

Question 15.7

Topic: Testing Timelines for Projects That Include Both Construction of a New Stack and Installation of Add-on Emission Controls

Question: When a project includes two “events”, i.e., both new stack construction and installation of add-on SO₂ or NO_x emission controls, what are the timelines for completing the required testing of the CEMS and the data validation requirements?

Answer: Section 75.4(e)(3) allows the owner or operator to either:

☐ Complete all of the necessary CEMS testing required by both events within 90 operating days or 180 calendar days (whichever occurs first) after emissions first exit to the atmosphere through the new stack. Hereafter, this window of time is referred to as “Window # 1”; or

☐ Define a separate 90 operating day/180 calendar day window of time for each event (i.e., Window # 1 for the new stack construction and Window # 2 for the add-on controls installation), and complete all of the testing associated with each event within the applicable window. Window # 2 begins when reagent is first injected into the add-on controls with the unit(s) operating.

Option “(a)”, i.e., completion of all testing within Window # 1, is likely to be used when there is a relatively short interval of time between the date and hour that gases first exit to the atmosphere through the new stack and the date and hour of initial reagent injection---this is the usual case.

However, if for some reason the time interval between those two events is excessively long, Option (b)” may be more advantageous. To determine which tests are required, see Question 15.5.

Special Considerations for Implementing Option (a)

When Option “(a)” above is implemented, data from the uncertified monitoring systems installed on the new stack are considered invalid and substitute data values must be reported until either:

1. All required certification tests have been successfully completed; or
2. The conditional data validation (CDV) procedures of §75.20(b)(3) are initiated by performing probationary

calibration error tests of the monitors as soon as possible after the first injection of reagent with the unit(s) operating. When CDV is used, provided that all required certification tests for a particular monitoring system are passed within Window # 1 with no failures (other than a 7-day calibration error test), data from the monitoring system may be reported as quality-assured, starting at the hour of the probationary calibration error test.

Until Condition “1” or “2” above is met, the appropriate substitute data values are as follows:

☐ If the unit/stack configuration is unchanged²³:

_ In the time interval between the hour that flue gases first go through the new stack and the hour that reagent is first injected with the unit operating, continue using the applicable standard missing data procedures in §§75.33-75.37, for all parameters.

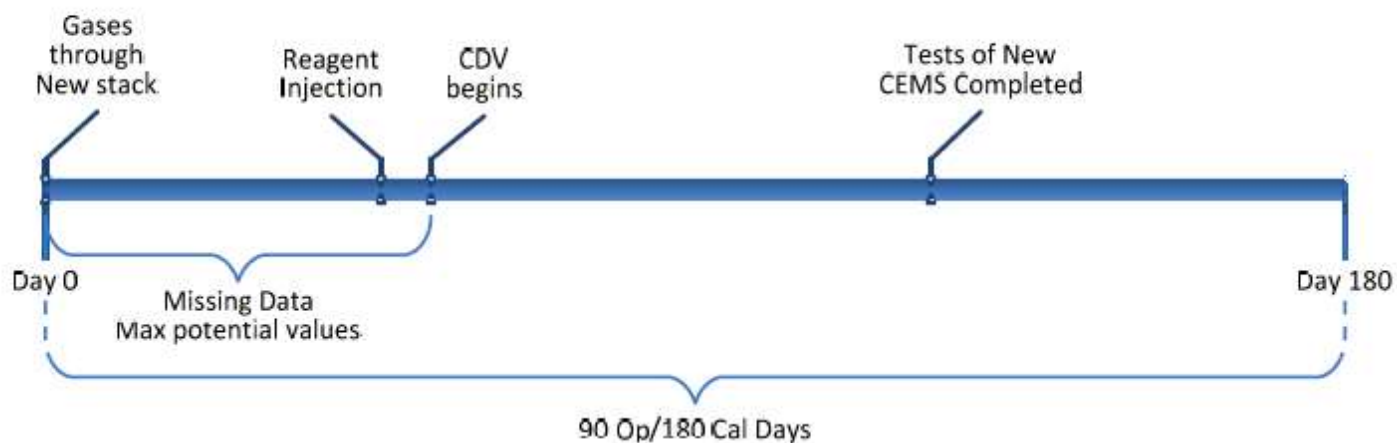
_ In the interval of time between the first injection of reagent and the first hour of quality-assured data²⁴:

- Report substitute data for all parameters except for the pollutant being removed by the control device (i.e., SO₂ or NO_x) according to the applicable procedures in the “Data Validation” section of Question 15.6.
- For the pollutant being removed by the control device (SO₂ or NO_x), because there is no certified SO₂ or NO_x high scale available to provide quality-assured data during the shakedown period, you may either re-start the initial missing data procedures of §75.31 and reset the PMA at the first hour of reagent injection, or continue using the standard missing data procedures until the first hour of quality-assured data is obtained and then re-start the initial missing data procedures and reset the PMA.

