. As a result, further public review and feedback was required to meet the legal obligations under the Clean Air Act. On January 31, 2013, the EPA published in the Federal Register amendments to the March 21, 2011 final Boiler MACT rule. These amendments addressed specific issues and provisions the EPA had identified for reconsideration.

Amendments to the Boiler Area Source NESHAP were published in the Federal Register on February 1, 2013.

Amendments to the CISWI rule were published in the Federal Register on February 7, 2013.

2.0 SUMMARY OF THE BOILER MACT

2.1 Who is affected by this rule?

The Boiler MACT rule covers boilers and process heaters located at major source facilities that burn coal, oil, biomass, natural gas, or other solid, liquid, and gaseous non-waste materials. Most boilers and process heaters covered by the Boiler MACT are located at industrial facilities, with a smaller amount in the commercial and institutional sectors.

The Boiler MACT rule does **NOT** apply to boilers and process heaters that burn any solid waste.

Industrial boilers are found in manufacturing, processing, mining, refining or any other industry. Commercial boilers include those found in amusement parks and stores/malls. Institutional boilers are found in many locations, including medical centers (hospitals), educational facilities (universities), military installations, and municipal buildings (courthouses, prisons).

2.2 Am I subject to this rule?

You are subject to the Boiler MACT if you own or operate an industrial, commercial, or institutional boiler or process heater that is located at, or is part of, a facility that is classified as a major source of hazardous air pollutants (HAP).

A "major source" HAP facility emits 10 or more tons per year of any single air toxic or 25 or more tons per year of any combination of air toxics. The list of air toxics is available on the EPA website at: http://www.epa.gov/ttnatw01/orig189.html. Any facilities that are not major sources of HAP are classified as area sources. See the EPA Emission Inventory Improvement Program document, "Preferred and Alternative Methods for Estimating Air Emissions from Boilers," at:

Reminder: Although this guidance document provides sample calculations for estimating emissions from boilers, you must estimate the emissions from all HAP-emitting combustion equipment and processes at your facility to determine whether your source is major or area.

http://www.epa.gov/ttn/chief/eiip/techreport/volume02/ii02.pdf. Chapters 4 and 5 provide information on how to estimate emissions from your source.

The following major source units are NOT subject to the Boiler MACT:

- An electric utility steam generating unit (EGU) covered by subpart UUUUU of part 63 (i.e., the MATS rule).
- Hot water heaters with a capacity of no more than 120 U.S. gallons or a hot water boiler with a heat input capacity of 1.6 million British thermal units per hour (MMBtu/hr) or less.
- Waste heat boilers, also known as heat recovery steam generators (these boilers recover traditionally unused energy and convert it to usable heat).
- Boilers that are used as control devices for other NESHAP standards, where at least 50 percent of the heat input to the boiler is provided by the NESHAP regulated gas stream.
- Research and development boilers.
- Boilers subject to other NESHAP standards, Section 129 standards, or hazardous waste boilers.
- A recovery boiler or furnace covered by subpart MM.
- Temporary boilers.[1]
- Residential boilers. [2]

2.3 Summary of Requirements

The EPA is regulating major source boilers and process heaters based on four components: the type of fuel burned, whether the unit is new or existing, the design type of the unit, and the size

[1] *Temporary boiler* means any gaseous or liquid fuel boiler that is designed to, and is capable of, being carried or moved from one location to another. A boiler is not a temporary boiler if the boiler remains at a location within the facility and performs the same or similar function for more than 12 consecutive months.

[2] *Residential boiler* means a boiler used to provide heat and/or hot water for a dwelling containing four or fewer families, or a single unit residence dwelling that has since been converted or subdivided into condominiums or apartments.

of the unit. Boilers are designed differently depending on what kind of fuel they burn- coal, oil, biomass, or gas. The final rule sets different requirements for boilers and process heaters based on their size, which is defined as follows:

- Large major source boilers and process heaters have a heat input capacity equal to or greater than 10 million British thermal units per hour (MMBtu/hr).
- Small major source boilers and process heaters have a heat input capacity less than 10 MMBtu/hr.
- Existing units commenced construction on or before June 4, 2010.
- New units commenced construction after June 4, 2010.

Table 1: Summary of Boiler MACT Emission Limits and Work Practice Requirements

Subcategory			Summary of Requirement
Existing large major source boilers and process heaters	i.e., commenced construction or reconstruction of the unit on or before June 4, 2010; heat input capacity of 10 MMBtu/hr or greater	Clean Gas (Natural gas, refinery gas)	• Tune-up every year[a] • One-time energy assessment • No numeric emission limits
		Coal, Biomass, Oil, and Process Gas	• Numeric emission limits for mercury (Hg), carbon monoxide (CO), hydrogen chloride (HCl), and either particulate matter (PM) or total selected metals (TSM)[b] • Tune-up every year[a] • One-time energy assessment
		Limited-Use[c]	• Tune-up every 5 years • No numeric emission limits
Existing small major source boilers and process heaters	i.e., commenced construction or reconstruction of the boiler on or before June 4, 2010; less than 10 MMBtu/hr	Coal, Biomass, Oil, and Gas	• Tune-up every other year[d] • No numeric emission limits • One-time energy assessment
		Limited-Use	• Tune-up every 5 years • No numeric emission limits
New large major source boilers and process heaters	i.e., commenced construction/reconstruction after June 4, 2010; 10 MMBtu/hr or greater	Clean Gas (Natural gas, refinery gas)	• Tune-up every year[a] • No numeric emission limits
		Coal, Biomass, Oil, and Process Gas	• Numeric emission limits for Hg, CO, HCl, and PM (or TSM)[b] • Tune-up every year[a]
		Limited-Use	• Tune-up every 5 years • No numeric emission limits

Subcategory			Summary of Requirement
New small major source boilers and process heaters	i.e., commenced construction/reconstruction after June 4, 2010; less than 10 MMBtu/hr	Coal, Biomass, Oil, and Gas	• Tune-up every other year[d] • No numeric emission limits
		Limited-Use	• Tune-up every 5 years • No numeric emission limits

[a] Except for boilers and process heaters with continuous oxygen trim system which conduct a tune-up every 5 years.
[b] *Total selected metals (TSM)* means the sum of the following metallic hazardous air pollutants: arsenic, beryllium, cadmium, chromium, lead, manganese, nickel and selenium.
[c] *Limited-use boiler or process heater* means any boiler or process heater that burns any amount of solid, liquid, or gaseous fuels and has a federally enforceable average annual capacity factor of no more than 10 percent.
[d] Except for boilers or process heaters with a continuous oxygen trim system, or have a heat input capacity of less than or equal to 5 million Btu per hour in any of the following subcategories: unit designed to burn gas 1; unit designed to burn gas 2 (other); or unit designed to burn light liquid. These units conduct a tune-up every 5 years.

Table 2: Required Emission Limits for Major Source Boilers and Process Heaters

Subcategory	Hg, lb/TBtu	HCl, Lb/MMBtu	CO, ppm @ 3% O2	PM lb/MMbtu OR (TSM, lb/MMBtu)
All new and existing small units (<10 MMBtu/hr)	--	--	--	--
New Large Pulverized Coal	0.8	0.022	130 (stack test) **OR** 320[a] (CEMS – 30-day rolling average)	0.0011 **OR** (0.000023)
New Large Coal-fired Stoker	0.8	0.022	130 (stack test) **OR** 340 [a] (CEMS – 30-day rolling average)	0.0011 **OR** (0.000023)
New Large Coal-fired Fluidized Bed	0.8	0.022	130 (stack test) **OR** 230 [a] (CEMS – 30-day rolling average)	0.0011 **OR** (0.000023)
New Large Coal-fired Fluidized Bed with integrated heat exchanger	0.8	0.022	140 (stack test) **OR** 150 [a] (CEMS – 30-day rolling average)	0.0011 **OR** (0.000023)
New Large Wet Biomass Stoker	0.8	0.022	620 (stack test) **OR** 390 [a] (CEMS – 30-day rolling average)	0.030 **OR** 0.000026

Subcategory	Hg, lb/TBtu	HCl, Lb/MMBtu	CO, ppm @ 3% O2	PM lb/MMbtu OR (TSM, lb/MMBtu)
New Large Kiln-dried Biomass Stoker	0.8	0.022	460 (stack test)	0.030 **OR** 0.0040
New Large Biomass Fluidized Bed	0.8	0.022	230 (stack test) **OR** 310 [a] (CEMS – 30-day rolling average)	0.0098 **OR** 0.000083
New Large Biomass Suspension Burner	0.8	0.022	2,400 (stack test) **OR** 2,000 [a] (CEMS – 10-day rolling average)	0.030 **OR** 0.0065
New Large Biomass Dutch Oven/Pile Burner	0.8	0.022	330 (stack test) **OR** 520 [a] (CEMS – 10-day rolling average)	0.0032 **OR** 0.000039
New Large Biomass Fuel Cell	0.8	0.022	910 (stack test)	0.020 **OR** 0.000029
New Large Biomass Hybrid Suspension Grate	0.8	0.022	1,100 (stack test) **OR** 900 [a] (CEMS – 30-day rolling average)	0.026 **OR** 0.00044
New Large Heavy Liquid	0.48	0.00044	130	0.013 **OR** 0.000075
New Large Light Liquid	0.48	0.00044	130	0.0011 **OR** 0.000029
New Large Liquid Non-continental [b]	0.48	0.00044	130	0.023 **OR** 0.00086
New Large Gas 2 (other) Gases [c]	7.9	0.0017	130	0.0067 **OR** 0.00021
Existing Large Pulverized Coal	5.7	0.022	130 (stack test) **OR** 320 [a] (CEMS – 30-day rolling average)	0.040 **OR** (0.000053)

Subcategory	Hg, lb/TBtu	HCl, Lb/MMBtu	CO, ppm @ 3% O2	PM lb/MMbtu OR (TSM, lb/MMBtu)
Existing Large Coal-fired Stoker	5.7	0.022	160 (stack test) **OR** 340 [a] (CEMS – 30-day rolling average)	0.040 **OR** (0.000053)
Existing Large Coal-fired Fluidized Bed	5.7	0.022	130 (stack test) **OR** 230 [a] (CEMS – 30-day rolling average)	0.040 **OR** (0.000053)
Existing Large Wet Biomass Stoker	5.7	0.022	1,500 (stack test) **OR** 720 [a] (CEMS – 30-day rolling average)	0.037 **OR** 0.00024
Existing Large Kiln-dried Biomass Stoker	0.8	0.022	460 (stack test)	0.32 **OR** 0.0040
Existing Large Biomass Fluidized Bed	0.8	0.022	470 (stack test) **OR** 310 [a] (CEMS – 30-day rolling average)	0.11 **OR** 0.0012
Existing Large Biomass Suspension Burner	0.8	0.022	2,400 (stack test) **OR** 2,000 [a] (CEMS – 10-day rolling average)	0.051 **OR** 0.0065
Existing Large Biomass Dutch Oven/Pile Burner	0.8	0.022	770 (stack test) **OR** 520 [a] (CEMS – 10-day rolling average)	0.28 **OR** 0.0020
Existing Large Biomass Fuel Cell	0.8	0.022	1,100 (stack test)	0.020 **OR** 0.0058
Existing Large Biomass Hybrid Suspension Grate	0.8	0.022	2,800 (stack test) **OR** 900 [a] (CEMS – 30-day rolling average)	0.44 **OR** 0.00045
Existing Large Heavy Liquid	2.0	0.0011	130	0.062 **OR** 0.00020
Existing Large Light Liquid	2.0	0.0011	130	0.0079 **OR** 0.000062

Subcategory	Hg, lb/TBtu	HCl, Lb/MMBtu	CO, ppm @ 3% O2	PM lb/MMbtu OR (TSM, lb/MMBtu)
Existing Large Liquid Non-continental[b]	2.0	0.0011	130	0.27 **OR** 0.00086
Existing Large Gas 2 (other) Gases[c]	7.9	0.0017	130	0.0067 **OR** 0.00021

[a] To demonstrate compliance with the applicable alternative CO CEMS emission standard, you must install, certify, operate, and maintain a CO CEMS and an oxygen analyzer.
[b] A *non-continental unit* means an industrial, commercial, or institutional boiler or process heater meeting the definition of the unit designed to burn liquid subcategory located in the State of Hawaii, the Virgin Islands, Guam, American Samoa, the Commonwealth of Puerto Rico, or the Northern Mariana Islands.
[c] Gas 2 (other) Gases are gaseous fuels other than burns only natural Gas and refinery gas.

