RULE 19.2. CONTINUOUS EMISSION MONITORING REQUIREMENTS (Rev. Adopted & Effective October 12, 2023)

(a) APPLICABILITY

This rule shall apply to an owner or operator of any emission unit that is required to intall and operate a continuous emission monitoring system (CEMS) by the San Diego County Air Pollution Control District (District), U.S. Environmental Protection Agency (EPA) or California Air Resources Board (CARB) and subject to gas concentration standard or emission rate standard.

(b) RESERVED

(c) DEFINITIONS

For the purposes of this rule, the following definitions shall apply:

(1) **"40 CFR"** means Title 40 of the Code of Federal Regulations.

(2) **"Calibration Drift"** means the difference in the CEMS output readings from the established reference value after a stated period of operation during which no unscheduled maintenance, repair, or adjustment took place. The reference value may be supplied by a cylinder gas, gas cell, or optical filter and need not be certified.

(3) **"Continuous Emission Monitoring System (CEMS)"** means the total combined equipment and systems, including the sampling interface, analyzers, and data acquisition and handling system, required to continuously determine air contaminants and diluent gas concentrations and/or mass emission rate from an emission unit (as applicable).

(4) "**Data Recorder"** means that portion of the CEMS that provides a permanent record of the analyzer output. The data recorder may include automatic data reduction capabilities.

(5) **"Diluent Analyzer"** means that portion of the CEMS that senses the diluent gas (i.e., carbon dioxide (CO_2) or oxygen (O_2)) and generates an output proportional to the gas concentration.

(6) **"Diluent Gas"** means a major gaseous constituent in a gaseous pollutant mixture. For combustion sources, CO_2 or O_2 or combination of these two gases are the major gaseous constituents of interest.

(7) **"NO_x"** means the same as defined in Rule 2 – Definitions.

(8) **"Pollutant Analyzer"** means that portion of the CEMS that senses the pollutant gas and generates an output proportional to the gas concentration.

(9) **"Relative Accuracy"** means the absolute mean difference between the gas concentration or emission rate determined by the CEMS and the value determined by the reference method plus the 2.5% error confidence coefficient of a series of tests divided by either the mean of the reference method tests or the applicable emission limit. The 2.5% error confidence shall be determined in accordance with 40 CFR Part 60, Appendix B, Performance Specification 2.

(10) **"Sample Interface"** means that portion of the CEMS used for one or more of the following: sample acquisition, sample delivery, sample conditioning, or protection of the analyzer from the effects of the stack effluent.

(11) **"Span Value"** means the calibrated portion of the measurement range as specified in the applicable regulation or other requirement. If the span is not specified in the applicable regulation or other requirement, then it shall be a value approximately equivalent to two times the emission standard. For span values less than 500 parts per million (ppm), the span value may either be rounded upward to the next highest multiple of 10 ppm, or to the next highest multiple of 100 ppm such that the equivalent emission concentration is not less than 30% of the selected span value.

(12) **"Zero, Low-Level, and High-Level Values"** means the CEMS response values related to the source specific span value. Determination of zero, low-level, and high-level values is defined in 40 CFR Part 60 Standards of Performance for New Stationary Sources, Appendix B – Performance Specifications.

(d) **REQUIREMENTS**

(1) Each owner or operator shall develop and submit a quality assurance/quality control (QA/QC) program for the CEMS, except monitoring systems approved under Appendix D or E of 40 CFR Part 75 – Continuous Emission Monitoring, and alternative monitoring systems under Subpart E of 40 CFR Part 75, and their components. The QA/QC program shall be submitted to, reviewed by and approved in writing by the Air Pollution Control Officer. At a minimum, each QA/QC program shall include a written protocol that describes in detail, complete, step-by-step procedures and operations for each of the following activities:

(i) Calibration of CEMS,

(ii) Calibration drift determination and adjustment of CEMS,

(iii) Preventive maintenance of CEMS (including spare parts inventory),

(iv) Data recording, calculations, and reporting,

(v) Accuracy audit procedures including sampling and analysis methods, and

(vi) Program of corrective action for malfunctioning CEMS.

