Date: November 16, 2012

Subject: 75 Percent CPMS Operating Limit Approach – MATS Reconsideration

From: Nick Hutson, U.S. EPA Office of Air and Radiation

To: Docket No. EPA-HQ-OAR-2009-0234

As noted in the preamble to the proposed MATS reconsideration, the EPA is considering three PM CPMS compliance options for new EGUs. The third approach would allow an EGU owner or operator whose PM emissions as demonstrated during performance testing do not exceed 75 percent of the PM emissions limit to set his PM CPMS operating limit by linearly scaling the average operating value obtained during all the runs to be equivalent to the value at 75 percent of the limit; an EGU owner or operator whose PM emissions as demonstrated during performance testing exceed 75 percent of the PM emissions limit would establish his operating limit as a 30-day rolling average equal to the average PM CPMS values recorded during performance testing. Such an approach would prevent unnecessary retests for EGUs with low PM emissions. Should the EPA decide upon this third approach, the appropriate regulatory text would be as follows.

1. Revise § 63.10023 paragraph (b) to read as follows:

§ 63.10023 How do I establish my PM CPMS operating limit and determine compliance with it?

* * * * *

(b) Determine your operating limit as provided in paragraph (b)(1) or (b)(2) of this section. You must verify an existing or establish a new operating limit after each repeated performance test.

(1) For an existing EGU, determine your operating limit based on the highest 1-hour average PM CPMS output value recorded during the performance test.

(2) For a new EGU, determine your operating limit as follows.

(i) If your PM performance test demonstrates your PM emissions do not exceed 75 percent of your emissions limit, you will use the average PM CPMS value recorded during the PM compliance test, the milliamp equivalent of zero output from your PM CPMS, and the average PM result of your compliance test to establish your operating limit.

(A) Determine your instrument zero output with one of the following procedures.

(*1*) Zero point data for in-situ instruments should be obtained by removing the instrument from the stack and monitoring ambient air on a test bench.

(*2*) Zero point data for extractive instruments should be obtained by removing the extractive probe from the stack and drawing in clean ambient air.

(*3*) The zero point can also can be established obtained by performing manual reference method measurements when the flue gas is free of PM emissions or contains very low PM concentrations (e.g., when your process is not operating, but the fans are operating or your source is combusting only natural gas) and plotting these with the compliance data to find the zero intercept.
(*4*) If none of the steps in paragraphs (A)(*1*) through (*3*) of this section are possible, you must use a zero output value provided by the manufacturer.
(B) Determine your PM CPMS instrument average in milliamps, and the average of your corresponding three PM compliance test runs, using equation 10.

$$\overline{x} = \frac{1}{n}\sum_{i=1}^{n} X_1 \, , \overline{y} = \frac{1}{n}\sum_{i=1}^{n} Y_1 \qquad \text{(Eq. 10)}$$

Where:
X_1 = the PM CPMS data points for the runs constituting the performance test,
Y_1 = the PM emissions value (in lb/MWh) for the runs constituting the performance test, and
n = the number of data points.
(C) With your instrument zero expressed in milliamps, your test average PM CPMS milliamp value, and your test average PM emissions value (in lb/MWh) from your compliance runs, determine a relationship of PM lb/MWh per milliamp with equation 11.

$$\mathrm{R} = \frac{Y_1}{\left(X_1 - z\right)} \qquad \text{(Eq. 11)}$$

Where:
R = the relative PM lb/MWh per milliamp for your PM CPMS,
Y_1 = the three run average PM lb/MWh,
X_1 = the three run average milliamp output from you PM CPMS, and
z = the milliamp equivalent of your instrument zero determined from (i)(A).
(D) Determine your source specific 30-day rolling average operating limit using the PM lb/MWh per milliamp value from equation 11 in equation 12, below. This sets your operating limit at the PM CPMS output value corresponding to 75 percent of your emission limit.

$$O_l = z + (0.75(L))/ R \qquad \text{(Eq. 12)}$$

Where:

O_l = the operating limit for your PM CPMS on a 30-day rolling average, in milliamps.
L = your source PM emissions limit in lb/MWh,
z = your instrument zero in milliamps, determined from (i)(A), and
R = the relative PM lb/MWh per milliamp for your PM CPMS, from equation 11.
(ii) If your PM compliance test demonstrates your PM emissions exceed 75 percent of your emissions limit, you will use the average PM CPMS value recorded during the PM compliance test demonstrating compliance with the PM limit to establish your operating limit.
(A) Determine your operating limit by averaging the PM CPMS milliamp output corresponding to your three PM performance test runs that demonstrate compliance with the emission limit using equation 13.