Appendix A of this guide also provides a detailed summary of the Boiler MACT requirements by subcategory and tasks to complement the requirements are outlined in Section 3 of this compliance guide.

2.4 When Do I Need to Comply?

Example notification forms can be found under "Implementation Tools" at http://www.epa.gov/ttn/atw/boiler/boilerpg.html, and include information on compliance assistance contacts. Notification forms are not required to be submitted electronically.

Initial Notification of Applicability: (§63.9(b)(2))

- May 31, 2013, if startup was before January 31, 2013 (§63.7545(b))
- If startup is on or after January 31, 2013, then within 15 days after startup (§63.7545(c))

Compliance Dates (§63.7495)

- New Sources (constructed or reconstructed after June 4, 2010) must comply by January 31, 2013 or upon startup, whichever is later.
- Existing sources must comply by January 31, 2016
- Existing area sources that become major sources must comply within 3 years from the date the source becomes a major source.

Initial Notification of Compliance Status: (§63.7545(e)-(h))

You may be required to submit any of the below notification forms. See Section 3.3 for more details.

- If your source must conduct a performance test, a Notification of Intent must be submitted at least 60 days before the performance test is scheduled to begin. (§63.7545(d)).

- If your source is required to conduct initial compliance demonstrations, you must submit a Notification of Compliance Status form, including all performance test results and fuel analyses, before the close of business on the 60th day following the completion of all performance tests and/or other initial compliance demonstrations. (§63.7545(e)).

- If you operate a unit designed to burn natural gas, refinery gas, or other gas 1 fuels[3] and you intend to use a different gaseous fuel subject to another regulation or another gas 1 fuel to fire the unit during a period of natural gas curtailment or supply interruption (as defined in § 63.7575), you must submit a Notification of Alternative Fuel Use within 48 hours of the declaration of each period of natural gas curtailment or supply interruption. (§63.7545(f)).

- If you intend to burn solid waste, you must provide 30 days notice prior to the date when you will commence or recommence combustion of solid waste. (§63.7545(g).

- If you have switched fuels or made a physical change to the boiler and the change caused the unit to fall under a different subcategory of the rule, you must provide notice of the change within 30 days. (§63.7545(h).

Table 3: Summary of Compliance Dates

Subcategory	Submit Initial Notification of Applicability by…	Submit Initial Notification of Compliance Status by…	Complete Initial Tune-ups by…	Complete Energy Assessment by…	Demonstrate Compliance with Emission Limits by…	Prepare Compliance Certification Report by…
Existing Large (10 MMBtu/hr and greater)						
All Existing Large Units other than Gas 1 Units	5/31/2013	Within 60 days following completion of all performance tests and/or other compliance demonstrations	1/31/2016	1/31/2016	7/29/2016	1st report submitted by 1/31/2017. Semiannual reports submitted July 31 or January 31 (first date after semiannual reporting period[a])

[3] *Other gas 1 fuel* means a gaseous fuel that is not natural gas or refinery gas and does not exceed a maximum mercury concentration of 40 micrograms/cubic meter.

Table 3: Summary of Compliance Dates

Subcategory	Submit Initial Notification of Applicability by…	Submit Initial Notification of Compliance Status by…	Complete Initial Tune-ups by…	Complete Energy Assessment by…	Demonstrate Compliance with Emission Limits by…	Prepare Compliance Certification Report by…
All Existing Large Gas 1 Units	5/31/2013	Within 60 days following completion of all compliance demonstrations	1/31/2016	1/31/2016	--	1st report submitted by 1/31/2017. Annual or 5-year compliance reports submitted by January 31
Existing Small (< 10 MMBtu/hr)						
All Existing Small Units and Limited-Use Units	5/31/2013	Within 60 days following completion of all compliance demonstrations	1/31/2016	1/31/2016	--	1st report submitted by 1/31/2017. Annual, biennial, or 5-year compliance reports submitted by January 31
New Large (10 MMBtu/hr or greater)						
New Large Units other than Gas 1 Units	5/31/2013 or within 15 days of startup if actual startup on or after 1/31/2013	Within 60 days following completion of all performance test and/or other compliance demonstrations	--	--	7/30/2013 or within 180 days after startup, whichever is later	1st report submitted by July 31 or January 31 (first date after the end of the first calendar year half after the compliance date) Semiannual reports submitted by July 31 or January 31 (first date after semiannual reporting period[a])

Table 3: Summary of Compliance Dates

Subcategory	Submit Initial Notification of Applicability by…	Submit Initial Notification of Compliance Status by…	Complete Initial Tune-ups by…	Complete Energy Assessment by…	Demonstrate Compliance with Emission Limits by…	Prepare Compliance Certification Report by…
New Large Gas 1 Units	5/31/2013 or within 15 days of startup if actual startup on or after 1/31/2013	--	--	--	--	1st report submitted by January 31 that is at least 1 or 5 years after the compliance date. Annual or 5-year reports submitted by January 31
New Small (≥ 10 MMBtu/hr)						
All New Small Units and Limited-Use Units	5/31/2013 or within 15 days of startup if actual startup on or after 1/31/2013	--	--	--	--	1st report must be submitted by January 31 that is at least 1, 2, or 5 years, after the compliance date. Annual , biennial, or 5-year compliance reports submitted by January 31

[a] The semiannual reporting periods are from January 1 through June 30 and from July 1 through December 31.

3.0 HOW TO COMPLY

Appendix A of this guide summarizes what you must do to comply. Your requirements depend on the subcategory of your boiler or process heater. To determine your requirements, take the following steps:

1. Determine your subcategory using the six questions in the next section.

2. Based on your subcategory, determine which tasks you must complete.

3.1 How Do I Determine my Subcategory?

To determine your subcategory, you must answer six questions:

- What fuels are combusted in my boiler or process heater?
- What design type is my boiler or process heater?
- What percentage of the annual heat input is supplied by each fuel type?
- Is my boiler or process heater a new source or an existing source?
- What size is my boiler or process heater?
- What is the annual capacity factor of the boiler or process heater?

3.1.1 Fuel and Design Type Subcategory

You must determine your subcategory on an *annual heat input basis,* or the actual heat input for all the fuels combusted during the 12 months preceding the tune-up or compliance test. The following steps provide an example calculation for an annual heat input basis, as well as a list of suitable methods for determining the appropriate fuel subcategory for your boiler or process heater. First we provide some definitions used in the steps below and definitions of the different combustor designs.

Annual heat input basis means the actual heat input for fuels combusted during the 12 months preceding the tune-up or compliance test.

Biomass subcategories: Includes any boiler or process heater that burns at least 10 percent biomass on an annual heat input basis.

Coal subcategories: Includes any boiler or process heater that burns at least 10 percent solid fossil fuel (e.g., coal, petroleum coke, tire derived fuel) and no more than 10 percent biomass on an annual heat input basis.

Liquid fuel subcategories: Includes any boiler and process heater that burns any liquid fuel, no more than 10 percent solid fossil fuels, and no more than 10 percent biomass on an annual heat input basis.

Gas 1 subcategory: Includes any boiler or process heater that burns only natural gas, refinery gas, or other gas 1 fuels with the exception of liquid fuels burned during gas curtailments and supply emergencies or for periodic testing (not to exceed 48 hours in a calendar year).

Gas 2 subcategory: Includes any boiler or process heater that is not in the Gas 1 subcategory and burns any gaseous fuels in combination with less than 10 percent solid fossil fuel, less than 10 percent biomass, and less than 10 percent liquid fuel on an annual heat input basis.

Pulverized coal subcategory: *Pulverized coal boiler* means a boiler in which pulverized coal or other solid fossil fuel is introduced into an air stream that carries the fuel to the combustion chamber of the boiler where it is fired in suspension.

Stoker subcategories: *Stoker* means a unit consisting of a mechanically operated fuel feeding mechanism, a stationary or moving grate to support the burning of fuel and admit under-grate air to the fuel, an overfire air system to complete combustion, and an ash discharge system.

Fluidized bed subcategories: *Fluidized bed boiler* means a boiler using a fluidized bed combustion process that is not a pulverized coal boiler. Fluidized bed combustion is a process where a fuel is burned in a bed of granulated particles which are maintained in a mobile suspension by the upward flow of air and combustion products.

Suspension burner subcategory: *Suspension burner* means a unit designed to fire dry biomass solid particles that are blown into the furnace like in the pulverized coal subcategory. Combustion of the fuel material is completed on a grate or floor below. The biomass fuel combusted in the unit shall not exceed 20 percent moisture on an annual heat input basis.

Dutch Oven/Pile burner subcategory: *Dutch oven* means a unit having a refractory-walled cell connected to a conventional boiler. Fuel materials enter through an opening in the roof of the dutch oven and burn in a pile on its floor. *Pile burner* means a boiler design where the fuel has a high relative moisture content (typically biomass). Grates support the fuel allowing underfire air to flow up through the grates and provide oxygen for combustion, cool the grates, promote turbulence in the fuel bed, and fire the fuel.

Fuel Cell subcategory: *Fuel cell* means a boiler where the fuel is dropped onto suspended fixed grates and is fired in a pile. The refractory-lined fuel cell uses combustion air preheating and positioning of secondary and tertiary air injection ports to improve boiler efficiency.

Hybrid suspension grate subcategory: *Hybrid suspension grate boiler* means a boiler designed with air distributors to spread the fuel material over the entire width and depth of the boiler combustion zone. The biomass fuel combusted in these units exceeds moisture content of 40 percent on an as-fired basis. The drying and much of the combustion of the fuel takes place in suspension, and the combustion is completed on the grate or floor of the boiler.

