Requirements for Continuous Emission Monitoring

Proposed Amended Rules (PAR) 218 and 218.1

Working Group Meeting #3

June 11, 2019
1:30 pm

Teleconference number: 1-888-450-5996
Passcode: 794566

South Coast AQMD Headquarters
Diamond Bar, California

Agenda

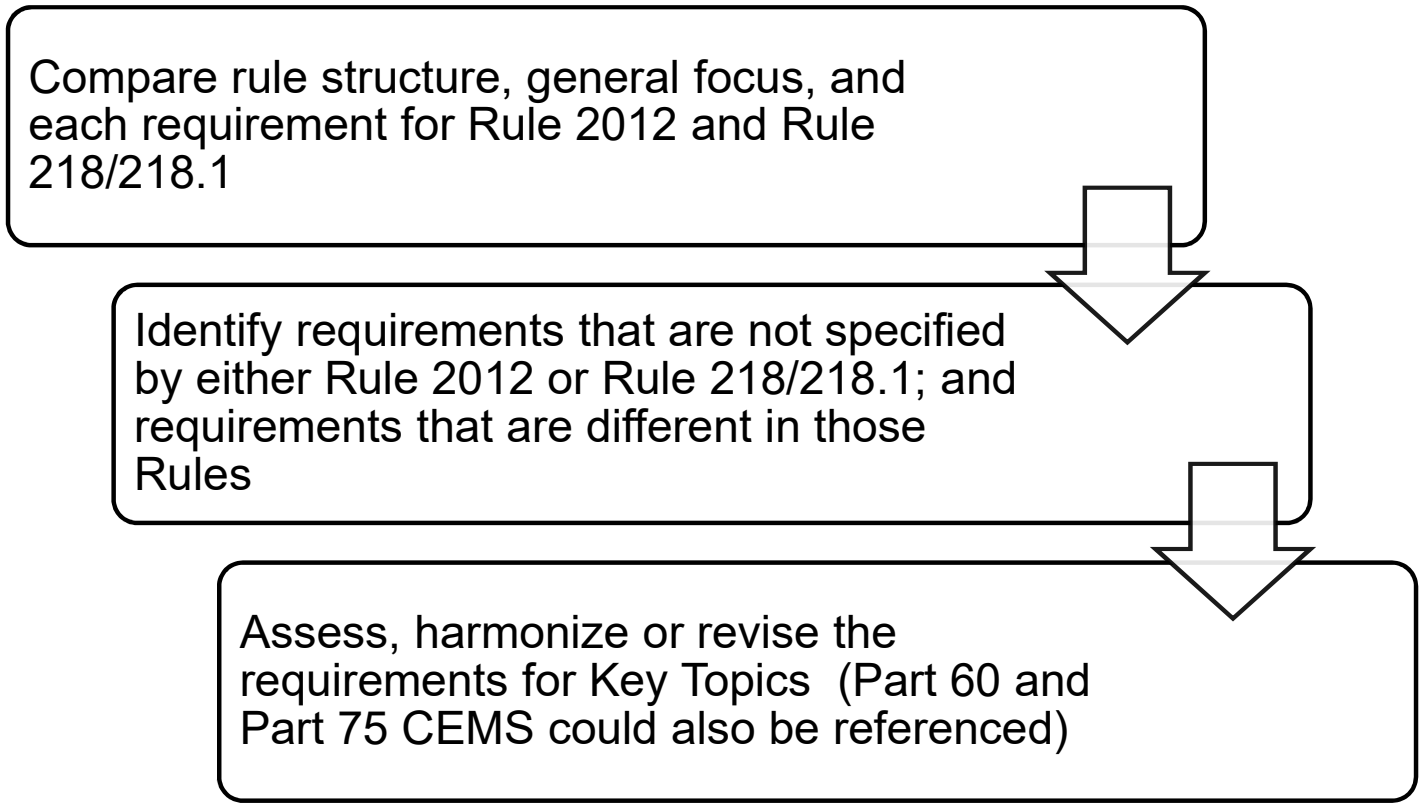
- Background and Approach
- Progress of Key Topic Discussion
- Key Topics for Working Group (WG) #3 Discussion
- Next Step

