National Emission Standards for Hazardous Air Pollutants (NESHAP):
Industrial, Commercial, and Institutional Boilers and Process Heaters
(40 CFR Part 63, Subpart DDDDD)

How are you affected?

Boilers and process heaters are affected differently based on rated heat input (measured in MMBtu/hr), fuel type (solid, liquid, gas), and utilization (frequency of use).

Follow these steps:

For purposes of these flow charts, we divided affected sources into four populations. Units fall into only one population, except for new units >10 MMBtu/hr combusting liquid or solid fuel, which appear in Populations III and IV.

Use these flow charts in conjunction with the NESHAP. The flow charts are only a summary of the NESHAP and do not supercede the NESHAP in any manner. Therefore, refer the final NESHAP as published in the Federal Register on September 13, 2004 (69 FR 55218) for exact requirements.

Population I

No Requirements

Population II

Initial Notification Only

Population III

Control Carbon Monoxide (CO)

Population IV

Control Particulate Matter (PM), Total Selected Metals (TSM), Hydrogen Chloride (HCl), Mercury (Hg)

STEP 1: APPLICABILITY

Do you own or operate a boiler or process heater?

*A **boiler** is an enclosed device using controlled flame combustion and having the primary purpose of recovering thermal energy in the form of steam or hot water. Waste heat boilers, as defined in the boilers and process heaters NESHAP, are excluded from this definition (§63.7575).*

*A **process heater** is an enclosed device using controlled flame, that is not a boiler, and the unit's primary purpose is to transfer heat indirectly to a process material (liquid, gas, or solid) or to a heat transfer material for use in a process unit, instead of generating steam. Process heaters are devices in which the combustion gases do not directly come into contact with process materials. Process heaters do not include units used for comfort or space heat, food preparation for on-site for on-site consumption, or autoclaves (§63.7575).*

NO → **You are NOT affected by the boilers and process heaters NESHAP**

YES ↓

Is your boiler or process heater located at, or part of, a major source of hazardous air pollutants (HAP)?

A major source of HAP emissions is any stationary source or group of stationary sources located within a contiguous area and under common control that emits or has the potential to emit any single HAP at a rate of 9.07 megagrams (10 tons) or more per year or any combination of HAP at a rate of 22.68 megagrams (25 tons) or more per year or as defined in §63.760 (40 CFR part 63, subpart HH) (§63.7485).

HAP are listed at Section 112(b)(1) of the Clean Air Act as amended. (See list at www.epa.gov/ttn/atw/188pols.html)

NO → **You are NOT affected by the boilers and process heaters NESHAP, unless you become a major source (see page 5)**

YES ↓

Is your boiler or process heater not subject to the boilers and process heaters NESHAP?

The following combustion units are not subject to the boilers and process heaters NESHAP (§63.7491):

(1) A municipal waste combustor covered by 40 CFR part 60, subparts AAAA, BBBB, Cb, Eb; 40 CFR part 62 subparts FFF, JJJ.
(2) A hospital/medical/infectious waste incinerator covered by 40 CFR part 60, subparts Ce, Ec; 40 CFR part 62, subpart HHH.
(3) An electric utility steam generating unit that is a fossil fuel-fired combustion unit of more than 25 megawatts that serves a generator that produces electricity for sale. A fossil-fired unit that cogenerates steam and electricity and supplies more than one-third of its potential electric output capacity and more than 25 megawatts electrical output to any utility power distribution system for sale is considered an electric utility steam generating unit.
(4) A boiler or process heater required to have a permit under section 3005 of the Solid Waste Disposal Act or covered by 40 CFR part 63, subpart EEE (e.g., hazardous waste boilers).
(5) A commercial and industrial solid waste incineration unit covered by 40 CFR part 60, subparts CCCC, DDDD; 40 CFR part 62, Subpart III.
(6) A recovery boiler or furnace covered by 40 CFR part 63, subpart MM.
(7) A boiler or process heater that is used specifically for research and development. This does not include units that only provide heat or steam to a process at a research and development facility.
(8) A hot water heater as defined in 40 CFR part 63, subpart DDDDD.
(9) A refining kettle covered by 40 CFR part 63, subpart X.
(10) An ethylene cracking-furnace covered by 40 CFR part 63, subpart YY.
(11) Blast furnace stoves as described in the EPA document, entitled "National Emission Standards for Hazardous Air Pollutants (NESHAP) for Integrated Iron and Steel Plants - Background Information for Proposed Standards," (EPA-453/R-01-005).
(12) Any boiler and process heater specifically listed as an affected source in another standard(s) under 40 CFR part 63.
(13) Any boiler and process heater specifically listed as an affected source in another standard(s) established under section 129 of the Clean Air Act (CAA).
(14) Temporary boilers as defined in 40 CFR part 63, subpart DDDDD .
(15) Blast furnace gas fuel-fired boilers and process heaters as defined in 40 CFR part 63, subpart DDDDD

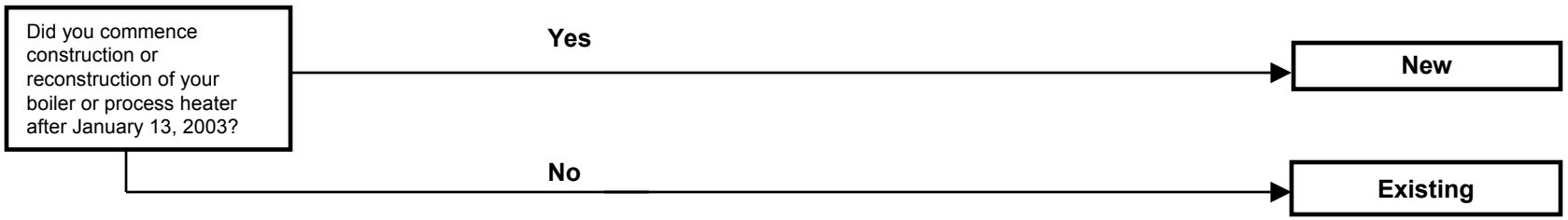
YES → **You are NOT affected by the boilers and process heaters NESHAP**

NO ↓

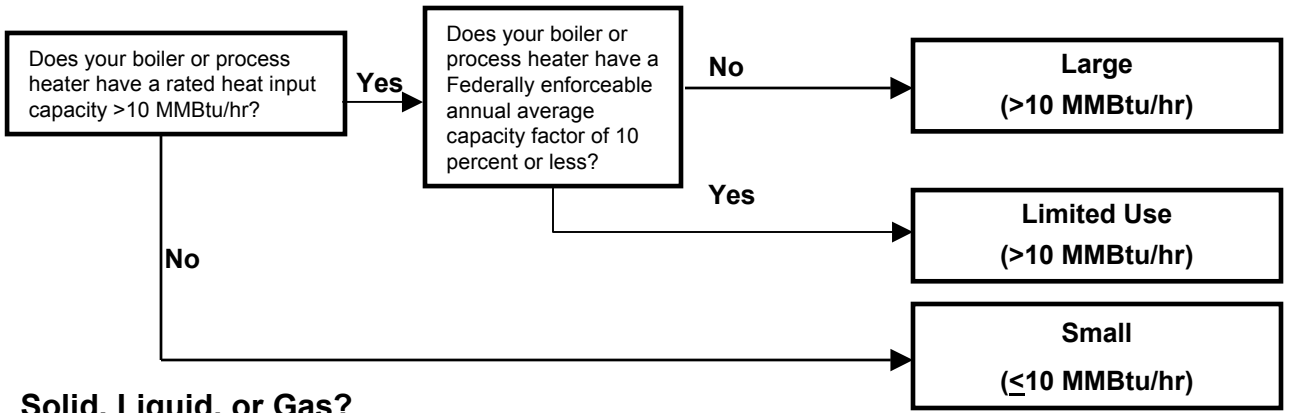
Your combustion unit <u>IS AFFECTED</u> by the boilers and process heaters NESHAP. → **DETERMINE YOUR REQUIREMENTS, BEGINNING ON PAGE 3.**