☐ If the unit/stack configuration changes²³, then, at the hour when flue gases first flow through the new stack, re-start the initial missing data procedures of §75.31 for all parameters and reset the PMA. Report substitute data for each parameter until the first hour of quality-assured data is obtained.²⁴

The diagram below illustrates Option (a) for a typical FGD installation with new stack construction, where the unit/stack configuration is unchanged and conditional data validation is initiated soon after the initial injection of reagent with the unit(s) in operation:

Option (a)---Single Window



Special Considerations for Implementing Option (b)

When Option (b) is implemented, data from the uncertified monitoring systems installed on the new stack are considered invalid and substitute data must be reported until quality-assured data begin to be reported from these monitoring systems. For each new monitoring system:

- ☐ Use missing data substitution from the hour that flue gas first goes through the new stack (the start of Window #1), until all certification tests of the new monitoring systems are successfully completed, or until a period of conditional data validation is initiated by performing a probationary calibration error test as soon as possible after flue gas first exits to the atmosphere through the new stack. In this missing data period, use the applicable standard missing data routines in §§75.33-75.37 for each parameter if the unit/stack configuration remains the same.²³ However, if the unit/stack configuration changes, re-start the initial missing data procedures in §75.31 and reset the PMA.
- ☐ Perform a RATA of the new CEMS within Window # 1 prior to the first injection of reagent.²⁵ For the RATA of an SO₂, NO_x, or flow rate monitoring system, apply a bias adjustment factor (BAF) of 1.000 during the conditional data period until the hour that the certification RATA is completed; and
- ☐ Complete the rest of the required certification tests of the new monitoring system (see §75.20(c)) within Window # 1, prior to the initial reagent injection²⁷.

☐ Once reagent injection has begun (start of Window #2), follow the procedures in the applicable “Data Validation” section of Question 15.6 for each parameter.

☐ Perform all required tests associated with the control device addition (see Question 15.5) by the end of Window #2.

When certification testing of new monitoring systems is done prior to reagent injection and conditional data validation is used, the CEMS data may be reported as quality-assured, starting at the hour of the probationary calibration error test, provided that all of the major tests (linearity checks, cycle time tests, and RATAs) are passed in sequence, within Window # 1, with no failures. This minimizes the use of missing data substitution. Performing the RATAs when there is no injection of reagent into the add-on emission controls allows data recorded by the new CEMS to be validated in the interval of time between the start of Window # 1 (when gases first go through the new stack) and the start of Window # 2 (when reagent is first injected).

The characteristics of the stack gas matrix (e.g., gas concentrations, temperature, moisture content, concentration and flow profiles) during that time period are substantially different from the characteristics of the matrix when the add-on controls are brought on-line. Therefore, to validate CEMS data in that time period, RATAs that represent the actual (uncontrolled) stack conditions must be performed and passed. If two spans and ranges will be required for the monitor that measures the pollutant being removed by the add-on emission controls (i.e., SO₂ or NO_x, as applicable), certification of the high measurement scale under uncontrolled conditions is sufficient to initiate reporting of quality-assured data from that monitor.

Once reagent injection has begun, §75.4(e)(2)(v) allows data recorded on the certified high scale of the monitor that measures the pollutant being removed by the add-on emission controls (SO₂ or NO_x, as applicable) to be reported as quality-assured for up to 60 operating days after reagent is first injected. This includes data that ordinarily would be required to be reported on the low scale (see Appendix A, sections 2.1.1.4(g) and 2.1.2.4(f)). The rule allows temporary reporting of these data on the certified high measurement scale because it can take several days or weeks to stabilize new add-on emissions controls and to consistently achieve the desired percentage reduction in the SO₂ or NO_x emission levels. During this period of time (known as the “shakedown” period), the variability in the emissions data often makes it difficult or impossible to perform a RATA on the low measurement scale. EPA believes that accepting low readings recorded on a certified SO₂ or NO_x high scale for a relatively short period of time (60 operating days or less) after the initial injection of reagent will not adversely impact the overall accuracy of the emissions data. After the shakedown period:

☐ The provisions in Appendix A, sections 2.1.1.4(g) and 2.1.2.4(f) pertaining to the use of the low measurement scale apply;

☐ Low-scale readings may not be reported as quality-assured either until all of the required tests of the low measurement scale have been performed and

passed or a period of conditional data validation is initiated with a probationary calibration error test of the low-scale, as soon as possible after the first injection of reagent (see §75.20(b)(3)(ii)). If conditional data validation is used and all of the required low-scale tests are passed within Window #2 with no major test failures, the low-scale data may be reported as quality-assured, starting at the hour of the probationary calibration error test.