Background and Approach

Background

- RECLAIM is transitioning to a command-and-control structure
- Current monitoring, reporting, and recordkeeping (MRR) requirements on CEMS are defined by:
  - Rule 218 and 218.1 for non-RECLAIM facilities
  - Rule 2012 Chapter 2 for RECLAIM facilities
- Landing Rules provide temporary MRR solution for facilities exiting RECLAIM
- PAR 218 and 218.1 requirements would apply to
  - Non-RECLAIM facilities; and
  - Facilities that have exited RECLAIM

Approach for PAR 218 and 218.1

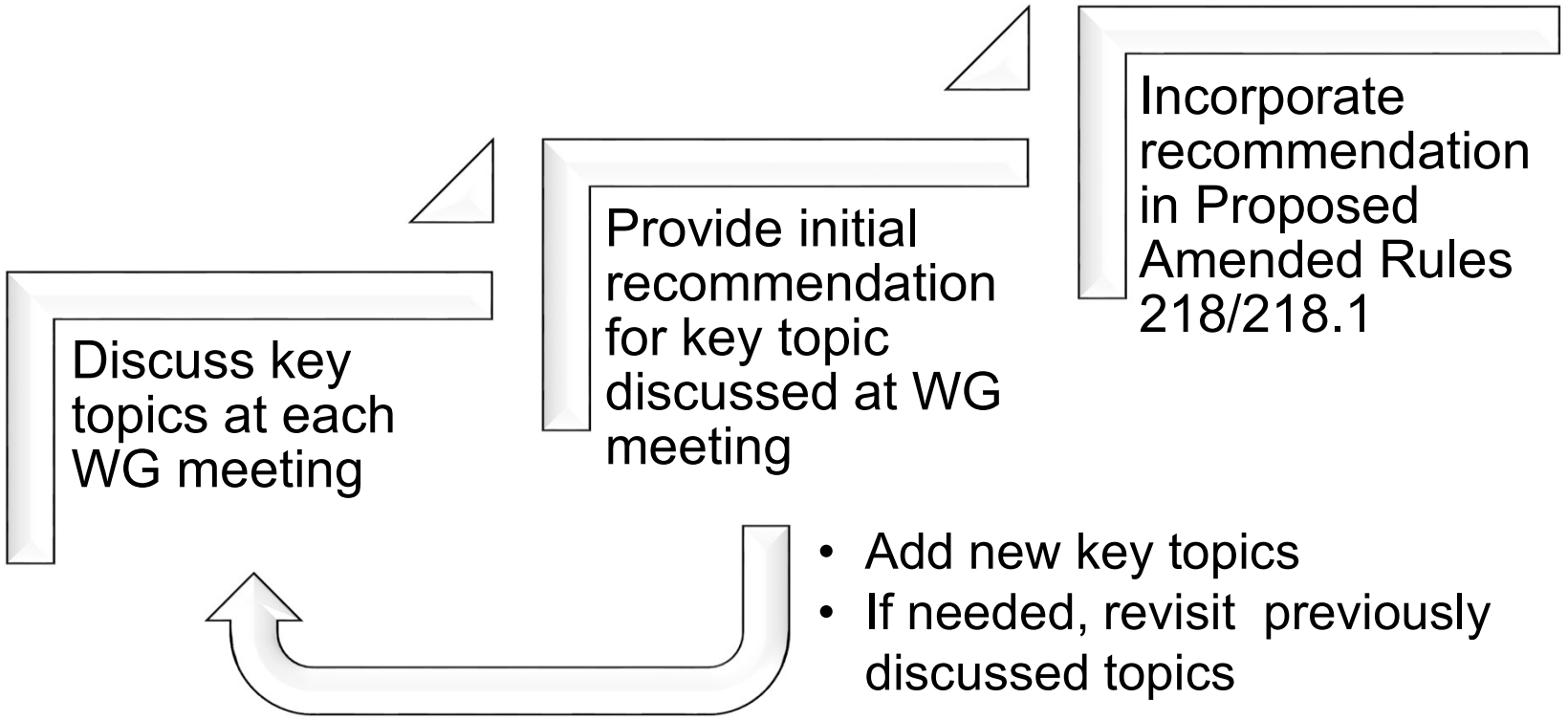


PAR 218 and 218.1 vs. Landing Rules for CEMS

- Relationship between PAR 218 and 218.1 and landing Rules
  - Source-specific landing rules determine the applicability of CEMS for a unit
  - PAR 218/218.1 focuses on requirements for CEMS certification and on-going performance
- In cases where CEMS requirements (e.g., data averaging method) are located elsewhere
  - CEMS requirements in source-specific rule or permit conditions may supersede the comparable requirements in PAR 218/218.1 if they are equally or more stringent

Progress of Key Topic Discussion

Overall Approach to Address Key Topics*



*Key topics related to proposed rule language

Progress of Key Topics Discussion

Key Topics	Discussion	Initial Recommendation
1. PAR 218/218.1 Applicability	Applicable to all pollutants, but the focus of this amendment will be on NOx MRR requirements	No changes to applicability
2. Semi - Continuous Emission Monitoring System (SCEMS)	• R218/218.1 includes time-shared CEMS in SCEMS definition • Rule 2012 has specification on time-shared CEMS • No impact to NOx sources to retain R218/218.1 SCEMS requirements	• No changes to definition of SCEMS • Retain SCEMS requirements in PAR 218/218.1

Progress of Key Topics Discussion – cont.

Key Topics	Discussion	Initial Recommendation
