Understanding QA/QC Plan Requirements & Best Practices

Niah Wilson

Environmental Specialist

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Overview

- Regulatory requirements of a QA/QC Plan
- CiSCO’s approach
- Optional inclusions
- Update triggers

Core Responsibilities of a QA/QC Plan

Preventative Maintenance

- Keep a written record of procedures needed to maintain the monitoring system in proper operating condition and a schedule for those procedures. This shall, at a minimum, include procedures specified by the manufacturers of the equipment and, if applicable, additional or alternate procedures developed for the equipment.

Maintenance Records

- Keep a record of all testing, maintenance, or repair activities performed on any monitoring system or component in a location and format suitable for inspection. A maintenance log may be used for this purpose. The following records should be maintained: date, time, and description of any testing, adjustment, repair, replacement, or preventive maintenance action performed on any monitoring system and records of any corrective actions associated with a monitor's outage period. Additionally, any adjustment that recharacterizes a system's ability to record and report emissions data must be recorded (e.g., changing of flow monitor or moisture monitoring system polynomial coefficients, K factors or mathematical algorithms, changing of temperature and pressure coefficients and dilution ratio settings), and a written explanation of the procedures used to make the adjustment(s) shall be kept.

Recordkeeping and Reporting

- Keep a written record describing procedures that will be used to implement the recordkeeping and reporting requirements in subparts E, F, and G and appendices D and E to this part, as applicable.

Core Responsibilities of a QA/QC Plan

Calibration Error Test and Linearity Check Procedures

- Keep a written record of the procedures used for daily calibration error tests and linearity checks (e.g., how gases are to be injected, adjustments of flow rates and pressure, introduction of reference values, length of time for injection of calibration gases, steps for obtaining calibration error or error in linearity, determination of interferences, and when calibration adjustments should be made). Identify any calibration error test and linearity check procedures specific to the continuous emission monitoring system that vary from the procedures in appendix A to this part.

Calibration and Linearity Adjustments

- Explain how each component of the continuous emission monitoring system will be adjusted to provide correct responses to calibration gases, reference values, and/or indications of interference both initially and after repairs or corrective action. Identify equations, conversion factors and other factors affecting calibration of each continuous emission monitoring system.

Relative Accuracy Test Audit Procedures

- Keep a written record of procedures and details peculiar to the installed continuous emission monitoring systems that are to be used for relative accuracy test audits, such as sampling and analysis methods.

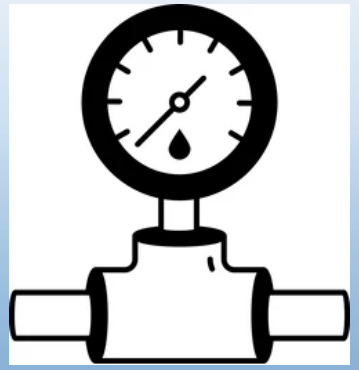
Core Responsibilities of a QA/QC Plan

Parametric Monitoring for Units With Add-on Emission Controls

- The owner or operator shall keep a written (or electronic) record including a list of operating parameters for the add-on SO_2 or NO_X emission controls, including parameters in § 75.55(b) or § 75.58(b), as applicable, and the range of each operating parameter that indicates the add-on emission controls are operating properly. The owner or operator shall keep a written (or electronic) record of the parametric monitoring data during each SO_2 or NO_X missing data period.

Fuel Flowmeter Accuracy/Transmitter Test Procedures

- Keep a written record of the specific fuel flowmeter accuracy test or transmitter accuracy test procedures. These may include: standard methods or specifications listed in and of appendix D to this part and incorporated by reference under § 75.6; the procedures of sections 2.1.5.2 or 2.1.7 of appendix D to this part; or other methods approved by the Administrator through the petition process of § 75.66(c).



Primary Element Inspection Procedures

- Keep a written record of the standard operating procedures for inspection of the primary element (i.e., orifice, venturi, or nozzle) of an orifice-, venturi-, or nozzle-type fuel flowmeter. Examples of the types of information to be included are: what to examine on the primary element; how to identify if there is corrosion sufficient to affect the accuracy of the primary element; and what inspection tools (e.g., baroscope), if any, are used.

