

## RULE 218

### Continuous Emission Monitoring

#### (A) General

##### (1) Purpose

- (a) The purpose of this rule is to specify Continuous Emission Monitoring System (CEMS) approvals and standards.

##### (2) Applicability

- (a) The provisions of this rule shall apply to all sources that require CEMS as specified in the regulations or permit conditions, with the following exceptions:
  - (i) This rule shall not apply to CEMS subject to Regulation IX – *Standards of Performance for New Stationary Sources*, Regulation X – *National Emissions Standards for Hazardous Air Pollutants*, or Rule 3010 – *Acid Rain Provisions of Federal Operating Permits*.
  - (ii) This rule shall not apply to CEMS subject to permit conditions where the purpose of the CEMS is to monitor the performance of the basic and/or control equipment and not to determine compliance with any applicable limit or standard.
  - (iii) This rule shall not apply to CEMS where alternative performance specifications are required by another District rule.

#### (B) Definitions

- (1) “Analyzer” – The part of the 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) Contaminant Analyzer – The part of the CEMS that detects the air contaminant and represents those concentrations in a signal output.
  - (b) Diluent Analyzer – The part of the CEMS that detects oxygen, carbon dioxide 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 subsystems (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 subsystem parameters.

- (d) **Stack Flowmeter** – The part of the CEMS that detects the parameters from all essential measurement subsystems (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 subsystem parameters.
- (2) **“Calibration”** – A procedure performed to ensure that the CEMS accurately measures and records air contaminant or Diluent Gas concentration, flow rate and other parameters necessary to generate data, as evidenced by Calibration Checks, and achieved by periodic manual or automatic adjustment.
- (3) **“Calibration Check”** – A procedure performed to determine the CEMS response to a given gaseous compound concentration. A certified calibration gas mixture is injected into the CEMS as close to the probe tip as practical.
- (4) **“Certified CEMS”** – A CEMS installed, tested, operated, maintained, and calibrated according to the applicable requirements of Rule 218, and that has met the applicable performance specifications according to Rule 218 Section (D)(1)(b), and, has received written approval and conditions thereto applying, from the APCO.
- (5) **“Certified Gas Mixture”** – A gas mixture manufactured, analyzed and certified according to “EPA Traceability Protocol for Assay and Certification of Gaseous Calibration Standards” – EPA-600/R97/121, September 1997 Revision (EPA Protocol) or any subsequent version published by EPA. This definition incorporates by reference EPA Protocol
- (6) **“Continuous Emissions Monitoring System” (CEMS)** – The total combined equipment and systems required to continuously determine air contaminants 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 System.
- (7) **“Continuous Monitoring”** – Monitoring in which a minimum of one (1) measurement (e.g., concentration, mass emission, flow rate) is taken and recorded each minute.
- (8) **“Data Acquisition System” (DAS)** – The part of the CEMS that processes data generated by the Analyzer and records the results, thus creating a permanent record of the output signal in terms of concentration, flow rate, and/or any other applicable parameter necessary to generate the required data in units of applicable standard. The DAS consists of all equipment, such as a computer, required to convert the original recorded values to any values required for reporting.