3. NO2 to NO Conversion efficiency test	Specified in Rules 218/218.1 but not in Rule 2012	Require NO2 to NO conversion efficiency test
4. Reporting excess emissions	Would impact RECLAIM CEMS of non-Title V sources that report all mass emissions but not excess emissions	Require reporting excess emissions for all units with CEMS
5. The standards for "existing" CEMS	Obsolete requirements in Rules 218/218.1	Remove the requirement

Progress of Key Topic Discussion – cont.

Key Topics	Discussion	Initial Recommendation
6. Full Span Range (FSR)	With concentration limit being established for facilities exiting RECLAIM, their Full Span Range should be aligned with the Rules 218/218.1 requirements	Use the Rules 218/218.1 requirements (Additional recommendations may be discussed in future WG meetings)
7. Missing Data Procedure	Required for RECLAIM sources, but no longer needed for concentration based monitoring	Remove the requirement

Progress of Key Topic Discussion – cont.

Key Topics	Discussion	Initial Recommendation
8. Strip chart recorder	The existing CEMS Data Acquisition and Handling System (DAHS or DAS) would be sufficient	Remove the requirement
9. Quality assurance (QA) test report submittal	• Not required by Rules 218/218.1 • Required by Rule 2012 • RECLAIM facilities submit QA test report summary by Electronic Data Reporting (EDR)	Require all PAR 218/218.1 facilities submit QA test report for all applicable pollutants via EDR

Progress of Key Topic Discussion – cont.

Key Topics	Discussion	Initial Recommendation
10. PAR 218/218.1 alignment with EPA's Part 75	Discussion at WG Meeting 3	Pending
11. CEMS data availability threshold	Discussion at WG Meeting 3	Pending
12. CEMS measuring low emissions	Discussion at WG Meeting 3	Pending
13. Certification testing	Discussion at WG Meeting 3	Pending

Progress of Key Topic Discussion – cont.