Limited-Use subcategory: *Limited-use boiler or process heater* means any boiler or process heater that has a federally enforceable average annual capacity factor of no more than 10 percent.

How do I determine the fuel subcategory of my boiler or process heater on an annual heat input basis?

A boiler's or process heater's fuel subcategory is determined on an annual heat input basis using the fuel consumed in the 12 months before the compliance demonstration. The calculation requires you to estimate a high heat value (HHV) for each fuel. This rule provides several options to estimate HHV: you may obtain the data from your fuel supplier, use the calculation methodologies in the EPA greenhouse gas (GHG) reporting program (40 CFR part 98, subpart C), or conduct site-specific testing.

The following example shows the four-step process to determine the fuel category for a boiler with a designed heat input capacity of 100 MMBtu per hour, operated 8,400 hours per year, at a load of 90%.

Step 1: Calculate an Annual Fuel Consumption Total

	Bituminous Coal (tons)	Wood and Wood Residuals (tons)	No. 2 Fuel Oil (gallons)	Natural Gas (cubic feet)
January	0	0	89,930	49,259,010
February	0	0	329,610	17,053,550
March	680	2,990	0	0
April	780	2,830	0	0
May	470	3,330	0	0
June	490	3,310	0	0
July	0	0	1,830	61,098,340
August	190	3,780	0	0
September	720	2,940	0	0
October	620	3,080	0	0
November	0	0	322,300	18,035,050
December	0	0	36,070	56,497,570
Total	**3,950**	**22,260**	**779,740**	**201,943,520**

Step 2: Multiply the Total Annual Consumption by the Heating Value of Each Fuel

The table below is an excerpt from the GHG reporting program [40 CFR Part 98 Subpart C, Table C–1 Default CO_2 Emission Factors and High Heat Values for Various Types of Fuel]. Other published sources of HHV may also be used.

	Default High Heat Value (HHV)		
	(MMBtu/short ton)	(MMBtu/scf)	(MMBtu/gallon)
Bituminous Coal	24.93	-	-
Wood and Wood	15.38	-	-
Distillate Fuel Oil No. 2	-	-	0.138
Natural Gasoline	-	1.03E-03	-

Step 1 total x HHV	Bituminous Coal	Wood and Wood Residuals	Distillate Fuel Oil No. 2	Natural Gas
Fuel Usage	98,641	342,359	107,604	207,396

Step 3: Calculate an Annual Consumption Total for All Fuels.

All Fuels	
Grand Total (mmBtu)	755,999

Step 4: Calculate an Annual Consumption Total.

	Bituminous Coal	Wood and Wood	No. 2 Fuel Oil	Natural Gas
% of Total	13%	45%	14%	27%

This boiler or process heater is in the biomass subcategory because it burns at least 10% biomass on an annual heat input basis. You should repeat these calculations before every compliance demonstration (e.g. tune-up or performance test).

3.1.2 New vs. Existing Sources

You have an existing source if you commenced construction or reconstruction of the boiler or process heater on or before June 4, 2010. You have commenced construction or reconstruction if you have a contractual obligation to undertake and complete construction or have begun the act of construction on the boiler or process heater.

You have a new source if you commenced construction or reconstruction of the boiler or process heater after June 4, 2010 and you met the applicability criteria at the time you commenced construction.

3.1.3 Unit Size

Boiler or process heater size is expressed in terms of rated design heat input capacity and is measured in million British thermal units per hour, or MMBtu/hr.

To determine the size of your boiler or process heater, check the nameplate on the boiler or process heater. The nameplate often lists the rated heat input capacity on the unit. This rated capacity may have also been reported to the insurer of the boiler or process heater or to the state labor and safety inspector.

3.1.4 Annual Capacity Factor

Limited-use boiler or process heater means any boiler or process heater that burns any amount of solid, liquid, or gaseous fuels and has a federally enforceable average annual capacity factor of no more than 10 percent.

Annual capacity factor means the ratio between the actual heat input to a boiler or process heater from the fuels burned during a calendar year and the potential heat input to the boiler or process heater had it been operated for 8,760 hours during a year at the maximum steady state design heat input capacity.

3.2 Which Tasks Must I Complete?

Based on your subcategory (i.e. fuel, combustor type, new/existing, size considerations), use Appendix A to determine which tasks you must complete. The task requirements are summarized below.

Task 1: Submit initial notifications

Task 2: Comply with work practice standards

Task 3: Meet emission limits

Task 4: Keep records

Task 5: Submit other notifications and reports

3.3 Task 1: Submit Initial Notifications

Owners and operators of a boiler or process heater must submit an initial Notification of Applicability and an initial Notification of Compliance Status.

See example forms at http://www.epa.gov/ttn/atw/boiler/boilerpg.html under "Implementation Tools."

Notification of Applicability. Submit a Notification of Applicability according to the following schedule:

Existing Sources: No later than May 31, 2013.

New Sources: **By** January 31, 2013, or within 15 days of startup of a new source, whichever is later.

The Notification of Applicability must contain the following information:

- The name and address of the owner or operator.
- The address (i.e., physical location) of the affected source.
- An identification of the relevant standard, or other requirement, that is the basis of the notification (i.e., 40 CFR part 63 subpart DDDDD) and the source's compliance date.
- Anticipated compliance date with the standard.
- A brief description of the nature, size, design, and method of operation of the source and an identification of the types of emission points within the affected source subject to the relevant standard and types of hazardous air pollutants emitted.
- A statement of whether the affected source is a major source or an area source.

Notification of Compliance Status. Submit the Notification of Compliance Status according to the following schedule:

Existing Sources:	No later than September 30, 2016 or within 60 days of completing the performance test and/or other initial compliance demonstrations, whichever is earlier
New Sources:	Within 60 days of completing the performance stack test and/or other initial compliance demonstrations.

The Notification of Compliance Status is your certification that your facility is in compliance with all the requirements of the rule.

You must keep a copy of each notification and report that you submit to comply with this rule, and all documentation supporting any Initial Notification of Applicability or Notification of Compliance Status that you submitted.

Table 4 outlines the certifications and other requirements included in the Notification of Compliance Status, as applicable, which must be signed by a responsible official to certify its accuracy.

Table 4: Notification of Compliance Status: Certifications and Other Requirements

If…	…then you must include the following statement in the Notification of Compliance Status…
You must conduct a tune-up	"This facility complies with the required initial tune-up according to the procedures in §63.7540(a)(10)."
You must conduct an energy assessment	"This facility has had an energy assessment performed according to §63.7530(e)."
Your boilers do not qualify for a statutory exemption as provided in Section 129(g)(1) of the Clean Air Act	"No secondary materials that are solid waste were combusted in any affected unit."
Your unit is subject to emission limits in subpart DDDDD. [a]	A description of the affected unit(s) including identification of the unit's subcategories, the design heat input capacity of the unit, a description of the add-on controls used to comply with this subpart, description of the fuel(s) burned, including if the fuel(s) were a secondary material determined to be a non-waste under § 241.3, and justification for the selection of fuel(s) burned during the compliance demonstration.
	Summary of the results of all performance tests and fuel analyses, and calculations done to demonstrate initial compliance including all established operating limits, and: (i) Identification of if you are complying with the PM emission limit or the alternative TSM emission limit. (ii) Identification of if you are complying with the output-based or heat input-based (i.e., lb/MMBtu or ppm) emission limits.
	A summary of the maximum CO emission levels recorded during the performance test to show you have met any applicable emission standards in Tables 1, 2, or 11 through 13 to this subpart, if you are not using a CO CEMS for compliance.
	Identification of if you plan to demonstrate compliance with each applicable emission limit through performance testing, a CEMS, or fuel analysis.
	Identification of if you plan to demonstrate compliance by emissions averaging or using efficiency credits through energy conservation.
	A signed certification that you have met all applicable emission limits and work practice standards.
You had a deviation from any emission limit, work practice standard, or operating limit,	A description of the deviation, the duration of the deviation, and the corrective action taken.

[a] If you are using data from a previously conducted emission test to serve as documentation of compliance with the emission standards and operating limits of this rule, then you must submit the previous test data instead of the initial performance test results with the Notification of Compliance Status.

3.4 Task 2: Comply with Work Practice Standards

3.4.1 Startup/Shutdown Procedures

During startup, boilers and process heaters that have emission limits must:

- Operate all continuous monitoring systems (CMS) and collect monitoring data,
- Use one or a combination of the following clean fuels: natural gas, synthetic natural gas, propane, distillate oil, syngas, ultra-low sulfur diesel, fuel oil-soaked rags, kerosene, hydrogen, paper, cardboard, refinery gas, or liquefied petroleum gas.
- When starting to fire coal or solid fossil fuel, biomass or bio-based solids, heavy liquid fuel, or gas 2 (other) gases, you must vent emissions to the main stack(s) and engage all of the applicable control devices except limestone injection in fluidized bed combustion (FBC) boilers, dry scrubbers, fabric filters, selective non-catalytic reduction (SNCR) systems, and selective catalytic reduction (SCR) systems.
- Start limestone injection in FBC boilers, dry scrubbers, fabric filters, SNCR systems, and SCR systems as expeditiously as possible, and
- Provide reports of activities during and periods of startup.

Startup begins either at the first-ever firing of fuel in a boiler or process heater for the purpose of supplying steam or heat for heating and/or producing electricity, or for any other purpose, or the firing of fuel in a boiler after a shutdown event for any purpose. Startup ends when any of the steam or heat from the boiler or process heater is supplied for heating, and/or producing electricity, or for any other purpose.

During shutdown, boilers and process heaters that have emission limits must:

- Operate all CMS and collect monitoring data
- While firing coal/solid fossil fuel, biomass/bio-based solids, heavy liquid fuel, or gas 2 (other) gases during shutdown, must vent emissions to the main stack(s) and operate all applicable control devices, except limestone injection in FBC boilers, dry scrubbers, fabric filters, SNCR systems, and SCR systems.
- Keep records of activities during periods of shutdown.

Shutdown begins either when none of the steam from the boiler is supplied for heating and/or producing electricity, or for any other purpose, or at the point of no fuel being fired in the boiler or process heater, whichever is earlier. Shutdown ends when there is no steam and no heat being supplied and no fuel being fired in the boiler or process heater.

3.4.2 Conduct Tune-ups

Boilers and process heaters subject to tune-up requirements must conduct a tune-up either annually, biennially (i.e., every 2 years), or every 5 years.

The following boilers and process heaters are required to have an annual tune-up:

- New and existing boilers and process heaters having a heat input capacity 10 MMBtu/hr or greater and without a continuous oxygen trim system.

The following boilers and process heaters are required to have a tune-up every 2 years:

- New or existing boiler or process heater without a continuous oxygen trim system and with heat input capacity of less than 10 million Btu per hour in the unit designed to burn heavy liquid or unit designed to burn solid fuel subcategories; or
- New or existing boiler or process heater with heat input capacity of less than 10 million Btu per hour, but greater than 5 million Btu per hour, in any of the following subcategories: unit designed to burn gas 1; unit designed to burn gas 2 (other); or unit designed to burn light liquid.