STEP 2: CLASSIFICATION

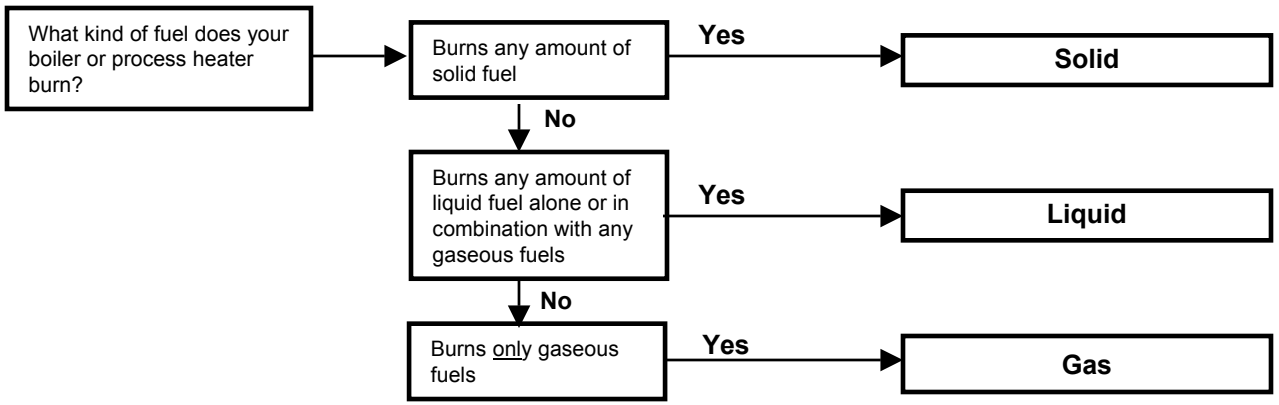
New or Existing?



Large, Small, or Limited?



Solid, Liquid, or Gas?



What you need to know

Firetube boilers. Firetube boilers are classified as small units, regardless of size.

Watertube boilers. Watertube boilers ≤10 MMBtu/hr are classified as small units. Watertube boilers >10 MMBtu/hr are classified as either large or limited use, depending on annual capacity factor.

Gaseous fuel units. Units that burn only gaseous fuels may burn oil during gas curtailment and still be classified as gas units.

STEP 3: EMISSION LIMITS

Your boiler or process heater is **SOLID FUEL-FIRED**

LARGE			LIMITED USE			SMALL		
	New	Existing		New	Existing		New	Existing
PM	0.025	0.07	PM	0.025	0.21	PM	0.025	--
(orTSM)	0.0003	0.001	(or TSM)	0.0003	0.004	(or TSM)	0.0003	--
HCl	0.02	0.09	HCl	0.02	--	HCl	0.02	--
Hg	0.000003	0.000009	Hg	0.000003	--	Hg	0.000003	--
CO	400 ppm	--	CO	400 ppm	--	CO	--	--

Your boiler or process heater is **LIQUID FUEL-FIRED**

LARGE			LIMITED USE			SMALL		
	New	Existing		New	Existing		New	Existing
PM	0.03	--	PM	0.03	--	PM	0.03	--
HCl	0.0005	--	HCl	0.0009	--	HCl	0.0009	--
CO	400 ppm	--	CO	400 ppm	--	CO	--	--

Your boiler or process heater is **GASEOUS FUEL-FIRED**

LARGE			LIMITED USE			SMALL		
	New	Existing		New	Existing		New	Existing
CO	400 ppm	--	CO	400 ppm	--	CO	--	--

What you need to know

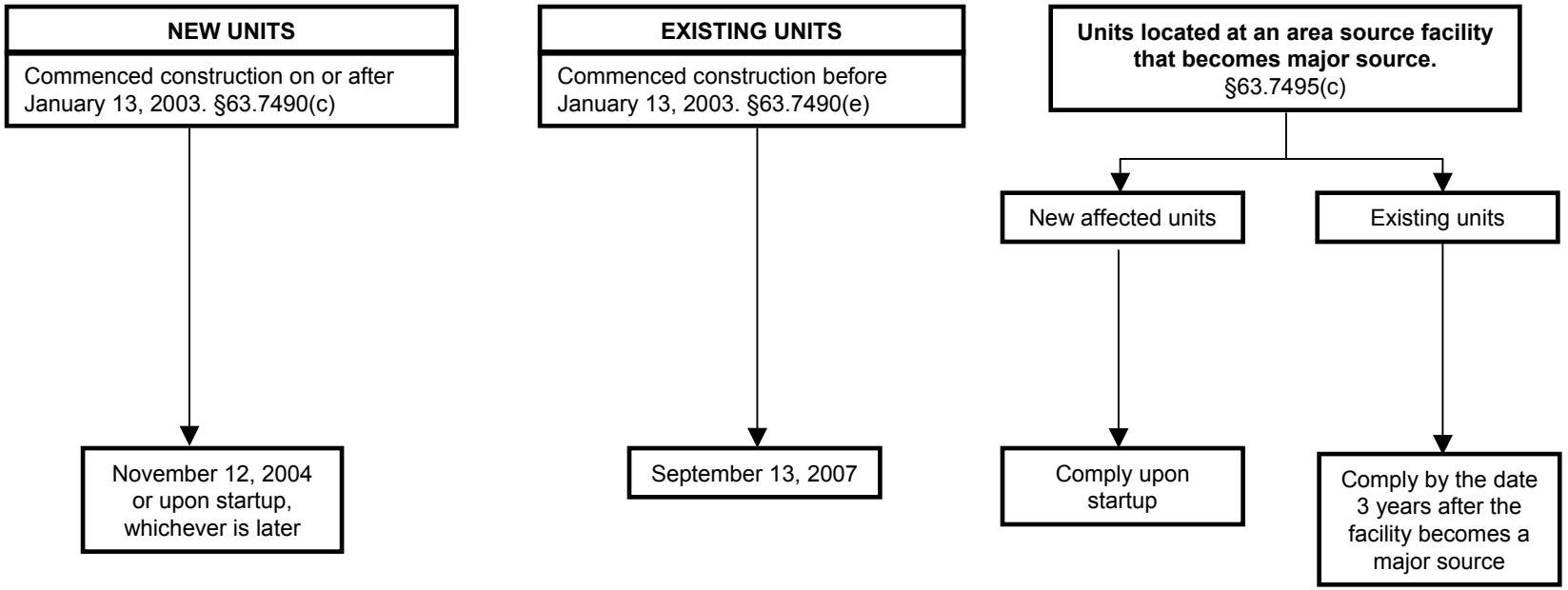
Emission limits are expressed as pounds per million Btu (lb/MMBtu) heat input and are measured during performance testing using the average of three test runs.

Solid fuel units with particulate matter (PM) emission limits may comply with the PM emission limit, or alternatively, comply with the Total Selected Metals (TSM) emission limit.

