BOARD MEETING DATE: September 2, 2022 AGENDA NO. 31

PROPOSAL: Determine That Proposed Amended Rule 218.2 - Continuous Emission Monitoring System: General Provisions, and Proposed Amended Rule 218.3 - Continuous Emission Monitoring System: Performance Specifications, Are Exempt from CEQA; and Amend Rule 218.2 and Rule 218.3

SYNOPSIS: Rules 218.2 and 218.3 provide guidance for installation and operation of CEMS at non-RECLAIM and former RECLAIM facilities. The proposed amendments establish additional requirements for the installation and operation of CEMS including an alternative calibration procedure for dual range analyzers, specifications when measuring mass emissions and applying data substitution procedures, and extensions to recordkeeping and reporting requirements.

COMMITTEE: Stationary Source, June 17, 2022, Reviewed

RECOMMENDED ACTIONS:
Adopt the attached Resolution:

1. Determining that Proposed Amended Rule 218.2 - Continuous Emission Monitoring System: General Provisions, and Proposed Amended Rule 218.3 - Continuous Emission Monitoring System: Performance Specifications, are exempt from the requirements of the California Environmental Quality Act; and
2. Amending Rule 218.2 - Continuous Emission Monitoring System: General Provisions, and Rule 218.3 - Continuous Emission Monitoring System: Performance Specifications.

Wayne Nastri
Executive Officer

SR:MK:HF:YZ

Background
In March 2021, the Board adopted Rules 218.2 and 218.3 to update performance specifications for Continuous Emission Monitoring Systems (CEMS) and to harmonize requirements for units at non-RECLAIM, RECLAIM, and former RECLAIM facilities. A CEMS is the combination of equipment necessary to measure pollutant concentrations or emission rates on a continuous basis. Rules 218.2 and 218.3 provide specifications for CEMS operated at former RECLAIM facilities that were previously certified according to the RECLAIM program but have since exited RECLAIM, as well as specifications for CEMS operated at non-RECLAIM facilities that were previously certified or would have been certified according to Rules 218 and 218.1. The adoption of Rules 218.2 and 218.3 was part of the transition of NOx RECLAIM facilities to a command-and-control regulatory structure consistent with CMB-05 in the 2016 AQMP.

Rules 218.2 and 218.3 were developed to address compliance with command-and-control concentration-based emission limits; however, since their adoption, several command-and-control rules with CEMS requirements have been adopted or amended to include mass emission limits instead of concentration-based emission limits.

Public Process
Development of Proposed Amended Rules 218.2 and 218.3 (PAR 218.2 and PAR 218.3) was conducted through a public process. Staff held two Working Group meetings on January 27, 2022, and February 24, 2022. A Public Workshop was held on March 30, 2022, and a Public Consultation meeting was held on June 8, 2022. Staff also held individual meetings with stakeholders and U.S. EPA.

Proposed Amendments
PAR 218.2 will further specify the criteria for CEMS recertification and clarify that the Rules 218.2 and 218.3 exemption does not apply if the source specific rule or permit specified equivalent CEMS requirements are less stringent. It will also extend the required recordkeeping period from a minimum period of two years to three years to align with the California Code of Civil Procedure Section 338(k). Further, PAR 218.2 will allow facilities to submit the relative accuracy test audit report on or before the end of the quarter following the date of the test to align with existing RECLAIM requirement.

PAR 218.3 includes mass emission calculation methods and data substitution procedures to address units that must comply with mass emission limits, including for units with mass emission startup and shutdown limits on a per minute interval. In addition, PAR 218.3 will provide more detailed instructions for the linearity error test procedure, align the exemption provision with PAR 218.2 revision to add more specificity, and address a potential monitoring gap for a dual range analyzer. Finally, PAR 218.3 allows the owner or operator to report valid zero emissions data without requiring data substitution if the owner or operator can demonstrate the emitting source is non-operational.

Key Issues
Through the rulemaking process, staff has worked with the stakeholders to address comments and resolve key issues. Staff is not aware of any remaining key issues.

California Environmental Quality Act (CEQA)
Pursuant to the California Environmental Quality Act (CEQA) Guidelines Sections 15002(k) and 15061, the proposed project is exempt from CEQA pursuant to CEQA Guidelines Section 15061(b)(3). A Notice of Exemption has been prepared pursuant to CEQA Guidelines Section 15062 and is included as Attachment H to this Board Letter. If the project is approved, the Notice of Exemption will file for posting with the county clerks of Los Angeles, Orange, Riverside, and San Bernardino counties, and with the State Clearinghouse of the Governor's Office of Planning and Research.

Socioeconomic Impact Assessment
PAR 218.2 and PAR 218.3 are designed to provide additional clarification and data handing methods consistent with emission limits in permits or command-and-control rules. The proposed amendments are administrative in nature and are not expected to have socioeconomic impacts.

AQMP and Legal Mandates
PAR 218.2 and PAR 218.3 are related to 2016 AQMP Control Measure CMB-05 which addresses the transition of NOx RECLAIM facilities to command-and-control as they specify the CEMS requirements for command-and-control rules for non-RECLAIM and former RECLAIM facilities. PAR 218.2 and PAR 218.3 will be submitted to CARB and U.S. EPA for inclusion in the SIP.

Implementation and Resource Impacts
Existing staff resources are sufficient to implement the proposed rule amendments.

Attachments
A. Summary of Proposal
B. Key Issues and Responses
C. Rule Development Process
D. Key Contacts List
E. Resolution
F-1. Proposed Amended Rule 218.2
F-2. Proposed Amended Rule 218.3
G. Final Staff Report
H. Notice of Exemption from CEQA
I. Board Presentation

ATTACHMENT A

SUMMARY OF PROPOSAL

Proposed Amended Rule 218.2 – Continuous Emission Monitoring System: General Provisions
Proposed Amended Rule 218.3 – Continuous Emission Monitoring System: Performance Specifications

Summary of Proposed Amended Rule 218.2 (PAR 218.2)

Certification Requirements

- Adds clarification that the Executive Officer discretion on recertification requirement will only apply if modification would not impact data accuracy

Recordkeeping Requirements

- Extends the recordkeeping from a minimum period of two years to three years

Exemption

- Adds clarification that the Executive Officer discretion does not apply if the rule or permit specified CEMS requirements are less stringent

Summary of Proposed Amended Rule 218.3 (PAR 218.3)

Certification Test Requirements and Specifications

- Provides more detailed instruction on the test sequence and the number of data points required when conducting the linearity error check procedure

Data Handling

- Extends a low-level data validation option from being applicable to lowest vendor guaranteed span range to any span range
- Adds the mass emission calculation methodology
- Adds data substitution procedure when a facility is complying with a mass emission limitation
- Adds method to calculate mass emissions for a startup or shutdown period
- Adds data substitution procedures for startup or shutdown missing minute data when a facility is complying with a mass emission limitation for startup or shutdown
- Allows the owner or operator to report valid zero emissions data while the unit (emitting source) is not operating and no emissions are generated

Exemption

- Adds clarification that the Executive Officer discretion does not apply if the rule or permit specified CEMS requirements are less stringent

ATTACHMENT B

KEY ISSUES AND RESPONSES

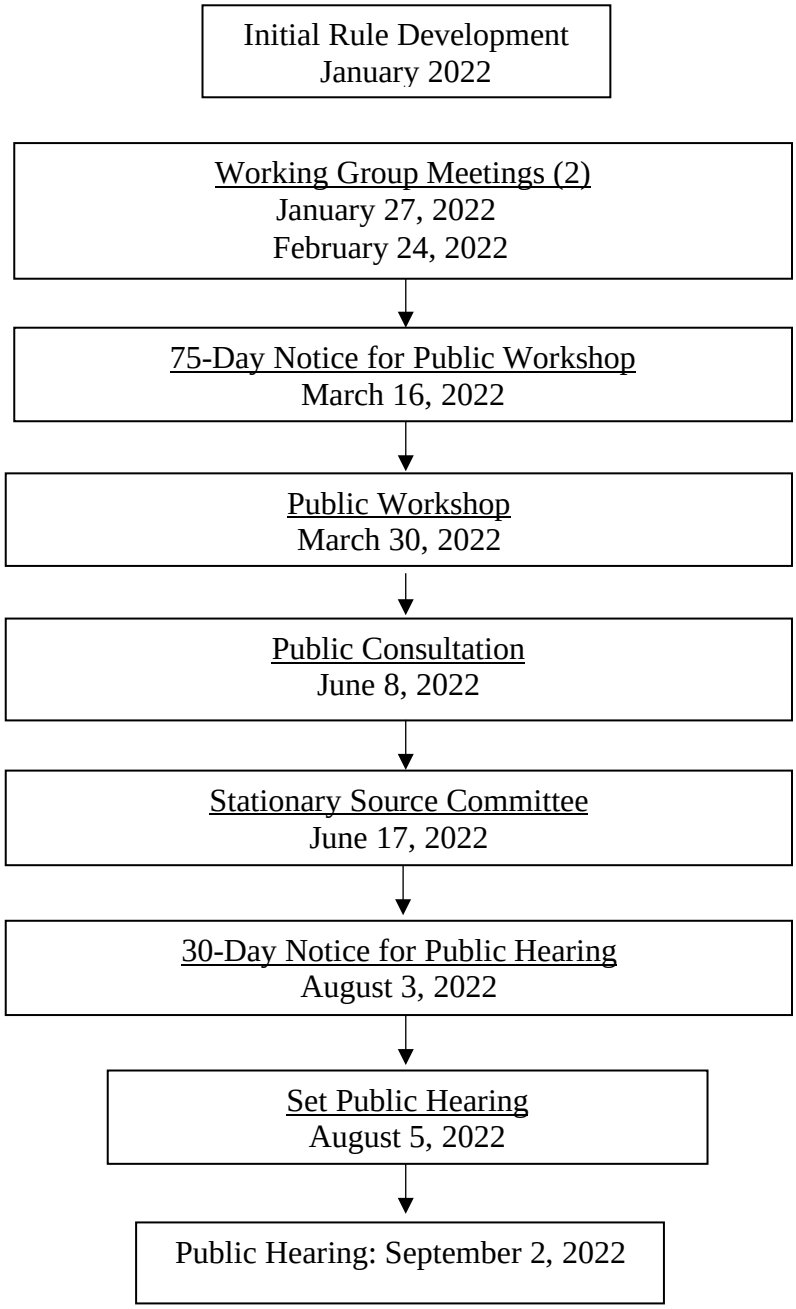
Proposed Rule 218.2 – Continuous Emission Monitoring System: General Provisions **Proposed Rule 218.3 – Continuous Emission Monitoring System: Performance Specifications**
Throughout the rulemaking process, staff worked with stakeholders to address their comments. Staff is not aware of any remaining key issues.

ATTACHMENT C

RULE DEVELOPMENT PROCESS

Proposed Amended Rule 218.2 – Continuous Emission Monitoring System: General Provisions

Proposed Amended Rule 218.3 – Continuous Emission Monitoring System: Performance Specifications



Eight (8) months spent in rule development
Two (2) Working Group Meetings
One (1) Public Workshop
One (1) Public Consultation
One (1) Stationary Source Committee Meeting

ATTACHMENT D

KEY CONTACTS LIST

Proposed Amended Rule 218.2 – Continuous Emission Monitoring System: General Provisions

Proposed Amended Rule 218.3 – Continuous Emission Monitoring System: Performance Specifications

(listed alphabetically)

- AirKinetics Inc
- Almega Environmental
- AltAir Paramount
- Anheuser-Busch LLC
- California Air Resources Board (CARB)
- California Council for Environmental and Economic Balance (CCEEB)
- California Institute of Technology
- California Resources Corporation
- CEMTEK KVB-Enertec
- Cisco CEMS
- City of Glendale Water and Power
- City of Pasadena
- City of Riverside
- FERCo
- Inland Empire Utilities Agency
- Los Angeles County Sanitation District
- Los Angeles Department of Water and Power
- Marathon Petroleum
- Montrose Environmental
- Orange County Sanitation District
- Phillips 66
- Ramboll
- Rockwell Automation
- Signal Hill Petroleum
- Southern California Alliance of Publicly Owned Treatment Works (SCAP)
- Southern California Edison
- Southern California Gas Company
- Taylor Environmental Services
- United States Environmental Protection Agency (U.S. EPA)
- Valero Energy
- VIM Technologies
- Walnut Creek Energy
- Western States Petroleum Association (WSPA)
- Yorke Engineering

ATTACHMENT E

RESOLUTION NO.22_____

A Resolution of the Governing Board of the South Coast Air Quality Management District (South Coast AQMD) determining that Proposed Amended Rule 218.2 – Continuous Emission Monitoring System: General Provisions, and Proposed Amended Rule 218.3 – Continuous Emission Monitoring System: Performance Specifications are exempt from the requirements of the California Environmental Quality Act (CEQA).

A Resolution of the South Coast AQMD Governing Board amending Rule 218.2 – Continuous Emission Monitoring System: General Provisions, and Rule 218.3 – Continuous Emission Monitoring System: Performance Specifications.

WHEREAS, the South Coast AQMD Governing Board finds and determines that Proposed Amended Rule 218.2 and Proposed Amended Rule 218.3 are considered a "project" as defined by CEQA; and

WHEREAS, the South Coast AQMD has had its regulatory program certified pursuant to Public Resources Code Section 21080.5 and CEQA Guidelines Section 15251(l), and has conducted a CEQA review and analysis of the proposed project pursuant to such program (South Coast AQMD Rule 110); and

WHEREAS, the South Coast AQMD Governing Board finds and determines that after conducting a review of the proposed project in accordance with CEQA Guidelines Section 15002(k) – General Concepts, the three-step process for deciding which document to prepare for a project subject to CEQA, and CEQA Guidelines Section 15061 – Review for Exemption, procedures for determining if a project is exempt from CEQA, that the proposed project is exempt from CEQA; and

WHEREAS, the South Coast AQMD Governing Board finds and determines that because the proposed project provides updates to technical guidelines for operating CEMS as required by South Coast AQMD rules or permit conditions such that no physical modifications are expected to occur, it can be seen with certainty that there is no possibility that the proposed project may have any significant adverse effects on the environment, and is therefore, exempt from CEQA pursuant to CEQA Guidelines Section 15061(b)(3) – Common Sense Exemption; and

WHEREAS, the South Coast AQMD staff has prepared a Notice of Exemption for the proposed project, that is completed in compliance with CEQA Guidelines Section 15062 – Notice of Exemption; and

WHEREAS, Proposed Amended Rule 218.2, Proposed Amended Rule 218.3, and supporting documentation, including but not limited to, the Notice of Exemption and Final Staff Report, were presented to the South Coast AQMD Governing Board and the South Coast AQMD Governing Board has reviewed and considered this information, as well as has taken and considered staff testimony and public comment prior to approving the project; and

WHEREAS, the South Coast AQMD Governing Board finds and determines, taking into consideration the factors in Section (d)(4)(D) of the Governing Board Procedures (Section 30.5(4)(D)(i) of the Administrative Code), that no modifications have been made to the proposed project since notice of public hearing was published that are so substantial as to significantly affect the meaning of Proposed Amended Rule 218.2 and Proposed Amended Rule 218.3 within the meaning of Health and Safety Code Section 40726 including the addition of an alternative data substitution option in clause (i)(13)(B)(i) of Proposed Amended Rule 218.3, which is not substantive and: further, (a) the changes do not impact emission reductions, (b) the changes do not affect the number or type of sources regulated by the rules, (c) the changes are consistent with the information contained in the notice of public hearing, and (d) the consideration of the range of CEQA alternatives is not applicable because the proposed project is exempt from CEQA; and

WHEREAS, Proposed Amended Rule 218.2 and Proposed Amended Rule 218.3 will be submitted to the California Air Resources Board and the United States Environmental Protection Agency for inclusion into the State Implementation Plan; and

WHEREAS, Health and Safety Code Section 40727 requires that prior to adopting, amending, or repealing a rule or regulation, the South Coast AQMD Governing Board shall make findings of necessity, authority, clarity, consistency, non-duplication, and reference based on relevant information presented at the public hearing and in the Final Staff Report; and

WHEREAS, the South Coast AQMD Governing Board has determined that a need exists to amend Rule 218.2 and Rule 218.3 to further specify requirements for CEMS at non-RECLAIM and former RECLAIM which include providing an option to validate data for a dual range analyzer and adding specifications on mass emission calculations and data substitution procedures; and

WHEREAS, the South Coast AQMD Governing Board obtains its authority to adopt, amend, or repeal rules and regulations from Sections 39002, 40000, 40001, 40440, 40441, 40702, 40725 through 40728, and 41511 of the Health and Safety Code; and

WHEREAS, the South Coast AQMD Governing Board has determined that Proposed Amended Rule 218.2 and Proposed Amended Rule 218.3 are written or displayed so that their meanings can be easily understood by persons directly affected by them; and

WHEREAS, the South Coast AQMD Governing Board has determined that Proposed Amended Rule 218.2 and Proposed Amended Rule 218.3 are in harmony with, and not in conflict with or contradictory to, existing statutes, court decisions, or state or federal regulations; and

WHEREAS, the South Coast AQMD Governing Board has determined that Proposed Amended Rule 218.2 and Proposed Amended Rule 218.3 do not impose the same requirements as any existing state or federal regulations, and the proposed amended rules are necessary and proper to execute the powers and duties granted to, and imposed upon, the South Coast AQMD; and

WHEREAS, the South Coast AQMD Governing Board has determined that Proposed Amended Rule 218.2 and Proposed Amended Rule 218.3 reference the following statutes which the South Coast AQMD hereby implements, interprets or makes specific: Assembly Bill 617, Health and Safety Code Sections 39002 (primary responsibility for control of non-vehicular air pollution); 40001(a) (rules to meet air quality standards); 40440(a) (rules to carry out the plan); 40440(c) (rules to carry out programs efficiently and cost-effectively); 40702 (adoption of rules and regulations); and 41511 (requirements to determine emissions); 40725 through 40728.5 (adoption of rules and regulations); and

WHEREAS, the South Coast AQMD Governing Board finds that Proposed Amended Rule 218.2 and Proposed Amended Rule 218.3 do not impose new or more stringent monitoring, reporting, or recordkeeping requirements, and therefore the requirements of Health and Safety Code Section 40727.2 are satisfied under subsection (g); and

WHEREAS, the South Coast AQMD Governing Board has determined that the Socioeconomic Impact Assessment is not required, pursuant to Health and Safety Code Section 40440.8 or 40728.5, because Proposed Amended Rule 218.2 and Proposed Amended Rule 218.3 will not have a significant impact on air quality or emissions limitations; and

WHEREAS, the South Coast AQMD staff conducted a public workshop regarding Proposed Amended Rule 218.2 and Proposed Amended Rule 218.3 on March 30, 2022; and

WHEREAS, the public hearing has been properly noticed in accordance with the provisions of Health and Safety Code Section 40725 and 40440.5; and

WHEREAS, the South Coast AQMD Governing Board has held a public hearing in accordance with all provisions of state and federal law; and

WHEREAS, the South Coast AQMD specifies the Planning and Rules Manager of Proposed Amended Rule 218.2 and Proposed Amended Rule 218.3 as the custodian of the documents or other materials which constitute the record of proceedings upon which the adoption of this proposed project is based, which are located at the South Coast Air Quality Management District, 21865 Copley Drive, Diamond Bar, California; and

NOW, THEREFORE, BE IT RESOLVED, that the South Coast AQMD Governing Board does hereby determine, pursuant to the authority granted by law, that the proposed project is exempt from CEQA pursuant to CEQA Guidelines Section 15061(b)(3) – Common Sense Exemption. This information was presented to the South Coast AQMD Governing Board, whose members exercised their independent judgement and reviewed, considered, and approved the information therein prior to acting on the proposed project; and

BE IT FURTHER RESOLVED, that the South Coast AQMD Governing Board does hereby adopt, pursuant to the authority granted by law, Proposed Amended Rule 218.2 and Proposed Amended Rule 218.3 as set forth in the attached, and incorporated herein by reference; and

BE IT FURTHER RESOLVED, that the South Coast AQMD Governing Board requests that Proposed Amended Rule 218.2 and Proposed Amended Rule 218.3 be submitted for inclusion in the State Implementation Plan; and

BE IT FURTHER RESOLVED, that the Executive Officer is hereby directed to forward a copy of this Resolution, Proposed Amended Rule 218.2, and Proposed Amended Rule 218.3 to the California Air Resources Board for approval and subsequent submittal to the U.S. Environmental Protection Agency for inclusion into the State Implementation Plan.

DATE:_____ _____

CLERK OF THE BOARDS

ATTACHMENT F-1

(Adopted March 5, 2021)(Amended [*Date of Adoption*])

[*RULE INDEX TO BE ADDED AFTER RULE ADOPTION*]

PROPOSED AMENDED RULE 218.2 CONTINUOUS EMISSION MONITORING SYSTEM: GENERAL PROVISIONS

(a) Purpose

The purpose of this rule is to specify requirements for Continuous Emission Monitoring Systems (CEMS), Alternative Continuous Emission Monitoring System (ACEMS), and Semi-Continuous Emission Monitoring System (SCEMS). This rule refers to Rule 218.3 for requirements for certifications and quality assurance of CEMS, ACEMS, and 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 the 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) NOx or SOx emissions subject to 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 uses 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) 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 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 air contaminant or diluent gas concentration, flow rate and other parameters necessary to generate data.