- (9) “Diluent Gas” – A gas present in a calibration gas mixture or in the source emissions which is present in quantities significantly larger than the air contaminant.
- (10) “Laboratory Approval Program” (LAP) – A program administered by the South Coast Air Quality Management District (SCAQMD) that grants test-method-specific approvals to independent testing laboratories or firms that perform tests to determine source compliance with SCAQMD rules and regulations.
- (11) “Modification Requiring Recertification” – Any change to the basic equipment, control equipment, contaminant concentration, interfering substances, or CEMS (or SCEMS) that is deemed by the APCO to have a potential for adversely affecting the ability of the CEMS to provide accurate, precise and timely data representative of the stack emissions for which the CEMS (or SCEMS) is required.
- (12) “Quality Assurance/Quality Control (QA/QC) Plan” – 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 and 218.1.
- (13) “Routine Maintenance” – Preventive evaluation and repair (if necessary) of CEMS performed at specified intervals to preclude System Failure. Routine Maintenance may be performed as recommended by the manufacturer or a documented standard operating procedure determined through operating experience and approved by the APCO. Repairs to a malfunctioning system are excluded from this definition.
- (14) “Sampling Interface” – That 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 source.
- (15) “Semi-Continuous Emission Monitoring” – A monitoring technique in which a minimum of one (1) measurement (e.g., concentration, mass emission, flow rate) is taken and recorded every 15 minutes.
- (16) “Semi-Continuous Emission Monitoring System” (SCEMS) – The total combined equipment and systems to semi-continuously determine air contaminant and Diluent Gas concentrations and/or the mass emission rate in a source effluent (as applicable). The system consists of three (3) major subsystems: Sampling Interface, Analyzer and DAS. This class of monitoring includes, but is not limited to, gas chromatography, integrated sensitized tape analyzer, other sample integration based technologies, and Time-Shared CEMS.

- (17) “South Coast Air Quality Management District” (SCAQMD) – The air quality district created pursuant to Division 26, Part 3, Chapter 5.5 of the California Health & Safety Code (commencing with §40400).
- (18) “System Failure” – Inability of the CEMS to meet the requirements of Rule 218.1 – *Continuing Emission Monitoring Performance Specifications*, or, Code of Federal Regulations, Title 40 – “Protection of Environment,” Part 60 – “Standards of Performance for New Stationary Sources,” Appendix F – Quality Assurance Procedures.”
- (19) “Time-Sharing” – A monitoring technique where an Analyzer, and possibly the associated sampling conditioning system, is used on more than one source.
- (20) “Working Day” – Monday through Friday, excluding holidays.
- (21) “Zero Check” – A procedure performed to determine the response of the CEMS to a given Zero Gas standard by means of injecting the Zero Gas into the CEMS as close to the probe tip as practical.
- (22) “Zero Gas” – A gas containing less than a specified amount of the air contaminant or Diluent Gas which, when periodically injected into the CEMS, is used to check CEMS response to the absence of the air contaminant or Diluent Gas.

(C) **Monitoring Requirements for New, Modified and Existing CEMS**

- (1) The owner or operator of any equipment subject to this rule shall provide, properly install, operate and maintain in Calibration and good working order a Certified CEMS to measure the concentration and/or emission rates, as applicable, of air contaminants and Diluent Gases, flow rates, and other required parameters. The owner or operator shall also provide the necessary records and other data necessary to calculate air contaminant emission rates or concentrations, as specified in Rule 218 Sections (F) and (G).

(D) **Requirements for New and Modified CEMS and SCEMS**

- (1) **Application and Approval Requirements for New and Modified CEMS**
  - (a) The owner or operator of any equipment subject to this rule shall submit to the APCO an “Application for CEMS” or “Application for CEMS Modification”, as applicable. Any application submitted on or after July 17, 2012, shall require an initial approval by the APCO prior to installation of a new CEMS or modification of an existing CEMS. The APCO shall notify the applicant in writing within 60 calendar days of receipt of an application for a new CEMS, or within 30 calendar days of receipt of an application for a modification to an existing CEMS, if the application contains sufficient information to be deemed complete. Where an application has been determined to be incomplete, the APCO shall

request specific information needed to complete the application. Upon receipt of any complete resubmittal or the additional information, plans or specifications after the application has been deemed incomplete, a new 30-day period shall begin during which the APCO shall determine the completeness of the application and notify the applicant. Within 90 days of installation, a person operating or using CEMS shall undertake a series of certification tests. If the equipment served by the CEMS is not operating at the time of complete CEMS installation, then the CEMS shall undergo a series of certification tests within 90 days from the next start-up of the equipment served by the CEMS. The purpose of the certification tests is to demonstrate the CEMS performance pursuant to the specifications in accordance with the provisions of Rule 218, Section (D)(1)(b). The owner or operator shall notify the APCO in writing at least 14 days before the scheduled certification test dates. The certification tests shall be performed by a testing laboratory approved under the SCAQMD LAP. Data from such tests shall be submitted to the APCO within 45 days following test completion. If satisfactory performance is demonstrated, final approval of the CEMS shall be granted. Subsequent operation and maintenance of the Certified CEMS shall be in accordance with the provisions of Rule 218, Section (D)(1)(b). After final approval, modifications made to the CEMS shall be reviewed and approved by the APCO according to the specifications stipulated in Rule 218, Section (D)(1)(b), and may require all or a portion of performance tests to be conducted.