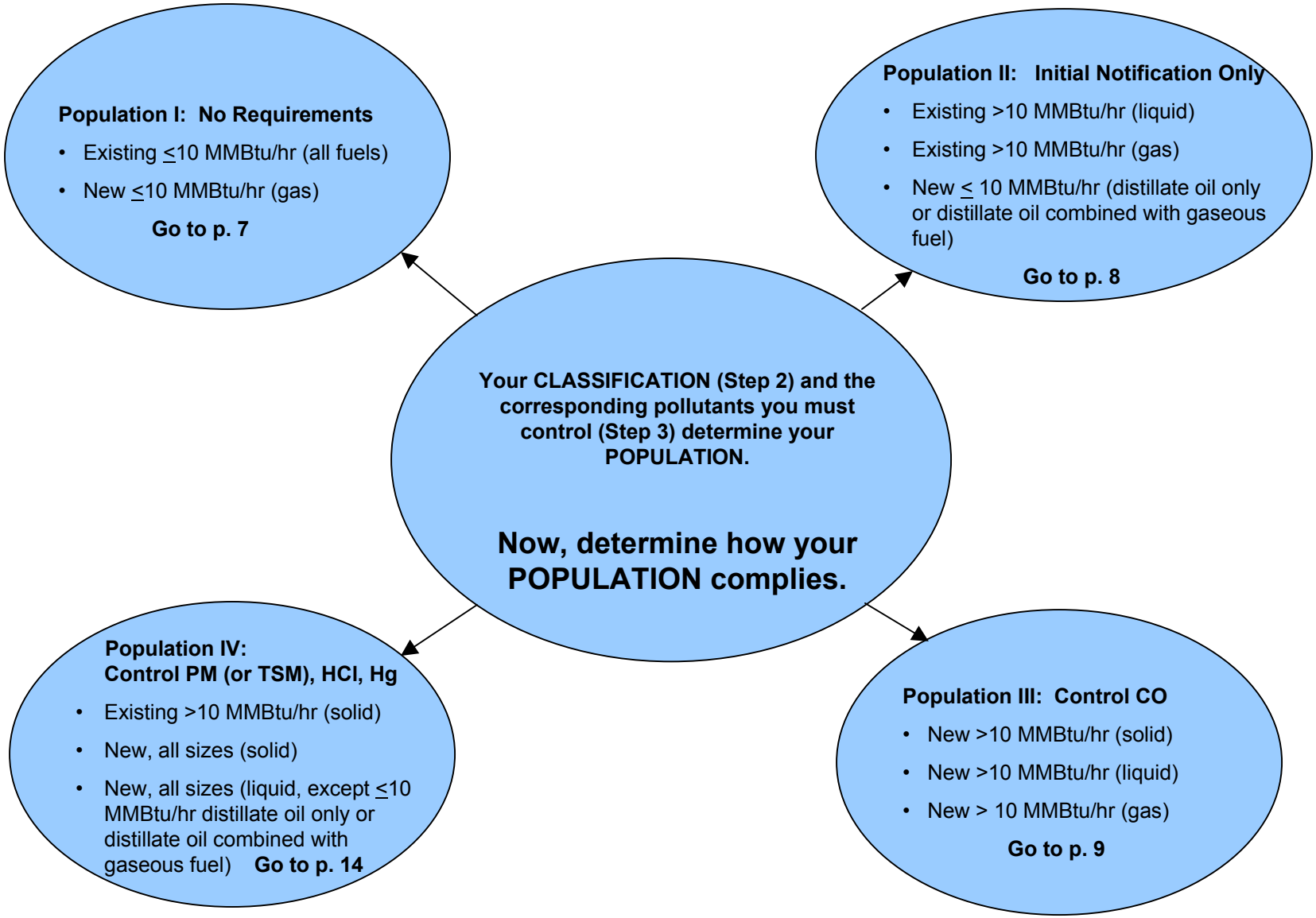
Carbon monoxide (CO) is measured in parts per million (ppm) by volume on a dry basis; averaging time is 30-day rolling average. Solid fuel units use an oxygen correction factor of 7 percent for CO; liquid and gas units use an oxygen correction factor of 3 percent for CO. To calculate the 30-day rolling average, do not use CO data during periods of startup, shutdown, or malfunction, or when the boiler or process heater is operating at less than 50% of rated capacity.

Units ≥100 MMBtu/hr use continuous emission monitors (CEMS) for CO; Units <100 MMBtu/hr use 3-run average during CO performance test.

STEP 4: COMPLIANCE DATE



STEP 5: POPULATION



Compliance > POPULATION I

Population I: No Requirements

- Existing ≤10 MMBtu/hr (all fuels)
- New ≤10 MMBtu/hr (gas)

How do you comply if your unit is in Population I?

What you need to know

Your boiler or process heater meets the definition of an affected unit under the boilers and process heaters NESHAP. However, your boiler or process heater has no requirements under the boilers and process heaters NESHAP.

General

- No emission limits
- No CO requirements
- No performance testing
- No fuel analyses
- No monitoring
- No startup/shutdown/ malfunction plan
- No site-specific monitoring plan

Initial

None

Continuous

None

Records and Reports

- No records
- No reports

Compliance > POPULATION II

Population II:
Initial Notification Only

- Existing >10 MMBtu/hr (liquid)
- Existing >10 MMBtu/hr (gas)
- New ≤10 MMBtu/hr (distillate oil only or distillate oil combined with gaseous fuel)

How do you comply if your unit is in Population II?

What you need to know

Your boiler or process heater meets the definition of an affected unit under the boilers and process heaters NESHAP. Your only responsibility is to submit an Initial Notification.

General

- No emission limits
- No CO requirements
- No performance testing
- No fuel analyses
- No monitoring
- No startup/shutdown/ malfunction plan
- No site-specific monitoring plan

Initial

- Initial notification

Continuous

None

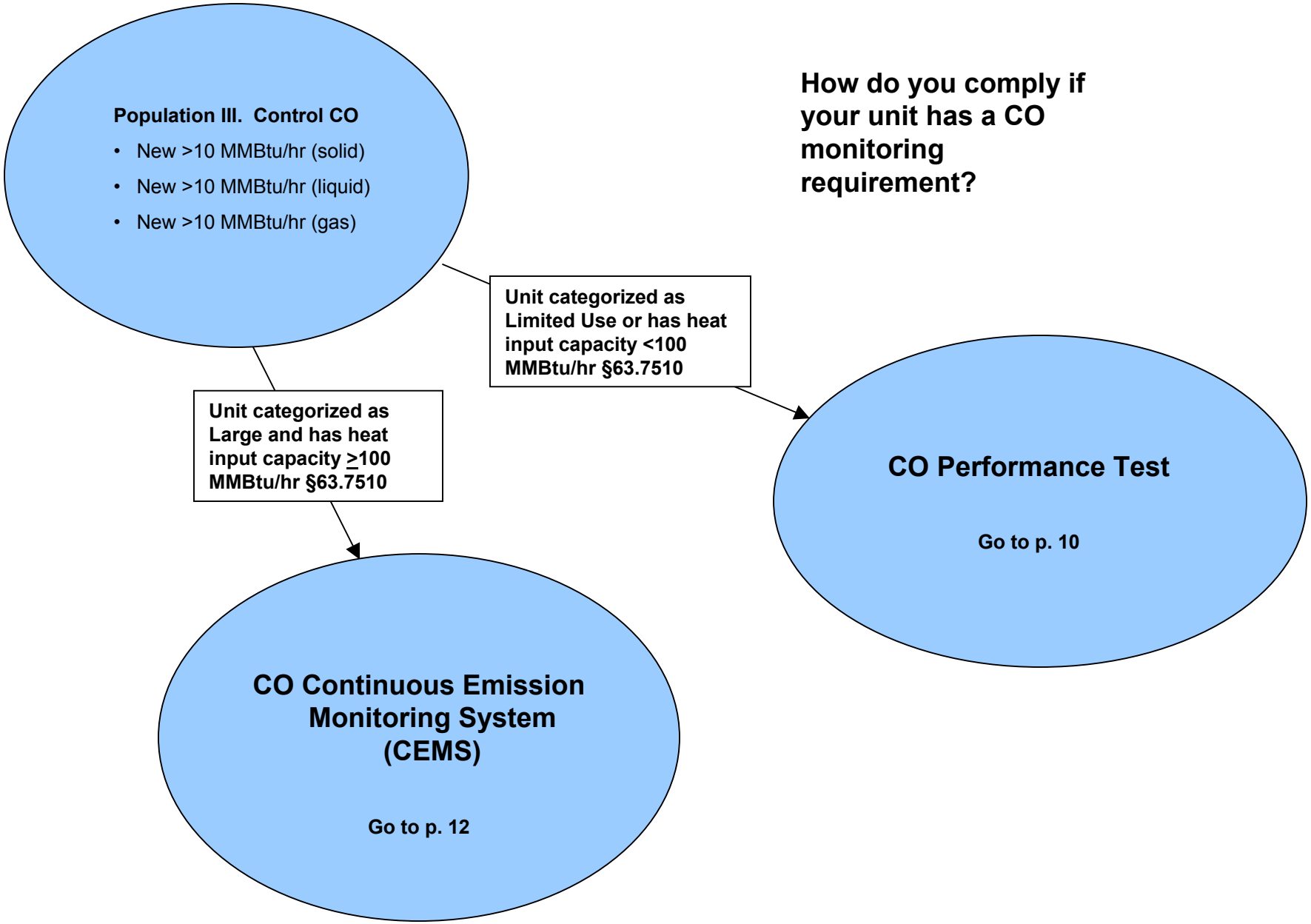
Records and Reports

- Initial notification (§63.7545)
- No other records or reports

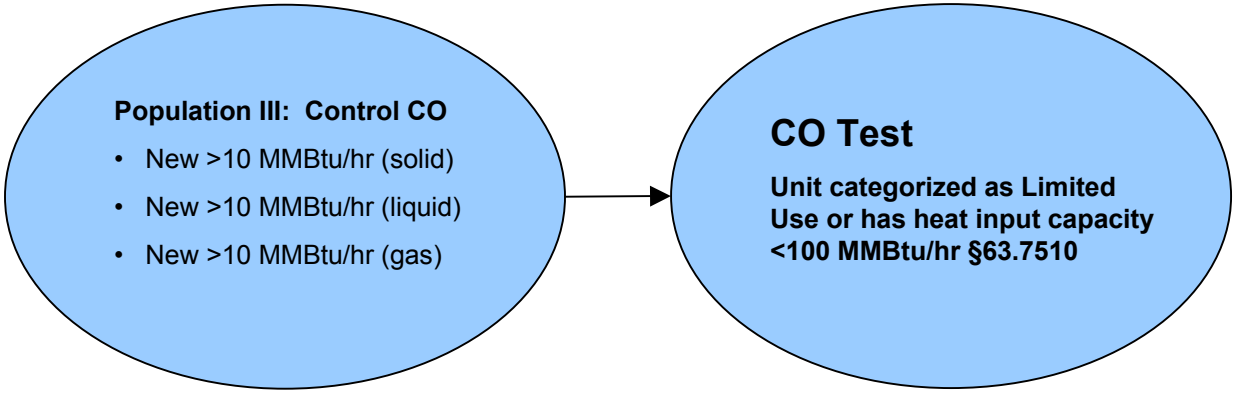
What you need to know

New units ≤10 MMBtu/hr that burn distillate oil only or distillate oil combined with gaseous fuel that begin to burn any other type of liquid fuel must comply with all applicable requirements of the boilers and process heaters NESHAP upon burning the other type of liquid fuel. (§63.7506(b)(3))

