



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

APR 21 2010

Denise M. Stalls,
Designated Representative
Orlando Utilities Commission
P.O. Box 3193
Orlando FL 32802-3193

OFFICE OF
AIR AND RADIATION

Re: Petition to Use Alternative Substitute Data for Units 1 and 2 at the Curtis H. Stanton Energy Center (Facility ID (ORISPL) 564)

Dear Ms. Stalls:

The United States Environmental Protection Agency (EPA) has reviewed the January 19, 2010 petition submitted by the Orlando Utilities Commission (OUC) under 40 CFR 75.66, in which OUC requested to use an alternative to standard missing data substitution for stack gas volumetric flow rate, after failing to complete required 3-load relative accuracy test audits of the flow monitors on Units 1 and 2 at the Curtis H. Stanton Energy Center in a timely manner. EPA denies the specific relief requested in OUC's petition, but approves an alternative data substitution method, with conditions, as discussed below.

Background

OUC owns and operates two 465 megawatt dry bottom wall-fired boilers, Units 1 and 2, at its Curtis H. Stanton Energy Center (Stanton), located in Orange County Florida. The primary fuel for these units is bituminous coal. Both units have dry low NO_x burners installed to control emissions of nitrogen oxides (NO_x), wet lime flue gas desulfurization systems to control emissions of sulfur dioxide (SO₂), and electrostatic precipitators to control particulate emissions. Unit 2 also has selective catalytic reduction to further reduce NO_x emissions. According to OUC, these units are subject to both the Acid Rain Program and the Clean Air Interstate Rule (CAIR) NO_x annual, SO₂, and NO_x ozone season trading programs. Therefore, OUC is required to continuously monitor and report SO₂, NO_x, and carbon dioxide (CO₂) emissions and heat input for these units, in accordance with 40 CFR Part 75.

To satisfy the Part 75 monitoring requirements, OUC has installed continuous emission monitoring systems (CEMS) for SO₂, NO_x, and CO₂, and a stack gas volumetric flow rate monitor. These monitoring systems must be initially certified according to the procedures specified in Part 75, Appendix A. Periodic, ongoing quality assurance (QA) testing of the monitoring systems is also required, under Appendix B to Part 75, to ensure that the monitors continue to generate accurate data.

One of the required QA tests of the stack gas flow rate monitoring system is a relative accuracy test audit (RATA) at three load levels. Section 2.3.1.3(c)(4) in Appendix B to Part 75 requires this 3-load RATA to be repeated at least once every 20 calendar quarters.¹

According to QA records submitted by OUC to EPA, OUC completed successful 3-load flow RATAs at Units 1 and 2 in the second quarter of 2003 (specifically, on May 9, 2003 for Unit 1, and May 23, 2003 for Unit 2). The next 3-load RATA for each of these units was therefore due to be completed either within 20 calendar quarters, i.e., by the end of the second quarter of 2008, or, pursuant to section 2.3.3 (a) of Appendix B to Part 75, by the end of a 720 operating hour grace period following that quarter.

OUC performed successful 2-load flow RATAs (at the high and mid load levels) for Units 1 and 2 in the second quarter of 2008. However, OUC did not complete the required 3-load flow RATAs until the second quarter of 2009 (on May 7, 2009 for Unit 1 and May 8, 2009 for Unit 2), which, for both units, was well beyond the expiration of the grace period. Therefore, data from each flow monitor became invalid, starting with the first operating hour after the grace period expired, and remained invalid until the date and hour of completion of the 3-load flow RATA. The flow rate data were invalid from July 31, 2008, hour 00 through May 7, 2009, hour 01 for Unit 1 and from July 31, 2008, hour 00 through May 8, 2009, hour 03 for Unit 2.

For each of these periods of invalid flow rate data, the standard missing data procedures in §75.33(c) must be used to provide substitute data. The missing data algorithms for stack gas flow rate in §75.33(c) become increasingly conservative as the length of a missing data period increases and the percent monitor data availability (PMA) decreases. When the PMA drops below 80.0 percent, the maximum potential flow rate (MPF) must be reported for each hour of missing data. The PMA for stack gas volumetric flow rate dropped below 80.0 percent on November 24, 2008, hour 01 for Unit 1, and on October 8, 2008, hour 07 for Unit 2.

