

**PROPOSED RULE 218.3**

**CONTINUOUS EMISSION  
MONITORING SYSTEM:  
PERFORMANCE SPECIFICATIONS**

(a) Purpose

The purpose of Rule 218.3 is to establish performance specifications on certification and quality assurance and quality control program for Continuous Emission Monitoring Systems (CEMS), Alternative Continuous Emission Monitoring System (ACEMS), and Semi-Continuous Emission Monitoring System (SCEMS). Unless otherwise specified, the owner or operator of the CEMS, ACEMS, or SCEMS is responsible for compliance with the requirements specified in this rule.

(b) Applicability

- (1) This rule shall apply to an owner or operator of a CEMS, ACEMS, or SCEMS that is required by a South Coast AQMD rule, regulation or permit condition, except for a system that is to monitor:
  - (A) Performance of the basic or control equipment and not to determine compliance with any rule emission limit or emission standard; or
  - (B) NO<sub>x</sub> or SO<sub>x</sub> emissions subject to the Regulation XX - Regional Clean Air Incentives Market (RECLAIM).
- (2) All requirements specified for CEMS in this rule shall be applicable for ACEMS and SCEMS, unless otherwise specified.

(c) Definitions

- (1) ALTERNATIVE CONTINUOUS EMISSION MONITORING SYSTEM (ACEMS) means a system that use process or control device operating parameter measurements and a conversion equation, a graph, or computer program to produce results in units of the applicable emission limitation or standard on a continuous monitoring basis, which is demonstrated to the Executive Officer as having the same precision, reliability, accessibility, and timeliness as the data provided by a certified CEMS or certified CEMS component in accordance with Rule 218.2 and Rule 218.3.
- (2) ANALYZER means the part of the continuous emission monitoring system (CEMS) that analyzes the appropriate gaseous constituents of the

conditioned gaseous sample or measures stack gas volumetric flow and fuel flow rates, as applicable.

- (A) Pollutant Analyzer - the part of the CEMS that detects the air pollutant concentrations and represents those concentrations in a signal output.
  - (B) Diluent Analyzer - the part of the CEMS that detects oxygen (O<sub>2</sub>), carbon dioxide (CO<sub>2</sub>) or other diluent gas concentrations and represents those concentrations in a signal output.
  - (C) Fuel Flowmeter - the part of the CEMS that detects the parameters of all essential measurement sub-systems (e.g., temperature, pressure, differential pressure, frequency, gas density, gas composition, heating value) and generates signal outputs which are a function of the fuel flow rate and all essential measurement sub-system parameters.
  - (D) Stack Flowmeter - the part of the CEMS that detects the parameters from all essential measurement sub-systems (e.g., temperature, static and atmospheric pressure, gas density, gas composition, molecular weight, gas moisture content) and generates signal outputs which are a function of the stack gas volumetric flow rate and all essential measurement sub-system parameters.
- (3) CALIBRATION means a procedure performed to ensure that the CEMS accurately measures and records the concentration of the specific air pollutant or diluent gas, flow rate and other parameters necessary to generate the required data, as evidenced by calibration error tests and achieved by periodic manual or automatic adjustment.
  - (4) CALIBRATION DRIFT - change in the CEMS output or response over a specific period of normal continuous operation when the air pollutant or diluent gas concentration at the time of the measurements is the same known value.
  - (5) CALIBRATION ERROR means the ratio of the absolute value of the difference between the air pollutant or diluent gas concentration indicated by the CEMS and the known concentration of the calibration gas, to the upper span value, expressed as a percentage.
  - (6) CALIBRATION ERROR TEST means a procedure performed to determine CEMS response to a given gaseous compound concentration by means of

injecting a certified calibration gas mixture into the CEMS as close to the probe tip as practical.

