Part 75 Overview

CiSCO CEMS Users Group Meeting September 2022

Where do I find part 75?

- All parts referenced within part 75 are found in Title 40 of the Code of Federal Regulations (CFR)
- Within part 75 Title 40 CFR, part 60 Appendices A (test methods) and B (certain location and performance specifications), and part 72 (definitions) are referenced
- https://www.ecfr.gov

For Part 75 key definitions, refer to 40 CFR 72.2

- Calibration gas
- Continuous emissions monitoring systems (CEMS)
- Diluent cap
- EPA Protocol Gas
- QA operating quarter
- Unit operating hour
- Zero air material

What is the purpose of Part 75? Subpart A, General

- Part 75 establishes the monitoring, recordkeeping, and reporting requirements for the Acid Rain Program
- Subpart A (§§75.1-75.8) defines the purpose of the regulation and the extent of its applicability. Subpart A also includes general **Acid Rain Program** provisions, compliance dates, prohibitions
- Acid Rain applicability provisions are found in §72.6

What is the purpose of Part 75? Subpart A, General

- In general, Part 75 was intended for utility owned boilers and combustion turbines serving electrical generators with a rated capacity of greater than 25 MW, selling electricity to the grid (refer to 40 CFR 72.6)
- Part 75 was originally created to require sources to monitor, report, and keep records on SO_2 (lb/hr), NO_X (lb/mmBtu), and CO_2 (tons/hr) emissions (e.g. Acid Rain Program)
- Subpart H of Part 75 was later added for NO_X (lb/hr) reporting (e.g. Cross State Air Pollution Rule (CSAPR))

Compliance Dates, refer to 40 CFR 75.4

- Certification of all Part 75 monitoring systems must be completed within 180 calendar days after a new unit commences commercial operation
- A newly affected unit must also certify all Part 75 monitoring systems within 180 calendar days after the date on which the unit becomes affected
- Certification must be completed on all monitoring systems within 90-unit operating days or 180 calendar days after emissions exhaust through a new stack or reagent is injected into a newly installed flue gas desulfurization control device or add-on NO_X controls

Subpart B, General Operating Requirements

- Subpart B (§§75.10–75.19) presents the general emission monitoring requirements for each pollutant (SO_2, NO_X, etc.)
- Special instructions are given for monitoring at common stack and multiple stack exhaust configurations

General Operating Requirements, refer to 40 CFR 75.10

- Monitoring systems are required to be in operation and monitoring anytime a unit combusts any fuel (refer to §75.10(d))
  - Limited exceptions for quality assurance activities and when firing very low sulfur fuel
- Minimum data capture requirements are found in §75.10(d)(1)

Low Mass Emitter (LME)Monitoring Methodology, refer to 40 CFR 75.19

- LME is an excepted monitoring methodology using a simplified conservative approach to determine all applicable Part 75 pollutants (SO_2 (lb/hr), NO_X (lb/mmBtu) and CO_2 (tons/hr)) , heat input (mmBtu/hr), and operating parameters
- LME is limited to gas and oil-fired units only that emit less than 25 tons of SO_2 and 100 tons of NO_X annually, and 50 tons of NO_X during the ozone season
- Emissions are determined using either default emission rate values found in tables, or a unit-and-fuel-specific emission rate based on testing, historical data, etc.

Subpart C, Monitoring Operation and Maintenance Requirements

- Subpart C (§§75.20-75.24) presents the process for certification and recertification of the required continuous monitoring systems, provides the quality assurance and quality control (QA/QC) requirements for the systems, specifies “out-of-control” periods, and requires bias adjustment of data from SO_2, NO_X, and flow monitors

Initial Certification and Recertification Procedures, refer to 40 CFR 75.20

- 75.20(a), initial certification is required at locations where Part 75 monitoring systems were never previously certified
- 75.20(b), recertification is required whenever a change is made to a CEMS that significantly affects the ability to accurately measure or record emissions (e.g., an analyzer replacement)
- Conditional data provisions allow data to be conditionally validated during the recertification process
- Procedures for both initial and recertification are found in 72.20(c) specifying each required test (e.g. RATA, linearity check, 7-day drift, cycle time, and bias)

Reference Test Methods and CEM Installation Requirements

- Part 75 generally refers to reference test methods found in Appendix A of 40 CFR 60 with notable exceptions (refer to 40 CFR 75.22)
- Install gas monitors at a location where the pollutant concentration and emission rate measurements are directly **representative of the total emissions** from the affected unit, following the procedures in section 8.1.1 of Performance Specification 2 in appendix B to part 60 (refer to 40 CFR 75 Appendix A paragraph 1.1)
- Install volumetric flow monitors at a location that provides **representative volumetric flow over all operating conditions** (refer to 40 CFR 75 Appendix A paragraph 1.2)