The following boilers and process heaters are required to have a tune-up every 5 years:

- New or existing boiler or process heater with a continuous oxygen trim system that maintains an optimum air to fuel ratio, or
- New or existing boiler or process heater with a heat input capacity of less than or equal to 5 million Btu per hour in any of the following subcategories: unit designed to burn gas 1; unit designed to burn gas 2 (other); or unit designed to burn light liquid, or
- A limited-use boiler or process heater.

You must complete the initial tune-up by the following dates:

***Existing Sources*:** No later than January 31, 2016

***New Sources*:** The first annual, biennial, or 5-year tune-up must be no later than 13 months, 25 months, or 61 months, respectively, after January 31, 2013 or the initial startup of the new or reconstructed affected source, whichever is later.

Each annual tune-up must be done no more than 13 months after the previous tune-up. Each biennial tune-up must be done no more than 25 months after the previous tune-up. Each 5-year tune-up must be done no more than 61 months after the previous tune-up.

See the Tune-up Guidance and Example Recordkeeping Form at http://www.epa.gov/ttn/atw/boiler/boilerpg.html under "Implementation Tools."

Table 5: Tune-up Requirements

Requirement	Description	Notes
Inspect the burner, as applicable	Clean or replace any burner components as necessary	This inspection can be delayed until the next scheduled unit shutdown, but you must inspect each burner at least once every 36 months.
Inspect and optimize the flame pattern as needed	Should be consistent with the manufacturer's specifications, if available	--
Inspect the air-to-fuel ratio control system	Ensure correct calibration and function	This inspection can be delayed until the next scheduled unit shutdown if needed
Optimize total emissions of CO	Should be consistent with the manufacturer's specifications and with any NOx requirement.	
Measure CO and oxygen levels before and after the tune-up adjustments are made	Report units in parts per million, by volume	Measurements may be either on a dry or wet basis as long as the same basis is used before and after the adjustments. Portable CO analyzer may be used.
Document actions and fuel use	Maintain records of: 1) CO and oxygen levels measured at high fire or typical operating load before and after tune-up, and 2) any improvements or actions taken during the boiler tune-up. Maintain monthly fuel records, for the 12 months preceding each tune-up.	

3.4.3 Conduct an Energy Assessment

Facilities must conduct a one-time energy assessment for all existing affected boilers and process heaters. The energy assessment includes:

1. A visual inspection of the boiler or process heater system (e.g. cracks, corrosion, leaks).
2. An evaluation of operating characteristics of the boiler or process heater system, specifications of energy using systems, operating and maintenance procedures, and unusual operating constraints.
3. Inventory of major systems consuming energy from affected boiler(s) and process heater(s).
4. A review of available architectural and engineering plans, facility operation and maintenance procedures and logs, and fuel usage.
5. A review of the facility's energy management practices with recommendations for improvements.
6. A list of cost-effective energy conservation measures.
7. A list of the energy savings potential of the energy conservation measures identified.
8. A comprehensive report detailing the ways to improve efficiency, the cost of specific improvements, benefits, and the time frame for recouping those investments.

NOTE: An energy assessment completed on or after January 1, 2008, that meets (or is amended to meet) the energy assessment requirements may be used instead of a new assessment.

The U.S. Department of Energy provides additional guidance on assessments at http://www1.eere.energy.gov/manufacturing/tech_deployment/energy_assessment.html.

The energy assessment applies to only existing affected boilers and process heaters and their energy use systems. An energy use system includes the following systems located on-site that use energy from the affected boiler or process heater: process heating; compressed air systems; machine drive (motors, pumps, fans); process cooling; facility heating, ventilation, and air conditioning (HVAC) systems; hot heater systems; the building envelope, and lighting.

The boiler or process heater and its energy use systems must be evaluated to identify energy savings opportunities, as identified in Table 6.

Table 6: Energy Assessment Duration Requirements

If your Affected Boilers and Process Heaters have a Combined Annual Heat Input Capacity, as measured in Trillion Btu/yr (TBtu/yr), of …	Then the length of the energy assessment should not exceed[1]…	And the energy assessment will include evaluation of energy use system(s) accounting for this percent of the energy output from these affected units…
Less than 0.3	8 on-site technical labor hours	At least 50%
0.3 to 1	24 on-site technical labor hours	At least 33%
Greater than 1.0	24 on-site technical labor hours for first 1.0 TBtu/year + 8 on-site technical labor hours for every additional 1.0 TBtu/year, not to exceed 160 on-site technical labor hours	At least 20%

[1]Longer assessments may be warranted at the discretion of the affected facility.

3.5 Task 3: Meet Emission Limits

3.5.1 What, When, and How Must I Monitor or Test?

Many types of major source boilers and process heaters do not have emission limits including:

- Existing and new small (<10 MMBtu/h) boilers and process heaters
- Existing and new limited-use boilers and process heaters
- Existing and new boilers and process heaters in the Gas 1 (e.g., natural gas, refinery gas) subcategory

Your specific emission limits depend on the subcategory that applies to your boiler or process heater (see Table 2 of this guide). Section 3.1 discusses how to determine what subcategory applies to your boiler or process heater.

If your boiler or process heater is subject to emission limits, you must demonstrate compliance according to the following schedule.

Initial compliance:

- Existing units: By January 31, 2016 + 180 days = July 29, 2016 (§63.7510(e))

- New units: January 31, 2013 + 180 days = July 30, 2013 or 180 days after startup, whichever is later (§63.7510(f))

Continuous compliance:

If your boiler or process heater is subject to emission limits, you must conduct a stack test every year. Each subsequent test should be no more than 13 months after the previous test.

- If your performance tests for a given pollutant show emissions at or below 75 percent of the limit for the pollutant for at least 2 consecutive years, and if there are no changes in the operation of the boiler or process heater or air pollution control equipment that could increase emissions, you can conduct performance tests for the pollutant every third year. Each test must be conducted no more than 37 months after the previous performance test. However, if you demonstrate compliance using emission averaging, you must continue to conduct annual tests. (§63.7515(b))

- If a performance test shows emissions exceeded the emission limit or 75 percent of the emission limit for a pollutant, you must conduct annual performance tests for that pollutant until all tests in a consecutive 2-year period are at or below 75 percent of the emission limit.

To demonstrate compliance with the emission limits, you must:

1. Conduct the boiler's or process heater's startup and shutdown periods to minimize emissions according to the work practice standard.
2. Develop and follow a site-specific testing plan.
3. Develop and follow a site-specific fuel monitoring plan.
4. Develop and follow a site-specific monitoring plan.
5. Conduct initial and annual performance tests for: mercury (Hg), carbon monoxide (CO)[4], hydrogen chloride (HCl), and either particulate matter (PM) or total selected metals (TSM).
6. Establish operating limits during the performance test.
7. Conduct initial and, if compliance based on fuel analysis, monthly fuel analysis for each type of fuel.
8. Monitor and collect data to demonstrate compliance with the operating limits.
9. Conduct performance evaluations of your continuous monitoring system(s).

As an alternative to performance stack testing for Hg, HCl, or TSM, you may conduct a fuel analysis to demonstrate that your fuel pollutant input is lower than the applicable emission limit. See Section 3.5.8 of this guide for more detail.

[4] Any boiler or process heater that has a CO CEMS that is compliant (i.re., certified) with Performance Specification 4, 4A, or 4B at 40 CFR part 60, appendix B must use the CO CEMS to comply with the applicable alternative CO CEMS emission standard.

3.5.2 Minimize Emissions During Startup and Shutdown

If your boiler or process heater is subject to an emission limit, then you must minimize emissions during startup and shutdown periods per the work practice procedures.

- Operate all CMS to collect monitoring data during periods of startup and shutdown,
- During startup use one or a combination of the following clean fuels: natural gas, synthetic natural gas, propane, distillate oil, syngas, ultra-low sulfur diesel, fuel oil-soaked rags, kerosene, hydrogen, paper, cardboard, refinery gas, and liquefied petroleum gas.
- Vent emissions to the main stack(s) and engage all of the applicable control devices [except limestone injection in fluidized bed combustion (FBC) boilers, dry scrubber, fabric filter, selective non-catalytic reduction (SNCR), and selective catalytic reduction (SCR)] when firing coal/solid fossil fuel, biomass/bio-based solids, heavy liquid fuel, or gas 2 (other) gases.
- Start limestone injection in FBC boilers, dry scrubber, fabric filter, SNCR, and SCR systems as expeditiously as possible.

3.5.3 Develop and Follow a Site-specific Testing Plan (§63.7520(a))

You must develop a site-specific test plan before conducting a required performance test. You do not have to submit the site-specific test plan to the EPA Administrator or delegated authority unless it is requested. You must keep a copy of the site-specific test plan as a record.

The site-specific test plan must include:

- Test program summary
- Test schedule
- Data quality objectives (pretest expectations of precisions, accuracy, and completeness)
- Internal and external quality assurance program.

3.5.4 Develop and Follow a Site-specific Monitoring Plan (§63.7505(d))

If you demonstrate compliance through performance stack testing and subsequent compliance with operating limits, then you must develop a site-specific monitoring plan. The monitoring plan is required for any continuous emissions monitoring system (CEMS), continuous opacity monitoring system (COMS), or continuous parameter monitoring system (CPMS). Collectively, these three types of continuous monitors are referred to as continuous monitoring systems (CMS) in the remainder of this section. A monitoring plan is also required if you petition the EPA

Can I Use an Existing Monitoring Plan?

A site-specific monitoring plan is not required if you have existing plans prepared under Appendix B to part 60 that apply to CEMS and COMS and meet the monitoring, installation, operation, and maintenance requirements of the Boiler MACT rule.

Administrator for alternative monitoring parameters under §63.8(f) of the General Provisions. In general, you must:

- Submit this site-specific monitoring plan at least 60 days before your initial performance evaluation of your CMS, if requested.
- Address §63.11205(c)(1)(i) through (vi) in your plan, which includes installation location, ongoing operation and maintenance procedures, ongoing data quality assurance procedures, and ongoing data quality assurance procedures.
- Conduct a performance evaluation of each CMS as outlined in your site-specific monitoring plan.
- Operate and maintain the CMS according to the site-specific monitoring plan.

3.5.5 Develop and Follow a Site-specific Fuel Monitoring Plan (§63.7521(b))

Before conducting a required performance test you must develop a site-specific fuel monitoring plan. You do not have to submit the plan to the EPA Administrator or delegated authority unless you intend to use an analytical method other than those required by Table 6 of the rule. You must keep a copy of the plan as a record.

The site-specific fuel monitoring plan must include:

- Identification of all fuel types anticipated to be burned
- Notification of whether you or a fuel supplier will be conducting the fuel analysis
- A detail description of the sample location and procedures for collecting and preparing the composite samples, if different from the procedures listed in the rule.
- Analytical methods and minimum detection levels to be used.

3.5.6 Develop and Follow an Implementation Plan for Emission Averaging (§63.7522)

If you choose to demonstrate compliance by using emission averaging, you must develop an implementation plan for emission averaging. You do not have to submit the plan to the EPA Administrator or delegated authority unless it is requested. You must keep a copy of the plan as a record.