- (7) CEMS MODIFICATION means a modification to a CEMS component that is identified on the CEMS final certification letter, or a modification to the CEMS sampling interface, analyzer, or data acquisition and handling system that is deemed by the Executive Officer to have a potential for adversely affecting the ability of the CEMS to provide accurate, precise and timely data representative of emissions for the unit being monitored.
- (8) CERTIFIED CEMS means a CEMS installed, tested, operated, maintained, and calibrated according to the applicable requirements of Rules 218.2 and 218.3; that has met the applicable performance specifications of Rule 218.3 and, has received written approval and conditions thereto applying, from the Executive Officer.
- (9) CONFIDENCE COEFFICIENT means the 2.5 percent error confidence coefficient for the 95 percent confidence interval of a series of tests.
- (10) CONTINUOUS EMISSION MONITORING SYSTEM (CEMS) means the total combined equipment and systems required to continuously determine air pollutants and diluent gas concentrations and/or mass emission rate of a source effluent (as applicable). The CEMS consists of three major subsystems: sampling interface, analyzer, and data acquisition and handling system.
- (11) DATA ACQUISITION AND HANDLING SYSTEM (DAHS) means the part of the CEMS that records and processes data generated by the analyzer, thus creating a permanent record of the output signal in terms of concentration, flow rate, and any other applicable parameter *necessary* to generate the required data in units of applicable standard. The DAHS consists of all equipment such as a computer and software required to record data and convert the original recorded values to any values required for reporting.
- (12) DILUENT GAS means a constituent of the flue gas that is measured by the CEMS, not because it is a pollutant, but because its measurement can be used to provide values used to calculate emission levels.
- (13) FORMER RECLAIM FACILITY means a facility, or any of its successors, that was in the NOx Regional Clean Air Incentives Market (RECLAIM) as of January 5, 2018, as established in Regulation XX, that has received a

- final determination notification, and is no longer in the NO<sub>x</sub> RECLAIM program.
- (14) LINEARITY ERROR means the percentage error in linearity expressed in terms of the ratio of the absolute value of the difference between the reference value and the mean CEMS response value, to the reference value.
  - (15) LOWEST VENDOR GUARANTEED SPAN RANGE means the lowest span range that the vendor guarantees to be capable of meeting all current certification requirements of Rules 218.2 and 218.3, as applicable.
  - (16) MAINTENANCE means the preventive evaluation and adjustment (if necessary) of CEMS performed at specified intervals to preclude system failure. Maintenance may be performed as recommended by the manufacturer or a documented standard operating procedure determined through operating experience and approved by the Executive Officer. Repairs to a malfunctioning system are excluded from this definition.
  - (17) NINETY-FIVE PERCENT CONFIDENCE INTERVAL means the statistical estimation denoting a range of values which is expected to include a true value with a 95 percent probability.
  - (18) QUALITY ASSURANCE/QUALITY CONTROL (QA/QC) PLAN means a written document in which the specific procedures for the operation, calibration and maintenance of a certified CEMS are described in detail, including additional quality assurance assessments and the corrective action system. The purpose of this plan is to ensure that the CEMS generates, collects and reports valid data that is precise, accurate, complete, and of a quality that meets the requirements, performance specifications, and standards of Rules 218.2 and 218.3.
  - (19) RECLAIM means the Regional Clean Air Incentives Market.
  - (20) RECLAIM FACILITY means a facility, or any of its successors, that was in the Regional Clean Air Incentives Market as of January 5, 2018, as established in Regulation XX.
  - (21) REFERENCE METHOD means the official test method employed by the South Coast AQMD to determine compliance with the rules or permit conditions. A list of reference methods is identified in Table 1.
  - (22) RELATIVE ACCURACY means the absolute mean difference between the gas concentration or emission rate determined by the CEMS and the value

determined by the RM plus 2.5 percent error of confidence coefficient of a series of tests, divided by the mean of the RM tests.

- (23) RELATIVE ACCURACY TEST AUDIT means the relative accuracy test expressed in terms of the ratio of the sum of the absolute mean difference between the CEMS-generated data and the value determined by the applicable reference method or applicable standard, and the absolute confidence coefficient, to the mean of the reference method or applicable standard value for concentration, flow, or mass emission rate. The calculation is based on raw measured data that are not corrected by diluent gas.
- (24) RESPONSE TIME means the time interval from a step change in the air pollutant or gas diluent concentration to the time when 95 percent of the corresponding final value is reached as displayed on the CEMS data recorder or acquisition system. The response time is determined by introducing a certified gas mixture into the CEMS upstream of the sampling interface and as close to the probe inlet as practicable.
- (25) SAMPLING INTERFACE means the part of the CEMS that performs sample acquisition using one or more of the following operations: extraction, physical/chemical separation, transportation, or conditioning of a representative sample from a designated unit.
- (26) SEMI-CONTINUOUS EMISSION MONITORING SYSTEM (SCEMS) means an emission monitoring system that is different from a regular CEMS on response time and data acquisition frequency. SCEMS continuously takes and records measurements (e.g. concentration, mass emission, flow rate) at a minimum of once in every fifteen (15) minutes. SCEMS includes but is not limited to gas chromatography, integrated sensitized tape analyzer, other sample integration based technologies, and time-shared CEMS.
- (27) SPAN RANGE means the full range that is 0% to 100% of the data display output that a monitor component has been calibrated to measure.
- (28) SYSTEM BIAS means the difference between the gas concentrations exhibited by the CEMS when a calibration gas is introduced at a location upstream of the sampling interface, and as close to the sampling probe inlet as practicable, and when the same calibration gas is introduced directly to the analyzer.

