



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

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JAN 28 2015

OFFICE OF
AIR AND RADIATION

Mr. Alex Baumgardner
Designated Representative
Austin Utilities
400 4th St, NE
Austin, MN 55912

Re: Petition for Approval of an Alternative Data Substitution Methodology for Unit NEPP at Austin Utilities' Northeast Power Plant (Facility ID (ORISPL) 1961)

Dear Mr. Baumgardner:

The United States Environmental Protection Agency (EPA) has reviewed the November 12, 2013 petition submitted under 40 CFR 75.66 by Austin Utilities (AU) requesting approval to use an alternative data substitution methodology for NO_x emission rate at the Northeast Power Plant for certain operating hours in which the electrical load was zero and natural gas was the only fuel being combusted. EPA approves the petition in part, with conditions, as discussed below.

Background

AU owns and operates the Northeast Power Plant (Northeast) in Austin, Minnesota. Northeast Unit NEPP is a dry-bottom, wall-fired boiler serving a 31 MW generator. The unit historically combusted both coal and natural gas but since mid-2012 has combusted only natural gas. According to AU, Unit NEPP is subject to the Acid Rain Program and the Cross-State Air Pollution Rule (CSAPR) annual trading programs.¹ AU is therefore required to continuously monitor and report the unit's sulfur dioxide (SO₂), nitrogen oxides (NO_x), and carbon dioxide (CO₂) mass emissions, NO_x emission rate, and heat input rate in accordance with 40 CFR Part 75. To meet these monitoring requirements, AU uses SO₂, NO_x, and CO₂ continuous emissions monitoring systems (CEMS) and a stack gas flow rate monitor.

Under section 2.2 of Appendix B to Part 75, the ongoing quality assurance (QA) requirements for a NO_x CEMS include a quarterly linearity check. If the linearity check is not performed by the end of a 168-operating-hour grace period following the end of the operating

¹ During the time period at issue in this petition, CSAPR's requirements were not in effect.

quarter in which the check is due, data from the monitor are no longer considered quality-assured, and substitute emission rate data must be reported until a linearity check is performed. If the substitute data period extends for a sufficient time to cause the percent monitor data availability (PMA) to fall below 80 percent, under §75.33(c)(4) the substitute NO_x emission rate data will reflect the maximum potential NO_x emission rate (MER) specified in the unit's monitoring plan. When a unit burns different fuels in different hours, §75.33(c)(7) and (8) allow the unit to use fuel-specific values for the MER. For each fuel, the MER generally must reflect the highest emission rate measured over a range of operating conditions.² However, if the operator has not identified fuel-specific substitute data values in the unit's monitoring plan, then the MER for all hours is based on the fuel associated with the highest emission rates.

In the second quarter of 2011, AU failed to perform a required linearity check of the NO_x monitoring system at Unit NEPP. AU was therefore required to invalidate the NO_x emission rate data from the end of the 168-operating-hour grace period (i.e., starting on July 22, 2011) until the linearity check was completed and passed on September 2, 2011. The monitoring plan for Unit NEPP did not include fuel-specific MER values for purposes of missing data substitution, but instead included a single MER of 0.722 lb/mmBtu associated with the unit's coal combustion. AU believes that using standard substitute data during the entire missing data period in 2011 results in substantial over-reporting of the unit's average NO_x emission rate for the period, because during many of the hours in this period the unit was combusting only natural gas at zero load, and the unit's typical NO_x emission rate under those conditions is a small fraction of 0.722 lb/mmBtu. Therefore, in the November 12, 2013 petition, AU requested permission to use alternative substitute data consisting of a NO_x emission rate of 0.028 lb/mmBtu for the operating hours in which the unit operated at zero load and combusted only natural gas. AU would still use standard substitute data in accordance with §75.33 for all other operating hours, including any hours in which the unit combusted only natural gas and operated above zero load. The requested emission rate is based on the unit's average monitored NO_x emission rate for hours in 2010, 2011, and 2012 when the unit operated at zero load and combusted only natural gas. As support for the requested alternative data substitution methodology, the petition included the data summarized in Table 1 below.