- (b) Upon submission of an “Application for CEMS” or “Application for CEMS Modification” as prescribed in Rule 218, Section (D)(1)(a), the applicant shall indicate either one of the following conditions:
  - (i) That the CEMS shall be reviewed and certified according to the provisions of Rule 218.1 - *Continuous Emission Monitoring Performance Specifications*, Section (C), and the subsequent operation and maintenance of the Certified CEMS shall be in accordance with the provisions of Rule 218, Sections (C), (F), (G) and (H) and of the requirements of Rule 218.1, Sections (C) and (E); or
  - (ii) That the CEMS shall be reviewed and certified according to the applicable provisions of the Code of Federal Regulations, Title 40 – “Protection of Environment”, Part 60 – “Standards of Performance for New Stationary Sources” (40 CFR 60), Appendix B – “Performance Specifications” (Appendix B), and the subsequent operation and maintenance of the Certified CEMS shall be in accordance with the provisions of Rule 218, Sections (C), (F), (G) and (H), and the requirements of 40 CFR 60, Appendix F – “Quality Assurance Procedures” (Appendix F). Notwithstanding the requirements of this Section, any alternative test methods for 40 CFR 60, Appendices B and F shall be those that are listed in Rule 218.1, Table 1 - Reference Methods.

- (c) A “Notification of Pre-Approved Modification” and report of results of prescribed quality assurance checks may be submitted in lieu of the “Application for CEMS Modification” when the modification has been made in accordance with the written technical guidance document approved by the APCO.

(2) Application and Approval Requirements for New and Modified SCEMS

- (a) In lieu of submitting an application for CEMS per Rule 218, Section (D)(1), the owner or operator of any equipment subject to this rule, may elect to submit an application for a SCEMS if the averaging time for the applicable limit(s) for which the CEMS is required is 24 hours or greater; or, if the owner or operator demonstrates, to the satisfaction of the APCO, that no CEMS technology is commercially available for the applicable contaminant and the applicable limit(s).
- (b) If the conditions in Rule 218, Section (D)(2)(a), above, do not apply, the owner or operator of any equipment subject to this rule may still elect to submit an application for a SCEMS in lieu of a CEMS, subject to the following:
  - (i) The owner or operator demonstrates that the concentrations and/or emissions required to be monitored would be equivalent to that monitored by a CEMS for the applicable averaging period, to the satisfaction of the APCO;
  - (ii) The SCEMS shall be capable to take and record a minimum of one (1) measurement (concentration, mass emission rate and/or flow rate, as applicable) every 15 minutes allowing as equally spaced data points as practical;
  - (iii) The owner or operator shall include in the QA/QC Plan the method of calculating the 15-minute averages for compliance determination to the applicable limit or standard;
  - (iv) If an exceedance of the allowable limit or standard is calculated using fewer than 100 percent valid data points, then the District shall use any relevant data for the operation of the equipment (basic and control, as applicable) to verify the calculated exceedance; and
  - (v) If a Time-Shared SCEMS is proposed, it shall meet the performance specifications of Rule 218.1, Section (F).
- (c) The requirements for the application submittal and approval of CEMS as provided in Rule 218, Section (D)(1) shall also apply for SCEMS applications.

(3) Operation of CEMS or SCEMS During Certification Testing

CEMS or SCEMS shall be certified as configured for the normal operation of the CEMS or SCEMS with respect to sample acquisition, sample conditioning, pollutant/diluent detection, data requirements and reporting.

