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

MAR 28 2003

OFFICE OF
AIR AND RADIATION

John McManus
Designated Representative
American Electric Power
1 Riverside Plaza
Columbus, Ohio 43215-2373

Re: Petition to Use Alternative Substitute Data for SO_2 Concentration at AEP's Gavin Unit 2

Dear Mr. McManus:

EPA has reviewed your December 20, 2002 petition under §75.66(f), and the additional information dated January 17 and 22, and March 4, 2003, requesting to use an alternative method of substituting data for sulfur dioxide (SO_2) concentration at American Electric Power's (AEP) Gavin Plant (Gavin), Unit 2. AEP requested that the alternative missing data procedure be used until the monitor availability (as calculated under §75.32) of the SO_2 continuous emission monitoring system (CEMS) exceeds 90%. As discussed below, EPA approves the petition for Gavin Unit 2 with modifications and conditions.

Background

Gavin Unit 2 is a 1300 MW coal-fired unit, equipped with a flue gas desulfurization system (FGD) for control of SO_2 and subject to Part 75 monitoring under the Acid Rain Program. Under §75.10, AEP is required to install, certify, operate, and maintain an SO_2 CEMS for measuring and recording SO_2 concentrations in parts per million (ppm). AEP installed and certified primary and redundant backup SO_2 CEMS at the unit.

AEP is also required to calibrate and maintain each primary and redundant backup CEMS according to the quality assurance and quality control procedures in Appendix B of Part 75. Appendix B, section 2.3.1.1, requires that AEP perform relative accuracy test audits (RATA) on the CEMS at specified intervals. If the relative accuracy during the previous RATA is less than or equal to 7.5 percent, then AEP must perform the next RATA within at least four quality assurance (QA) operating quarters. Section 2.3.3 of Appendix B, states that if the RATA has not been performed by the end of the QA operating quarter in which it is due, then AEP has a grace period of 720 consecutive unit operating hours in which to complete the required RATA. If the RATA is still not completed within the 720 unit operating hours, then the CEMS data are invalid

and the CEMS is deemed out-of-control starting the first unit operating hour after expiration of the grace period. The invalid data must be replaced by substitute data as determined under Subpart D of Part 75.

AEP performed a RATA on the primary and redundant backup SO_2 CEMS on November 11, 2000. The next RATA was required on the primary and redundant backup SO_2 CEMS by the end of the fourth quarter of 2001, unless AEP claimed the 720 unit operating hour grace period. The 720 unit operating hour grace period expired February 2, 2002 (0300 hours). AEP did not perform the required RATA on Unit 2's CEMS until April 24, 2002 (1600 hours). Therefore, the data from both the primary and redundant backup SO_2 CEMS were invalid for the out-of-control period February 2 (0300 hours) through April 24 (1600 hours), 2002 and must be replaced with substitute data.

Under §75.66(f), a designated representative for a unit with add-on emission controls may petition for the use of the maximum controlled emission rate to substitute for quality-assured data during a monitor outage in lieu of the standard missing data procedures in Subpart D of Part 75, which otherwise may base substitute data on uncontrolled emission rates. To support such a petition, the designated representative must provide: (1) data that indicates that the unit's monitor data availability was under 90.0 percent; (2) data demonstrating that the add-on emission controls (here, FGD) were operating within the ranges specified for proper operation of the controls;(3) a list of the average hourly values for the previous 720 quality-assured monitor operating hours, highlighting the maximum controlled emission rate (here, for SO_2); and (4) information on the operation of the FGD demonstrating that the selected SO_2 concentration does not underestimate the SO_2 concentration during the missing data period.