Key Topics	Discussion	Initial Recommendation
14. Recertification and diagnostic tests	Discussion at WG Meeting 3	Pending
15. Performance Standards for RATA	Discussion at WG Meeting 3	Pending
6.* Full Span Range requirements – additional recommendations	Future WG Meeting	Pending

* Revisiting this key topic

Progress of Key Topic Discussion – cont.

Key Topics	Discussion	Initial Recommendation
16. The option of complying with Part 60 Appendix B & F (alternative to Rule 218.1 standards)	Future WG Meeting	Pending
17. Valid Hour and Hourly Average	Future WG Meeting	Pending
18. Alternative data acquisition when CEMS is out of control	Future WG Meeting	Pending
19. Calibration Gas	Future WG Meeting	Pending
Other Topics	Future WG Meeting	Pending

Key Topics for WG #3 Discussion

Key Topics for Today's WG Meeting

Key Topic #

10. PAR 218/218.1 alignment with EPA's Part 75
11. CEMS data availability threshold
12. CEMS measuring low emissions
13. Certification testing
14. Recertification and diagnostic tests
15. Performance Standards for RATA

Key Topic #10

PAR 218/218.1 Alignment with EPA's Part 75 Quarterly Audit

	R218/218.1	EPA Part 75
Quarterly Audit	Cylinder Gas Audit (CGA): • Can be conducted off-line • For 3 quarters a year • 2-point test (20% - 30% and 50% - 60% of span) (not required for 80% - 100%)	Linearity check: • Cannot be conducted off-line • For all 4 operating quarters • 3-point test (20% - 30%, 50% - 60%, and 80% - 100% of span) • Low NOx scale with a span value ≤30 ppm is exempt

Key Topic #10

PAR 218/218.1 Alignment with EPA's Part 75 – Initial Recommendation – Quarterly Audit

- PAR 218/218.1 should continue to require CGA instead of linearity check
  - Linearity check is exempt in Part 75 for NOx/SOx analyzers with span lower than 30 ppm, while an analyzer at or below this span level is common for CEMS in this area
  - As Part 75 is only for NOx/SOx CEMS, PAR 218/218.1 are also applicable for analyzers of other pollutants which still need to comply with CGA requirement
  - Part 75 linearity check data could be used for CGA calculation and demonstrate compliance with CGA requirement
- May allow linearity check as an alternative in complying with CGA requirement

Key Topic #10

PAR 218/218.1 Alignment with EPA's Part 75 Unit Operation Requirements

	218/218.1	EPA's Part 75
Unit operation requirement for Certification and ongoing QAQC tests	<u>May be performed while the unit is not operating (off-line)</u> • 7-day calibration drift • Response test • Daily calibration • Cylinder Gas Audit (CGA) • NOx converter efficiency <u>Must be performed on-line</u> • Relative Accuracy Test Audit (RATA) • Sampling system Bias Check	**<u>Must</u>** <u>be performed while the unit is operating (on-line)</u> • 7-day calibration drift • Response test • Daily calibration (off-line calibration conditionally allowed) • Linearity check • RATA

Key Topic #10

PAR 218/218.1 Alignment with EPA's Part 75 – Initial Recommendation – Unit Operation

- PAR 218/218.1 should continue to allow certain tests to be conducted off-line
  - PAR 218/218.1 CEMS monitored units may often have off-line time
  - Part 75 on-line testing are more suitable for units that are expected to be in continuous operation

Key Topic #11

CEMS Data Availability Threshold Requirements

- Both R2012 and R218/218.1 define data availability
  - Additional clarification needed in R218/218.1 to minimize misinterpretation
- R2012 does not include a data availability threshold
  - R2012 has Missing Data Procedures that discourages data availability to become low
  - Missing Data Procedures provide a similar objective as a data availability threshold
- Current R218/218.1 has defined a threshold of 95% data availability that may retrigger recertification