$$O_h = \frac{1}{n}\sum_{i=1}^{n} X_1 \qquad \text{(Eq. 13)}$$

Where:
X_1 = the PM CPMS data points for all runs i,
n = the number of data points, and
O_h = your site specific operating limit, in milliamps.
(iii) Your PM CPMS must provide a 4-20 milliamp output and the establishment of its relationship to manual reference method measurements must be determined in units of milliamps.
(iv) Your PM CPMS operating range must be capable of reading PM concentrations from zero to a level equivalent to two times your allowable emission limit. If your PM CPMS is an auto-ranging instrument capable of multiple scales, the primary range of the instrument must be capable of reading PM concentration from zero to a level equivalent to two times your allowable emission limit.
(v) During the initial performance test or any such subsequent performance test that demonstrates compliance with the PM limit, record and average all milliamp output values from the PM CPMS for the periods corresponding to the compliance test runs.
(vi) For PM performance test reports used to set a PM CPMS operating limit, the electronic submission of the test report must also include the make and model of the PM CPMS instrument, serial number of the instrument, analytical principle of the instrument (e.g. beta attenuation), span of the instruments primary analytical range, milliamp value equivalent to the instrument zero output, technique by which this zero value was determined, and the average milliamp signal corresponding to each PM compliance test run.

2. Amend the Appendix by revising Table 4 to Subpart UUUUU of Part 63 to read as follows:

Table 4 to Subpart UUUUU of Part 63 — Operating Limits for EGUs

As stated in §§63.9991, you must comply with the applicable operating limits:

If you demonstrate compliance using...	You must meet these operating limits...
1. PM CPMS for an existing EGU	Maintain the 30-boiler operating day rolling average PM CPMS output at or below the highest 1-hour average measured during the most recent performance test demonstrating compliance with the filterable PM, total non-mercury HAP metals (total HAP metals, for liquid oil-fired units), or individual non-mercury HAP metals (individual HAP metals including Hg, for liquid oil-fired units) emissions limitation(s).
2. PM CPMS for a new EGU	Maintain the 30-boiler operating day rolling average PM CPMS output determined in accordance with the requirements of §63.10023(b)(2)and obtained during the most recent performance test run demonstrating compliance with the filterable PM, total non-mercury HAP metals (total HAP metals, for liquid oil-fired units), or individual non-mercury HAP metals (individual HAP metals including Hg, for liquid oil-fired units) emissions limitation(s).

3. Amend the Appendix by revising Table 6 to Subpart UUUUU of Part 63 to read as follows:

Table 6 to Subpart UUUUU of Part 63 — Establishing PM CPMS Operating Limits

As stated in §63.10007, you must comply with the following requirements for establishing operating limits:

If you	And you choose	And...	Using...	According to the

have an applicable emission limit for...	**to establish PM CPMS operating limits, you must...**			**following procedures...**
1. Filterable Particulate matter (PM), total non-mercury HAP metals, individual non-mercury HAP metals, total HAP metals, or individual HAP metals for an existing EGU.	Install, certify, maintain, and operate a PM CPMS for monitoring emissions discharged to the atmosphere according to §63.10010(h)(1).	Establish a site-specific operating limit in units of PM CPMS output signal (*e.g.*, milliamps, mg/acm, or other raw signal).	Data from the PM CPMS and the PM or HAP metals performance tests.	1. Collect PM CPMS output data during the entire period of the performance tests. 2. Record the average hourly PM CPMS output for each test run in the performance test. 3. Determine the highest 1-hour average PM CPMS measured during the performance test demonstrating compliance with the filterable PM or HAP metals emissions limitations.
2. Filterable Particulate matter (PM), total non-mercury HAP metals, individual non-mercury HAP metals, total HAP metals, or individual	Install, certify, maintain, and operate a PM CPMS for monitoring emissions discharged to the atmosphere according to §63.10010(h)(1).	Establish a site-specific operating limit in units of PM CPMS output signal (*e.g.*, milliamps, mg/acm, or other raw signal).	Data from the PM CPMS and the PM or HAP metals performance tests.	1. Collect PM CPMS output data during the entire period of the performance tests. 2. Record the average hourly PM CPMS output for each test run in the performance test. 3. Determine the PM CPMS operating limit in accordance with the requirements

HAP metals for a new EGU.				of §63.10023(b)(2)from data obtained during the performance test demonstrating compliance with the filterable PM or HAP metals emissions limitations.