In its December 20, 2002 petition, AEP stated that the data (showing 2,875 tons of SO_2) for the out-of-control period (February 2- April 24, 2002) from the primary and redundant back-up CEMS should be used as substitute data. AEP also offered to surrender allowances equal to 100 tons in addition to the 2,875 tons measured by the non-quality-assured CEMS. In support, AEP claimed, among other things, that: there was little difference in the mean SO_2 concentrations indicated by data from the primary CEMS and the back-up CEMS; these CEMS passed the required daily calibration error tests and quarterly linearity tests during the out-of-control period; and Gavin Unit 2 has a record of producing quality assured emission data and applying stringent quality assurance/quality control standards. Finally, AEP requested a controlled SO_2 value for of 187.9 ppm as substitute data for out-of-control hours after April 24, 2002 until the unit's monitor availability exceeds 90%.

In a subsequent revision to the petition submitted on March 4, 2003, AEP requested to substitute a maximum controlled SO_2 concentration during the out-of-control period (February 2-April 24, 2002) of 187.9 ppm. In support, AEP provided an analysis of the quality-assured SO_2 concentration data during 720 unit operating hours (January 1-February 2, 2002) before the out-of-control period. According to AEP, the maximum controlled SO_2 concentration for the 720 hours was 187.9 ppm, and the values exceeding 187.9 ppm in 20 of those 720 hours did not

reflect normal operations of the FGD. AEP stated that it no longer has parametric data concerning the operation of the FGD during the 720-hour period. However, with regard to the 20 hours of elevated SO_2 concentration during that period, AEP's designated representative submitted a supplemental document, dated January 22, 2002, certifying that the FGD was not operating within normal ranges during those 20 hours. Additional supporting information was provided in a January 17, 2003 submission. If AEP substitutes 187.9 ppm for hours during the out-of-control period, AEP will have to surrender allowances covering 3,950 tons for that period.

Finally, in the March 2, 2003 petition, AEP stated that it was taking steps to address certain problems evidenced by the circumstances underlying the petition. With regard to the RATA deadline, AEP stated that it will take certain actions to ensure that RATAs are timely completed in the future. For example, AEP will: assign backup personnel for the RATA scheduler; input RATA deadlines to a database that will provide electronic reminders and continuing alerts to personnel; update and issue the RATA schedules monthly rather than quarterly; and install ports and cables at Gavin Units 1 and 2 to facilitate completion of RATAs. With regard to FGD parametric data, AEP will take certain actions to ensure that such data are available for longer periods in the future. For example, AEP will provide for: archiving of FGD parametric data (such as recirculation pump amps and ID fans amps) for 3 years; back-up of the archived data; designation of FGD modules as "online" based on certain operating conditions; and recording of recirculation pump amps as part of normal working day scrubber data collected by the Gavin Chemical Laboratory.

EPA's Determination

AEP's December 20, 2002 petition requested that Unit 2 report as quality-assured data the CEMS data from the unit's primary and redundant back-up CEMS even though the RATA was not performed for either one by the specified deadline. Although AEP claimed that there was a high degree of agreement between the data from the primary and redundant backup CEMS for the out-of-control period, that is not a reliable indicator of accuracy of that data because, under some conditions, both CEMS could generate essentially the same, but erroneous, data. Appendix B of Part 75 requires that the accuracy of each CEMS be confirmed against the EPA reference method during a RATA. The RATA provides assurance that the monitor probes are correctly sited and are not experiencing significant monitoring system biases. Linearity checks and daily calibrations by themselves cannot provide this assurance since they do not check probe locations and do not involve the actual measurement of flue gases. Therefore, EPA maintains that the data from the primary and redundant back-up CEMS during the out-of-controlled period cannot be treated as if they were quality-assured data.

Further, EPA believes that the suggested "penalty" of 100 tons for the CEMS being out-of-control is inconsistent with the general approach under Part 75 of applying increasingly conservative emission data the longer the out-of-control period and the lower the overall availability of the CEMS. This approach to substitute data is important because it provides a strong, consistent incentive for owners and operators to properly operate and quality assure their

CEMS. 58 FR 3590, 3634 (January 1, 1993). In this case, where the out-of-control period extended over almost three months and monitor availability dropped significantly below 90%, the substitute data implied by the suggested 100 ton "penalty"are not sufficiently conservative.