(2) Data from monitored parameters required in 40 CFR Part 60 shall be recorded at least once every minute. Such parameters include, but are not limited to:

(i) Air pollutant concentration (in ppm),

(ii) Volumetric flow rate (in standard cubic feet per hour (scfh)),

(iii) NO_X mass emissions (in pounds per million British thermal units (pounds per mmBtu)),

(iv) O_2 and/or CO_2 concentrations (% O_2 and/or % CO_2),

(v) Air pollutant mass emissions (in pounds per hour),

(vi) CO_2 mass emissions (in tons per hour), and

(vii) Fuel flow rate (in standard cubic feet per hour (scfh)).

(3) The data acquisition rate shall be set at a constant rate such that the data points are equally spaced.

(4) Each CEMS shall be installed, calibrated, operated, and maintained in good working order in accordance with the requirements of this rule.

(5) Utilize all valid data points to determine compliance with applicable limit(s), certification testing, and relative accuracy test audit(s) (RATA(s)).

(6) The District shall be notified at least two weeks prior to any replacement, modification, or change to the CEMS that affect the measurement, calculation or correction of data displayed and/or recorded by the CEMS.

(e) **MONITORING REQUIREMENTS**

(1) Data Averaging

For CEMS used to demonstrate compliance for an hourly average, the hourly average shall cover the 60-minute period commencing on the hour. An hourly average shall contain at least 16 data points and be computed utilizing all valid data.

For CEMS used to demonstrate compliance for an interval greater than one hour, emission data may be averaged for the required interval utilizing hourly averages computed in accordance with this subsection. All hours used in the greater than one hour interval shall contain at least 16 data points and be computed utilizing all valid data.

(2) CEMS data shall be reported in the units of the applicable standard as specified in Subsection (f)(2) of this rule.

(3) CEMS data shall be reported for a minimum of 95% of the time the emission unit is in operation.

(f) **RECORD KEEPING AND REPORTING REQUIREMENTS**

(1) Records

(i) Occurrence and duration of any startup, shutdown, maintenance, repairs, breakdown or malfunction in the operation of any emission units required to have a CEMS,

(ii) Performance testing, evaluations, calibrations, checks, adjustments, and maintenance of any CEMS, and

(iii) Emission measurements shall be retained in electronic and/or hardcopy format on-site for at least five years and made available to the District upon request.

(2) Quarterly Report

Each owner or operator shall submit a written report for each calendar quarter to the District. The report is due by the 30th day following the end of the calendar quarter and shall include:

(i) Time intervals, date and magnitude of excess emissions, nature and cause of the excess (if known), corrective actions taken and preventive measures adopted,

(ii) Averaging period used for data reporting corresponding to averaging period specified in the emission test period used to determine compliance with an emission standard for the pollutant/source category in question,

(iii) Time intervals and date during which the CEMS was inoperative, except for calibration drift, cylinder gas audit (CGA) and converter checks, and the nature of system repairs and adjustments, and

(iv) Time intervals and date during which the emission unit was inoperative and the reason(s) the emission unit was inoperative.

(v) A negative declaration when no excess emissions occurred.

(3) Reports of Violations

Any violation of any emission standard as indicated by the CEMS, shall be reported by the owner or operator to the District within 96 hours after such occurrence. The District shall, in turn, report the violation to CARB within five working days after receiving the report of the violation from the owner or operator.

(g) **TEST METHODS**

Each owner or operator shall perform and meet all applicable requirements of the following test methods for each CEMS.

(1) Calibration Drift

Check the zero (or low-level value between 0 and 20 percent of span value) and span (or high-level value between 50 to 100 percent of span value) calibration drifts in accordance with a written procedure. Analyzers that automatically adjust the data to the corrected calibration values (e.g., microprocessor control) shall be programmed to record the unadjusted concentration measured in the calibration drift prior to resetting the calibration, if performed, or record the amount of adjustment.