(4) QA/QC Plan for New or Modified CEMS or SCEMS

(a) The owner or operator of CEMS or SCEMS who elects the performance specifications according to Rule 218, Section (D)(1)(b)(i), shall submit to the APCO for approval a CEMS QA/QC Plan within 45 days of CEMS installation and no later than 30 days before the certification tests.

(b) Alternative Quality Assurance Practices

The owner or operator of CEMS or SCEMS who elects the performance specifications according to Rule 218, Section (D)(1)(b)(i), may choose to develop alternative CEMS operational test requirements to be included in the CEMS QA/QC procedures that assure data of equivalent or better quality. These alternative QA/QC procedures shall be submitted with the facility QA/QC Plan and are subject to the approval of the APCO.

(E) Requirements for Existing CEMS and SCEMS

(1) Requirements for Existing CEMS

(a) A CEMS installed and granted final approval before July 17, 2012 shall be maintained and operated according to the provisions of Rule 218, Sections (C), (F), (G) and (H), and the requirements of Rule 218.1, Sections (D) and (E).

(b) A CEMS application for initial and final approval submitted to the APCO before July 17, 2012 shall be reviewed and approved by the APCO according to the specifications and requirements of Rule 218.1, Sections (D) and (E). After final approval, the CEMS shall be operated and maintained according to the provisions of Rule 218, Sections (C), (F), (G) and (H), and the requirements of Rule 218.1, Sections (D) and (E).

(c) Modifications Requiring Recertification to any existing CEMS shall be reviewed and approved according to the conditions under Rule 218 Section (D)(1)(b)(i) or (ii), as applicable. After final approval, the modified CEMS shall be operated and maintained according to the conditions under Rule 218, Section (D)(1)(b)(i) or (ii), as applicable.

(d) The owner or operator of existing CEMS shall develop and implement a written QA/QC Plan no later than July 17, 2013. The written QA/QC Plan shall be kept on record and available for inspection upon request by the APCO.

(2) Requirements for Existing SCEMS

(a) A SCEMS installed and granted final approval before July 17, 2012 shall be maintained and operated according to the provisions of Rule 218,

Sections (C), (F), (G) and (H), and the requirements of Rule 218.1, Sections (D) and (E).

- (b) A SCEMS application for initial and final approval submitted to the APCO before July 17, 2012 shall be reviewed and approved by the APCO according to the specifications and requirements of Rule 218.1, Sections (D) and (E). After final approval, the SCEMS shall be operated and maintained according to the provisions of Rule 218, Sections (C), (F), (G) and (H), and the requirements of Rule 218.1, Sections (D) and (E).
- (c) Modifications Requiring Recertification to any existing SCEMS shall be reviewed and approved according to the conditions under Rule 218 Section (D)(1)(b)(i) or (ii), as applicable. After final approval, the modified CEMS shall be operated and maintained according to the conditions under Rule 218, Section (D)(1)(b)(i) or (ii), as applicable.
- (d) The owner or operator of an existing SCEMS operating on or before July 17, 2012 shall be required to comply with the provisions of Rule 218.1 Section (F) – “Time-Sharing Requirements” and with the provisions of Rule 218.1 Sections (C) and (E), or, 40 CFR 60 Appendices B and F, as applicable, when the equipment served by the Time-Shared SCEMS is modified such that:
  - (i) One or more of the sources monitored requires a new monitoring range;
  - (ii) The operating permit is modified to require Continuous Monitoring; or,
  - (iii) An applicable source specific rule is adopted or revised to require Continuous Monitoring.

Subsequent operation and maintenance of the SCEMS shall be according to the provisions of Rule 218, Section (D)(1)(b)(i) or (ii), as applicable.