The implementation plan must include:

- Identification of all existing boilers and process heaters in the averaging group, including the applicable HAP emission levels and the control technologies installed as of January 31, 2013
- Date on which emission averaging is to commence
- The process parameter that will be monitored for each averaging group

- The specific control technology or pollution prevention measure to be used for each boiler or process heater in the averaging group

- The test plan for measurement of emissions.

3.5.7 Conduct Initial and Annual Performance Tests

You must conduct an initial performance test to demonstrate initial compliance and to establish operating parameters that you will follow until the next performance test. Conduct subsequent performance tests every year (at least every 13 months)[5].

Conduct all performance tests according to the requirements and methods in Table 5 of subpart DDDDD, which specifies test methods for selecting sampling ports, determining stack gas velocity and flow rate, determining O_2 content, measuring moisture content, and measuring emissions. You must demonstrate initial compliance and establish your operating limits based on the performance stack tests.

Conduct performance stack tests at the typical operating conditions, while burning the type of fuel or mixture of fuels that have the highest emissions potential for each regulated pollutant. You must conduct a fuel analysis for each type of fuel burned in your boiler to determine the highest emissions potential for each regulated pollutant. (See Section 3.5.6 of this guide.) Units that use a supplemental fuel only for startup, unit shutdown, and transient flame stability purposes still qualify as units that burn a single type of fuel, and the supplemental fuel is not subject to the fuel analysis requirements

You may need to conduct more than one performance stack test This is because the requirement is to test at the representative operating load conditions while burning the type of fuel or mixture of fuels that have the highest emissions potential, for each regulated pollutant. Follow the requirements in the General Provisions, which include:

- Completing a test method performance audit during the performance test. (The performance audits consist of blind audit samples, supplied by an accredited audit sample provider and analyzed during the performance test, in order to provide a measure of test data bias.)
- Providing testing facilities that are adequate and safe to conduct stack testing.
- Conducting tests under representative conditions.

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[5] See §63.7515(b), if performance tests for a given pollutant for at least 2 consecutive years show emissions are at or below 75 percent of the emission limit for the pollutant, and if there are no changes in the operation or control equipment, may conduct performance tests for the pollutant every third year. Each such performance test must be conducted no more than 37 months after the previous performance test. If the performance test shows that emissions exceeded the emission limit or 75 percent of the emission limit, you must conduct annual performance tests for that pollutant until all performance tests over a consecutive 2-year period meet the required level (at or below 75 percent of the emission limit).

- Requesting to use an alternative test method, if desired.

In addition, you must follow these requirements:

- Conduct a minimum of three separate test runs for each performance stack test.
- Use EPA Method 19 (Appendix A-7 of part 60) to convert the measured particulate matter and mercury concentrations that result from the initial performance test into pounds per million Btu heat input emission rates.

3.5.8 Conduct Initial and Subsequent Fuel Analysis for Each Type of Fuel

Units demonstrating compliance with the Hg, HCl, or TSM emission limit through stack testing must conduct an initial fuel analysis for each type of fuel burned in your boiler.

- If you burn more than one fuel type, you must conduct a fuel analysis to determine the fuel type, or mixture, that would result in the maximum emission rates of Hg, HCl, or TSM using the procedures in Table 6 of subpart DDDDD and §63.7521.
- If you plan to burn a new type of fuel or fuel mixture, you must conduct a fuel analysis before burning the new fuel or mixture in your boiler. Recalculate the Hg, HCl, or TSM emission rate according to §63.7521 and Equation 15 of subpart DDDDD.
  - The resulting Hg, HCl, or TSM emission rate for the new type of fuel or fuel mixture must be less than the applicable emission limit.
  - If the pollutant concentration for the new fuel type or mixture is higher than for the fuel used during the previous performance test, then you must conduct a new performance test within 60 days of burning the new fuel type or mixture.
    - Boilers or process heaters that burn a single type of fuel are exempted from the requirement to conduct a fuel analysis.
    - Boilers or process heaters that use a supplemental fuel only for startup, unit shutdown, and transient flame stability purposes still qualify as affected boilers or process heaters that burn a single fuel type, and the supplemental fuel is not subject to the fuel analysis requirements.

As an alternative to stack testing for Hg, HCl, or TSM, you can demonstrate compliance using fuel analysis. To use this alternative, you must:

- Demonstrate that the calculated emission rate according to §63.7521(e) and Equation 15 of subpart DDDDD is less than the Hg, HCl, or TSM emission limit.
- Conduct a fuel analysis each month for each type of fuel burned, reduce the data to a 12-month rolling average, and maintain the 12-month rolling average at or below the emission limit.

- Conduct a fuel analysis before burning a new type of fuel or mixture in your boiler. Recalculate the Hg, HCl, or TSM emission rate according to §63.7521(e) and Equation 15 of subpart DDDDD. The resulting Hg, HCl, or TSM emission rate for the new type of fuel or fuel mixture must be less than the applicable emission limit.

To complete each fuel analysis, follow the procedures in §63.7521 and the methods in Table 6 of subpart DDDDD.

- At a minimum, you must obtain three composite fuel samples for each fuel type according to the procedures in Table 6 to subpart DDDDD. Each composite sample must consist of a minimum of three samples collected at approximately equal intervals during a two-hour period.
- Determine the concentration of Hg, chlorine, or TSM in the fuel in units of pounds per million Btu of each composite sample for each fuel type according to the procedures in Table 6 to subpart DDDDD.

3.5.9 Establish Operating Limits during the Performance Test

During the performance test, you must establish operating limits for your air pollution control device. Table 7 of subpart DDDDD specifies how to establish operating parameters.

Wet Scrubber:

- Establish the minimum (lowest hourly average measured) liquid flow rate and pressure drop as your operating limits during the three-run performance stack test. If you conduct multiple performance stack tests, you must set the minimum liquid flow rate and pressure drop operating limits at the highest minimum values established during the performance stack tests.

Electrostatic Precipitator Operated with a Wet Scrubber:

- Establish the minimum (lowest hourly average measured) total secondary electric power input determined from secondary voltage and secondary current.

Activated Carbon Injection:

- Establish the minimum activated carbon injection rate, which is the load fraction multiplied by the lowest hourly average activated carbon injection rate measured during the most recent performance test demonstrating compliance with the applicable emission limit.

Sorbent Injection:

- Establish the minimum sorbent injection rate, which is:
    1) The load fraction multiplied by the lowest hourly average sorbent injection rate for each sorbent measured during the most recent performance test demonstrating compliance with the applicable emission limits; or
    2) For fluidized bed combustion, the lowest average ratio of sorbent to sulfur measured during the most recent performance test.

Boilers with Fabric Filters That Demonstrate Continuous Compliance through Bag Leak Detection:

- Install, maintain, calibrate and operate the bag leak detection system.
- Operate the fabric filter such that the bag leak detection system alarm does not sound more than 5 percent of the operating time during a 6-month period.

Oxygen:

- Establish a minimum (lowest hourly average measured) oxygen level.

Operating Load:

- Establish a maximum (110% of highest hourly average measured) operating load.

3.5.10 Collect Data to Demonstrate Continuous Compliance with the Emission Limits

You must demonstrate continuous compliance with the emission limits and operating limits by continuously monitoring your operating parameters according to the methods in Table 8 of subpart DDDDD.

Opacity:

- Collect opacity data.
- Calculate 6-minute averages.
- Maintain opacity at 10 percent or less on a daily block average basis.

Fabric Filter Bag Leak Detection:

- Install, maintain, calibrate and operate the bag leak detection system.
- Operate the fabric filter such that the bag leak detection system alarm does not sound more than 5 percent of the operating time during a 6-month period.
- Initiate corrective action within 1 hour of alarm sounding. Keep records of corrective action.

Wet Scrubber Pressure Drop and Liquid Flow Rate:

- Collect pressure drop and liquid flow rate CMS data.
- Calculate 30-day rolling averages.
- Maintain 30-day rolling average at or above the operating limits from the performance test.

Wet Scrubber Pressure pH:

- Collect pH CMS data.
- Calculate 30-day rolling averages.
- Maintain 30-day rolling average at or above the operating limits from the performance test.

Dry Scrubber Sorbent or Carbon Injection Rate:

- Collect injection rate CMS data.
- Calculate 30-day rolling averages.
- Maintain 30-day rolling average at or above the operating limits from the performance test.

ESP Total Secondary Electric Power Input:

- Collect total secondary electric power input CMS data.
- Calculate 30-day rolling averages.
- Maintain 30-day rolling average at or above the operating limits from the performance test.

Oxygen Content:

- Collect the exhaust oxygen content CMS data.
- Calculate 30-day rolling averages.
- Maintain 30-day rolling average at or above the operating limits from the performance test.

Operating Load:

- Collect the operating load or steam generation CMS data.
- Calculate 30-day rolling averages.
- Maintain 30-day rolling average at or below the operating limits from the performance test.

Fuel Analysis:

- Collect monthly fuel analyses.
- Calculate 12-month rolling averages.
- Maintain 12-month rolling average at or below the applicable emission limit.

PM Continuous Parameter Monitoring System (CPMS):

- Collect the PM CPMS output data.
- Calculate 30-day rolling averages.
- Maintain 30-day rolling average at or below the operating limits from the performance test.

Sulfur Dioxide (SO_2) CEMS:

- Collect the SO_2 CEMS output data.
- Calculate 30-day rolling averages.
- Maintain 30-day rolling average at or below the operating limits from the performance test.

Out of Control Periods

A CMS is out of control if:

A. The zero (low-level), mid-level (if applicable), or high-level calibration drift (CD) exceeds two times the CD specification in the applicable performance specification or relevant standard; or

B. The CMS fails a performance test audit (e.g., cylinder gas audit), relative accuracy audit, relative accuracy test audit, or linearity test audit; or

C. The COMS CD exceeds two times the limit in the applicable performance specification in the relevant standard.

Malfunction

A monitoring system malfunction is any sudden, infrequent, not reasonably preventable failure of the monitoring system to provide valid data. Monitoring system failures that are caused by poor maintenance or careless operation are not malfunctions.

You must operate the monitoring system(s) and collect data *at all times* while the boiler or process heater is operating. Use all the data collected in assessing the operation of the control device and associated control system. However, ***you may not use data*** to demonstrate compliance recorded during:

- Startup and shutdown
- Monitoring system malfunctions or out-of-control periods (see definitions in box)
- Repairs associated with monitoring system malfunctions or out-of-control periods
- Required monitoring system quality assurance or quality control activities, including calibration checks and required zero and span adjustments

You must make monitoring system repairs due to monitoring system malfunctions or out-of-control periods and return the monitoring system to operation as quickly as possible. Failure to collect required data is a deviation of the monitoring requirements. (See definition of deviation at §63.7575.)

3.5.11 Conduct Performance Evaluations of Your Continuous Monitoring System(s)

CO limit:

- If your boiler has a CO limit, you must install, operate, and maintain a continuous oxygen monitor at the outlet of the boiler, **OR**

- If you choose to comply with the alternative CO CEMS emission standard, you must install, certify, operate, and maintain a CO CEMS and an oxygen analyzer according to the procedures under Performance Specification 4, 4A, or 4B at 40 CFR part 60, Appendix B.