Compliance > POPULATION III



Population III > CO TEST



How do you comply if you must conduct a performance test for CO?

General

General §63.7505

- Develop and implement a written SSM plan according to 63.6(e)(3) (§63.7505(e)).
- Maintain CO level below 400 ppm at all times, except for periods of startup, shutdown, and malfunction (SSM) (§63.7505(a)).
- Solid fuel units use an oxygen correction factor of 7 percent for CO; liquid and gas units use oxygen correction factor of 3 percent for CO.
- Minimize emissions during periods of SSM according to §63.6(e)(1)(I) (§63.7505(b)).

Initial

Initial §63.7510(c)

- Develop a site-specific test plan according to §63.7 (§63.7520(a)).
- Conduct initial performance test for CO according to §63.7(c), (d), and (h), §63.7510(c), Table 5 of subpart DDDDD (§63.7520(a), (b)).
- See page 19 for more details on the performance testing requirements.

Continuous

Annual §63.7515, §63.7520

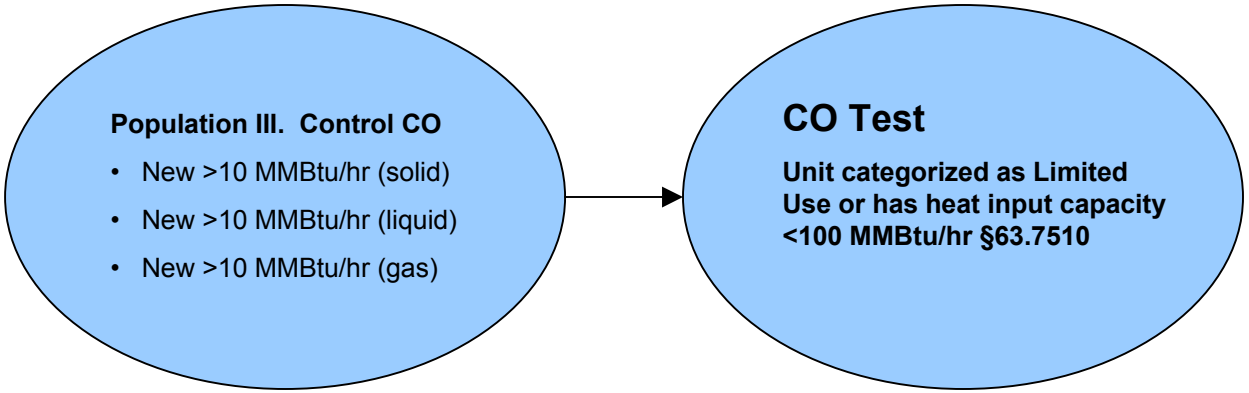
- Conduct annual performance test for CO according to §63.7, Table 5 of subpart DDDDD (§63.7520(a), (b)).
- Use 3-run average during CO performance test.
- Complete test between 10 and 12 months after previous performance test (§63.7515(e)).
- Operate according to SSM plan during periods of SSM (§63.7540(c)).

Records and Reports

Keep Records and Submit Reports

Go to p.11.

Population III > CO Test > RECORDS & REPORTS



What records and reports are required for units that conduct a CO performance test?

Notifications

Initial Notification §63.7545

Testing and monitoring notifications in General Provisions (§63.7545(a)).

Notification of Intent to conduct a performance test at least 30 days before performance test is scheduled according to 63.7 (63.7545(d)).

Notification of Compliance Status

Notification of Compliance Status (NOCS) §63.7545(e)

Regarding CO, NOCS must include:
- summary of performance test results
- signed certification that you met all work practice standards
- summary of CO emissions monitoring data and maximum CO levels recorded during performance test
- description of any deviation, its duration, and corrective action taken

See §63.7545(e) for a full description of the NOCS requirements.

Compliance Report

Compliance Report (semiannual) §63.7550(c)

- If no deviations, then include statement that there were no deviations from CO requirements.
- For each deviation, include information in §63.7550(e).
- For each source that has obtained a Title V permit, report all deviations in semiannual monitoring report required by 40 CFR 70.6 and 71.6 (§63.7550(f)).

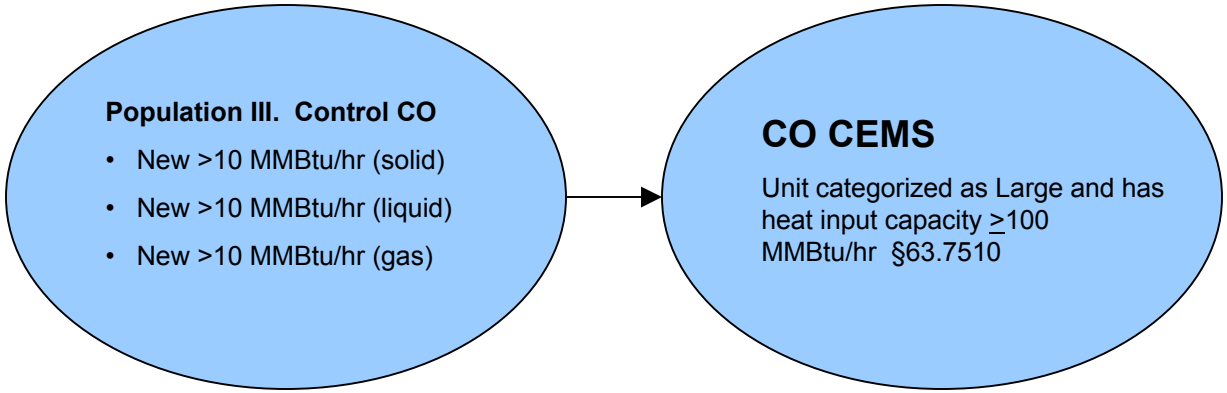
See §63.7550(c) for a full description of the compliance report requirements.

Other Records and Reports

Immediate SSM report if SSM actions not consistent with SSM plan (Table 9 of subpart DDDDD).

Notification of Alternative Fuel Use (§63.7550(g)).

Population III > CO CEMS



How do you comply if you must install a CEMS for CO?

General

General Compliance §63.7505

- Develop a site-specific monitoring plan (§63.7505(d)).
- Develop and implement a written SSM plan according to §63.6(e)(3) (§63.7505(e)).
- Maintain CO level below 400 ppm at all times, except for periods of startup, shutdown, and malfunction or if unit is operating at <50 percent rated capacity (§63.7540(a)(10)(ii)), (§63.7505(a)).
- Solid fuel units use an oxygen correction factor of 7 percent for CO; liquid and gas units use oxygen correction factor of 3 percent for CO.
- Minimize emissions during periods of SSM according to §63.6(e)(1)(I) (§63.7505(b)).

Initial

Initial Compliance - CO CEMS - §63.7525

- Install, operate and maintain a continuous emissions monitoring system to monitor CO (CO CEMS) according to §63.7525(a) (§63.7510(c)),
- Conduct a CEMS performance evaluation according to §63.7525(a) (§63.7510(c)).