(4) 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.

(5) CEMS FAILURE means the CEMS or a component of the CEMS ceases normal operation, and thus is incapable of providing the required data to demonstrate compliance with the applicable limit or standard for which this CEMS is dedicated.

(6) CEMS FINAL CERTIFICATION LETTER means the final approval of CEMS certification or recertification, which at a minimum includes:

(A) Unit (emission source) and control equipment (if applicable) description.

(B) Stack description.

(C) Probe configuration and conditions.

(D) Instrument type, manufacturer, model number, and serial number for each of the contaminant analyzer (s), diluent analyzer, and fuel flowmeter (if applicable).

(E) Instrument type, manufacturer, and model number for:

(i) Sample conditioning system; and

(ii) Data acquisition and handling system and programmable logic controller.

(F) Certified span range(s) for each of the contaminant analyzer(s), diluent analyzer, and fuel or stack flowmeter (if applicable).

(7) CEMS MODIFICATION means a modification to a CEMS component that is identified on the CEMS final certification letter, or a modification which may include, but not be limited to the CEMS sampling interface, gas conditioning system, analyzer, or data acquisition and handling system that has 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 certified and maintained to meet the performance specifications pursuant to the applicable requirements of Rules 218.2 and 218.3.

(9) 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 of a source effluent (as applicable).

(10) CONTINUOUS MONITORING means monitoring in which a minimum of one measurement (e.g., concentration, mass emission, flow rate) is taken and recorded each minute.

(11) DATA ACQUISITION AND HANDLING SYSTEM (DAHS) means 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 DAHS consist of all equipment such as a computer and the software required to 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 in order to provide values 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 NOx RECLAIM program.

(14) LABORATORY APPROVAL PROGRAM (LAP) means a program administered by the South Coast AQMD for granting test-method-specific approvals to independent testing laboratories or firms that perform tests to determine source compliance with the South Coast AQMD rules and regulations.

(15) MAINTENANCE means preventive evaluation and adjustment (if necessary) of CEMS performed 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.

(16) PUBLICLY OWNED SEWAGE-WATER-LANDFILL FACILITY means a sewage treatment facility, water delivery facility, or landfill gas control or processing facility, that is owned and operated by a public agency.

(17) RECLAIM means the REgional CLean Air Incentives Market program.

(18) 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.

(19) SAMPLING INTERFACE means 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.

(20) 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.

(21) 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.

(22) UNIT for the purposes of this rule means the combustion source for which the certified continuous emission monitoring system, or alternative continuous emission monitoring system, monitors the combustion source's emissions.

(d) Implementation Schedule

(1) Prior to the implementation date specified in paragraphs (d)(2) through (d)(5), the owner or operator shall comply with:

(A) Rules 218 and 218.1 for a CEMS that is subject to paragraph (d)(2) or (d)(5); 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 pursuant to paragraph (f)(2) or (f)(3);

(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 pursuant to paragraph (f)(2) or (f)(3); or

(C) The implementation date of a source-specific rule for which the CEMS shall be certified or recertified pursuant to paragraph (f)(2) or (f)(3) 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 pursuant to paragraph (f)(2) or (f)(3) that is within twenty-four (24) months after the NOx RECLAIM facility has been notified as a former RECLAIM facility;

(B) Twenty-four (24) months after the NOx RECLAIM facility has been notified as a former RECLAIM facility, if there is no CEMS recertification pursuant to paragraph (f)(2) or (f)(3) during this 24-month period; or

(C) The implementation schedule of a source specific rule for which the CEMS shall be certified or recertified pursuant to paragraph (f)(2) or (f)(3) 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 specified in paragraphs (d)(2) and (d)(3).

(5) The owner or operator of a publicly owned sewage-water-landfill facility that has a CEMS certified to comply with Rules 218 and 218.1, shall meet the requirements of this rule no later than January 1, 2025, or by the implementation date of a source-specific rule requiring the CEMS to be certified or recertified, whichever is later.

(e) Monitoring Requirements

(1) The owner or operator of a CEMS shall install, maintain and operate the CEMS for continuous measurement according to all applicable requirements in Rules 218.2 and 218.3.

(2) If there is a CEMS failure, the owner or operator of a CEMS shall:

(A) Not be subject to the requirements of paragraph (e)(1) for up to 96 hours, provided that the CEMS is:

(i) Undergoing maintenance pursuant to the Quality Assurance and Quality Control Program for the CEMS; or

(ii) Damaged as a result of circumstances beyond the control of the owner or operator of the CEMS;

(B) Submit a notification pursuant to paragraph (i)(3), if the CEMS failure or shut down has occurred for more than 24 hours; and

(C) Submit a notification to the Executive officer for time extension beyond the time period specified in subparagraph (e)(2)(A) for an additional 96 hours, if the unit is not operating and no emissions are generated, as demonstrated pursuant to paragraph (e)(4).

(3) If a unit does not operate for a minimum of 168 consecutive hours, as demonstrated pursuant to paragraph (e)(4), the owner or operator of the CEMS is not subject to the requirements of paragraph (e)(1) after zero emissions have been recorded for a minimum of 4 hours after the unit shutdown, provided that the owner or operator of the CEMS:

(A) Maintains the CEMS operation pursuant to paragraph (e)(1) to record zero emissions for a minimum of 4 hours after the unit shutdown;

(B) Submits the notifications and report in accordance with paragraph (i)(4);

(C) Resumes CEMS operation and meet the requirements of paragraph (e)(1) for a minimum of 4 hours before the unit resumes operation or at which time any emissions are generated; and

(D) Conducts a calibration error test for each CEMS analyzer before any emissions are detected.

(4) Demonstrating a unit is not operating and no emissions are generated

(A) For a unit in which fuel combustion is the only source for the CEMS monitored emissions, the owner or operator of the CEMS shall meet one or more of the following provisions for the entire duration:

(i) Disconnect the fuel line to the unit and place blind flange(s) to prevent fuel flow;

(ii) Demonstrate there is no fuel flow to the unit based on a dedicated fuel flow meter that is quality assured according to manufacturer's recommendation;

(iii) Provide one or more gas bills indicating zero fuel consumption for the unit or the fuel line associated with the unit that is not operating; or

(iv) Demonstrate the unit is not operational based on a stack flow monitoring system certified according to subdivision (f), or any other monitoring system approved by the Executive Officer which shows the exhaust flow is less than the lowest quantifiable rate measurable by South Coast AQMD Methods 1-4.

(B) For a unit in which fuel combustion is not the only source for the CEMS monitored emissions, the owner or operator of the CEMS shall:

(i) Request the Executive Officer's written approval of the method(s) to demonstrate that the unit is not operating and no emissions are generated; and

(ii) Include the above approved method(s) in the QA/QC plan.

(f) Certification Requirements

(1) The owner or operator of a CEMS shall certify or recertify any CEMS that is:

(A) Installed after [*Date of Adoption*];

(B) Modified for any component that is either listed on the certification letter, Technical Guidance Document R-002, or Quality Assurance/Quality Control Plan, unless the Executive Officer determines that such modification would not impact data accuracy and certification or recertification is not necessary; or

(C) Determined by the Executive Officer that a CEMS recertification is required because the QA/QC or performance requirements for the CEMS cannot be achieved in accordance with Rule 218.3 subdivision (g).

(2) The owner or operator of the CEMS shall certify or recertify the CEMS, according to requirements set forth in Rule 218.3 subdivisions (e) and (f) and shall:

(A) Submit a CEMS application form pursuant to paragraph (f)(4);

(B) Obtain an initial approval of the application pursuant to paragraph (f)(5);

(C) Conduct the certification tests for the CEMS pursuant to paragraph (f)(6); and

(D) Obtain a final approval of the application for the CEMS final certification letter pursuant to paragraph (f)(7).

(3) For a CEMS modification required within 30 days due to CEMS failure, the owner or operator of the CEMS shall:

(A) Submit a written notification to the Executive Officer prior to the modification that includes the date and description of the planned modification;

(B) Submit a CEMS application form pursuant to paragraph (f)(4) within 30 days of the CEMS modification and obtain an interim approval of the application pursuant to paragraph (f)(5), except that the owner or operator of the CEMS may commence the CEMS modification without receiving notification from the Executive Officer pursuant to subparagraph (f)(5)(D);

(C) Conduct the certification tests for the CEMS pursuant to subparagraphs (f)(6);

(D) Recertify and operate the CEMS pursuant to Rule 218.3 subdivisions (e) and (f); and

(E) Obtain a final approval of the application for the CEMS final certification letter pursuant to paragraph (f)(7).

(4) The owner or operator of the CEMS shall submit an CEMS application form, FORM ST-220 or its updated version, and any other information specified in the form.

(5) The owner or operator of the CEMS shall receive an initial approval of the CEMS application from the Executive Officer prior to the CEMS installation or modification.

(A) The initial approval of the CEMS application shall be based on the information submitted in the application form that is:

(i) Complete; and

(ii) Accurate in providing information that reflects the unit and CEMS.

(B) Executive Officer shall notify the applicant that the application is complete, 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.

(C) If the owner or operator of the CEMS receives notification from the Executive Officer that the application meets the requirements of subparagraph (f)(5)(A), the owner or operator of the CEMS may commence the CEMS installation or modification.

(D) If the owner or operator of the CEMS receives notification from the Executive Officer that the application for initial certification does not meet the requirements of subparagraph (f)(5)(A), the owner or operator of the CEMS shall provide the Executive Officer the specific information needed to meet the requirements of subparagraph (f)(5)(A) within the time specified by the Executive Officer in the notification.

(E) Upon receipt of any complete resubmittal or additional information, plans or specifications after the application has been deemed incomplete, a new 30-day period shall begin during which the Executive Officer shall notify the applicant if the application is complete and grant the initial approval.

(6) Certification Tests

(A) If the unit is operating at the time of completion of the CEMS installation, within 90 days of installation or modification of a CEMS, the owner or operator of a CEMS shall:

(i) Conduct the applicable certification tests specified in Rule 218.3 subdivision (f) for certification of any new CEMS or recertification of a modified CEMS; or

(ii) Meet the testing requirement for each type of CEMS modification in accordance with the latest South Coast AQMD Technical Guidance Documents R-002 and R-003 for recertification of a modified CEMS.

(B) If the unit is not operating at the time of completion of the CEMS installation, then the owner or operator of the CEMS shall conduct the certification tests of the CEMS within 90 days from the start-up and normal operation of the unit monitored by the CEMS in accordance with clause (f)(6)(A).

(C) The certification tests shall be performed by a testing laboratory approved under the South Coast AQMD Laboratory Approval Program.

(i) No later than 14 days before the certification test is conducted, the owner or operator of the CEMS shall notify the Executive Officer in writing the facility name, facility identification number, the device identification number, the certification test date(s) and time(s).

(ii) No later than 45 days of completing a certification test, the owner or operator of the CEMS shall submit the test report to the Executive Officer.

(7) Final Approval

(A) The Executive Officer will issue a CEMS final certification letter as the final approval, if the information in the application form and the certification test reports are determined to meet the requirements specified in Rule 218.3 subdivisions (e) and (f).

(B) The owner or operator of the CEMS shall be notified of the expected issuance date of the CEMS final certification letter by the Executive Officer within 60 days of receiving the certification test report(s) specified in paragraph (f)(6).

(C) The owner or operator of the CEMS shall be notified of a new issuance date of the CEMS final certification letter by the Executive Officer if additional data and/or test(s) are required prior to final approval. This new issuance data will be determined by the Executive officer within 60 days of receiving the additional data and/or test(s).

(8) Modification of CEMS Component Listed in the Technical Guidance Document R-002

For a CEMS modification on a component that is not identified on the CEMS final certification letter but is listed on the South Coast AQMD Technical Guidance Document R-002, the owner or operator of the CEMS shall either meet the requirements specified in paragraph (f)(2), or (f)(3) or the alternative CEMS certification requirements. The owner or operator of the CEMS that elects to meet the alternative CEMS certification requirements shall:

(A) Provide a written notification to the Executive Officer prior to the modification that includes the date and description of the planned CEMS modification;

(B) Conduct the required quality assurance tests, in accordance with the South Coast AQMD Technical Guidance Document R-002, within 60 days following the CEMS modification; and

(C) Submit the test reports to the Executive Office within 60 days after completing the tests.

(D) Subject to any further assessment instructed by the Executive Officer to validate the reliability, precision, or accuracy of the CEMS.

(9) The owner or operator of the CEMS that receives written notification from the Executive Officer that an alternative CEMS recertification submitted pursuant to subparagraph (f)(8) is disapproved, shall meet the requirements specified in paragraph (f)(2) or (f)(3) for that specific CEMS modification.

(10) Modification of CEMS Component Listed in Quality Assurance/Quality Control Plan

For a CEMS modification on a component that is not identified on the CEMS final certification letter or listed in the South Coast AQMD Technical Guidance Document R-002, but is listed in the Quality Assurance/Quality Control Plan, the owner or operator of the CEMS shall:

(A) Provide a written notification to the Executive Officer prior to the modification that includes the date and description of the planned CEMS modification;

(B) Submit a modified Quality Assurance/Quality Control Plan to the Executive officer within 30 days of notification; and

(C) Subject to any testing requirement and/or further assessment instructed by the Executive Officer if the modification is deemed to affect the reliability, precision, or accuracy of the CEMS.

(11) Emission Data During CEMS Certification or Recertification

(A) Upon completion of a successful calibration error test pursuant to Rule 218.3 subparagraphs (f)(1)(B) and (f)(1)(C) and prior to the Executive Officer's approval of final CEMS certification or recertification, all the emission data measured and recorded by the

CEMS shall be considered as valid quality assured data, beginning at the hour of passing the calibration error test. The calibration error test for this purpose must be passed before any of the required certification tests pursuant to paragraph (f)(6) is commenced but no more than 14 days prior to the completion of all the required certification tests.

(B) If the Executive Officer disapproves the final CEMS certification or recertification, the valid emission data pursuant to subparagraph (f)(11)(A) shall be retroactively considered invalid data and shall not be utilized for compliance demonstration or considered as available for CEMS data availability calculation, until the hour of the next time completing all the required certification tests pursuant to paragraph (f)(6).

(12) Operation of CEMS During Certification Testing

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

(13) SCEMS and ACEMS Certification and Recertification

(A) The owner or operator subject to this rule may elect to certify the following emission monitoring systems:

(i) A SCEMS, not including time-shared CEMS, provided that:

(~~I~~A) Only commercially available SCEMS instrumentation is capable of accurately and precisely measuring the particular air contaminant concentration or other parameters used to calculate the emission concentration; and

(~~H~~B) The concentrations and/or emissions required to be monitored would be equivalent to that monitored by a CEMS for the applicable averaging period.

(ii) A time-shared CEMS, provided that the units to be monitored by the time-shared CEMS are:

(~~I~~A) Physically close to one another, and the proposed time-shared CEMS is approximately equidistant from all monitored units;

(~~H~~B) Similarly sized and configured, and their gaseous emissions are of approximately the same compositions and concentrations; and

(~~HH~~C Subject to a similar concentration limit.
)

(iii) An ACEMS, provided that the system, being designed to provide direct or indirect emission data, has the same precision, reliability, accessibility, and timeliness as a certified CEMS.

(B) Owners or operators of the SCEMS or ACEMS shall comply with the requirements specified in paragraphs (f)(1) through (f)(12) for the SCEMS or ACEMS certification and recertification.

(g) Quality Assurance/Quality Control (QA/QC) Plan

The purpose of a QA/QC 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.

(1) The owner or operator of the CEMS shall develop and store on site a QA/QC plan, which at a minimum shall include the step-by-step procedures and operations for the quality assurance tests, preventive maintenance, corrective action, recordkeeping, and reporting, in accordance with Guidelines for Continuous Emission Monitoring System Quality Assurance and Quality Control Plan.

(2) For a new CEMS QA/QC Plan, the owner or operator of the CEMS shall submit to the Executive Officer for approval a CEMS QA/QC Plan within 45 days of CEMS installation and no later than 30 days before the certification tests.

(3) For a revised CEMS QA/QC Plan, the owner or operator of CEMS shall submit to the Executive Officer for approval a CEMS QA/QC Plan within 30 days if:

(A) A CEMS modification was conducted and subject to the requirements specified in paragraphs (f)(2), (f)(3), (f)(8) or (f)(10); or

(B) A QA/QC plan revision is required by a provision of Rules 218.2 and 218.3 or requested by the Executive Officer.

(4) Alternative Quality Assurance Practices

The owner or operator of a CEMS may develop alternative CEMS operational test requirements to be included in the CEMS QA/QC procedures that assure data of at least the equivalent quality. These alternative QA/QC procedures shall be submitted with the facility QA/QC Plan and are subject to the approval of the Executive Officer.

(h) Recordkeeping Requirements

(1) The owner or operator of the CEMS, shall maintain records for any CEMS data measured and calculated:

(A) In accordance with Rule 218.3 paragraph (e)(4) and Rule 218.3 subdivision (i); and

(B) For the purpose of demonstrating compliance with any applicable, rule, regulation, or permit condition.

(2) The owner or operator of the CEMS, shall:

(A) Maintain records for the date, time, and description of the occurrence of the CEMS non-operation pursuant to paragraphs (e)(2) and (e)(3);

(B) Maintain a copy of the reports specified in subdivision (i);

(C) Record the cause, date, time period, and corrective action taken for any CEMS out-of-control period;

(D) Record the date, time, and description of the occurrence of any repair, adjustment, or maintenance to the CEMS;

(E) Record the date, time, and emission data of any measurement or test conducted for CEMS certification or recertification; and

(F) Maintain on site all records of any activity conducted according to the QA/QC plan, including but not limited to logbook, measured data and data processing, test reports, and certificates of calibrations gases being used.

(3) Records specified by paragraphs (h)(1) and (h)(2) shall be:

(A) Maintained for a minimum period of three~~two~~ years or a period specified in any rule or permit condition, whichever is longer; and

(B) Made available to the Executive Officer upon request.

(i) Reporting Requirements

(1) Semi-Annual Reporting

(A) The owner or operator of the CEMS 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 Executive Officer, to evaluate the accuracy and precision of the measurements.

(B) Unless a more frequent reporting schedule is required in another South Coast AQMD rule or permit condition, the owner or operator of the CEMS shall submit a summary of the information specified in subparagraph (i)(1)(A) to the Executive Officer for every six-month period, from January 1 to June 30 and from July 1 to December 31, respectively, no later than 60 days after the six-month period.

(2) Excess Emission Reporting

The owner or operator of the CEMS shall notify the Executive Officer by calling 1-800-CUT-SMOGof the concentration level and/or emission rate, as applicable, in excess of the emission limit specified in the applicable rule within 24 hours or the next business day, whichever is later, after such occurrence that includes:

(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 applicable rule or permit condition limiting the concentration and/or emission rate.

(3) CEMS Failure Reporting

(A) If there is a CEMS failure pursuant to paragraph (e)(2) that lasts more than 24 hours, the owner or operator of the CEMS shall notify the Executive Officer by calling 1-800-CUT-SMOG within 24 hours or the next business day, , whichever is later, after CEMS failure occurs.

(B) The notification shall include, at a minimum, the following information:

(i) The cause of the CEMS failure;

(ii) The time or estimated time when the monitoring device became non-operational;

(iii) The time or estimated time the monitoring device returned (or will return) to normal operation; and

(iv) The maintenance performed or corrective and preventative actions taken to prevent future non- operational conditions.

(4) CEMS Shutdown Reporting

In the event of a scheduled CEMS shutdown pursuant to paragraph (e)(3), the owner or operator of the CEMS shall submit:

(A) An initial notification by calling 1-800-CUT-SMOG, at least 96 hours prior to the scheduled CEMS shutdown, specifying the scheduled date and time for unit non-operation and CEMS shutdown;

(B) A written report, within 24 hours of CEMS shutdown that the unit is non-operational and there are no emissions during the period of unit shutdown pursuant to paragraph (e)(4); and

(C) A final notification by calling 1-800-CUT-SMOG, at least 8 hours prior to the scheduled CEMS restart, specifying the scheduled time for the CEMS restart and unit restart.

(5) CEMS Relative Accuracy Test Audit (RATA) Reporting

The owner or operator of the CEMS shall submit the RATA report on or before the end of the quarter following the date of a required test~~within 60 days upon completion of the test~~ and shall include all measured data for each run, and relative accuracy or *de minimis* value being calculated.

(j) Posting of Written Approval of CEMS Certification

The owner or operator of a certified CEMS shall affix a written notice of approval or copy thereof, upon the unit or within 26 feet of the unit 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 unit is constructed or operated that the notice of approval or copy cannot be so placed, such notice or copy shall be mounted on a location approved by the Executive Officer.

(k) Exemption

(1) If a rule or permit specify CEMS requirements that are different than requirements specified in Rule 218.2~~3~~, the owner or operator shall adhere to CEMS requirements in the rule or permit, unless ~~otherwise notified by~~ the Executive Officer provides written notice to the owner or operator that the rule or permit specified CEMS requirements are less stringent than Rule 218.2.