PM CPMS:

- If your boiler or process heater is in the unit designed to burn coal/solid fossil fuel subcategory or the unit designed to burn heavy liquid subcategory and has an average annual heat input rate greater than 250 MMBtu per hour from solid fossil fuel and/or heavy liquid, and you demonstrate compliance with the PM limit instead of the alternative TSM limit, you must install, certify, maintain, and operate a PM CPMS according to the procedures in your approved site-specific monitoring plan and the requirements in §63.7525(b).

Opacity limit:

- If you choose to comply with an opacity limit in lieu of operating parameters for an ESP or fabric filter, you must install, operate, certify, and maintain the COMS according to the Performance Specification 1at 40 CFR part 60, appendix B.

Fabric filter:

- If you use a fabric filter to comply with an emission limit, then you must install, calibrate, maintain, and continuously operate the bag leak detection system, unless you choose to comply with an opacity limit. See §63.7525(j).

All other CMS:

- If you have an operating limit that requires a continuous monitoring system (CMS), you must install, operate, and maintain the CMS.

3.6 Task 4: Keep Records – What Records Must I Keep and for How Long?

See Task 1 for information on the initial Notification of Applicability and an initial Notification of Compliance Status. This section addresses the remaining recordkeeping requirements.

3.6.1 General Requirements for Records and Certifications

You must keep a copy of each notification and report prepared or submitted under this rule. You must also keep all documentation supporting any Initial Notifications or Notifications of

Compliance Status. Please read sections 3.6.2 and 3.6.3 for details on the records required for your boiler or process heater, based on whether work practices or emissions limits apply.

Your records must be in a form suitable and readily available for review. You must keep each record for 5 years after the date of each recorded action. You must keep each record on site for at least 2 years after the date of each recorded action. For the remaining 3 of the 5 years, the records may be kept off site.

In general, you must keep copies of:

- Every notification or report, and all supporting documentation
- For operating units that combust non-hazardous secondary material, records documenting that the material is listed as a non-waste.
- Records of all monitoring data and calculated averages for applicable operating limits, such as opacity, pressure drop, pH, and operating load, to show continuous compliance with each emission limit and operating limit.
- Records of monthly fuel use by each boiler or process heater, including the type(s) of fuel and amount(s) used.
- Records of the occurrence and duration of each malfunction of the boiler or process heater, or of the associated air pollution control and monitoring equipment
- Records of actions taken during periods of malfunction to minimize emissions, including corrective actions to restore the malfunctioning boiler, air pollution control, or monitoring equipment to its normal or usual manner of operation

Compliance Certification Report

If your boiler or process heater is subject to emission limits you must submit, by July 31 and January 31 of each year, a semiannual Compliance Certification Report for the previous semiannual reporting period (January 1 through June 30 or July 1 through December 31).

The report must contain:

1. The company name and address.
2. Process unit information, emissions limitations, and operating parameter limitations.

3. If you use a CMS, including CEMS, COMS, or CPMS, the monitoring equipment manufacturer(s) and model numbers and the date of the last certification or audit.

4. The total fuel use by each individual boiler or process heater subject to an emission limit within the reporting period, including a description of the fuel.

5. If conducting performance tests every 3 years, the date of the last 2 performance tests and a statement if there have been any operational changes that could increase emissions.

6. A statement indicating that you burned no new types of fuel in any boiler or process heater subject to an emission limit. Or, if did burn a new type of fuel and are subject to emission limits, you must submit the calculation of chlorine, mercury, or TSM input that demonstrates that your source is still within its maximum chlorine, mercury, or TSM input level established during the previous performance testing (for sources that demonstrate compliance through performance testing). Or you must submit the calculation of HCl. Mercury, or TSM emission rate that demonstrates that your source is still meeting the emission limit for HCl, mercury, or TSM emissions (for boilers or process heaters that demonstrate compliance through fuel analysis).

7. A summary of any monthly fuel analyses conducted to demonstrate compliance for individual boilers or process heaters subject to emission limits.

8. If there are no deviations from any emission limits or operating limits that apply to you, a statement that there were no deviations from the emission limits or operating limits during the reporting period.

9. If there were no deviations from the monitoring requirements, a statement that there were no deviations and no periods during which the CMS were out of control during the reporting period.

10. The date of the most recent tune-up for each unit subject to the requirement to conduct an annual, biennial, or 5-year tune-up. Include the date of the most recent burner inspection if it was not done annually, biennially, or on a 5-year period and was delayed until the next scheduled or unscheduled unit shutdown.

11. If you demonstrate compliance by emission averaging, a certification that the emission level achieved or the control technology employed is no less stringent than the level or control technology contained in the notification of compliance status.

12. All of the calculated 30-day rolling average values for each reporting period based on the daily CEMS and CPMS data.

13. A statement by a responsible official certifying the truth, accuracy, completeness of the certification, and a statement of whether the source has complied with all the relevant standards and requirements of the rule. The statement needs to also supply the official's name, title, phone number, e-mail address, and signature.

14. For any deviations from the applicable requirements during the reporting period, include each instance in which you did not meet an emission limit and operating limit. Include a description of deviations, the time periods during which the deviations occurred, and the corrective actions taken.

3.6.2 Work Practice Standards Recordkeeping

Tune-up:

- ***For Initial Tune-up***: You must conduct a performance tune-up and you must submit a signed statement in the Notification of Compliance Status report that indicates that you conducted an initial tune-up of the boiler.
- ***For Subsequent Tune-ups*:**
    - For units that are subject only to a requirement to conduct an annual, biennial, or 5-year tune-up, respectively, and not subject to emission limits or operating limits, you may submit only an annual, biennial, or 5-year compliance report, as applicable, instead of a semiannual compliance report.
    - For units subject to emission limits or operating limits and must conduct a performance tune-up, you must include in the semiannual compliance report the date of the most recent tune-up for each unit subject to the requirement to conduct an annual, biennial, or 5-year tune-up, respectively. Include the date of the most recent burner inspection if it was not done annually, biennially, or on a 5-year period and was delayed until the next scheduled or unscheduled unit shutdown.
- For all tune-ups, you must keep records of the dates and procedures of each tune-up, and the fuel used. You should begin keeping fuel records for at least 12 months prior to the scheduled tune-up. The record must be kept on-site and submitted to the delegated authority if requested. You may use the example form to document the tune-up, keep records, and meet the reporting requirement.

Example forms can be found at http://www.epa.gov/ttn/atw/boiler/boilerpg.html under "Implementation Information."

Energy Assessment:

- Submit a signed certification in the Notification of Compliance Status report that an energy assessment of the boiler(s) and/or process heater(s) and its energy use systems was completed.

Startup and Shutdown:

- Maintain records of the calendar date, time, occurrence and duration of each startup and shutdown.
- Must maintain records of the type(s) and amount(s) of fuels used during each startup and shutdown.

3.6.3 Emission Limits Recordkeeping

You will need to keep records related to emission limits, test plans, monitoring plans/data, operating limits and fuel type/amount.

Fuel Analysis:

- Keep a copy of all calculations and supporting documentation to demonstrate compliance with the mercury, HCl, and/or TSM emission limits. Supporting documentation should include results of any fuel analyses. You can use the results from one fuel analysis for multiple units, provided they are all burning the same fuel type.
- Maintain records of the type and amount of all fuels burned in each boiler and process heater during the annual reporting period to demonstrate that all fuel types and mixtures of fuels burned would result in lower emissions of mercury, HCl, and/or TSM than the applicable emission limit (if you demonstrate compliance through fuel analysis).

Site-specific Test Plan:

- Prepare the site-specific test plan before conducting a required performance test (see specific plan requirements in Section 3.5.7).
- Keep a copy of the site-specific test plan as a record.
- Submit the site-specific test plan if requested by the EPA or a delegated authority.

Site-specific Monitoring Plan:

- Prepare the site-specific monitoring plan at least 60 days before your initial performance evaluation of your CMS (see specific plan requirements in Section 3.5.4).

NOTE: A site-specific monitoring plan is not required if you have existing monitoring plans for CEMS and COMS prepared under Appendix B to Part 60 that meet all monitoring, installation, operation, and maintenance requirements.

Inspection and Monitoring Data:

- Keep records of all inspection and monitoring data for each required inspection or monitoring event including:
    - Person conducting the monitoring
    - Technique or method used
    - Operating conditions during the activity
    - Results, including the date, time, and duration of the period from the time the monitoring indicated a problem to the time that monitoring indicated proper operation
    - Maintenance or corrective action taken (if applicable)

Fabric Filter:

For boilers or process heaters that demonstrate compliance with a fabric filter and bag leak detection system, include:

- Records of the bag leak detection system output
- Records of bag leak detection system adjustments
- The date and time of all bag leak detection system alarms, date and time you initiated and completed corrective action, brief description of corrective action taken
- The percent of the operating time during each 6-month period that the alarm sounds

Fuel Type and Amount:

All boilers and process heaters should keep records documenting the fuel type(s) used monthly by each boiler or process heater, including:

- The total fuel usage amount with units of measure
- A description of the fuel, including if the fuel has received a non-waste determination by you or EPA, and all records that show how the legitimacy criteria are met for that determination

Emission Averaging:

- If you choose to average emissions consistent with §63.7522, you must keep a copy of the emission averaging implementation plan required in §63.7522(g), all calculations required under §63.7522, including monthly records of heat input or steam generation, as applicable, and monitoring records consistent with §63.7541.

Efficiency Credits:

- If you choose to use efficiency credits from energy conservation measures to demonstrate compliance according to § 63.7533, you must keep a copy of the Implementation Plan required in §63.7533(d) and copies of all data and calculations used to establish credits according to §63.7533(b), (c), and (f).

Limited-use Units:

- Must keep a copy of the federally enforceable permit that limits the annual capacity factor to less than or equal to 10 percent and fuel use records for the days the boiler or process heater was operating.

For boilers that demonstrate compliance with a mercury, HCl, or TSM emission limit through stack testing, keep:

- Records of the type and amount of all fuels burned in each boiler or process heater during the reporting period to demonstrate that all fuel types and mixtures of fuels burned would result in lower fuel input of mercury, HCl, and/or TSM than the maximum values calculated during the last performance stack test.

3.7 Task 5: Submit Other Notifications and Reports

See Task 1 for information on the initial Notification of Applicability and an initial Notification of Compliance Status. This section addresses the remaining reporting and notification requirements.

3.7.1 Commencing or Recommencing Combustion of Solid Waste (§63.7545(g)):

If you intend to commence or recommence combustion of solid waste, you must provide 30 days prior notice to EPA or the delegated authority. The notification must identify:

- The name of the owner or operator of the affected source, the location of the source, the boiler(s) that will commence burning solid waste, and the date of the notice
- The currently applicable subcategory under this subpart
- The date on which you became subject to the currently applicable emission limits
- The date upon which you will commence or recommence combusting solid waste

3.7.2 Switching Fuels (§63.7545(h)):

If you have switched fuels or made a physical change to the boiler and this resulted in the applicability of a different subcategory, you must provide notice within 30 days of the switch/change. The notification must identify:

- The name of the owner or operator of the affected source, the location of the source, the boiler(s) and process heater(s) that have switched fuels, or were physically changed, and the date of the notice.
- The currently applicable subcategory under this subpart
- The date on which you became subject to the currently applicable standards
- The date upon which you the fuel switch or physical change occurred.

