

Question 15.6

Topic: Data Validation and Reporting Requirements for the Installation of Addon SO₂ and/or NO_x Emission Controls

Question: When add-on SO₂ or NO_x emission controls (e.g., flue gas desulfurization (FGD) systems, selective catalytic reduction (SCR), etc.) are installed on affected units, how should emissions data be reported in the interval of time from the first injection of reagent until the required CEMS testing is completed, and how should missing data substitution be performed?

Answer:

If the control device installation project does not involve construction of a new stack, follow the guidelines in the paragraphs immediately below. If new stack construction is involved, see Question 15.7.

Data Reporting Options Prior to Completing the CEMS Testing

Starting with the first unit operating hour after the initial injection of reagent into the SO₂ or NO_x emission controls¹⁶, and continuing until all required CEMS testing is successfully completed for each relevant parameter and measurement scale¹⁷, the owner or operator may, for that parameter and scale, determine and report emissions data according to §75.4(e)(2), using either:

- ☐ Quality-assured data from a certified CEMS, provided that no additional testing of the CEMS is required by the control device addition (see Question 15.5);
- ☐ The appropriate value(s) for missing data substitution under §§75.31-75.37;
- ☐ Data obtained from EPA Reference Methods under §75.22(b);
- ☐ Conditionally valid data, as described in §75.20(b)(3). Conditional data validation may, if necessary, be used for the entire window of time allotted to complete the necessary testing;¹⁸ or
- ☐ Another procedure approved by petition to the Administrator under §75.66.

In cases where a RATA is required to be performed on a low SO₂ or NO_x measurement scale or range, it is often difficult to consistently record data on the low scale while the emission controls are being optimized. This can make it difficult or impossible to perform the RATA until stable operation of the controls at the desired level of efficiency is achieved. To address this issue, §75.4(e)(2)(v) specifies that if a certified high range is available, data recorded on the high scale may be reported as quality assured for all operating hours, for a period not to exceed 60 unit or stack operating days after the initial injection of reagent into the control device,

whether or not the desired level of emissions control is attained).¹⁹

After the 60 (or less) unit or stack operating day period (“shakedown period”):

- ☐ The provisions of Appendix A, sections 2.1.1.4(g) and 2.1.2.4(f) pertaining to the use of the low scale apply;
- ☐ Low-scale readings may not be reported as quality-assured until all of the required tests of the low measurement scale have been performed and passed, unless a period of conditional data validation (CDV) is initiated with a probationary calibration error test of the low-scale, as soon as possible after the expiration of the shakedown period (see §75.20(b)(3)(ii)). In that case, if all of the low-scale tests are passed within the window of time provided in §75.4(e), 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; and
- ☐ Data above the low range that are readable on the certified high scale may continue to be reported as quality-assured.

For RATAs of new SO₂, NO_x, and flow rate monitoring systems, if conditional data validation is used, apply a bias adjustment factor (BAF) of 1.000 until the hour that the certification RATA is completed. For RATAs of existing SO₂, NO_x, and flow rate monitoring systems, apply the BAF from the previous RATA until the hour of completion of the RATA. The unadjusted values from the CEMS must be used when calculating the relative accuracy and the new BAF (if any) (see Question 8.10).

Data Validation---SO₂ Control Device Installations

For FGD installations, once reagent injection has begun with the unit(s) operating, perform data validation as follows:

(1) For CO₂ and NO_x:

- ☐ If no additional testing of the NO_x or CO₂ monitoring system is required (see Question 15.5), continue to report quality-assured data from the system. If there are any CEMS outages or out-of-control periods, use the standard Part 75 missing data routines.
- ☐ If additional testing of the NO_x or CO₂ monitoring system is required, use the standard Part 75 missing data routines to report substitute data from the hour of first reagent injection until either the required tests are successfully completed or a period of conditional data validation is initiated.

(2) For flow rate, since the historical flow rate data stream is no longer representative (addition of the FGD increases the flow rate significantly), you must re-start the initial missing data procedures of §75.31(c), either:

- ☐ At the first hour of reagent injection with the unit operating; or
- ☐ When the first hour of quality-assured flow rate data is obtained (which will either be the hour of successful completion of the required diagnostic tests or, if conditional data validation is used, the hour of the probationary calibration error test). In accordance with §75.20(b)(3)(i), report the maximum potential flow rate (MPF), as defined in section 2.1.4.1 of Appendix A, until the first hour of quality-assured flow rate data is obtained.