- (29) TIME-SHARED CEMS means an emission monitoring system where the analyzer, and possibly the associated sample conditioning system, is used on more than one source. A time-shared CEMS is categorized as a type of SCEMS under Rules 218.2 and 218.3.
  - (30) UNIT means, for the purposes of this rule, a combustion source for which the continuous emission monitoring system, semi-continuous emission monitoring system, or alternative continuous emission monitoring system, monitors the source's emissions.
  - (31) UNIT OPERATING HOUR means a clock hour during which a unit combusts any fuel either for part of the hour or for the entire hour.
  - (32) UPPER SPAN VALUE means the upper range value of a span range that is 100% of the data display output that a monitor component has been calibrated to measure.
  - (33) ZERO GAS means a gas containing less than a specified amount of the pollutant or diluent gas which, when periodically injected into the CEMS, is used to check CEMS' response to the absence of the air pollutant or diluent gas.
- (d) Implementation Schedule
- (1) Prior to the implementation date specified in paragraphs (d)(2) to (d)(4), the owner or operator shall comply with:
    - (A) Rules 218 and 218.1 for a CEMS that is subject to paragraph (d)(2);  
or
    - (B) Rule 2012 for a CEMS that is subject to paragraph (d)(3).
  - (2) For a CEMS certified to comply with Rules 218 and 218.1, the owner or operator of the CEMS shall meet the requirements of this rule no later than:
    - (A) The date an application is submitted to the Executive Officer between January 1, 2022 and January 1, 2025 for any CEMS certification or recertification;
    - (B) January 1, 2025, for any CEMS that was certified prior to January 1, 2022 but without an application submitted to the Executive Officer between January 1, 2022 and January 1, 2025 for a CEMS recertification; or
    - (C) The implementation date of a source-specific rule for which the CEMS shall be certified or recertified as part of the implementation.

- (3) For a CEMS certified to comply with Rule 2012, the owner or operator of the CEMS shall meet the requirements of this rule no later than:
    - (A) The date an application is submitted to the Executive Officer for any CEMS certification or recertification that is within twenty-four (24) months after the NO<sub>x</sub> RECLAIM facility has been notified as a former RECLAIM facility;
    - (B) Twenty-four (24) months after the NO<sub>x</sub> RECLAIM facility has been notified as a former RECLAIM facility, if there is no CEMS recertification during this 24-month period; or
    - (C) The implementation schedule of a source specific rule for which the CEMS shall be certified or recertified as part of the implementation.
  - (4) If a CEMS that is subject to paragraph (d)(2) is sharing the sampling interface or other component(s) with another CEMS that is subject to paragraph (d)(3), the owner or operator of the CEMS shall meet the requirements of this rule based on the later implementation date determined by paragraphs (d)(2) and (d)(3).
- (e) Pre-Certification Requirements
- Prior to any certification, recertification, or relative accuracy test, the owner or operator of the CEMS shall meet all of the following standards:
- (1) CEMS Location  
The CEMS shall be installed at a location that enables measurements of air pollutant and diluent gas concentration, and flow rates are representative of the stack emissions of the unit.
  - (2) Sampling Location
    - (A) The monitoring system sampling probe tip and the reference method sampling port locations shall be determined according to the South Coast AQMD Method 1.1.
    - (B) The monitoring sampling probe shall be located where the sample obtained is representative of emissions.
    - (C) Each probe shall not interfere with any other probe when in use.
    - (D) The owner or operator may choose other sample locations subject to a written approval of the Executive Officer.
    - (E) If an alternate location is chosen as allowed in subparagraph (e)(2)(D) which does not conform with the South Coast AQMD Method 1.1:

- (i) The absence of cyclonic flow shall be demonstrated using the South Coast AQMD method 1.1, Section 2.4 in the Test Manual, Chapter X, Section 1.4 - "Alternative Site Selection Method", or 40 CFR, Part 60, Appendix A, Method 1, Section 11.4 – “Verification of Absence of Cyclonic Flow”; and
  - (ii) The absence of stratification shall be demonstrated using the South Coast AQMD method in the Test Manual, Chapter X, Section 13 - "Determination of Gaseous Constituent Stratification"; or
  - (iii) In the presence of stratification, alternatives to sampling site selection shall comply with the requirements specified in Attachment B section (C).
- (3) Span Range
  - (A) The span range for air pollutant and diluent analyzers shall be set such that all data points are within 10 to 95 percent of the upper span value under normal operating conditions for the unit.
  - (B) For air pollutant analyzers:
    - (i) The upper span value shall be set between 150 and 200 percent of the concentration limit.
    - (ii) The upper span value may be set outside of the 150 to 200 percent of the concentration limit, but no lower than 120 percent, provided that:
      - (I) The owner or operator of the CEMS demonstrates that the span range will not be exceeded. Such demonstrations shall include, but not limited to, historical emissions data, historical process information, and historical operational information.
      - (II) A written approval from the Executive Officer shall be obtained prior to the upper span value being modified outside of the 150 to 200 percent of the concentration limit.
  - (C) If the owner or operator of the CEMS cannot meet both requirements specified in subparagraphs (e)(3)(A) and (e)(3)(B), the owner or operator of the CEMS shall be exempt from subparagraph (e)(3)(A),



provided that the air pollutant analyzer is set at a span range approved by the Executive Officer that allows data points to fall at or below 10 percent of the upper span value.

- (D) If an air pollutant analyzer monitors a unit with the concentration limit less than 5 ppm, the owner or operator of the CEMS shall be exempt from subparagraph (e)(3)(B), and the air pollutant analyzer shall be set at a span range approved by the Executive Officer, provided that the approved upper span value for the analyzer is not higher than 10 ppm.
  - (E) The owner or operator of a CEMS analyzer with multiple span ranges shall set the span ranges for this analyzer pursuant to subparagraphs (e)(3)(A) through (e)(3)(D), for each span range or the combined span ranges, except for:
    - (i) The higher span range of a dual range analyzer; or
    - (ii) The highest span range of an analyzer with more than two span ranges.
  - (F) For dilute air, the highest span range of a dual range analyzer for the full range of oxygen and carbon dioxide concentrations can be measured. The upper span value shall be set at 25.0 percent O<sub>2</sub> (maximum) and 1.0 percent CO<sub>2</sub> (minimum) concentrations, or at a value approved by the Executive Officer.
- (4) The Data Acquisition and Handling System (DAHS) of the CEMS shall meet the following requirements:
- (A) Record data from monitored parameters at least once every minute for CEMS.
  - (B) Record data from monitored parameters at least once every 15 minutes for SCEMS.
  - (C) The acquisition rate shall be set at a constant rate such that the data points are equally spaced.
  - (D) The sample acquisition rate during certification and relative accuracy test audit(s) shall be the same as the sample acquisition rate during CEMS or SCEMS normal operation.
  - (E) Record all status codes specified in Table 2 for all data points.
  - (F) Utilize all valid data points to determine compliance with applicable limit(s), certification testing, and relative accuracy test audit(s).

- (G) Incorporate all applicable data handling requirements specified in subdivision (i).
- (5) Operational Period

The operational period prior to any certification tests shall be a minimum of 168 continuous hours.
- (f) Certification Test Requirements and Specifications

The owner or operator of the CEMS shall perform a series of certification tests to demonstrate the acceptability of CEMS performance for a CEMS certification or recertification. Unless specified otherwise, the required certification tests and specifications shall, at a minimum, include the following:

  - (1) Seven-Day Calibration Drift Testing

The owner or operator of a CEMS shall perform a seven-day calibration drift test for each span range for pollutant analyzers, diluent analyzers, and stack flow monitors.