ATTACHMENT F-2

(Adopted March 5, 2021)(Amended [*Date of Adoption*])

[*RULE INDEX TO BE ADDED AFTER RULE ADOPTION*]

PROPOSED AMENDED 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) NOx or SOx 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_2), carbon dioxide (CO_2) 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 NOx 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) PUBLICLY OWNED SEWAGE-WATER-LANDFILL FACILITY means a sewage treatment facility, water delivery facility, or landfill gas control or processing facility, that is owned and operated by a public agency.

(19) 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.

(20) RECLAIM means the Regional Clean Air Incentives Market.

(21) 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.

(22) 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.

(23) 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.

(24) 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.

(25) 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.

(26) 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.

(27) 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.

(28) 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.

(29) 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.

(30) 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.

(31) 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.

(32) 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.

(33) 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.

(34) 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)(5), the owner or operator shall comply with:

(A) Rules 218 and 218.1 for a CEMS that is subject to paragraph (d)(2) or (d)(5); 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 pursuant to paragraph (f)(2) or (f)(3) of Rule 218.2;

(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 pursuant to paragraph (f)(2) or (f)(3) of Rule 218.2; or

(C) The implementation date of a source-specific rule for which the CEMS shall be certified or recertified pursuant to paragraph (f)(2) or (f)(3) of Rule 218.2 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 pursuant to paragraph (f)(2) or (f)(3) of Rule 218.2 that is within twenty-four (24) months after the NOx RECLAIM facility has been notified as a former RECLAIM facility;

(B) Twenty-four (24) months after the NOx RECLAIM facility has been notified as a former RECLAIM facility, if there is no CEMS recertification pursuant to paragraph (f)(2) or (f)(3) of Rule 218.2 during this 24-month period; or

(C) The implementation schedule of a source specific rule for which the CEMS shall be certified or recertified pursuant to paragraph (f)(2) or (f)(3) of Rule 218.2 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).

(5) The owner or operator of a publicly owned sewage-water-landfill facility that has a CEMS certified to comply with Rules 218 and 218.1, shall meet the requirements of this rule no later than January 1, 2025, or the implementation date of a source-specific rule requiring the CEMS be certified or recertified, whichever is later.

(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 for a stack flow monitor probe 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~~A) 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~~B) 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 diluent monitors, the span range shall be set such that the full range of oxygen and carbon dioxide concentrations can be measured. The upper span value shall be set at 25.0 percent O_2 (maximum) and 1.0 percent CO_2 (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 CEMS 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, when the CEMS is in continuous operation.

(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 for pollutant and diluent analyzers, and

(ii) 3.0 percent of the upper span value 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 enclosure exceeds the manufacturer's recommended specifications. The owner or operator of the CEMS shall make corrective actions within 8 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 be exempt from subparagraph (f)(2)(A), provided 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_2/CO_2 diluent gas concentration, stack flow, and mass 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	*De minimis*
NOx	0.5 ppm (or 1.0 ppm when the rule or permitted concentration limit for the unit is higher than 5.0 ppm)
SO_2	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_2 or CO_2, 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 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) NOx Converter Efficiency

NOx 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 data points for each of the three calibration gases~~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 upper span value, respectively.

(iii) The test sequence (low, middle, and high) shall be repeated until three data points have been acquired for each calibration gas. 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 with an upper span value less than or equal to 5 ppm, linearity error shall not exceed 5.0 percent of the upper span value, 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 that has recorded data since the last calibration error test; 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 and normal operation, 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_2/CO_2 diluent gas concentration, stack flow, and emission rate, whichever is applicable to the CEMS.

(A) A relative accuracy test audit shall be performed annually no later than the end of the calendar quarter 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 and cyclonic flow requirements specified in subparagraphs (f)(4)(D) and (f)(4)(E) respectively, by submitting to the Executive Officer, for approval, any applicable documentation or previous test or historical data that meets the stratification and cyclonic flow 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 and resumes normal operation.

(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 according to subparagraph (f)(4)(F) or the provisions of 40 CFR 75, Appendix A; 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.

(h) Calibration Gas and Zero Gas

(1) For the purpose of Rules 218.2 and 218.3, the owner or operator of the CEMS shall ulitilize the calibration gas identified in the following:

(A) U.S. EPA Protocol Gas that are calibration gas mixtures manufactured, analyzed and certified in accordance with the Section 2 "EPA Traceability Protocol for Assay and Certification of Gaseous Calibration Standards" - EPA-600/R-12/531, May 2012, or U.S. EPA's the most recently published protocol for certification of gaseous certification standards.

(B) National Institute of Standards and Technology (NIST) Standard Reference Materials (SRM).

(C) NIST Standard Reference Material-Equivalent Compressed Gas Primary Reference Materials that are calibration gas mixtures listed in a declaration of equivalence in accordance with subparagraph (h)(1)(A).

(D) NIST Traceable Reference Materials that are calibration gas mixtures tested by and certified by NIST to have a certain specified concentration of gases. NIST Traceable Reference Materials may have different concentrations from those of standard reference materials.

(E) NIST/EPA-approved certified reference materials (CRM) that are calibration gas mixtures approved by U.S. EPA and NIST as having specific known chemical or physical property values certified by a technically valid procedure as evidenced by a

certificate or other documentation issued by a certifying standard-setting body.

(F) For gas calibration standards not covered by programs specified in subparagraphs (h)(1)(A) through (h)(1)(E), the owner or operator of the CEMS shall obtain the Executive Officer's approval for using any of the following alternatives:

(i) The Manufacturer of Calibration Gas' Intermediate Standard that is a compressed gas calibration standard assayed and certified by direct comparison to a calibration gas identified under subparagraph (h)(1)(B), (h)(1)(C), (h)(1)(D), or (h)(1)(E), in accordance with Section 2.1.3.1 of the "EPA Traceability Protocol for Assay and Certification of Gaseous Calibration Standards" - EPA-600/R-12/531, May 2012, or U.S. EPA's the most recently published protocol for certification of gaseous certification standards;

(ii) NIST Research Gas Mixture that is a calibration gas mixture developed by agreement of a requestor and NIST that NIST analyzes and certifies as "NIST traceable"; or

(iii) The manufacturer of calibration Gas' alternative certification protocol for the specific compound or compounds subject to the Executive Officer's approval.

(~~I~~A) The procedures of the U.S. EPA Protocol shall be used for gas calibration standards, except that the manufacturer of calibration gas must identify a recertification period and submit data documenting the applicability of this period. The manufacturer of calibration gas may submit alternative performance standards for calibration gas certification and recertification, based on supporting technical data also provided by the manufacturer of calibration gas.

(~~H~~B) If there is no existing National Institute of Standards and Technology (NIST) standard for

the measured parameter, the manufacturer of calibration gas may submit an alternative reference standard and the supporting technical data that define the stability, accuracy, and precision of the alternative reference standard.

(~~H~~C) The owner or operator of the CEMS may submit an alternative protocol to the U.S. EPA Protocol, provided that the owner or operator of the CEMS demonstrates through supporting technical data that the procedures therein are not applicable to the constituent in the calibration gas standard being certified.

(G) Compressed and/or filtered air, such as instrument air, may also be used instead of oxygen span gas provided that the owner or operator demonstrates, to the satisfaction of the Executive Officer, that it is of equivalent quality to the calibration gas standards above. As part of such documentation, the owner or operator shall include in their QA/QC plan the process or operation in producing such compressed and/or filtered air and periodically checking that compressed air and/or filtered air continues to meet the calibration gas standards.

(2) Zero Gas

The owner or operator of the CEMS shall ulitilize zero gases meeting the following criteria:

(A) For gaseous air pollutant monitors, the zero gas shall be certified by the manufacturer to contain no more than 0.1 ppm of the air pollutant analyzed by the subject monitor or 1.0 percent of the applicable standard, whichever is less.

(B) For carbon monoxide monitors, the zero gas shall be certified by the manufacturer to contain less than 0.5 ppm carbon monoxide or 1.0 percent of the applicable standard, whichever is less.

(C) For carbon dioxide and oxygen monitors, the zero gas shall be certified by the manufacturer to contain less than 1.0 ppm carbon dioxide or oxygen.

(D) Compressed and/or filtered air, such as instrument air, may also be used instead of zero gas provided that the owner or operator demonstrates, to the satisfaction of the Executive Officer, that it is of equivalent quality to the above zero gas standards. As part of such documentation, the owner or operator shall include in their QA/QC plan the process or operation in producing such compressed and/or filtered air and periodically checking that compressed air and/or filtered air continues to meet the zero gas standards.

(i) Data Handling

(1) Data Points Below 10 Percent of the Upper Span Value

If a data point falls below 10 percent of the upper span value, the owner or operator of the CEMS shall record and report that data point according to the following:

(A) For a CEMS analyzer with certified single span range, the owner or operator of the CEMS shall report any data point that falls below 10 percent of the upper span value, at the 10 percent value of the upper span value.

(B) For a CEMS analyzer with certified multiple span ranges, the owner or operator of the CEMS shall report a data point at:

(i) Ten (10) percent of the upper span value of the higher span range if the data point is below 10 percent of the upper span value of the higher span range but above 95 percent of the upper span value of the lower span range.

(ii) Ten (10) percent of the upper span value of the:

(~~I~~A) Lower span range if the data point is below 10 percent of the upper span value of the lower span range for a dual range analyzer; or

(~~II~~B) Lowest span range if the data point is below 10 percent of the upper span value of the lowest span range for an analyzer with more than two span ranges.

(iii) The monitored value if the data point is within 10 to 95 percent of the upper span value of any span range.

(C) In lieu of subparagraphs (i)(1)(A) and (i)(1)(B), in the event that any data point falls below 10 percent of the upper span value of anythe span range ~~that is the lowest vendor guaranteed span range for that CEMS analyzer~~, the owner or operator of the CEMS shall report the data point at:

(i) Ten (10) percent of the upper span value; or

(ii) The actual measured value, provided that the CEMS meets the Supplemental and Alternative Performance Requirements that are specified in Attachment A, Table A-1 of this rule.~~;~~ or

(iii) The actual measured value at or above the lowest non-zero value chosen in the span range tested, provided that the CEMS meets the Supplemental and Alternative Performance Requirements that are specified in Attachment A, Table A-2 of this rule.

(D) Data points recorded and reported pursuant to clause (i)(1)(A) and subparagraphs (i)(1)(B) and (i)(1)(C)(i), shall be flagged as below 10 percent of the upper span value for CEMS status code.

(2) Data Points Above 95 Percent of the Upper Span Value

If a data point is above 95 percent of the upper span value , the owner or operator of the CEMS shall record and report the data point according to the following:

(A) For a CEMS analyzer with certified single span range, the permit holder and operator of the CEMS shall record any data point that is above 95 percent of the upper span value, at the 95 percent of the upper span value.

(B) For a CEMS analyzer with certified multiple span ranges, the owner or operator of the CEMS shall report the data point at:

(i) Ten (10) percent of the upper span value of the higher span range, or a value determined pursuant to clause (i)(1)(C)(iii), if the data point is below 10 percent of the upper span value of the higher span range but above 95 percent of the upper span value of the lower span range.:

(ii) Ninety-Five (95) percent of the upper span value of:

(~~I~~A) The higher span range if it is above 95 percent of the upper span value of the higher span range for a dual range analyzer; or

(~~H~~B) The highest span range if it is above 95 percent of the upper span value of the highest span range for an analyzer with more than two span ranges.

(iii) The monitored value if the data point is within 10 to 95 percent of the upper span value of any span range.

(C) The owner or operator of the CEMS shall:

(i) Flag any data point that is recorded and reported pursuant to clause (i)(2)(A) and subparagraph (i)(2)(B)(ii) as above 95 percent of upper span value for CEMS status code; and

(ii) Calculate a spiking data percentage for each calendar quarter using the following equation:

Spiking Data Percentage = F/T x 100%

Where:

F is the numberof flagged one-minute data points recorded pursuant to clause (i)(2)(C)(i) for the calendar quarter during unit operation, excluding CEMS out-of-control period and the period when the unit is not subject to any emission limit; and

T is the total numberof one-minute data points recorded for the calendar quarter during unit operation, excluding CEMS out-of-control period and the period when the unit is not subject to any emission limit.

(D) The owner or operator of a CEMS shall submit a CEMS application within 30 days to certify an additional span range, if in any consecutive four calendar quarter period, there are two calendar quarters that for each quarter:

(i) The percentage determined pursuant to clause (i)(2)(C)(ii) is over 1.0 percent; and

(ii) The total unit operating hours for the quarter are more than 50 hours.

(3) If the owner or operator of a certified CEMS is meeting the quality assurance requirements as specified in subdivision (g), data recorded and reported pursuant to paragraphs (i)(1) and (i)(2) shall be valid data for quantification, and available for the purpose of determining CEMS data availability.

(4) Emission Data Averaging

The owner or operator of the CEMS shall perform emission data averaging according to the following methods:

(A) An hourly average shall cover the 60-minute period commencing on the hour. An hourly average shall be computed as follows utilizing all valid data points:

(i) For a full or partial unit operating hour, at least one valid data point in each 15-minute quadrant of the hour in which the unit operates is required to calculate the hourly average.

(ii) For any unit operating hour in which required maintenance or quality-assurance activities are performed:

(~~I~~A) If the unit operates in two or more quadrants of the hour, a minimum of two valid data points, separated by at least 15 minutes, is required to calculate the hourly average; or

(~~II~~B) If the unit operates in only one quadrant of the hour, at least one valid data point is required to calculate the hourly average.

(B) For continuous monitoring systems used to demonstrate compliance for a 15-minute interval, emission data may be averaged for each 15-minute quadrant of the hour in which the unit operates, utilizing all valid data points.

(C) For continuous monitoring systems 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 subparagraph (i)(4)(A).

(D) Pollutant concentration correction by diluent gas shall be performed with the averaged value at the interval required for compliance demonstration.

(E) Comparable emission data average requirements specified in source specific rules or permit conditions shall supersede subparagraphs (i)(4)(A) through (i)(4)(D).

(5) CEMS Data Availability

(A) On a quarterly basis, the owner or operator of the CEMS shall calculate data availability for each analyzer using the following equation:

Data Availability = Y/Z x 100%

Where:

Y is the total unit operating hours during the calendar quarter when the monitor provided data, excluding the operating hours identified under subparagraph (i)(5)(B) and CEMS out-of-control period specified under subparagraph (i)(6)(A); and

Z is the total unit operating hours during the calendar quarter, excluding the operating hours identified under subparagraph (i)(5)(B).

(B) An operating hour that includes any of the following periods shall be excluded from the data availability calculation:

(i) Startup and shutdown period that is not subject to any emission limit according to the permit condition or source specific rule;

(ii) CEMS maintenance, repair, or audit for up to 30 hours for each calendar quarter; and

(iii) A unit Breakdown that meets all Breakdown provisions of Rule 430 and is deemed as a valid Breakdown.

(C) CEMS data availability threshold and subsequent requirements

(i) When data availability of any analyzer falls below 95 percent for one calendar quarter, the owner or operator of the CEMS shall:

(~~I~~A) Conduct a relative accuracy test audit within 45 days after the end of the calendar quarter with data availability below 95 percent, unless

another relative accuracy test audit is scheduled for the same calendar quarter in compliance of any other rule or permit requirement; and

(~~H~~B) Report the incident and corrective actions in the semi-annual report pursuant to Rule 218.2 (h)(1) for the period covering that calendar quarter.

(ii) When data availability of any analyzer falls below 95 percent for two consecutive calendar quarters, the owner or operator of the CEMS shall:

(~~I~~A) Within 30 days after the end of those two consecutive calendar quarters, provide a temporary alternative monitoring method identified in subparagraph (i)(7); and

(~~H~~B) Within 180 days after the end of those two consecutive calendar quarters, modify or replace the CEMS, and recertify the CEMS.

(iii) The Executive Officer may request the owner or operator of the CEMS to revise the QA/QC plan whenever data availability of any analyzer falls below the 95 percent threshold.

(6) CEMS Out-of-Control Period

(A) A CEMS out-of-control period:

(i) Occurs when the owner or operator fails any QA/QC test specified under subdivision (g), or fails to conduct the test when it is due; Notwithstanding, for a publicly owned sewage-water-landfill facility, if the QA/QC test fails based on a calibration error test, the CEMS out-of-control period shall be determined in accordance with the applicable provision(s) of the Code of Federal Regulations, Title 40 – "Protection of Environment", Part 60 – "Standards of Performance for New Stationary Sources", Appendix F – "Quality Assurance Procedures".

(ii) Begins with the hour of completion of the failed test(s), or the hour when it becomes overdue, and ends with the hour of completion of a passing test.

(B) The CEMS data generated during the CEMS out-of-control period shall be deemed invalid for emission quantification in any compliance demonstration

(C) The CEMS during the CEMS out-of-control period shall be considered unavailable for the data availability calculation.

(7) Alternative Data Aquisition

The owner or operator of the CEMS may choose from the following options for alternative data acquisition for any period when the certified CEMS does not provide valid data. Data generated by the alternative options shall be considered valid for emission quantification, and quality-assurance for the data availability calculation.

(A) South Coast AQMD Method 100.1 in conjunction with South Coast AQMD Methods 1.1, 2.1, 3.1, and 4.1, or South Coast AQMD Method 100.1 in conjunction with South Coast AQMD Method 3.1 and EPA Method 19.

(B) A standby CEMS (such as in a mobile van or other configuration), if:

(i) The standby CEMS has been certified by the South Coast AQMD as being equivalent to the corresponding permanently installed CEMS on relative accuracy, reliability, reproducibility, and data handling based upon the approval of a submitted standby CEMS plan;

(ii) The use of the certified standby CEMS does not exceed a total of 6 months for any unit(s) within a calendar year;

(iii) The owner or operator of the CEMS has notified the Executive Officer within 24 hours of the replacement use of the certified standby CEMS;

(iv) During the first 30 days of the use of the certified standby CEMS, the owner or operator has conducted a Cylinder Gas Audit (CGA) of the standby CEMS;

(v) The owner or operator of the CEMS shall notify the Executive Officer within the 30-day period if the standby CEMS shall be used longer than 30 days; and

(vi) After the first 30 days of using the standby CEMS, the owner or operator of the CEMS shall conduct at least one relative accuracy test audit of the standby CEMS and the relative accuracy test audit shall be conducted within 90 days of the initial use of the standby CEMS. This test shall be performed by testing firms/laboratories who have received approval from the South Coast AQMD through its Laboratory Approval Program.

(C) An alternative data acquisition method approved by the Executive Officer as equivalent to a South Coast AQMD certified CEMS on relative accuracy, reliability, reproducibility, and data handling.

(8) Automatic Calibration Data

If automatic adjustments to the monitor settings are made, the owner or operator shall conduct the calibration tests in a way that the magnitude of the adjustments can be determined and recorded.

(9) F-Factors

The owner or operator of the CEMS shall use in the CEMS calculations the F-factors listed in 40 CFR Part 60, Appendix A, Method 19, Table 19-2, as applicable. Alternatively, the owner or operator may submit a plan for Executive Officer's approval to develop F-factors for fuels not listed in Method 19, Table 19-2.

(10) Mass Emission Calculation

The owner or operator of the CEMS shall determine hourly mass emission rate according to:

(A) Equation 9 in Table 5, when the CEMS measures stack gas concentration and volumetric flow rate;

(B) Equation 10 in Table 5, when the CEMS measures stack gas concentration, heat input rate, and oxygen concentration; or

(C) Equation 11 in Table 5, when the CEMS measures stack gas concentration, heat input rate, and carbon dioxide concentration.

(11) Data Substitution Procedure

For the purpose of determining data substitution procedures for units with mass emission limits when there is a missing data period that includes any hour without sufficient valid data points required by subparagraph (i)(4)(A), the owner or operator of the CEMS shall:

(A) Apply the data substitution procedure pursuant to subparagraph (i)(11)(B) for:

(i) Pollutant concentration when there is a missing data period for pollutant concentration;

(ii) Stack flow when there is a missing data period for stack flow; or

(iii) Pollutant mass emission rate when there is a missing data period for both pollutant concentration and stack flow.

(B) Determine substituted data using the:

(i) Average of the recorded emission data for the unit operation hour immediately before the missing data period and the unit operation hour immediately after the missing data period, if the missing data period is:

(A) Less than or equal to eight continuous hours; or

(B) Less than or equal to ten continuous hours for each occurrence and no more than 20 accumulative hours for each calendar year, when the owner or operator conducts a test specified in Attachment A by spiking the sample to the CEMS with a calibration standard gas.

(ii) Maximum hourly emission data recorded for the previous 30 days with unit operation, commencing on the day immediately prior to the day the missing data occurred, if clause (i)(11)(B)(i) is not applicable.

(C) In lieu of subparagraphs (i)(11)(A) and (i)(11)(B), the owner or operator may elect to substitute data using missing data substitution procedures specified in 40 CFR Part 75.