Continuous

Continuous Compliance - CO CEMS - §63.7535, §63.7540

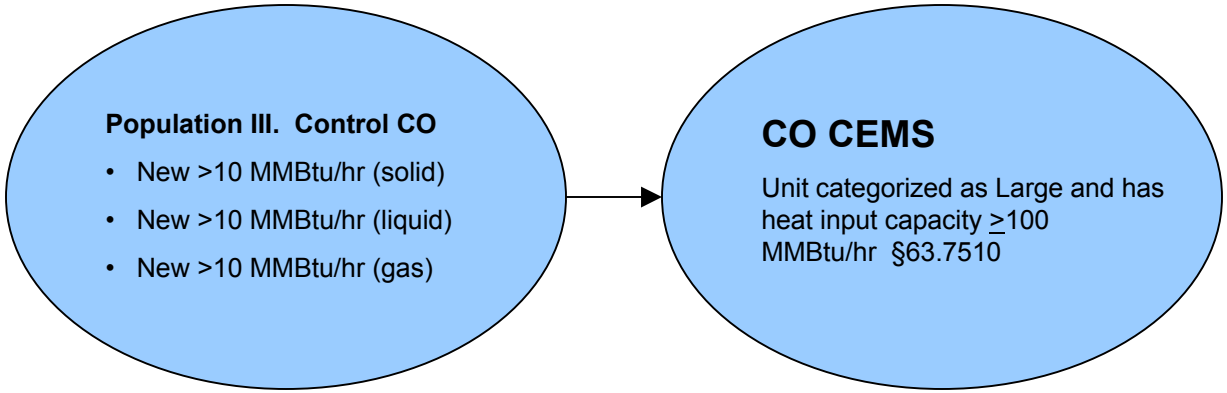
- Operate and maintain the CO CEMS according to §63.7525(a) (§63.7540(a)(10)(i)).
- Maintain CO level below 400 ppm (30-day rolling average) according to the procedures in §63.7525(a) and §63.7530, except during periods of SSM or if unit is operating at <50 percent rated capacity (§63.7540(a)(10)(ii)).
- Monitor and collect data according to §63.7535(a) and the site-specific monitoring plan (§63.7535(a)).
- Monitor continuously (or collect data at all required intervals) at all times the source is operating. Use all data collected during periods when assessing the operation of the system, except during periods of SSM or if unit is operating at <50 percent rated capacity (§63.7535(b), (c)).
- Operate according to SSM plan during periods of SSM §63.7540(c).

Records and Reports

Keep Records and Submit Reports

Go to p.13.

Compliance > Population III > CO CEMS > RECORDS & REPORTS



What records and reports are required for units that install a CEMS for CO?

Notifications

Initial Notification (§63.7545).

Testing and monitoring notifications in General Provisions (§63.7545(a)).

Notification of Compliance Status

Notification of Compliance Status (NOCS) §63.7545(e)

Regarding CO, NOCS must include:

- description of affected source, controls, and fuel
- signed certification that you met all work practice standards
- summary of CO emissions monitoring data
- description of any deviation, its duration, and corrective action taken

See §63.7545(e) for a full description of the NOCS requirements.

Compliance Report

Compliance Report (semiannual) 63.7550(c)

Regarding CO, compliance report must include:

- If no deviations, then include statement that there were no deviations from CO requirements
- If no periods when CEMS was out of control, then report no out-of-control periods
- For each deviation, include information in 63.7550(e)
- For each source that has obtained a Title V permit, report all deviations in semiannual monitoring report required by 40 CFR 70.6 and 71.6 (63.7550(f)

See §63.7550(c) for a full description of the compliance report requirements.

Other Records and Reports

Immediate SSM report if SSM actions not consistent with SSM plan (Table 9 of subpart DDDDD).

Notification of Alternative Fuel Use (§63.7550(g)).

Compliance > Population IV

Population IV:
Control PM (or TSM), HCl, Hg

- Existing >10 MMBtu/hr (solid)
- New, all sizes (solid)
- New, all sizes (liquid, except ≤10 MMBtu/hr distillate oil only or distillate oil combined with gaseous fuel)

How do you comply if your unit is in Population IV?

Is your unit NEW, classified as LARGE or LIMITED USE, burns only LIQUID fossil fuels and other gases, and does not burn any residual oil?

Yes

A. Fuel Selection

- No performance test
- No operating limits
- Keep fuel records
- Submit semiannual certification

Go to p. 15

No

Analyze fuel pollutant content. Is the calculated maximum emission rate below the emission limit?

Yes

B. Fuel Analysis

- Demonstrate that your calculated maximum emission rate (based on fuel pollutant content) is below emission limit

Go to p. 16

No

You must complete performance tests to demonstrate compliance.

Yes

C. Performance Test

- Conduct performance test
- Conduct fuel analysis for each type of fuel and establish maximum fuel pollutant input levels
- Establish and continuously monitor operating parameters

Go to p. 17

Compliance Alternatives

Large, solid fuel boilers have the following compliance alternatives, in addition to fuel analysis:

- For existing units at the same facility, use emission averaging to meet PM (or TSM), HCl, Hg (§63.7522) (See p. 27)
- Demonstrate eligibility for the health-based compliance alternative for HCl emissions using the procedures in Appendix A (§63.7507). (See p. 28)
- Demonstrate eligibility for the health-based compliance alternative for TSM emissions using the procedures in Appendix A (§63.7507). (See p. 29)

Population IV > FUEL SELECTION

Population IV:
Control PM (or TSM), HCl, Hg

- Existing >10 MMBtu/hr (solid)
- New, all sizes (solid)
- New, all sizes (liquid, except ≤10 MMBtu/hr distillate oil only or distillate oil combined with gaseous fuel)

A. Fuel Selection

Applies only to NEW, LARGE, or LIMITED USE (>10 MMBtu/hr) that burns only LIQUID fossil fuels and other gases and does not burn any residual oil

- No performance test
- No operating limits

What are your requirements if you use fuel selection to comply?

General

General §63.7505

Minimize emissions during periods of SSM according to §63.6(e)(1)(i) (§63.7505(b)).

Develop and implement a written SSM plan according to §63.6(e)(3) (§63.7505(e)).

Initial

Initial §63.7506

Include a signed statement in the Notification of Compliance Status report required in §63.7545(e) that indicates you burn only liquid fossil fuels other than residual oils, either alone or in combination with gaseous fuels (§63.7506(a)(1)).

Continuous

Continuous §63.7506

Keep records that demonstrate that you burn only liquid fossil fuels other than residual oils, either alone or in combination with gaseous fuels (§63.7506(a)(1)).

Include a signed statement in each semiannual Compliance Report required in §63.7550 that indicates you burned only liquid fossil fuels other than residual oils, either alone or in combination with gaseous fuels, during the reporting period (§63.7506(a)(2)).

Records and Reports

Keep Records and Submit Reports

Initial Notification (§63.7545)

Notification of Compliance Status (§63.7545)

Compliance Report (semiannual) (§63.7550)

Records (§63.7555)

What you need to know

If you commence burning residual oil, then you must comply by using fuel analysis (p. 16) or performance testing (p. 17).

Population IV > FUEL ANALYSIS

Population IV:
Control PM (or TSM), HCl, Hg

- Existing >10 MMBtu/hr (solid)
- New, all sizes (solid)
- New, all sizes (liquid, except ≤10 MMBtu/hr distillate oil only or distillate oil combined with gaseous fuel)

B. Fuel Analysis (TSM, HCl, Hg)

What are your requirements if you use fuel pollutant content to comply?

General

General §63.7505

Develop a site-specific fuel analysis plan (§63.7521(b)).

Develop and implement a written SSM plan according to §63.6(e)(3) (§63.7505(e)).

Calculate your emission rate according to §63.7530(d). If the calculated emission rate is below the applicable emission limit, demonstrate compliance with the applicable emission limit using fuel analysis. Otherwise, you must demonstrate compliance through performance testing (§63.7505(c)) (see p. 17).

Comply with emission limits at all times, except for periods of startup, shutdown, and malfunction (SSM) (§63.7505(a)).

Minimize emissions during periods of SSM according to §63.6(e)(1)(I) (§63.7505(b)).

Initial

Initial §63.7521

Submit site-specific fuel analysis plan 60 days before you intend to demonstrate compliance (§63.7521(b)).

Conduct fuel analysis for each type of fuel burned according to §63.7521.

Demonstrate that your calculated maximum emission rate (based on fuel pollutant content) is below emission limit.

Continuous

Continuous

No annual performance test.

Maintain TSM, Cl, Hg fuel content at or below the limit established during the initial fuel analysis.

Recalculate the metals, Cl, Hg content of fuel if you plan to burn a new fuel, (§63.7515(f), §63.7540).