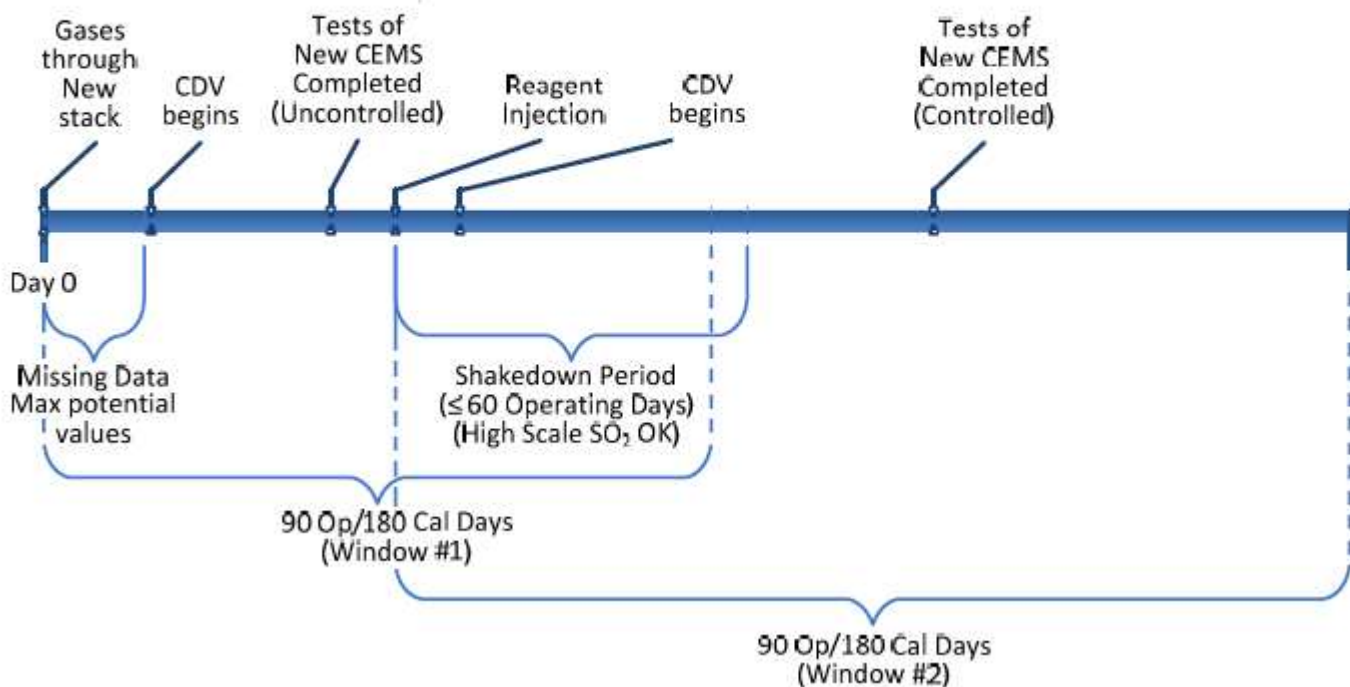
If you elect to use conditional data validation, apply the BAF from the highscales RATA until the hour that the low-scale RATA is completed; and

- Data above the low range that are readable on the certified high scale may continue to be reported as quality-assured.

For the other monitoring systems installed on the new stack that have been certified during Window # 1 in the manner described above, any additional testing requirements that are triggered by operation of the emission control device must be successfully completed within Window # 2, in order to maintain quality-assured data status (see Question 15.5). Conditional data validation may be used for these tests also. If a diagnostic RATA of any of these certified monitoring systems is required, continue to apply the BAF from the RATA that was performed in Window # 1 until the diagnostic RATA is completed.

The diagram below illustrates Option (b) for a typical FGD installation with new stack construction, where conditional data validation is used and quality-assured SO₂ data are recorded on the certified high range during shakedown:

Option (b)---Two Windows



Other Affected Monitoring Systems

Finally, if, in addition to the monitoring systems installed on the new stack, there are other Part 75 CEMS that are impacted by the control device addition, those monitoring systems are subject to the applicable testing requirements described in Question 15.5.

References: § 75.4(e) , §75.20(b), Appendix A, sections 2.1.1.4(g) and 2.1.2.4(f)

History: First Published in 2013 Manual