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

NOV 25 2003

OFFICE OF
AIR AND RADIATION

Daniel Steen
Designated Representative
Penn Power
76 South Main Street
Akron, OH 44308

Re: Petition to Accept Emission Data Recorded on the Certified High Range During Add-on NO_x Control Device Installation at the Bruce Mansfield Plant (Facility ID (ORISPL) 6094)

Dear Mr. Steen:

This is in response to your May 7, 2003 petition under § 75.66(a), as amended on June 13, 2003, in which Penn Power requested permission to report as quality-assured, certain nitrogen oxides (NO_x) emissions data recorded in the period following the addition of NO_x emission controls to Units 1 and 2 at the Bruce Mansfield, Pennsylvania facility. EPA approves the petition, for the reasons discussed below.

Background

Penn Power owns and operates two coal-fired boilers, Units 1 and 2, at its Bruce Mansfield facility in Pennsylvania. The boilers are affected units under the Acid Rain Program and are also subject to the NO_x Budget Program under 25 Pa. Code Chapter 145. Under these programs, Penn Power is required to continuously monitor and report NO_x emissions from Units 1 and 2, in accordance with 40 CFR Part 75.

Selective catalytic reduction (SCR) control equipment has recently been installed on Units 1 and 2 to reduce NO_x emissions from the boilers. The percentage reduction in NO_x achieved by the SCR controls is great enough that section 2.1.2.4 in Appendix A of Part 75 requires a second (low-scale) measurement range for NO_x on both units, to ensure the continued accuracy of the emissions data.

Penn Power added the necessary low-scale NO_x measurement ranges to Units 1 and 2 and performed the required quality-assurance (QA) tests on the new ranges, beginning on May 15, 2003. However, in the period extending from the initial startup of the SCR controls (i.e., April 4, 2003 for Unit 1 and April 23, 2003 for Unit 2) until the commencement of the low-scale QA tests, NO_x emissions data for Units 1 and 2 were recorded only on the previously-certified high

measurement scales. Penn Power believes that even though the NO_x data recorded during this time period were recorded at the lower end of the high measurement scales, they are suitable for reporting as quality-assured. Therefore, in the June 13, 2003 petition, Penn Power requested that EPA allow these data to be reported for the purposes of the Acid Rain and NO_x Budget Programs. Penn Power proposed to demonstrate the acceptability of the data, by collecting 720 hours of simultaneous NO_x readings on the high and low scales after completion of the low-scale QA tests and performing a statistical analysis of these concurrent NO_x readings for EPA to review. The results of the statistical analysis were submitted to EPA on July 10, 2003.

EPA's Determination

For Bruce Mansfield Units 1 and 2, Penn Power performed a statistical analysis of 720 hours of concurrent NO_x data, which were recorded on the low and high measurement scales, after completing the required QA testing on the low scales. Each of the units has two exhaust stacks, which are separately monitored (i.e., Stacks 1A and 1B and Stacks 2A and 2B). A separate 720-hour data set was analyzed for each stack. For each data set, both the mean difference and the average hourly difference between the high and low scale readings were evaluated. The standard deviation on each measurement range was also determined and an F-test was performed to see whether any of the differences between the high- and low-scale standard deviations were statistically significant. Finally, for each stack, a series of "rolling" 12-hour relative accuracy test audits (RATAs) were simulated using the paired high- and low-scale measurements in the data set.

The results of the statistical analysis show good agreement between the data recorded on the high and low measurement ranges, for all four stacks. Considering only the primary NO_x monitors on each stack, the mean differences between the high and low scale data ranged from 0.2 to 1.4 ppm and the average hourly differences between the NO_x readings ranged from 0.2 to 1.7 ppm. Essentially all (99.9 percent) of the hourly readings on the low and high scales differed by less than 5 ppm. The F-test results indicated that only the data set for Stack 2B showed a statistically significant difference between the standard deviations on the high and low ranges. In all cases, 100 percent of the simulated rolling 12-hour RATAs were passed, according to Part 75 specifications.

In its July 10, 2003 submittal, Penn Power enclosed supplementary graphs for the 720-hour data collection period. The graphs clearly show that for the primary monitors on each of the four stacks, the NO_x data recorded on the high and low measurement scales agree very well and "track" together (i.e., when the low scale readings increase or decrease, the high scale readings change accordingly). For the Stack 2B data set, which is the only data set that showed a statistically significant difference between the high and low range data, the graphical analysis shows that the high scale readings were consistently above the low scale readings.

In view of these results, EPA approves Penn Power's petition to report as quality-assured the NO_x emission data recorded on the high measurement scales at Bruce Mansfield Units 1 and 2, in the time period extending from the startup of the SCR controls (i.e., April 4, 2003 for Unit 1 and April 23, 2003 for Unit 2) until the initiation on May 15, 2003 of quality-assurance testing on

the low measurement scales. The Agency finds that the 720 hours of concurrent NO_x emission data recorded on the high and low scales after completion of the low-scale quality-assurance testing adequately demonstrate the accuracy of the high scale readings and provide reasonable assurance that reporting the high-range data for the time period in question would not result in underestimation of NO_x emissions. On average, the high and low scale readings agreed to within 2 ppm for all of the 720-hour data sets, and where the agreement was the least strong (for Stack 2B), the high scale NO_x readings were conservatively high with respect to the low scale readings.

EPA's determination relies on the accuracy and completeness of the information provided by Penn Power in the May 7, 2003 petition, as amended on June 13, 2002, and the supplementary information provided on July 10, 2003, and is appealable under Part 78. If you have any questions or concerns about this determination, please contact Robert Vollaro, at (202) 564-9116. Thank you for your continued cooperation.

Sincerely,

Sam Napolitano, Acting Director
Clean Air Markets Division

cc: Renee McLaughlin, EPA Region III
Joseph Nazzaro, Pennsylvania DEP
Robert Vollaro, CAMD