**(F) Retention of Records for New, Modified and Existing CEMS and SCEMS**

- (1) The records of the data obtained from the CEMS recording devices shall clearly indicate concentrations or emission rates, or both, as specified by the APCO. Records shall be maintained by the CEMS owner or operator for a minimum period of five (5) years, unless otherwise specifically provided by another District regulation or permit conditions, and shall be made available to the APCO upon request.
- (2) All calculations, raw parameter data used for calculations, records of the occurrence and duration of any start up, shutdown or malfunction, performance test, evaluation, Calibration, adjustment and maintenance of the CEMS as well as calibration gas traceability shall be retained by the CEMS operator for a minimum period of five (5) years unless otherwise specifically provided by another District

regulation or permit conditions, and shall be made available to the APCO upon request.

**(G) Reporting Requirements for New, Modified and Existing CEMS and SCEMS**

Unless otherwise specifically provided by another District regulation or permit conditions, the following reporting requirements shall apply to new, modified and existing CEMS and SCEMS:

- (1) A CEMS owner or operator shall provide a summary of the concentration and/or emission rate data, as applicable, obtained from the CEMS, as well as any additional information specified by the APCO, to evaluate the accuracy and precision of the measurements. The summary shall be submitted once every six (6) months to the APCO, except when more frequent reporting is specifically required by another District rule, or the APCO, on a case-by-case basis, determines that more frequent reporting is necessary to accurately assess the compliance status of the source. The summary report shall be submitted within 30 days following the end of the six (6) month period being reported, in the form and manner prescribed by the APCO. The summary shall be maintained on-site in a retrievable and readable form and shall be made available to the APCO upon request. The submitted summaries shall be available for public inspection at the District.
- (2) The CEMS owner or operator shall report any concentration level and/or emission rate, as applicable, in excess of the regulated limit within 24 hours or the next Working Day after such occurrence in the form and manner prescribed by the APCO. The report shall include the following information:
  - (a) Time intervals, date, and magnitude of the excess concentration level, nature and cause of the excess concentration (if known), corrective action(s) taken, preventive measure(s) adopted, specific location of CEMS, the equipment or CEMS involved and the facility contact person.
  - (b) The averaging period used for data reporting shall correspond to the averaging period specified in the rule or permit condition governing the concentration and/or emission rate, if applicable.
- (3) Reports of CEMS Failure or Shutdown
  - (a) The CEMS owner or operator shall notify the APCO within 24 hours or the next Working Day, in the event of a system failure or shutdown, which exceeds 24 hours. Zero and Calibration Checks and Routine Maintenance do not require reporting.
  - (b) In the case of a CEMS failure or shutdown, compliance with the provisions of Rule 218, Section (C) is waived for a period not to exceed 96 consecutive hours. Such waiver is extended beyond 96 consecutive hours

only if a petition for an interim variance is filed in accordance with Regulation V – *Procedures Before the Hearing Board* and shall terminate at the time the Hearing Board acts upon such variance petition. CEMS owners or operators of qualified facilities may obtain a Hearing Board approval of an alternative operating condition following the established procedure in Rule 518.2 – *Federal Alternative Operating Conditions*.

- (c) Regularly scheduled CEMS maintenance shall be deferred until the report required under Rule 218, Section (G)(2) is made, if the system is measuring a concentration equal to or exceeding the emission standard, and if such deferral is not reasonably expected to result in damage to the system.
- (d) Continuous emission monitoring requirements shall not apply during regular Calibration Checks of the system, or Routine Maintenance and repair lasting 60 minutes or less.

(H) **Posting of Written Approval for New, Modified and Existing CMS and SCEMS**

The CEMS owner or operator of an approved CEMS shall affix a written notice of approval or a legible facsimile thereof upon the equipment or within 26 feet of the equipment as prescribed in Rule 206 – *Posting Of Permit To Operate*, in a manner such that it is clearly visible, legible, and safely accessible. In the event that the equipment is so constructed or operated that the notice of approval or its legible facsimile cannot be so placed, such notice or legible facsimile shall be mounted on a location approved by the APCO.

See SIP Table at <http://www.avaqmd.ca.gov/Modules/ShowDocument.aspx?documentid=921>