(12) Mass Emission Calculation for Startup or Shutdown

For the purpose of determining startup or shutdown mass emission limits based on a minute interval, the owner or operator of the CEMS shall:

(A) Calculate the mass emissions for each minute according to the Equation 9, Equation 10, or Equation 11 in Table 5, whichever is applicable, using minute-level data rather than hourly-level data; and

(B) Totalize the mass emissions for all minutes of the startup or shutdown period.

(13) Data Substitution Procedure for Missing Minute Data for Startup or Shutdown

For the purpose of determining data substitution procedures for units with mass emission limits based on a minute interval for startup or shutdown pursuant to paragraph (i)(12), the owner or operator of the CEMS shall:

(A) Use data in the startup period for substitution when data from a startup period is missing and data in the shutdown period for substitution when data from a shutdown period is missing.

(B) Substitute data for any missing data minute, using:

(i) The average of all the valid one-minute mass emission datapoints for the startup or shutdown period, or the one-minute mass emission average of the previous successfully completed startup or shutdown, if the sum of the missing data minutes is less than or equal to fifty percent of all the minutes for the period; or

(ii) The highest one-minute mass emission average calculated for a startup or shutdown during the period below, whichever is more recent, if the sum of the missing data minutes is greater than fifty percent of all the minutes for the period:

(A) The previous ten successfully completed startups or shutdowns; or

(B) All successfully completed startups or shutdowns that occurred during the 12-month period prior to and including the most recent startup or shutdown.

(C) Determine the startup or shutdown emissions utilizing the applicable uncontrolled emission factor specified in Table 6 and the equipment maximum capacity if records of emission data are

not available for data substitution pursuant to subparagraph (i)(13)(B).

(D) Maintain records pursuant to Rule 218.2 paragraph (h)(3) or for a period including the 12-month period prior to the most recent startup or shutdown, whichever is longer.

(14) The owner or operator of a CEMS installed on a unit that is not operating may report valid zero emissions for the hours the unit is not operating provided the owner or operator:

(A) Demonstrates the unit is not operating and not generating emissions in accordance with Rule 218.2 paragraph (e)(4);

(B) Maintains the records for a minimum period of three years; and

(C) Complies with applicable requirements specified in Rule 218.2 paragraphs (e)(2) and (e)(3).

(j) SCEMS Requirements

(1) The owner or operator of a SCEMS shall:

(A) Comply with the pre-certification and certification requirements pursuant to subdivisions (e) and (f), except for the requirements on response time specified in subparagraph (f)(4)(A), where the response time for any SCEMS shall not exceed 15 minutes;

(B) Comply with the quality assurance requirements specified in subdivision (g);

(C) Comply with the data handling requirements pursuant to subdivision (i); and

(D) Use 15-minute data points instead of one-minute data points for the calculation required by subparagraph (i)(2)(C).

(2) The owner or operator of a time-shared CEMS shall meet all the following additional requirements for the time-shared CEMS:

(A) All units shall have mutually compatible range(s) of air pollutant gases at all times.

(B) Each unit shall have a data-reading period, at a minimum, equal to three times the longest response time of the system.

(C) For shared systems the response time shall be measured at the input or probe at each unit.

(D) A demonstration of response time for each unit shall be made during certification testing.

(E) Data shall not be collected following a switch of sample unit until a period of time equal to one response time has passed.

(F) Data shall be recorded every 15 minutes for each unit.

(G) Perform and record zero and span calibrations for each unit, including the calibration factors and correction values before and after every automatic calibration.

(H) Uniquely identify each unit on the DAHS.

(k) Moisture Correction

(1) If a moisture correction in reporting flow and concentration is required, the owner or operator of a CEMS shall measure and monitor moisture in the stack gas used for emission data calculations in accordance with the South Coast AQMD Technical Guidance Document R-001(TGD-R-001).

(2) Alternatively, with Executive Officer approval, for equipment moisture that emanates only from fuel combustion, the owner or operator of the CEMS shall calculate the moisture content using fuel properties and ambient air humidity data or, for processes that saturate the exhaust gas with moisture, such as a wet scrubber system, the owner or operator shall use the saturation temperature for moisture content data

(l) Exemption

(1) If a rule or permit specify CEMS requirements that are different than requirements specified in Rule 218.3, the owner or operator shall adhere to CEMS requirements in the rule or permit, unless ~~otherwise notified by~~ the Executive Officer provides written notice to the owner or operator that the rule or permit specified CEMS requirements are less stringent than Rule 218.3.

Table 1
REFERENCE METHODS
RULE 218.3

South Coast AQMD Method 1.1 - Sample and Velocity Traverses for Stationary Sources

South Coast AQMD Method 1.2 - Sample and Velocity Traverses for Stationary Sources with Small Stack or Ducts

South Coast AQMD Method 2.1 - Determination of Stack Gas Velocity and Volumetric Flow Rate (S-type Pitot tube)

South Coast AQMD Method 2.2 - Direct Measurement of Gas Volume through Pipes and Small Ducts

South Coast AQMD Method 2.3 - Determination of Gas Velocity and Volumetric Flow Rate from Small Stacks or Ducts

South Coast AQMD Method 3.1 - Gas Analysis for Dry Molecular Weight and Excess Air

South Coast AQMD Method 4.1 - Determination of Moisture Content in Stack Gases

South Coast AQMD Method 6.1 - Determination of Sulfuric Acid and Sulfur Oxides from Stationary Sources

South Coast AQMD Method 7.1 - Determination of Nitrogen Oxide Emissions for Stationary Sources

South Coast AQMD Method 100.1 - Instrumental Analyzer Procedures for Continuous Gaseous Emission Sampling

South Coast AQMD Method 307.91 - Determination of Sulfur in a Gaseous Matrix

South Coast AQMD Method 10.1 – Determination of Carbon Monoxide, Carbon Dioxide, and Oxygen by Gas Chromatograph

EPA Method 6 - Determination of Sulfur Dioxide Emissions from Stationary Sources

EPA Method 19 - Determination of Sulfur Dioxide Removal Efficiency and Particulate, Sulfur Dioxide and Nitrogen Oxides Emission Rates from Electric Utility Steam Generator (40 CFR Part 60 Appendix A)

ASTM D4294 – 03 Standard Test Method for Sulfur in Petroleum and Petroleum Products by Energy-Dispersive X-Ray Fluorescence Spectrometry

ASTM D2622 – 05 Standard Test Method for Sulfur in Petroleum Products by Wavelength Dispersive X-ray Fluorescence Spectrometry

Table 2
Data Acquisition and Handling System (DAHS) Status Codes

RULE 218.3

Status Code for the Following Parameters (True as 1 and False as 0)
Valid data point
Calibration
Monitoring system off-line
Alternative data acquisition
CEMS out-of-control
Fuel switch
10% of upper span value[1] (concentration reported at 10% of upper span value when the monitored value was below 10% of upper span value)
Lower than 10% of upper span value[1] (Concentration reported at the actual monitored value when the monitored value was below 10% of upper span value)
Above 95% of upper span value[2]
Unit non-operational

1. 10% of upper span value of the lower span range for dual range analyzer or the lowest span range for multiple range analyzer
2. 95% of upper span value of the higher span range for dual range analyzer or the highest span range for multiple range analyzer

Table 3
Equations
RULE 218.3

Test	Eq. #	Equation	Where:
Calibration Error	1	$CE = \frac{\lvert C - A \rvert}{SR} \times 100$	C = Calibration gas concentration A = Actual response or the concentration indicated by the monitoring system SR = Upper span value of the instrument
Confidence Coefficient	2	$CC = t_{0.975} \frac{S_d}{\sqrt{n}}$	S_d = Standard deviation n = Number of data in a series of tests $t_{0.975}$ = t-value (see Table 4 below for t-Values)
Linearity Error	3	$LE = \frac{\lvert R - \overline{C} \rvert}{R} \times 100$	$\overline{C}$ = Mean of the CEMS response values R = Certified gas concentration as reference value
Linearity Error - For air pollutant analyzer with a span range at or below 5 ppm	3a	$LE = \frac{\lvert R - \overline{C} \rvert}{SR} \times 100$	$\overline{C}$ = Mean of the CEMS response values R = Certified gas concentration as reference value SR = Upper span value of the instrument
Relative Accuracy Test Audit – Relative Accuracy	4	$RA = \frac{\lvert \overline{d} \rvert + \lvert CC \rvert}{\overline{RM}} \times 100$	$\lvert \overline{d} \rvert$ = Absolute value of the mean difference |CC| = Absolute value of the 95% confidence coefficient $\overline{RM}$ = Average reference method value
Relative Accuracy Test Audit – *de minimis (Pollutant/Diluent Gas)*	5	$\lvert \overline{d} \rvert + \lvert CC \rvert$	$\lvert \overline{d} \rvert$ = Absolute value of the mean difference |CC| = Absolute value of the 95% confidence coefficient

Table 3
Equations - continued
RULE 218.3

Test	Eq. #	Equation	Where:
Relative Accuracy Test Audit – *de minimis* *(Stack Flow Monitoring System)*	6	$\|d\|+\|cc\| \leq 2$ feet per second x A x cf	|d| = Absolute value of the mean difference in units of standard cubic feet per hour. |cc| = Absolute value of the 95% confidence coefficient A = Stack cross sectional area in the plane of measurement. cf = Conversion factor to standard cubic feet per hour.
Relative Accuracy Test Audit – *de minimis* *(Mass Emission Rate)*	7	$\|d\|+\|cc\| \leq (c \times s \times A) \times cf$	|d| = Absolute value of the mean difference in units of standard cubic feet per hour. |cc| = Absolute value of the 95% confidence coefficient c = Pollutant *de minimis* or mean concentration obtained by reference test method, whichever is greater. s = 2 feet per second or mean stack gas velocity obtained by reference test method, whichever is greater. A = Stack cross sectional area in the plane of measurement. cf = Conversion factor to pounds per hour.
The Mean Difference $\bar{d}$	8	$\bar{d} = \frac{1}{n}\sum_{i=1}^{n} d_i$	$\sum_{i=1}^{n} d_i$ = Algebraic sum of the individual differences di n = Number of data points di = The difference between the reference method value and CEMS value, both in units of the applicable standard

Table 4
t-Values*
RULE 218.3

N	$t_{0.975}$	n	$t_{0.975}$	n	$t_{0.975}$
2	12.706	7	2.447	12	2.201
3	4.303	8	2.365	13	2.179
4	3.182	9	2.306	14	2.160
5	2.776	10	2.262	15	2.145
6	2.571	11	2.228	16	2.131

* The t-values in this table are already corrected for n-1 degrees of freedom. Use n equal to the number of data points.

Table 5 - Mass Emission Calculation Equations

Mass Emission Calculation	Eq. #	Equation*	Where:
Based on stack gas concentration and volumetric flow rate	9	$e = a \times c \times 1.214 \times 10^{-7}$	e = The mass emissions of nitrogen oxides in pounds per hour. a = The stack gas concentration of nitrogen oxides averaged hourly (ppmv). c = The stack gas volumetric flow rate averaged hourly (scfh).
Based on stack gas concentration, heat input rate, and oxygen concentration *(Oxygen F factor approach)*	10	$e = a \times c_f \times 1.214 \times 10^{-7}$ $c_f = [20.9/(20.9 - b)] \times (F \times d \times V)$	e = The mass emissions of nitrogen oxides in pounds per hour. a = The stack gas concentration of pollutant averaged hourly (ppmv). c_f = The stack gas flow rate determined by oxygen-based F factor approach averaged hourly (scfh). b = The stack gas concentrations of oxygen measured (%). F = The oxygen-based dry F factor for the type of fuel (scf/10^6 Btu). d = The fuel flow rate for the type of fuel measured. V = The higher heating value of the fuel**.
Based on stack gas concentration, heat input rate, and carbon dioxide concentration *(Carbon dioxide F factor approach)*	11	$e = a \times c_{f/c} \times 1.214 \times 10^{-7}$ $c_{f/c} = (F_c \times d \times V) \times 100/t$	e = The mass emissions of nitrogen oxides in pounds per hour. a = The stack gas concentration of pollutant averaged hourly (ppmv). $c_{f/c}$ = The stack gas flow rate determined by carbon dioxide-based F factor approach averaged hourly (scfh). F_c = The carbon dioxide -based dry F factor for the type of fuel (scf/10^6 Btu). d = The fuel flow rate for the type of fuel measured. V = The higher heating value of the fuel**. t = The stack gas concentrations of carbon dioxide measured (%).
*NOx conversion factor 1.214×10^{-7} is based on standard temperature of 60°F. ** Default value in Table 6, if applicable, or as measured in a method approved by the Executive Officer.			

Table 6 - Default Uncontrolled Emission factor and Higher Heating Value

Basic Equipment	Type of Fuel	Uncontrolled Emission Factor	Higher Heating Value of Fuel
Boilers, Ovens, Heaters, Furnaces, Kilns, Calciners, Dryers	Natural Gas	0.267 lb/mmBtu	1050 mmBtu/mmscf
	Refinery Gas	0.267 lb/mmBtu	1150 mmBtu/mmscf
	LPG, Propane, Butane	15 lb/mgal	94 mmBtu/mgal
	Diesel Light Dist. (0.05% S)	19 lb/mgal	137 mmBtu/mgal
	Fuel Oil	60 lb/mgal	150 mmBtu/mgal
Internal Combustion Engines	Natural Gas	4.080 lb/mmBtu	1050 mmBtu/mmscf
	LPG, Propane, Butane	139 lb/mgal	94 mmBtu/mgal
	Gasoline	102 lb/mgal	130 mmBtu/mgal
	Diesel Oil	469 lb/mgal	137 mmBtu/mgal
Gas Turbines	Natural Gas	0.393 lb/mmBtu	1050 mmBtu/mmscf
	Other Gaseous fuel	0.393 lb/mmBtu	N/A
	Diesel Oil	122 lb/mgal	137 mmBtu/mgal

ATTACHMENT A

SUPPLEMENTAL AND ALTERNATIVE CEMS PERFORMANCE REQUIREMENTS

A. Applicability of Supplemental and Alternative Performance Requirements

The owner or operator of the CEMS electing (or who may be required) to measure concentrations that fall below 10 percent of the upper span value of the lowest vendor guaranteed span range, shall satisfy the performance requirements as specified in Table A-1 listed below.

TABLE A-1
Alternative Performance Requirement(s) – Lowest Vendor Guaranteed Span Range

CEMS Certified per Rules 218.2 and 218.3~~Rule 218.1~~	Performance Requirement(s)			
Yes or No	LLSR/BFD	HLSR/BFD	LLR/BFD	LLCE
Yes	x		+	x
No	x	x	+	x

1. + (plus) denotes an additional performance requirement that shall be conducted if the mandatory performance requirement(s) cannot be met.

2. If the concentration of the CEMS is such that the specifications for the low level spike recovery/bias factor determination cannot be met, the owner or operator of the CEMS shall conduct a low level RATA/bias factor determination.

3. Abbreviations used in this Attachment are:

   Low Level Spike Recovery/Bias Factor Determination (LLSR/BFD)
   High Level Spike Recovery/Bias Factor Determination (HLSR/BFD)
   Low Level RATA/Bias Factor Determination (LLR/BFD)
   Low Level Calibration Error (LLCE)
   Relative Accuracy Test Audit (RATA)
   Relative Accuracy (RA)
   National Institute of Standards Traceability (NIST)

The owner or operator of the CEMS electing (or who may be required) to measure concentrations that fall below 10 percent of the upper span value of any range (other than the lowest vendor guaranteed span range), shall perform a linearity test according to the procedure in Attachment A, Section B(6), to satisfy the performance requirements as specified in Table A-2 listed below.

TABLE A-2
Linearity Performance Test – Ranges Other Than Lowest Vendor Guaranteed Span Range

Calibration Gas	Value
1	Lowest Non-Zero Value Chosen in Span Range Tested
2	Mid-point (40-60%) of Calibration Gases 1 and 3
3	Nominal Concentration at 10% of Span Range Tested

B. Test Definitions, Performance Specifications and Test Procedures

This section explains in detail how each performance requirement is to be conducted.

1. Low Level Calibration Error
The low level calibration error test is defined as challenging the CEMS (from probe to monitor) with certified calibration gases (e.g., NO in N2) at three levels in the 0-20 percent of the upper span value. Since certified gas mixtures or standards may not be available at the concentrations required for this test, gas dilution systems may be used, with the Executive Officer's approval, if they are used according to either the South Coast AQMD or EPA protocols as specified in Rule 218.~~1~~3, for the verification of gas dilution systems in the field. The CEMS high-level calibration gas may be diluted for the purpose of conducting the low level calibration error test.

   a. Performance Specifications
   Introduce pollutant concentrations at approximately the 20 percent, 10 percent, and 5 percent of the upper span value through the normal CEMS calibration system. No low level calibration error shall exceed 2.5 percent of the upper span value.

   b. Testing Procedures
      i. Perform a standard zero/span check; if zero or span check exceeds 2.5 percent of the upper span value, adjust monitor and redo zero/span check.

ii. After zero/span check allow the CEMS to sample stack gas for at least 15 minutes.

iii. Introduce any of the low level calibration error standards through the CEMS calibration system.

iv. Read the CEMS response to the calibration gas starting no later than three system response times after introducing the calibration gas; the CEMS response shall be averaged for at least three response times and for no longer than six response times.

v. After the low level calibration error check, allow the CEMS to sample stack gas for at least 15 minutes.

vi. Repeat steps iii through v until all three low level calibration error checks are complete.

vii. Conduct post test calibration and zero checks.

2. Spike Recovery and Bias Factor Determinations

Spiking is defined as introducing known concentrations of the pollutant of interest (e.g., gas standard to contain a mixture of NO and NO_2 is representative of the ratio of NO and NO_2 in stack gas) and an appropriate non-reactive, non-condensable and non-soluble tracer gas from a single cylinder (EPA Protocol as specified in Rule 218.~~1~~3 or NIST traceable to 2 percent analytical accuracy if no EPA Protocol is available) near the probe and upstream of any sample conditioning systems, at a flow rate not to exceed 10 percent of the total sample gas flow rate. The purpose of the 10 percent limitation is to ensure that the gas matrix (water, CO_2, particulates, interferences) is essentially the same as the stack gas alone. The tracer gas is monitored in real time and the ratio of the monitored concentration to the certified concentration in the cylinder is the dilution factor. The expected pollutant concentration (dilution factor times the certified pollutant concentration in the cylinder) is compared to the monitored pollutant concentration.

3. High Level Spike Recovery/Bias Factor Determination

The high level spike recovery/bias factor determination is used when it is technologically not possible to certify the CEMS per the standard Rule 218.~~1~~3 requirements. The spiking facility/interface shall be a permanently installed part of the CEMS sample acquisition system and accessible to the Executive Officer as well as the CEMS operator.

a. Performance Specifications

The CEMS shall demonstrate a RA ≤ 20 percent, where the spike value is used in place of the reference method in the normal RA calculation, as described below.

b. Testing Procedures

i. Spike the sample to the CEMS with a calibration standard containing the pollutant of interest and CO or other non-soluble, non-reacting alternative tracer gas (alternative tracer gas) at a flow rate not to exceed 10 percent of the CEMS sampling flow rate and of such concentrations as to produce an expected 40-80 percent of the upper span value for the pollutant of interest and a quantifiable concentration of CO (or alternative tracer gas) that is at least a factor of 10 higher than expected in the unspiked stack gas. The calibration standards for both pollutants of interest and CO (or alternative tracer gas) shall meet Rule 218.~~1~~3 requirements

ii. Monitor the CO (or alternative tracer gas) using an appropriate continuous (or semi-continuous if necessary) monitor meeting the requirements of Method 100.1 and all data falling within the 10-95 percent of the upper span value, and preferably within 30-70 percent of the upper span value.

iii. Alternate spiked sample gas and unspiked sample gas for a total of nine runs of spiked sample gas and ten runs of unspiked sample gas. Sampling times should be sufficiently long to mitigate response time and averaging effects.

iv. For each run, the average CEMS reading must be between 40 percent of the upper span value n and 80 percent of the upper span value. If not, adjust spiking as necessary and continue runs, but expected spike must represent at least 50 percent of the total pollutant value read by the CEMS.

v. Calculate the spike recovery for both the pollutant and the CO (or alternative tracer gas) for each run by first averaging the pre- and post-spike values for each run and subtracting that value from the spiked value to yield nine values for recovered spikes.

vi. Using the CO (or alternative tracer gas) spike recovery values for each run and the certified CO (or alternative tracer gas) concentration, calculate the dilution ratio for each run. Multiply the certified pollutant concentration by the dilution factor for each run to determine the expected diluted pollutant concentrations. Using the expected diluted

concentrations as the "reference method" value, calculate the Relative Accuracy. The RA shall be ≤ 20 percent.