CEMS Data Availability Threshold - Initial Recommendations

Key Topic #11

- Clarify the definition and calculation method for data availability (40 CFR 75.32 definition on data availability could be referenced)
- When data availability falls below 95%, potential requirements could be triggered, for example:
  - Reporting, assessing the system, revising the QAQC plan, conducting certain diagnostic tests, more frequent RATA, or others
  - Alternative monitoring for a prolonged period (e.g., two consecutive calendar quarters) of low data availability
- Exclude the startup and shutdown hours allowed by permit condition from data availability calculation

Key Topic #12

CEMS Measuring Low Emissions

- Discussion
  - CEMS typically measures NOx emissions below 10 ppm
  - Stakeholders expressed difficulty meeting a 7-day calibration drift standard
    - +/-2.5% Full Span Range (FSR)
- Initial Recommendation
  - Considering an alternative standard for 7-day calibration drift test
  - For example, +/- 0.75 ppm average of differences between the measurement system reading and the Reference Method reading, as an option for an analyzer with FSR no more than 30 ppm

Certification Testing

Key Topic #13

- The following applies to both RECLAIM and non-RECLAIM CEMS
- The CEMS testing contractor approved through the Laboratory Approval Program
- CEMS and Reference Method sampling locations
  - Verification tests for stratified or cyclonic flow must be conducted in addition to concentration stratification tests
- CEMS (analyzer)
  - Seven Day Calibration Drift
  - Response Time
  - Bias Test (For RECLAIM only; no longer applicable)
  - NOx Converter Efficiency
  - Analyzer Span Range
  - Sampling System Bias Check
  - Linearity Check
- Flow Monitor
  - Seven Day Calibration Error
  - Bias Test (For RECLAIM only; no longer applicable)
- Relative Accuracy Test Audit (RATA)

Key Topic #13

Certification Testing – cont.

- Certification testing requirements for RECLAIM and non-RECLAIM CEMS vary only by minor differences, for example:
  - Bias test
  - Relative accuracy (RA) standards
- For facilities exiting RECLAIM, bias test to calculate bias adjustment factor for mass emission is no longer needed

Key Topic #13

Certification Testing – Initial Recommendation

- Remove the requirements specific for RECLAIM (e.g., bias test for bias adjustment factor)
- Streamline the RA standards which will be discussed as a separate topic at a later slide
- Update the Rule 218/218.1 guidance document for certification test accordingly

Key Topic #14

Recertification and Diagnostic Testing

	For Recertification	For Diagnostic Testing
2012 Chapter 2	• Any modification requiring change to the analyzer full span range	• No requirement
218/218.1	• Any change 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	• No requirement
Part 75	• A change that may significantly affect the ability of the system to accurately measure or record the data	• Any change to a flow monitor or gas monitor for which a RATA is not necessary (Check Part 75.20(b) and EPA's "Part 75 Emissions Monitoring Policy Manual" for more details)

✓ Issue: Need to clarify the recertification requirements

Key Topic #14

Recertification and Diagnostic Testing – cont.

- The scope of recertification defined by different rules may vary
- There is rule language for recertification but not diagnostic testing for RECLAIM (2012 Chapter 2) and non-RECLAIM CEMS (218/218.1); In practice:
  - South Coast AQMD Technical Guidance Document R-002 (TGD R-002) provides guidance on testing requirement for each type of CEMS modification
  - Any modification that may affect the description on the CEMS certification letter would require the CEMS application (Form ST-220) and the applicable tests according to TGD R-002

Recertification and Diagnostic Testing – Initial Recommendation

Key Topic #14

- The recertification requirements should not change
- PAR 218/218.1 will provide clarification for recertification requirements
- Staff will assess if the guidance document should be updated