(2) Cylinder Gas Audit (CGA)

(i) Challenge the pollutant analyzer and diluent analyzer of the CEMS, if applicable, with an audit gas of known concentration at two points within the following ranges:

Audit Point	Audit Range		
	Pollutant Analyzer	Diluent Analyzer	
		CO_2	O_2
1	20 to 30% of span value	5 to 8% by volume	4 to 6% by volume
2	50 to 60% of span value	10 to 14% by volume	8 to 12% by volume

(ii) Introduce each of the audit gas three times each for a total of six challenges, if applicable. Introduce the gases in such a manner that the entire CEMS is challenged. The same gas concentration shall not be introduced to the CEMS twice in succession.

(iii) A separate audit gas cylinder for audit points 1 and 2 shall be used. Gas from audit gas cylinder shall not be diluted when challenging the CEMS.

(iv) The CEMS shall be challenged at each audit point for a sufficient period of time to assure adsorption-desorption of the CEMS sample transport surfaces has stabilized.

(v) Operate each CEMS in its normal sampling mode, i.e., pass the audit gas through all filters, scrubbers, conditioners, and other CEMS components used during normal sampling, and as much of the sampling probe as is practical. At a minimum, the audit gas should be introduced at the connection between the probe and the sample line.

(vi) Certified Reference Materials (CRMs) (See 40 CFR Part 60 Appendix F, Section 8, Citation 1) audit gases that have been certified by comparison to National Institute of Standards and Technology (NIST) Standard Reference

Materials (SRMs) or EPA Protocol Gases following the most recent edition of the EPA Traceability Protocol for Assay and Certification of Gaseous Calibration Standards (See 40 CFR Part 60 Appendix F, Section 8, Citation 2) shall be used. Procedures for preparation of CRMs are described in Citation 1. Procedures for preparation of EPA Protocol Gases are described in Citation 2. If a suitable audit gas level is not commercially available, Method 205 (See 40 CFR Part 60 Appendix F, Section 8, Citation 3) may be used to dilute CRMs or EPA Protocol Gases to the required level. The difference between the actual concentration of the audit gas and the concentration indicated by the analyzer shall be used to assess the accuracy of the CEMS.

(3) Relative Accuracy Test Audit (RATA)

RATAs shall be performed using the following performance specifications, as specified in 40 CFR Part 60, Appendix B and the quality control limits in Section (h) – Quality Control Requirements:

(i) NO_x analyzer – Performance Specification 2

(ii) Carbon monoxide (CO) analyzer – Performance Specification 4A

(iii) O_2 and CO_2 analyzer – Performance Specification 3

(iv) Other analyzer – approved in writing by the Air Pollution Control Officer prior to use.

(4) Nitrogen dioxide (NO_2) converter efficiency

A check of the NO_2 to nitric oxide (NO) converter with the method prescribed the by manufacturer shall be performed. CRMs (See 40 CFR Part 60 Appendix F, Section 8, Citation 1) audit gases that have been certified by comparison to National Institute of Standards and Technology (NIST) Standard Reference Materials (SRMs) or EPA Protocol Gases following the most recent edition of the EPA Traceability Protocol for Assay and Certification of Gaseous Calibration Standards (See 40 CFR Part 60 Appendix F, Section 8, Citation 2) shall be used. Procedures for preparation of CRMs are described in 40 CFR Part 60 Appendix F, Section 8, Citation 1. Procedures for preparation of EPA Protocol Gases are described in 40 CFR Part 60 Appendix F, Section 8, Citation 2.

(h) QUALITY CONTROL REQUIREMENTS

Each owner or operator shall perform the following quality control checks and meet all applicable requirements for all analyzers and concentration ranges. To the extent possible, quality control checks shall be performed during normal operation and not during startup and shutdown.

(1) Calibration Drift

(i) Quality Control Frequencies

(A) For CEMS subject to 40 CFR Part 75, the calibration drift shall be checked, recorded, and quantified in the frequencies in accordance with the applicable regulation.

(B) For CEMS not subject to 40 CFR Part 75, the calibration drift shall be checked, recorded, and quantified at least once a day (approximately 24 hours) in accordance with the manufacturer's specifications.

(ii) Quality Control Limits

(A) For pollutant analyzers, the zero, low-level or high-level calibration drift result shall not exceed 5.0% of the span value.