When the initial missing data procedures of §75.31(c) are re-started, this will require you to reset the percent monitor data availability (PMA) and to switch to the standard missing data procedures in §75.33(c) after 2,160 hours of quality-assured flow rate data have been accumulated.²⁰

(3) For SO₂, since the historical SO₂ data stream is no longer representative (addition of the FGD decreases the SO₂ concentration significantly), you must re-start the initial missing data procedures of §75.31(b), either:

- ☐ At the first hour of reagent injection with the unit(s) operating, if you elect not to report SO₂ data recorded on the certified high range as quality-assured during shakedown; or
- ☐ When the first hour of quality-assured SO₂ data is obtained on the low scale after the end of the shakedown period, if you elect to report SO₂ data recorded on the certified high range as quality-assured during shakedown. The first hour of quality-assured data will be either the hour of successful completion of the required diagnostic tests or, if conditional data validation is used, the hour of the probationary calibration error test. In accordance with §75.20(b)(3)(i), use the standard missing data procedures of §75.33(b), until the first hour of quality-assured SO₂ data is obtained.

When the initial missing data procedures in §75.31(b) are re-started, this will require you to reset the percent monitor data availability (PMA) and to switch to the standard missing data procedures in §75.33(b) (with the allowable modifications in §§75.34(a)(3) and (a)(5)) after 720 hours of quality-assured SO₂ data have been accumulated.²⁰

Once collection of quality-assured SO₂ data on the low scale has begun, use of the initial and standard missing data provisions is subject to the conditions specified in §75.34(a)(1), i.e., the appropriate parametric data must be recorded for each hour of missing data to verify proper operation of the SO₂ controls, as described in §§75.34(d) and 75.58(b)(3); otherwise, for any missing data hour(s) in which proper operation of the controls is not documented, you must report the maximum potential SO₂ concentration (MPC) in lieu of applying the applicable missing data algorithms of §§75.31(b), § 75.33(b), 75.34(a)(3), or 75.34(a)(5).

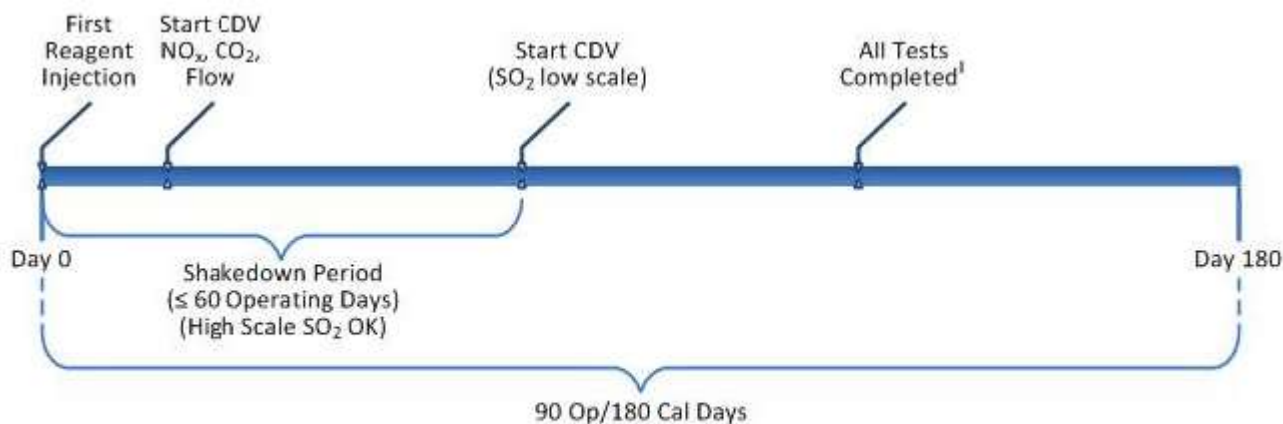
(4) For moisture monitoring systems (if applicable), since the historical

moisture data stream is no longer representative (addition of the FGD increases the moisture significantly), you must re-start the initial missing data procedures of §§75.31(b) and 75.37(c), either:

- ☐ At the first hour of reagent injection with the unit(s) operating; or
- ☐ When the first hour of quality-assured moisture data is obtained (which will be either the hour of successful completion of the required diagnostic tests or, if conditional data validation is used, the hour of the probationary calibration error test. Use the standard missing data procedures in §75.37(d) until the first hour of quality-assured moisture data is obtained ²¹.

When the initial missing data provisions of §§75.31(b) and 75.37(c) are re-started, this will require you to reset the percent monitor data availability (PMA) and to switch to the standard missing data procedures in §§75.33(b) and 75.37(d) after 720 hours of quality-assured moisture data have been accumulated.²⁰

A typical sequence of events for an FGD installation that does not involve new stack construction, where diagnostic testing is required and conditional data validation is used, is shown in the following diagram:



¹ For flow rate, a 3-load RATA is required within the 90 Op/180 Cal day window. For NO_x and CO₂, a stratification test is required; if the test is failed, a diagnostic RATA is required. Conditional data validation may be used for these tests (see Question 15.5).

Data Validation---NO_x Control Device Installations

Once reagent injection has begun, perform data validation as follows:

- (1) For SO₂, CO₂, flow rate, and (if applicable) moisture monitoring systems:

- ☐ If no additional testing of the SO₂, CO₂, flow rate, or moisture monitoring system is required (see Question 15.5), continue to report quality-assured data from the system. If there are any CEMS outages or out-of-control periods, use the standard Part 75 missing data

routines.

