

Proposed Amended Rule 218.2

Continuous Emission Monitoring System: General Provisions

Proposed Amended Rule 218.3

Continuous Emission Monitoring System: Performance Specifications

Working Group Meeting #2

February 24, 2022

Join Zoom Meeting - from PC or Laptop

<https://scaqmd.zoom.us/j/99223468352>

Zoom Webinar ID: 992 2346 8352 (applies to all)

Teleconference Dial In +1 669 900 6833

Agenda

- Background
- Summary of Working Group Meeting #1
- Proposed Revisions
- Next steps

Background

- Rule 218 series are CEMS monitoring rules that provide:
 - Guidance and specifications for the CEMS installation and operation
 - Ensure accuracy and precision of the CEMS data

Rules 2011 and 2012


- RECLAIM CEMS prior to the facility exiting RECLAIM

Rules 218 and 218.1

- Non-RECLAIM CEMS prior to Rules 218.2 and 218.3 compliance date

Rules 218.2 and 218.3

- Non-RECLAIM and former RECLAIM CEMS

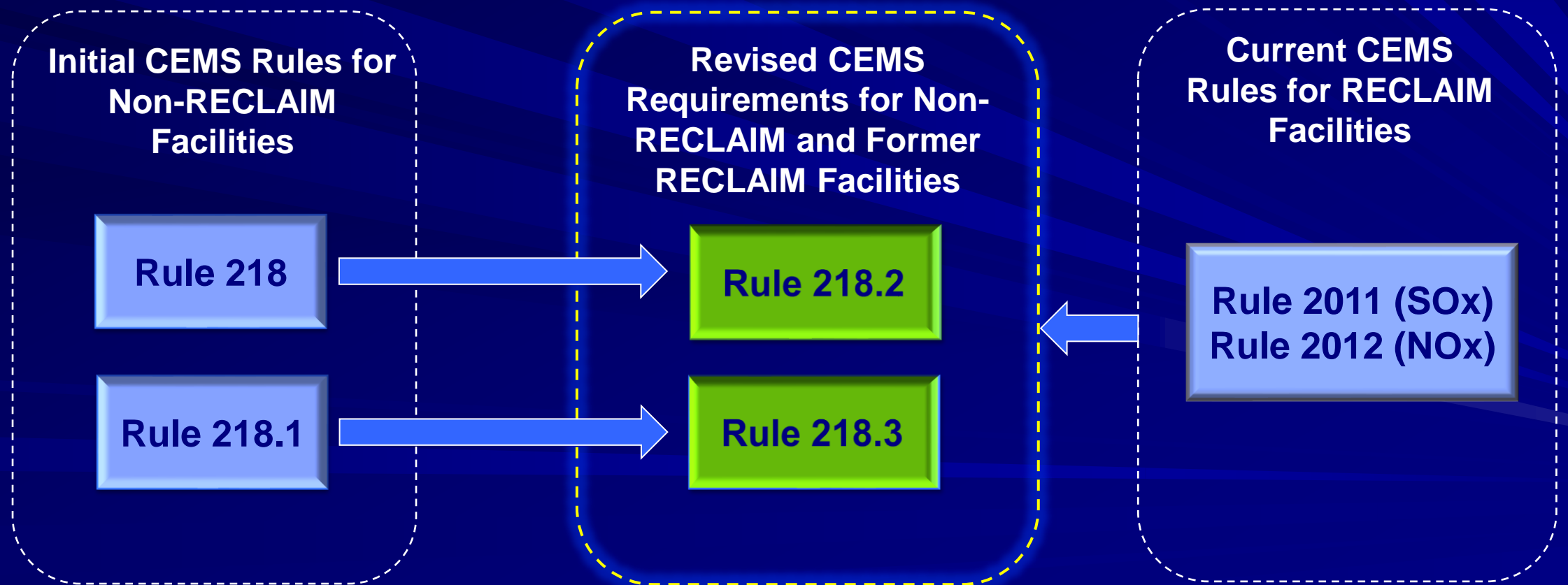
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- Align CEMS requirements as RECLAIM facilities transition out of RECLAIM
 - Streamline and clarify existing CEMS provisions
 - Codify existing practices