Core Responsibilities of a QA/QC Plan

Fuel Sampling Method and Sample Retention

- Keep a written record of the standard procedures used to perform fuel sampling, either by utility personnel or by fuel supply company personnel. These procedures should specify the portion of the ASTM method used, as incorporated by reference under § 75.6, or other methods approved by the Administrator through the petition process of § 75.66(c). These procedures should describe safeguards for ensuring the availability of an oil sample (e.g., procedure and location for splitting samples, procedure for maintaining sample splits on site, and procedure for transmitting samples to an analytical laboratory). These procedures should identify the ASTM analytical methods used to analyze sulfur content, gross calorific value, and density, as incorporated by reference under §75.6, or other methods approved by the Administrator through the petition process of §75.66(c).

CiSCO's QA/QC Plan Approach

- **Detailed by design**: Our QA/QC Plans are detailed and tailored to each site's needs.
- **Audit-friendly**: Audits rarely ask for less; they usually ask for *more* detail.
- **Flexible structure**: Easier to trim content than scramble to add it later.
- **Customization is our core:** The key word in our name is "Custom." Whether you prefer a streamlined plan that just covers the essentials or a more detailed document with added context, we can customize our QA/QC template to fit your CEMS fleet and your preferences.

Examples: Included but Not Required

Preventative Maintenance & Spare Parts

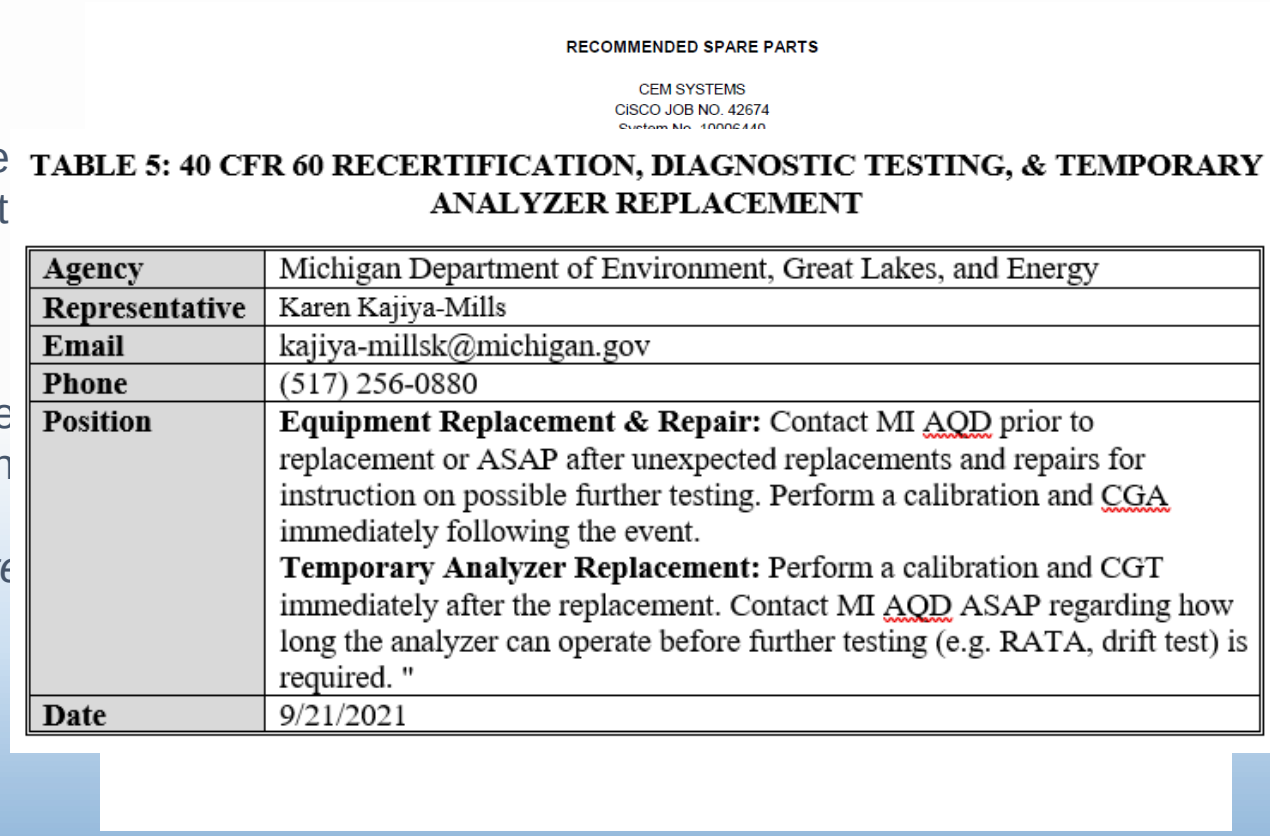
- We include the preventative maintenance schedule, procedures, and spare parts list in the QA/QC Plan appendices for easy access. Alternatively, you may refere the O&M Manual in the QA/QC Plan instead of including t full content.