4. Low Level Spike Recovery/Bias Factor Determination

The low-level spike recovery/bias factor determination is used to determine if a significant bias exists at concentrations near the 10 percent of the upper span value. The spiking facility/interface shall be a permanently installed part of the CEMS sample acquisition system and accessible to the Executive Officer staff as well as the owner or operator of the CEMS.

a. Performance Specifications

There are no pass/fail criteria with respect to the magnitude of the percent relative accuracy. There are performance criteria for the range of concentration on the CEMS the extent to which the spike must be greater than the background pollutant level.

b. Testing Procedures

i. Spike the sample to the CEMS with a calibration standard containing the pollutant of interest and CO or other non-soluble, non-reacting alternative tracer gas (alternative tracer gas) at a flow rate not to exceed 10 percent of the CEMS sampling flow rate and of such concentrations as to produce an expected 10-25 percent of the upper span value for the pollutant of interest and a quantifiable concentration of CO (or alternative tracer gas) that is at least a factor of 10 higher than expected in the unspiked stack gas. The calibration standards for both pollutants of interest and CO (or alternative tracer gas) shall meet Rule 218.3 requirements.

ii. Monitor the CO (or alternative tracer gas) using an appropriate continuous (or semi-continuous if necessary) monitor meeting the requirements of Method 100.1 and all data falling within the 10-95 percent of the upper span value, and preferably within 30-70 percent of the upper span value.

iii. Alternate spiked sample gas and unspiked sample gas for a total of nine runs of spiked sample gas and ten runs of unspiked sample gas. Sampling times should be sufficiently long to mitigate response time and averaging effects.

iv. For each run, the average CEMS reading must be below 25 percent of the upper span value and > 10 percent of the upper span value. If not, adjust spiking as necessary and continue runs; but expected spike shall represent at least 50 percent of the total pollutant value read by the CEMS.

v. Calculate the spike recovery for both the pollutant and the CO (or alternative tracer gas) for each run by first averaging the pre- and post-spike values for each run and subtracting that value from the spiked value to yield nine values for recovered spikes.

vi. Using the CO (or alternative tracer gas) spike recovery values for each run and the certified CO (or alternative tracer gas) concentration, calculate the dilution ratio for each run. Multiply the certified pollutant concentration by the dilution factor for each run to determine the expected diluted pollutant concentrations. Using the expected diluted concentrations as the "reference method" value, calculate the Relative Accuracy as specified in Rule 218.3. If the average difference is less than the confidence coefficient then no low level bias factor is applied. If the average difference is greater than the confidence coefficient and the average expected spike is less than the average CEMS measured spike, then no low level bias factor is applied. If the average difference is greater than the confidence coefficient and the average expected spike is greater than the average CEMS measured spike, then a low level bias factor equal to the absolute value of the average difference is added to data reported at or below the 10 percent of the upper span value.

5. Low Level RATA/Bias Factor Determination using Enhanced Reference Method 6.1

A low level RATA/bias factor determination is designed to determine if there exists a statistically significant bias at low level concentrations. It consists of nine test runs that measure the stack concentration and the CEMS concentration concurrently.

a. Performance Specifications

There are no pass/fail criteria with respect to the magnitude of the percent relative accuracy. There are performance criteria for the special RATA with respect to the reference method and range of concentration on the CEMS.

b. Testing Procedures

The reference method for the low level RATA/bias factor determination is Method 100.1

i. Perform a minimum of nine runs of low level RATA for CEMS versus the reference method at actual levels (unspiked).

ii. The span range for the reference method shall be such that all data falls with 20 - 95 percent of the upper span value.

iii. The reference method shall meet all Method 100.1 performance criteria.

iv. Calculate the average difference (d = CEMS - reference method, ppm) and confidence coefficient (cc = statistical calculated, ppm).

v. If $d > 0$ then the bias = 0 ppm; if $d < 0$ and $|d| > cc$ then bias = d; if $d < 0$ and $|d| < cc$ then bias = 0 ppm.

6. Linearity Error

The linearity error is defined as the percentage error in linearity, calculated pursuant to Equation 3 in Table 3, 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.

a. Performance Specifications

Introduce calibration gas concentrations in accordance with Table A-2. The linearity error shall not exceed 5.0 percent.

b. Testing Procedures

i. A linearity error test shall be comprised of three data points for each of three calibration gases listed in Table A-2 for each span range.

ii. Each low level linearity test shall be performed by introducing calibration gas into the CEMS at the span range values specified in Table A-2.

iii. The test sequence (low, middle, and high) shall be repeated until three data points have been acquired for each calibration gas. 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.

C. Testing Frequency

The owner or operator of the CEMS shall perform the aforementioned performance requirements once a year thereafter. These annual assessments shall be completed within six months of the end of the calendar quarter in which the CEMS was originally certified.

ATTACHMENT B

Concentration stratification and CEMS probe location

A. Test for Concentration Stratification

The owner or operator of the CEMS shall demonstrate the absence of stratification through testing performed according to the method in Chapter X, Section 13 - "Non-Standard Methods and Techniques", of the District Source Testing Manual. The tests shall be conducted at:

1. One load level if the owner or operator demonstrates to the satisfaction of the Executive Officer that the equipment operates within a 20 percent load range for at least 80 percent of the time;
2. Two different load levels if the owner or operator demonstrates to the satisfaction of the Executive Officer that the equipment operates within a 50 percent load range for at least 80 percent of the time; or
3. Three different load levels if the equipment operates outside of the criteria in subclauses (f)(4)(E)(i)(~~I~~A) and (f)(4)(E)(i)-(~~H~~B).

B. Absence of Stratification

The absence of stratification is considered verified if the difference between the highest measured concentration (time normalized) and the lowest measured concentration (time normalized) divided by the average measured concentration (time normalized), when expressed as a percentage, is less than or equal to 10 percent. Upon verification of the absence of stratification:

1. The owner or operator of the CEMS may position the CEMS sampling probe at any point within the stack with the exception of those points that are adjacent to the stack wall;

2. The CEMS sampling probe shall be located in the stack at least one-third of the stack diameter; and

3. The reference method for RATA may be conducted at a single point within the stack that is not adjacent to the stack wall and does not interfere with the sampling and the operation of the facility CEMS.

C. Presence of Stratification

If the testing demonstrates the presence of stratification, the owner or operator of the CEMS shall elect one of the following alternatives:

1. If the stratification is greater than 10 percent but the difference between the highest measured concentration (time normalized) and the lowest measured concentration (time normalized) is less than or equal to 1.0 ppmv:
   a. Then the CEMS sampling probe may be located at any point within the stack except any points that is adjacent to the stack or adjacent to the highest measured concentration (time normalized) and the lowest measured concentration (time normalized); or
   b. If it is not possible to avoid using a point adjacent to either the highest measured concentration (time normalized) or the lowest measured concentration (time normalized), then the CEMS sampling probe shall be located such that the placement minimizes the difference between the concentration at the proposed probe location and the concentration at the point of highest measured concentration (time normalized) or the lowest measured concentration (time normalized).

2. Determine a representative CEMS probe location such that the following criteria are met:
   a. All traverse point concentrations are within 10 percent of the average of all traverse point concentrations (time normalized), or, the difference is less than or equal to 1.0 ppm, whichever is greater;
   b. There exists at least one traverse point concentration (Xr), not located next to the stack or duct wall, that is less than or equal to 10 percent of each adjacent traverse point concentration of Xr, or the difference is less than or equal to 1.0 ppm, whichever is greater; and
   c. The CEMS probe is located at (or as near as practical to) Xr with minimum adjacent traverse point concentration fluctuations as determined above in section (C)(2)(b).

3. Determine a representative multiple point sampling configuration as approved by the Executive Officer, following the guidance document prepared by Emission Measurement Technical Information Center, "Evaluation Procedure for Multi-Hole Sample Probes" (EMTIC GD-031) and the South Coast AQMD guidance document, “Multi-Point Probe Acceptance and Quality Assurance Standards”.

4. Modify the stack and/or CEMS sampling probe location and retest for the absence of stratification.

ATTACHMENT G

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

Final Staff Report
Proposed Amended Rule 218.2 – Continuous Emission Monitoring System: General Provisions
Proposed Amended Rule 218.3 – Continuous Emission Monitoring System: Performance Specifications

August 2022

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SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

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BACKGROUND

Adopted in March 2021, South Coast Air Quality Management District (South Coast AQMD) Rules 218.2 and 218.3 provide specifications for continuous emission monitoring system (CEMS). A CEMS is the combination of equipment necessary to measure~~for the determination of~~ pollutant concentrations or emission rate on a continuous basis. It uses~~ing~~ analyzer measurements and a conversion equation, graph, or computer program to produce results in units of the applicable emission limitation or standard. Rules 218.2 and 218.3 provide performance specifications for CEMS operated at former Regional Clean Air Incentives Market (RECLAIM) facilities that were previously certified according to the RECLAIM program but have exited RECLAIM, as well as specifications for CEMS operated at non-RECLAIM facilities that were previously certified or would have been certified according to Rules 218 and 218.1. An implementation schedule is specified under Rules 218.2 and 218.3 to define the compliance date of each system. Prior to the compliance date, CEMS at RECLAIM facilities would continue to be subject to their current monitoring provisions under RECLAIM (i.e., Rule 2012 for NOx CEMS), and non-RECLAIM CEMS would continue to be subject to Rules 218 and 218.1.

Since the adoption of Rules 218.2 and 218.3, staff has been monitoring the implementation through discussions with facilities applying for CEMS certification, meetings with CEMS vendors regarding their progress on software adjustment and customer feedback, and monitoring landing rule amendments and proposals related to CEMS. As a result, staff identified certain concerns ~~were identified~~.

First, both rules were developed to address compliance with command-and-control concentration-based emission limits.~~;~~ H~~h~~owever, since their adoption, several command-and-control rules with CEMS requirements have been adopted or amended to include mass emission limits vs. concentration-based limits. Due to those recent rule changes, staff recognizes that additional guidance and specifications, including calculations and a data substitution procedure, are needed for owners or operators of CEMS complying with mass emission limits. ~~Next~~Second, the U.S. Environmental Protection Agency (U.S. EPA) recommended that staff include more specific requirements related to the extent of Executive Officer discretion in [discretion in what? Providing exemptions?] CEMS monitoring rules. Finally, s~~S~~takeholders subject to the rules ~~also~~ asked staff to address potential emission overestimation from dual range analyzers. Resolution of all these concerns requires rule amendments.

REGULATORY HISTORY FOR RULES 218.2 and 218.3

The South Coast AQMD has various rules, regulations and permit conditions that require the installation and operation of CEMS to determine compliance with an emission limitation or standard. Since January 1976, the South Coast AQMD has established CEMS monitoring rules to provide guidance and specifications for the CEMS installation and operation to ensure accuracy and precision of the CEMS. For facilities that are under a command-and-control regulatory structure and are not in the RECLAIM, CEMS provisions are specified in Rule 218 – Continuous Emissions Monitoring and Rule 218.1 – Continuous Emissions Monitoring Performance Specifications. For RECLAIM facilities, CEMS provisions are specified in Rule 2011 –

Requirements for Monitoring, Reporting, and Recordkeeping for SOx Emissions and Rule 2012 – Requirements for Monitoring, Reporting, and Recordkeeping for NOx Emissions.

Rule 218.2 – Continuous Emission Monitoring System: General Provision and Rule 218.3 – Continuous Emission Monitoring System: Performance Specification will eventually replace Rules 218, 218.1, and 2012. It should be noted that at this time, SOx RECLAIM is not transitioning to a command-and-control regulatory structure. Consequently, CEMS in SOx RECLAIM will continue to be subject to the requirements in Rule 2011.

Rules 218.2 and 218.3 were developed to include the requirements contained in Rules 218 and 218.1 as well as some of the requirements contained in Rule 2012. Rules 218.2 and 218.3 were adopted on March 5, 2021. The primary objectives of these rules are to:

- Develop one set of requirements that will apply to both non-RECLAIM and former RECLAIM facilities;
- Align CEMS requirements for RECLAIM facilities as they transition to command and control rules;
- Streamline requirements and provide more clarity to existing CEMS provisions; and
- Codify existing practices to provide more transparency.

PUBLIC PROCESS

The development of Proposed Amended Rules 218.2 and 218.3 (PAR 218.2 and PAR 218.3) has been conducted through a public process. Two Working Group meetings were held on January 27, 2022, and February 24, 2022, and a Public Consultation Meeting was held June 8, 2022. The Working Group and Public Consultation Meeting included a wide variety of stakeholders such as affected facilities, consultants, environmental and community groups, and other agencies. The objective of the meetings is to build consensus and resolve key issues with the stakeholders.

A Public Workshop was held on March 30, 2022. The purpose of the Public Workshop was to present the proposed rule language to the public and stakeholders to solicit comments. Staff also has had individual meetings with stakeholders and the U.S. EPA for issues related to the PAR 218.2 and PAR 218.3.

SUMMARY OF PROPOSAL

PAR 218.2 proposes minor revisions to include more specificity to the rule language on recertification requirements and an exemption related to Executive Officer discretion, extend the recordkeeping period to align with the California Code of Civil Procedure, and provides more time to submit the relative accuracy test audit (RATA) report.

PAR 218.3 proposes an option to validate and accept data that would fall in a monitoring gap for a dual range analyzer, adds specifications for mass emission calculations and data substitution procedures, and provides clarity on the method for linearity error checks. PAR 218.3 also proposes the same revision as PAR 218.2 to the exemption provision with regard to the specificity related to Executive Officer discretion.

PROPOSED AMENDMENT TO RULE 218.2

CEMS certification/recertification requires case-by-case evaluations. Executive Officer's discretion may be required for some unique cases. EPA advised staff to include more specificity to provisions that allow for Executive Officer's discretion.

Revise Certification Requirement Related to Executive Officer discretion – Subparagraph (f)(1)(B)

While paragraph (f)(1) defines situations when a CEMS shall be certified or recertified, subparagraph (f)(1)(B) allows an opportunity for the Executive Officer to identify unique modifications that would not require a recertification. Staff is proposing the following revision, specifying the basis of the determination on impact of data accuracy.

(f) Certification Requirements

(1) The owner or operator of a CEMS shall certify or recertify any CEMS that is:

(A) Installed after [Date of Adoption];

(B) Modified for any component that is either listed on the certification letter, Technical Guidance Document R-002, or Quality Assurance/Quality Control Plan, unless the Executive Officer determines that such modification would not impact data accuracy and certification or recertification is not necessary; or

(C) Determined by the Executive Officer that a CEMS recertification is required because the QA/QC or performance requirements for the CEMS cannot be achieved in accordance with Rule 218.3 subdivision (g).

Revise Exemption Provision Related to Executive Officer discretion – Subdivision (k)

Source specific rules or permits may have CEMS requirements that differ from the requirements in Rule 218.2. The CEMS requirements in a rule or permit are expected to be specific to the equipment or process and likely more stringent. Therefore, the exemption in subparagraph (k) allows rule or permit CEMS requirements to supersede Rule 218.2 requirements unless otherwise notified by the Executive Officer. Staff is proposing to clarify that the exemption does not apply if the rule or permit specified CEMS requirements are less stringent and the Executive Office will provide the facility written notice to inform them that they must comply with the requirements of Rule 218.2. Staff is proposing the following revision, specifying the basis of the Executive Officer discretion and correcting the typo from "218.3" to "218.2".

(k) Exemption

(1) If a rule or permit specify CEMS requirements that are different than requirements specified in Rule 218.~~3~~2, the owner or operator shall adhere to CEMS requirements in the rule or permit, unless ~~otherwise notified by~~ the Executive Officer provides written notice to the owner or operator that the rule or permit specified CEMS requirements are less stringent than Rule 218.2.

Extend the recordkeeping period – Paragraph (h)(3)

Paragraph (h)(3) currently requires records to be maintained for a minimum of two years. However, California Code of Civil Procedure, section 338(k), states the time for commencing actions other than for the recovery of real property is within three years for an action commenced under Division 26 (commencing with Section 39000) of the Health and Safety Code. Staff is proposing to align Rule 218.2 with the California Code of Civil Procedure and extend the recordkeeping period from a minimum period of two years to three years. It should be noted that this is a minimum period for maintaining records. Pursuant to a proposed amendment in Rule 218.3, subparagraph (i)(13)(C), in order to utilize certain substitute data procedures, records may be required to be kept longer.

Provide more time to submit the relative accuracy test audit report – Paragraph (i)(5)

Rule 218.2 paragraph (i)(5) currently requires a RATA report to be submitted within 60 days upon completion of the test. In response to stakeholders' request for aligning it with Rule 2012 Chapter 2 (B)(22) for RECLAIM RATA report submittal requirement, staff is proposing to extend the RATA report due date from 60 days upon completion of the test to on or before the end of the quarter following the date of a required test.

PROPOSED AMENDMENTS TO RULE 218.3

The proposed amendments to Rule 218.3 will address a concern raised for current requirements on dual range analyzers and include specifications for mass emission calculations and a missing data procedure. Those proposed amendments are all under subdivision (i) for data handling. In addition, staff recognizes the need to revise subparagraph (f)(4)(F) to clarify the linearity error check method.

Clarify the Linearity Error Check Method – Subparagraph (f)(4)(F)

The method for linearity error check under this subparagraph remains the same. The revision is intended to provide more detailed instruction on the test sequence and the number of data points required when conducting the linearity error check procedure.

Revise Data Handling for Data Below 10 Percent of the Upper Span Value – Subparagraph (i)(1)(C); and Data Above 95 Percent of the Upper Span Value – Subparagraph (i)(2)(B)

For a dual range span analyzer, when 95 percent of the upper span value of the lower span range does not overlap with 10 percent of the upper span value of the higher span range, an unintended monitoring gap results. (See Figure 1 below.) Rule 218.3 paragraph (i)(1) requires data measured in monitoring gap to be reported as 10 percent of the upper span value of the higher span, which may overestimate the emissions. Stakeholders raised a concern that this could place the equipment out of compliance.

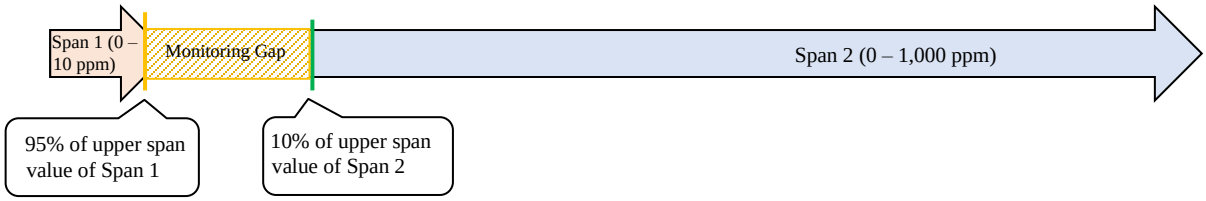


Figure 1: Dual Range Analyzer Monitoring Gap

Subparagraph (i)(1)(C) provides an option to validate data points that fall below 10 percent of the upper span value of the span range and report the data point at the actual measured value, but that is only applicable to the lowest vendor guaranteed span range for that CEMS analyzer. To utilize this option the owner or operator for the CEMS is required to conduct the validation tests specified in Rule 218.3 Attachment A: Supplemental and Alternative Performance Requirements.

To address the dual range analyzer monitoring gap concern, staff is proposing to extend a low level data validation option to any span range, provided the owner or operator conducts an additional procedure included in Attachment A to ensure data linearity. The additional procedure includes a three-point calibration at the lower level, in lieu of the current spike recovery procedure. The low-level calibration procedure provides a data validation procedure to ensure the accuracy of any data collected in the monitoring gap. This proposal would require revisions to both subparagraphs (i)(2)(B) and (i)(1)(C).

For a span range other than the lowest vendor guaranteed span range, the owner or operator for the CEMS are allowed to choose a lowest non-zero value to set the low end of the data range to be validated. The lowest non-zero value selected will depend on the analyzer's sensitivity. For example, for a dual range analyzer with a lower span range at 0-10 ppmv and a higher span range at 0-1000 ppmv, by current requirement the monitoring gap would be 9.5-100 ppmv. If a measurement fell within that monitoring gap, the owner or operator would have to replace the measured value with 10 percent of the upper span value, which is 100 ppmv in the above example. In the proposed amendment, the owner or operator may choose a lowest non-zero value in the monitoring gap to demonstration data linearity for data validation. If the owner or operator chooses a low point at 20 ppmv, a three-point calibration would include a low-point of 20 ppmv, a mid-point of 20 and 100 ppmv (e.g., 40 ppmv), and a high-point of 100 ppmv to validate data in the range of 20-100 ppmv. Even with the new procedure, there may still be a small data gap if the lowest non-zero value selected is not low enough to bridge the gap. For the above example the data gap will be from 9.5 ppmv to 20 ppmv. If a value is measured in the data gap, the owner or operator would have to replace the measured value with the lowest non-zero value in the three-point calibration, which is 20 ppmv in the above example instead of 100 ppmv as would be required under the current data gap procedure.