■ March 2021

- 218.2 and 218.3 were adopted
- 218 was amended to include transition to 218.2 and 218.3

Background - Rule Approach

Rules 218.2 and 218.3 are applicable to CEMS in Non-RECLAIM and former RECLAIM facilities with an implementation schedule



Summary of Working Group Meeting #1 (Jan. 2022)

- Concerns were raised that a rule amendment would be necessary
 - Mass emission calculation specifications needed (currently not addressed)
 - Emissions over reported when there is a monitoring gap for some dual range analyzers
- Staff recommended:
 - Initiate a rule amendment process to address concerns
 - Continue to monitor the rule implementation

Proposed Revisions

Executive Officer's
Discretion on
Recertification
(Rule 218.2)

Dual Range
Analyzer
(Rule 218.3)

Mass Emission
Calculation
Method
(Rule 218.3)

Missing Data
Procedure
(Rule 218.3)

Executive Officer's Discretion on Recertification

- Rule 218 series requires certain case-by-case evaluations during CEMS certification/recertification
- Executive Officer's discretion may be required for some unique cases, addressed with rule language such as:
 - *“Determined by the Executive Officer that...”*
 - *“...unless the Executive Officer determines that...”*
- EPA advised staff to include more specificity to provisions that allow for Executive Officer's discretion

Executive Officer's Discretion on Recertification

- Staff is proposing the following revision to Rule 218.2 subparagraph (f)(1)(B) for additional specification

- (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).