**Table 1 – Average NO_x Emission Rates for Unit NEPP
(Combusting Only Natural Gas, at Zero Load)**

Calendar Year	Operating Hours at Zero Load	Average NO _x Emission Rate (lb/mmBtu)
2010	518	0.026
2011	147	0.030
2012	103	0.035

² See section 2.1.2.1(e) of Appendix A to Part 75. Part 75 also allows the MER to be based on generic default values which are intended to be conservative.

EPA's Determination

As noted above, Part 75 would allow AU to include a fuel-specific MER in Unit NEPP's monitoring plan applicable to all hours in which the unit combusted only natural gas. For any given fuel, the MER generally must be based on the highest quality-assured NO_x emission rate reported over a historical period of at least 720 hours across a range of load conditions. In the case of Unit NEPP, which now combusts solely natural gas at all load conditions, the MER currently stated in the unit's monitoring plan is 0.347 lb/mmBtu. However, while this rate is less than half of the unit's previous coal-based MER of 0.722 lb/mmBtu, it is still considerably higher than the unit's typical NO_x emission rate in hours when the unit combusts natural gas at zero load. Because Unit NEPP combusted only natural gas at zero load for a large fraction of the operating hours during the missing data period in 2011, even if AU were to use a fuel-specific MER of, for example, 0.347 lb/mmBtu for all hours during the missing data period in which the unit combusted only natural gas, the resulting average of the unit's reported hourly emission rates would still substantially overstate the average of the unit's actual hourly NO_x emission rates over the period. In this case, the standard Part 75 data substitution provisions, even with the use of a fuel-specific MER for natural gas during all hours when the unit combusted natural gas, would be unnecessarily conservative.

Under the alternative data substitution methodology requested in the petition, AU would use a fuel-specific NO_x emission rate for only a subset of the missing data hours in which Unit NEPP combusted only natural gas, specifically the hours when the unit operated at zero load, and the applicable fuel-specific emission rate would be based on quality-assured historical emission rate data reported under those same conditions. EPA has examined Unit NEPP's reported NO_x emission rate data from calendar years 2010, 2011, and 2012, considering only operating hours in which natural gas was combusted at conditions of zero load, and was able to confirm the weighted average value of 0.028 lb/mmBtu presented by AU in the petition. However, to ensure that substitute data reflects a reasonable degree of conservatism, section 2.1.2.1(e) of Appendix B to Part 75 provides that a MER based on historical data must reflect not the average but rather the maximum of the relevant historical emission rate data. EPA has therefore examined the hourly NO_x emission rate data reported for Unit NEPP prior to the 2011 missing data period in order to identify the 720 most recent hours during which the unit reported quality-assured data while operating at zero load and combusting only natural gas. The maximum hourly NO_x emission rate reported in this set of hours was 0.072 lb/mmBtu. Accordingly, EPA approves the use of a value of 0.072 lb/mmBtu as the substitute NO_x emission rate for all hours in the missing data period from July 22, 2011 through September 2, 2011 when Unit NEPP operated at zero load and combusted only natural gas.

Conditions of Approval

The conditions of this approval are as follows:

- (1) For Unit NEPP at the Northeast Power Plant, AU shall resubmit the quarterly electronic emissions reports for the third and fourth calendar quarters of 2011. The

resubmissions shall be coordinated with Mr. Craig Hillock, who may be contacted at (202) 343-9105 or by e-mail at hillock.craig@epa.gov; and

- (2) For each hour of the missing data period extending from July 22, 2011, hour 20 through September 2, 2011, hour 10 in which Unit NEPP's electrical load was zero and the unit combusted only natural gas, AU shall report the approved NO_x emission rate of 0.072 lb/mmBtu, using a special method of determination code (MODC) of "55" (i.e., "Other substitute data approved through petition"). Manual entry of MODC 55 is permitted. For all other hours of the missing data period, AU shall use the standard missing data procedures in §75.33(c) for NO_x emission rate.

EPA's determination relies on the accuracy and completeness of AU's November 12, 2013 petition and the associated electronic data reports and is appealable under Part 78. If you have any questions regarding this correspondence, please contact Louis Nichols at (202) 343-9008.

Sincerely,



Reid P. Harvey, Director
Clean Air Markets Division

cc: Loretta Lehrman, USEPA Region 5
Marc Severin, MNPA
Louis Nichols, USEPA CAMD
Craig Hillock, USEPA CAMD

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