If you own or operate an industrial, commercial, or institutional boiler or process heater and would be subject to this subpart except for the exemption for commercial and industrial solid waste incineration units covered by 40 CFR part 60, subpart CCCC or subpart DDDD, and you cease combusting solid waste, then you must be in compliance with this subpart on the effective date of the waste to fuel switch.

3.7.3 Notification of Affirmative Defense:

If your facility experiences an exceedance of your emission limit(s) during a malfunction, you must:

- Submit a written report to the Administrator with all necessary supporting documentation, that you have met the requirements set forth in § 63.7500. This affirmative defense report must be included in the first compliance, deviation or excess

emission report otherwise required after the initial occurrence of the violation of the relevant standard (which may be the end of any applicable averaging period). If the report is due less than 45 days after the initial occurrence of the violation, your affirmative defense report may be included in the second report due after the initial occurrence of the violation of the relevant standard.

- Prepare a written root-cause analysis, showing how you determined, corrected, and eliminated the primary causes of the malfunction and the violation resulting from the malfunction. This analysis must also include, using your best monitoring methods and engineering judgment, the amount of any emissions that were the result of the malfunction.

3.7.4 Tune-up and Energy Assessment Reporting:

You do not need to submit the results of your energy assessment or tune-up. These items will be kept as records and only submitted if requested by your delegated authority. Section 3.6.2 summarizes the records that must be kept for work practice standards.

3.7.5 Stack Test Performance Data Reporting:

If your boiler or process heater is subject to stack testing, you must:

- Submit the results of the performance tests, including any fuel analyses and compliance reports, within 60 days of completing each performance test electronically to EPA's WebFIRE database by using the Compliance and Emissions Data Reporting Interface (CEDRI) which is accessed through the EPA's Central Data Exchange (CDX) (*www.epa.gov/cdx*).

- Submit performance test data in the format generated through the EPA's Electronic Reporting Tool (ERT) (see *http://www.epa.gov/ttn/chief/ert/index.html*). Only data collected using test methods on the ERT Web site must be submitted electronically to WebFIRE.

- If you wish to claim that some of the information being submitted for performance tests is confidential business information (CBI), you must submit a complete ERT file including information claimed to be CBI on a compact disk or other commonly used electronic storage media (including, but not limited to, flash drives) to the EPA. The electronic media must be clearly marked as CBI and mailed to U.S. EPA/OAPQS/CORE CBI Office, Attention: WebFIRE Administrator, MD C404–02, 4930 Old Page Rd., Durham, NC 27703. The same ERT file with the CBI omitted must be submitted to the EPA via CDX.

- For any performance test conducted using test methods that are not listed on the ERT Web site, you must submit the results on paper to the Administrator.

- If your boiler experiences any deviations, you must submit an Annual Compliance Report. See Section 3.6 for details of the annual compliance report.

4.0 OTHER INFORMATION

4.1 Benefits and Costs

EPA estimates that there are approximately 14,100 existing area source boilers at 1,700 facilities in the United States and that approximately 1,800 new boilers and process heaters will be installed over the next 3 years.

EPA estimates that the value of the benefits from reduced exposure to fine particles is $25 billion to $61 billion in the year 2016. EPA did not estimate monetary benefits from reducing exposure to air toxics or other air pollutants, ecosystem effects, or visibility impairment.

The final rule will reduce emissions of a number of toxic air pollutants including mercury, metals, and organic air toxics, including dioxins. Toxic air pollutants, also known as hazardous air pollutants (HAPs) or air toxics, include pollutants that are of particular concern for children. For example, mercury and lead can adversely affect developing brains – including effects on IQ, learning, and memory. Cadmium, dioxin, furans, formaldehyde and hydrochloric acid, also reduced by this rule, can cause cancer or other adverse health effects in adults and children. Mercury, lead, dioxin, and furans can also build up in the environment, causing serious environmental effects and harm to the food chain.

Estimated Compliance Costs

Based on data collected to support the regulatory impact analysis, EPA estimates the following costs:

- Tune-up: $200 to $8,000 per boiler, per tune-up, depending on size of boiler and any necessary adjustments.
- Energy Assessment: $3,500 to $75,000 depending on the size and number of energy use systems at the facility
- For a 50 MMBtu/hr coal boiler:
  - Fabric Filter: $2.1 million total capital expenditures and $563,000 in annual operating and maintenance costs
  - Testing for CO and Hg: $11,000 (testing required every 3 years)

Furthermore, the boiler tune-ups required by this regulation can save facilities energy-related costs, and the energy audit portion of the regulation will identify additional energy and cost savings.

Additional efficiencies can be achieved if a facility chooses to comply through the installation of more advanced energy saving measures identified in the energy assessment. The Department of Energy plans to provide information to affected sources on financial incentives available at the local, state, utility and federal level to assist them in completing a boiler tune-up and/or energy assessment (see link in "Other Governmental Support" below).

4.2 Compliance Assistance Resources

EPA believes that through awareness, education and reasonable options, both public and private members of the regulated community will be proactive in voluntary efforts to comply with pollution control regulations. Compliance assistance providers help regulated communities and businesses understand and comply with environmental laws through one-to-one counseling,

online resource centers, fact sheets, guides, and training. Assistance providers include EPA regional office staff; state, local and tribal governments; federal and state small business and pollution prevention technical assistance extension agents, consultants, and trade associations.

Find out what laws apply to you, what you need to do to comply, and tools and resources that can help you and your constituents comply with environmental regulations by visiting the following websites:

EPA Compliance Assistance: http://www.epa.gov/compliance/assistance/business.html

EPA National Compliance Assistance Centers Boiler / Combustion Web Portal: www.combustionportal.org

EPA National Compliance Assistance Centers: http://www.assistancecenters.net/

State-by-state Resource Locator: http://www.envcap.org/statetools/

EPA Small Business Environmental Assistance: http://www.smallbiz-enviroweb.org/

EPA Small Business Gateway: http://www.epa.gov/smallbusiness/

EPA Environmental Regulations and Laws: http://www.epa.gov/smallbusiness/regs.htm

EPA Pollutants and Sources: http://www.epa.gov/airtoxics/pollsour.html

EPA Air Toxics Website: http://www.epa.gov/ttn/atw/

Emissions Standards for Boilers and Process Heaters and Commercial / Industrial Solid Waste Incinerators http://www.epa.gov/airquality/combustion/actions.html

Preferred and Alternative Methods for Estimating Air Emissions from Boilers: http://www.epa.gov/ttn/chief/eiip/techreport/volume02/ii02.pdf

EPA Asbestos and Small Business Ombudsman: http://www.epa.gov/sbo/

EPA Small Business Compliance and Enforcement: http://www.epa.gov/compliance/incentives/smallbusiness/

EPA Compliance Incentives and Auditing: http://www.epa.gov/oecaerth/incentives/auditing/auditpolicy.html

4.3 Other Governmental Support

EPA is working with the U.S. Department of Energy (DOE) and the U.S. Department of Agriculture (USDA) to provide technical assistance that will help boilers burn cleaner and more efficiently.

DOE will provide support through their regional Clean Energy Application Centers to large sources that burn coal and oil. Along with information on financial incentives, funding, and financing opportunities, DOE will supply site-specific information on clean energy compliance strategies, including cost and payback information. Large sources may also have the opportunity to develop energy efficient compliance strategies, such as combined heat and power. Assistance resources that can provide help to facilities that need it. Initial information is at http://www1.eere.energy.gov/industry/states/.

USDA will reach out to small sources that burn biomass through a variety of networks, to help owners and operators understand the standards and what is required to be in compliance. The outreach will outline the benefits of implementing the rule for owners and their neighbors, and provide information on work practice standards.

4.4 What Other Resources are Available?

State and local contacts can be found at the National Association of Clean Air Agencies web site (http://www.4cleanair.org/), at the EPA Regional offices (http://www.epa.gov/epahome/whereyoulive.htm), or under the EPA State, Local, Tribal and Federal Partnerships **(**http://www.epa.gov/ttn/atw/stprogs.html). State Small Business Assistance Program contacts can be found at http://www.smallbiz-enviroweb.org/.

4.5 For More Information

The full text of the Federal Register containing the rule and additional information are available online at: http://www.epa.gov/ttn/atw/boiler/boilerpg.html.

A link to the current Boiler MACT and General Provisions in the Electronic Code of Federal Regulations (e-CFR) is available online.

Other background information is also available at http://www.epa.gov/airquality/combustion/actions.html and in the rulemaking docket (Docket ID: EPA-HQ-OAR-2002-0058) either electronically at http://www.regulations.gov, EPA's electronic public docket and comment system, or in hardcopy at the EPA Docket Center's Public Reading Room.

Appendix A
Summary of Requirements for 40 CFR Part 63, Subpart DDDDD

Summary of Requirements for 40 CFR Part 63 Subpart DDDDD:

NESHAP for Major Sources: Industrial, Commercial, and Institutional Boilers and Process Heaters

Task 1: Submit Initial Notifications

TASK	By When?	Applicable to ..	Comment
Submit Initial Notification of Applicability	Submit by 5/31/2013.	Existing Units	§63.7545(b)
	No later than 15 days after date of actual startup	New Units	§63.7545(c)
Submit Notification of Compliance Status	Submit within 60 days following completion of all initial compliance demonstrations	ALL	§63.7545(e)

Task 2: Comply with Work Practice Standards

TASK		By When?	Applicable to...	Comment
Conduct Tune-up	Initial	1/31/2016	Existing Units	
	Subsequent	Annually, no later than 13 months after previous tune-up[a]	Existing and new units without a continuous oxygen trim system and with heat input capacity of 10 MMBtu/hr or greater.	Item 3 of Table 3 of subpart DDDDD
		Biennially, no later than 25 months after previous tune-up[a]	Existing and new units without a continuous oxygen trim system and with heat input capacity of less than 10 MMBtu/hr in the heavy liquid or solid fuel subcategories; or a unit with heat input capacity of less than 10 MMBtu/hr but greater than 5 MMBtu/hr, in any of the following subcategories: Gas 1; Gas 2 (other); or light liquid.	Item 2 of Table 3 of subpart DDDDD
		Every 5 years, no later than 61 months after	Existing and new units with a continuous oxygen trim system, or a heat	Item 1 of Table 3 of

		previous tune-up[a]	input capacity of less than or equal to 5 MMBtu/hr in any of the following subcategories: Gas 1; Gas 2 (other); or light liquid, or a limited-use unit.	subpart DDDDD
Conduct One-Time Energy Assessment		1/31/2016	Existing Units Only	Item 4 of Table 3 of subpart DDDDD
Comply with Startup/Shutdown Procedures		Beginning 1/31/2016	Units subject to emission limits	Item 5 and 6 of Table 3 of subpart DDDDD

[a] Note: For new sources, the first annual, biennial, or 5-year tune-up must be no later than 13 months, 25 months, or 61 months, respectively, after January 31, 2013 or the initial startup of the new or reconstructed affected source, whichever is later.