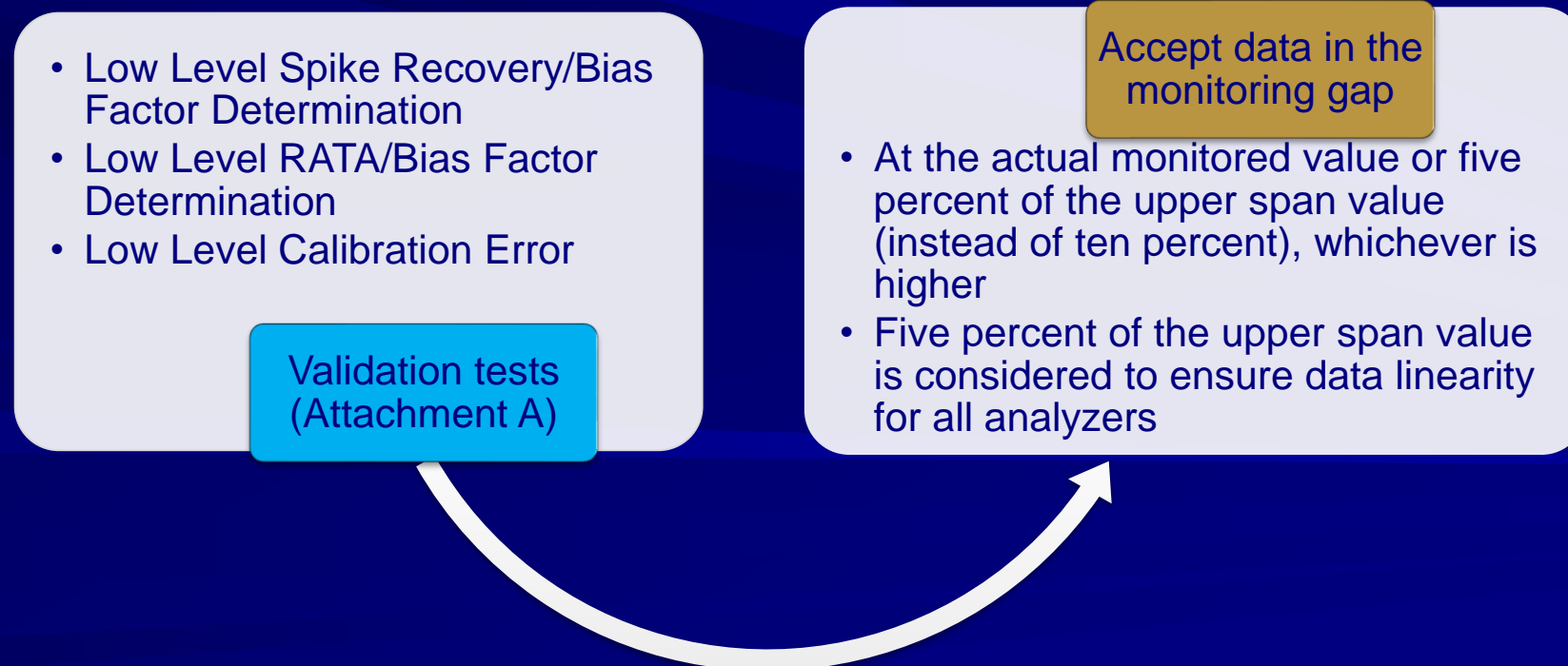
Dual Range Analyzer

- For a dual range span analyzer, when 95 percent of the lower span does not overlap with 10 percent of the higher span, an unintended monitoring gap results
- Rule 218.3 requires the data to be reported as 10 percent of the higher span, overestimating the emissions
 - Stakeholders raised a concern that this overestimation could place the equipment out of compliance
- In addition to the current requirement, staff is considering an option to validate the data in the monitoring gap



Dual Range Analyzer

- For this additional option, staff is proposing to validate and accept data in the monitoring gap at the actual monitored value or five percent of the upper span value (instead of 10 percent), whichever is higher
- To utilize this option, the CEMS should meet the Supplemental and Alternative Performance Requirements in Attachment A of Rule 218.3



Mass Emission Calculation

- Rules 218.2 and 218.3 developed for compliance with command-and-control pollutant concentration limits
 - Mass emission calculation not currently addressed
- Some landing rules include mass emission limit compliance options
 - Rules 1117, 1135, and 1109.1
- Rules 218.2 and 218.3 need to specify data handling for mass emissions

Mass Emission Calculation

- Staff is proposing to include three calculation methods (equations) for hourly mass emission rates:
 - Stack gas concentration and volumetric flow rate;
 - Stack gas concentration, heat input rate and oxygen concentration; or
 - Stack gas concentration, heat input rate and carbon dioxide concentration

Mass Emission Calculation	Eq. #	Equation	Where:
Based on stack gas concentration and volumetric flow rate	9	$e = a \times c \times 1.195 \times 10^{-7}$	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 (<i>Oxygen F factor approach</i>)	10	$e = a \times c_f \times 1.195 \times 10^{-7}$ $c_f = [20.9 / (20.9 - b)] \times (F \times d \times V)$	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 (<i>Carbon dioxide F factor approach</i>)	11	$e = a \times c_{f/c} \times 1.195 \times 10^{-7}$ $c_{f/c} = (F_c \times d \times V) \times 100/t$	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 (%).

Missing Data Procedure

- Mass emission limits must be demonstrated for specific averaging periods (e.g., 24 hours or 365-day rolling average)
- CEMS may have missing data for some periods of time due to maintenance or system malfunctioning
 - Missing data procedure required to fill data gaps for the mass emission calculation
- Staff has evaluated missing data procedures in 40 CFR Part 75, Regulation XX, and Rule 1109.1

Missing Data Procedure

- Staff proposes a simplified procedure as shown below, aligning with the missing data procedure specified in Rule 1109.1

Missing data period \leq 8 hours



Calculate missing data using the average of the recorded mass emissions for the hour immediately before the missing data period and the hour immediately after the missing data period

Missing data period $>$ 8 hours



Calculate missing data using the maximum hourly mass emissions recorded for the previous 30 days, commencing on the day immediately prior to the day the missing data occurred

Next Steps – Rulemaking Process

- Public Workshop – April 2022
- Public Hearing – June 3, 2022

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