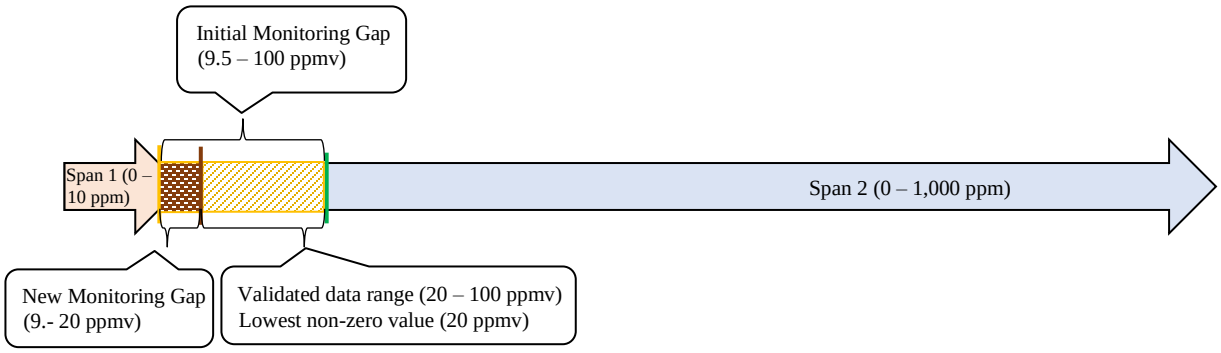


Figure 2: Proposed Dual Range Analyzer Monitoring Gap

Add Mass Emission Calculation Methodology – Paragraph (i)(10)

Rules 218.2 and 218.3 were developed for compliance with command-and-control rules, which typically establish concentration-based emission limits instead of a mass-based emission limit. As a result, the rules do not currently address a mass emission calculation. However, as some command-and-control rules are including mass emission limit compliance options, there is a need to specify data handling for mass emissions.

Staff is proposing to include three calculation methods under Rule 218.3 paragraph (i)(10) for determining hourly mass emission rates depending on the parameters being monitored. Those methods are consistent with the methodology used in Rule 2012 for RECLAIM facilities and are expressed in three equations listed in Table 5. The first equation is based on stack gas concentration and volumetric flow rate. The second equation is based on stack gas concentration, heat input rate, and oxygen concentration, referenced as the oxygen F factor approach. The third equation is based on stack gas concentration, heat input rate, and carbon dioxide concentration, referenced as the carbon dioxide F factor approach. The oxygen F factor approach may not be used in cases where enriched oxygen is used, non-fuel sources of carbon dioxide are present (e.g. lime kilns and calciners), or the oxygen content of the stack gas is 19 percent or greater. The carbon dioxide F factor approach may not be used in cases where enriched oxygen is used or non-fuel sources of carbon dioxide are present (e.g. lime kilns and calciners).

In regard to the three equations, RECLAIM CEMS are allowed to conduct measurements at either 60°F or 68°F, and thus utilize NOx conversion factor of 1.214×10^{-7} or 1.195×10^{-7} lbs/ft^3 to determine mass emissions. Rule 218.3 will be consistent with Rule 102 – Definition of Terms for the definition of standard conditions, which required measurements be conducted at 60°F; therefore, the NOx conversion factor of 1.214×10^{-7} lbs/ft^3 will be utilized in the Table 5 equations.

For the mass emission calculation when the higher heating value is required, Rule 218.3 will allow a default higher heating value listed in Table 6 or a measured heating value of the fuel determined by a method approved by the Executive Officer (see footnote of Table 5). A heating value determined by gas bills would be considered as a measured heating value.

Add Data Substitution Procedure – Paragraph (i)(11)

Missing or invalid data periods may occur during CEMS maintenance, system malfunctioning, or failed QA/QC tests. Missing or invalid CEMS data would create data gaps for those time periods. When mass emission limits must be demonstrated for specific averaging periods (e.g., 24 hours or 365-day rolling average), data substitution would be required to fill the data gaps.

Staff is proposing to include data substitution procedure specifications in Rule 218.3 paragraph (i)(11). The procedure aligns with the data substitution procedure specified in Rule 1109.1 – Emissions of Oxides of Nitrogen from Petroleum Refineries and Related Operations (Rule 1109.1), except that the rule requires the substituted data to be from a "unit operation hour" which is defined as "a clock hour during which a unit combusts any fuel either for part of the hour or for the entire hour." This is to avoid zero emission data being utilized for data substitution. According to the proposed procedure, when the missing data period is at or less than eight hours, the owner or operator of the CEMS would substitute the data using the average of the recorded emission data for the unit operation hour immediately before the missing data period and the hour immediately after the missing data period. When the missing data period is more than eight hours, the owner or operator of the CEMS would substitute the data using the maximum hourly emission data recorded for the previous 30 days with unit operation, commencing on the day immediately prior to the day the missing data occurred. The proposed amendment also addresses a missing data period that results from conducting a spiking test specified in Attachment A when the calibration standard gas is injected to the sampling port. Use of this approach to average data for substitution would be limited to up to ten hours for each occurrence, and no more than 20 cumulative hours for each calendar year. Data substitution would be required for mass emissions calculations including the BARCT Equivalent Mass Cap Plan (B-Cap) and the interim facility-wide NOx emission limit of 0.03 pounds/MMBtu for process heaters and boilers greater than or equal to 40 MMBtu/hr in Rule 1109.1.

Subparagraph (i)(11)(A) specifies when missing data procedures must be applied, e.g., when there is any hour with missing pollutant data, an hour with missing stack flow, or an hour with both missing pollutant and stack flow data. Subparagraph (i)(11)(B) includes the missing data procedure which varies depending on how much data is missing, e.g., missing more or less than eight hours of data. This subparagraph also allows the option to use missing data substitution procedures specified in 40 CFR Part 75.

For the purpose of filling the data gaps for mass emission calculations, the substituted data are only enforceable for a compliance demonstration on mass emission limits, not concentration limits (e.g., ppmv).

Add the method to calculate mass emissions for a startup or shutdown period – Paragraph (i)(12)

Some South Coast AQMD permits or rules may require a mass emission limit with minute increments for a defined startup or shutdown period. For example, a facility has a permit condition with a mass emission limit of 111 pounds for a cold startup of 166 minutes. As the general mass emission calculation specified in Rule 218.3 paragraph (i)(10) is for hourly data, there is a need to determine mass emissions on a per minute interval.

Staff is proposing to include the method for determining mass emissions for a permit or rule defined startup or shutdown period with minute increments in Rule 218.3 paragraph (i)(12). The owner and operator would calculate the mass emissions for each minute using the equations listed in Table 5, except that minute level should be used in the calculation rather than hourly parameters. The mass emissions for all minutes of the period would be totalized to demonstrate the compliance. The duration of the period is determined by the permit or rule, rather than Rule 218.2 and Rule 218.3.

Add data substitution procedures for startup or shutdown missing minute data – Paragraph (i)(13)

This subparagraph is for the purpose of determining mass emissions for a startup or shutdown pursuant to paragraph (i)(12). When there is any minute with no valid data, data substitution would be conducted. Data evaluated for substitution for the missing minutes should have the same operation status, e.g., only startup emissions can be substituted with startup emissions, only shutdown emissions can be substituted with shutdown emissions. If a permit or rule defines a more specific operation status, such as cold startup, only cold startup emissions can be substituted with cold startup emissions.

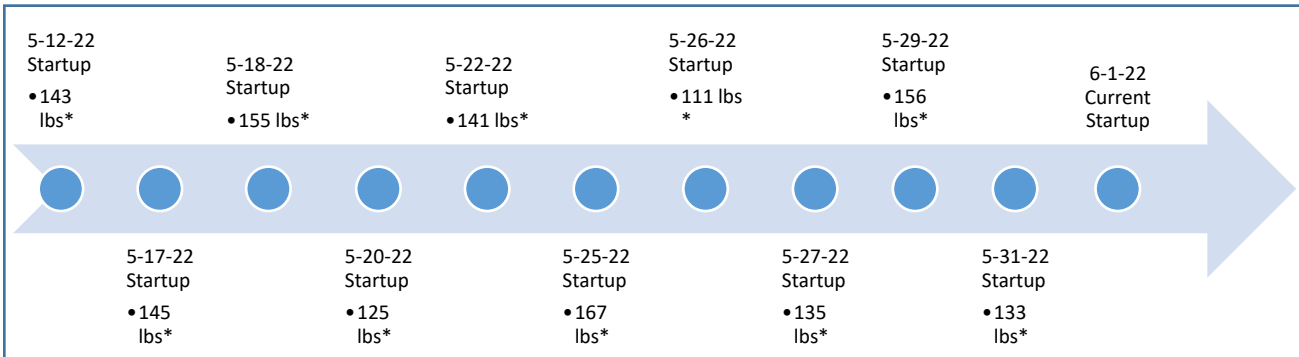
Staff is proposing to have the data substitution be dependent on the percent of missing data. If the sum of the minutes with no valid data is less than or equal to fifty percent of all the minutes for the period, the missing data minute(s) would be substituted with the average of all valid one-minute mass emission data for that startup or shutdown period. The following is an example of how this data substitution would work for a 15-minute startup period with two minutes of missing or invalid data:

MINUTE	NOx (lbs)	
1	15	
2	180	
3	190	
4	185	
5	invalid	
6	invalid	
7	170	
8	160	
9	154	
10	145	
11	134	
12	122	
13	72	
14	70	
15	71	
	1668	Sum of Valid Minutes (lbs)
	13	Number of Valid Minutes
	128.31	Valid One-Minute Mass Emissions (lbs) Average for this Startup
	1924.6	Mass Emissions (lbs) During 15-minte Startup

If the sum of the minutes with no valid data is more than fifty percent of all the minutes for the period, the missing data minutes would be substituted with the highest of the one-minute mass emission averages of the previous ten startups or shutdowns, or all startups of shutdowns during the 12 months period before the completion of last startup or shutdown, whichever is more recent. For this purpose, a one-minute mass emission average for each startup or shutdown is determined. In the example above, 128.31 lbs represents the one-minute mass emission average for that startup event. The operator would look back at the applicable previous startup events to determine if any startup event had a higher one-minute mass emission average.

Regarding the applicable period staff is proposing to require the owner to consider for the data substitution, the proposal considers two different scenarios. Some units have frequent startups and shutdowns, so considering the past 10 startup or shutdown events should provide a suitable characterization of how the unit operates during the startup or shutdown period. Alternatively, some units are rarely shutdown. In those instances, staff is proposing to require the owner to consider the previous shutdown or startup, which might have taken place several years prior to the startup or shutdown with the missing data. For those instances, the rule will require the owner or operator to consider the most recent startup or shutdown and look back to the 12 months prior to that startup or shutdown to see if any additional startups or shutdowns occurred. In either instance, the highest one-minute mass emission average will be used for data substitution.

The example in Figure 3 shows a unit with frequent startups. The previous 10 startups from 5/12/2022 to 5/31/2022 would be considered for data substitution and the one-minute mass emission average of 167 lbs from 5-25-2022 would be used to substitute the missing data from 6/1/2022.

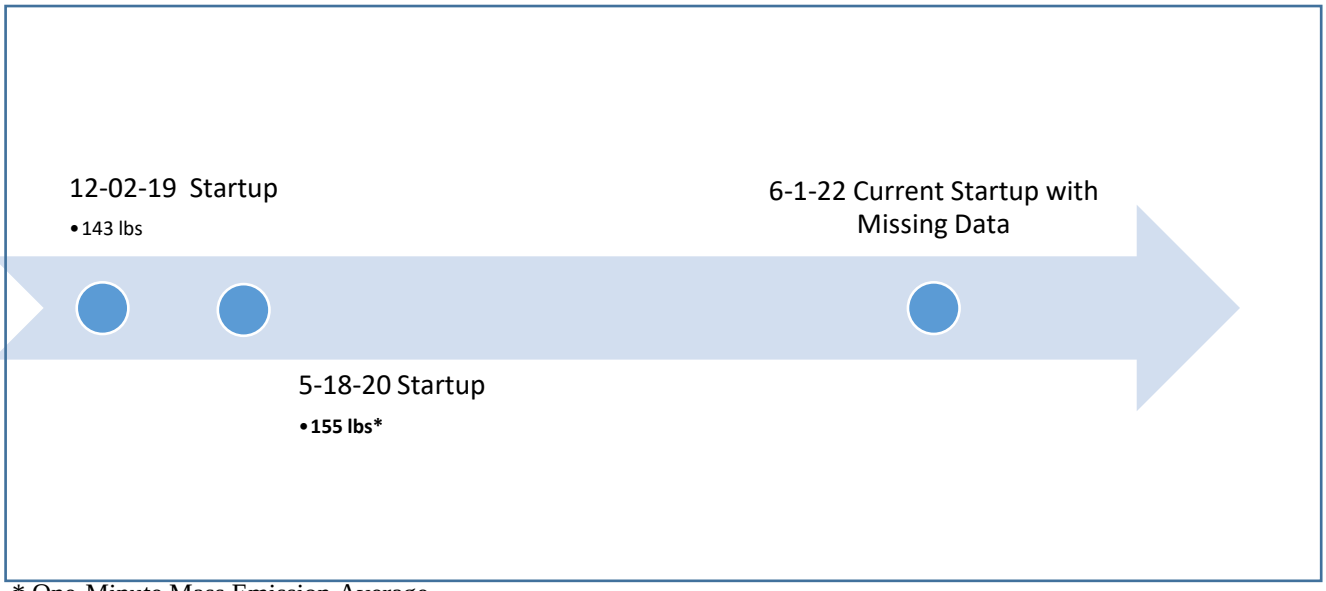


* One-Minute Mass Emission Average

Figure 3: Startup Missing Data Procedure for Unit Frequently Shutdown

The example in Figure 4 shows a unit with infrequent startup and shutdowns. The previous startup occurred over two years from the current startup. In that instance the owner or operator would consider the startup on 5-18-2020 and any startup that occurred in the 12 months prior, e.g., any startups from 5-18-2019 – 5-18-2020. The missing data in the example below will be determined

from the highest one-minute mass emission average between the 12-2-2020 startup and the 5-18-2020 startup. The one-minute mass emission average of 155 lbs from 5-18-2020 would be used to substitute the missing data from 6/1/2022.



* One-Minute Mass Emission Average

Figure 4: Startup Missing Data Procedure for Unit not Frequently Shutdown

Add recordkeeping requirements for data substitution procedures for startup or shutdown missing minute data – Subparagraph (i)(13)(C)

In order to ensure the records from previous startups or shutdowns are available for the proposed data substitution, staff is proposing to extend the recordkeeping requirement to include the 12-month period prior to the most recent startup or shutdown if this period is not covered by the Rule 218.2 paragraph (h)(3) recordkeeping requirement. For example, if a unit has been operating continuously for over three years, without a startup or shutdown, and there is a minimum three years recordkeeping requirement, no data would be available to substitute for the missing data. This provision would require the owner to maintain records beyond three years. The owner or operator would be required to retain records from the last startup or shutdown, and consider data from that startup or shutdown event and the 12 months that proceeded it. Failure to maintain appropriate records would not only be considered a potential rule violation, it would also preclude an owner or operator of the CEMS from utilizing this more favorable substitute data procedure.

Add uncontrol emission factors for units with no available startup or shutdown data – Subparagraph (i)(13)(D)

For an extreme situation when there is no record of previous startups or shutdowns, an uncontrol emission factor and the equipment maximum capacity would be used to determine the emissions of the missing startup or shutdown data. This situation would not occur if the owner or operator complies with the proposed recordkeeping requirement in subparagraph (i)(13)(C). However, if the owner or operator fails to maintain records accordingly, this provision could be utilized to determine the emissions.

Add a provision that allows for the owner or operator to report valid zero emission data when the base unit is not operating– Paragraph (i)(14)

Paragraph (i)(14) allows the owner or operator to report valid zero emissions data while the unit (emitting source such as a boiler or heater) is not operating and no emissions are generated. Staff is proposing to allow the owner or operator to report valid zero emission for those hours without requiring data substitution if the base unit non-operation is demonstrated in accordance with Rule 218.2 paragraph (e)(4). The provision requires the facility to maintain records for a minimum of three years .

Revise Exemption Provision Related to Executive Officer discretion – Subdivision (l)

Rule 218.3 subdivision (l) is identical to Rule 218.2 subdivision (k). Staff is proposing the same revision. See discussion on the revision for Rule 218.2 subdivision (k) for details.

AFFECTED FACILITIES

Based on the RECLAIM compliance year 2017 audit data, there are 83 RECLAIM facilities that in total operate 500 units with NOx emissions monitored by CEMS. It should be noted that one CEMS may monitor emissions for several units, which is common in petroleum refining facilities.

Based on the South Coast AQMD's database for non-RECLAIM CEMS applications, there are 126 non-RECLAIM facilities that previously installed one or more CEMS, with an estimate of approximately 250 units monitored by these CEMS. Since records do not indicate the current status of the CEMS, some of non-RECLAIM CEMS may no longer be active. The CEMS universe may change when some landing rules are adopted or amended and become applicable to RECLAIM facilities.

EMISSION REDUCTIONS

PAR 218.2 and PAR 218.3 are administrative rules that provide technical guidelines for installation and operation of CEMS required by South Coast AQMD rules or permit conditions. PAR 218.2 and PAR 218.3 do not directly regulate sources for emissions control; therefore, there are no emission reductions that will result from this rule development.

COST EFFECTIVENESS

While a source-specific rule determines when a CEMS would be required for emission monitoring, PAR 218.2 and PAR 218.3 provide administrative and technical guidelines on how to properly operate the CEMS. The cost-effectiveness of operating any CEMS is included in the related source-specific rule from which the CEMS is required.

CALIFORNIA ENVIRONMENTAL QUALITY ACT (CEQA)

Pursuant to the California Environmental Quality Act (CEQA) Guidelines Sections 15002(k) and 15061, the proposed project (PAR 218.2 and PAR 218.3) is exempt from CEQA pursuant to CEQA Guidelines Section 15061(b)(3). A Notice of Exemption has been prepared pursuant to CEQA Guidelines Section 15062 and is included as Attachment H~~F~~ to the Board Letter. If the proposed project is approved, the Notice of Exemption will be filed for posting with the county clerks of Los Angeles, Orange, Riverside, and San Bernardino counties, and with the State Clearinghouse of the Governor's Office of Planning and Research.

SOCIOECONOMIC ANALYSIS

PAR 218.2 and PAR 218.3 provide clarification and data handing method to comply with permit or rule limits, and is expected to have no socioeconomic impacts.

DRAFT FINDINGS UNDER CALIFORNIA HEALTH AND SAFETY CODE SECTION 40727

California Health and Safety Code Section 40727 requires that prior to adopting, amending, or repealing a rule or regulation, the South Coast AQMD Governing Board shall make findings of necessity, authority, clarity, consistency, non-duplication, and reference based on relevant information presented at the public hearing and in the staff report. The following provides the draft findings.

Necessity: A need exists to propose Amended Rules 218.2 and 218.3 to provide administrative and technical specifications to continuous emission monitoring systems.

Authority: The South Coast AQMD obtains its authority to adopt, amend, or repeal rules and regulations from Health and Safety Code Sections 39002, 40000, 40001, 40440, 40441, 40702, 40725 through 40728, and 41511.

Clarity: PAR 218.2 and PAR 218.3 have been written or displayed so that their meaning can be easily understood by the persons affected by the rule.

Consistency: PAR 218.2 and PAR 218.3 are in harmony with, and not in conflict with or contradictory to, existing federal or state statutes, court decisions, or federal regulations.

Non-Duplication: PAR 218.2 and PAR 218.3 do not impose the same requirement as any existing state or federal regulation and is necessary and proper to execute the powers and duties granted to, and imposed upon, the South Coast AQMD.

Reference: In amending this rule, the South Coast AQMD hereby implements, interprets, or makes specific reference to the following statues: Health and Safety Code Sections 39002, 40001, 40702, 40440, 41511, and 40725 through 40728.5.

COMPARATIVE ANALYSIS

Health and Safety Code Section 40727.2(g) provides for a comparative analysis and is applicable when the proposed amended rules or regulations impose, or have the potential to impose, a new emissions limit or standard, or increased monitoring, recordkeeping, or reporting requirements. In this case, a comparative analysis is not required because the amendments do not impose such requirements.

INCREMENTAL COST EFFECTIVENESS

Health and Safety Code Section 40920.6 requires an incremental cost-effectiveness analysis for Best Available Retrofit Control Technology (BARCT) rules or emission reduction strategies when there is more than one control option that would achieve the emission reduction objective of the proposed amendments, relative to ozone, CO, SOx, NOx, and their precursors. PAR 218.2 and PAR 218.3 are not Best Available Retrofit Control Technology (BARCT) rules or emission reduction strategies; therefore, this provision is not applicable.

APPENDIX: RESPONSE TO PUBLIC COMMENTS

South Coast AQMD held a Public Workshop on March 30, 2022, and a Public Consultation Meeting on June 8, 2022, both via Zoom video conference. Comments were received during the Public Workshop and Public Consultation Meeting. Three comment letters were received during the comment period that ended on April 13, 2022, and one comment letter was received beyond the comment period.

The following responses summarize the key comments received during the Public Workshop and Public Consultation:

Comment WS-1: For a higher span range that is not often used, are tests such as linearity check and relative accuracy test audit (RATA) still required?

Response WS-1: Linearity check is required at the certification/recertification and it should be conducted for all spans. Linearity check is not required pursuant to Rule 218.3 clause (g)(2)(B)(i) for ongoing Quality Assurance and Quality Control (QA/QC).

RATA test is required at the certification/recertification and ongoing QA/QC. This test is conducted in the as-found unit operating condition, not depending on how often a span range is utilized.

Comment WS-2: Is low level spike recovery in Attachment A necessary? Suggest to allow CEMS down time for this determination.