Recalculate the metals, Cl, Hg content of each type of fuel every 5 years (§63.7515(f)).

Keep records of all fuels burned.

Records and Reports

Keep Records and Submit Reports

Initial Notification (§63.7545)

Notification of Compliance Status (§63.7545)

Compliance Report (semiannual) (§63.7550)

Records (§63.7555)

Population IV > PERFORMANCE TEST

Population IV:
Control PM (or TSM), HCl, Hg

- Existing >10 MMBtu/hr (solid)
- New, all sizes (solid)
- New, all sizes (liquid, except ≤10 MMBtu/hr distillate oil only or distillate oil combined with gaseous fuel)

C. Performance Test

What are your requirements if you use performance testing to demonstrate compliance?

General

General §63.7505

Develop a site-specific monitoring plan (§63.7505(d)).

Develop a site-specific fuel analysis plan (§63.7521(b)).

Develop and implement a written SSM plan according to §63.6(e)(3) (§63.7521(e)).

Comply with emission limits at all times, except for periods of startup, shutdown, and malfunction (SSM) (§63.7505(a)).

Minimize emissions during periods of SSM according to §63.6(e)(1)(i) (§63.7505(b)).

Initial

Initial

Conduct initial performance test. (See p. 18.)

Conduct fuel analysis for each type of fuel to establish maximum fuel pollutant input levels (regardless of whether you use fuel analysis to demonstrate compliance) §63.7530(c). (See note below)

Install, operate and maintain a system to monitor continuous parameters, and opacity as applicable. (See p. 19, 20)

Establish operating limits for your PM (or TSM), opacity control device(s) during the performance test. (See p. 21, 22)

Establish operating limits for your HCl control device during performance test. (See p. 23, 24)

Establish operating limits for your Hg control device(s) during the performance test. (See p. 25, 26)

Continuous

Continuous

Conduct annual performance test. (See p. 18)

Operate and maintain your system to monitor continuous parameters. (See p. 19, 20)

Monitor and collect data to demonstrate continuous compliance with your PM (or TSM), Hg, opacity control device operating limits (§63.7535, Tables 8, 9).

Monitor and collect data to demonstrate continuous compliance with your HCl control device operating limits (§63.7535, Tables 8, 9).

Report each instance in which you did not meet each emission limit and each operating limit (§63.7540(b)).

Maintain continuous compliance with operating limits for your PM (or TSM), Hg control device(s).

Records and Reports

Keep Records and Submit Reports

Initial Notification (§63.7545)

Notification of Compliance Status (§63.7545)

Compliance Report (semiannual) (§63.7550)

Records (§63.7555)

What you need to know

If you switch fuel types, you must conduct a fuel analysis on your new fuel and demonstrate that the maximum fuel pollutant input levels are lower than the maximum fuel pollutant input levels of the fuel you burned during your previous performance test.

Population IV > PERFORMANCE TEST

What are the performance testing requirements?

Unit has an emission limit for PM (or TSM), HCl, or Hg and cannot demonstrate fuel pollutant content is below emission limit.

Who?

Unit has an emission limit for PM (or TSM), HCl, or Hg and cannot demonstrate compliance by demonstrating that the fuel pollutant content is below the emission limit

- Establish and monitor operating parameters for your control devices to demonstrate compliance.
- Establish and monitor fuel pollutant content during an initial performance test to demonstrate compliance.

Unit has a CO monitoring requirement and has a rated heat input less than 100 MMBtu/hr

What data do I collect and how do I collect it?

See "How do I install, operate and maintain my system to monitor continuous parameters? (See p. 19, 20)
See "How do I establish my operating limits?" (See p. 22, 24, 26)
Conduct fuel analysis for each type of fuel (regardless of whether you user fuel analysis to demonstrate compliance) §63.7530(c).

How?

§63.7520

- Develop site-specific test plan according to §63.7(c).
- Use test methods listed in Table 5 of subpart DDDDD.
- Conduct performance tests according to §63.7(c), (d), (f), and (h) under the specific conditions listed in Tables 5 and 7 of subpart DDDDD. (63.7520(d)).
- Conduct performance test at the maximum normal operating load while burning the type of fuel or mixture of fuels that have the highest content of chlorine, mercury, and total selected metals. Demonstrate initial compliance and establish operating limits based on these tests (63.7520(d)).
- Conduct 3 separate test runs as specified in §63.7(e)(3).
- Use F-Factor methodology in Method 19 to convert pollutant concentrations to pounds per MMBtu.
- Apply to the Administrator for approval of alternative monitoring. (§63.8(f))
- Conduct fuel analysis for each type of fuel to establish maximum fuel pollutant input levels (regardless of whether you use fuel analysis to demonstrate compliance) §63.7530(c).

How Often?

§63.7510, §63.7515
You must conduct all applicable performance tests initially, then annually, with the following exceptions:

- If you demonstrate compliance with the applicable emission limits for any pollutant for three consecutive years, you can conduct performance tests every three years. However, if you do not meet an emission limit at any point in time, you must return to annual performance tests until you demonstrate compliance for three consecutive years. §63.7515(b)
- You are not required to conduct annual performance tests for total selected metals, hydrogen chloride or mercury if your operating limit is based on fuel input. However, you must still meet the continuous compliance requirements of §63.7540.
- During each annual performance test, you must evaluate the status of your operating limits and report if they change as a result of the performance test. §63.7515(h).
- Conduct a fuel analysis for each type of fuel burned every 5 years or when you burn a new type of fuel (63.7515(f)). However, you must still meet the continuous compliance requirements of 63.7540.
- If you burn a new type of fuel that has a maximum fuel pollutant input level higher than the maximum fuel pollutant input level established during the previous performance test, then you must conduct a new performance test within 60 days of burning the new type of fuel.

Population IV > Performance Test > CPMS

How do you install, operate, and maintain a system to monitor continuous parameters?

You are demonstrating continuous compliance using parametric monitoring

Continuous Parameter Monitoring System (CPMS)

Install, operate and maintain each CPMS according to 63.8 and §63.7525(c)(1)-(5).

ESP

- Use voltage and secondary current monitoring equipment to measure voltage and secondary current to the ESP.

Wet scrubber

Flow sensor
- Locate flow sensor and associated equipment to provide a representative measure of flow.
- Flow sensor must have sensitivity of 2 percent of flow rate
- Calibrate semi-annually.

pH sensor (for HCl)
- Locate pH sensor to provide a representative measure of scrubber effluent pH.
- Calibrate on at least two points every 8 hours of process operation.

Pressure sensor
- Locate pressure sensor to provide a representative measure of pressure.
- Use a gauge with a minimum tolerance of 1.27 cm of water or a tolerance of 1 percent of the pressure rise
- Check pressure tap for pluggage daily.
- Calibrate gauge quarterly and transducer monthly

Dry scrubber/ Carbon injection

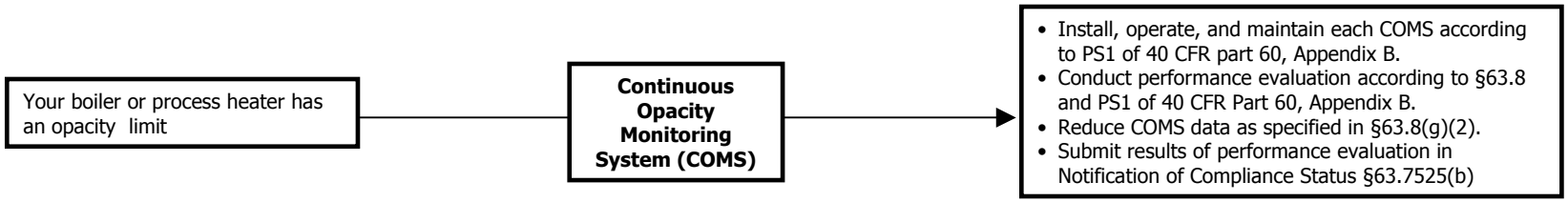
- Locate device to provide representative measurement of total sorbent injection rate.
- Install and calibrate device in accordance with manufacturer's specifications.
- Inspect device monthly. Calibrate device annually. §63.7525(e)

Fabric Filter

- Install, operate, calibrate and maintain the bag leak detection system, consistent with manufacturer's specifications and written EPA guidance.
- Must be capable of detecting PM concentrations of 10 milligrams per actual cubic meter.
- Continuously record output from the sensor.
- Install an alarm that will automatically sound when there is an increase in relative PM emissions. §63.7525(i)
- Locate the alarm where it is easily heard by plant personnel. 63.7525(i)
- For positive pressure FF systems that do not duct all compartments of cells to a common stack, install a bag leak detection system in each baghouse compartment or cell. 63.7525(i)

Population IV > Performance Test > OPACITY

How do you install, operate, and maintain a system to monitor opacity?