    - (A) A seven-day calibration drift test shall be comprised of a series of eight (8) calibration error tests during a seven-day period performed once each day with an interval of 24 hours plus a 2-hour grace period for each test.
    - (B) Each calibration error test shall be performed for:
      - (i) Pollutant and diluent analyzers, at the low and high ranges, which is at 0 to 20, and 80 to 100 percent of the upper span value; and
      - (ii) Stack flow monitors, by introducing a zero-reference value to the transducer or transmitter.
    - (C) Calibration error for each calibration error test during the entire testing period, as calculated using Equation 1 in Table 3, shall not exceed:
      - (i) 2.5 percent of the upper span value of the span range for pollutant and diluent analyzers, and
      - (ii) 3.0 percent of the upper span value of the span range for stack flow monitors.
  - (2) Analyzer Enclosure
    - (A) The analyzer shall be contained in an environmentally controlled enclosure and equipped with an alarm and temperature recording device that provides an audible alert that the temperature drift for the

analyzer exceeds the manufacturer's recommended specifications. The owner or operator of the CEMS shall make corrective actions within 4 hours of receiving the audible alert.

- (B) In lieu of subparagraph (f)(2)(A), the owner or operator of the CEMS shall perform the 2-hour calibration error tests in meeting the analyzer enclosure requirement, provided that the 2-hour calibration error is performed:
  - (i) Once every two hours as close to 2-hour intervals as practicable, with total of thirteen consecutive tests performed;
  - (ii) When ambient temperature is expected to vary diurnally at least 30 degree Fahrenheit (°F); and
  - (iii) At the low and high ranges, which is at 0 to 20, and 80 to 100 percent of each span range respectively.
  - (iv) With calibration error meeting the requirements specified under subparagraph (f)(1)(C).
- (C) The owner or operator of the CEMS shall qualify for an exemption from subparagraph (f)(2)(A) to provide environmental controls for the analyzer enclosure by demonstrating that the CEMS is located:
  - (i) In a geographic area where seasonal high and low temperatures do not exceed the operational temperature specifications for the analyzer;
  - (ii) In a geographic area where monthly maximum temperature variation is less than 30°F for all months of the year; and
  - (iii) The CEMS is located in a site that is protected from radiation and convection heating sources.

(3) Relative Accuracy Test Audit

The owner or operator of a CEMS shall perform a relative accuracy test audit for pollutant concentration that is not corrected by diluent gas, O<sub>2</sub>/CO<sub>2</sub> diluent gas concentration, stack flow, and emission rate, whichever is applicable to the CEMS, in the as-found unit operating condition.

- (A) There shall be a minimum of nine sets of test data generated.
- (B) If the number of tests exceeds nine sets, data may be discarded if it is identified as an outlier according to the South Coast AQMD Technical Guidance Document R-004 (TGD R-004), or for valid reasons (e.g., process upsets, CEMS malfunction, etc.) which must be substantiated with appropriate documentation and subject to approval by the Executive Officer.
- (C) The relative accuracy shall be calculated according to Equation 4 in Table 3 and expressed as a percentage.
- (D) Alternatively, a *de minimis* value shall be determined according to Equation 5, Equation 6, and Equation 7 in Table 3 for pollutant/diluent gas, stack flow, and mass emission respectively.
- (E) The owner or operator of the CEMS shall meet the following relative accuracy or *de minimis* value (no more than):

- (i) For pollutant concentrations, a relative accuracy of 20.0 percent of the mean value of the reference method, or the *de minimis* concentration as follows:

Pollutant	<i>De minimis</i>
NO <sub>x</sub>	0.5 ppm
SO <sub>2</sub>	2.0 ppm
CO	2.0 ppm (or the rule or permitted concentration limit for the unit when it is lower than 2.0 ppm)
Reduced Sulfur Compounds	4.0 ppm

- (ii) For diluent concentrations, a relative accuracy of 10.0 percent of the mean value of the reference method, or a relative accuracy of 20.0 percent when the measured diluent

- gas, O<sub>2</sub> or CO<sub>2</sub>, is at or below 15 percent, or the *de minimis* value of 1.0 percent diluent gas.
- (iii) For stack flow monitoring systems including stack flow monitors and fuel flow measuring devices in conjunction with F-factor in determining stack flow, a relative accuracy of 15.0 percent of the mean value of the reference method, or the *de minimis* value when the mean stack gas velocity obtained by the reference method test is less than 15 feet per second.
  - (iv) For mass emission rates, a relative accuracy of 20.0 percent of the mean value of the reference method for mass emission rates, or the *de minimis* value when the mean stack gas velocity obtained by the reference method test is less than 15 feet per second.
- (4) Within fourteen days of or during a relative accuracy test audit, the owner or operator of the CEMS shall demonstrate compliance with the following requirements:
- (A) Response Time
    - (i) The response time for CO CEMS shall not exceed 1.5 minutes except where there is a technical limitation, in which case the response time shall be 5 minutes; and
    - (ii) The response time for all other CEMS and stack flow monitoring system shall not exceed 5 minutes.
  - (B) NO<sub>x</sub> Converter Efficiency