However, EPA approves the request to use maximum controlled SO_2 concentration, as described below, as substitute data for controlled hours, in lieu of maximum potential SO_2 concentration. The quality-assured data for the 720 unit operating hours before the out-of-control period (except for 20 specific hours) showed that Unit 2 had a maximum controlled SO_2 concentration (on January 24, 2002) of 187.9 ppm.

Although AEP identified key operating parameters and their normal ranges, and recorded parametric data for the 720-hour period, for the FGD at Gavin Unit 2, AEP had an archiving period for recorded parametric data of about 1 to 2 weeks and therefore no longer has these data for the 720-hour period. In examining the 20 hours of controlled SO_2 concentration exceeding 187.9 ppm, AEP found that these hours ranged from single hours up to 7 consecutive hours (most being single hours or two consecutive hours) and that the hours both before and after the single or consecutive hours had significantly lower SO_2 concentrations. In short, the 20 hours represented short-term spikes, with ppm values ranging from about 150% to 500% higher than the ppm values for the immediately prior and subsequent hours. Further, AEP identified specific FGD operating conditions that were the likely causes of these short-term spikes. These operating conditions included: a recirculation pump tripping out of operation; startup with proper FGD chemistry not yet established; and a plugged lime slurry line. Finally, based on review of the data concerning the 20 hours of controlled SO_2 concentration exceeding 187.9 ppm, AEP's designated representative certified that the SO_2 concentration values for these hours were for "periods during which the emission control device was not operating within the normal ranges."

In light of the above information and the certification, EPA finds that the 20 hours likely represented periods when Gavin Unit 2's FGD was not operating normally and thus are not representative of the unit's level of controlled SO_2 concentration. EPA therefore agrees that the SO_2 concentrations for these 20 hours should be excluded from the analysis and that the highest SO_2 concentration value for the remaining hours in the 720-hour period (i.e., 187.9 ppm) should be treated as the unit's maximum controlled SO_2 concentration. Further, this is significantly higher than the 92 ppm average hourly SO_2 concentration during the 720-hour period, and substituting 187.9 ppm for each out-of-control hour when the FGD was operating will provide reasonable assurance that SO_2 concentrations for Gavin Unit 2 during the out-of-control period are not underestimated. EPA concludes that AEP must substitute an SO_2 concentration of 187.9 ppm for each hour during the out-of-control period (February 2- April 24, 2002) when Gavin Unit 2's FGD was operating.

In addition, until the earlier of the hour and date on which the unit's monitor availability equals or exceeds 90% or June 15, 2003, the following substitute data must be used for SO_2 concentration for any future out-of-control hours. For such out-of-control hours when Gavin Unit 2's FGD is operating properly and monitor availability is at least 80%, 187.9 ppm must be

used as substitute data for SO_2 concentration, provided that, starting March 1, 2003, the proper operation of the FGD must be documented in accordance with §75.34(a)(1). For such out-of-control hours that do not meet all the conditions in the prior sentence, AEP must use substitute data in accordance with Subpart D of Part 75. EPA's approval of the use of the 187.9 ppm value for the February 2- April 24, 2002 out-of-control period and for future out-of-control hours is conditioned on AEP taking the actions described in the March 4, 2003 petition (at pages 3 and 8-10), and summarized above, concerning RATA deadlines and FGD parametric data.

EPA's determinations in this letter rely on the accuracy and completeness of AEP's submissions on December 20, 2002 and January 17 and 22 and March 4, 2003 and are appealable under Part 78. If you have any questions regarding this correspondence, please contact Louis Nichols at (202) 564-0161.

Sincerely,

Sam Napolitano, Acting Director
Clean Air Markets Division

cc: Cecelia Mijares, Region 5
Todd Brown, OEPA