Population IV > Performance Test > PM (or TSM) OPERATING LIMITS

What are the operating limits for PM (or TSM)?

You are demonstrating continuous compliance with PM (or TSM) using parametric monitoring.

PM

TSM

- Wet Scrubber Control - Maintain pressure drop and liquid flowrate at or above the levels established during performance test.
- Fabric Filter Control - Maintain fabric filter operation such that the bag leak alarm sounds less than 5 percent of the time during a 6-month period – **OR** – for dry control systems, maintain opacity levels at or below 20% (6-minute average) for existing units; at or below 10% (1-hour block average) for new units.
- Electrostatic Precipitator Control - Maintain opacity levels at or below 20% (6-minute average) for existing units; at or below 10% (1-hour block average) for new units - **OR** - if in combination with a wet scrubber, maintain the voltage and secondary current levels or total power input of the ESP at or above the levels established during performance test.
- Any Other Control Type - Maintain opacity levels at or below 20% (6-minute average) for existing units; at or below 10% (1-hour block average) for new units.
- No Control or No Credit for Control - Maintain fuel type or fuel mixture such that the total selected metals emission rate calculation per §63.6530(d)(4) is less than the applicable emission limit.

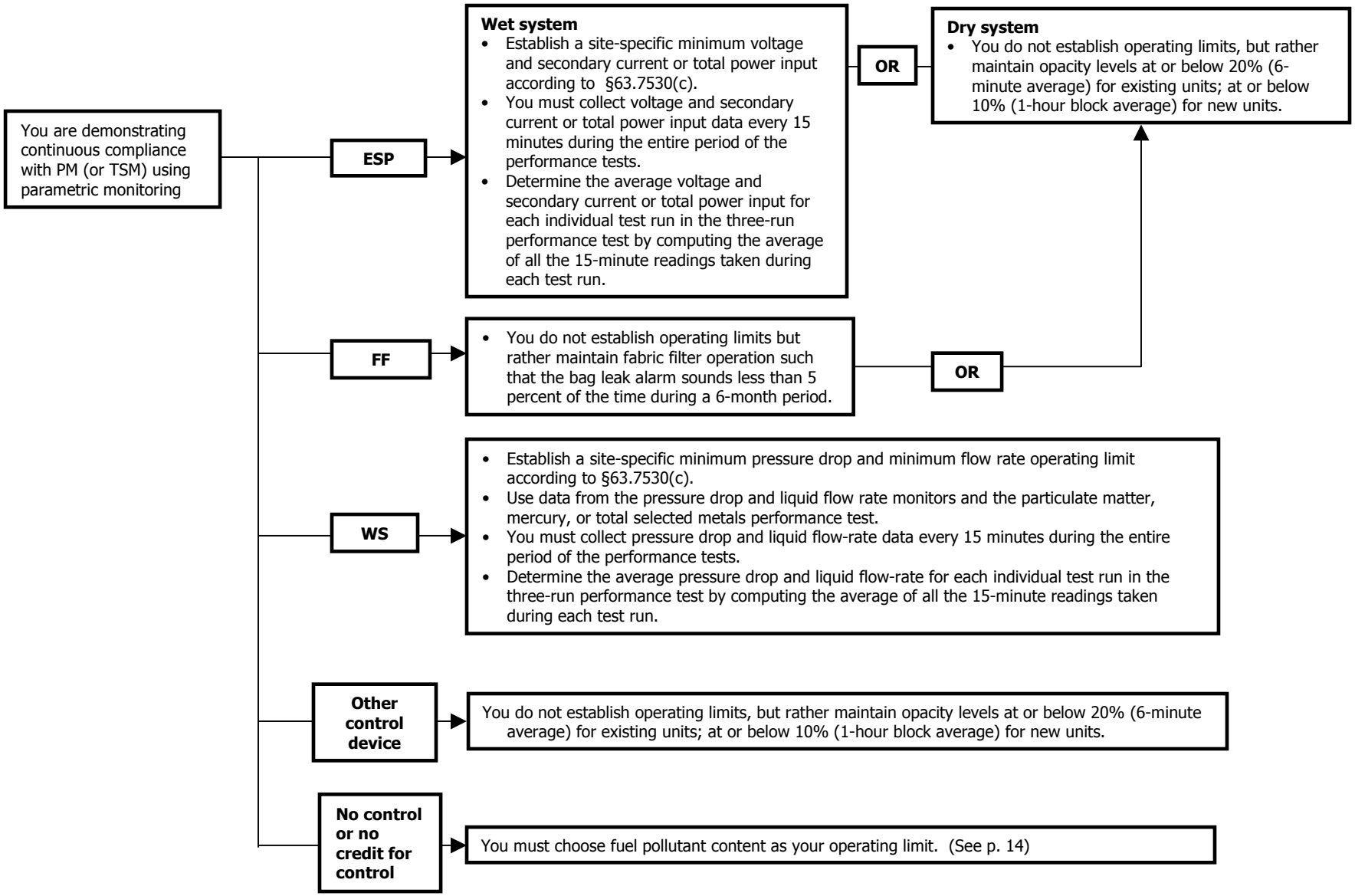
(See Table 5 of subpart DDDDD)

OR

Develop and submit requests for alternative operating limits and/or monitoring parameters (§63.7500(a)(2) 63.8(f))

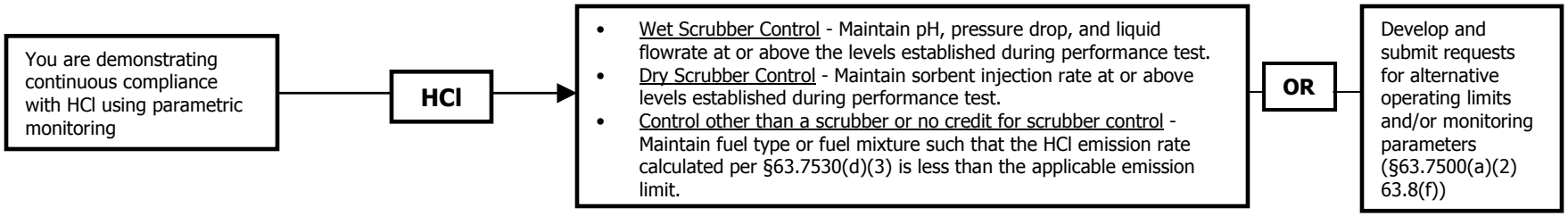
Population IV > Performance Test > ESTABLISHING PM (or TSM) OPERATING LIMITS

How do you establish your operating limits to control PM (or TSM)?



Population IV > Performance Test > HCl OPERATING LIMITS

What are the operating limits for HCl?



Population IV > Performance Test > ESTABLISHING HCl OPERATING LIMITS

How do you establish your operating limits to control HCl?

You are demonstrating continuous compliance with HCl using parametric monitoring

WS

- Establish a site-specific minimum pressure drop and minimum flow rate operating limit according to §63.7530(c).
- Use data from the pH, pressure drop, and liquid flow rate monitors and the hydrogen chloride performance test.
- You must collect pH, pressure drop, and liquid flow-rate data every 15 minutes during the entire period of the performance tests.
- Determine the average pH, pressure drop, and liquid flow-rate for each individual test run in the three-run performance test by computing the average of all the 15-minute readings taken during each test run.

DS

- Establish a site-specific minimum sorbent injection rate operating limit according to §63.7530(c).
- Use data from the sorbent injection rate monitors and the hydrogen chloride performance test.
- You must collect sorbent injection rate data every 15 minutes during the entire period of the performance tests.
- Determine the average sorbent injection rate for each individual test run in the three-run performance test by computing the average of all the 15-minute readings taken during each test run.

No control or no credit for control

You must choose fuel pollutant content as your operating limit. (See p. 16)

Population IV > Performance Test > Hg OPERATING LIMITS

What are the operating limits for Hg?