NO<sub>x</sub> converter efficiency test shall be conducted to indicate an average converter efficiency greater than 90 percent.
  - (C) Sampling System Bias Check
    - (i) The CEMS system bias shall not exceed 5.0 percent of each upper span range for pollutant analyzers.
    - (ii) The owner or operator of the CEMS shall include in the facility QA/QC Plan, criteria for excessive drift (e.g. control limits on cumulative drift) and appropriate diagnostic techniques to identify sources of analyzer drift and system bias when control limits are exceeded.
  - (D) Concentration Stratification

The owner or operator of the CEMS shall demonstrate the absence of stratification and locate the CEMS probe in accordance with Attachment B.

(E) Cyclonic Flow

If the CEMS determines mass emission rate, the owner or operator of the CEMS shall perform the cyclonic flow test pursuant to clause (e)(2)(E)(i).

(F) Linearity Error for Pollutant and Diluent Gas Analyzers

(i) A linearity error test shall be comprised of three tests for each span range.

(ii) Each test shall be performed by introducing calibration gas into the CEMS at the low, middle and high ranges, which are 20 to 30, 50 to 60, and 80 to 100 percent of the span range respectively.

(iii) The same calibration gas shall not be used twice in succession during the linearity Error tests.

(iv) linearity error shall not exceed 5.0 percent of the calibration gas concentration, as calculated pursuant to Equation 3 in Table 3.

(v) In lieu of the requirement as specified in clause (f)(4)(F)(iv), for a pollutant analyzer span range less than or equal to 5 ppm, linearity error shall not exceed 5.0 percent of the span range, as calculated pursuant to Equation 3a in Table 3.

(5) Alternative Emission Monitoring System (ACEMS)

(A) In lieu of certifying a CEMS according to the requirements specified in paragraphs (f)(1) through (f)(4), the owner or operator shall request the Executive Officer to certify an alternative emission monitoring system that is at a minimum equivalent in relative accuracy, precision, reliability, and timeliness to a CEMS for that unit, according to the criteria specified in 40 CFR Part 75 Subpart E.

(B) Substitute criteria is acceptable if the applicant demonstrates to the satisfaction of the Executive Officer that the proposed alternative monitoring device is at minimum equivalent in relative accuracy precision, reliability, and timeliness to a CEMS for that unit.

- (C) Upon approval by the Executive Officer, the substitute criteria specified in subparagraph (f)(5)(B) shall be submitted to the federal Environmental Protection Agency as an amendment to the State Implementation Plan (SIP).
- (6) All certification tests shall be performed by testing firms/laboratories who have received approval through the South Coast AQMD's laboratory approval program.
- (g) **Quality Assurance Testing Requirements and Specifications**  
After completing the certification testing pursuant to subdivision (f), the owner or operator of the CEMS shall operate and maintain the CEMS according to the following quality assurance testing requirements and specifications, for all applicable analyzer span ranges of the CEMS, unless otherwise specified.
- (1) **Calibration Error**  
The owner or operator of a CEMS shall perform the calibration error test for pollutant analyzers, diluent analyzers, and stack flow monitors. The calibration error test is not applicable to an ACEMS or a fuel flow measuring device in conjunction with F-factor in determining stack flow.
- (A) A calibration error test shall be performed for:
- (i) Pollutant and diluent analyzers, for every 24 hours with a 2-hour grace period during which emissions are generated, at the low (0 to 20 percent) and high (80 to 100 percent) of the upper span value of each span range; and
  - (ii) Stack flow monitors, for every 14-day period during which emissions flow through the stack, by introducing a zero reference value to the transducer or transmitter
- (B) A calibration error test shall be performed within 4 hours of the unit restart, if the unit restart is after a period longer than the testing cycle specified in subparagraph (g)(1)(A) when no emissions are generated.
- (C) A successful calibration error test, with the calibration error calculated using Equation 1 in Table 3, shall not exceed two times the calibration error specification in subparagraph (f)(1)(C) for each range.
- (D) Any calibration error test result, which does not exceed two times the calibration error specification in subparagraph (f)(1)(C) but is

greater than the specification in subparagraph (f)(1)(C), shall be addressed by the QA/QC Plan for possible remediation.