Response WS-2: Low level spike recovery will be required if the owner or operator of the CEMS elects to validate the lowest vendor guaranteed range. This test is not required if the owner or operator elects to report 10 percent of the span range.

Rule 218.2 paragraph (e)(2) allows CEMS down time for up to 96 hours for each occurrence of maintenance pursuant to the QA/QC Program, and an additional 96 hours if the unit is not operating and no emissions are generated. As low level spike recovery test is part of the QA/is proposing to incorporate stakeholder's suggestion of aligning with the RECLAIM requirement and extend the RATA report due date from 60 days upon completion of the test to 90 days.

Comment WS-5: For the hours when the base unit is not operating and emission data are missing, data substitution should not be required.

Response WS-5: Staff agrees with the commentor and proposes to add a provision under subdivision (i) to allow the owner or operator to report valid zero emissions data while the base unit (emitting source) is not operating and no emissions

are generated. The non-operation should be demonstrated in accordance with Rule 218.2 paragraph (e)(4). Recordkeeping would also be required.

Comment WS-6: The required information and reporting method for semi-annual report are general, not specific enough.

Response WS-6: Staff understands the concern. Staff is developing a streamlined electronic reporting form and a guidance document to specify the required information in the report.

Comment WS-7: How long should the records, especially one-minute CEMS data, be maintained?

Response WS-7: Rule 218.2 subparagraph (h)(3)(A) currently specifies that records shall be maintained for a minimum period of two years or a period specified in any rule or permit condition, whichever is longer. Staff proposes to align with the California Code of Civil Procedure, section 338(k), and extend the recordkeeping period from a minimum period of two years to three years.

For a unit that has a permit or rule required mass emission limit with minute increments for a defined startup or shutdown period, records of one-minute CEMS data are needed to demonstrate compliance. For a missing data period, records of previous startups or shutdowns (one-minute data) are required for data substation, which may extend beyond previous three years if the unit rarely has a startup or shutdown. To comply with this provision, the owner or operator only needs to keep the minute records from startup or shutdown events.

Therefore, the recordkeeping is for a minimum period of three years, or a period required to demonstrate compliance with a permit or rule which often is source specific or relative to facility's operation plan.

Comment Letter #1

Hi Yanrong,

Thanks for including the revised paragraph (f)(1)(B) language in the proposed amended version of Rule 218.2. In looking through Rule 218.2 and 218.3, I think there is just one additional paragraph that is of possible concern with regard to director's discretion:

- Rule 218.2, paragraph (k)(1) and Rule 218.3, paragraph (l)(1), which consist of the language below:

  (1) If a rule or permit specify CEMS requirements that are different than requirements specified in Rule 218.3, the owner or operator shall adhere to CEMS requirements in the rule or permit, unless otherwise notified by the Executive Officer.

1-1

As with paragraph (f)(1)(B), I would recommend additional language that establishes some criteria by with the Executive Officer would determine that such notification is warranted. I'm not sure if data accuracy would be appropriate since the issues related to this provision could be different than with paragraph (f)(1)(B), but perhaps stringency could be an appropriate basis if the underlying purpose here is to streamline overlapping requirements. In addition, the term 'different' is of some concern since it is vague enough that it might be interpreted to allow less accurate or stringent requirements to take precedent over rule requirements. I would suggest the addition of language that narrows or clarifies the scope of 'different.' Alternately, if retaining that term is important to preserving some flexibility for the District, perhaps the inclusion of language to indicate that while these CEMS requirements in another rule or permit are different than Rule 218.3 requirements, they shall still assure compliance (or must be equivalent?) with Rule 218.3 requirements. Please call or email to discuss further if necessary.

Thanks,
Eugene

Eugene Chen
US EPA, Region 9
Air Division, Rules Office
75 Hawthorne Street (AIR-3-2)
San Francisco, CA 94105
(415) 947-4304

Response to Comment Letter #1

Response 1-1: Staff agrees that more specificity is needed to clarify the purpose. The rule or permit specified CEMS requirements are generally more stringent, in which case the owner or operator will adhere to CEMS requirements in the rule or permit instead of the equivalent requirements in Rules 218.2 and 218.3. Staff proposed to revise the exemption provision specifying that the basis of the exemption is on the requirement stringency. The Executive Officer will provide a written notice to the owner or operator if the rule or permit specified CEMS requirements are deemed less stringent and therefore the owner or operator must comply with the requirements in Rules 218.2 and 218.3.

Comment Letter #2

Michael Krause
Assistant Deputy Executive Officer
Planning, Rule Development, and Area Sources
South Coast Air Quality Management District
mkrause@aqmd.gov

Dear Mr. Krause:

The South Coast AQMD released a draft Proposed Amended Rule 218.3 on March 18, 2022. One of the primary purposes of the amendment is to address facilities' concerns over the monitoring data gap for dual range analyzers. The draft amended Rule 218.3(i)(1)(C) and Attachment A (Table A-2) provide a new supplemental/alternative test approach that most facilities can apply. In the draft rule, AQMD expanded the applicability of the new approach to any non-lowest vendor guaranteed span range which would have potential impacts on the rich-burn engine CEMS operated at our Joint Water Pollution Control Plant (JWPCP) located in Carson, CA.

The JWPCP operates five rich-burn engines equipped with NOx controls and NOx, CO and O_2 CEMS for compliance. As designed, the rich-burn engine NOx emissions and O_2 concentrations are typically measured as zero or near zero (within the margin of error) during normal operations. Historically, the NOx and O_2 values have consistently been zero or near zero as demonstrated during annual compliance source tests and CEMS RATA tests. We believe that the proposed linearity error checks in Table A-2 should not be required for rich-burn engine NOx CEMS at such low levels; for instance, EPA Part 75 exempts a CEMS from the quarterly linearity checks if the span range is ≤ 30 ppm.

We understand that Rules 218.2 and 218.3 are intended to provide general requirements and specifications for facilities to comply with AQMD rules and permit conditions. The intent of the amendments is to address the monitoring data that may fall below 10% of the span of the high range of a dual range analyzer which is normally more than 1000 ppm. In addition, it is our understanding that R218.3(i)(1)(C) and Attachment A only apply to pollutant CEMS, but not O_2 CEMS since all combustion units, except rich-burn engines, would not have any readings below 10% of the O_2 analyzer range. Therefore, we believe R218.3(i)(1)(C) and Attachment A should not be applicable to the very limited number of rich-burn engines operating within SCAQMD jurisdiction. 2-1

We recommend that AQMD consider an exemption for rich-burn engine NOx and O_2 CEMS from the Rule 218.3(1)(1)(C) and Attachment A requirements. We would also like to meet and discuss with your team further on the potential impacts and challenges for these rich-burn engine CEMS, if possible.

Sincerely,

Mathew L. Watson, P.E.
Supervising Engineer | Air Quality Engineering
562-908-4288 ext. 2117
mathewwatson@lacsd.org

LOS ANGELES COUNTY SANITATION DISTRICTS
Converting Waste Into Resources
Website | Facebook | Twitter | Instagram | YouTube

Response to Comment Letter #2

Response 2-1: The l~~L~~inearity check addressed in Attachment A Table A-2 is only applicable when the facility elects to validate data that fall below 10 percent of the span range that is not the lowest vendor guaranteed span range. For example, if the analyzer has two span ranges, 0-10 ppm and 0-200 ppm. Span range 0-10 could be the lowest vendor guaranteed span range. In this case, the linearity check is only applicable when the facility elects to validate data in the monitoring gap of 9.5-20 ppm. The linearity check is not required to validate data below 1 ppm, which is below 10 percent of the lowest vendor guaranteed span range.

Rule 218.3 (i)(1)(C) and Attachment A provide an additional option on how to report data below 10 percent of the upper span value of a span range. Previously, this additional option was only provided to validate data below 10 percent of the upper span value of the lowest vendor guaranteed span range. The rule now proposes to also provide this option to validate data below 10 percent of the upper span value of other higher span range. Since it is an additional option, the facility may choose not to refer to R218.3(i)(1)(C) and Attachment A. Instead, the facility may continue previous practice by complying with R218.3(i)(1)(A)&(B) and reporting data below 10 percent of the upper span value of any span range at the 10 percent value.

Comment Letter #3

April 13, 2022

Ms. Yanrong Zhou
South Coast Air Quality Management District
21865 Copley Drive
Diamond Bar, CA 91765

Dear Ms. Zhou:

Subject: Los Angeles Department of Water and Power's (LADWP) Comments on Proposed Amended Rule 218.2 – Continuous Emission Monitoring System: General Provisions, and Proposed Amended Rule 218.3 – Continuous Emission Monitoring System: Performance Specifications

LADWP appreciates the opportunity to provide comments on the proposed amendments to Rule 218.2 – Continuous Emission Monitoring System: General Provisions, and Rule 218.3 – Continuous Emission Monitoring System: Performance Specifications. LADWP remains committed to working with the South Coast Air Quality Management District (SCAQMD) to develop effective policies for monitoring emissions from major facilities in order to meet air quality goals in the South Coast Air Basin.

LADWP operates seven combined cycle units, four boilers units, and 14 simple cycle units, each with a dedicated Continuous Emission Monitoring System (CEMS) currently certified under SCAQMD Rules 2012, 218, 218.1, and 40 CFR Part 75. Six of the seven combined cycle units and six of 14 simple cycle units are dual fuel units capable of combusting both natural gas and diesel fuel, with the latter only used for emergency. The CEMS for these dual fuel units are certified to measure NOx and CO emissions from both natural gas and diesel combustion.

Comments on Proposed Amendments to Rules 218.2

1. Section f.1.B – Certification Requirements

The rule requires the owner or operator of a CEMS to certify or recertify any CEMS that is modified for any component that is either listed on the certification letter, Technical Guidance Document R-002, or Quality Assurance/Quality Control (QA/QC) Plan, unless the Executive Officer determines that such modification would not impact data accuracy and certification or recertification is not necessary.

Typically, a CEMS unit has hundreds of consumable parts (as listed in Attachment 1-Sample List of Parts) that are periodically (monthly, quarterly, yearly) maintained and/or replaced. Multiplying the number of CEMS consumable parts by the number of LADWP generating units will result in an enormous number of recertification events that must be completed in a quarter. With the amount of testing needed, scheduling with source test companies and coordinating with energy dispatch will be very difficult. 3-1

In addition, CEMS breakdowns which can happen on a weekend require immediate action to keep the percent availability above 95%. Asking for a determination from the Executive Officer whether each repair activity will affect accuracy of the CEMS or not, may cause delays in getting the CEMS back in service and collecting valid data. Applying for recertification of the CEMS each time a part of a CEMS component is replaced will be onerous and expensive.

LADWP suggests that the requirement to recertify CEMS be limited only to replacement of major components listed in the CEMS Certification and ST220 form. Components/Parts listed in Quality Assurance Plan (QAP) that are subject to periodic preventative and corrective maintenance should be exempt from this requirement. LADWP requests clarification on the distinction between a CEMS modification and CEMS preventative/corrective maintenance. The definition of "CEMS modification" should be updated to clarify the distinction and reiterate that this does not apply to "preventative and corrective maintenance".

Comments on Proposed Amendments to Rules 218.3

1. Mass Calculation

LADWP combustion turbine units have NOx mass permit limits for startups and shutdowns. In addition, some of these units have a NOx mass rate limit for startup. Currently, LADWP calculates NOx mass emissions every minute during startup and shutdown durations. The mass calculation is based on stack gas concentration, heat input rate and oxygen concentration Oxygen F-Factor approach). The valid minutes are added up to determine compliance with the permit limits.

3-2

LADWP appreciates SCAQMD for allowing the use of the Higher Heating Value (HHV) of 1050 Btu/hour to calculate mass emissions as outlined in Table 5. However, the use of the HHV results in the over-reporting of mass emissions. LADWP requests that SCAQMD allow the use of the Heating Value provided in the monthly gas company bills as an approved alternative method to avoid over-reporting of mass emissions during periods of startups and shutdowns. This method is consistent with 40 CFR Part 75 which allows the use of heating value provided by the gas company every month. The heating value is applied starting on the date of receipt of the gas bill until the date of receipt of the following month's gas bill.

2. Data Substitution Procedure

The proposed Data Substitution Procedure in section i.11.A if applied to invalid hours during startup and shutdown may result in the exceedance of startup and shutdown permit mass limits which constitutes a violation. In the following example, if hours 12 and 13 were invalid, the cold start limit of 600 pounds would have been exceeded based on the proposed mass substitution procedure using the average of the hour before and after the invalid data period.

3-3

Date/Time (Local)	Unit ID	Unit Status	Gross MWH	Net MWH	Natural Gas (KCFH)	O2 Dry (%)	NOx BA (PPM)	NOx Cor (PPM)	NH3 Cor (PPM)	CO Cor (PPM)	Stack Flow BA (msc	NOx Rate BA (lbs/I	Startup lbs
10/13/2018 0:00	51	9	0	0	0	20.925	0	0	0	0	0	0	
10/13/2018 1:00	51	9	0	0	0	20.912	0	0	0	0	0	0	
10/13/2018 2:00	51	9	0	0	0	20.897	0	0	0	0	0	0	
10/13/2018 3:00	51	9	0	0	0	20.89	0	0	0	0	0	0	
10/13/2018 4:00	51	9	0	0	0	20.894	0	0	0	0	0	0	
10/13/2018 5:00	51	9	0	0	0	20.933	0	0	0	0	0	0	
10/13/2018 6:00	51	9	0	0	0	20.89	0	0	0	0	0	0	
10/13/2018 7:00	51	9	0	0	0	20.869	0	0	0	0	0	0	
10/13/2018 8:00	51	9	0	0	0	20.901	0	0	0	0	0	0	
10/13/2018 9:00	51	9	0	0	0	20.942	0	0	0	0	0	0	
10/13/2018 10:00	51	9	0.932	0.932	146.14	20.477	1.899	5.655	0	44.23	14.594	14.928	14.928
10/13/2018 11:00	51	7	18.493	18.493	870.77	17.91	23.173	45.491	0.758	26.196	55.666	173.41	173.41
10/13/2018 12:00	51	7	17.658	17.658	845.34	17.95	12.234	24.483	0	24.457	54.799	90.295	142.91
10/13/2018 13:00	51	7	17.88	17.88	847.56	17.501	12.827	22.295	0	18.885	47.881	82.432	142.91
10/13/2018 14:00	51	7	22.848	22.848	880.31	17.48	16.881	29.26	0.279	37.626	49.304	112.4	112.4
10/13/2018 15:00	51	7	66.995	66.995	1124.1	15.482	12.893	15.093	1.267	33.628	40.258	68.758	64.75
10/13/2018 16:00	51	9	4.533	4.533	202.67	20.274	3.743	7.498	1.072	10.354	31.388	20.27	
10/13/2018 17:00	51	7	30.628	30.628	867.06	16.079	19.871	24.143	0.048	23.816	34.39	91.929	
10/13/2018 18:00	51	9	36.863	36.863	783.9	16.652	17.183	19.578	3.515	21.041	40.128	79.945	
10/13/2018 19:00	51	9	8.207	8.207	342.31	19.59	4.244	8.27	0.145	8.771	24.301	21.637	
10/13/2018 20:00	51	7	42.225	42.225	937.34	15.784	28.867	33.462	1.091	20.527	34.94	136.17	
10/13/2018 21:00	51	0	125.07	125.07	1473.5	14.291	2.063	1.842	0.642	0.018	42.628	11.831	
10/13/2018 22:00	51	0	163.89	163.89	1761.8	14.232	2.276	2.015	0.938	0.043	50.509	15.483	
10/13/2018 23:00	51	0	163.86	163.86	1761.5	14.198	2.31	2.035	1.018	0.004	50.239	15.63	
											Startup Total		651.3

3-3

This procedure cannot be applied during startups and shutdowns because these events occur in a span of minutes during which the emissions per minute are added together to determine compliance with mass limits. Since unit startup (Status Code 7) and steady state operation (Status Code 0) can occur in the same hour, LADWP believes that calculating mass emissions per startup minute is a more accurate accounting of startup mass emissions. However, there are instances when startup minutes are deemed invalid and cannot be used in the calculation of startup or shutdown mass emissions. LADWP proposes that only valid minutes should be included in the total mass calculations for startups and shutdowns.

Substituted data at the hourly level should not be enforceable for startup and shutdown mass limits that are accumulated at the minute level. As soon as the startup ends, the NOx mass emissions are no longer accumulated towards determining compliance with mass limits. LADWP recommends omitting the phrase "for the purpose of determining mass emissions" under 218.3(i)(11) and revising the staff report to clarify that substituted data is not enforceable for mass emission and concentration limits and that only valid data will be used for compliance determinations.

3. Timing of Corrective Actions

PAR 218.3 section (f)(2)(A) states "The owner or operator of the CEMS shall make corrective actions within 8 hours of receiving the audible alert." It is not always possible to begin making corrective actions to repair the CEMS during off hours such as holidays and weekends when personnel may not be available. LADWP recommends revising this section to the following: "The owner or operator of the CEMS shall make corrective actions within eight hours of receiving the audible alert, except during off hours such as evenings, holidays, and weekends. The Operator will be allowed up to eight hours from the start of the next business day to begin making corrective actions." 3-4

LADWP requests SCAQMD's consideration of these comments and looks forward to working with SCAQMD on the development and refinement of these rules.

If you have any questions or would like additional information, please contact Ms. Andrea Villarin of my staff at (213) 367-0409.

Sincerely,

Katherine Rubin

Digitally signed by Katherine Rubin
Date: 2022.04.13 10:49:00 -07'00'

Katherine Rubin
Manager of Air and Wastewater Quality and Compliance

LL:

c: Mr. Michael Krauss
South Coast Air Quality Management District

Mr. Gary Quinn
South Coast Air Quality Management District

Ms. Heather Farr
South Coast Air Quality Management District

Ms. Andrea Villarin
Los Angeles Department of Water and Power

Response to Comment Letter #3

Response 3-1: CEMS components identified in its QA/QC plan are, or can be, unique to each system and could have a potential impact on the CEMS performance. Staff understands that some CEMS component modifications for periodic preventative and corrective maintenance may require some certification test. For example, sampler or analyzer filter replacement is preventative maintenance that would require a calibration according to Technical Guidance Documents R-002 (TGD R-002).

For the modification of a component that is identified in its QA/QC plan but not in the certification letter or TGD R-002, the owner or operator is only required to submit a notification and update the QA/QC plan. The owner or operator is not required to submit the application form ST220, or obtain an approval to conduct this type of modification. The notification provides the Executive Officer an opportunity to determine if such modification, especially in a unique case, would impact data accuracy and whether certain test(s) would be required.

Rule 218.2 (f) has been streamlined and codified existing practices for certification and recertification. Maintaining the existing case by case evaluation allows for flexibility to both staff and the CEMS owner who will be made aware of those potentially impacted components. During the Executive Officer's review for approval of the QA/QC plan, staff will be able to work with the owner or operator and determine which, or any, components that will be exempted from the alternative recertification process for a future modification.

Response 3-2: Rule 218.3 proposes to allow a measured heating value of the fuel determined by a method approved by the Executive Officer (see footnote of Table 5). Staff agrees that a heating value determined by gas bills should be considered as a measured heating value.

Response 3-3: Staff recognizes some South Coast AQMD permits or rules may require a mass emission limit with minute increments for a defined startup or shutdown period, and agrees that there is a need to determine mass emissions on a per minute interval.

Staff is proposing to include a method for determining mass emissions for a permit or rule defined startup or shutdown period with minute increments in Rule 218.3. The owner or operator would calculate the mass emissions for each minute using the equations listed in Table 5, except that minute level should be used in the calculation rather than hourly parameters. The mass emissions for all minutes of the period would be totalized to demonstrate compliance. The owner or operator would use data in the

startup period for substitution when data from a startup period is missing and data in the shutdown period for substitution when data from a shutdown period is missing.

Response 3-4: A controlled temperature enclosure/environment is necessary for analyzers to operated properly. When temperature in the analyzer enclosure changes and falls out of manufacturer's recommended range, the analyzer measurements may drift and become inaccurate. Taking corrective action in a timely manner is essential for maintaining data accuracy. The current requirement of making corrective actions within eight hours has included the consideration for both data accuracy and operation practice.

