

March 5, 2002

Donald Hetherington
Authorized Account Representative
Braintree Electric Light Department
150 Potter Road
Braintree, MA 02184

Re: Petition for alternative monitoring system at Potter II Station

Dear Mr. Hetherington:

EPA has reviewed your October 13, 2001 petition under 310 CMR 7.28(11)(c) and 40 CFR 75.70(h) for an alternative monitoring system for measuring nitrogen oxide (NO_x) mass emissions at Braintree Electric Light Department's (BELD) Potter II Station, ORIS Code 1660. We regret that, due to delays in mail system, EPA did not receive the petition until November 15, 2001. Your petition requests approval for use of an alternative monitoring system based on parametric emissions monitoring (PEMS) for nitrogen oxide (NO_x), in lieu of a continuous emission monitoring system (CEMS) required under Part 75. While we must deny the petition for the reasons stated below, a demonstration to use an alternative monitoring system can be made. To do so, you would need to follow the procedures described in 40 CFR 75.40.

Background

Potter II Station is a combined cycle plant with a combustion turbine and a heat recovery steam generator with no duct burning. The combustion turbine is natural gas- and fuel oil-fired and controls NO_x emissions using a steam injection system. Potter II Station is subject to the Ozone Transport Region NO_x Budget Program (OTC program) and has been monitoring NO_x emission rate based on a PEMS that estimates NO_x based on a relationship between turbine operating parameters (i.e., heat input and ratio of steam injection flow to fuel flow) and NO_x emission rate. BELD used the procedures under Appendix E of Part 75 to develop such relationship. The operating parameters are converted to a NO_x emission rate using the relationship developed for each fuel type. Hourly heat input rate, determined using fuel flow meter, is multiplied by the estimated hourly NO_x emission rate to yield hourly NO_x mass emission. This NO_x emission rate monitoring methodology was allowed under the OTC Program.

Starting May 1, 2002, Potter II Station will become subject to the monitoring requirements of Part 75, Subpart H for NO_x mass emissions under the NO_x Budget Trading Program. Under Part 75, a gas- or oil-fired unit generally needs to install and certify a CEMS that uses a NO_x concentration monitor to measure NO_x emission rate and fuel flow meters to determine heat input. Under Appendix E of Part 75, NO_x emission rate may be determined by conducting certain tests to develop data on a unit's NO_x emission rate and heat input rate and estimating NO_x emission rate based on that data and the unit's heat input rate, as determined using a fuel flow meter. However, because this methodology estimates, rather than measuring, NO_x emission rate, Part 75 limits the use of Appendix E procedures to gas- or oil-fired units that have limited operations, i.e., gas- or oil-fired peaking units. 58 FR 3590, 3644 (Jan. 11, 1993). A peaking unit is a unit that has three-year average capacity factor of 10% or less and an average capacity factor in each of the three years of 20% or less. See 40 CFR 72.2 (definition of peaking unit). Since Potter II Station has a three-year average capacity factor of 11.8%, the unit does not qualify as a peaking unit and cannot use the Appendix E monitoring methodology.

In its petition, BELD proposes to continue to use the PEMS to determine the NO_x emission rate from the Potter II Station. BELD presents a relative accuracy comparison of the NO_x values determined by the PEMS and those from stack testing for natural gas firing and fuel oil firing. BELD also provides a description of the PEMS, proposed certification and accuracy testing procedures, proposed missing data procedures, and proposed quarterly reporting. According to BELD, the NO_x mass emissions determined using the PEMS will be multiplied by a "compliance assurance factor" of 1.05 and then reported.

EPA's Determination

Although Potter II Station was allowed to use the PEMS under the OTC program, units under the NO_x Budget Trading Program must comply with Part 75, Subpart H. Subpart H adopts the procedures in §75.66 for petitions for alternatives to the requirements of Part 75, including the procedures in Subpart E of Part 75 for approval of alternative monitoring systems, such as the PEMS. See 40 CFR 75.66(a) and (l), and 75.70(h).

Braintree's petition does not meet the demonstration requirements in Subpart E for approval of alternative monitoring systems. In particular, under §75.40, the owner or operator must demonstrate that its proposed alternative monitoring system has "the same or better precision, reliability, accessibility, and timeliness" as that provided by a CEMS. 40 CFR 75.40(a). This demonstration must be made by comparing the alternative monitoring system to "a contemporaneously operating, fully certified [CEMS] or contemporaneously operating reference method." 40 CFR 75.40(b). The criteria for precision, reliability, accessibility, and timeliness are set forth in §§75.41-75.44. For an alternative monitoring system (such as the proposed PEMS for Potter II Station) that indirectly quantifies emission values by measuring

inputs, operating characteristics, or outputs and then estimates emissions, the demonstration of precision must include performance of an F-test, a correlation analysis, and a t-test for bias. These tests are described in §75.41(c) and Part 75, Appendix A, Section 7.3

Because Braintree did not make any of these demonstrations, EPA denies the petition. Therefore, at the Potter II Station, BELD must install, certify, and operate a NO_x CEMS under Part 75 unless Braintree can make the necessary demonstrations for approval of an alternative monitoring system under Subpart E of Part 75. Braintree may consult with EPA concerning the details of these requirements if the alternative monitoring system method is chosen.

EPA's determination in this letter relies on the accuracy and completeness of the information in the October 13, 2001 petition and is appealable under Part 78. If you have any further questions or concerns about this matter, please contact Theresa Alexander at (202)564-9747 or alexander.theresa@epa.gov.

Sincerely,

/s/

Brian J. McLean, Director
Clean Air Markets Division

cc: John Nelson, BELD
Ian Cohen, EPA Region I
Sharon Weber, MA DEP
Theresa Alexander, CAMD