Key Topic #15

Performance Standards for RATA

	Regulation	Relative Accuracy (RA)**			
		NOx	O2/CO2	Emission rate	Flow
Relative Accuracy Test Audit (RATA)*	2012 Chapter 2	20.0% of Reference Method (RM)	20.0% of RM	20.0% of RM	15% of RM
	218/218.1***	20.0% of RM	10% of RM	20% of RM	15% of RM
	Part 60 Appendix B & F	20% of RM	20% of RM	20% of RM	----------
	Part 75 Appendix A & B	10% of RM	10% of RM	----------	10% of RM

*It is an annual test, but may be conducted semi-annually if RA meets 7.5% of RM for RECLAIM and Part 75 CEMS
**This is not including de-minimus or other alternative standards
***Rule 218/218.1 allows the applicant to choose either the Rule 218.1 standards or Part 60 Appendix B &F standards

Key Topic #15

Performance Standards for RATA – Initial Recommendation

- Staff recommends no change to the RA standards in PAR 218/218.1
  - RA as 10% for O2/CO2 (vs. 20% as in Rule 2012)
  - RA for NOx concentration/mass emission as 20% and flow as 15% (same standards in Rule 2012 and PAR 218/218.1)

Key Topic #15

Performance Standards for RATA – cont.

	Regulation	De-minimus or Alternative Standards *			
		NOx	**O2/CO2**	**Emission rate**	**Flow**
Relative Accuracy Test Audit (RATA)	2012 Chapter 2	(If RM ≤5 ppm) 1.0 ppm	(If RM ≤5.0%) 1.0 % O2/CO2	Calculated by concentration and stack flow de-minimus values	(If RM ≤15 fps) 2.0 fps
	218/218.1	1.0 ppm	1.0 % O2	Calculated by concentration and stack flow de-minimus values	2.0 fps
	Part 60 Appendix B & F	10% of the applicable standard	1.0 % O2/CO2	10% of the applicable standard	----------
	Part 75 Appendix A & B	(If RM ≤250 ppm) ±15 ppm (semi-annual test)/±12 ppm (annual test)	±1.0% CO2/O2 (semi-annual test)/±0.7% CO2/O2 (annual test)	----------	(If RM ≤10.0 fps) ±2.0 fps (semi-annual test)/±1.5 fps(annual)

* Part 75 calculates the de-minimus as the difference between measured mean value and reference method mean value;
* Rule 2012 de-minimus calculation takes the difference and also counts the confident coefficient, and it is an absolute value *(abs(d) + abs(cc))*
* There is no specification on this calculation in Rules 218/218.1

Key Topic #15

Performance Standards for RATA – Initial Recommendation - cont.

- Specify calculation method on meeting de-minimus standards
- Retain R218/218.1 de-minimus standards, except:
  - Reduce the current NOx de-minimus standard from 1.0 ppm to a lower level (e.g., 0.5 ppm)
  - Add de-minimus 1.0% for CO2

Recap – Key Topics discussed today

- Initial recommendation was provided for each topic below, and staff will revisit some of the topics in future meetings
  10. PAR 218/218.1 alignment with EPA's Part 75
  11. CEMS data availability threshold
      - Staff will revisit this topic for details of the potential requirements when data availability falls below 95%
  12. CEMS measuring low emissions
      - Staff will revisit this topic for NOx de-minimus standard change
  13. Certification testing
  14. Recertification and diagnostic tests
  15. Performance Standards for RATA

Key topics for the next Working Group Meeting

6. Full Span Range requirements – additional recommendations
16. The option of complying with Part 60 Appendix B & F (alternative to Rule 218.1 standards)
17. Valid hour and Hourly Average
18. Alternative data acquisition when CEMS is out of control
19. Calibration Gas
20. Others

Next Steps

- Next Working Group Meeting – July, 2019
- Public Hearing – December, 2019

❖ CEMS survey: Until further notice the survey mentioned at the previous Working Group meeting will NOT be sent out to affected facilities. Instead, staff will rely upon in-house data and if necessary direct contact with some of the facility operators during the rulemaking process for PAR 218/218.1.

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