☐ If additional testing of the SO₂, CO₂, flow rate, or moisture monitoring system is required, use the standard Part 75 missing data routines to report substitute data from the hour of first reagent injection until the required tests are successfully completed or until a period of conditional data validation is initiated.

(2) For NO_x, since the historical NO_x data stream is no longer representative (addition of the controls decreases the NO_x concentration significantly), you must re-start the initial missing data procedures of §75.31(c), either:

☐ At the first hour of reagent injection with the unit(s) operating, if you elect not to report NO_x data recorded on the certified high range as quality-assured during shakedown; or

☐ When the first hour of quality-assured NO_x data is obtained on the low scale after the end of the shakedown period, if you elect to report NO_x data recorded on the certified high range as quality-assured during shakedown. The first hour of quality-assured data will be either the hour of successful completion of the required diagnostic tests or, if conditional data validation is used, the hour of the probationary calibration error test. In accordance with §75.20(b)(3)(i), use the standard missing data procedures of §75.33(c), until the first hour of quality-assured NO_x data is obtained.

When the initial missing data procedures in §75.31(c) are re-started, this will require you to reset the percent monitor data availability (PMA) and to switch to the standard missing data procedures in §75.33 (with the allowable modifications in §§75.34(a)(3) and (a)(5)) after 2,160 hours of quality-assured NO_x data have been accumulated. 20

Once collection of quality-assured NO_x data on the low scale has begun, use of the initial and standard missing data provisions is subject to the conditions specified in §75.34(a)(1), i.e., the appropriate parametric data must be recorded for each hour of missing data to verify proper operation of the add-on controls, as described in §§75.34(d) and 75.58(b)(3); otherwise, for any missing data hour(s) in which proper operation of the add-on controls is not documented, you must report the maximum potential NO_x emission rate (MER) in lieu of applying the missing data algorithms of §§75.31(c), 75.33(c), 75.34(a)(3), or 75.34(a)(5).

However, units that:

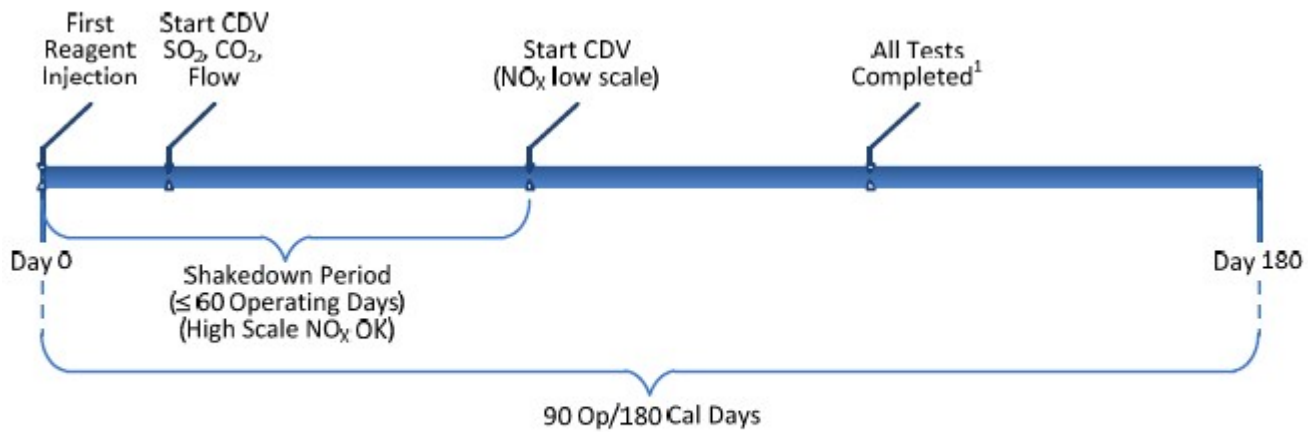
☐ Report emissions data year-round;

☐ Operate their add-on NO_x emission controls seasonally rather than year-round; and

☐ Elect to use the optional missing data procedures in §75.34(a)(2)²²,

are not required to document proper operation of the add-on controls outside the ozone season in order to apply the missing data algorithms during the off-season.

A typical sequence of events for an SCR installation that does not involve new stack construction, where diagnostic testing is required and conditional data validation is used, is shown in the following diagram:



¹ For flow rate, a 3-load RATA is required within the 90 Op/180 Cal day window. For NO_x and CO₂, a stratification test is required; if the test is failed for either parameter, a diagnostic RATA is required. Conditional data validation may be used for these tests (see Question 15.5).

References: § 75.4(e), § 75.20(b)(3), § 75.31, § 75.33, § 75.34, § 75.57, and § 75.58(b)(3), Appendix A, Section 2.1

History: First published in October 2003 Revised Manual; Revised 2013 Manual
²² These