- (E) Data recorded by the CEMS pollutant and diluent analyzers are validated for 26 clock hours (i.e., 24 hours plus a 2-hour grace period) beginning from the hour of completing a successful calibration error test, and either ending after 26 hours, or ending at the hour of failing any quality assurance test specified under subdivision (g) within the 26-hour period.
  - (F) Data recorded by the CEMS at the unit restart that are prior to the hour of completing a successful calibration error test are validated starting from the hour of unit restart, if the owner or operator of the CEMS conducts a successful calibration error test in accordance with subparagraphs (g)(1)(B) and (g)(1)(C).
- (2) Relative Accuracy Test Audit
- The owner or operator of the CEMS shall conduct the relative accuracy test audit for pollutant concentration that is not corrected by diluent gas, O<sub>2</sub>/CO<sub>2</sub> diluent gas concentration, stack flow, and emission rate, whichever is applicable to the CEMS.
- (A) A relative accuracy test audit shall be performed within 12 months from the date of the previous relative accuracy test in the as-found unit operating condition.
  - (B) During any relative accuracy test audit, the owner or operator shall comply with all the requirements in paragraphs (f)(3) and (f)(4), except that the owner or operator of the CEMS:
    - (i) Is not required to conduct linearity error check.
    - (ii) May request a waiver from stratification, cyclonic flow, and/or interference requirements in subparagraphs (f)(4)(E), (f)(4)(F) and (f)(4)(G), respectively, by submitting to the Executive Officer, for approval, any applicable documentation or previous test or historical data that meets the stratification, cyclonic flow, and/or interference requirements.
  - (C) The CEMS shall meet the relative accuracy or *de minimis* standards as specified in paragraph (f)(3).



- (D) If the unit for which the CEMS is certified to monitor is not operating or generating emissions when a relative accuracy test audit is due, the relative accuracy testing audit shall be performed within 14 days after the unit is restarted.
- (3) Cylinder Gas Audit for Pollutant and Diluent Gas Analyzers
- (A) The owner or operator of the CEMS shall conduct a cylinder gas audit:
    - (i) For every calendar quarter when relative accuracy test audit is not conducted, but in no more than three quarters in succession;
    - (ii) According to the provisions of 40 CFR 60, Appendix F; and
    - (iii) Using calibration gas as specified in subdivision (h).
  - (B) The owner or operator of the CEMS is not required to conduct the cylinder gas audit for a calendar quarter when it is due, provided that within that calendar quarter:
    - (i) The CEMS has passed a linearity error check; or
    - (ii) The accumulative unit operating hours are no more than 168 hours.
- (4) The owner or operator of an ACEMS shall conduct:
- (A) Daily checks with the ACEMS modeling software to:
    - (i) Verify that the emission values generated by the ACEMS modeling software are consistent as certified, given specific parameter inputs;
    - (ii) Perform the daily check pursuant to the same schedule specified in clause (g)(1)(A)(i) and subparagraph (g)(1)(B); and
    - (iii) Validate the same time period as defined in subparagraph (g)(1)(E) with a successful daily check.
  - (B) Periodic calibrations of the sensors pursuant to manufacturer's specifications for each component.
- (5) The owner or operator of a stack flow monitor shall conduct:
- (A) Daily flow monitor interference checks, according to the same schedule as specified in clause (g)(1)(A)(i) and subparagraph (g)(1)(B), with each interference check validating the same time period as specified in subparagraph (g)(1)(E); and

- (B) A leak detection check no later than the end of each calendar quarter, if the stack flow is determined by a differential pressure flow monitor.
- (6) The owner or operator of a fuel flow measuring device in conjunction with F-factor in determining stack flow shall:
  - (A) Maintain the fuel flow measuring device in accordance with the manufacturer's recommendation; and
  - (B) Include the maintenance schedule and activities in the CEMS QA/QC plan.

THE FOLLOWING SUBDIVISIONS ARE FORTHCOMING:

- (h) Calibration Gas and Zero Gas
- (i) Data Handling
- (j) SCEMS Requirements
- (k) Moisture Correction
- (l) Exemption

Tables and Attachments