Comment Letter #4

July 21, 2022

Ms. Yanrong Zhu
Air Quality Specialist
South Coast Air Quality Management District
21865 Copley Drive
Diamond Bar, CA 91765
Email: yzhu1@aqmd.gov

Subject: Comments on Revised Proposed Amended Rule 218.3 - Continuous Emission Monitoring System: Performance Specifications

Dear Ms. Zhu:

AES is grateful to have been consulted during the amendment process for Rule 218.3 (Continuous Emission Monitoring System: Performance Specifications) and appreciates the opportunity to comment on the latest version of the Draft Proposed Amended Rule (PAR) 218.3 dated June 10, 2022. AES' comments are as follows:

1. AES supports the addition of the proposed Low-Level Linearity Performance Test (LLLPT) as a method to quality assure data falling in the "Monitoring Gap" between 95% of a lower span range and 10% of an upper span range. However, the current PAR 218.3 requires a Low-Level Calibration Error (LLCE) test in addition to the LLLPT despite the acceptance criteria of the LLLPT being significantly more stringent. The table below shows reference gas concentrations and allowable error for both tests based on the example contained in the PAR 218.2/218.3 Revised Preliminary Draft Staff Report dated June 2022. For the span ranges in the example, the allowable error of the LLLPT expressed in parts per million (ppm) is as low as 1 ppm while the allowable error for the LLCE is 25 ppm. Therefore, AES believes that with the requirement of the LLLPT the LLCE test is unnecessary for quality assuring the "Monitoring Gap" between ranges. AES requests that the LLCE test requirement be removed for ranges other than the lowest vendor guaranteed span range. 4-1

Lower Range: 0 – 10 ppmv, Upper Range: 0 – 1000 ppmv					
Low-Level Linearity Performance Test (LLLPT)			**Low Level Calibration Error Test (LLCE)**		
Gas Level	Ref. Gas Concentration	Allowable Error (5% of Ref.)	Gas Level (% of Span)	Ref. Gas Concentration	Allowable Error (2.5% of Span)
L	20 ppm	**1 ppm**	5%	50 ppm	**25 ppm**
M	60 ppm	**3 ppm**	10%	100 ppm	**25 ppm**
H	100 ppm	**5 ppm**	20%	200 ppm	**25 ppm**

2. The current PAR 218.3 specifies "10% of Span Range Tested" for the upper value of the Low-Level Linearity Performance Test in Table A-2. AES requests this to be changed to 4-2

"Approximately 10% of Span Range Tested" to allow for minor variation between the requested reference gas concentration ordered and the actual concentration delivered by the gas supplier. 4-2

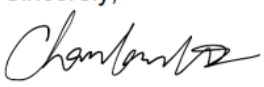
3. The current PAR 218.3 Section (i)(2)(B)(i) is inconsistent with the changes proposed in Section (i)(1)(C). AES recommends Section (i)(2)(B)(i) be updated in accordance with the proposed change to Section (i)(1)(C). 4-3

4. The current PAR 218.3 Section (i)(13)(C) requires data substitution using data from previous completed startups or shutdowns if a startup or shutdown has more than fifty percent of missing 1-minute mass emission data. AES requests the "completed" startups or shutdowns in this rule section to be revised to "successfully completed" startups or shutdown, so that data from completed but non-representative startups or shutdowns due to equipment breakdown issues would be excluded from emission calculations. 4-4

5. The current PAR 218.3 Section (i)(11)(A) requires data substitution for hourly pollutant concentration, stack flow, and pollutant mass emission rate for any hour with missing data. AES requests update of the rule language in this section to clarify the definition of "any hour". The current PAR 218.3 Section (i)(4)(A) defines how the hourly average should be calculated based on the number of 15-minute quadrants with valid data in the unit operating hour and if maintenance or quality assurance activities occurred during the operating hour. AES suggests the current PAR 218.3 Section (i)(11)(A) be updated to only require data substitution on any hour that does not meet the emission data averaging requirements outlined in the current PAR 218.3 Section (i)(4)(A). 4-5

Please feel to contact us with any questions.

Sincerely,



Charlene He
Environmental Manager
AES Alamitos Energy

Ben Morgan
Environmental Manager
AES Huntington Beach Energy

cc: Weikko Wirta/AES Southland Energy
Heather Farr/South Coast AQMD
Michael Krause/ South Coast AQMD
Dipankar Sarkar/ South Coast AQMD
Bill Welch/ South Coast AQMD

The AES Corporation | 21730 Newland Street | Huntington Beach, CA 92646

Response to Comment Letter #

Response 4-1: Staff agrees with the commentor and has updated the proposed rule language to not require longer LLCE test requirements for ranges other than the lowest vendor guaranteed span range.

Response 4-2: Staff agrees and updated Table A-2 to include the term "Nominal Concentration at 10% of Span Range Tested.".

Response 4-3: Staff agrees and revised Rule 218.3 clause (i)(2)(B)(i) to be consistent with the proposed revision to Rule 218.3 subparagraph (i)(1)(C).

Response 4-4: Staff agrees and incorporated the commenter's suggestion.

Response 4-5: To clarify the requirement, staff has included the sentence "any hour without sufficient valid data points required by subparagraph (i)(4)(A)" to provide more specificity for the hours requiring a data substitution.

Comment Letter #5

August 2, 2022

Ms. Yanrong Zhou
South Coast Air Quality Management District
21865 Copley Drive
Diamond Bar, CA 91765

Dear Ms. Zhou:

Subject: Los Angeles Department of Water and Power's (LADWP) Comments on Proposed Amended Rule 218.2 – Continuous Emission Monitoring System: General Provisions, and Proposed Amended Rule 218.3 – Continuous Emission Monitoring System: Performance Specifications

LADWP appreciates the opportunity to provide comments on the proposed amendments to Rule 218.2 – Continuous Emission Monitoring System: General Provisions, and Rule 218.3 – Continuous Emission Monitoring System: Performance Specifications. LADWP is commenting on the proposed amended rule language presented during the Public Workshop held on June 8, 2022.

Comments on Proposed Amendments to Rule 218.3

1. Mass Calculation During Startup and Shutdown
   Comment 1: In the comment letter submitted on April 13, 2022, LADWP demonstrated that NOx mass emissions are calculated every minute during startup and shutdown since the permit time limit for these events are in minutes, not hours. LADWP appreciates SCAQMD's proposal to include a procedure for calculating mass emissions at the minute level during startup and shutdown in the rule language. 5-1

2. Data Substitution Procedure
   Comment 2: In the comment letter submitted on April 13, 2022, LADWP expressed the need for a Missing Data Procedure (MDP) at the minute level during startup and 5-2

111 N. Hope Street, Los Angeles, California 90012-2607 Mailing Address: PO Box 51111, Los Angeles, CA 90051-5700
Telephone (213) 367-4211 ladwp.com

Ms. Zhou
August 2, 2022

shutdown. LADWP appreciates SCAQMD's response by adding Section (i)(13) – Data Substitution for Missing Minute Data for Startup and Shutdown.

However as mentioned in the letter, some of LADWP's units have both a NOx mass (lbs) and a NOx mass rate (lbs/hr) limit for startup. While data substitution procedure at the minute level for NOx mass during startup was addressed in Section (i)(13), the data substitution procedure for hourly NOx mass rate during startup has not been addressed. 5-2

Comment 3: Section (i)(13)(B) MDP requires the use of the average of startup valid minutes for substitution if the total number of minutes with no valid data add up to less than fifty percent of the startup/shutdown duration. Plant operators closely monitor the NOx mass accumulation each minute during startup to ensure compliance with permit limits. Since they have to make quick operational decisions based on real time data, waiting for the startup to conclude to calculate the average value for the MDP makes it difficult to ensure compliance with the mass emission limit. LADWP suggests taking the minute average of the last successful start to substitute for invalid minutes for startups with less than fifty percent invalid data. This procedure would provide immediate data that operators need to make operational decisions. 5-3

Comment 4: For both Sections (i)(13)(B) and (C) MDP, LADWP suggests that the data used for substitution be captured from a similar startup category. For example, combined cycle unit startups are categorized as either cold or non-cold. NOx emissions are higher during cold startups compared to non-cold startups. Using emissions data during a cold startup to substitute for missing data during a non-cold startup may result in an exceedance of the NOx mass permit limit for a non-cold startup. In addition, data used for substitution should be captured from successfully completed startups and shutdowns. LADWP suggests the following changes to (i)(13)(C)(i) and (ii): 5-4

(i) The previous 10 **successfully** completed startups or shutdowns
(ii) All **successfully** completed startups or shutdowns that occurred during the 12-month period prior to the most recent startup or shutdown.

:

Ms. Zhou
August 2, 2022

Determination of Startup Duration when CEMS Data is Invalid

Comment 5: During a previous discussion with SCAQMD, LADWP cited instances when the CEMS goes out of control during startup and the exact time when compliance is finally achieved cannot be determined because the startup timer would continue counting startup minutes. For situations like this, AQMD suggested that the startup should end at the permit time limit. The mass accumulated will be determined based on the permit time limit. This solution, however, could result in the overcounting of mass emissions and consequently, the exceedance of the mass permit limit especially in cases when startup ends prior to reaching the permit time limit. LADWP suggests that AQMD reference ***Rule 429.2 - Start-Up and Shutdown Exemption Provisions for Oxides of Nitrogen from Electricity Generating Facilities*** where the end of startup is defined in Section (d)(4) as when the unit reaches stable conditions, the NOx post-combustion control equipment reaches minimum operating temperature, and all post-combustion NOx control equipment are fully deployed.

5-5

Online Calibration

Comment 6: Rule 218.3 requires calibration to be performed when the unit is operating. To minimize invalid data during startups, it is ideal to conduct calibration after the startup is completed. However, there are some instances in which the unit (peaking units in particular) can be called offline shortly after completion of startup, leaving very little time to complete an online calibration. LADWP requests that SCAQMD consider a calibration valid if initiated while the unit is online and completed after the unit shuts down. LADWP suggests the following rule language:

"In the event the generating unit has to shut down while a calibration is in progress, the calibration shall be allowed to proceed completion and shall be deemed valid.

5-6

LADWP requests SCAQMD's consideration of these comments and looks forward to working with SCAQMD on the development and refinement of these rules.

If you have any questions or would like additional information, please contact Ms. Andrea Villarin of my staff at (213) 367-0409.

Sincerely,

Katherine Rubin

Digitally signed by Katherine Rubin
Date: 2022.08.02 16:10:15 -07'00'

Katherine Rubin
Director of Environmental Affairs

LL:
c: Mr. Michael Krauss
South Coast Air Quality Management District

Ms. Heather Farr
South Coast Air Quality Management District

Ms. Andrea Villarin
Los Angeles Department of Water and Power

Response to Comment Letter #5

Response 5-1: Thank you for the comment.

Response 5-2: Proposed Amended Rule 218.3, as a general CEMS guidance rule, is proposing to include mass emission calculation and data substitution method for mass emissions with minute increments for a defined startup or shutdown period and mass emission with hour increments for general operation. Staff understands LADWP has a unique permit condition that for a defined startup or shutdown period (e.g., a cold startup of 166 minutes) the permit requires both a NOx mass (lbs) and a NOx mass rate (lbs/hr). Proposed Amended Rule 218.3 paragraphs (i)(12) and (i)(13) can be referenced to determine the NOx mass (lbs) for a startup or shutdown period. Proposed Amended Rule 218.3 paragraphs (i)(10) and (i)(11) for the general hourly data handling may be referenced for the mass emission rate (lbs/hr) if the permit condition intends it to be determined by block hours. Staff has consulted the permitting staff and verified that it is not common to have both emissions limits on mass and mass rate for the same period, and it can be very specific for the unit on the determination. Staff suggests it is more appropriate to specify this determination in the permit condition, rather than in Rule 218.3.

Response 5-3: Staff is proposing to incorporate this comment by adding an option for using the one-minute mass emission average of the previous successfully completed startup or shut down for data substitution if the sum of the missing data minutes is less than or equal to fifty percent of all the minutes for the period.

Response 5-4: Current Rule 218.3 proposal aligns with both points that the commenter suggests. The rule intends that the data used for substitution should be captured from a similar startup category. The staff report has noted that data evaluated for substitution for the missing minutes should have the same operation status. For further clarification, staff has updated the staff report adding that if a permit or rule defines a more specific operation status, such as cold startup, only cold startup emissions can be substituted with cold startup emissions. The rule has also added "successfully" to the corresponding language under Rule 218.3 paragraph (i)(13).

Response 5-5: Proposed Amended Rule 218.3 provides guidance on how mass emissions should be determined for a startup or shutdown period defined by a permit or rule but does not define the length of the startup or shutdown period. Staff suggests it is more appropriate to specify a startup or shutdown period in the permit condition with the consideration of Rule 429.2 specifications for electricity generating facilities.

Response 5-6: Rule 218.3 does not require calibration to be performed when the unit is operating. Staff understands this difference between Rule 218.3 and U.S. EPA CFR Part 75 for Electricity Generating Facilities regarding the unit operational status requirement during a calibration.

ATTACHMENT H

South Coast
Air Quality Management District
21865 Copley Drive, Diamond Bar, CA 91765-4178
(909) 396-2000 • www.aqmd.gov

SUBJECT: **NOTICE OF EXEMPTION FROM THE CALIFORNIA ENVIRONMENTAL QUALITY ACT**

PROJECT TITLE: **PROPOSED AMENDED RULE 218.2 – CONTINUOUS EMISSION MONITORING SYSTEM: GENERAL PROVISIONS, AND PROPOSED AMENDED RULE 218.3 – CONTINUOUS EMISSION MONITORING SYSTEM: PERFORMANCE SPECIFICATIONS**

Pursuant to the California Environmental Quality Act (CEQA) Guidelines, the South Coast Air Quality Management District (South Coast AQMD), as Lead Agency, has prepared a Notice of Exemption pursuant to CEQA Guidelines Section 15062 – Notice of Exemption for the project identified above.

If the proposed project is approved, the Notice of Exemption will be filed for posting with the county clerks of Los Angeles, Orange, Riverside, and San Bernardino Counties. The Notice of Exemption will also be electronically filed with the State Clearinghouse of the Governor's Office of Planning and Research for posting on their CEQAnet Web Portal which may be accessed via the following weblink: https://ceqanet.opr.ca.gov/search/recent. In addition, the Notice of Exemption will be electronically posted on the South Coast AQMD's webpage which can be accessed via the following weblink: http://www.aqmd.gov/nav/about/public-notices/ceqa-notices/notices-of-exemption/noe---year-2022.

NOTICE OF EXEMPTION FROM THE CALIFORNIA ENVIRONMENTAL QUALITY ACT (CEQA)

To:	County Clerks for the Counties of Los Angeles, Orange, Riverside and San Bernardino; and Governor's Office of Planning and Research – State Clearinghouse	**From:**	South Coast Air Quality Management District 21865 Copley Drive Diamond Bar, CA 91765

Project Title: Proposed Amended Rule 218.2 – Continuous Emission Monitoring System: General Provisions, and Proposed Amended Rule 218.3 – Continuous Emission Monitoring System: Performance Specifications

Project Location: The proposed project is located within the South Coast Air Quality Management District's (South Coast AQMD) jurisdiction, which includes the four-county South Coast Air Basin (all of Orange County and the non-desert portions of Los Angeles, Riverside, and San Bernardino counties), and the Riverside County portion of the Salton Sea Air Basin and the non-Palo Verde, Riverside County portion of the Mojave Desert Air Basin.

Description of Nature, Purpose, and Beneficiaries of Project: Amendments to Rules 218.2 and 218.3 are proposed that will complement recent rule development efforts for command-and-control rules with continuous emission monitoring system (CEMS) requirements. Proposed Amended Rule (PAR) 218.2 will: 1) include more specificity to the Executive Officer's discretion on CEMS recertification requirements and the exemption provision; 2) extend the recordkeeping period; and 3) provide more time for submitting the relative accuracy test audit (RATA) report. PAR 218.3 will: 1) include an option to validate and accept data that would fall in a monitoring gap for dual range analyzers; 2) add specifications for conducting mass emission calculations data substitution procedures; 3) clarify the method for linearity error checks; and 4) include more specificity to the Executive Officer's discretion on the exemption provision.

Public Agency Approving Project:	**Agency Carrying Out Project:**
South Coast Air Quality Management District	South Coast Air Quality Management District

Exempt Status:
CEQA Guidelines Section 15061(b)(3) – Common Sense Exemption

Reasons why project is exempt: South Coast AQMD, as Lead Agency, has reviewed the proposed project (PAR 218.2 and PAR 218.3) pursuant to: 1) CEQA Guidelines Section 15002(k) – General Concepts, the three-step process for deciding which document to prepare for a project subject to CEQA; and 2) CEQA Guidelines Section 15061 – Review for Exemption, procedures for determining if a project is exempt from CEQA. The proposed project provides updates to technical guidelines for operating CEMS as required by South Coast AQMD rules or permit conditions without requiring physical modifications to occur. Thus, it can be seen with certainty that implementing the proposed project would not cause a significant adverse effect on the environment. Therefore, the proposed project is exempt from CEQA pursuant to CEQA Guidelines Section 15061(b)(3) – Common Sense Exemption.

Date When Project Will Be Considered for Approval (subject to change):
South Coast AQMD Governing Board Public Hearing: September 2, 2022

CEQA Contact Person:	**Phone Number:**	**Email:**	**Fax:**
Kevin Ni	(909) 396-2462	kni@aqmd.gov	(909) 396-3982
Rules Contact Person:	**Phone Number:**	**Email:**	**Fax:**
Yanrong Zhu	(909) 396-3289	yzhu1@aqmd.gov	(909) 396-3982

Date Received for Filing: _____ **Signature:** *(Signed and Dated Upon Board Approval)*

Barbara Radlein
Program Supervisor, CEQA
Planning, Rule Development, and Implementation

Proposed Amended Rule 218.2

Continuous Emission Monitoring System: General Provisions

Proposed Amended Rule 218.3

Continuous Emission Monitoring System: Performance Specifications

Board Meeting

September 2, 2022

South Coast AQMD

Background

- Continuous Emission Monitoring System (CEMS) rules provide specifications for CEMS installation and operation
- Rules 218.2 and 218.3 adopted on March 5, 2021:
  - Applies to former RECLAIM CEMS and Non-RECLAIM CEMS*
  - Aligns CEMS requirements for RECLAIM facilities as they transition to a command-and-control regulatory structure
- Staff has been monitoring Rules 218.2 and 218.3 implementation
  - Issues identified that require amendments

* *RECLAIM CEMS are currently subject to Rules 2011 and 2012; Non-RECLAIM CEMS were previously subject to Rules 218 and 218.1*

Proposed Rule Amendments

Key Revisions

- Includes new mass emission calculation and missing data procedure
- Includes new data validation for dual range analyzer

Other Revisions

- Includes specificity for recertification and exemption
- Provides more time for relative accuracy test audit report submittal
- Clarifies linearity error test procedure
- Extends the recordkeeping from a minimum period of two years to three years

Procedures for Mass Emissions

Rules 218.2 and 218.3 developed for command-and-control concentration limits

- Includes data handling procedures for concentration limits

Several recently adopted landing rules for facilities transitioning out of RECLAIM include mass-based limits

- Need data handling procedures for mass emissions

Mass emission calculation and data substitution proposed for:

- General operation; and
- Rule and permit defined startup or shutdown with a mass emission limit in minute interval

Table 5 - Mass Emission Calculation Equations

Mass Emission Calculation	Eq. #	Equation*	Where:
Based on stack gas concentration and volumetric flow rate	9	$e = a \times c \times 1.214 \times 10^{-7}$	e = The mass emissions of nitrogen oxides in pounds per hour. a = The stack gas concentration of nitrogen oxides averaged hourly (ppmv). c = The stack gas volumetric flow rate averaged hourly (scfh).
Based on stack gas concentration, heat input rate, and oxygen concentration ***(Oxygen F factor approach)***	10	$e = a \times c_f \times 1.214 \times 10^{-7}$ $c_f = [20.9/(20.9 - b)] \times (F \times d \times V)$	e = The mass emissions of nitrogen oxides in pounds per hour. a = The stack gas concentration of pollutant averaged hourly (ppmv). c_f = The stack gas flow rate determined by oxygen-based F factor approach averaged hourly (scfh). b = The stack gas concentrations of oxygen measured (%). F = The oxygen-based dry F factor for the type of fuel (scf/10^6 Btu). d = The fuel flow rate for the type of fuel measured. V = The higher heating value of the fuel**.
Based on stack gas concentration, heat input rate, and carbon dioxide concentration ***(Carbon dioxide F factor approach)***	11	$e = a \times c_{fc} \times 1.214 \times 10^{-7}$ $c_{fc} = (F_c \times d \times V) \times 100/t$	e = The mass emissions of nitrogen oxides in pounds per hour. a = The stack gas concentration of pollutant averaged hourly (ppmv). c_{fc} = The stack gas flow rate determined by carbon dioxide-based F factor approach averaged hourly (scfh). F_c = The carbon dioxide -based dry F factor for the type of fuel (scf/10^6 Btu). d = The fuel flow rate for the type of fuel measured. V = The higher heating value of the fuel**. t = The stack gas concentrations of carbon dioxide measured (%).

*NOx conversion factor 1.214×10^{-7} is based on standard temperature of 60°F.
** Default value in Table 6, if applicable, or as measured in a method approved by the Executive Officer.

Dual Range Analyzer

Existing requirement

- Results in data gap that potentially overestimates emissions

Proposed amendment

- Includes data validation procedure to minimize the data gap

- To utilize this option, the CEMS should meet the Supplemental and Alternative Performance Requirements in Attachment A of Rule 218.3

Impacts and Key Issues

No additional cost expected from the proposed amendment

- CEMS rules provide administrative and technical guidelines
- Proposed amendment provides clarification, alternative options, and additional guidance

No anticipated socioeconomic impacts

Staff is not aware of any key remaining issues

Staff Recommendations

- Adopt the Resolution:
  - Determining that Proposed Amended Rule 218.2, and Proposed Amended Rule 218.3 are exempt from the requirements of the California Environmental Quality Act; and
  - Amending Rule 218.2 and Rule 218.3