Task 3: Meet Emission Limits

TASK		
For This Pollutant	Initial Compliance	Continuous Compliance
PM (or TSM), mercury, HCL	Existing Units: Conduct performance (stack) test by 7/29/2016 New Units: Within 180 days of date of actual startup	Annually, except that if performance tests for a given pollutant for at least 2 consecutive years show emissions are at or below 75 percent of the emission limit, and there are no changes in the operation or control equipment, may conduct performance tests for the pollutant every third year. Each such performance test must be conducted no more than 37 months after the previous performance test.
	Establish operating limits (Table 7 of subpart DDDDD): Existing Units: by 7/29/2016. New Units: Within 180 days of date of actual startup	Operate monitoring systems, collect data, and maintain operating limit (Table 8 of subpart DDDDD).
	Conduct CMS performance evaluations: Existing Units: by 7/29/2016. New Units: Within 180 days	

	of date of actual startup	
OR		
TSM, mercury, HCl	Conduct fuel analysis (63.7521, Table 6 and 63.7530(c)); Existing Units: by 7/29/2016. New Units: Within 180 days of date of actual startup	Conduct fuel analysis for each fuel type burned monthly and maintain operating limit (item 8 of Table 8 of subpart DDDDD)
CO	Conduct performance (stack) test: Existing Units: by 7/29/2016 New Units: Within 180 days of date of actual startup	Annually, except that if performance tests for a given pollutant for at least 2 consecutive years show emissions are at or below 75 percent of the emission limit, and there are no changes in the operation or control equipment, may conduct performance tests for the pollutant every third year. Each such performance test must be conducted no more than 37 months after the previous performance test.
	Establish operating limits (Table 7 of subpart DDDDD): Existing Units: by 9/17/2014. New Units: Within 180 days of date of actual startup	Operate monitoring systems, collect data, and maintain operating limit (Table 8 of subpart DDDDD).
	Conduct CMS performance evaluations: Existing Units: by 7/29/2016. New Units: Within 180 days of date of actual startup	

OR		
Alternative CO CEMS-based Limit	Conduct CEMS performance evaluation (§63.7525(a)(2)): Existing Units: by 7/29/2016. New Units: Within 180 days of date of actual startup	Maintain CO emission level below or at applicable alternative CO CEMS-based standard (§63.7540(a)(8)(ii)).

Task 4: Recordkeeping[6]

TASK	Applicable to ..	Comment
Records of all submitted notifications		See §63.7555(a)(1)
Records of all submitted reports		See §63.7555(a)(1)
Records of performance tests, fuel analyses, or other compliance demonstrations and performance evaluations		See §63.7555(a)(2)
Records of all monitoring data and calculated averages for applicable operating limits to show continuous compliance with each emission limit and operating limit that applies		See §63.7555(c)
Records of monthly fuel use, including the type(s) of fuel and amount(s) used.	For each boiler or process heater subject to an emission limit	See 63.7555(d)(1)
Record that documents how the secondary material meets each of the legitimacy criteria under §241.3(d)(1), or if it has been processed from a discarded nonhazardous secondary material, must keep records as to how the operations that produced the fuel satisfy the definition of	For each unit that combust non-hazardous secondary materials that have been determined not to be solid waste	See §63.7555(d)(2).

[6] Records must be in a form suitable and readily available for expeditious review. Each record must be kept for 5 years following the date of each occurrence, measurement, maintenance, corrective action, report, or record. Each record must be kept on site, or they must be accessible from on site (for example, through a computer network), for at least 2 years after the date of each occurrence, measurement, maintenance, corrective action, report, or record. Records can be kept off site for the remaining 3 years.

processing in § 241.2, or if the fuel received a nonwaste determination pursuant to the petition process submitted under § 241.3(c), must keep a record that documents how the fuel satisfies the requirements of the petition process.		
Records documenting that the material is listed as a non-waste under § 241.4(a) of this chapter	For operating units that combust non-hazardous secondary materials as fuel	Units exempt from the incinerator standards under section 129(g)(1) of the Clean Air Act because they are qualifying facilities burning a homogeneous waste stream do not need to maintain the records
Copy of the federally enforceable permit that limits the annual capacity factor to less than or equal to 10 percent and fuel use records for the days the boiler or process heater was operating.	For units in the limited-use subcategory,	
Copy of all calculations and supporting documentation of maximum chlorine, mercury, and/or TSM fuel input, that were done to demonstrate continuous compliance with the HCl, mercury, and/or TSM emission limits, respectively.	For sources that demonstrate compliance through performance testing.	
Copy of all calculations and supporting documentation of HCl, mercury, and/or TSM emission rates that were done to demonstrate compliance with the HCl, mercury, and/or TSM emission limits, respectively.	For sources that demonstrate compliance through fuel analysis,	
Record that documents that your emissions in the previous stack test(s) were less than 75 percent of the applicable emission limit, and document that there was no change in source operations including fuel composition and operation of air pollution control equipment that would cause emissions of the relevant pollutant to increase within the past year.	For each boiler or process heater subject to an emission limit and, if, consistent with §63.7515(b), you choose to stack test less frequently than annually.	See §63.7555(d)(6).
Records of the occurrence and duration of each malfunction of the boiler or process heater, or of the associated air pollution control and monitoring equipment.	For each boiler or process heater subject to an emission limit subject to an emission limit	See §63.7555(d)(7).
Records of actions taken during periods of malfunction to minimize emissions in accordance with the general duty to minimize emissions,	For each boiler or process heater subject to an emission limit For	See §63.7555(d)(8).

including corrective actions to restore the malfunctioning boiler or process heater, air pollution control, or monitoring equipment to its normal or usual manner of operation.	each boiler or process heater	
Records of the calendar date, time, occurrence and duration of each startup and shutdown.	For each boiler or process heater subject to an emission limit.	See §63.7555(d)(10)
Records of the type(s) and amount(s) of fuels used during each startup and shutdown.	For each boiler or process heater subject to an emission limit.	See §63.7555(d)(11)
Copy of the emission averaging implementation plan, all calculations, including monthly records of heat input or steam generation, as applicable, and monitoring records	If you elect to average emissions	See §63.7555(e)
Copy of the Efficiency Credit Implementation Plan and copies of all data and calculations used to establish credits	If you elect to use efficiency credits from energy conservation measures to demonstrate compliance	See §63.7555(f)
Monthly records (or at the frequency required by § 63.7540(c)) of the calculations and results of the fuel specification for mercury	If you elected to demonstrate that the unit meets the specification for mercury for the unit designed to burn gas 1 subcategory	See §63.7555(g)
Records of the total hours per calendar year that alternative fuel is burned and the total hours per calendar year that the unit operated during periods of gas curtailment or gas supply emergencies.	A unit in the Gas 1 subcategory and you use an alternative fuel other than natural gas, refinery gas, gaseous fuel subject to another subpart under this part, other gas 1 fuel, or gaseous fuel subject to another subpart of this part or part 60, 61, or 65,	See §63.7555(h)
Energy Assessment Report		See §63.11214(c)
Site-specific test plan		
Annual compliance certification report		
Site-specific monitoring plan		

Task 5: Submit Other Notifications and Reports[7]

TASK	By When?	Applicable to ..	Comment
Notification that you have switched fuels or made a physical change to the boiler and the fuel switch or physical change resulted in the applicability of a different subcategory	Within 30 days of the switch/change.		See §63.7545(h)
First compliance report	Submitted no later than July 31 or January 31, whichever date is the first date following the end of the first calendar half after the compliance date that is specified for each boiler or process heater.		See §63.7550(b)
Subsequent compliance report	Submitted no later than July 31 or January 31, whichever date is the first date following the end of the semiannual reporting period.[8]		
Annual, biennial, or 5-year compliance report, instead of a semiannual compliance report.	The first annual, biennial, or 5-year compliance report must be postmarked or submitted no later than January 31 following the end of the first calendar half after the compliance date that is specified for each boiler or process heater. Subsequent annual, biennial, and 5-year compliance reports must be postmarked or submitted no later than January 31.	For units that are subject only to a requirement to conduct an annual, biennial, or 5-year tune-up and not subject to emission limits or operating limits	See §63.7550(b)

[7] Owners or operators who claim that some of the information being submitted for performance tests is confidential business information (CBI) must submit a complete ERT file including information claimed to be CBI on a compact disk or other commonly used electronic storage media (including, but not limited to, flash drives) to the EPA. The electronic media must be clearly marked as CBI and mailed to U.S. EPA/OAPQS/CORE CBI Office, Attention: WebFIRE Administrator, MD C404–02, 4930 Old Page Rd., Durham, NC 27703. The same ERT file with the CBI omitted must be submitted to the EPA via CDX.

[8] The semiannual reporting period from January 1 through June 30 or the semiannual reporting period from July 1 through December 31. Annual, biennial, and 5-year compliance reports must cover the applicable 1-, 2-, or 5-year periods from January 1 to December 31.

Notification of intent to commence or recommence combustion of solid waste,	30 days prior notice of the date upon which you will commence or recommence combustion of solid waste.		See §63.7545(g)
Affirmative defense report	Include in first periodic compliance report		See §63.7501(b)
Site-specific monitoring plan	Upon request	If you demonstrate compliance with any applicable emission limit through performance testing and subsequent compliance with operating limits (including the use of CPMS), or with a CEMS, or COMS	See §63.7505(d)(1)
Submit results of performance tests to EPA's Central Data Exchange using the ERT: http://www.epa.gov/ttn/chief/ert/erttool.html	Within 60 days of completing each performance test.		See §63.7525(b)(5)(iv)
Submit each CEMS relative accuracy test audit to EPA's Central Data Exchange using the ERT http://www.epa.gov/ttn/chief/ert/erttool.html	Within 60 days of completing audits.		See §63.7525(b)(5)(iv)
Site-specific fuel monitoring plan	No later than 60 days before the date that you intend to conduct the initial compliance demonstration	If you intend to use an alternative analytical method other than those required by	See 63.7521(b)(1) 63.75219(g)

		Table 6 to this subpart	
Annual tune-up report	Upon request		See 63.7540(a)(10)(vi)
Submit a notification of alternative fuel use	Within 48 hours of the declaration of each period of natural gas curtailment or supply interruption	If you operate a unit in the GAS 1 subcategory and you intend to use a fuel other than natural gas, refinery gas, gaseous fuel subject to another subpart of this part, part 60, 61, or 65, or other gas 1 fuel to fire the affected unit during a period of natural gas curtailment or supply interruption	See 63.7545(f)
Implementation plan for emission averaging	Upon request		See 63.7522(g)
Efficiency credit implantation plan	Upon request. If requested, submit the implementation plan for efficiency credits to the Administrator for review and approval no later than 180 days before the date on which the facility intends to demonstrate compliance using the efficiency credit approach	.	See §63.7533(d)