Subpart D, Missing Data Procedures

- (§§75.30-37) describes the missing data procedures that are used to determine the appropriate substitute data values, for unit operating hours in which the monitoring systems fail to provide quality-assured data
- For more information on missing data usage see the Monitoring Insights paper at the following link:
  - https://www.epa.gov/sites/production/files/2021-03/documents/monitoring_insights_substitute_data.pdf

Missing Data Substitution Procedures

- Substitute data is used to ensure emissions are not under reported during periods when a CEMS is unavailable either as the result of QA or maintenance activities or failure to conduct or pass a QA test within the specified timeframe or limits
- Specifies the algorithms to use for initial and standard missing data

Missing Data Substitution Procedures

- Missing data uses historical data in certain lookback periods and maximum values as required
- Percent monitor data availability (PMA) is calculated on a monitored system (e.g. SO_2 ppm) or calculated system (e.g. NO_X lb/mmBtu) basis and used to determine which algorithm to use when determining an hourly substitute data value (refer to §75.32)
- Missing values for some parameters (e.g. NO_X (lb/mmBtu), volumetric stack flow (scfh)) are determined using historical lookback periods grouped by load bins, while others (e.g. SO2 (ppm), CO2 (%)) use historical lookback periods without load bin groupings

Subpart E, Alternative Monitoring Systems

- §§75.40-75.48 describes the requirements that must be met for approval of an alternative monitoring system
- Parametric emission monitoring systems (PEMS)
- Use of PEMS requires approval via the petition process specified in §75.66

Subpart F, Recordkeeping Requirements

- §§75.50-75.59 contains the recordkeeping requirements
  - Monitoring plan
  - Hourly operating and control parameter data
  - Emissions
  - Certification, quality assurance and quality control tests

Subpart G, Reporting Requirements

- §§75.60-75.67 contains the reporting requirements. Instructions are provided for submitting notifications, monitoring plans, certification applications, emissions reports, and special petitions to the Administrator
  - Notifications (refer to §75.61)
  - Petitions (refer to §75.66)
- Part 75 submissions must be made by a Designated Representative, an alternate, or an assigned agent

Subpart H, NOx Mass Emissions

- §§75.70-75.75 describes the NO_X mass emission monitoring requirements for sources in NO_X mass emissions reduction programs that adopt Part 75, such as the annual and ozone season NO_X trading programs under the CSAPR rule. Special instructions are provided for sources that report data only during the ozone season

Appendix A ,Specification and CEM Test Procedures

- Appendix A describes CEMS installation and certification test procedures, and provides performance specifications for the CEMS and explains how to set the span and range of CEMS
- Discusses requirements to periodically reevaluate the appropriateness of span, range, maximum concentration defaults, etc.
- Discusses gas RATA test procedures, including stratification testing and acceptance criteria

Appendix B, Ongoing CEM Test Requirements

- Appendix B describes the required on-going CEMS quality assurance tests and procedures, and includes rules for data validation
- Identifies minimum QA/QC plan procedures and records requirements for CEMS, Appendix D, and Appendix E monitoring methods
- Grace periods
- Provides prescriptive data validation procedures
- Requires quarterly volumetric stack flow to load tests
- Discusses potential options for reduced volumetric stack flow RATA testing and how to conduct a load range analysis prior to gas and flow RATAs

Appendix C, Missing Data Estimation Procedures

- Appendix C provides guidelines for parametric and load-based missing data substitution
- Specifies how load bins are determined for unit level and common stack level reporting

Appendix D, Optional SO_2 Methodology

- Gas- and oil-fired units only
- Determination of SO_2 (lb/hr) and heat input (mmBtu/hr)
- Requires fuel flow meters in conjunction with periodic sampling for sulfur and gross calorific value (GCV)
- Discusses how to apply fuel sampling results
- Data substitution procedures

Appendix E, Optional NO_X Methodology

- Gas- and oil-fired peaking units only
- Peaking units only as defined in 72.2
- Also requires use of Appendix D
- Requires periodic stack testing to determine NO_X emission rates at four evenly spaced load levels correlated to heat input
- Retest once every 20 calendar quarters
- No grace periods
- Simplified data substitution

Appendix F, Equations and F-Factors

- Appendix F provides equations for converting raw monitoring data into the appropriate units of measure
- F-factor table
- Diluent cap procedures

Appendix G, Calculating and Estimating CO_2 Emissions

- Appendix G gives procedures for estimating and calculating CO_2 mass emissions
- Most gas and oil-fired units use equation G-4 to determine CO_2 (tons/hr) emissions
- Note that coal units use equation F-11 found in Appendix F to calculate CO_2 (tons/hr) emissions

Questions?

- Question's
- Contact Information:

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