Organizational Responsibilities

- We outline the roles and responsibilities of plant personne involved in CEMS QA/QC activities. While not required un Part 75 or Part 60, it is recommended in EPA's *Quality Assurance Handbook for Air Pollution Measurement Syste Volume I*. We include it as a best practice, but it can be excluded if not preferred.

State/Local Air District Preferences for Part 60

- We also provide a summary table reflecting your state's preferences for Part 60 recertifications and temporary analyzer replacements, based on our discussions with agency staff. While not required—since Part 60 does not address these scenarios—we consider this information useful to have on record.



RECOMMENDED SPARE PARTS

CEM SYSTEMS
CISCO JOB NO. 42674
System No. 10006440

TABLE 5: 40 CFR 60 RECERTIFICATION, DIAGNOSTIC TESTING, & TEMPORARY ANALYZER REPLACEMENT

Agency	Michigan Department of Environment, Great Lakes, and Energy
Representative	Karen Kajiya-Mills
Email	kajiya-millsk@michigan.gov
Phone	(517) 256-0880
Position	**Equipment Replacement & Repair:** Contact MI AQD prior to replacement or ASAP after unexpected replacements and repairs for instruction on possible further testing. Perform a calibration and CGA immediately following the event. **Temporary Analyzer Replacement:** Perform a calibration and CGT immediately after the replacement. Contact MI AQD ASAP regarding how long the analyzer can operate before further testing (e.g. RATA, drift test) is required. "
Date	9/21/2021

Review & Update Triggers

CEMS Component Replacements

- The QA/QC Plan must be reviewed and updated whenever significant components of the CEMS are replaced, such as analyzers. These changes can affect measurement ranges, maintenance procedures, and spare parts, all of which must be accurately reflected in the plan.

Rule Updates

- Federal, state, or local rule updates are a primary trigger for reviewing and revising the CEMS QA/QC Plan. For example, the 2023 EPA rule update changed the alternative CGA limit to vary based on the analyzer span.

Routine Review

- Conduct a routine review of the CEMS QA/QC Plan on a scheduled basis, typically annually. This review should confirm that practices are consistent with the procedures outlined in the plan.

Questions?

Reggie Williams
Environmental Scientist
CISCO CUSTOM INSTRUMENTATION SERVICES CORPORATION
O: (303) 790-1000
D: (720) 419-0177
https://ciscocems.com
7841 S Wheeling Ct | Englewood, CO 80112
rwilliams@ciscocems.com

Andrew Moscovich
Environmental Engineer
CISCO CUSTOM INSTRUMENTATION SERVICES CORPORATION
O: (303) 790-1000
D: (720) 419-0199
https://ciscocems.com
7841 S Wheeling Ct | Englewood, CO 80112
amoscovich@ciscocems.com

Niah Wilson
Environmental Specialist
CISCO CUSTOM INSTRUMENTATION SERVICES CORPORATION
O: (303) 790-1000
D: (720) 549-4507
https://ciscocems.com
7841 S Wheeling Ct | Englewood, CO 80112
nwilson@ciscocems.com

And Introducing…

Christina Sanchez
Environmental Specialist

CISCO
CUSTOM INSTRUMENTATION
SERVICES CORPORATION

O: (303) 790-1000
D: (303) 649-0161
https://ciscocems.com

7841 S Wheeling Ct | Englewood, CO 80112

csanchez@ciscocems.com