You are demonstrating continuous compliance with Hg using parametric monitoring

Hg

- Wet Scrubber Control - Maintain pressure drop and liquid flowrate at or above the levels established during performance test.
- Fabric Filter Control - Maintain fabric filter operation such that the bag leak alarm sounds less than 5 percent of the time during a 6-month period – **OR** – for dry control systems, maintain opacity levels at or below 20% (6-minute average) for existing units; at or below 10% (1-hour block average) for new units.
- Electrostatic Precipitator Control - Maintain opacity levels at or below to 20% (6-minute average) for existing units; at or below 10% (1-hour block average) for new units - **OR** - if in combination with a wet scrubber, maintain the voltage and secondary current levels or total power input of the ESP at or above the levels established during performance test.
- Any Other Control Type - Maintain opacity levels at or below 20% (6-minute average) for existing units; at or below 10% (1-hour block average) for new units.
- No Control or No Credit for Control - Maintain fuel type or fuel mixture such that the mercury emission rate calculated per §63.7530(d)(5) is less than the applicable emission limit.

(See Table 5 of subpart DDDDD)

OR

Develop and submit requests for alternative operating limits and/or monitoring parameters (§63.7500(a)(2) 63.8(f))

How do you establish your operating limits to control Hg?

You are demonstrating continuous compliance with Hg using parametric monitoring

ESP

Wet system
- Establish a site-specific minimum voltage and secondary current or total power input according to §63.7530(c).
- You must collect voltage and secondary current or total power input data every 15 minutes during the entire period of the performance tests.
- Determine the average voltage and secondary current or total power input for each individual test run in the three-run performance test by computing the average of all the 15-minute readings taken during each test run.

OR

Dry system
You do not establish operating limits, but rather maintain opacity levels at or below 20% (6-minute average) for existing units; at or below 10% (1-hour block average) for new units.

FF

- You do not establish operating limits but rather maintain fabric filter operation such that the bag leak alarm sounds less than 5 percent of the time during a 6-month period.

OR

WS

- Establish a site-specific minimum pressure drop and minimum flow rate operating limit according to §63.7530(c).
- Use data from the pressure drop and liquid flow rate monitors and the particulate matter, mercury, or total selected metals performance test.
- You must collect pressure drop and liquid flow-rate data every 15 minutes during the entire period of the performance tests.
- Determine the average pressure drop and liquid flow-rate for each individual test run in the three-run performance test by computing the average of all the 15-minute readings taken during each test run.

DS/CI

- Collect sorbent or carbon injection rate every 15 minutes during the entire period of performance.
- Determine the average injection rate for each individual test run in the three-run performance test by computing the average of all the 15-minute readings taken during each test run.

Other control device

You do no establish operating limits, but rather maintain opacity levels at or below 20% (6-minute average) for existing units; at or below 10% (1-hour block average) for new units.

No control or no credit for control

You must choose fuel pollutant content as your operating limit. (See p. 16)

Population IV. Control PM (or TSM), HCl, Hg

- Existing >10 MMBtu/hr (solid)

Existing, large, solid fuel boilers have the following compliance alternative:

Use emission averaging to meet PM (or TSM), HCl, Hg (§63.7522).

How do you comply if you use emission averaging to meet the emission limits for PM (or TSM), HCl, or Hg?

General

General §63.7522

The weighted average emissions from boilers participating in the emissions averaging option must be in compliance with the emission limits at all times §63.7522(d).

Develop and submit an implementation plan for emission averaging to the applicable regulatory authority for review and approval (§63.7522(g)).

Initial

Initial §63.7522

Demonstrate that the average weighted PM (or TSM), or HCl and Hg emissions from all boilers participating in emissions averaging option do not exceed the emission limits (§63.7522(e)).

Continuous

Continuous §63.7522

At the end of every month, demonstrate continuous compliance on a 12-month rolling average basis (§63.7522(f)).

Maintain operating limits at or below the limits set during previous performance test. (See p. 22, 24, 26)

Records and Reports

Keep Records and Submit Reports

Initial Notification (§63.7545)

Notification of Compliance Status (§63.7545). Specifically, identification of whether you plan to demonstrate compliance by emissions averaging (§63.7545(e)(6).

Compliance Report (semiannual) (§63.7550)

Records (§63.7555)

Population IV. Control PM (or TSM), HCl, Hg

- Existing >10 MMBtu/hr (solid)
- New, all sizes (solid)

Large, solid fuel boilers have the following compliance alternative:

Demonstrate eligibility for the health-based compliance alternative for HCl emissions in Appendix A (§63.7507).

How do you demonstrate eligibility for the health-based compliance alternative for HCl in Appendix A?

General

General (Appendix A)

Conduct HAP emissions tests for every emission point that can emit HCl or Cl_2 subject to the boilers NESHAP according to the requirements in Section 4 of Appendix A.

For HCl demonstration, test for both HCl and Cl_2

Determine the maximum hourly emission rate for each appropriate emission point according to Equation 1 of Appendix A.

Demonstrate that your facility is eligible for either of the health-based compliance alternatives using either the Look-up Table Analysis or the Site-specific Compliance Demonstration described in Appendix A.

Initial

Initial (Appendix A, #8)

Submit to your permitting authority and EPA, your health-based eligibility demonstration that contains, at a minimum, the information in Section 8 paragraphs(a)(1) through (6).

If you use the Look-up Table Analysis in Section 6 of Appendix A, your eligibility demonstration must also contain, at a minimum, the information in Section 8, paragraphs (b)(1) through (3).

If you use a Site-specific Compliance Demonstration as described in Section 7 of Appendix A, your eligibility demonstration must contain, at a minimum, the information in Section 8, paragraphs (c)(1) through (6).

Continuous

Continuous (Appendix A, #11)

Update your eligibility demonstration and resubmit it each time you have a process change, such that any of the parameters that defined your affected source changes in a way that could result in increased HAP emissions.

If you are updating your eligibility demonstration, then you must perform emission testing according to section 4 of Appendix A for the emission points that may have increased HAP emissions beyond the levels reflected in your previously approved eligibility demonstration due to the process change.

Submit your revised eligibility demonstration to the permitting authority prior to revising your permit to incorporate the process change.

Records and Reports

Keep Records and Submit Reports (Appendix A, #12)

Keep records of the information used in developing the eligibility demonstration for your affected source, including all of the information specified in Section 8 of Appendix A.

Population IV. Control PM (or TSM), HCl, Hg

- Existing >10 MMBtu/hr (solid)
- New, all sizes (solid)

Units complying with the TSM emission limit have the following compliance alternative:

If you can demonstrate eligibility for the health-based compliance alternative for TSM emissions in Appendix A (§63.7507), then you may exclude manganese from the summation of total selected metals (TSM) emissions when demonstrating compliance with the TSM emission limit.

How do you demonstrate eligibility for the health based compliance alternative for TSM in Appendix A?

General

General (Appendix A)

Conduct HAP emissions tests for every emission point that can emit manganese subject to the boilers NESHAP according to the requirements in Section 4 of Appendix A.

Determine the maximum hourly TSM (excluding manganese) emission rate for each appropriate emission point according to Equation 1 of Appendix A.

Demonstrate that your facility is eligible for either of the health-based compliance alternatives using either the Look-Up Table Analysis or the Site-specific Compliance Demonstration described in Appendix A.

Initial

Initial (Appendix A, #8)

Submit to your permitting authority and EPA, your health-based eligibility demonstration that contains, at a minimum, the information in Section 8 paragraphs(a)(1) through (6).

If you use the Look-up Table Analysis in Section 6 of Appendix A, your eligibility demonstration must also contain, at a minimum, the information in Section 8, paragraphs (b)(1) through (3).

If you use a Site-specific Compliance Demonstration as described in section 7 of Appendix A, your eligibility demonstration must contain, at a minimum, the information in Section 8, paragraphs (c)(1) through (6).

Continuous

Continuous (Appendix A, #11)

Update your eligibility demonstration and resubmit it each time you have a process change, such that any of the parameters that defined your affected source changes in a way that could result in increased HAP emissions.

If you are updating your eligibility demonstration, then you must perform emission testing according to section 4 of Appendix A for the emission points that may have increased HAP emissions beyond the levels reflected in your previously approved eligibility demonstration due to the process change.

Submit your revised eligibility demonstration to the permitting authority prior to revising your permit to incorporate the process change.

Records and Reports

Keep Records and Submit Reports (Appendix A, #12)

Keep records of the information used in developing the eligibility demonstration for your affected source, including all of the information specified in Section 8 of Appendix A.

What you need to know

If you can demonstrate eligibility for the health-based compliance alternative for manganese, you still must comply with the TSM emission limit for seven selected metals by using fuel analysis (see p. 16) or performance testing (see p. 17).