(B) For diluent analyzers, the zero, low-level or high-level calibration drift result shall not exceed 1.0% O_2 or CO_2.

(2) Cylinder Gas Audit (CGA)

(i) Quality Control Frequencies

(A) For CEMS subject to 40 CFR Part 75, the CGA check frequency shall align with 40 CFR Part 75, Appendix B linearity check frequency.

(B) For CEMS not subject to 40 CFR Part 75, the CGA shall be checked, recorded, and quantified for three of four calendar quarters, but in no more than three quarters in succession. Successive quarterly CGA checks shall occur no closer than 2 months. CGA checks are not required for calendar quarters when the emission unit does not operate in the calendar quarter.

(C) For O_2 CEMS subject to 40 CFR Part 75, the linearity check may be performed in lieu of a CGA check in accordance with 40 CFR Part 75, Appendix B.

(ii) Quality Control Limits

(A) For pollutant analyzers, the CGA absolute accuracy shall not exceed 15%. Alternatively, the absolute value of the difference between the average response and the audit value shall not exceed 0.5 ppm.

(B) For diluent analyzers, the CGA absolute accuracy shall not exceed 15%.

(3) Relative Accuracy Test Audit (RATA)

(i) Quality Control Frequencies

(A) For CEMS subject to 40 CFR Part 75, the RATA frequency shall align with 40 CFR Part 75 RATA frequency.

(B) For CEMS not subject to 40 CFR Part 75, the RATA shall be at least once every four calendar quarters except when the emission unit does not operate in the fourth calendar quarter since the quarter of the previous RATA. In this case, the RATA check shall be performed in the quarter in which the emission unit recommences operation.

(ii) Quality Control Limits

(A) For NOx analyzers, the relative accuracy shall be 20.0% or less when the reference method value is used to calculate relative accuracy or 10.0% or less when the applicable emissions standard is used to calculate relative accuracy.

(B) For CO analyzers, the relative accuracy shall be 10% or less when the reference method value is used to calculate relative accuracy or 5.0% or less when the applicable emissions standard is used to calculate relative accuracy. Alternatively, a de minimis value calculated as the absolute value of the difference between the reference method and CEMS in units of parts per million by volume, dry (ppmvd) corrected to 15% O_2 plus the confidence coefficient may be used in lieu of all relative accuracy calculations in the applicable emissions standards if the calculated de minimis value does not exceed 0.50 ppmvd.

(C) For O_2 and CO_2 analyzers, the relative accuracy shall be 20.0% or less when the reference method value is used to calculate relative accuracy or <1.0% absolute difference between the average reference method value and average CEMS value.

(D) For other monitors, in accordance with the applicable performance specification approved in writing by the Air Pollution Control Officer.

(4) NO_2 converter efficiency

(i) Quality Control Frequencies

NO_2 to NO converter efficiency shall be checked, recorded, and quantified at least once annually. Successive annual audits shall occur no closer than 4 months from each other.

(ii) Quality Control Limits

The converter efficiency shall be >90% of the certified audit gas concentration.

(i) **CORRECTIVE ACTIONS**

(1) If any of the above requirements are not met, the owner or operator shall take the necessary corrective action(s) to eliminate the problem as soon as practicable, but not to exceed 96 hours.

(2) If any quality control limits are exceeded, the CEMS is considered out of control from the time of completion of the failed audit, until the successful completion of a repeat audit.

(3) Whenever quality control limit exceedances occur for two consecutive quarters, excluding calibration drift, the current QA/QC CEMS program shall be modified or the CEMS shall be modified or replaced to correct the deficiency causing the quality control limit exceedances as soon as practical, but not to exceed 96 hours. The modified written procedures shall then replace the previous written procedures upon approval of the Air Pollution Control Officer.

(j) **COMPLIANCE SCHEDULE**

(1) Each owner or operator of new CEMS shall comply with all applicable requirements of this rule upon initial start up.

(2) Each owner or operator of an existing CEMS shall submit to the Air Pollution Control Officer current documentation which demonstrates the CEMS is in compliance with all applicable requirements of this rule by June 30, 2024.