On January 19, 2010, OUC petitioned EPA for an alternative to the standard missing data procedures of §75.33(c), believing that using the MPF for more than five months (for Unit 1) and nearly seven months (for Unit 2) would grossly overstate the NO_x and SO₂ emissions. OUC requested to use the actual monitored data for the hours when these units were operating within the high and mid load levels and to use substitute data only for the hours when the units were operating at the low load level. The basis of OUC's request was two-fold: (1) for both units, successful 2-load flow RATAs were performed at the high and mid load levels in the second quarter of 2008 (when the 3-load RATAs were due); and (2) in the 12-month period extending from May 2008, when the 2-load flow RATAs were conducted, to May 2009, when 3-load flow RATAs were done, Units 1 and 2 operated at high and mid load nearly 90 percent of the time.

¹ See 73 FR 4312, 4367, Jan. 24, 2008 (amendment 41(i), revising Part 75, Appendix B, section 2.3.1.3(c)(4)).

EPA's Determination

EPA denies OUC's request for Stanton Units 1 and 2 to use actual monitored flow rate data at the mid and high load levels instead of applying standard missing data substitution, in the time intervals extending from the expiration of the RATA grace periods until successful 3-load RATAs of the flow monitors were completed. The Agency also denies OUC's request to apply the standard missing data routines only to the hours in those time intervals when the units were operating at low load.

Notwithstanding these denials, EPA approves the use of an alternative to the standard missing data routines in §75.33(c) for those hours in which the PMA of the flow monitors was below 80.0 percent, and reporting of the MPF would be required: that is, from November 24, 2008, hour 01 through May 7, 2009, hour 01 for Unit 1 and from October 8, 2008, hour 07 through May 8, 2009, hour 03 for Unit 2.

For each unit, the approved alternative substitute data values for the time period in question are the maximum values at each load level (i.e., low, mid, and high), based on a lookback through the 2,160 hours of quality-assured flow rate data immediately preceding the missing data incident. This alternative missing data approach is slightly more conservative than the third tier of the standard missing data procedures, which applies when the PMA is between 80.0 and 90.0 percent. The third tier and the approved alternative method both require a 2,160 hour lookback and the use of load-based maximum values. However, the difference between the two methods is that the alternative substitute data values are the maximum flow rates for an entire load level (low, mid, or high), which includes data from several load bins, whereas the substitute data values required by the third tier are maximum values from the individual load bins.

EPA believes that the approved alternative substitute data values provide reasonable, yet conservatively high estimates of the emissions from Units 1 and 2. This is consistent with the purposes of the standard missing data procedures, which are: (a) to ensure that emissions are not underreported; and (b) to provide a strong incentive for owners and operators to ensure that emissions monitoring systems are properly operated, maintained, and calibrated.

EPA is allowing the use of alternative substitute data for two reasons. First, the standard missing data algorithms grossly overestimate emissions (by about 24 percent in the case of NO_x and by about 23 percent in the case of SO₂). Second, successful 2-load flow RATAs were performed in the second quarter of 2008 at mid and high load (which are the two most frequently used load levels) and the subsequent daily calibration error tests of the flow monitors were consistently passed, indicating that the data recorded by the monitors during the missing data periods are reasonably representative of the actual stack gas flow rates, although not quality-assured.

The following Tables compare and contrast the NO_x and SO₂ mass emissions that OUC would be required to report for Stanton Units 1 and 2 during the missing data incidents, using three different calculation methods: (a) standard missing data; (b) the

approved alternative substitute data methodology; and (c) the unofficial monitored emissions data, which were provided to EPA by OUC on January 21 and March 1, 2010.

Comparison of Monitored SO₂ Emissions vs. Standard and Alternative Missing Data Routines for Stanton Units 1 and 2

Unit	Time Period	Standard Missing Data	Approved Alternative Missing Data	Unofficial Monitored Data
1	7/31/08, hour 00 through 5/7/09, hour 01	2,629	2,466	2,177
2	7/31/08, hour 00 through 5/8/09, hour 03	2,136	1,857	1,685

Comparison of Monitored NO_x Emissions vs. Standard and Alternative Missing Data Routines for Stanton Units 1 and 2

Unit	Time Period	Standard Missing Data	Approved Alternative Missing Data	Unofficial Monitored Data
1	7/31/08, hour 00 through 5/7/09, hour 01	3,821	3,563	3,171
2	7/31/08, hour 00 through 5/8/09, hour 03	2,579	2,171	1,987

Conditions of Approval

The conditions of this approval are as follows:

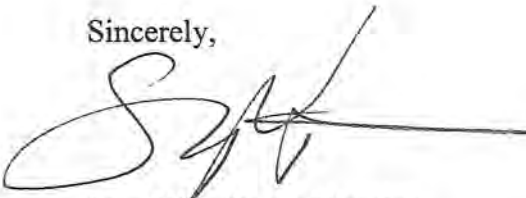
- (1) No later than April 30, 2010, OUC shall resubmit the electronic data reports for Stanton Units 1 and 2, covering the 3rd quarter 2008 through the 4th quarter 2009. All reports shall be submitted in XML format, using the ECMPs Client Tool.
- (2) In the resubmitted electronic data reports, OUC shall apply the standard missing data procedures in §75.33(c) for stack gas volumetric flow rate as follows:

- a. For Unit 1, apply standard missing data substitution to each unit operating hour in the time period extending from July 31, 2008, hour 00 through November 24, 2008, hour 00, and
 - b. For Unit 2, apply standard missing data substitution to each unit operating hour in the time period extending from July 31, 2008, hour 00 through October 8, 2008, hour 06.
- (3) For each unit, OUC shall perform a 2,160 hour lookback through the bias-adjusted, quality-assured stack gas flow rate data recorded immediately prior to the start of the missing data incident (i.e., immediately prior to July 31, 2008).
- (4) For each unit, OUC shall separate the 2,160 hours of quality-assured flow rate data from paragraph (3), above, into three load levels (high, mid, and low) as follows, based on the range of unit operation defined in the electronic monitoring plan:
 - a. For Unit 1, the high load level includes unit loads greater than or equal to 349 MW; the mid load level includes unit loads greater than or equal to 260 MW and less than 349 MW; and the low load level includes unit loads less than 260 MW.
 - b. For Unit 2, the high load level includes unit loads greater than or equal to 357 MW; the mid load level includes unit loads greater than or equal to 274 MW and less than 357 MW; and the low load level includes unit loads less than 274 MW.
- (5) After separating the data from the 2,160 hour lookback according to load level, OUC shall determine the maximum flow rate at each load level (low, mid, and high). These maximum flow rates are the approved substitute data values for the missing data hours in which the PMA was below 80.0 percent.
- (6) OUC shall report the appropriate substitute data value determined in paragraph (5), above, in lieu of reporting the MPF, for each unit operating hour in time periods “a” and “b” immediately below. That is: report the approved low level flow rate for each operating hour in the low load level; report the approved mid level flow rate for each operating hour in the mid load level; and report the approved high level flow rate for each operating hour in the high load level. Manual entry of these substitute data values is permissible:
 - a. For Unit 1, from November 24, 2008, hour 01 through May 7, 2009, hour 01, and

- b. For Unit 2, from October 8, 2008, hour 07, through May 8, 2009, hour 03.
- (7) For both units, OUC may continue to use the approved alternative substitute data values from paragraph (5), above, until the percent monitor data availability (PMA) for stack gas flow rate returns to 80.0 percent, at which point OUC shall resume use of the standard missing data routines in §75.33(c) for stack volumetric gas flow rate.
- (8) OUC shall report a Method of Determination Code (MODC) of “55” for volumetric flow rate in the <MONITOR HOURLY VALUE DATA> record, for each unit operating hour in which an approved alternative substitute data value from paragraph (5), above, is reported.
- (9) In each resubmitted quarterly report in which the approved alternative substitute data values for flow rate are reported, OUC shall state the reason for using MODC “55” in the “Submission Comment” field of the <EMISSIONS> record.
- (10) The adjustments to the reported stack gas flow rates described in paragraphs (1) through (7), above impact the 2008 and 2009 SO₂ and NO_x mass emissions totals for Stanton Units 1 and 2. Under the Acid Rain program, OUC must hold SO₂ allowances equal to the units’ SO₂ emissions for both of these years. Under the CAIR NO_x ozone season and annual programs, OUC is required to hold NO_x allowances equal to the units’ NO_x emissions for 2009, but not for 2008. Therefore, after successfully resubmitting the emissions data for Units 1 and 2 as specified in paragraph (1), above, OUC shall address the 2008 and 2009 SO₂ and NO_x allowance accounting issues for Units 1 and 2 with Mr. Kenon Smith, who may be reached at (202) 343-9164, or by e-mail at smith.kenon@epa.gov.

EPA’s determination relies on the accuracy and completeness of the information in the January 19, 2010 petition and in the supplementary data provided by OUC on January 21, 2010 and March 1, 2010 and is appealable under Part 78. If you have any questions regarding this determination, please contact Art Diem at (202) 343-9340 or Diem.Art@epa.gov. Thank you for your continued cooperation.

Sincerely,



Sam Napolitano, Director
Clean Air Markets Division

cc: Michael Pacoine, Florida DEP
David McNeal, EPA Region IV
Art Diem, CAMD
Kenon Smith, CAMD